National Aeronautics and Space Administration
Langley Research Center

News Researcher

Biweekly Employee and Contractor Publication

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AVOSS Unveiled In Dallas

Team Demonstrates Wake Vortex Spacing System

Instant Exhaust Analysis

New Gas Sensor Will Help Reduce Auto Air Pollution

Attention-Getter

Video Games May Improve Mental And Physical Health

On The Way ... A Web Portal

Two Langley Research Center projects were cited in NASA's list of the top 10 stories of 2000: the Aircraft Vortex Spacing System (AVOSS), which was covered in the July 28, 2000, edition of the *Researcher News* (left), and the interactive, biofeedback system that trains people to change their brainwave activity, which was covered in the Aug. 25, 2000, edition (right).

Top 10 Of 2000

Langley Makes NASA List ... Twice

By BOB JACOBS
NASA Headquarters

NASA has pioneered the future for more than four decades, and the Agency's achievements this past year are marked by a spirit of cooperation never before seen in the history of space exploration.

The dream of the first crew to live on the International Space Station is realized at a time when nations that were once separated by the Cold War are now joined in a project of discovery.

The discovery in 2000 of evidence of flowing water on Mars rekindled hopes of finding life on our planetary neighbor. The images from Mars Global Surveyor also helped fuel the excitement for NASA's long-term exploration plans of the Red Planet.

"We face a new frontier of possibilities and opportunities in 2001," said NASA Administrator Daniel S. Goldin. "NASA is about discovery and that's what we're going to do next year and for many years to come."

For additional information and images from the past year, visit: <http://www.nasa.gov/newsinfo/topten2000.html>.

1 EXPEDITION ONE CREW BEGINS INTERNATIONAL SPACE STATION ADVENTURE

The arrival of the Zvezda service module cleared the way for the Expedition One crew to launch a new era in space history on Oct. 31. American Commander Bill Shepherd and his Russian crewmates, Yuri Gidzenko and Sergei Krikalev lifted off

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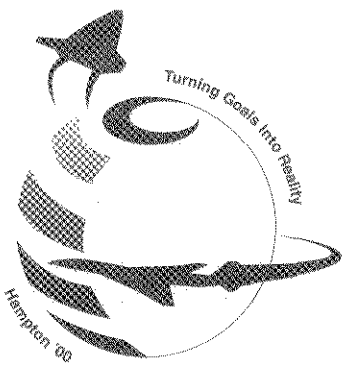

TGIR Winners Honored

Langley Research Center held a special ceremony on Nov. 28, 2000, to honor the members of the teams that won awards at the 2000 Turning Goals Into Reality (TGIR) Conference.

Each year, NASA's Office of Aerospace Technology presents TGIR Awards to the NASA and industry teams that have made significant progress toward achieving its outcome-oriented goals and objectives.

Langley researchers and industry partners received four of the prestigious awards:

- The **Tiltrotor Noise Abatement Team** won the Aviation Noise Reduction Award.
- The **Airborne Information for Lateral Spacing (AILS) Research Team** won the Affordable Air Travel Award.
- The **High-Speed Research Program/Tu-144 Project Team** won the Next Generation Experimental Aircraft Award.
- The **NASA Intercenter Systems Analysis Team (ISAT)** won the Administrator's Award.

The Langley **Tiltrotor Noise Abatement Team** members were: Thomas G. Baxter, Laurence E. Becker, Earl R. Booth Jr., David D. Boyd Jr., Thomas F. Brooks, Thomas S. Bryant, Casey L. Burley, John H. Cline, David A. Conner, Charles A. Davidson Jr., David C. Davis, William R. Dressler,

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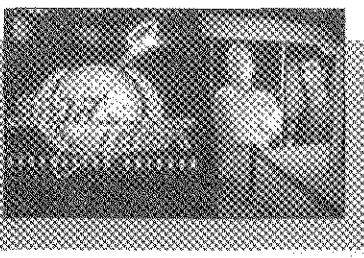
'Star Trek' Exhibit Returns To The VASC Page 5

News Briefs

Around the Agency

NASA SEEKS PROPOSALS FOR PLUTO MISSION

NASA announced on Dec. 20, 2000, that it is seeking proposals from principal investigators and institutions around the world to develop the first mission to Pluto.

This Announcement of Opportunity marks the first time the Office of Space Science has solicited proposals for a mission to an outer planet, such as Jupiter, Saturn, Uranus, Neptune and Pluto, to be selected on a competitive basis similar to the agency's Discovery Program. That program features lower-cost, highly focused missions with rapid development of the scientific spacecraft. The proposals are due to NASA Headquarters by March 19, 2001.

The Announcement of Opportunity is available online at <http://spacescience.nasa.gov/research.htm>. RELEASE: 00-201

NASA GAINS UNPRECEDENTED SOLAR MAX VIEW

As the Sun's stormy season approaches its zenith, solar scientists have the best seat in the house, using the largest coordinated fleet of spacecraft and ground observatories ever assembled to observe these angry outbursts of solar radiation and predict the impact of turbulent space weather.

According to scientists from NASA and NOAA, the Sun is near the peak of its 11-year cycle of activity. Solar maximum is the two-to-three year period around that peak when the Sun's activity is most tempestuous and the Earth is buffeted with powerful solar gusts.

"This is a unique solar maximum in history," said George Withbroe, Science Director for NASA's Sun-Earth Connection Program. "The images and data are beyond the wildest expectations of the astronomers of a generation ago." RELEASE: 00-199

TECHNOLOGY SHINES NEW LIGHT ON HEALING

Doctors at the Medical College of Wisconsin in Milwaukee have discovered the healing power of light with the help of technology developed for NASA's space shuttle. Using powerful light-emitting diodes, or LEDs, originally designed for commercial plant-growth research in space, scientists have found a way to help patients here on Earth.

Doctors are examining how this special lighting technology helps hard-to-heal wounds, such as diabetic skin ulcers, serious burns and severe oral sores caused by chemotherapy and radiation. RELEASE: 00-197

NASA ROBOTS MAY HELP SPINAL CORD PATIENTS

NASA engineers and University of Califorhia, Los Angeles (UCLA), neurophysiologists are creating a robot-like device that could help rehabilitate thousands of Americans with spinal cord injuries.

"We are developing a prototype robotic stepper device that, when complete, will be used as part of rehabilitation that can potentially help some people now wheelchair-bound take their first steps," said Jim Weiss, program manager for collaborative neural repair at Jet Propulsion Laboratory. "This system can do the work of four therapists and help monitor a patient's progress in a controlled manner."

The device, still in the development phase, will look like a treadmill with robotic arms, and will be fitted with a harness to support the patient's weight. RELEASE: 00-194

News Researcher

The Researcher News is an official publication of Langley Research Center, National Aeronautics and Space Administration, Hampton, Va., 23681-2199. It is published every other Friday in the interest of all Langley staff, contractors and retirees and has a circulation of approximately 8,100. It is distributed to all Langley civil service employees, contractors, retirees and on-site university personnel, with limited distribution to NASA Headquarters, other NASA centers and, by special request, to other non-NASA individuals and organizations. Questions related to the content and distribution of the Researcher News should be addressed to Keith Henry, Mail Stop 115, (757) 864-6120. Submit contributions/SDL 026, 055, 110 changes to the editor via e-mail <j.r.roberts@larc.nasa.gov>, fax (757) 864-6477, telephone (757) 864-8150 or Mail Stop 293. Articles, photos and announcements are due at noon the Monday following the date of this issue.

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The privilege of listing announcements in this publication is restricted to the employees, contractors and retirees of the Langley Research Center. Articles must be offered without regard to race, color, religion, sex or national origin. All materials are subject to editing.

People

SESCDP Employees Chosen

Five Langley Research Center employees have been selected to participate in NASA's Senior Executive Service Candidate Development Program (SESCDP).

Patricia L. Dunnington, Bruce J. Holmes, Stephen G. Jurczyk, Jeryl R. Hill and **Cynthia C. Lee** will participate in a series of intensive, developmental experiences over the next 12-18 months, including formal courses and seminars, work assignments and individual mentoring from current SES members.

The SESCDP develops participants' competencies necessary for performance in SES positions, orients participants to the organization and operation of NASA at executive levels, and broadens each participant's understanding of the NASA programs, missions, values and management issues.

Center Names ESSPO Acting DD

Langley Research Center's Office of the Director announced on Dec. 20, 2000, that **Stephen P. Sandford** will serve as the Acting Deputy Director of the Earth and Space Sciences Program Office (ESSPO). The office's new phone number is 864-6122, and its new Mail Stop is 111.

APCPMO Names Program Manager

Langley Research Center's Aero Performing Center Program Management Office (APCPMO) announced on Dec. 14, 2000, the appointment of **Elizabeth Plentovich** as the Langley Manager for work in the NASA Design for Safety Program led by Ames Research Center.

Plentovich previously served as Project Manager in Langley's Intelligent Synthesis Environment Program and Advanced Subsonic Technology Program.

Retirements

Langley Research Center's Atmospheric Sciences Data Center Office will host a retirement social for **Richard L. Bulle** from 1 to 3 p.m. Jan. 16 in Bldg. 1268A, Room 2120. Hors d'oeuvres and refreshments will be served. For more information, contact Gail M. Terry at 864-2698 or <g.m.terry@larc.nasa.gov>.

Langley Research Center's Space Transportation Programs Office will host a farewell social for **David A. Throckmorton** from 5 to 7 p.m. Jan. 22 in the H.J.E. Reid Conference Center. Hors d'oeuvres and refreshments will be served. The cost is $12 per person.

RSVP with payment in cash or check by Jan. 16 to Cindy Mitchell at Mail Stop 173 or Paula Chambers at Mail Stop 117.

Joe Mathis of Langley Research Center's Technology Commercialization Program Office and his wife, Raye, will host his retirement celebration from 2 to 4 p.m. Jan. 26 in the H.J.E. Reid Conference Center.

In Memoriam

Clifton Lee Blizzard Sr.

Clifton Lee Blizzard Sr. died on Dec. 17, 2000. Blizzard served in the U.S. Army and was a veteran of the Korean War. He retired from NASA after 33 years of service.

Daniel W. Bridges

Daniel W. Bridges died on Dec. 7, 2000, at the age of 88. Bridges, a native of Lattimore, N.C., served in the U.S. Army Air Corps during World War II. He retired from NASA after 30 years of service.

Jacklyn Field Fleenor

Jacklyn Field Fleenor died on Dec. 5, 2000, at the age of 72. Fleenor, a native of Newport News, worked for the National Advisory Committee for Aeronautics from 1946 to 1951.

George C. Grady

George C. Grady died on Dec. 20, 2000. Grady served in the U.S. Navy and was a veteran of World War II. He continued his service with the armed forces in the U.S. Army, retiring at the rank of major, and then went on to work for NASA for 25 years.

Joseph Jurscaga

Joseph Jurscaga died on Dec. 25, 2000, at the age of 90. Jurscaga, a native of Newport News, served in the U.S. Merchant Marines before working as a machinist at NASA. He retired from NASA in 1963 after 35 years of service.

Edwin T. Kruszewski

Edwin T. Kruszewski died on Dec. 17, 2000, at the age of 79. Kruszewski, a native of Pittsburgh, retired from NASA in 1979 after 35 years of service. He then taught for three years as a professor in Old Dominion University's School of Engineering.

Virginia May Lazenby

Virginia May Lazenby died on Dec. 25, 2000, at the age of 81. Lazenby, a native of Bedford, worked as an administrative assistant at NASA.

Rose Virginia Russell

Rose Virginia Russell died on Dec. 4, 2000, at the age of 81. Russell, a native of York County, worked in NASA's cafeteria for many years.

Andrew G. Swanson

Andrew G. Swanson died on Dec. 24, 2000, at the age of 72. Swanson, a native of Detroit, retired from NASA in 1988 after 37 years of service. He began his career in 1951 with the National Advisory Committee for Aeronautics and, at the time of his retirement, was chief of Langley Research Center's Management Support Division.

Moody Oliver Topping

Moody Oliver Topping died on Dec. 4, 2000, at the age of 69. Topping, a native of Messick, retired from NASA after 35 years of service.

Charles William Wood Jr.

Charles William Wood Jr. died on Dec. 21, 2000, at the age of 82. Wood, a native of Hampton, served in the U.S. Navy from 1943 to 1946 and graduated from the NASA Apprentice School in 1955. He continued to work for NASA until retiring in 1973.

J. Keith Wray

J. Keith Wray died on Dec. 23, 2000, at the age of 82. Wray, a lifelong resident of Hampton, served in the U.S. Navy and was a veteran of World War II. He retired from NASA in 1984.

From The Office Of Equal Opportunity Programs

Office Hires New EEO Counselor

Nine Collateral Counselors 'Retire'

Langley Research Center's Office of Equal Opportunity Programs (OEOP) recently hired **Janet E. Sellars** as the Center's full-time equal employment opportunity (EEO) counselor.

Sellars

Sellars will be responsible for conducting pre-complaint counseling to aggrieved applicants, employees and contingent workers. She also will serve as the intake counselor for the Center's Alternative Dispute Resolution (ADR) program.

Sellars began her career in EEO with the Department of the Air Force in Germany, where she served as Chief of Military Equal Opportunity. She comes to NASA from the Department of the Navy in Norfolk, where she received awards for her contributions to the ADR program and her outstanding work as an EEO specialist. Sellars also served as a paralegal in the U.S. Air Force.

Sellars earned a bachelor's degree in sociology from the University of the State of New York and a master's degree in human relations from the University of Oklahoma.

Sellars, a native of Maryland, resides in Newport News with her husband and three children.

With Sellars' hiring, Langley's nine collateral duty counselors have "retired." During a ceremony on Dec. 20, 2000, the OEOP recognized the following outgoing counselors for their contributions to the Center:

- Charlie R. Debro, 1997-2000
- D. Elaine Gause, 1998-2000
- Gale A. Harvey, 1997-2000
- Roderick D. Harvey, 1989-2000
- Margaret E. Holloman, 1996-2000
- June R. Howell, 1989-2000
- Elijah C. Kent, 1989-2000
- Donna M. Speller, 1998-2000
- Myra L. Walton, 1997-2000

From The Office Of Security and Environmental Management

Resolving Environmental Concerns

By NICKIE WILLS
SAIC

The thought of a facility audit usually causes sweat and nausea for the facility environmental coordinator (FEC) and facility personnel. That's because the audits usually assess compliance of local, state and federal environmental regulations.

Facility audits focus on air-emission sources, water discharges, chemical inventories and waste accumulation and disposal. In turn, facilities usually only receive feedback and suggestions if there are areas of non-compliance.

Although the audits are still a necessary function of maintaining regulatory compliance, Langley Research Center's Office of Security and Environmental Management (OSEM) also performs multi-media compliance assessments. The difference between the two is that assessments are much more proactive.

Assessments are vital in helping Langley live up to its reputation of research excellence and environmental stewardship. They give the OSEM the opportunity to tailor its efforts to specific facilities depending on their research functions and processes. FECs and facility personnel also have a chance to get answers or clarification on the hows and whys of Langley's environmental reporting requirements.

Facility assessments are useful in basic areas:

- having an accurate assessment of each facility's processes and environmental concerns;
- identifying any training needs or desires in specific environmental areas, as they impact specific facilities; and
- identifying possible pollution prevention projects.

Facility assessments also help to address specific issues:

- Is the Chemical Material Tracking System (CMTS) being used? Are the users comfortable with their knowledge of the system? Would they like more training or customized reports?
- Are there any hazardous materials that are no longer used? Can they be turned into the Reuse Facility for use by another facility?
- Are there less-hazardous product alternatives that could be used? (Streamlined hazardous product use at the Center helps in procurement and environmental reporting initiatives.)
- Are there any air-emission sources being reported that are not in use? Is a facility responsible for equipment they no longer utilize?
- Have recycling needs changed? Are more cans needed, or should the frequency of pickups be adjusted? What types of materials are being recycled from the facility?

If the OSEM and the FEC find compliance concerns during the assessment, everyone works to get them resolved in a timely manner. All of us working together make Langley's environmental program one of NASA's best.

Hopefully, the next time you hear that the OSEM is coming to your facility, you WILL get goose bumps ... the good kind.

For more information on facility assessments and the OSEM's mission and programs, visit the OSEM Web site at <http://osemant1.larc.nasa.gov>.

Employees Make Presentations To AGU

By JULIA COLE
Atmospheric Sciences Competency

and CHRIS RINK
Office of Public Affairs

Two Langley Research Center employees made presentations at the Fall American Geophysical Union (AGU) meeting, which took place in December in San Francisco.

Edward Browell presented his findings from the Sage III Ozone Loss and Validation Experiment (SOLVE), and Linwood Callis presented his findings in the study of Solar-Atmospheric Coupling by Electrons (SOLACE).

SOLVE

For the first time, scientists have a better understanding of the polar clouds that lead to ozone destruction and possibly to a future "ozone hole" over the Arctic.

During SOLVE, scientists determined the extent and properties of polar stratospheric clouds (PSCs) and the amount of ozone destruction in the Arctic. Once this new information is incorporated into chemistry and climate models, scientists will have a better idea of the extent of future ozone destruction in the Arctic.

Browell

Clouds form during cold Arctic winters in the stratosphere — a layer of the atmosphere ranging from about 6 to 30 miles above the ground. In sunlight, these PSCs help release ozone-destroying chlorine from non-harmful gases.

Since Arctic winters may become colder due to climate changes, scientists believe this will lead to more PSCs, which may mean even greater ozone loss and eventually an "ozone hole" in the Arctic.

"This experiment [SOLVE] was very successful because we remotely saw the large-scale characteristics of PSCs aiding in our understanding of their impact on ozone destruction," said Browell, head of the Lidar Applications Group at Langley. "Even though this research is a great step forward, there are still many things to be learned about PSCs."

SOLACE

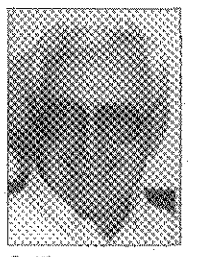
First-time evidence shows electrons precipitating or "raining" from Earth's magnetosphere are destroying ozone in the upper atmosphere.

Scientists have determined that this coupling can create a significant amount of nitrogen oxides highlighting a new aspect of natural ozone destruction.

Billions of electrons spiral back and forth between Earth's poles in the magnetosphere. The magnetosphere is an invisible region around Earth where its magnetic field controls the motions of charged particles (including electrons) in space.

Even though the magnetosphere protects Earth from solar processes, the field itself can be disturbed. Fluctuations in solar wind, for example, can interfere with the magnetosphere and cause electrons to descend into the atmosphere.

"It's important that we know what events affect ozone in the stratosphere, and until now this effect on ozone hasn't been considered important," said Callis, lead research scientist for this work at Langley.


Callis

Current models used to study ozone variations and climate change have not taken this solar-atmospheric coupling into account. Scientists determined that the degree of electron precipitation is directly related to the 11-year solar cycle.

By excluding this cycle in models, interpretation of observed ozone changes could be misleading. Data models including electron precipitation are much more accurate than models that exclude the effects of electrons.

People & Places

TGIR

Continued from Page 1

Curtis G. Fossum, Susan A. Gorton, Ahmed Hassan, Mike Henshaw, William T. Hodges, Nicholos Karangelen Jr., Tim Lavalle, W. Derry Mace, Virgilio M. Marcelo, Michael A. Marcolini, Jaye A. Moen, Arnold W. Mueller, Danny H. Neuhart, Nettie Orie, Devon S. Prichard, Charles K. Rutledge, Odilyn Santa Maria, Howard K. Scudder, Charles D. Smith, Diane Sueber, Curtis Swackhammer, John A. Swain, John J. Treier, Wesley A. Wigginton and Mark Wilson.

The Langley **AILS Team** members were: Terence S. Abbott, Jennifer C. Allen, Dale A. Ashcom, Monica H. Barnes, John S. Barry, Michael A. Basnett, Thomas D. Bernache, Dale R. Bowser, Richard T. Bright III, Ashton D. Brown Sr., Phillip W. Brown, Richard B. Bryant Jr., Wayne H. Bryant, Arnold C. Burcham, Daniel W. Burdette, Wayne W. Burge, William R. Capron, David J. Carrelli, Calvin C. Chandler, Victoria I. Chung, Charles E. Cope, Richard H. Couch, Lucille H. Crittenden, Paul C. Davidson, Alan L. Douglas, Thomas M. Doyle, Wesley C. Easley, Dawn M. Elliott, Dwight E. Elliott, Dennis Frasca, Donna A. Gallaher, Hugh C. Gentry III, Richard B. Gifford, Patricia C. Glaab, John R. Gleason, Donner W. Grigsby, Ryan J. Guillot, John R. Hefner Jr., William H. Hooper Jr., Charles T. Howell III, Brian K. Hutchinson, Artie D. Jessup, Larry E. Johnson, Sally C. Johnson, Sherylene S. Johnson, Frank P. Jones, Jerry R. Karwac Jr., Robert C. Kendall, Patrick S. Kenney, E. Wayne Lee, Gary W. Lohr, William A. Lynn III, Francis G. McGee, David G. McLuer, Mark A. Naff, Nevin M. Oswald, Raleigh B. Perry, Edward M. Radwanski, Laura L. Rine, Vincent E. Roback, James L. Rowe, Darrell W. Sacra, Willis J. Scott, William A. Sellers, Kevin J. Shelton, David A. Simmon, Scott T. Sims, Carey D. Smith, R. Marshall Smith, Paul C. Sugden, Bijan M. Tafazoli, Julie A. Timmons, John S. Tulppo, Harry A. Verstynen, Marvin C. Waller, Brenton W. Weathered, Kelli F. Willshire, Theodore R. Wilz, Joan T. Wright, Michael S. Wusk and Mark W. Wyncoop.

The Langley **Tu-144 Team** members were: Jennifer Allen, Robert A. Baals, Tim D. Bryant, Jeri Carter, Christine Darden, Keith W. Davis, Wayne A. Davis, David T. Fahringer, Charles T. Feigh, Fred Fitzpatrick, Donna A. Gallaher, Warren S. Hartraft, F. Keith Harris, Carol Hayes, H. Stanley Hogge, Noel Hudgins, E. Bruce Jackson, Sheryl Johnson, Ralph Kimbrell, Michael A. Klebitz, Vernie Knight Jr., Paul G. Link, Vanessa Massengill, Jaye Moen, Gene Morelli, Rolando Padilla, Dave Raney, Robert A. Rivers, Stephen A. Rizzi, Delores Russell, Steve Scotti, Brenda M. Sullivan, Doug Taylor, Ronald T. Topping, Paul Trimbrell, Robert Witcofski, Mark W. Wynkoop and Bob Yackovetsky.

The Langley **ISAT** members were: Philip C. Arcara, Brian J. Boland, Peter G. Coen, Vicki K. Crisp, Samuel M. Dollyhigh, Karl A. Geiselhart, Sharon M. Jones, Victor F. Lucas, Kurt W. Neitzke, Erik D. Olson, Lori P. Orozoski, Wendell R. Ricks, Joe H. Shockcor, Theodore A. Talay and Robert E. Yackovetsky.

The awards originally were announced at the 2000 TGIR Conference, which took place May 18-19 at Marshall Space Flight Center.

A complete overview of the awards, details about the research and a full list of the participating NASA Centers and industry organizations honored is on the Internet at <http://tgir.msfc.nasa.gov>.

For more information about the 2000 TGIR Conference, contact Donna Roper at 864-2505 or <d.g.roper@larc.nasa. gov>.

Twelve of Langley Research Center's 15 employees who served on the Langley-led NASA Intercenter Systems Analysis Team (ISAT) were on hand to accept the Turning Goals Into Reality (TGIR) Administrator's Award on Nov. 28, 2000. ISAT received the most prestigious of the TGIR awards for implementing the annual Three Pillar Goals Assessment.

Photo by Sandie Gibbs

Top 10

Continued from Page 1

in a Russian Soyuz spacecraft from the Baikonur Cosmodrome in Kazakhstan to make their new home aboard the International Space Station. <http://www.spaceflight.nasa.gov/station/>

2 EVIDENCE OF LIQUID WATER FOUND ON MARS

Imaging scientists using data from NASA's Mars Global Surveyor camera spacecraft found features that suggest there may be current sources of liquid water at or near the surface of the red planet. Studies of later images by Mars Global Surveyor revealed layers of sedimentary rock that paint a portrait of an early Mars filled with numerous lakes and shallow seas. <http://www.jpl.nasa.gov/releases/2000/marswater.html>.

3 EARTH MAPPING MISSION A STUNNING SUCCESS

The Space Shuttle Endeavour served as an Earth observatory early in 2000 during STS-99. The Shuttle Radar Topography Mission was a breakthrough in the science of remote sensing and produced topographic maps of Earth 30 times as precise as the best global maps in use today. The information collected will help produce one of the most comprehensive and accurate maps of Earth ever assembled. <http://www-radar.jpl.nasa.gov/srtm/>.

4 SOHO SEES TURBULENT SIDE OF THE SUN

A week's advance warning of potential bad weather in space is now possible thanks to the Solar and Heliospheric Observatory (SOHO) spacecraft. With a technique that uses ripples on the Sun's visible surface to probe its interior, SOHO scientists have, for the first time, imaged solar storm regions on the far side of the Sun, the side facing away from the Earth. <http://sohowww.nascom.nasa.gov>.

5 NASA TECHNOLOGY MAY EASE FLIGHT DELAYS AND ENHANCE RUNWAY SAFETY

The Aircraft Vortex Spacing System (AVOSS) can predict aircraft wake turbulence on final approach, so airliners can be spaced more safely and efficiently. NASA's Runway Incursion Prevention System is designed to prevent runway incursion incidents by giving pilots and air traffic controllers earlier warnings. <http://avsp.larc. nasa.gov>.

6 NEAR HAS CLOSE-CALL WITH ASTEROID EROS

The Shoemaker Near Earth Asteroid Rendezvous (NEAR) mission became the first spacecraft to orbit an asteroid on Feb. 15. NEAR's close encounter with the asteroid Eros brought the spacecraft within three miles of the space rock. The mission returned stunning images and other data on the object, which is also known as asteroid 433. <http://near.jhuapl.edu>.

7 TRACE ILLUMINATES SUPERHEATED SOLAR MYSTERY

Giant fountains of fast-moving, multi-million degree gas in the outermost atmosphere of the Sun revealed an important clue in September to a long standing mystery — the heating source that makes the corona 300 times hotter than the Sun's visible surface. NASA's Transition Region and Coronal Explorer captured dramatic images of the immense coils of hot, electrified gas, known as coronal loops. <http://www.gsfc.nasa.gov/GSFC/SpaceSci/sunearth/tracecl.htm>.

8 LARGEST-EVER OZONE HOLE OBSERVED

A NASA spectrometer has detected an Antarctic ozone "hole" (what scientists call an "ozone depletion area") that is three times larger than the entire land mass of the United States, nearly 11 million square miles — the largest such area ever observed. Although production of ozone-destroying gases has been curtailed under international agreements, concentrations of the gases in the stratosphere are only now reaching their peak. Researchers believe it may be many decades before the ozone hole is no longer an annual occurrence <http://jwocky.gsfc.nasa.gov/TOMSmain.html>.

9 BIOFEEDBACK TECHNOLOGY DEVELOPED FOR VIDEO GAMES

A unique interactive system developed for NASA by Eastern Virginia Medical School in Norfolk trains people to change their brainwave activity while playing off-the-shelf video games. This mind-over-matter technique is combined with hand-eye coordination to create video games that can actually improve your health. <http://oea.larc.nasa.gov/news_rels/2000/00-063.html>.

10 NASA OUTLINES TWO DECADES OF MARS EXPLORATION

By means of orbiters, landers, sample return missions and next-generation super rovers, NASA revamped its campaign to explore Mars. The comprehensive exploration proposal is poised to unravel the secrets of the red planet's past environments, the history of Martian rocks, its watery legacy and possible evidence of past or present life. <http://mars.jpl.nasa.gov/>.

From The Office Of Safety And Mission Assurance

Weathering Winter

Learn How To Stay Safe When The Mercury Drops

Wintry weather has arrived. You may look forward to cold weather because it brings back memories of snow and the holiday season. On the other hand, you may dread the thought of winter because you know the hazards that are associated with snow and cold temperatures. Whatever your feelings about winter, it is important to prepare for it by taking some simple precautions.

- Know the symptoms of hypothermia and the signs of frostbite.
- Make sure all furnaces, fireplaces and space heaters are operating properly.
- Install smoke detectors on every level of your home.
- Slow down when you drive on slippery roads.

Hypothermia

Hypothermia occurs when the internal body temperature falls to 95 degrees Fahrenheit or below. It can be fatal if not detected promptly and treated properly. Anyone can become a victim of hypothermia, but infants and the elderly are particularly at risk. People who react abnormally to cold, already suffer from an illness or take medications that interfere with the body's ability to regulate temperature also are susceptible.

When the body temperature drops, the blood vessels near the surface of the body narrow to reduce heat loss. Muscles begin to tighten to make heat. If the body temperature continues to drop, the person begins to shiver. The shivering continues until the body temperature drops to about 90 degrees Fahrenheit. If it drops below that point, a life-threatening situation exists. Early detection of hypothermia improves the chances for a safe and speedy recovery. Some symptoms to watch for are: changes in behavior or appearance, uncontrolled shivering, stiff muscles, a slow, possibly irregular heartbeat, confusion, disorientation, drowsiness, lack of coordination and sluggishness.

The most accurate way to detect hypothermia is to check the body temperature with a low-reading thermometer. When hypothermia is suspected, immediately begin first aid and seek emergency medical assistance. Keep the victim warm with blankets. If the victim is alert, give small quantities of warm food or drink. Do not give alcoholic beverages. Never give liquids or food to someone who is unconscious because they may choke. Do not try to treat hypothermia at home. The condition should be treated at a hospital.

Frostbite

When spending time outdoors in cold weather, be alert for signs of frostbite. Frostbitten skin is whitish and stiff, and the area feels numb rather than painful. If you notice these signs, take immediate action. The parts of the body most affected by frostbite are the ears, wrists, hands, feet, and exposed areas of the face (cheeks, nose, chin, forehead).

To treat frostbite, warm the affected part of the body gradually. Wrap the frostbitten area in blankets, sweaters, coats, etc. If clothing or blankets are not available, place frostbitten hands under your armpits or use your body to cover the affected area. Be careful not to rub frostbitten areas because the friction can damage tissue. If frostbite occurs, take emergency action to begin warming the affected body part and seek medical attention immediately.

Make sure you are dressed properly for the weather. Wear several layers of lightweight clothing rather than one or two layers of heavy garments. Air between the layers of clothing acts as insulation to keep you warmer. Cover your head. You lose as much as 50 percent of your body heat through your head. Wear mittens rather than fingered gloves because the contact of your fingers keeps your hands warmer. Wear warm leg coverings and heavy socks or two pairs of lightweight socks. Cover your ears and the lower part of your face. Cover your mouth with a scarf to protect the lungs from directly inhaling extremely cold air.

Furnace Safety

Move away from the furnace all materials that burn easily, including old rags, wood scraps, sawdust and flammable liquids, such as gasoline and kerosene. Because vapors from flammable liquids ignite easily, store these liquids in tightly capped containers. Change and/or clean your furnace filter. Have a professional check your furnace to be sure it is in good repair. Some furnace services can check to see whether the furnace gets enough fresh air. Many homes are heavily insulated and lack fresh air intake piping. This causes the furnace to burn improperly and can even reduce the oxygen in your home to a dangerously low level. Call a qualified specialist to make repairs; do not attempt to make the repairs yourself.

Fireplace Safety

Have a professional inspect and clean your chimney and flue at least once a year. Carbon monoxide levels can become dangerously high if smoke cannot escape from blocked flues or chimneys. Also, soot in flues and chimneys is highly combustible and can easily ignite, sending a ball of fire from the fireplace into the house. Burn only materials designated for a fireplace. Burning paper can fly out of the chimney, and coal and charcoal release carbon monoxide. Some plastics can emit deadly gases. If you use artificial logs, burn just one at a time because more than one can produce more heat than the fireplace can stand. Always use a fire screen to prevent hot embers from popping out into the room. Do not use flammable liquids to start or accelerate any fire. Before you go to sleep, be sure the fire is out. **Never** close the damper with hot ashes in the fireplace. A closed damper helps the fire to heat up again and forces toxic carbon monoxide into the house. Each time you clean the fireplace, put the ashes in a metal container and then deposit the ashes in a safe location.

Space Heater Safety

Place space heaters at least three feet from any surfaces or materials that burn easily. Never use gasoline or diesel fuel in a kerosene fuel space heater. Use only space heaters that shut off automatically if tipped over. If the heater is not vented, turn it off when you go to bed. Refueling of kerosene heaters should be done outdoors. Never fill the heater while it is operating or hot. Avoid overfilling when refueling; cold fuel may expand in the tank as it warms up and spill out. Check electrical heaters for frayed cords or broken filaments.

Smoke Detectors

Smoke detectors should be installed on every level of your home. Purchase a type of smoke detector that has been approved by Underwriters' Laboratories or other recognized testing laboratories. At least once each year, change the batteries. Periodically test all alarms to make sure they are working.

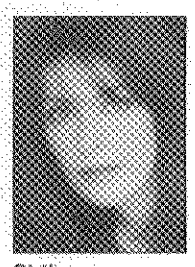
Safe Winter Driving

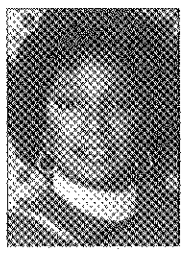
Fewer daylight hours and low temperatures may produce slippery road conditions that make winter the most hazardous driving season. The key word is "slow." Drive slowly and increase your following distance. Brake gently with a slow, steady stroke, repeated as necessary to maintain control of the car. If your car is equipped with an anti-lock braking system, press the brake and hold the brake to the floor. Do not "pump" the brakes. Brake early when coming to an intersection or stop. Approach bridges, shaded spots and overpasses slowly because they remain icy after the rest of the road is clear and dry. If you begin to slide, do not hit the brakes. Keep a firm grip on the steering wheel and steer the car in the direction you want the front to go. Do not touch the brakes or gas until the tires regain traction. Do not use cruise control.

If the weather is bad, before you start even a short trip, check the lights, heater, wiper blades, antifreeze and gas tank. If you are stranded, do not panic. Turn on the emergency signal flashers or hang a cloth from the radio aerial or car window. Remain in the car and wait for help to arrive. Run the car engine to keep warm, but do so sparingly to conserve fuel. Also, remember to crack a window for proper ventilation, and keep the exhaust pipe cleared of snow. Do not let everyone in the car sleep at the same time. One person should watch for rescue crews. To maintain body heat, exercise and keep active as much as possible while remaining inside the car. Be careful not to overexert.

'Star Trek' Exhibit Returns To VASC

Actresses Marina Sirtis and Nichelle Nichols will make special appearances at the Virginia Air and Space Center (VASC) to help promote "Star Trek: Federation Science," a traveling exhibit making an encore visit from Jan. 27 through April 30.


Sirtis


Nichols

Sirtis, who plays Counselor Deanna Troi on "Star Trek: The Next Generation," will be on hand for the Opening Gala, which will take place from 7 to 10 p.m. Jan. 26. The event will feature music by The Strolling Silver Strings and a presentation of the IMAX film "Alien Adventure."

Nichols, who played Lt. Uhura on the original "Star Trek" television series, will be the guest of honor at "Evening with Uhura," which will take place from 7 to 10 p.m. Feb. 23. The event, which is being held in conjunction with Black History Month, will feature a presentation by Nichols on her experiences as a cast member of the ever-popular sci-fi series. The event also will feature music by All City Jazz Ensemble and a presentation of the IMAX film, "Destiny in Space," which is narrated by Leonard Nimoy.

Tickets for the Opening Gala are $30 per person, and tickets for the "Evening with Uhura" are $25 per person. Tickets for both events are $40 per person. Tickets can be reserved by calling 727-0900 ext. 741. All proceeds from the events will go toward the VASC's educational programs.

Admission to the exhibit is included in regular exhibit admission: $6.50 for adults, $5.50 for seniors, military and NASA personnel and $4.50 for children (3-11).

The Center is open from 10 a.m. to 5 p.m. daily. For more information, call 727-0900 or visit the VASC Web site at <www.vasc.org>. The VASC is Langley Research Center's official visitor center.

AdVentures

CLASSIFIED

FOR SALE: '98 Mitsubishi Eclipse GS, automatic, CD, sunroof, super clean, 35,000 miles, $14,350. Call 826-6890 and leave a message.

FOR SALE: '89 Mercedes 190E, tan with leather interior, AC/heat, new tires, ABS, AM/FM cassette player, a great second car or a car for a student. $5,500, negotiable. Call 675-1284.

FOR SALE: Mechanical hospital bed, $300; one 2,000-watt electric baseboard heater, $20; four 1,500-watt electric baseboard heaters, $15 each; new mill-finish front storm door, $20; used storm door, $15. Call 723-6142.

FOR SALE: Rawlings softball glove, 13.5 inch, fastback model, basket web, deep well pocket, soft tex lining. Used for backyard catch only. Excellent condition. $35. Call 456-9563.

WANTED: Working Apple/Macintosh monitor for a Power Mac. Any screen size. Call 833-6799.

❖ ❖ ❖

The next edition of the *Researcher News* will be published on Jan. 26. Please send submissions to <l.r.roberts@larc.nasa.gov> by Jan. 16.

VASC Recruiting Volunteer Guides

The Virginia Air and Space Center (VASC) is recruiting adult volunteers to serve as tour guides on weekdays and weekends. Generally, weekday volunteers are asked to work one half-day (four hours) each week, and weekend volunteers are asked to work two half-days each month. The VASC provides all necessary training. The first training session will be held at 9:15 a.m. **Jan. 13**.

The VASC also is seeking volunteer assistants for the NASA Langley Educator Resource Center and for administrative services, special events and children's programs. For more information, contact Bert Smith at 727-0900 ext.735 or <bsmith@vasc.org>.

The VASC is Langley Research Center's official visitor center.

JIAFS Registration Still Open

George Washington University's Joint Institute for Advancement of Flight Sciences (JIAFS) at Langley Research Center offers master's, engineer's and doctorate degrees in aeroacoustics, aeronautics, astronautics, fluid mechanics and thermal sciences, and structures and dynamics. Registration for the spring 2001 semester continues from **Jan. 16-19**. For a course schedule or more information, contact the JIAFS office at 864-1982 or <jiafs@ larc.nasa.gov> or visit <http://www.seas.gwu.edu/~jiafs/spring.html> on the Web.

Mammograms Offered On-Center

Langley Research Center's Management and Employee Support Branch will host mammographic exams on **Jan. 17, 22, 23, 29** and **30** and on **March 8, 21** and **26**.

Langley employees, contractors and retirees — and their family members — are eligible for the exams. To schedule an appointment, call the Riverside Diagnostic Center at 594-3900. Time spent at the exam may be charged to J.O. B1008. The cost is $75. Payment may be made by cash, check or Visa/MasterCard.

For more information, call Langley's Management and Employee Support Branch at 864-3194.

MCLT Recruiting New Members

Langley Research Center's Multi-Cultural Leadership Team (MCLT) is recruiting new members. MCLT members attend regularly scheduled monthly meetings, an annual training retreat and other MCLT activities. Representation on the MCLT will require approximately 5 percent of an employee's time; the membership term is three years.

Employees interested in serving on the MCLT need to be nominated by their Supervisors or Organizational Unit Managers. Nomination forms are available from Stephen Scotti at <s.j.scotti@larc.nasa.gov>. The nomination deadline is **Jan. 19**.

All membership requests will be carefully and confidentially evaluated with consideration also given to MCLT membership diversity (cross-section of organizational units, skill codes, ethnicity, sex, etc.).

Volunteers Needed For Road Race

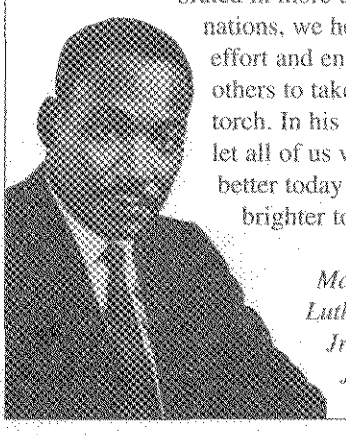
Langley Research Center's Office of Public Services is recruiting volunteers to assist with the 10th annual Pomoco Hampton Coliseum Road Race on **Feb. 2-3**. Volunteers will be needed at the following times:

- from 4 to 9 p.m. **Feb. 2** for package pick-up;
- from 6 to 10:30 a.m. **Feb. 3** for package pick-up, registration and set-up;
- and from 8 a.m. to 12:30 p.m. **Feb. 3** for water stops and the information desk.

All volunteers will receive T-shirts and are requested to attend an organizational meeting at 6 p.m. **Jan. 30** at Hampton Coliseum. To volunteer, contact The Volunteer Center at 262-0190 or <tvcnn-va@attglobal.net>.

The Man, The Dream

Martin Luther King Jr. dreamed of peace and equality for all mankind. He believed everyone should have the freedom to reach for higher goals and the opportunity to climb to greater heights. On the anniversary of his birth, celebrated in more than 100 nations, we honor his effort and encourage others to take up the torch. In his memory, let all of us work for a better today and a brighter tomorrow.



Martin Luther King Jr. Day is Jan. 15.

National Aeronautics and Space Administration

Langley Research Center
Hampton, Virginia 23681-0001

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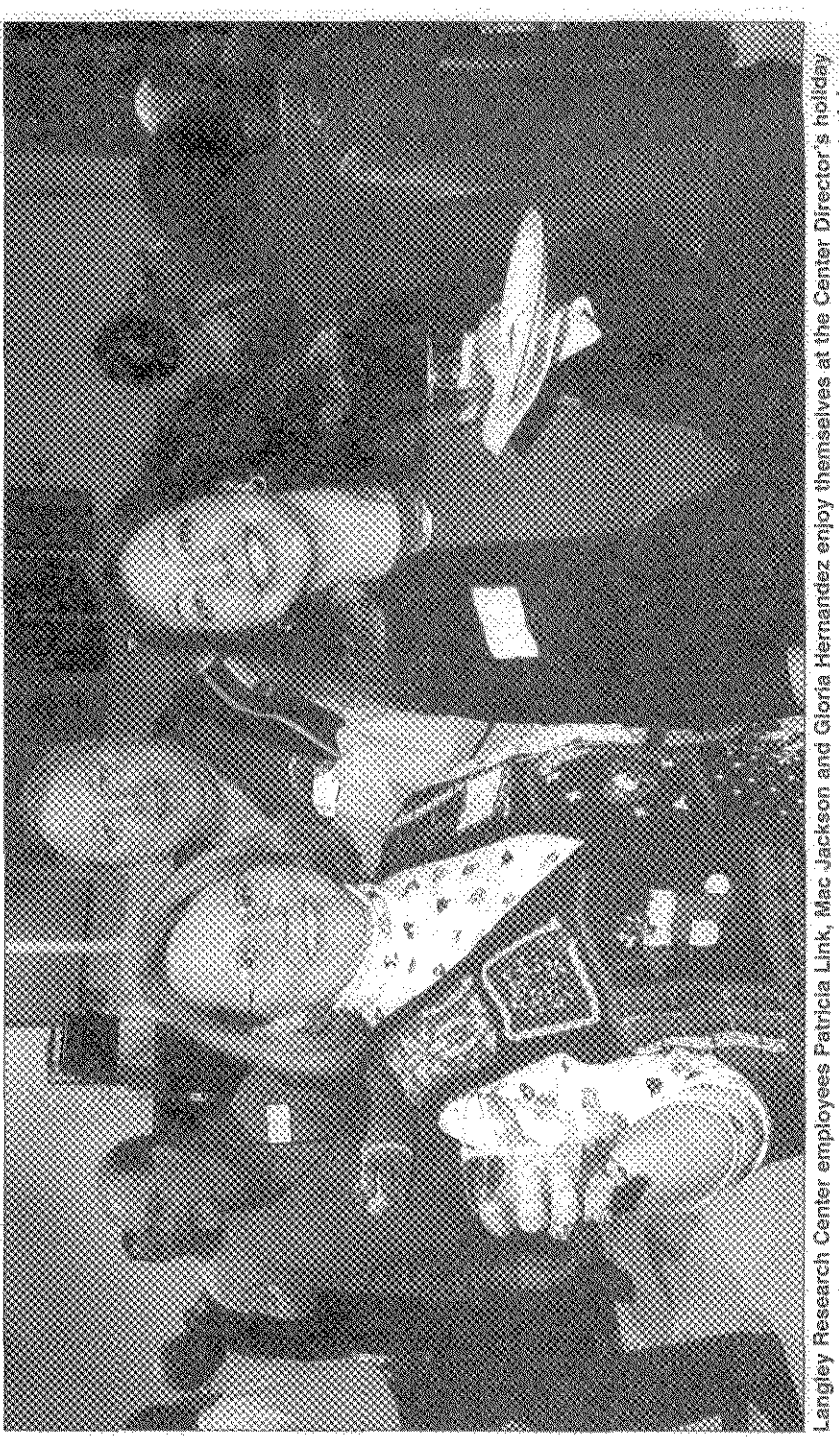
Researcher News

Center Snapshot



Langley Research Center employees Patricia Link, Mac Jackson and Gloria Hernandez enjoy themselves at the Center Director's holiday reception on Dec. 15, 2000, in the H.J.E. Reid Conference Center. The annual event was sponsored by the Langley Federal Credit Union and the Langley Activities Association.

Photo by Jeff Caplan

National Aeronautics and
Space Administration
Langley Research Center

News Researcher

Biweekly Employee and Contractor Publication

Volume 15 ❖ Issue 2 ❖ Jan. 26, 2001

Langley's Lancair

Center Takes Delivery Of Columbia 300

By JIM ROBERTS
Researcher News editor

Langley Research Center took delivery of a new Lancair Columbia 300 on Jan. 11 in Bend, Ore.

The plane, a product of NASA's Advanced General Aviation Transport Experiments (AGATE) technologies, is an Instrument Flight Rules (IFR)-certified, all composite, four-place aircraft capable of flying 220 miles per hour.

"The event was a pinnacle experience for many of us who have toiled for eight years to make it possible to build and deliver a state-of-the-art airplane incorporating virtually every technology that NASA has developed over the past 25 years," said Bruce Holmes, manager of NASA's General Aviation Program Office, which is headquartered at Langley. "To see it with NASA colors and tail number was a moving experience."

Holmes said the Columbia 300 and two other

Continued on Page 5

Lancair President and CEO Lance Neibauer (left) turns over the keys of a new Lancair Columbia 300 to NASA's Bruce Holmes on Jan. 11 in Bend, Ore.

Photos courtesy of Aero-News Network

Reminder: @LaRC Launches Feb. 5

@LaRC, the Langley Research Center Web portal featured in the Researcher News on Dec. 12, 2000, will make its debut on Feb. 5.

The Web site, <http://atlarc.larc.nasa.gov/>, will combine the various forms of electronic communication currently used on-Center in a compartmentalized format, providing timely information in channels like "@LaRC News Bulletins," "Hot@LaRC" and "Today@NASA" and handy reference links like "Find a Person," "Langley Management System" and "Employee How To." The site also will include content from and links to a new, Internet-based edition of the *Researcher News*.

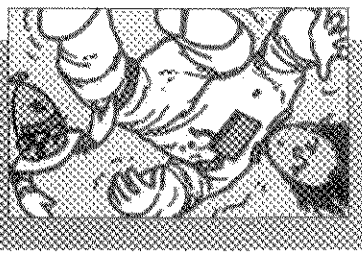
@LaRC will be interactive — allowing employees to contribute content — and accessible only to registered hosts in the <larc.nasa.gov> domain. Center employees with an authenticated Langley Remote Access (LaRA) account will have access to @LaRC off-Center.

Michael O'Hara, the Lead for Langley's Electronic Communication Implementation Team, encourages all employees to make @LaRC their home page.

"I am certain if Center employees give the site a chance they will be very pleased with the ease and convenience of information flow that will be available to them," O'Hara said.

Inside This Issue:

Langley Employee Named NASA's Contract Specialist Of The Year — Page 3



Langley Engineer Collaborates With 'Chester' Cartoonist — Page 4

News Briefs

Around the Agency

EVENT HORIZON: NOT SEEING IS BELIEVING

NASA's two Great Observatories, the Hubble Space Telescope and the Chandra X-ray Observatory, have independently provided what could be the best direct evidence yet for the existence of an event horizon, the defining feature of a black hole and one of the most bizarre astrophysical concepts in nature.

An event horizon is the theorized "one-way ticket" boundary around a black hole from which nothing, not even light, can escape. No object except for a black hole can have an event horizon, so evidence for its existence offers resounding proof of black holes in space. RELEASE: 01-04

NIAT REPORT AVAILABLE ONLINE

A report by the NASA Chief Engineer and the NASA Integrated Action Team, "Enhancing Mission Success — A Framework for the Future," is available online at <ftp://ftp.hq.nasa.gov/pub/pao/reports/2001/NIAT.pdf>.

The NIAT report results from an effort started in March by the NASA Chief Engineer to develop an integrated plan addressing recommendations from reports on the Mars program, space shuttle wiring issues and a generic assessment of NASA's "Faster, Better, Cheaper" practices and formulating actions for improvement from an agency perspective. NOTE TO EDITORS: N01-03

CHANDRA LINKS PULSAR TO SUPERNOVA

New evidence from NASA's Chandra X-ray Observatory suggests that a known pulsar is the present-day counterpart to a supernova that exploded in 386 AD, a stellar explosion witnessed by Chinese astronomers. If confirmed, this will be only the second known pulsar to be clearly associated with a historic event.

In roughly the past 2,000 years, less than 10 reports of probable supernovae have been archived, mostly by Asian astronomers. Until now, the Crab Nebula has been the only pulsar whose birth is associated with a historic event, the supernova of 1054 AD, making it the only neutron star with a firm age. RELEASE: 01-02

NASA CONSIDERS DISCOVERY PROPOSALS

It's a difficult decision: With about $300 million to spend, should NASA buy a spacecraft that could find Earth-sized planets around nearby stars? What about a mission that could peer deep inside Jupiter's gaseous atmosphere? Or should the agency go with a mission to orbit the two largest asteroids in the solar system?

The answer to that question will have to wait about a year. In the first step of a two-step process, NASA's Office of Space Science selected three proposals for detailed study as candidates for the next mission in the agency's Discovery Program of lower cost, highly focused, rapid-development scientific spacecraft.

"The diversity of science represented in these three mission proposals is outstanding. NASA will have its hands full picking only one for flight," said Jay Bergstralh, acting Director of Solar System Exploration at NASA Headquarters.

More information on the Discovery Program is available online at <http://discovery.nasa.gov/>. RELEASE: 01-01

News Researcher

The Researcher News is an official publication of Langley Research Center, National Aeronautics and Space Administration, Hampton, Va., 23681-2199. It is published every other Friday in the interest of all Langley staff, contractors and retirees and has a circulation of approximately 8,100. It is distributed to all Langley civil service employees, contractors, retirees and on-site university personnel, with limited distribution to NASA Headquarters, other NASA centers and, by special request, to other non-NASA individuals and organizations. Questions related to the content and distribution of the Researcher News should be addressed to Keith Henry, Mail Stop 115, (757) 864-6120. Submit contributions/SDL 026, 055, 110 changes to the editor via e-mail <j.r.roberts@larc.nasa.gov>, fax (757) 864-6477, telephone (757) 864-8150 or Mail Stop 293. Articles, photos and announcements are due at noon the Monday following the date of this issue.

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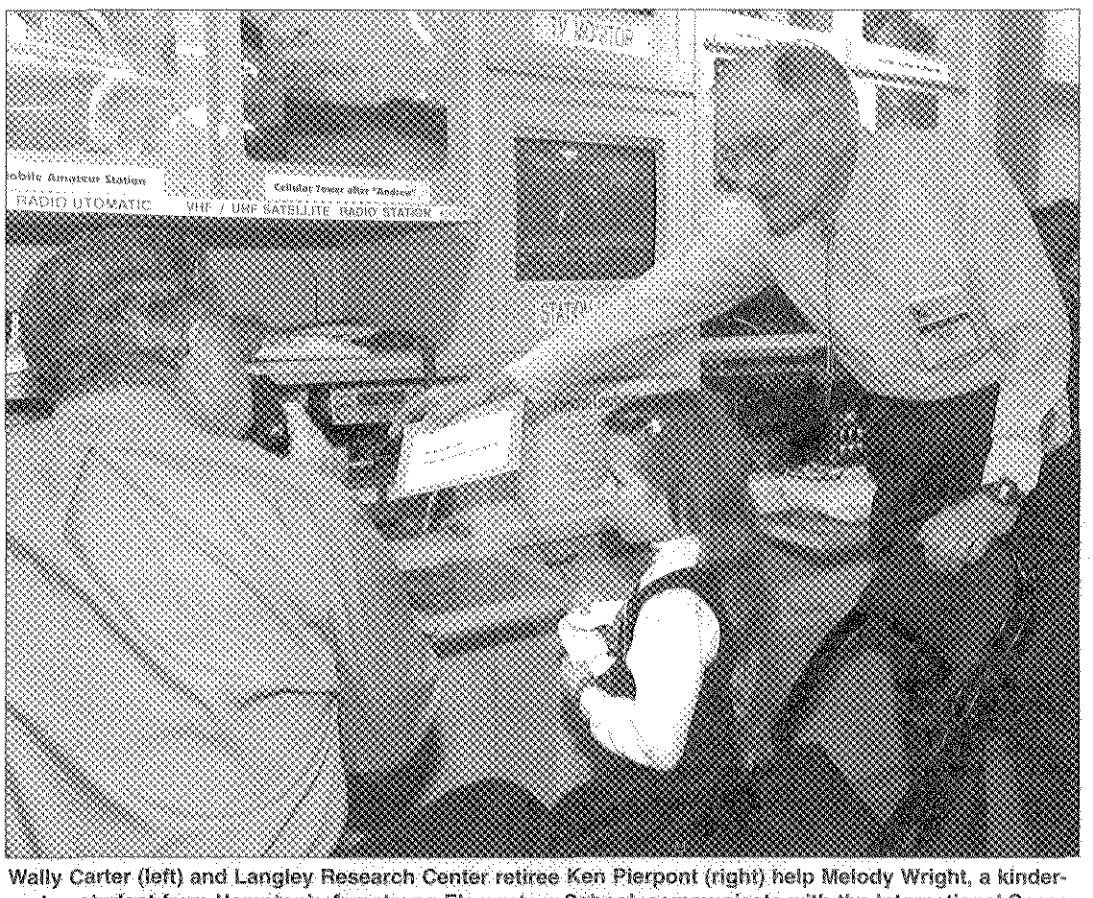
The privilege of listing announcements in this publication is restricted to the employees, contractors and retirees of the Langley Research Center. Articles must be offered without regard to race, color, religion, sex or national origin. All materials are subject to editing.

People

'Come In, Commander Shepherd'



Wally Carter (left) and Langley Research Center retiree Ken Pierpont (right) help Melody Wright, a kindergarten student from Hampton's Armstrong Elementary School, communicate with the International Space Station (ISS) on Jan. 5 at the Virginia Air and Space Center (VASC). Students from Armstrong's Young Astronaut Club were invited to ask Commander Bill Shepherd questions via VASC's amateur radio satellite station, KE4XZW. The link lasted approximately eight minutes as the orbiting ISS passed within communication range.

Photo by Jeff Caplan

Wilhite To Head IPAO

Langley Research Center's Office of Director recently announced that **Alan W. Wilhite** has been named Director of Langley's Independent Program Assessment Office (IPAO), pending approval from NASA Headquarters. Until approval is received, Deputy Center Director **Delma C. Freeman** will serve as the Acting Director and Wilhite will conduct the day-to-day operations.

Wilhite

OCO To Close After 30 Years

Cathy H. Mangum, Langley Research Center's Acting Chief Information Officer, announced on Jan. 12 that Langley's Operations Control Office (OCO) will permanently close after 30 years of service at 5:30 p.m. Jan. 31.

Mangum said most of the services provided by OCO have been curtailed or moved to other support areas. For information about the remaining services, call the following numbers:

- **Distributed Mass Storage System (DMSS):** 864-4144.
- **Electronic Card Keys:** 864-2790.
- **ODIN Desktop/Network Services:** 864-7777 (on-site) or 1-877-663-9052 (off-site).

Retirement

Joe Mathis of Langley Research Center's Technology Commercialization Program Office and his wife, Raye, will host his retirement celebration from 2 to 4 p.m. Jan. 26 in the H.J.E. Reid Conference Center.

In Memoriam

George F. MacDougall

George Fulton MacDougall died on Jan. 4 at the age of 85. MacDougall, a native of Waltham, Mass., served in the Massachusetts National Guard. He retired from NASA as an aeronautical engineer after 38 years of service.

Ralph P. Parks

Ralph Parramore Parks died on Jan. 2 at the age of 75. Parks, a native of Accomac, graduated from the Apprentice School at Newport News Shipbuilding and retired from NASA as an electrical engineer in 1982 after 34 years of service. From 1982 to 1990, he worked for LTV on Wallops Island.

Kenneth H. Rhodes

Kenneth Helmick Rhodes died on Jan. 14 at the age of 72. Rhodes, a native of Clarksburg, W.Va., served in the U.S. Army and was a veteran of the Korean War. He retired from NASA as an aerospace engineer.

Behrooz Shirinzadeh

Behrooz Shirinzadeh died on Nov. 22, 2000, at the age of 46. Shirinzadeh, who worked for NASA since 1988, was an optical physicist in Langley Research Center's Advanced Measurement and Diagnostics Branch at the time of his death.

Shirinzadeh had published more than 25 technical papers in the areas of non-intrusive diagnostics and optical spectroscopy, with a primary emphasis on applications of Rayleigh scattering for flow measurement.

Raytheon Wins $183M Contract

By MARNY SKORA
Office of Public Affairs

The General Services Administration (GSA) has selected Raytheon Technical Services Company of Lanham, Md., to perform information technology services for Langley Research Center. The work is valued at more than $183 million over the next eight years.

The procurement, jointly evaluated by GSA and NASA, was awarded under one of GSA's existing "Millennia" contracts. Day-to-day administration of the work will be performed by personnel from Langley.

The work will consist of a broad range of information technology services for business and scientific applications. The services include systems administration, database administration, development of new software and modification of existing software. Work is expected to begin on Feb. 1.

Part of GSA's mission is to provide Multiple Award Indefinite Quantity (MAIQ) contracts which all federal agencies may use to procure support for information technology. One such program is GSA's Millennia MAIQ, which provides services for new and emerging technologies.

'Special' Recognition

Langley Employee Wins NASA Procurement Award

By JIM ROBERTS
Researcher News editor

Langley Research Center employee Nancy Sessoms has been named NASA's Contract Specialist of the Year for 2000.

Sessoms, a senior contract specialist in Langley's Research and Development Programs Contracting Branch, was selected for the award from more than 700 contract specialists throughout the Agency.

The Contract Specialist of the Year is one of nine different awards given by NASA's Office of Procurement each year. Langley employees have won other Procurement Awards in the past, but Sessoms is the first Langley employee to receive the Contract Specialist of the Year award. (Last year's Contract Specialist of the Year, Kimberly A. Dalgleish, transferred to Langley from Glenn Research Center after winning the award.)

Sessoms and the eight other Procurement Award winners will be recognized by Tom Luedtke, NASA's Associate Administrator for Procurement, at a ceremony this spring.

"Nancy is an excellent contract specialist," said Mary Jane Yeager, Sessoms' branch head. "She is diligent and very committed to her job. She's an expert in the contracting field."

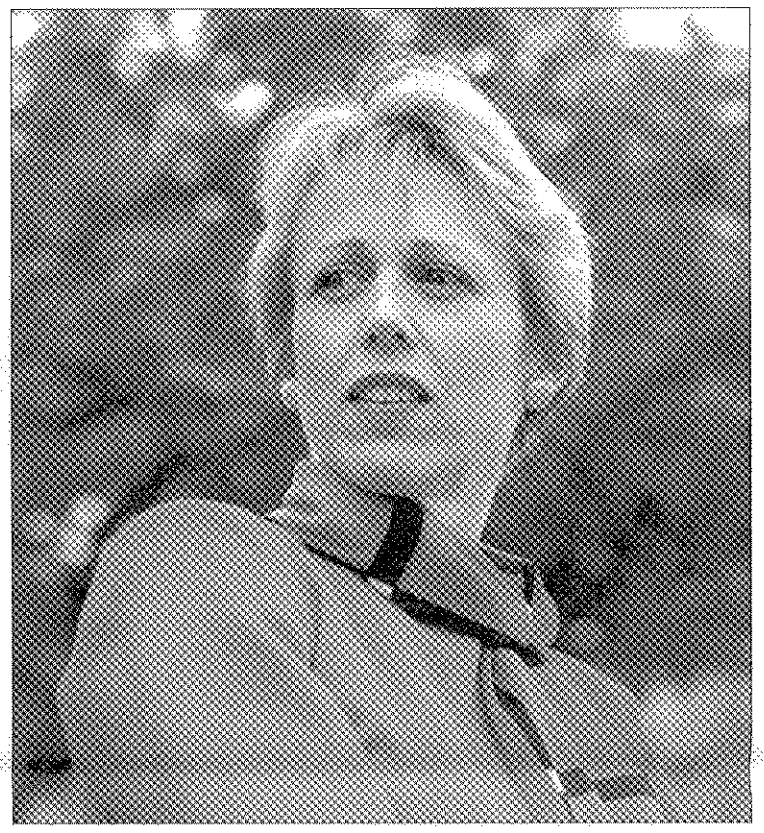
Winning the award came as a surprise to Sessoms, who didn't even know that she had been nominated. "I was really shocked," she said. "I didn't know anything about it. This was a complete surprise, a great way to start the New Year."

Yeager, who nominated Sessoms, cited her work on two "high-visibility" procurements in 2000 — the Airport Traffic ID System (ATIDS) and Dynamic Runway Occupancy Measurement System (DROMS) — and her guidance to the Space Science Studies and Assessments Source Evaluation Team. Yeager also cited Sessoms' negotiation of complex cooperative agreements and her contributions to the rewrite of NASA's Cooperative Agreement Handbook.

"We're very happy for Nancy and for the Center," Yeager said. "It's quite an honor to be chosen."

Sessoms began her career as a purchasing clerk for the Veterans Administration (VA) in 1975. She worked at three VA medical centers in the Midwest before transferring to the Hampton VA in 1980. Three years later, she transferred to Langley.

Sessoms worked in Langley's Small Purchases and Services branches until 1996, when she joined the Office of Mission Assurance. She then transferred to the ISO Project Office to continue implementation of the Langley Management System. She returned to Procurement in 1999 and is currently working on the 2nd Generation Reusable Launch Vehicle Source Evaluation Team.



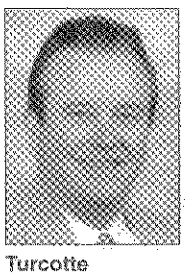
Nancy Sessoms, a senior contract specialist in Langley Research Center's Research and Development Programs Contracting Branch, has been named NASA's Contract Specialist of the Year for 2000.
Photo by Jeff Caplan

After attending classes on a part-time basis for many years, Sessoms graduated from Christopher Newport University with a bachelor's degree in business administration in 1998. She also has completed the NASA Acquisition Career Development Training Program.

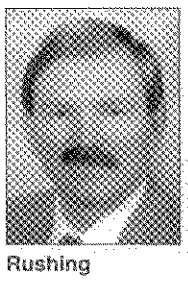
Sessoms lives in Grafton with her husband and their teen-age daughter. She volunteers at a nursing home one night a week, and in her spare time, she enjoys sailing, running and mountain biking.

TCPO Hires To Fill Two New Positions

By JIM ROBERTS
Researcher News editor



Turcotte



Rushing

Langley Research Center's Technology Commercialization Program Office (TCPO) recently created two new positions to help achieve its mission: to encourage broader utilization of Langley-developed technologies in the American industrial community.

Rheal P. Turcotte was hired as the Center's first-ever Technology Marketing Manager, and W. Dan Rushing III was hired to head the newly established Business Development Office (BDO).

Turcotte has an extensive business and technical background in physical chemistry and materials science. He has managed research and development groups at Battelle Northwest, Photon Sciences and Northwestern University and served as president of the Chicago Manufacturing Center.

As Technology Marketing Manager, Turcotte will work with TCPO project managers and Langley inventors to ensure that new inventions are taken to market with the most appropriate industry partners.

Turcotte also will host the first NASA Advanced Materials Symposium. The two-day meeting, scheduled to take place this spring in Virginia Beach, will introduce NASA's new materials technologies to approximately 50 industry executives with the goal of developing working partnerships, licenses or other business relationships.

Rushing has an extensive background in new business development, contracting and partnership development. He served as president and chief executive officer of MIT Systems, a start-up technology company providing broadband telecommunication services and information management systems to small and mid-sized businesses. He also served as vice president of marketing, planning and business development for Children's Health System and as regional director of business development for Peoples Drug. His efforts produced innovative partnerships with industry, resulting in recognition from the National Press Club in Washington, D.C.

Under Rushing, the BDO will partner with companies that have not traditionally worked with Langley to advance their product development efforts. His initial focus will be in the transportation sector, including shipping, rail and vehicular industries. A second emphasis will be Langley's sensor and instrumentation development efforts.

For more information about the TCPO, contact Sherry L. Sullivan at 864-2556 or <s.l.sullivan@larc.nasa.gov> or visit <http://tech-transfer.larc.nasa.gov> online.

Office Soliciting R&D 100 Entries

Langley Research Center's Technology Commercialization Program Office (TCPO) is soliciting nominations for Research and Development Magazine's annual R&D 100 Awards.

For more information or an entry form, call Sherry Sullivan of the TCPO at 864-2556 or visit R&D Magazine's Web site at: <http://www.rdmag.com/rd100/100award.htm>.

Entry forms are due to TCPO by Feb. 14. TCPO will provide the entry fee.

Langley Active At AIAA Meeting

By MEGHAN WOODCOCK
Researcher News assistant editor

Langley Research Center took a more active role at the American Institute of Aeronautics and Astronautics' (AIAA) 39th annual Aerospace Sciences Meeting, exhibiting for the first time ever.

The exhibits focused on Langley's Wind Tunnel Enterprise (WTE) and demonstrated the capabilities of seven Langley wind tunnels, including the National Transonic Facility (NTF).

"My observations over the last three days have confirmed the long time coming and return of NASA Langley wind tunnels and their value to the research community," said Jeff Hill, facility head for the NTF. "We were able to re-introduce the wind tunnels under the WTE and had lots of positive comments and conversations with the visitors. All commented that we should have more presence at these conventions, particularly when many of the papers focused on the exhibit."

Langley's Hyper-X Program Office also contributed exhibit materials, incorporating a large piece of flight hardware from the X-43 program.

"The goal of the Hyper-X office was to generate enthusiasm in the community for the upcoming flight," said Dave Reubush of the Hyper-X Program Office. "And to educate many who are unaware of the Langley contributions to access-to-space technologies."

Langley researchers also presented information about the Modern Design of Experiments (MDOE) program at the conference. MDOE is designed to bring design methods from other fields into aerospace applications, reducing design cost and time by as much as 300 percent.

"Visitors to the MDOE display commented on the number of papers at this year's conference that made reference to Langley-developed formal experiment design methods," said Dick DeLoach of Langley's Instrument Systems Development Branch. "There were suggestions to expand the presence at next year's conference to include MDOE's application to CFD and flight testing as well as ground testing."

Seven Langley employees were also on-hand to receive Associate Fellow membership with the AIAA at the conference: Stephen X. Bauer, Robert D. Braun, Larry D. Huebner, N. Ronald Merski, Sharon L. Padula, William L. Sellers III and Richard A. Wahls.

The meeting, which took place from Jan. 8-11 in Reno, Nev., drew 1,700 attendees.

Papers Sought For Competition

The Hampton Roads Section of the American Institute of Aeronautics and Astronautics (AIAA) is soliciting entries for its annual Young Professionals Paper Competition.

To be eligible, the first-authored paper must have been published or accepted for publication in an archival and refereed publication and originally submitted while the author was an AIAA member under the age of 35. (Previously submitted papers are eligible for this year's competition.)

The award for the winning paper, judged on technical content and style by an independent reviewing committee, will be presented at the Section's Spring Awards Banquet. The winner will receive a certificate and a free one-year membership to AIAA, and his or her name will be engraved on a plaque permanently on display in Langley's H.J.E. Reid Conference Center. Prizes for the second and third runners-up also will be given.

Members interested in participating in this year's competition should submit three copies of the manuscript, a copy of the acceptance letter and author information (including age and AIAA membership number) by Feb. 16 to: John C. Lin, NASA Langley Research Center, Mail Stop 170, Hampton, VA 23681-2199.

For more information, contact John Lin at 864-5556 or visit the AIAA Web site at <http://www.seva.net/~aiaa>.

Langley Engineer Earns Annual PEC Honor

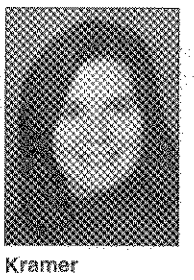
By JOHN LIN
Flow Physics and Control Branch

The Peninsula Engineers Council (PEC) has named Langley Research Center employee Lynda J. Kramer the Young Engineer of the Year.

The award, formally known as the Doug Ensor Award, was instituted in 1998 to annually recognize an individual's technical accomplishments, leadership, service to professional societies and community service in the early phases of his/her career.

Kramer, a manager in Langley's Aviation Safety Program (AvSP), was nominated by the Hampton Roads Section of the American Institute of Aeronautics and Astronautics (AIAA).

As the Level III manager for the Commercial and Business Aircraft (CAB) Synthetic Vision Systems (SVS) element under AvSP, Kramer is responsible for providing technical leadership and guidance to the research teams.


Kramer

The SVS element emphasizes the cost-effective use of synthetic and enhanced vision displays, worldwide terrain databases and global positioning satellite navigation to eliminate visibility-induced errors for all aircraft. She has organized and led more than 180 government and industry participants in two SVS workshops.

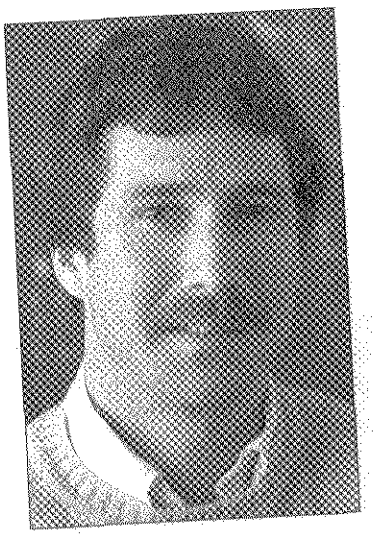
Prior to joining the AvSP, Kramer conducted and/or led simulation and flight experiments on human performance issues to validate the eXternal Visibility System (XVS) component of the High-Speed Research (HSR) Program.

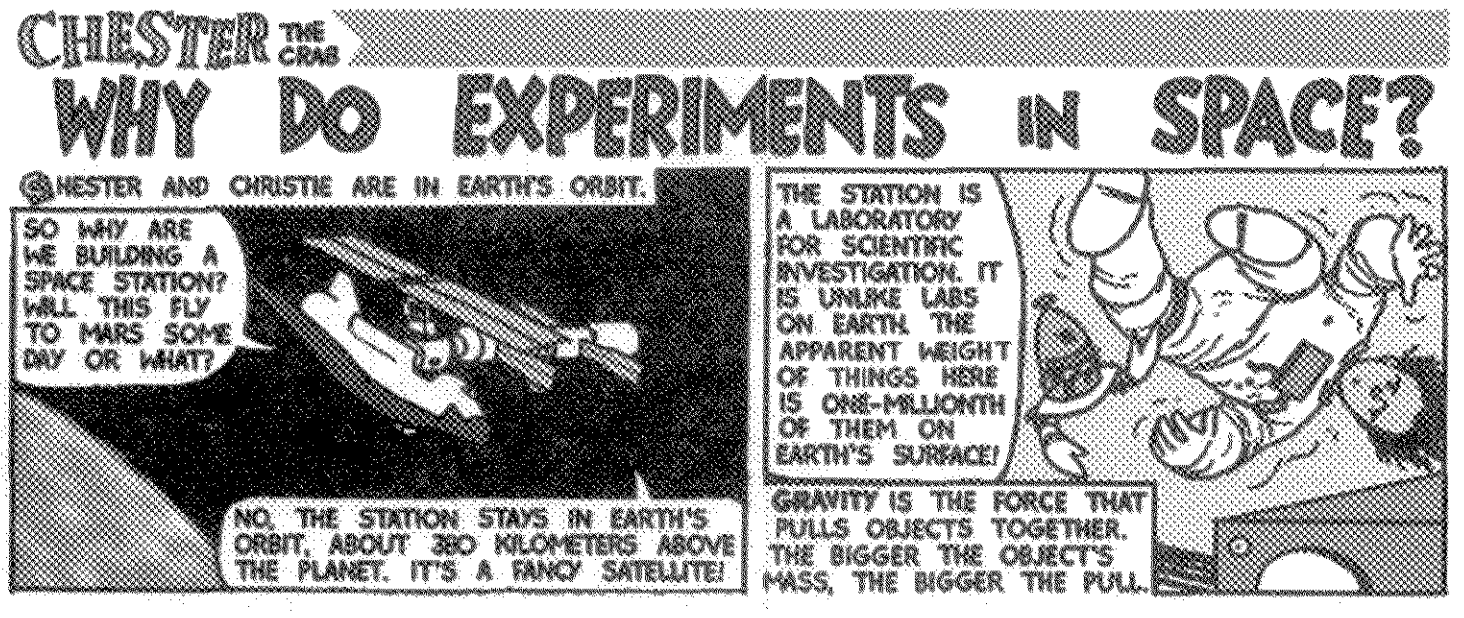
Kramer earned a bachelor's degree in aerospace engineering from Auburn University in 1991 and a master's degree in mechanical engineering/aeronautics from George Washington University in 1996.

Kramer, a senior member of the AIAA, has received more than 10 professional and scholastic awards from NASA, the AIAA and Auburn University, and she was the Hampton Roads Section's nominee for the AIAA's Lawrence Sperry Award in 2000.

She will receive the award at the PEC Annual Banquet on Feb. 24.

A Cartoon Engineer?





Carlos Roithmayr (left) of Langley Research Center's Spacecraft and Sensors Branch recently collaborated with graphic artist Bentley Boyd on a series of five "Chester The Crab" cartoons that featured information about the International Space Station. The educational cartoons, which were published in the Daily Press from Dec. 18- 22, 2000, can be seen online at <http://www.dailypress.com/solutions/archive.htm>. "I guess you could say I helped him get the physics right," Roithmayr said. "It was interesting. ... It's worthwhile because the object of all this is to help with the children's education and make the children more aware of what NASA does with spaceflight." Stay tuned ... Boyd said the Daily Press is planning to commemorate the 25th anniversary of the Viking mission this summer by sending Chester to Mars.

Photo by Jeff Caplan/Cartoon courtesy of the Daily Press

Langley Research Center's Adventures in Technology = Options in Math and Science (ATOMS) team included: (front row, left to right) Jane Hogge, Myra Walton, Nancy Holloway, S. Stewart Harris, Sam James, Michael Oliver and Meg Holloman; (middle row, left to right) Steve Nevins, Dan Carey; and (back row, left to right) Vince Cruz, Greg Draughon, Gary Wainwright and Carlos Castillo. Team members Larry Cooper, Dave Fahringer, Richard Martin, Rolando Padilla and Sam Pollard are not pictured.

Photo by Sandie Gibbs

Center Hosts ATOMS Tours

By MEG HOLLOMAN
Quality Applications Technology Branch

More than 800 middle school students visited Langley Research Center last fall as part of the annual Adventures in Technology = Options in Math and Science (ATOMS) program.

The program, a triad effort between local high-tech industries, local public schools and Thomas Nelson Community College, exposes students to technical careers through "career awareness tours." The goal is to pique students' interest in math and science since preparation for technical careers should begin during the middle school years.

Technicians from Langley's Composites Applications Technology Branch, Electronics Applications Technology Branch, Metals Applications Technology Branch and Quality Applications Technology Branch collaborated to develop interesting and educational programs for the students. Some of the site visits included a tour of the 7- by 10-foot High-Speed Wind Tunnel and demonstrations of super-cooling materials, model making, composite material processing and numerical control (NC) machining.

Langley has been a key partner of the ATOMS program since its inception in 1990.

The teaming of technical industries with ATOMS has grown to include partnerships with: Ball Corporation, Canon Virginia, Inc., Gateway, Hampton University/ Raytheon Aeroscience Center, Newport News/Williamsburg International Airport, Newport News Shipbuilding, Patrick Henry Mall, Pressure Systems, Riverside Health Occupations, Siemens and Vigyan, as well as other governmental institutions such as Jefferson Labs.

Lancair

Continued from Page 1

planes — a soon-to-be-delivered Cessna 206 and Cirrus SR-22 — will be re-fitted with experimental technologies being developed under the Small Aircraft Transportation System (SATS) program, including new displays, avionics and control systems.

"We expect to enable a single pilot to operate with the same precision and ease as a two-pilot crew does with today's technology," he said. "In order to develop this and other technologies, we need platforms like the Columbia 300 to make this happen."

Lancair has a long association with NASA and its general aviation programs.

"I share in NASA's vision for the future of general aviation," said Lance Neibauer, Lancair's president and chief executive officer. "As an industry, we need to continue to push forward in developing technologies that will make personal flying safer, more practical and more accessible. Aircraft like the Columbia 300 are the first step in this, and we're proud to be a part of it."

Oregon Senators Gordon Smith and Ron Wyden, both members of the Aviation Subcommittee of the Senate Commerce Committee, were on hand for the event.

"The work NASA needs to do with SATS and other programs has been mandated by Congress," Holmes said. "The aviation world will find it vital to look at GA as the place to incubate these technologies."

Lancair and Aero-Net News contributed to this story.

Colloquium and Sigma Series Lectures

W&M Professor On Deep Sea Biology

Cindy Lee Van Dover will present a Colloquium lecture entitled, "Photosynthesis In The Deep Sea Without Sunlight? The Denouement!" at 2 p.m. Feb. 6 in the H.J.E. Reid Conference Center. She also will present a Sigma Series lecture entitled, "Beyond The Edge Of The Sea: Volcanoes And Life In The Deep Ocean," at 7:30 p.m. at the Virginia Air and Space Center, Hampton, Va.

Van Dover

The Colloquium Lecture

Teeming with weird and wonderful life — giant tubeworms, clams, mussels, "eyeless" shrimp and bacteria that thrive on sulfide — deep-sea hot springs are found along rifts where seafloor spreading occurs. While the bivalves and tubeworms have led physiologists to describe novel adaptations for symbiotic life, it is the blind shrimp that led to characterization of geothermal light on the seafloor and the hypothesis that this light might sustain photosynthesis by bacteria.

A systematic search for photosynthetic organisms in the deep sea took place during a July 2000 "Alvin" mission to hot springs off the coast of Oregon. While discovery of deep-sea photosynthetic organisms proved elusive, researchers found an unexpected abundance of photosynthetic bacteria in surface waters of the ocean that account for as much as 10 percent of the surface productivity using relatively long wavelength light.

The Speaker

Van Dover, an assistant professor in the College of William and Mary (W&M) biology department, is a deep-sea biologist. Her area of research is the biology of hydrothermal vents and other deep sea communities.

Upcoming Colloquium Lecture

■ March 13: K.R. Sridhar on "Oxygen Production on Mars."

For more information about the lecture series, visit <http://shemesh.larc.nasa.gov/Lectures/> on the Web.

Van Dover, who discovered a novel photoreceptor in a vent invertebrate, received her doctorate in 1989 from the Massachusetts Institute of Technology/Woods Hole Oceanographic Institution. In 1990, she qualified as pilot of the deep-diving submersible "Alvin" and was pilot-in-command of 48 dives.

She has published more than 50 articles in peer-reviewed journals and is active in NSF- and NOAA-sponsored field programs to hydrothermal vents. In 1994, Van Dover was awarded the McCurdy Scholar at Duke University's Marine Laboratory, and in 1996, she became science director of the West Coast National Undersea Research Center base at the University of Alaska, Fairbanks.

AdVentures

CLASSIFIED

FOR SALE: 98 Mitsubishi Eclipse GS, automatic, CD, sunroof, super clean, 33,000 miles, $13,350. Call 826-6890 and leave a message.

FOR SALE: Rawlings softball glove, 13.5 inch, fastback model, basket web, deep well pocket, soft tex lining. Used for backyard catch only. Excellent condition. $35. Call 456-9563.

WANTED: 8.5-horsepower Briggs and Stratton vertical shaft engine. Carb/starter not important. Must be reasonably priced (or free). Call 838-2322.

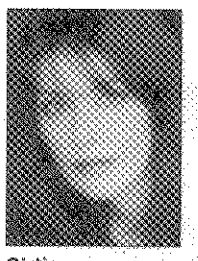
WANTED: Working Apple/Macintosh monitor for a Power Mac. Any screen size. Call 833-6799.

❖ ❖ ❖

The next edition of the *Researcher News* will be published on Feb. 2. Please send submissions to <j.r.roberts@larc.nasa.gov> by Jan. 29.

VASC's 'Star Trek' Event On Jan. 26

Actresses Marina Sirtis and Nichelle Nichols will make special appearances at the Virginia Air and Space Center (VASC) to help promote "Star Trek: Federation Science," a traveling exhibit making an encore visit from **Jan. 27** through **April 30**.



Sirtis

Sirtis, who plays Counselor Deanna Troi on "Star Trek: The Next Generation," will be on hand for the Opening Gala, which will take place from 7 to 10 p.m. **Jan. 26**. The event will feature music by The Strolling Silver Strings and a presentation of the IMAX film "Alien Adventure."

Nichols, who played Lt. Uhura on the original "Star Trek" television series, will be the guest of honor at "Evening with Uhura," which will take place from 7 to 10 p.m. **Feb. 23**. The event, which is being held in conjunction with Black History Month, will feature a presentation by Nichols on her experiences as a cast member of the ever-popular sci-fi series. The event also will feature music by All City Jazz Ensemble and a presentation of the IMAX film, "Destiny in Space," which is narrated by Leonard Nimoy.

Tickets for the Opening Gala are $30 per person, and tickets for the "Evening with Uhura" are $25 per person. Tickets for both events are $40 per person. Tickets can be reserved by calling 727-0900 ext. 741. All proceeds from the events will go toward the VASC's educational programs.

Admission to the exhibit is included in regular exhibit admission: $6.50 for adults, $5.50 for seniors, military and NASA personnel and $4.50 for children (3-11).

The Center is open from 10 a.m. to 5 p.m. daily. For more information, call 727-0900 or visit the VASC Web site at <www.vasc.org>. The VASC is Langley Research Center's official visitor center.

Mammograms Offered On-Center

Langley Research Center's Management and Employee Support Branch will host mammographic exams on **Jan. 29** and **30** and on **March 8, 21** and **26**.

Langley employees, contractors and retirees — and their family members — are eligible for the exams. To schedule an appointment, call the Riverside Diagnostic Center at 594-3900. Time spent at the exam may be charged to J.O. B1008. The cost is $75. Payment may be made by cash, check or Visa/MasterCard.

For more information, call Langley's Management and Employee Support Branch at 864-3194.

Volunteers Needed For Road Race

Langley Research Center's Office of Public Services is recruiting volunteers to assist with the 10th annual Pomoco Hampton Coliseum Road Race on **Feb. 2-3**. Volunteers will be needed at the following times:

- from 4 to 9 p.m. **Feb. 2** for package pick-up;
- from 6 to 10:30 a.m. **Feb. 3** for package pick-up, registration and set-up;
- and from 8 a.m. to 12:30 p.m. **Feb. 3** for water stops and the information desk.

All volunteers will receive T-shirts and are requested to attend an organizational meeting at 6 p.m. **Jan. 30** at Hampton Coliseum. To volunteer, contact The Volunteer Center at 262-0190 or <tvcnn-va@attglobal.net>.

LAA To Meet On Feb. 13

Langley Research Center's Alumni Association (LAA) will meet at 11:30 a.m. **Feb. 13** in the private dining room of the Center cafeteria. The program will be "The Space Shuttle History."

Bridge Club Announces Results

Langley Research Center's Duplicate Bridge Club recently announced the results of its first match of 2001: first place, Tom Finley and Judy Ferris; second place, Bill and Nana Jones; third place, Geoff and Marty Tennille; fourth place (tie), Jay Robinson and Tom Norum and John Ferrainolo and S.N. Sankaran.

The next game is scheduled for **Feb. 14**. For more information, call Larry Bement at 864-7084, John Ferrainolo at 864-2385 or Tom Norum at 864-7902.

Register for LCDC Summer Camp

Langley Research Center's Child Development Center (LCDC) is recruiting employees' children to participate in summer camp from **June 18** through **Aug. 24**. For a registration form, e-mail Stephanie T. Barton at <s.t.barton@larc.nasa.gov>. Enrollment is accepted on a first-come, first-served basis.

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NEWS Researcher

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The employees in Langley Research Center's Financial Accounting and Analysis Branch presented Branch Head Lisa Oliver with an impromptu award last December: a desk clock with an engraved plaque that reads "Exceptional Leader." Oliver, who lives in Hampton with her husband and their 4-year-old son, began her NASA career as a co-op student from Christopher Newport College 13 years ago. What does she like about working at Langley? "Working with the folks," she said. "We've just got a great complement of people out here. They just have a can-do attitude."

Photo by Jeff Caplan

National Aeronautics and
Space Administration
Langley Research Center

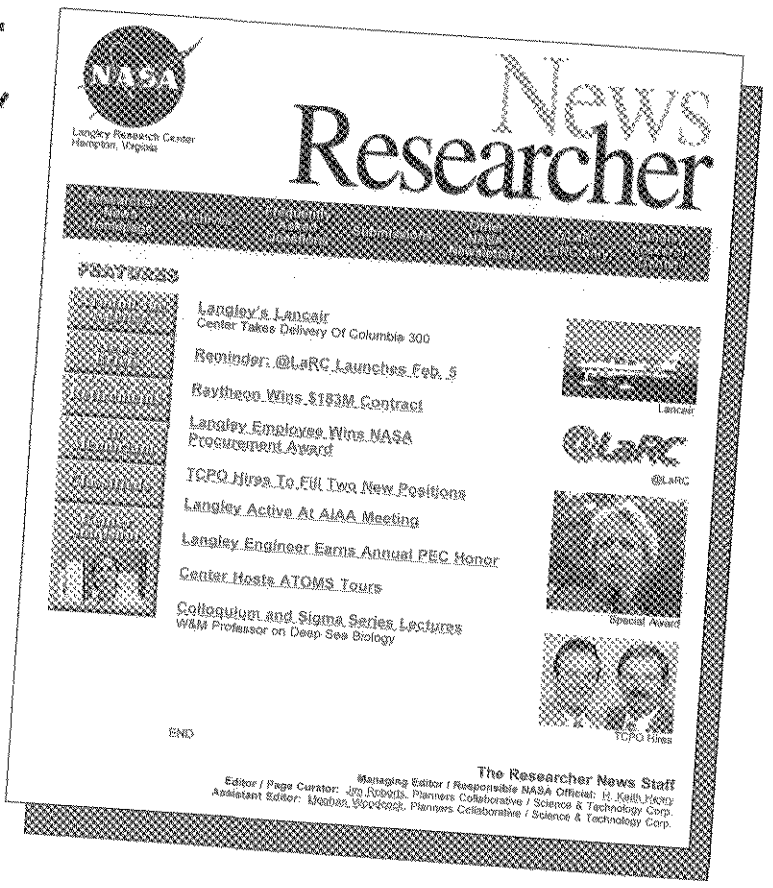
News Researcher

Biweekly Employee and Contractor Publication

Volume 15 ❖ Issue 3 ❖ Feb. 9, 2001

Online Debut

<http://researchernews.larc.nasa.gov>



The *Researcher News*, Langley Research Center's official newsletter, entered a new era on Feb. 5, unveiling an Internet edition at <http://researchernews.larc.nasa.gov/>.

The *Researcher News Online* includes all of the content published in the print edition, with added benefits, including color photos and an electronic archive of previous editions. The site also includes links to the newsletters at other NASA centers.

Most importantly, the *Researcher News Online* can be updated at any time, allowing "breaking news" to be published in a more timely fashion.

"We're delighted to offer our readers a timely, attractive and interactive way of receiving news and features as an extension of the *Researcher News* print edition," said Keith Henry of Langley's Public Affairs Office (PAO).

The *Researcher News Online* is linked to @LaRC, Langley's new internal Web site, but can be accessed off-Center via the Internet.

"We intend to regularly update the *Researcher News Online* edition and our 'channel' on the @LaRC home page with breaking news of importance to the Center or the Agency," Henry said.

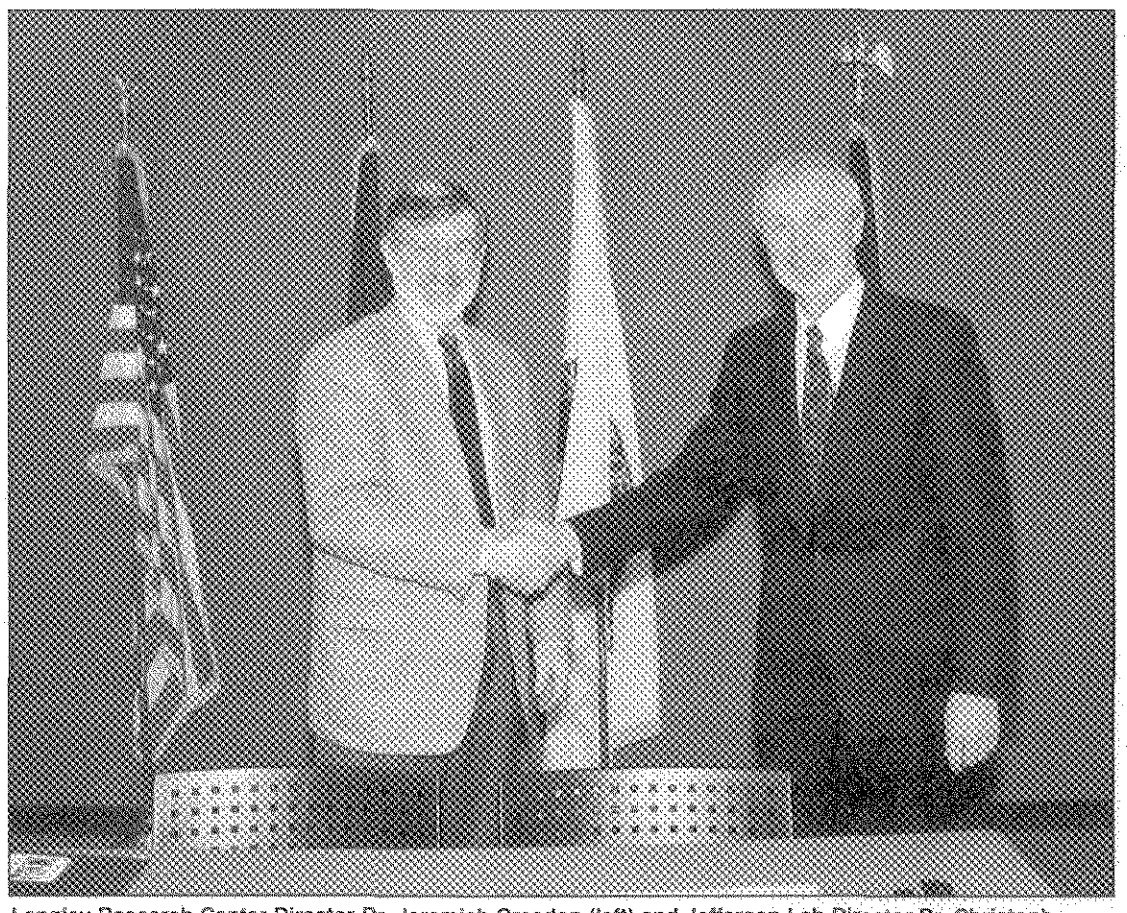
"And we haven't forgotten our off-Center readers, including NASA Headquarters, other NASA centers, our aerospace partners and more than 2,500 retirees," he said. "The *Researcher News Online* edition will be accessible by Internet and continue to help the Center put its best foot forward."

Henry supervised the development of the site, which was designed by PAO employee Robert Allen and Jim Roberts, a Planners Collaborative/ Science and Technology Corp. contractor.

Publication of the print edition of the *Researcher News* will continue as usual.

For more information, visit the Web site.

Langley, J-Lab Sign Agreement



Langley Research Center Director Dr. Jeremiah Creedon (left) and Jefferson Lab Director Dr. Christoph Leemann shake hands following the Jan. 24 signing of the agreement.

Photo courtesy of Jefferson Lab

Parties Will Work Toward Mutual Access To Facilities

By KEITH HENRY
Office of Public Affairs

and LINDA WARE
Jefferson Lab

Langley Research Center and the Department of Energy's Thomas Jefferson National Accelerator Facility (Jefferson Lab) formally agreed on Jan. 24 to explore projects of mutual interest, including nanotechnology.

Under an agreement signed by Langley Director Dr. Jeremiah Creedon and Jefferson Lab Director Dr. Christoph Leemann, the two federal labs will focus on applications of technologies they have invented in support of their respective aerospace- and nuclear physics-related research.

Langley and Jefferson Lab will work toward a rapid exchange of expertise and mutual access to facilities with the goal of increasing effectiveness and eliminating costs of duplication.

Nanotechnology, for example, is the "growing" of microscopic "nano" structures at the atomic level for optimum performance. Such a high-performance composite structure could result in an improved golf club shaft, for example, or any consumer, industrial or defense

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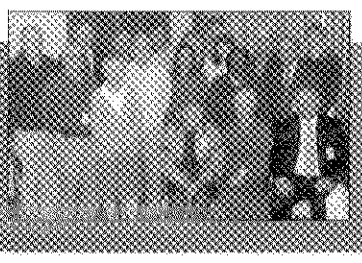

Volunteers Honored At Special Luncheon
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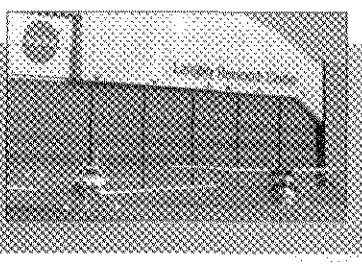


Two New Aircraft Arrive On-Center
Page 4

News Briefs

Around the Agency

NEAR MISSION COMPLETES MAIN TASK

NASA's Near Earth Asteroid Rendezvous (NEAR) Shoemaker spacecraft, the first to orbit an asteroid, has met all its scientific goals in its year of orbiting the asteroid Eros and will now attempt another first: a controlled descent to the surface of the asteroid on Feb. 12.

The chief goal of the controlled descent to the surface is to gather close-up pictures of the boulder-strewn surface of 433 Eros, more than 196 million miles from Earth.

"NEAR Shoemaker has set a high standard for low-cost planetary exploration," said Edward Weiler, NASA's Associate Administrator for Space Science. "This mission has provided answers to a range of fundamental science questions, and it has excited the public with its exploration and great images. The team at Johns Hopkins University Applied Physics Laboratory and its many partner institutions are to be congratulated for achieving this historic first in space exploration."

Images and information on end-of-mission media activities can be found on the Internet at <http://near.jhuapl.edu/media/index.html>. RELEASE: 01-13

NASA LANDS JET WITH 'HANDS-OFF' APPROACH

Imagine being able to land a jumbo jet without ever taking control of the stick. NASA scientists recently demonstrated the ability to control a 757 passenger jet simulation, using only human muscle-nerve signals linked to a computer.

Scientists outfitted the pilot with an armband implanted with eight electrodes. The sensors read muscle nerve signals as the pilot made the gestures needed to land a computer-generated aircraft at San Francisco International Airport in California. The pilot also demonstrated the ability to land a damaged aircraft during emergency landing drills. The work was reported in the October 2000 proceedings of the World Automation Congress.

Images are available on the Internet at <http://amesnews.arc.nasa.gov/releases/2001/01images/bioelectric/bioelectric.html>. RELEASE: 01-12

NASA IMAGE REVEALS EARTH'S INVISIBLE TAIL

The first large-scale pictures of the hidden machinations of the Earth's magnetic force-field are now available, including confirmation of a suspected but previously invisible "tail" of electrified gas.

The tail, which streams from Earth towards the Sun, was spotted by NASA's Imager for Magnetopause to Aurora Global Exploration (IMAGE) spacecraft and is featured on the cover of the Jan. 26 issue of the journal Science. The new imaging technology offers unprecedented views of the transparent, electrified gas trapped within Earth's magnetic field, providing the first visual, global perspective on magnetic storms.

The region laced by Earth's magnetic field, called the magnetosphere, dominates the behavior of electrically charged particles in space near Earth and shields the planet from the solar wind. Explosive events on the Sun can charge the magnetosphere with energy, generating magnetic storms that occasionally affect satellites, communications and power systems.

Images and more information are available on the Internet at <http://www.gsfc.nasa.gov/GSFC/SpaceSci/sunearth/imagescience.htm>. RELEASE: 01-08

Researcher News

The Researcher News is an official publication of Langley Research Center, National Aeronautics and Space Administration, Hampton, Va., 23681-2199. It is published every other Friday in the interest of all Langley staff, contractors and retirees and has a circulation of approximately 8,100. It is distributed to all Langley civil service employees, contractors, retirees and on-site university personnel, with limited distribution to NASA Headquarters, other NASA centers and, by special request, to other non-NASA individuals and organizations. Questions related to the content and distribution of the Researcher News should be addressed to Keith Henry, Mail Stop 115, (757) 864-6120. Submit contributions/SDL 026, 055, 110 changes to the editor via e-mail <j.r.roberts@larc.nasa.gov>, fax (757) 864-6477, telephone (757) 864-8150 or Mail Stop 293. Articles, photos and announcements are due at noon the Monday following the date of this issue.

Managing Editor ..... Keith Henry

Editor ..... Jim Roberts
Planners Collaborative/
Science and Technology Corp.

Assistant Editor ..... Meghan Woodcock
Planners Collaborative/
Science and Technology Corp.

Photographer ..... Jeff Caplan
Planners Collaborative/
Science and Technology Corp.

The privilege of listing announcements in this publication is restricted to the employees, contractors and retirees of the Langley Research Center. Articles must be offered without regard to race, color, religion, sex or national origin. All materials are subject to editing.

People

Volunteer Luncheon

Langley Research Center's Office of Public Services hosted its annual "Recognition Luncheon" for the Center's volunteers on Jan. 16 in the private dining room of the Center cafeteria. The volunteers, many NASA retirees, work in the Public Inquiry Center and host Center tours. Joe Chambers, the author of the recently published "Partners in Freedom," spoke about Langley's contributions to military and civil aircraft.

Photo by Meghan Woodcock

New OHR Head Announced

Langley Research Center's Office of Director recently announced that **Ann Mennell** was named Head of Langley's Office of Human Resources. Mennell formerly served as the director of human resources at the Defense Contract Management Agency, Western District.

Mennell

Fellowship Applications Due Feb. 28

Langley Research Center's Employee and Organizational Development Branch is soliciting applications for the 2001-2002 Floyd L. Thompson Fellowship.

The fellowship was established in 1977 and is intended for non-supervisory researchers to pursue independent research at Langley or other institutions for up to two years. Fellows will be supported by salary, travel and per diem, and other general research expenses.

The application deadline is Feb. 28.

For more information, contact George D. Allison at 864-2594 or <g.d.allison@larc.nasa.gov> or visit <http://ohr-r.larc.nasa.gov/do.fltfpin.html>.

Retirement

"I would like to thank all those who made my retirement party on Jan. 26 such an enjoyable and memorable experience."

Joe Mathis

In Memoriam

Ellen B. A. Richardson

Ellen Bowie Addison Richardson died on Jan. 24 at the age of 76. Richardson, a native of Baltimore, worked in Langley Research Center's technical library.

Lois S. Bridges

Lois Smith Bridges died on Jan. 17 at the age of 83. Bridges, a native of Stuart, worked as a technician in Langley Research Center's photo lab, retiring in 1971 after 28 years of service.

Louis A. Brunner

Louis A. Brunner died on Jan. 21 at the age of 85. Brunner, a native of Chicago, served in the U.S. Air Force and reached the rank of lieutenant colonel. He went on to work in Langley Research Center's Facilities Engineering Division, retiring in 1982.

James C. Tingle

James C. Tingle died on Jan. 18 at the age of 90. Tingle, a native of Cincinnati, served in the U.S. Navy and was a veteran of World War II. He worked as a health officer at Langley Research Center, retiring after 27 years of service.

Raymond L. Zavasky

Raymond L. Zavasky died on Jan. 22 at the age of 81. Zavasky, a native of Erie, Pa., worked as an aerospace engineer at Langley Research Center and was an assistant to former Center Director H.J.E. Reid.

Corrections

In the "Langley Active At AIAA Meeting" story in the Jan. 26 edition of the *Researcher News*, the name of Langley Research Center employee Steven X. S. Bauer was misspelled.

Also, the story said seven Langley employees were on-hand at the American Institute of Aeronautics and Astronautics' (AIAA) 39th annual Aerospace Sciences Meeting to receive Associate Fellow membership with the AIAA. In fact, seven employees received membership, but not all of them were in attendance.

NASA Awards CASI Contract

By KEITH HENRY
Public Affairs Office

NASA has selected ASRC Aerospace Corporation of Greenbelt, Md., to provide scientific and technical information services and related support for the Center for AeroSpace Information (CASI) located in Hanover, Md. CASI supports the NASA-wide Scientific and Technical Information Program, located at Langley Research Center.

The cost-plus-fixed-fee contract has a total estimated value of $29 million. It is a one-year contract with four option years.

ASRC Aerospace will acquire, organize, disseminate and archive scientific and technical information, including database creation and maintenance. Information to be archived will be provided to the National Archives and Records Administration.

The principal work will be performed off-site at the contractor-run facility in Hanover.

ASRC is a tribal-owned small disadvantaged business.

Agency Recognized For Multicultural Procurements

By FRED BROWN
NASA Headquarters

Efforts by its Office of Small and Disadvantaged Business Utilization recently paid off when NASA was named one of America's top 50 organizations for providing multicultural business opportunities. NASA received the honor after the first Internet-based election involving more than 50,000 of America's leading women- and minority-owned businesses.

"As a premier high-technology federal agency, we're happy to know that we're on the right track," said Ralph C. Thomas III, NASA's Associate Administrator for Small and Disadvantaged Business Utilization. "We consider this award to be an endorsement from the small- and multicultural-business community of the innovative programs and initiatives we implement to attract those firms that have provided us with high-quality goods and services at the lowest practicable cost."

Div2000.com, a business portal providing the link among multicultural businesses, Fortune 1000 companies, government agencies and universities, conducted the election.

Fiscal Year 2000 was a banner year for NASA as the agency awarded more than $2 billion in contracts to minority- and women-owned firms. The figure represents 18.3 percent of NASA's total contract dollars and is NASA's highest accomplishment ever with such firms. It compares with just 7.2 percent or $865 million in FY 92.

The "top 50" list also included such companies as IBM, Boeing, Microsoft, 3Com and Cisco Systems.

Langley Played A Role ...

Vernon Vann Jr., the head of Langley Research Center's Procurement Operations Branch, said Langley's Office of Procurement exceeded all of its socioeconomic goals in Fiscal Year 2000.

"We awarded over $85 million to small businesses, $52 million to minority businesses and $10 million to women-owned businesses," Vann said. Included in the minority category were awards to Black Americans, Hispanic Americans, Native Americans and Asian-Pacific Americans. Langley also awarded over $8 million to Historically Black Colleges and Universities.

"I am also pleased to report that minority awards were made in the full spectrum of the research and technology competency areas," Vann said. "This proves the merit of what we do.

"Our goal is to aggressively seek and to fully integrate small, small, disadvantaged, and small, women-owned businesses that deliver the highest quality goods and services into NASA's competitive base of contractors, particularly in the high-technology areas," Vann said. "As a premier, world-class aeronautics research center, the really exciting part of this is that minority businesses and women-owned businesses have played a critical role in our missions and success."

From the Office of Environmental Management

Center Updates Pollution Plan

By NICKIE WILLS
SAIC

Langley Research Center, in accordance with Executive Order (E.O.) 13148 and the Resource Conservation and Recovery Act (RCRA), began its Pollution Prevention (P2) Program Plan in 1992.

P2 sets forth an environmental strategy for reducing waste generation and environmental impacts caused by Langley operations. It is updated annually to reflect the completion, continuation, implementation and discontinuation of projects. Some projects scheduled for implementation in FY 2001 are described below:

■ **Paint Gun Washer Assessment and Implementation:** Spray paint guns are used throughout the Center in various painting operations. The paint guns are being cleaned with different types of solvent which are sprayed though the nozzle of the spray gun without being captured or recycled. The solvents contribute to air pollution and contain chemicals that are hazardous to human health. This project will involve conducting a survey of facilities that use spray paint guns, and then performing an economic analysis to determine the economic feasibility of using automatic paint gun washers for cleaning the spray guns.

■ **Aerosol Usage and Alternative Study:** The Clean Air Act of 1990 banned the manufacture of chlorofluorocarbons (CFCs) which contribute to the destruction of the Earth's protective ozone layer. However, many facilities on-Center still use old aerosol products that contain the chemicals. This project involves investigating alternatives to aerosol usage and products, many of which have been reformulated without CFCs.

■ **Water Conservation:** In compliance with E.O. 13123, the Center will establish goals and implement best management practices to conserve water.

■ **Online Training Development:** This project proposes an online affirmative procurement training course for all Center personnel. The training would increase facility awareness of purchasing recycled content and environmentally preferable products in compliance with E.O. 13101.

■ **Paper and Cloth Towel Assessment:** The objective of this project is to reduce the amount of rags being disposed by investigating shop towel laundering services.

Projects that will continue in FY 2001 include the Recycling and Affirmative Procurement Program, the Chemical Material Tracking System, the Reuse Facility, and pollution prevention training and outreach.

Multimedia audits also will continue to ensure that facilities are in compliance with environmental regulations. The audits also give the Environmental Management Office an opportunity to assess the Center's pollution prevention needs.

For more information on P2, visit <http://osemant1.larc.nasa.gov/P2/> on the Internet.

Employees' Ideas Welcomed

The EMO is seeking input from employees on ways to reduce waste and pollution in and around Center facilities.

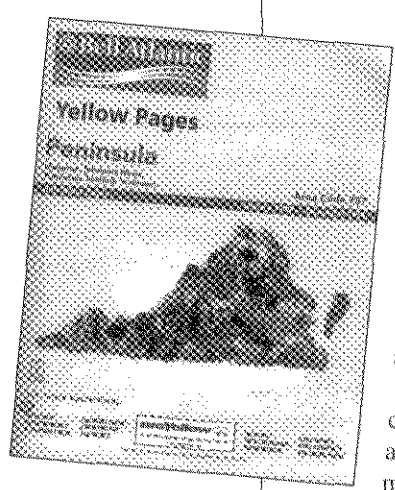
The EMO is able to help with technical and financial support.

Revenues from the EMO's programs go toward implementing new projects and supporting existing ones. For example, the EMO is able to purchase recycling bins, alternative chemicals and aqueous parts washers.

The Center also provides monetary recognition for qualifying suggestions which save money and/or improve processes.

Employees with pollution prevention ideas for their facilities are encouraged to contact the EMO at 864-3500.

Telephone Book Recycling Continues



The EMO will conduct telephone book recycling pick-ups through Feb. 16.

To recycle old phone books, stack old phone books beside the large recycling bins on-Center; do not put old phone books in the mixed or white paper bins. Telephone books placed next to the recycling bins after Feb. 16 will not be collected.

For more information, contact Dave Steigerwald at 864-8058 or <d.j.steigerwald@larc.nasa.gov>.

'Birds Of A Feather ...'

Langley Research Center's new Lancair Columbia 300 (left) arrived on Jan. 22, joining the Center's recently acquired Cessna 206 (right). "I liked it quite a bit," said Harry Verstynen, Langley's chief pilot, who flew the Lancair to Langley from the company's headquarters in Bend, Ore. "It's a very efficient aircraft ... a nice cross-country airplane. It's just very, very pleasant to fly." The Lancair — and a soon-to-be-delivered Cirrus SR-22 — will support research programs led by NASA's General Aviation Program Office. The Cessna will support research done by the Aviation Safety Program Office.

Photo by Jeff Caplan

Local Company Receives RTTC Contract

By MICHAEL BRAUKUS
NASA Headquarters

Accessing space is one of NASA's primary roles, but America's space agency has another role vital to the nation's industry: to help local companies access and acquire government-funded technologies for commercial and industrial applications.

As such, NASA recently awarded Technology Commercialization Center, Inc. of Newport News a contract to operate the Agency's Mid-Atlantic Regional Technology Transfer Center (RTTC).

The contract is valued at $6.8 million over five years (including options).

Organizations winning contracts for NASA's remaining RTTCs are:

■ **Southeast RTTC:** Georgia Tech Research Corp., Atlanta, for a total value of $7.1 million (including options).

■ **Far West RTTC:** University of Southern California, Los Angeles, for a total value of $6.25 million (including options).

■ **Mid West RTTC:** Battelle Memorial Institute, Columbus, Ohio, for a total value of $6.25 million (including options).

■ **Northeast RTTC:** Center for Technology Commercialization, Inc., Westborough, Mass., for a total value of $7.13 million (including options).

■ **Mid-Continent RTTC:** Texas Engineering Extension Service, College Station, for a total value of $6.25 million (including options).

The RTTC contractors will provide a full spectrum of technology transfer and commercialization services, including information searches, document retrieval, identification and analysis of client technology needs and/or problems, and value-added services. Such value-added services may include technical evaluations, support in technology/problem-matching, identification of technical experts engaged in research and development similar to the client's, and completing engineering analysis reports.

The contracts include a base period of two years with two options, for one year and two years respectively. These are cost-reimbursement, performance-based contracts.

Operating since 1992, the RTTCs have developed a regional network that involves more than 70 affiliated organizations at the state and local levels, enabling them to provide invaluable assistance to U.S. companies. The centers provide technical, commercial and general assistance to several thousand customers every year.

Agreement

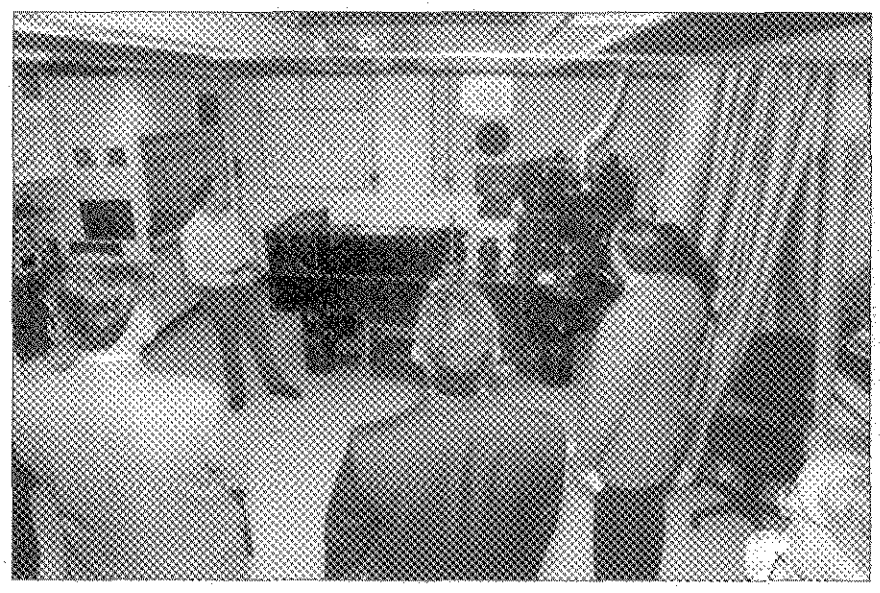
Continued from Page 1

application where strength and light weight are critical.

Langley has innovative technologies and expertise in a broad range of disciplines, including aerodynamics, aerospace systems, atmospheric sciences, systems engineering and airborne systems and has world-class facilities in which evolving technologies may be tested.

Jefferson Lab has a charter to provide intense electron beams and light beams to the international scientific and national industrial community in support of basic and applied research. It has unique capabilities in clean rooms for sophisticated chemical processing, superconducting radio frequency power systems, tools and technologies, ultra-high vacuum technologies and highly sophisticated cryogenic distribution and process controls software and hardware, and photon processing.

For more information about Jefferson Lab see, visit <http://www.jlab.org/> on the Internet.



John Horsting, a Seimens Automotive employee, explains a collaborative laser project during a tour of Jefferson Lab's Applied Research Center. Jefferson Lab has a charter to provide intense electron beams and light beams to the international scientific and national industrial community in support of basic and applied research.

Photo courtesy of Jefferson Lab

Contractor Speaks At Alma Mater

Talk At Lynchburg College Highlights Public Affairs

Editor's note: Kimberly Land, a Planners Collaborative employee on contract to Langley Research Center's Public Affairs Office, spoke to public relations students at Lynchburg College (LC), her alma mater, last semester. The students were then assigned to write a story about her visit. The following story was judged to be the best.

By EMILY BROWN
Lynchburg College student

To Kimberly Land, the most important thing to remember about working in public relations is not to be afraid.

"Don't let your fears take over your opportunities to do things," Land told a group of Lynchburg College public relation students on Oct. 3, 2000.

Land, a 1996 Lynchburg graduate, used her college experience and a bachelor's degree in communications studies to land a job as a public affairs specialist at Langley Research Center.

Her career at NASA, a government organization doing aeronautical and space research, didn't take off right out of college.

After graduation, Land did a job search and started off in graphic design. Claiming to not know much about the work before she began the job, Land credits her experience to a graphic design class she took in college.

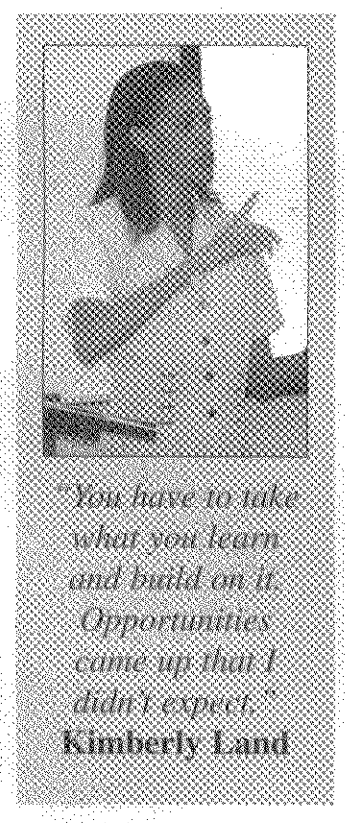
"Sometimes, you have to act like you know something, even if you don't," she said.

As for nailing a job with NASA, Land said she was replying to a newspaper ad, not knowing it was with the prestigious government organization.

"I started out at NASA Langley as an assistant in public affairs," she said. "I was promoted to a producer of video news releases (VNRs), and now my 'beat' is video production."

The VNRs Land produces are sent to media all over the nation to get them to cover NASA events. To attract coverage, Land must produce press releases for the media, inviting them to cover the story and providing them with background information, research and photos. "I have to tell people about NASA besides all the 'space stuff,'" Land said.

For example, Land produced a VNR on a NASA-fabricated portable fetal heart monitor. The video contains all of the information a reporter would need to cover the story, including on-camera interviews and footage of the monitor being made and used.



"You have to take what you learn and build on it. Opportunities came up that I didn't expect."
Kimberly Land

Land sums up her public affairs specialist job as a liaison. "You are a salesperson," she said. "You sell your area of work to the public and the media."

Land attributes some of her success to attending a small college. "I had a lot of one-on-one time with my professors … and people pulling for me," Land said.

At Lynchburg, she was an anchor for the college news broadcast, "Eye on LC," and layout editor for the school's newspaper, the Critograph. Land also did an internship with the ABC affiliate WSET-TV.

"You have to take what you learn and build on it," Land said. "Opportunities came up that I didn't expect."

VASC Briefs

Actress Marina Sirtis, who plays Counselor Deanna Troi on "Star Trek: The Next Generation," visited the Virginia Air and Space Center (VASC) on Jan. 26 to celebrate the opening of the "Star Trek: Federation Science" exhibit. Sirtis also recorded several promotional announcements which will be used by Langley Research Center's Office of Education.

Photo by Jeff Caplan

Center Names New Director

The Virginia Air and Space Center's (VASC) board of directors announced on Jan. 24 its selection of Todd C. Bridgford as executive director.

Bridgford, a Hampton resident for more than 30 years, joined the VASC in 1991 and has more than 19 years of finance and general management experience in the private, for-profit sector. His leadership in the role of director of finance and operations contributed to the VASC operating in the black for the last five consecutive years as well as experiencing a steady increase in attendance during that time.

Bridgford

Nichols

The VASC is the official visitor center for Langley Research Center and recently was named the official welcome center for the Aviation World's Fair 2003.

Nichols To Visit On Feb. 23

Actress Nichelle Nichols, who played Lt. Uhura on the original "Star Trek" television series, will be the guest of honor at "Evening with Uhura," which will take place from 7 to 10 p.m. Feb. 23.

The event, which is being held in conjunction with Black History Month, will feature a presentation by Nichols on her experiences as a cast member of the ever-popular sci-fi series.

The event also will feature music by All City Jazz Ensemble and a presentation of the IMAX film, "Destiny in Space," which is narrated by Leonard Nimoy.

Tickets for the "Evening with Uhura" are $25 per person. Tickets can be reserved by calling 727-0900 ext. 741. All proceeds from the events will go toward the VASC's educational programs.

Admission to the exhibit is included in regular exhibit admission: $6.50 for adults, $5.50 for seniors, military and NASA personnel and $4.50 for children (3-11).

The Center is open from 10 a.m. to 5 p.m. daily. For more information, call 727-0900 or visit the VASC Web site at <www.vasc.org>.

Deadline For AIAA Papers Is Feb. 16

The Hampton Roads Section of the American Institute of Aeronautics and Astronautics (AIAA) is soliciting entries for its annual Young Professionals Paper Competition.

To be eligible, the first-authored paper must have been published or accepted for publication in an archival and refereed publication and originally submitted while the author was an AIAA member under the age of 35. (Previously submitted papers are eligible for this year's competition.)

The award for the winning paper, judged on technical content and style by an independent reviewing committee, will be presented at the Section's Spring Awards Banquet. The winner will receive a certificate and a free one-year membership to AIAA, and his or her name will be engraved on a plaque permanently on display in Langley's H.J.E. Reid Conference Center. Prizes for the second and third runners-up also will be given.

Members interested in participating in the competition should submit three copies of the manuscript, a copy of the acceptance letter and author information (including age and AIAA membership number) by Feb. 16 to: John C. Lin, NASA Langley Research Center, Mail Stop 170, Hampton, VA 23681-2199.

For more information, contact John Lin at 864-5556 or visit the AIAA Web site at <http://www.seva.net/~aiaa>.

AdVentures

CLASSIFIED

FOR RENT: One-bedroom executive suite in Windward Towers. Waterfront, all appliances, available immediately. $785 a month, includes parking and storage, cable and condo fees. Call 596-8484.

FOR SALE: Set of golf clubs in great shape. Steel-shaft driver, graphite-shaft 3W, putter, bag with stand. $300 or best offer. Call 989-5821.

FOR SALE: Pine entertainment center. Large TV spot on right side, glass-enclosed shelves on left, bottom half has side doors and middle shelf. (Dimensions: 59 inches wide, 54 inches tall, 21 inches deep; TV spot measures 44 inches diagonally.) $150. Call 826-1862.

FOR SALE: King-size La-Z-Boy recliner. $75. Two MacGregor physical fitness mats, $5 each. Call 898-8463.

FOR SALE: HealthRider. $75. Call 826-1862.

FOR SALE: Ryder/UHaul moving boxes. 74 small and 19 medium, used once. 50 cents each. Call 826-1862.

NARFE Meeting Feb. 12

Chapter 682 of the National Association of Retired Federal Employees (NARFE) will will hold its monthly meeting at 10 a.m. **Feb. 12** in the Midtown Community Center in Newport News. All federal employees are invited to attend. For more information, call Catherine Askew at 247-1558.

LAA To Meet On Feb. 13

Langley Research Center's Alumni Association (LAA) will meet at 11:30 a.m. **Feb. 13** in the private dining room of the Center cafeteria. The program will be "The Space Shuttle History."

TCPO Soliciting Award Nominations

Langley Research Center's Technology Commercialization Program Office (TCPO) is soliciting nominations for Research and Development Magazine's annual R&D 100 Awards.

For more information or an entry form, call Sherry Sullivan of the TCPO at 864-2556 or visit R&D Magazine's Web site at: <http://www.rdmag.com/rd100/100award.htm>.

Entry forms are due to TCPO by **Feb. 14**. TCPO will provide the entry fee.

Mammograms Offered On-Center

Langley Research Center's Management and Employee Support Branch will host mammographic exams on **March 8, 21** and **26**.

Langley employees, contractors and retirees — and their family members — are eligible for the exams. To schedule an appointment, call the Riverside Diagnostic Center at 594-3900. Time spent at the exam may be charged to J.O. B1008. The cost is $75. Payment may be made by cash, check or Visa/MasterCard.

For more information, call Langley's Management and Employee Support Branch at 864-3194.

AIAA Matson Lecture On March 21

The Hampton Roads Section (HRS) of the American Institute of Aeronautics and Astronautics (AIAA) will host its Matson Lecture dinner meeting on **March 21** at the Ramada Inn Oyster Point. A social will start at 6 p.m., and dinner will be served at 6:30 p.m.

The program, featuring Langley Research Center employee and HRS Engineer of the Year Robert Mitcheltree, will begin at 7:30 p.m. and is titled, "A Passive Earth Entry Capsule for Mars Sample Return."

The cost is $10 for members and their guests, $12 for non-members and $8 for student members. Non-members who join the AIAA at the dinner will receive a complimentary dinner.

Reservations are requested by **March 14**. For reservations, contact Robin Hardy at 844-7159 or <r.c.hardy@ larc.nasa.gov> or Mohammad Takallu at 844-7671 or <m.a.takallu@larc.nasa.gov>.

For more information, visit the HRS AIAA Web site at <www.seva.net/~aiaa>.

Volunteers Needed For FWPC Event

Langley Research Center's Federal Women's Program Committee (FWPC) is recruiting volunteers to conduct 45- to 60-minute workshops or facility tours for Take Our Daughters and Sons to Work Day, which will take place **April 26**. The workshop or tour must be interactive and tailored to a particular age group (9 to 10, 11 to 12, or 13 to 15).

Parents and sponsors will be responsible for transporting the children, and the FWPC is available to provide administrative support.

To volunteer, send an e-mail to Patsy Campbell at <p.l.campbell@larc.nasa.gov> with the following information: name, phone number and organization; brief description of the workshop or facility tour; target age group; preferred location; and preferred time frame (9 to 10 a.m., 10:15 to 11:15 a.m., 1 to 2 p.m. or 2:15 to 3:15 p.m.) The deadline to volunteer is **Feb. 16**.

Judges Needed For VJAS Event

Langley Research Center's Office of Education is recruiting volunteers to judge paper presentations at the Virginia Junior Academy of Science's (VJAS) 60th Annual Meeting, which will take place on **May 23** at James Madison University in Harrisonburg.

Judges are needed in a number of fields, including chemistry, computer science, earth and space science, math and statistics and physics.

Judges will be required to read and evaluate 20 student research papers, which will be provided three weeks prior to the meeting. Judges also will be required to attend a breakfast and lunch at the meeting.

To volunteer, contact Susan Booth at <susanvjas@aol.com>. For more information about the VJAS, visit <http://www.vacadsci.org/> online.

Center Snapshot

James Mauldin started working at Langley Research Center eight months ago on contract with NCI/Dyncorp. He is assigned to cut metal in the metal shop before delivery. Before joining NCI/Dyncorp, Mauldin served in the U.S. Air Force and worked at Newport News Ship Yard for five years and Craft Machine Works for 10. What does he like about working at Langley? "It's a stress-free workplace," he says, "and I like the people that work here."

Photo by Jeff Caplan

National Aeronautics and Space Administration

Langley Research Center
Hampton, Virginia 23681-0001

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NEWS
Researcher

February Is National African American History Month ... See Page 4

National Aeronautics and Space Administration
Langley Research Center

News Researcher

Biweekly Employee and Contractor Publication

Volume 15 ❖ Issue 4 ❖ Feb. 23, 2001

NASA photographer Paul Bagby takes photos of a controlled fire on Jan. 31 at Langley Research Center's Impact Dynamics Facility. Langley and the U.S. Department of Agriculture's Forest Service monitored the fire with two prototype FireSat instruments that allow researchers to "see" through the smoke of a fire and will help firefighters determine more quickly than ever where and how fast a fire is moving.

Photo by Jeff Caplan

Predicting Fire?

Langley Tests Prototype FireSat Instruments

By JULIA COLE
SAIC

Two prototype FireSat instruments recently field-tested over a controlled fire at Langley Research Center allow researchers to "see" through the smoke of a fire and will help firefighters determine more quickly than ever where and how fast a fire is moving.

"The ultimate goal is to put a satellite into orbit that can measure fires and transmit data back to Earth in real time," said Joel S. Levine, principal investigator for the FireSat Team.

> *"The ultimate goal is to put a satellite into orbit that can measure fires and transmit data back to Earth in real time."*
> **Joel S. Levine**

Monitoring the Jan. 31 controlled fire at the Center's Impact Dynamics Facility was the first step in a cooperative agreement between Langley and the U.S. Department of Agriculture's Forest Service.

Bruce Morris, Virginia's deputy secretary of the Office of Public Safety, and Troy Lapetina, executive director of Virginia's Department of Fire Programs, observed the field test and were on-hand to set the 30-by-30 foot collection of Christmas trees and hay bails afire. Other fire observers included representatives from the Virginia Department of Forestry and the U.S. Environmental Protection Agency.

The fire was controlled by NASA Fire Chief Douglas M. Smith and Gregory E. Kyte, a senior fire protec-

Continued on Page 5

Center Amends Access Policy

All Visitors Must Have An Employee Sponsor And Will Be Badged

On Feb. 26, Langley Research Center will implement a new Center access policy, providing increased security and safety of employees and facilities in support of NASA Administrator Daniel Goldin's initiatives.

All visitors entering the Center must have an employee sponsor and will be badged according to the following guidelines:

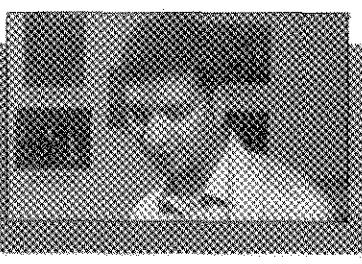
- Immediate family members may register for a visitor badge (with picture) valid for up to one year. Other situations will be considered on a case-by-case basis.
- Car pool members may register for a visitor badge valid for up to 90 days and renewable up to one year.
- Langley Child Development Center, Langley Federal Credit Union and Center cafeteria patrons may register for a visitor badge. The Center also will honor Air Force military and civilian IDs for access to these facilities.
- Visitors to recurring Langley Activities Association (LAA) events may register for a visitor badge. Visitors will be required to show picture ID during random checks. Participants in the special LAA events will be checked against a roster at the main gate and issued a visitor badge.
- Conference participants will be checked against a roster at the main gate and will be issued a visitor badge at the conference location.

Center personnel are encouraged to

Continued on Page 2

Remember: The *Researcher News* is online at <http://researchernews.larc.nasa.gov>

Inside This Issue:



Lecture On 'Living Off The Land Of Mars' *Page 3*

Educational Programs Racking Up Awards *Page 5*

News Briefs

Around the Agency

FRENCH ASTRONAUT TO VISIT SPACE STATION

Astronaut Philippe Perrin of the French Space Agency, the Centre National D'Etudes Spatiales (CNES), a lieutenant colonel in the French Air Force, has been named to the crew for the STS-111/Utilization Flight-2, scheduled for launch early in 2002. The STS-111 mission will carry experiment and resupply equipment in the Multipurpose Logistics Module to the International Space Station and install final hardware for the Canadian Mobile Servicing System.

A complete list of all astronauts and their biographical information can be found on the Internet at <http://www.jsc.nasa.gov/bios/>. RELEASE: 01-19

HUBBLE TELESCOPE EXHIBIT OPENS ONLINE

Each day, NASA's Hubble Space Telescope collects enough information and images to fill five encyclopedias. Now, anyone with access to a computer and the World Wide Web can see the most exciting pictures captured by the world's first space-based optical telescope.

A new Web site, "Hubble Space Telescope: New Views of the Universe," highlights the unique contributions to astronomy by the tireless observatory. The exhibition was developed by the Space Telescope Science Institute (STScI) in collaboration with the Smithsonian Institution.

To experience the new "Hubble Space Telescope: New Views of the Universe," visit <http://hstexhibit.stsci.edu>. RELEASE: 01-17

NASA EXERCISES CONTRACT OPTION FOR NOAA-N

NASA recently announced it is exercising a contract option for a Delta II vehicle to launch NOAA-N for the National Oceanic and Atmospheric Administration (NOAA).

The spacecraft is currently planned for launch in January 2003 from Vandenberg Air Force Base in California. The firm-fixed-price option is covered under the NASA Medium Light (MED-LITE) launch service contract (NAS5-32933), awarded by the agency on Feb. 27, 1996, to McDonnell Douglas Corp. of Huntington Beach, Calif., a subsidiary of The Boeing Company. NASA's total launch services budget for NOAA-N is approximately $56 million. RELEASE: C01-f

NASA OPENS ISS SCIENCE COMMAND POST

The command and control center for scientific research aboard the International Space Station is open for business. The science command post linking Earth-bound researchers with their experiments and astronauts in orbit was commissioned today during ceremonies at NASA's Marshall Space Flight Center.

The Payload Operations Center (POC) will provide the heartbeat for space station science operations, the most ambitious research endeavor ever undertaken in space.

"Today, we have taken another significant step toward realizing a long-held dream — a fully productive, permanent international research outpost in orbit," said Art Stephenson, director of Marshall Space Flight Center. "From this facility, we will manage fundamental scientific research that can only be done in space — research that will lead to knowledge to benefit all humanity here on earth."

More information on the POC is available on the Internet at <http://scipoc.msfc.nasa.gov>. RELEASE: 01-15

News Researcher

The Researcher News is an official publication of Langley Research Center, National Aeronautics and Space Administration, Hampton, Va., 23681-2199. It is published every other Friday in the interest of all Langley staff, contractors and retirees and has a circulation of approximately 8,100. It is distributed to all Langley civil service employees, contractors, retirees and on-site university personnel, with limited distribution to NASA Headquarters, other NASA centers and, by special request, to other non-NASA individuals and organizations. Questions related to the content and distribution of the Researcher News should be addressed to Keith Henry, Mail Stop 115, (757) 864-6120. Submit contributions/SDL 026, 055, 110 changes to the editor via e-mail <j.r.roberts@larc.nasa.gov>, fax (757) 864-6477, telephone (757) 864-8150 or Mail Stop 293. Articles, photos and announcements are due at noon the Monday following the date of this issue.

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Science and Technology Corp.

The privilege of listing announcements in this publication is restricted to the employees, contractors and retirees of the Langley Research Center. Articles must be offered without regard to race, color, religion, sex or national origin. All materials are subject to editing.

People

Fellowship Deadline Feb. 28

Langley Research Center's Employee and Organizational Development Branch is soliciting applications for the 2001-2002 Floyd L. Thompson Fellowship.

The fellowship was established in 1977 and is intended for non-supervisory researchers to pursue independent research at Langley or other institutions for up to two years. Fellows will be supported by salary, travel and per diem, and other general research expenses.

The application deadline is Feb. 28.

For more information, contact George D. Allison at 864-2594 or <g.d.allison@larc.nasa.gov> or visit <http://ohr-r.larc.nasa.gov/do.fltfpin.html>.

Employee Honored

Jim Kisicki (right), manager of the Combined Federal Campaign (CFC) of Central Virginia, presents an Award of Appreciation to Langley Research Center employee A. Terry Morris during a senior staff meeting on Feb. 5. Morris, who works in Langley's Systems Integration Branch, worked with several federal agencies in central Virginia during last year's campaign and served as marshall for the region's campaign parade. Morris is also a former CFC National Poster Representative. Joining Kisicki in his trip to Langley were representatives from Fort Lee and the Defense Supply Center in Richmond.

Photo courtesy of Christine Darden

In Memoriam

Donald H. Carson

Donald Hewett Carson died on Feb. 4 at the age of 86. Carson, a native of Charlotte, served in the Purchasing Department at Norfolk Naval Base and went on to work for NASA, retiring in 1978.

Chris C. Critzos

Chris Constantine Critzos died on Feb. 8 at the age of 77. Critzos, a native of Newport News, served in the U.S. Navy and was a veteran of World War II. He went on to work for NASA, retiring in 1980.

William Donald Evans

William Donald Evans died on Feb. 6 at the age of 61. Evans was a retired Langley Research Center security guard.

Robert H. Kirby

Robert H. Kirby died on Jan. 31 at the age of 73. Kirby, a native of Kenly, N.C., served in the U.S. Army and went on to work for NASA at Langley Research Center for 34 years.

Kirby began his career as an aeronautics research intern in 1951 and retired in 1985 as assistant director for management operations. He was the author or co-author of 26 technical publications and the recipient of a NASA Service Medal and two Special Achievement Awards.

Allen G. McLain

Allen Gray McLain died on Jan. 29 at the age of 61. McLain retired from NASA in 1994 after 30 years of service.

Emanuel Rind

Emanuel Rind died on Feb. 7 at the age of 78. Rind, a native of New York City, served in the U.S. Army and was a veteran of World War II. He was a prisoner of war — wounded and captured at the Battle of Bulge — and the recipient of a Purple Heart and two Bronze Stars.

Rind went on to serve as an aeronautical research scientist at Langley Research Center for 32 years. His career included pioneering research on effects of space radiation on people and instruments and the publication of numerous research papers.

Access

Continued from Page 1

use the online Visitor/Decal Request System at <http://Visitor/> to register U.S. visitors. (There is also a link to the system under "Employee How To" on the @LaRC Web portal.) The registration system allows employees to:

- fill out and submit visitor requests to the Badge and Pass Office;
- add, delete and change visit dates and visitor names; and
- view previously submitted requests and find out which visitors have arrived and received their badges.

Registration for Foreign Nationals and Foreign Representatives cannot be done online. For assistance with these visits, contact Sally Avery at 864-2900.

Langley's Security Office is developing a policy document that will define the new access policy. Until its issue, please address questions to John Lee, head of Langley's Office of Security and Environmental Management, at 864-2580.

Colloquium and Sigma Series Lectures

'Living Off The Land Of Mars'

K.R. Sridhar will present a Colloquium lecture entitled, "Recipes For Living Off The Land On Mars" at 2 p.m. March 13 in Langley Research Center's H.J.E. Reid Conference Center. A Sigma Series lecture will follow at 7:30 p.m. at the Virginia Air and Space Center in Hampton.

The Lecture

Humans' ability to adapt to new environments by utilizing the resources that are locally available is critical to long-term exploration and colonization of that environment. This general statement holds true for the human exploration of Mars.

Producing fuels and life-support consumables using surface material and natural resources available in the Mars atmosphere can reduce the costs and risks of pioneering human missions and lay the foundation for permanent settlements.

This talk will address the following topics: the technologies available to produce consumables (such as oxygen, methane, water and breathing gas) from the Martian atmosphere; an oxygen generation system that was to be flown on the 2001 Mars lander; and a Mars lander payload that will demonstrate production of life-support consumables, from atmosphere acquisition to the firing of a rocket.

The Speaker

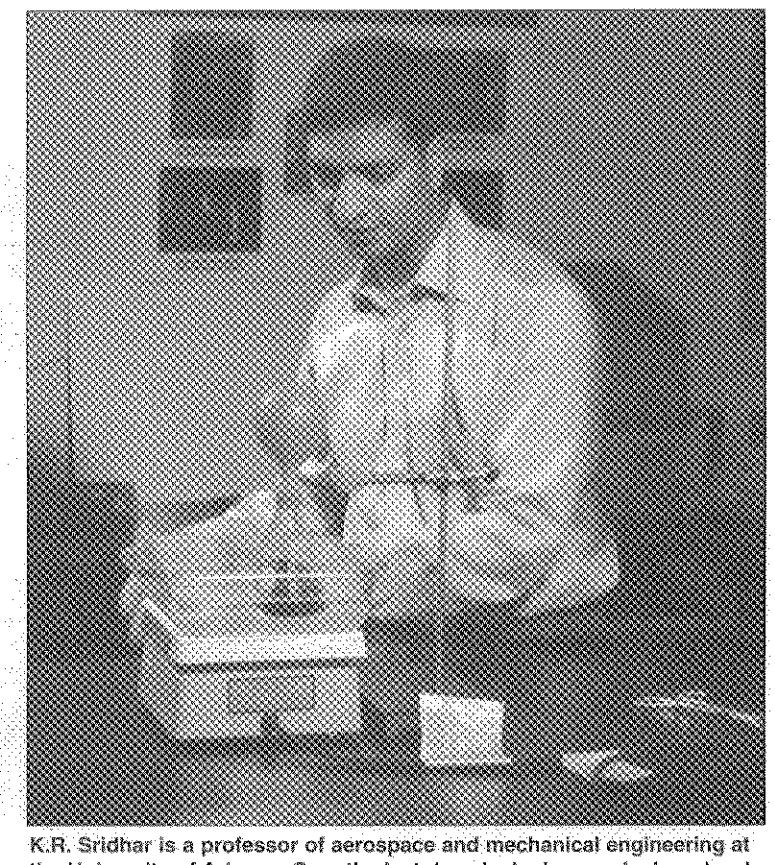
Sridhar is a professor of aerospace and mechanical engineering at the University of Arizona. Over the last decade, he has worked on developing technologies relevant to human exploration of space, including the development and validation of technologies for using planetary resources in robotic and human missions.

Sridhar received a doctorate degree in mechanical engineering from the University of Illinois at Urbana-Champaign in 1990. He has served as a senior scientist at Ames Research Center and was the principal investigator for the oxygen generator experiment slated for the 2001 Mars lander.

Upcoming Lectures

- **April 3:** David S. Powars on "The 35-Million-Year-Old Chesapeake Bay Impact Crater."
- **May 1:** Earll Murman on "Challenges and Opportunities in Aeronautical Design, Engineering and Manufacturing."
- **June 5:** Raffaello D'Andrea on "ROBOCUP: International Robotic Soccer Competition."

For more information about the lecture series, visit <http://shemesh.larc.nasa.gov/Lectures/> on the Web.



K.R. Sridhar is a professor of aerospace and mechanical engineering at the University of Arizona. Over the last decade, he has worked on developing technologies relevant to human exploration of space, including the development and validation of technologies for using planetary resources in robotic and human missions.

Photo courtesy of K.R. Sridhar

From The Office Of Safety And Mission Assurance

Better Sleep Will Lead To Better Work

Most Langley Research Center personnel work what is considered first shift, from 7 a.m. to 3:30 p.m. or 8 a.m. to 4:30 p.m. Some personnel, however, must work second or third — "alternate" — shifts. Typically, these people work when most people are asleep and attempt to sleep when the rest are awake.

Day sleeps are typically shorter than night sleeps, and night workers inevitably build up a deficit of seven hours or more over their week of duty, usually trying to make up for it with long "sleep-ins" on the weekend. This "sleep debt" is important in that partially sleep-deprived individuals perform at a lower level than fully rested ones.

Sleep deprivation also has an effect on social or domestic problems, which can have an impact on absenteeism, safety and productivity. Domestic problems arise from inability to spend time with family and friends. Socially, some shift workers feel alienated from the community, unable to attend evening educational, sports or religious functions.

The Circadian System

The circadian system is an internal body rhythm or "clock" that cycles every 24 hours. This system regulates cycles in body temperature, hormones, heart rate and other body functions. It does have a resetting mechanism allowing for realignment, but the mechanism is designed to cope with a "fine-tuning" of one hour or so per day, rather than gross changes characteristic of moves to and from night work.

The circadian system is unable to adjust instantaneously to an abrupt change in routine; rather, the process is an active one, taking several days to accomplish. Most studies have shown that adjustment of the circadian system to the typical night work takes at least one week to accomplish. Constant changing of shifts can result in jet-lag-like symptoms, including depression, irritability and poor appetite. Shift changes can lead to decreased job performance, particularly when added to the sleep disruption effects.

Factors That Affect Sleep

Sleep problems are the most common complaints from shift workers. The following factors affect a shift worker's sleep cycle.

- **Internal body factors** include the inability of the misaligned circadian system to "set the stage" for sleep.
- **Hunger and bathroom needs** are not suppressed during the sleep episode, making a prolonged bout of restful sleep either difficult or impossible.
- **External body factors** include noise from day-active society, such as traffic, telephones and children playing. Even family members may feel that a shift worker's day sleep is "fair game" for disruptions, such as meeting children at the bus or dental appointments. The same type of disruption of a day worker's sleep would be unthinkable.

Tips For Successful Sleep

On the ride home ...

Set the stage for sleep even though it may be daylight outside. On the ride home from work, wear dark, wraparound sunglasses if you are on the night shift to keep the morning sunlight from activating your internal "daytime" clock.

Bedtime routine ...

A shift worker can develop a bedtime routine to successfully fall asleep and stay asleep. Shift workers should guard the time set aside for their sleep. This time should be regular and predictable, free from social or other commitments. During that time, telephones, doorbells and domestic appliances should be silenced. Other suggestions:

- Eat a light snack before bedtime.
- Do not go to bed too full or too hungry.
- Establish rituals before going to bed, such as taking a warm bath.
- Lower the room temperature; a cool environment improves sleep.
- Do not "activate" your brain by balancing a checkbook, reading a thriller or doing other stressful activities before going to sleep.
- Avoid caffeine within five hours of bedtime, and do not use alcohol as a sedative because subsequent sleep will then be light and disrupted.
- Install heavy curtains and thick carpets to help make the bedroom as quiet as possible.
- Use a white noise machine, like a fan, to block other noises.
- Do not exercise too close to bedtime because exercise is alerting and raises the body temperature. Exercise at least three hours before you plan to go to bed; otherwise, exercise when you awaken.

Alertness At Work

The use of bright lighting and music, if appropriate, and the inclusion of strategic breaks will improve the shift worker's alertness while at work, particularly at the end of the evening shift and throughout the night shift.

Long, uninterrupted stretches of work should be avoided. It is important to have adequate refreshments for the night shift lunch break. Employees may choose to bring their own food and drink; vending machines and facility canteens also can provide refreshments.

Family Support

The support of the family is important in the life of a shift worker. The family must be made aware that the day/night strategies involve them in a very real way, with needs of self-discipline, communication and sacrifice.

Technology Licensed

Luna Will Develop Langley's Optical Tester

By KEITH HENRY
Public Affairs Office

and DOUG JUANARENA
Luna Technologies

NASA technology that promises to reduce the cost of testing sophisticated telecommunications equipment has been licensed to Luna Technologies.

The technology was originally developed by aerospace researchers at Langley Research Center.

The innovation is expected to result in a universal optical tester that can quickly verify all optical qualities of components in a fiber optic network.

Such a tester will replace several pieces of existing equipment. Its speed and multiple application are expected to result in significant savings to optical component and systems manufacturers.

Called the "Fiber Dispersion Measurement System," the technology works by measuring the impact of interference phenomena on signal dispersion. A component can be measured in about 30 seconds versus 20 minutes using the best technology available today. These improved measurements will also allow systems designers to expand the bit-rate capacity of optical components and ultimately reduce bandwidth cost to consumers.

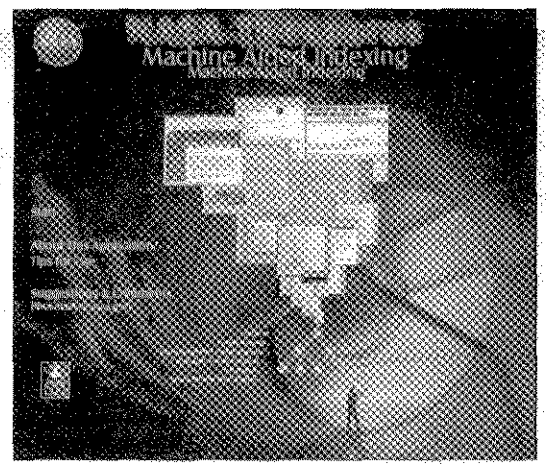
Luna, which is based in Blacksburg, learned about the technology through the Hampton Roads Technology Incubator program.

NASA Thesaurus Improved

Web-Based System Aids In Indexing Documents

NASA's Scientific and Technical Information (STI) Program recently developed a new, Web-based system called Machine Aided Indexing (MAI) to supplement the NASA STI Database and the NASA Thesaurus.

MAI originally was developed by the Center for AeroSpace Information (CASI) as an aid to indexing technical literature for the NASA STI Database.



The new application was developed by CASI in cooperation with Langley Research Center to provide authors, editors, information analysts and other users within the <nasa.gov> domain with a convenient, fully-interactive tool for identifying keywords and terms.

At the heart of the application is a language processor that can accept any user-supplied text as input — including abstracts, full-text documents and Web pages. Within seconds, the text is analyzed, resulting in a ranked listing of subject terms.

The 18,000 terms of the NASA Thesaurus serve as the foundation for the extensive knowledge base used by MAI. Using this established vocabulary of terms, MAI provides valuable assistance in assuring that technical documents and other STI data are uniformly and consistently accessible.

Traditional users of the NASA Thesaurus should note that the new tool incorporates a fully searchable thesaurus display module, allowing word-search, browsing and full hierarchical display including more than 4,000 definitions. In addition, since MAI is centrally hosted, the Thesaurus data is always completely up-to-date, eliminating the need to consult supplements. These features make the MAI application the most user-friendly form of the NASA Thesaurus available.

The Web-based NASA Thesaurus MAI tool is available to all NASA users within the <nasa.gov> domain. The application can be accessed directly at <http://www.sti.nasa.gov/nasaonly/webmai> or through the NASA STI homepage at <http://www.sti.nasa.gov/>.

The MAI application is only one of the many information analysis tools and resources available from CASI. In addition, the NASA STI Program is investigating other potential uses of language analysis tools, such as MAI, to address the growing need for more automated processing of information.

For more information, contact Michael Genuardi at (301) 621-0114 or <mgenuardi@sti.nasa.gov>.

Award Nominations Due April 14

Langley Research Center's Technology Commercialization Program Office (TCPO) is accepting nominations for NASA's 2001 Software of the Year Award.

To qualify for the competition, the software must meet the following criteria:

- NASA must have an intellectual property interest in the software;
- the software must have been supported, adopted, sponsored or used by NASA;
- the software must be significant to the NASA mission; and
- the software must be of commercial-grade (not alpha or beta phase), i.e., the software must have been released by the nominating NASA Center Release Authority to qualified users or has been dedicated for use in NASA missions.

Nomination packages should consist of a NASA Form 1329 "ICB Space Act Award Application," a Summary Evaluation Document and letters of endorsement.

The NASA Form 1329 and Summary Evaluation Form are available online at <http://icb.nasa.gov/swoyinfo.html>. The completed Summary Evaluation Form should include focused, concise and relevant answers and should not exceed six pages.

A NASA Form 1679 "Disclosure of Invention and New Technology" also should be completed and submitted to the Office of Patent Counsel prior to or together with the nomination.

All Langley entries and supporting material must be submitted to the TCPO (Bldg. 1229, Room 122C or Mail Stop 200) by April 14.

For more information, contact Sherry Sullivan at 864-2556 or <s.l.sullivan@larc.nasa.gov>.

'Let Us Celebrate And Remember'

National African American History Month, 2001

A Proclamation

In 1915, Carter Godwin Woodson, the father of Black history, founded the Association for the Study of African-American Life and History. Each February, the Association proposes a theme to guide the celebration of National African American History Month. For this year, the Association has chosen "Creating and Defining the African-American Community: Family, Church, Politics and Culture."

This month in particular, we remember the stories of those who have helped to build our nation and advance the cause of freedom and civil rights. We remember the bravery of the soldiers of the 54th Massachusetts Infantry Regiment and the sailors of the USS Mason in service to our country. We remember those who marched on Washington, sat at whites-only lunch counters and walked rather than use segregated buses. And we remember those, known only to each of us, who helped to build our families, places of worship and communities.

When we examine our nation's history, we discover these and countless other stories that inspire us. They are stories of the triumph of the human spirit, tragic stories of cruelty rooted in ignorance and bigotry, yet stories of everyday people rising above their circumstances and the prejudice of others to build lives of dignity.

This month, and throughout the year, let us celebrate and remember these stories, which reflect the history of African Americans and all Americans. We can all enjoy the works of writers like Paul Laurence Dunbar, James Weldon Johnson, Zora Neale Hurston and Langston Hughes. In our nation's schools, our children can learn to admire Booker T. Washington, Sojourner Truth, Frederick Douglass and others. And Americans from all backgrounds can be ennobled by the examples of Thurgood Marshall, Roy Wilkins, Whitney Young, Mary Church Terrell and other civil rights leaders.

As we celebrate African American History Month, let us commit ourselves to raising awareness and appreciation of African American history. Let us teach our children, and all Americans, to rise above brutality and bigotry and to be champions of liberty, human dignity, and equality. And let us rededicate ourselves to affirming the promise of our Constitution.

Now, therefore, I, George W. Bush, President of the United States of America, by virtue of the authority vested in me by the Constitution and laws of the United States, do hereby proclaim February 2001 as National African American History Month. I call upon public officials, educators, librarians and all of the people of the United States to observe this month with appropriate ceremonies, activities and programs.

In witness whereof, I have hereunto set my hand this first day of February, in the year of our Lord two thousand one, and of the Independence of the United States of America the two hundred and twenty-fifth.

From The Office Of Education

'CONNECT'ing More Than Ever

NASA's Educational Programs Are Picking Up Viewers And Awards

By KIMBERLY W. LAND
Planners Collaborative

Mention NASA and responses usually run the gamut from space shuttle to space station ... astronauts to aeronautics ... Mars to mission control. What is not yet an automatic response is that one of NASA's missions is education.

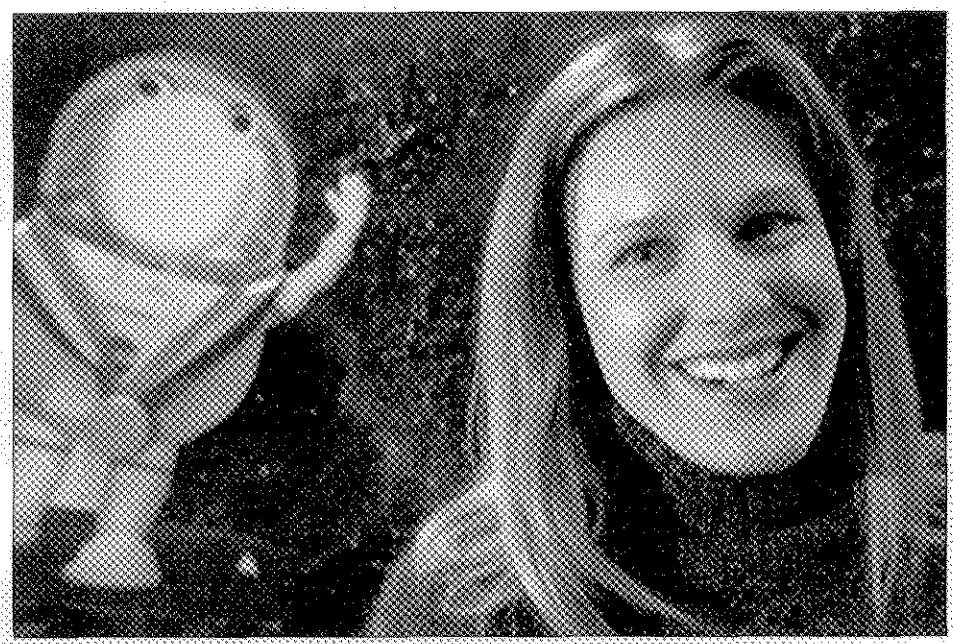
Langley Research Center's Office of Education (OEd) produces award-winning educational programs for students, teachers and life-long learners around the world. "NASA CONNECT" and "The NASA 'Why?' Files" are a series of standards-based, instructional programs designed to enhance math, science and technology concepts via television and the Internet.

■ Shannon S. Ricles, the coordinating producer of "The NASA 'Why?' Files" program, is featured in the "Center Snapshot" on page 6.

The programs feature educators and students from Hampton Roads and from across the United States, not to mention Langley's researchers.

"I was scared to death when they asked me," said Bob Daugherty, a senior aerospace technologist who was featured in the first program in the 2000-2001 "NASA CONNECT" series, "Measurements, Ratios and Graphing: 3, 2, 1…Crash!" "But when you've been integrated into the show from the very beginning, you feel more comfortable. You get to use your own words and help plan the show from day one."

Many of the programs also feature celebrities. Two upcoming programs, for example, will include international movie star Jackie Chan and NBC "Today" show weatherman Al Roker.



"The shows are a wonderful tool for middle school educators and their students," says Jennifer Pulley, the coordinating producer and co-host for "NASA CONNECT." "They enhance and enrich the math, science and technology that students are learning in school and 'connect' what they are learning with the research conducted at NASA."

Photo by Jeff Caplan

The programs' list of awards is also growing by the episode. This month, the 1999-2000 "NASA CONNECT" series received a World Medal from the New York Festivals for best secondary education children's program, and the "Glow with the Flow" and "3, 2, 1…Crash!" episodes each received Communicator Awards for on-camera talent and editing, respectively.

Last year, "NASA CONNECT" also won two Capitol Region Emmy Awards for Outstanding Children's Program and the Gold Camera Award from the United States International Film and Video Festival.

Since its birth in 1996, "NASA CONNECT" has reached close to 8 million students worldwide, and 150,000 teachers and parents are registered users. With an additional 2 million students and 100,000 educators registered with "The NASA 'Why?' Files," the two programs are reaching more audiences and gaining more recognition for Langley's distance education efforts.

Jennifer Pulley, the coordinating producer and co-host for "NASA CONNECT," said the ultimate goal is to make "NASA CONNECT" a household name. To produce a 30-minute program, its accompanying educator's guide and the Web-based component, on the average of five shows a season, is hard work but worth it, Pulley says.

"There are many science programs out there, but 'NASA CONNECT' really focuses on the math," she said. "To know that you're providing good role models for kids makes it worth the work."

Langley's OEd offers a wide variety of programs for students and teachers at the elementary, secondary, undergraduate, graduate and postdoctoral levels of study. Internships and fellowships are also available to those interested in research at Langley. For more information, visit the OEd's Web site at <http://edu.larc.nasa.gov> or contact Thomas Pinelli at 864-2491.

Upcoming Programs

March 14: "The 'Why?' Files: The Case of the Challenging Flight." The season finale features the series detectives using what they learn about the four forces of flight to compete in an "egg-tra-ordinary" airplane contest. Along the way, they get help from Jackie Chan, the U.S. Navy, Burt Rutan and NASA.

Chan

March 15: "NASA CONNECT: Ahead Above the Clouds." The episode, which features "Today" show weatherman Al Roker, is about predicting severe weather, tracking clouds and monitoring pollutants in the air. It highlights technologies being developed by NASA researchers to collect data that will help better understand Earth's climate.

Seven NASA Scholarships Available This Year

Langley Research Center's Office of Human Resources (OHR) is soliciting applications for NASA College Scholarships.

Seven scholarships will be awarded Agencywide in the amount of $2,000 each. The renewable scholarship is for a maximum of $8,000 over six calendar years.

Applicants must be dependents of NASA and former NASA employees and pursuing a course of study in a science or engineering field that will lead to a recognized undergraduate degree at an accredited college or university in the United States.

In addition to the dependency requirement, all applicants must be a graduate of an accredited high school or be enrolled in college with good academic standing. Applicants must have a combined high school and college grade point average of 2.5 on a 4.0 scale (or the equivalent).

Applicants who are dependents of current or retired NASA employees must be dependents of NASA employees who are actually employed by NASA for a period of two years as of January of the scholarship year. There is no minimum period of employment requirement for eligible dependents of former NASA employees or former reimbursable detailees to NASA who died while employed by NASA.

Application forms are available from Carlie Johanson in Langley's OHR and online at <http://jscpeople.jsc.nasa.gov/jsc-hro-2/special_programs/scholarship.htm>.

The deadline to apply is March 30.

The NASA College Scholarship Fund, Inc., is a nonprofit corporation, established as the direct result of a gift from the Pulitzer Prize-winning author James Michener and maintained by tax-deductible contributions made by employees mainly via the Combined Federal Campaign.

Since 1982, 90 scholarships have been awarded. There are presently 21 dependents who are receiving the scholarship grant.

FireSat

Continued from Page 1

tion engineer with Mainthia Technologies.

About 165 feet above the fire, FireSat Team members Terry Blackburn, Richard Davis and Nina Tappan obtained images of the temperature distribution of the fire updated every 10 seconds from two infrared monitors.

The monitors measure a very wide temperature range from below freezing to several thousands degrees Celsius, making measurements of heat differences within a fire possible.

"Right now, the results look outstanding," Levine said.

The monitors now will go to Albuquerque, N.M., where Forest Service scientists will fly them over wildfires in the Southwest.

The FireSat team will continue to support the agreement between Langley and the Forest Service by developing instruments for the remote sensing of fires.

Levine said the FireSat instruments also will help determine how much carbon dioxide fires emit into the atmosphere, aiding scientists studying global climate change.

AdVentures

LFCU Branch Closing For March

Langley Federal Credit Union's (LFCU) Langley Research Center branch will be closed from **March 1** through **April 1** for renovations.

"It's time for a new look," said Jean Yokum, LFCU's president and chief executive officer. "Our roots were first planted here at NASA, and we'd like our branch to reflect the pride we have in our NASA membership. Members will enjoy an entirely new experience once the renovations are complete."

Although the branch will be closed, an LFCU ATM will be available on-site for no-surcharge withdrawals. The Langley Air Force Base (LAFB) branch, located in LAFB Bldg. 157, and the Poquoson branch, located at 415 Wythe Creek Road, also will be open as usual.

Volunteer Stories Wanted

Langley Research Center's Public Services Office is looking for employees to write articles about their volunteering experiences for the "Community Corner" column in the *Researcher News*.

If you are interested in sharing your volunteering experience, contact Pam Verniel at 864-2449 or <p.j.verniel@larc.nasa.gov> or Sandra West at 864-3957 or <s.c.lemons@larc.nasa.gov>.

Mammograms Offered On-Center

Langley Research Center's Management and Employee Support Branch will host mammographic exams on **March 8, 21** and **26**.

Langley employees, contractors and retirees — and their family members — are eligible for the exams. To schedule an appointment, call the Riverside Diagnostic Center at 594-3900. Time spent at the exam may be charged to J.O. B1008. The cost is $75. Payment may be made by cash, check or Visa/MasterCard.

For more information, call Langley's Management and Employee Support Branch at 864-3194.

FIRST Robotics Event March 8-10

Langley Research Center and Virginia Commonwealth University's School of Engineering will host the second annual FIRST Robotics Competition from **March 8-10** at the Siegel Center in Richmond.

The event, the largest of the 13 regional FIRST robotics competitions held nationwide, will feature 70 teams of students, teachers, engineers and technicians competing with student-built, human-sized robots on a field the size of a basketball court.

A special guest at this year's competition will be Joseph Allen, the former NASA astronaut who served as a mission specialist on two space shuttle flights and a mission controller for Apollo 15 and 17.

The event is free and open to the public. For more information, visit Langley's Robotics Web Site at <http://robots.larc.nasa.gov> or contact Jeff Seaton at <j.m.seaton@larc.nasa.gov>.

LAA To Meet On March 13

Langley Research Center's Alumni Association (LAA) will meet at 11:30 a.m. **March 13** in the private dining room of the Center cafeteria. The program will feature Mary Yakamowski of the Hampton School System.

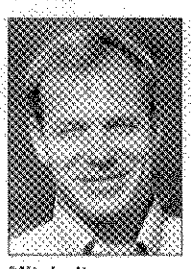
CLASSIFIED

The next edition of the *Researcher News* will be published on March 9. Please send submissions to <r.r.robens@larc.nasa.gov> by Feb. 26.

AIAA Matson Lecture On March 21

The Hampton Roads Section (HRS) of the American Institute of Aeronautics and Astronautics (AIAA) will host its Matson Lecture dinner meeting on **March 21** at the Ramada Inn Oyster Point. A social will start at 6 p.m., and dinner will be served at 6:30 p.m.

The program, featuring Langley Research Center employee and HRS Engineer of the Year Robert Mitcheltree, will begin at 7:30 p.m. and is titled, "A Passive Earth Entry Capsule for Mars Sample Return."



Mitcheltree

The cost is $10 for members and their guests, $12 for non-members and $8 for student members. Non-members who join the AIAA at the dinner will receive a complimentary dinner.

Reservations are requested by **March 14**. For reservations, contact Robin Hardy at 844-7159 or <r.c.hardy@larc.nasa.gov> or Mohammad Takallu at 844-7671 or <m.a.takallu@larc.nasa.gov>.

For more information, visit the HRS AIAA Web site at <www.seva.net/~aiaa>.

Open House Volunteers Needed

Langley Research Center's Public Services Office is recruiting volunteers to support the Center's Open House, which will take place from 9 a.m. to 4 p.m. **April 28**.

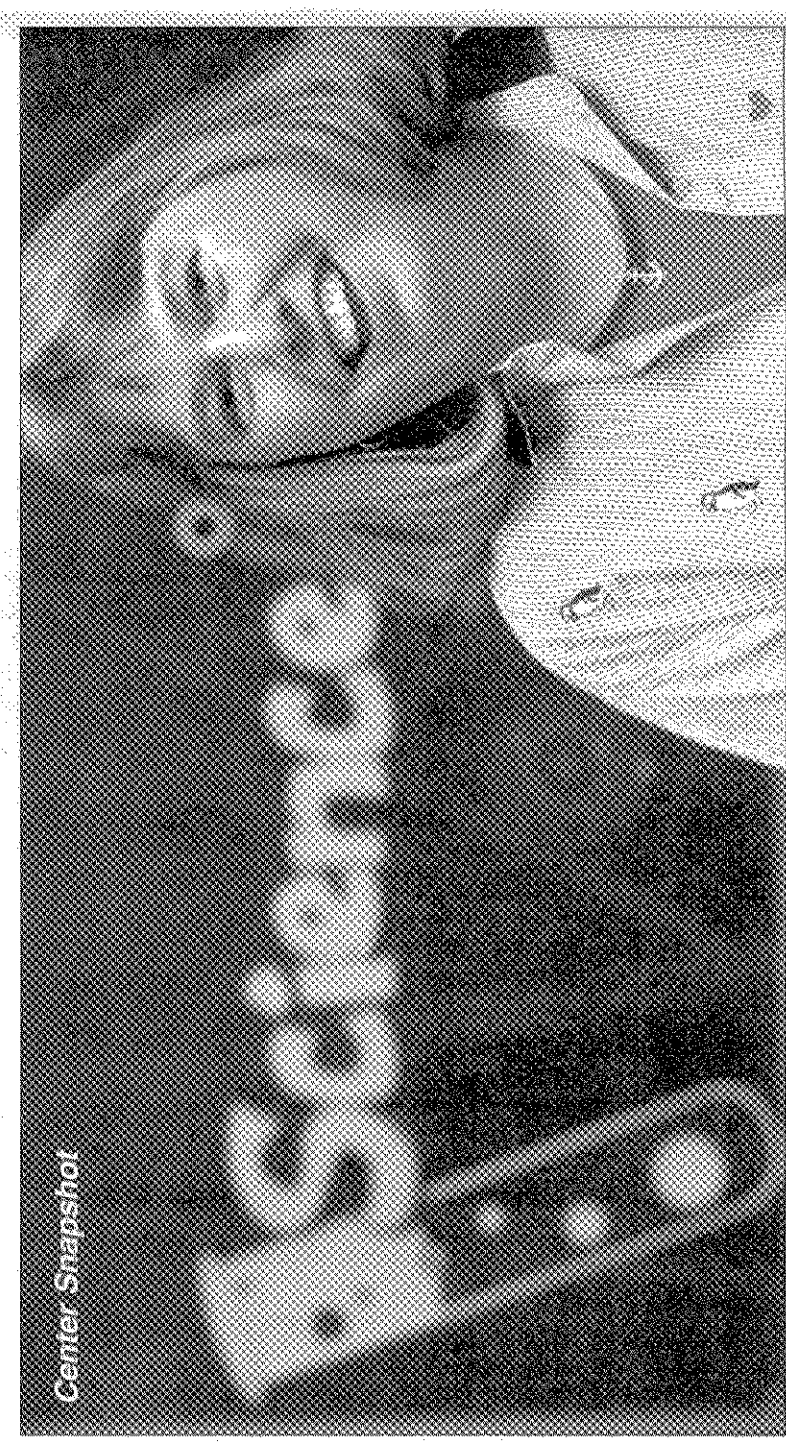
Volunteers are needed before and during the Open House for a variety of activities. All civil servants, contractors and retirees are invited to volunteer. To participate, contact Pam Verniel at <p.j.verniel@larc.nasa.gov>.

Goddard Hosting FEM Workshop

Goddard Space Flight Center will host a workshop entitled, "Innovative FEM Solutions to Challenging Problems," from **May 16-17** in Greenbelt, Md.

The goals of the workshop are to bring together engineers from the aerospace community to discuss and exchange knowledge and experience in the field of finite element modeling and analysis and to establish a network among analysts. The emphasis of the workshop is on finite element-based solutions to challenging problems encountered in aerospace hardware development.

For more information or to submit an abstract, visit the workshop Web site at <http://femci.gsfc.nasa.gov/workshop/> or contact Jim Loughlin at (301) 286-6114 or <james.loughlin@gsfc.nasa.gov>.



Center Snapshot

Shannon S. Ricles, a Christopher Newport University (CNU) employee, is on contract to Langley Research Center's Office of Education to produce "The NASA 'Why?' Files" program. She coordinates a staff of 20 people who help produce the program, which teaches science and problem-based learning to students in grades 3 through 5. Ricles earned a bachelor's degree in education from the University of North Texas and was teaching fourth grade at Tucker-Capp Elementary School in Hampton before joining CNU. She enjoys traveling in her free time and says her most memorable trip was to Norway. What does she like most about working at Langley? "I was really excited about video production," she says. "The show actually teaches science the way science should be taught."

Photo by Jeff Caplan

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Researcher News

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Langley Research Center

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Biweekly Employee and Contractor Publication

Volume 15 ❖ Issue 5 ❖ March 9, 2001

X-33, X-34 Programs Cancelled

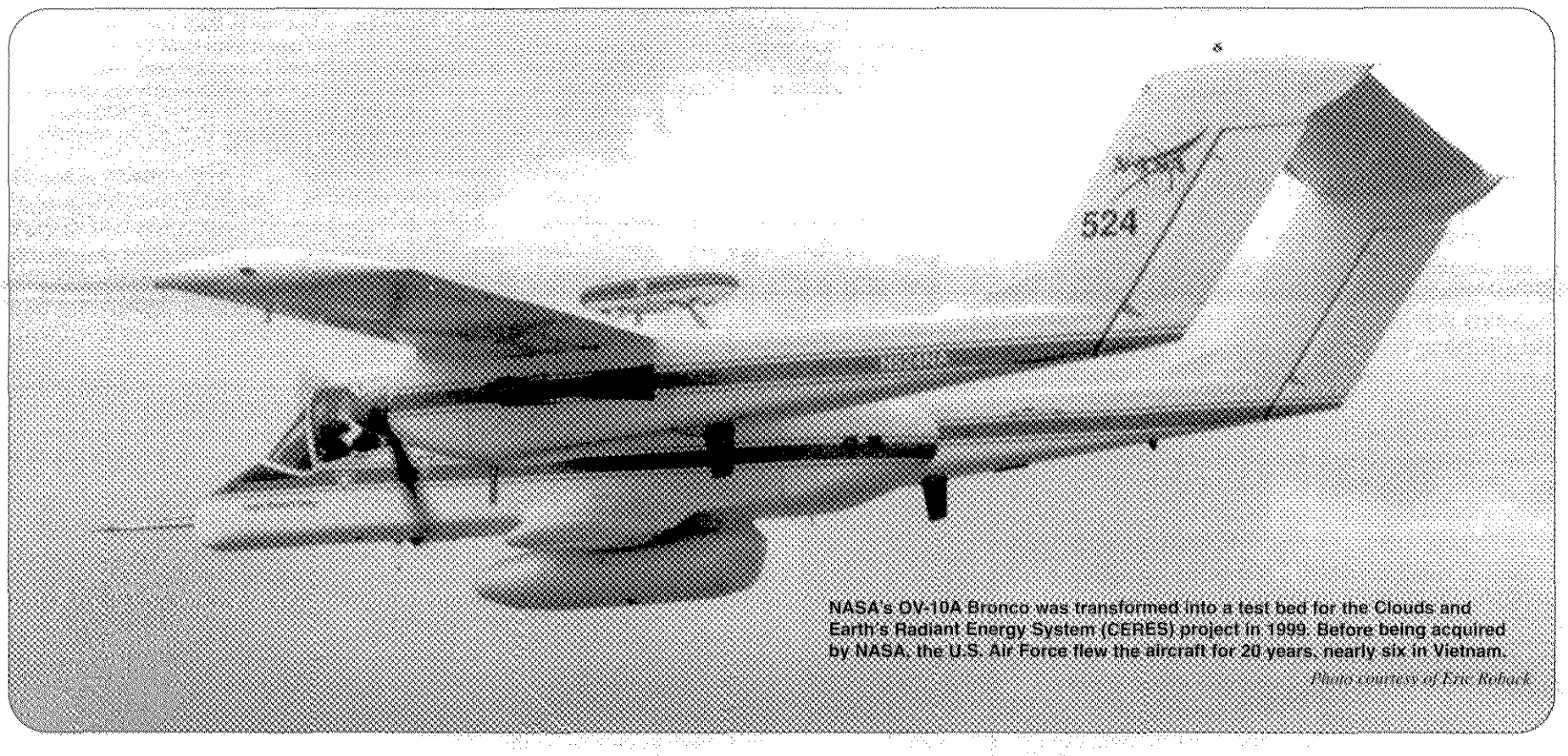
NASA announced on March 1 that it will not add Space Launch Initiative (SLI) funds to its X-33 or X-34 programs.

As a result, the current X-33 program will come to completion when the cooperative agreement between NASA and Lockheed Martin expires on March 31, unless Lockheed Martin chooses to go forward with the program with its own funds. NASA is in the process of ending its X-34 contract with Orbital Sciences Corp. of Dulles.

Continuation of both programs had depended upon their successfully competing for SLI funding under a NASA Research Announcement that will lead to award of some $900 million over the next two-and-a-half years. That solicitation was issued in October 2000, and industry proposals submitted in December 2000. Contract awards could be awarded as early as April, but none of those negotiations will include X-33 or X-34. NASA determined that the benefits to be derived from flight testing these X-vehicles did not warrant the magnitude of government investment required and that SLI funds should be applied to higher priority needs.

"This has been a very tough decision but we think it is the right business decision," said Art Stephenson, director of NASA's Marshall Space Flight Center, which manages the SLI, X-33 and X-34 programs for NASA. "We have gained a tremendous amount of knowledge from these X-programs, but ... our technology has not yet advanced to the point that we can successfully develop a new reusable launch vehicle that substantially improves safety, reliability and affordability."

NASA's announcement coincided with the deadline for the print edition of the *Researcher News*. For more coverage, visit the *Researcher News* Web site at <http://researchernews.larc.nasa.gov>.



NASA's OV-10A Bronco was transformed into a test bed for the Clouds and Earth's Radiant Energy System (CERES) project in 1999. Before being acquired by NASA, the U.S. Air Force flew the aircraft for 20 years, nearly six in Vietnam.

Photo courtesy of Eric Reback

Battle-Tested Bronco

Langley's OV-10A — Half Jet, Half Helicopter — Served In Vietnam

By MEGHAN WOODCOCK
Researcher News assistant editor

Most of the aircraft housed in Langley Research Center's hangar have interesting histories, perhaps none more so than NASA's OV-10A Bronco, tail no. 524.

OV-10 aircraft were designed and built in the 1960s by North American in Columbus, Ohio, specifically for Forward Aircraft Controller (FAC) missions.

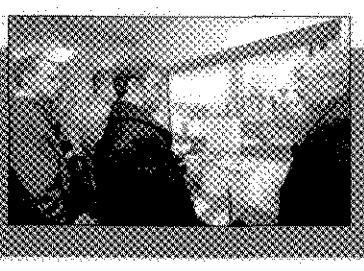
The OV-10 design bridged the gap between jets and helicopters; they were faster and more versatile than helicopters and slower and more maneuverable than jets, utilizing tactics not possible with either.

Many Bronco crews faced significant danger in Vietnam, flying low and slow over battlefields and reporting to commanders to direct the air-to-ground strikes on enemy positions. Sometimes they had to mark targets for strikes with smoke rockets or grenades. In fact, the only Air Force Medal of Honor given during the Vietnam War was awarded to Capt. Steve Bennett, a Bronco pilot.

Equipped with four 7.62-millimeter guns and a variety of conventional ordnance as well as rocket or missile pack-

Continued on Page 3

Inside This Issue:



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Historic Laser Donated To MIT — Page 5

News Briefs

Around the Agency

NASA ABORTS ULDB BALLOON FLIGHT

NASA scientists are working to determine why the maiden flight of a giant research balloon designed to fly around the world at the edge of space was cut short.

After developing a leak, the test mission of the Ultra-Long Duration Balloon (ULDB) was terminated a little more than 4 hours into the flight. The large scientific balloon lifted off Sunday morning from Alice Springs, Australia. The ULDB reached an altitude of nearly 85,000 feet before the decision was made to bring the balloon and its payload down.

More information on the ULDB program can be found on the Internet at <http://www.wff.nasa.gov/~uldb/index.html>. RELEASE: 01-28

JSC DIRECTOR APPOINTED TO HQ POSITION

NASA Administrator Daniel S. Goldin recently appointed George Abbey, Director of the Johnson Space Center (JSC), as his Senior Assistant for International Issues.

The appointment comes after a highly decorated career stemming from the Apollo program, which earned Abbey the Medal of Freedom for his role on the Apollo 13 Mission Operations Team.

Roy Estess, Director of NASA's Stennis Space Center in Mississippi, will serve as the acting director of JSC. Stennis is the Agency's lead center for rocket propulsion testing and for commercial remote sensing.

MISSION ACCOMPLISHED BY 2MASS SKY SURVEY

After scanning the entire sky and capturing breathtaking and scientifically important images of galaxies, stars and other celestial objects, a pair of infrared telescopes has finished its survey work.

For the past three and a half years, the twin telescopes of the Two Micron All-Sky Survey (2MASS), located in Arizona and Chile, have conducted the first high-resolution digital survey of the complete sky. The successful completion of observations marks a milestone in modern astronomy. For the next two years, data processing will continue for the 24 terabytes of archive data, which is enough to fill more than 2,000 hard drives on the average home computer.

More information about 2MASS is available on the Internet at <http://www.ipac.caltech.edu/2mass>. RELEASE: 01-26

MAPPING MISSION CATCHES ANTARCTICA IN MOTION

Antarctica may appear to be a land frozen in time, but it certainly is not still. Glaciers plow down the continent's center to the sea, icebergs snap off and crash into the ocean, and great rivers of ice snake through the ice sheet, evidence of a dynamic relationship between this remote continent and global climate.

A joint NASA and Canadian Space Agency mission now provides a more comprehensive view of how the Antarctic ice sheet moves and changes and may help answer some fundamental questions about this mysterious place at the end of the world, including whether the ice sheet is advancing or retreating.

More information on the mission is available on the Internet at <http://www-bprc.mps.ohio-state.edu/radarsat>. RELEASE: 01-24

News Researcher

The Researcher News is an official publication of Langley Research Center, National Aeronautics and Space Administration, Hampton, Va., 23681-2199. It is published every other Friday in the interest of all Langley staff, contractors and retirees and has a circulation of approximately 8,100. It is distributed to all Langley civil service employees, contractors, retirees and on-site university personnel, with limited distribution to NASA Headquarters, other NASA centers and, by special request, to other non-NASA individuals and organizations. Questions related to the content and distribution of the Researcher News should be addressed to Keith Henry, Mail Stop 115, (757) 864-6120. Submit contributions/SDL 026, 055, 110 changes to the editor via e-mail <j.r.roberts@larc.nasa.gov>, fax (757) 864-6477, telephone (757) 864-8150 or Mail Stop 293. Articles, photos and announcements are due at noon the Monday following the date of this issue.

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Science and Technology Corp.

The privilege of listing announcements in this publication is restricted to the employees, contractors and retirees of the Langley Research Center. Articles must be offered without regard to race, color, religion, sex or national origin. All materials are subject to editing.

People

ATOMS Awards

Langley Research Center employees and Adventures in Technology = Options in Math and Science (ATOMS) team members Nancy Holloway (third from left) and Meg Holloman (fourth from left) visited Crittenden Middle School on Feb. 15 to present ATOMS T-shirts to students Lauren Leftwich (second from left) and Rob Weidman (right). The students received the T-shirts for correctly answering a questionnaire about Langley's 7-by-10 Foot High Speed Wind Tunnel, which they toured during an ATOMS-sponsored visit last semester. Joining them for the presentation is Tanya Cohen-Caldwell (left), the coordinator of the ATOMS program office at Thomas Nelson Community College.

Photo by Jeff Caplan

Employee Commended

Langley Research Center employee **Frank E. Batts Sr.** recently received a letter of commendation from NASA Administrator Daniel S. Goldin for becoming the first African-American to head a brigade-sized unit in the Virginia Army National Guard. Batts, who works in Langley's Data Acquisition and Information Management Branch, took command of the 54th Field Artillery Brigade in Virginia Beach on Oct. 1, 2000.

Batts

"On behalf of the entire NASA team, I want to extend congratulations on your recent, historic promotion in the Virginia National Guard and thank you for the dedication to your community evidenced by your long association with the Virginia Guard," Goldin wrote. "Your commitment to serve both the nation's space program and the larger community outside the Center's gates exemplifies the best of the NASA spirit and vision."

Batts has served in the Virginia Army National Guard since 1984. He received his commission through the ROTC program at North Carolina A&T State University in 1976 and also has served in the West Virginia and Tennessee Guards.

Retirement

Langley Research Center's Electromagnetics Research Branch will host a retirement party honoring **M.C. Bailey** on March 30 at the Omni Newport News Hotel. A cocktail hour will begin at 6 p.m., and dinner will be served at 7 p.m.

The cost is $28 per person. (The cost includes a gift contribution.) Please RSVP with payment and dinner choice (roast prime rib of beef au jus or broiled fillet of flounder) by March 9 to Robin Cravey at 864-1819, Erik Vedeler at 864-2933 or Delores Williams at 864-1772.

In Memoriam

Thomas J. Hickey

Thomas J. Hickey died on Feb. 3 at the age of 82. Hickey, a native of New York City, served in the U.S. Army for 23 years and was a veteran of World War II and the Korean and Vietnam wars. He achieved the rank of colonel and was the recipient of two Legion of Merit medals and the Bronze Star. After retiring from the Army, Hickey worked as the contract manager for Klate Holt Co. at Langley Research Center for six years.

Willard E. Meador

Willard Edward Meador died on Dec. 23, 2000, at the age of 69. Meador, an active employee in Langley Research Center's Hypersonic Air Breathing Propulsion Branch at the time of his death, worked for NASA since 1958. He conducted original analytical research in physical gas dynamics and boundary-layer theory to better understand the flow fields enveloping hypersonic air breathing vehicles, both in ground test facilities and in flight.

Sheldon T. Peterson

Sheldon Theron Peterson died on Feb. 16 at the age of 83. Peterson, a native of New Windsor, Ill., served as a physicist at Langley Research Center for 35 years, retiring in 1974.

Henry M. Soltz

Henry M. Soltz died on Feb. 15 at the age of 81. Soltz, a native of Newport News, worked at NASA for many years.

Noah T. Woolard

Noah T. Woolard died on Feb. 12 at the age of 78. Woolard, a native of Washington, N.C., served in the U.S. Navy and went on to work as a planner estimator for NASA, retiring after 25 years of service.

MCLT's 'Spice of Life'

Just What Is 'Diversity' Anyway?

Editor's note: *This is the first article in a series of diversity-related items submitted by Langley Research Center's Multicultural Leadership Team (MCLT). The articles will appear on a monthly basis.*

By MICHAEL D. UENKING
Crew/Vehicle Integration Branch

Just what is diversity?

The short answer: It's all of us in our rich and infinite varieties.

For everyone who asks the question, there may be a different assumption about what it is, what diversity programs are intended to do and, most importantly, who they are designed to help and who might they inadvertently hurt.

Properly implemented, diversity initiatives should improve the organization for everyone. But they aren't always done properly, and misperceptions of diversity abound everywhere. For this reason, we'd like to offer a set of assumptions and belief systems about diversity that have much more to do with human behavior than they do race, ethnicity or gender. In this paradigm of diversity, everyone belongs, and all people tend to benefit from the experience.

Seven Principles of Diversity

1. Diversity is an inside job, meaning that diversity is not about "them." Rather, it is about each person coming to terms with his or her attitudes, beliefs and expectations about others and gaining comfort with differences.

2. Diversity goes beyond race and gender. The diversity tent is big enough to include everyone ... young and old, homeless and affluent, immigrant and native, white and black, gang member and corporate professional.

3. No one is the target of blame for current or past inequities. All human beings have been socialized to behave in certain ways, and all of us are at times both perpetrators and victims of discrimination and stereotypes. The idea is to move forward in creating more opportunities.

4. Human beings are ethnocentric, seeing the world through their own narrow view and judging the world by their familiar yardstick.

5. The human species resists change, continuing to seek homeostasis. This makes the constant adaptation required by diversity difficult for people already overwhelmed by staggering transitions in today's organizations.

6. Human beings find comfort and trust in likeness. There is a tendency to seek the company of those most similar to us in a variety of ways ... age, gender and ethnicity being just several of many.

7. It is difficult for people to share power. History shows us that we rarely do it voluntarily. Understanding this last reality helps clarify why there is sometimes a backlash associated with diversity from people, particularly white males, who believe they lose out in this experience.

All of these truisms about the human species do not make people mean-spirited or cruel. It just makes us human. Nevertheless, these realities make dealing with diversity a challenge, particularly in the current rapidly changing environment of smaller businesses and reengineered corporations. As the world transitions from the industrial age to a highly technological information age, jobs are lost as companies attempt to be leaner in the global economy. Displacement and downsizing are rampant. Diversity frequently becomes the convenient scapegoat for an employee's frustration about lost opportunity and a fuzzy future.

While diversity can't fix those traumas or transitions, neither should it legitimately be blamed for them. The complexity, challenge and confusion surrounding diversity show us that for all our scientific and technological advancements, as we progress through the 21st century, on the human behavior front, we have a long way to go.

In the next article, we will look at our interactions with our fellow "diverse" employees and see how we can better appreciate and more importantly, embrace the cultural differences amongst them.

This article was derived from HR Press' Diversity Works Article Service. Employees' submissions and ideas are welcomed. Send submissions to Michael D. Uenking at <m.d.uenking@larc.nasa.gov>.

Bronco

Continued from Page 1

ages, the Broncos were used for many versatile missions in Vietnam. Those missions included anti-guerrilla operations, helicopter escort, close air support, armed reconnaissance, cargo and paratroop drops, medical evacuation and smoke screening.

History of NASA's Bronco

The OV-10A, tail no. 524 shared in that illustrious Bronco history. Accepted by the Air Force in January 1969 at McClellan Air Force Base in California, the aircraft was immediately disassembled for shipment to Vietnam. The next month the aircraft was allocated to the 504th Tactical Air Support Group at Bien Hoa Air Base, Vietnam. It was then assigned to act as FAC over many different battlefields.

It was transferred in July of 1971 to Phan Reng Air Base in Vietnam, where it made deployments to Nak Hom Phanom Royal Thai Air Force Base, Thailand. Less than a year later, in March of 1972, it began deployments to Da Nang Air Base under the 56th Special Operations Group. It was flown until the end of the Vietnam War in 1974, having accumulated nearly six years of flight time running military missions along the Ho Chi Min Trail.

In 1974 it was allocated to the 19th TAC Air Support Squadron (TASS) at Osan Air Base, Korea. A paper transfer changed allocation to the 51st Composite Wing, but the Bronco remained in Korea for eight years until July of 1982.

The aircraft was then transferred to the 22nd TASS at Wheeler Air Force Base in Hawaii in 1982 where it remained for six more years. In 1988 the Bronco was sent to 602nd TAC Air Control Wing at George Air Force Base in California. Altogether, the aircraft was out of the continental U.S. for 20 years.

In May 1990 the Bronco was moved to the 507th TAC Air Wing at Shaw Air Force Base in South Carolina. Its military services ended in 1992 at Cherry Point Marine Corps Air Station in North Carolina, where it was stripped down.

NASA Acquires a Bronco

Next, the Bronco was sent to Lewis Research Center (now Glenn) in Cleveland for use in acoustics studies. According to the Bronco Association, there were several reasons the aircraft made a good acoustics test bed: "The ability to easily switch the engines on a Bronco to produce any combination of propeller rotation directions between the two engines allows for research to be performed that would be more difficult with other airframes. In addition, the OV-10's propellers always turn at 2,000 rpm, and it has been written that the noise level remains constant whether you are sitting on the ramp at idle or cruising at maximum speed."

It was transferred to Langley on Sept. 3, 1991, for use with the Wake Vortex Hazards project, where it was used as an encounter airplane flying behind aircraft generating wake vortices. Research system modifications were completed in 1994 and in 1996 the aircraft was put on hiatus.

OV-10 Bronco Specs

Wingspan: 40 feet
Length: 39.7 feet
Height: 15.1 feet
Wing area: 291 square feet
Power: Two 175-horsepower turbo-prop engines
Weight range: 8,000 to 14,000 pounds
Speed range: 60 to 230 knots

Current OV-10A Projects

In 1999, the OV-10A was transformed into a test bed for the Clouds and Earth's Radiant Energy System (CERES) project that is predicted to run until 2003. According to Eric Roback, the operations engineer for the CERES project, the OV-10 platform is a more versatile follow-on to studies conducted with a helicopter.

"The helicopter carried a down-looking pod and used ground stations for up-looking radiative flux measurements," Roback said. "In addition to greater altitude and speed capability, the OV-10 has an additional top-mounted pod which performs the up-looking functions of the ground stations. The OV-10 is cheaper to operate and more efficient at ground mapping patterns than jets."

Once again, the OV-10 proves to be an ideal middle ground between helicopters and jet aircraft.

The CERES project samples visible and infrared energy from the sun. The OV-10A is equipped with two pods, one on the aircraft belly and one on the aircraft top, containing spectro-radiometers to measure the global radiation fluxes from the Sun, the Earth and the clouds. The OV-10 measurements along with ground station and satellite measurements bring the big picture into focus.

Scientists are hoping to better understand how clouds affect the radiant energy balance system in the Earth's atmosphere. This in effect will help in our understanding of climates, regional climate change and weather forecasts, for accurate forecasts in excess of a full week.

In keeping with its specialty job in Vietnam, the OV-10A is presently required to fly at low- and mid-altitudes over the ocean to take measurements for correlation with those measurements taken by similar CERES instruments onboard satellites overhead. The OV-10, in conjunction with ground systems, will provide a calibration reference for the satellite instruments. The OV-10A is also equipped with meteorological equipment, a GPS navigation system and video cameras to record the flights.

For more information on the OV-10 aircraft, visit the Bronco Association's Web site at <http://www.ov-10bronco.net/>.

Rick Harris of the Collings Foundation in Pearland, Texas, provided information for this story.

TRACE-P Experiment Begins

Researchers Measuring Gases Off The East Asian Coast Over The Pacific

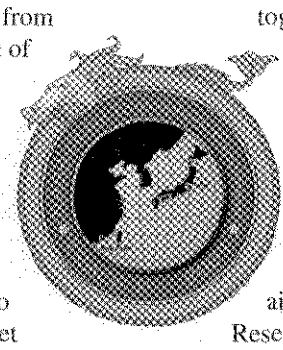
By CHRIS RINK
Public Affairs Office

Spring has arrived in the Far East. So have the research planes, scientists and their equipment.

It is the beginning of the greatest seasonal airflow from Asia across the Pacific and an ideal time to collect data for the latest in a series of NASA atmospheric science missions used to study how natural and human-induced changes affect our global climate.

The Transport and Chemical Evolution over the Pacific (TRACE-P) experiment, headed by Langley Research Center, uses two specially equipped NASA aircraft to measure gases and identify the chemical makeup of air off the East Asian coast over the Pacific. The mission began its 45-day operations on March 1 from Hong Kong and will finish out of Yokota Air Force Base near Tokyo.

In addition to the Dryden Flight Research Center DC-8 and the P-3B from Wallops flight facility, scientists will gather information from ground stations and satellites to plan flight patterns and interpret measurements taken on the aircraft.



"While NASA administers the TRACE-P program, it's important to realize all of the expertise that's necessary to make the measurements on these aircraft," said Jim Crawford, deputy mission scientist for TRACE-P. "We have to bring together researchers from international universities, other government labs and from within NASA to make an adequate assessment of what's happening over the Pacific."

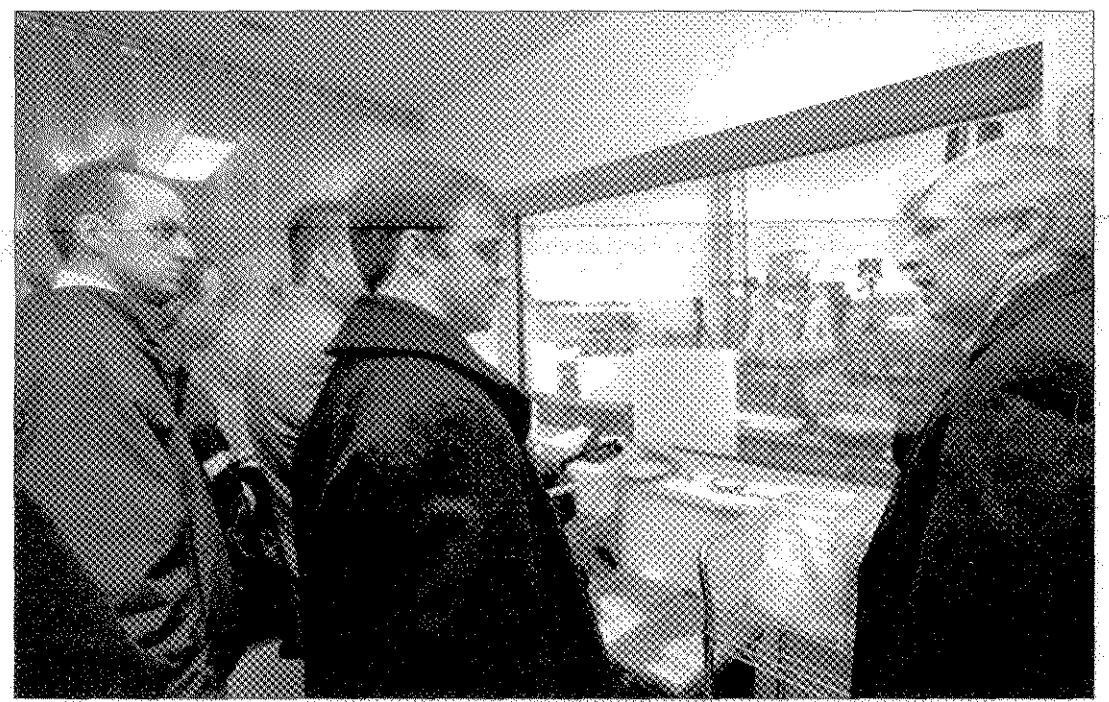
A major goal of TRACE-P is to understand the chemical makeup and reactions of air coming from Asia.

Researchers want to study how the chemical reactions and movement affect the air as it moves away from Asia across the Pacific. With the rapid industrialization and increased energy use — mostly in the form of fossil fuels — scientists expect emissions to increase as East Asia continues to develop.

"Out of all the industrialized regions in the world, North America and Europe are at a much higher latitude," Crawford said. "And since air chemistry is driven by sunlight, the Asian emissions happening at a tropical latitude potentially have a very different chemical evolution."

TRACE-P is part of the long series of NASA Global Tropospheric Experiments (GTE) and a follow-up to earlier atmospheric science investigations in 1991 and 1994. These exploratory missions studied the Asian outflow — air flowing over the continent to and across the Pacific — and how seasons and geography affect the chemistry and movement of air.

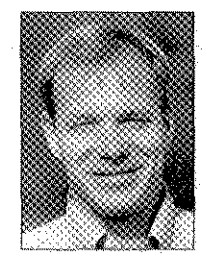
Congressional Staff Tour Center



Al Moore (right) of Langley Research Center's SAGE III Project Office shows the SAGE III Meteor experiment in Langley's "clean room" to Congressional staffers (from left) Francis Gibbs, Chris Caron, Jeff Cunningham, Scott George and (not pictured) Thomas Bilbao. The staffers — who work for Ander Crenshaw (R-FL-4), Jo Ann Davis (R-VA-1), Norman Sisisky (D-VA-4), Bobby Scott (D-VA-3) and Walter Jones (R-NC-3), respectively — toured the Center on Feb 23.

Photo by Jeff Caplan

Langley Employee To Deliver AIAA's Matson Lecture



Mitcheltree

The Hampton Roads Section (HRS) of the American Institute of Aeronautics and Astronautics (AIAA) will host its Matson Lecture dinner meeting on March 21 at the Ramada Inn Oyster Point. A social will start at 6 p.m., and dinner will be served at 6:30 p.m.

The program, featuring Langley Research Center employee and HRS Engineer of the Year Robert Mitcheltree, will begin at 7:30 p.m. and is titled, "A Passive Earth Entry Capsule for Mars Sample Return."

The cost is $10 for members and their guests, $12 for non-members and $8 for student members. Non-members who join the AIAA at the dinner will receive a complimentary dinner.

Reservations are requested by March 14. For reservations, contact Robin Hardy at 844-7159 or <r.c.hardy@larc.nasa. gov> or Mohammad Takallu at 844-7671 or <m.a.takallu@larc.nasa.gov>.

For more information, visit the HRS AIAA Web site at <www.seva.net/~aiaa>.

Helicopter Society Offering $1,000 Scholarships

The Hampton Roads Chapter of the American Helicopter Society (AHS) is soliciting applications for its Vertical Flight Scholarship.

The scholarship is intended to encourage and assist students who wish to pursue an engineering career related to rotorcraft, vertical take-off and landing aircraft, or fixed-wing aircraft.

Up to two awards of $1,000 each will be made based on the following criteria:

- three- to four-page essay on an aeronautical topic of interest;
- references;
- scholastic achievement; and
- aeronautics-related extracurricular activities.

The scholarship is available to high school seniors in Chesapeake, Gloucester, Hampton, Isle of Wight, Newport News, Norfolk, Poquoson, Portsmouth, Suffolk, Virginia Beach, Williamsburg/James City County and York County.

Applications and more information about the scholarship can be obtained on the Internet at <http://www.ars-hrc.org>.

Applications also can be obtained by writing to Donald L. Kunz, Old Dominion University, Department of Aerospace Engineering, 241 Kaufman Hall, Norfolk, VA 23529-0247.

Applications should be mailed to Donald L. Kunz at the above address by April 28. The recipient(s) will be announced by May 15.

NASA Scholarship Deadline Is March 30

Langley Research Center's Office of Human Resources (OHR) is soliciting applications for NASA College Scholarships.

Seven scholarships will be awarded Agencywide in the amount of $2,000 each. The renewable scholarship is for a maximum of $8,000 over six calendar years.

Application forms are available from Carlie Johanson in Langley's OHR and online at <http://jscpeople.jsc.nasa.gov/jsc-hro-2/special_programs/scholarship.htm>.

The deadline to apply is March 30.

The *Researcher News* is online at <http://researchernews.larc.nasa.gov>

Laser Donated To MIT

Langley Sponsored Experiments With The Lead-Salt Diode Laser

By KATHLEEN THURSTON-LIGHTY
Massachusetts Institute of Technology

A lead-salt diode laser used in historic experiments sponsored by Langley Research Center in the early 1980s has been donated to the Massachusetts Institute of Technology (MIT) Museum.

The laser, originally used by scientists from MIT's Lincoln Laboratory and the General Motors (GM) Research Laboratories, was donated by GM Corp.

"MIT Museum is very pleased to accept these lasers," said Jane Pickering, director of the MIT Museum. "A vital part of the MIT Museum mission is to document, interpret and communicate to a diverse audience the activities and achievements of the Institute.

"This gift is important for two reasons," she said. "First, we will be preserving an important and significant technology of the late 20th century. Second, we are adding two artifacts to the collection that remind us of the vital partnership between MIT and industry."

Elizabeth Lo (left), Jamie Hsu (center) and Jane Pickering were on hand for the donation of the lead-salt diode laser to the Massachusetts Institute of Technology (MIT) Museum. Lo is the widow of Wayne Lo, who made the laser; Hsu is the executive director of technical management at General Motors Corp., which donated the laser; and Pickering is the director of the MIT Museum.

Photo courtesy of MIT

The Laser's History

In 1958, two giants of physics, Arthur Schawlow and Charles Townes, published a scientific paper on optical masers that historians have called "the starting gun in the race to build the first laser." In the landmark paper, Schawlow and Townes introduced an important new theory about the physics of lasers. The scientific community accepted their theory of quantum phase noise, but no one could prove it experimentally.

The first laser — the ruby laser — was invented in 1960, but in the next few years, engineers and scientists in corporate, university and government labs developed many different kinds of lasers. With the invention of the first gas lasers, scientists had a laser that would emit a continuous-wave beam. Researchers at the MIT Lincoln Laboratory began working on that kind of laser — just one of many laser research projects underway at the time.

In 1966, Charles Freed, a senior staff member at the MIT Lincoln Laboratory, developed an ultrastable carbon-dioxide gas laser. The first CO2 laser had been invented by C.K.N. Patel in 1963, but Freed's laser was developed differently. Initially, he modified the design of a helium-neon gas laser invented by Ali Javan. Freed was impressed with the stability of the CO2 laser and immediately set out to improve on his prototype.

The resulting CO2 lasers were put to work right away in all sorts of experiments — one of the most important of which was one to verify the Schawlow-Townes theory.

To prove the theory, Freed needed two different types of lasers in his experimental apparatus. He teamed up with Lincoln Laboratory colleague E. David Hinkley and Theodore C. Harman, who had developed some special lead-salt diode lasers. In 1968, they published the results of their work to the immediate acclaim of the scientific community.

For the next 12 years, textbooks cited Hinkley and Freed and included their photographs to illustrate the Schawlow-Townes theory. At a 1980 scientific conference sponsored by Langley, several young scientists challenged Freed. The NASA researchers had been unable to reproduce Freed's results and they questioned him sharply. Freed, nonplussed, responded that the data was real and that he would be happy to demonstrate the experiment again.

The GM/MIT Collaboration

In 1981, Langley accepted Freed's formal proposal to verify the results of the earlier Hinkley-Freed experiment. There were some important changes in the arrangement, however. Freed proposed using an ultra-stable carbon-monoxide laser based on his earlier CO2 designs. Lincoln Laboratory stopped making lead-salt diode lasers in the mid-1970s, so Freed proposed using diode lasers developed by Wayne Lo of GM Research Laboratories. These lasers had the properties necessary for use in the planned experiment with Freed's CO laser.

GM had been developing lead-salt diode lasers and using them for exhaust gas analysis and in research studies of combustion, closed-loop engine control and air-fuel mixtures. In keeping with its long history of fundamental as well as applied scientific research, the GM Research Laboratories had also used diode lasers in saturation spectroscopy, opto-acoustic spectroscopy and atmospheric solar absorption studies. The partnership with MIT Lincoln Laboratory to reconfirm the Schawlow-Townes theory was another example of the fundamental work.

Freed conducted all experiments at the MIT Lincoln Laboratory and, because lead-salt diode lasers were notoriously difficult to operate, Wayne Lo's advice and help to correlate the experimental results with theory was of the utmost importance. The results of the experiments were just as Freed had predicted.

Freed and Lo made their first report to Langley in February 1982. Not only had they been able to reproduce the results of the original Hinkley-Freed experiment, but with the new equipment they achieved a five-fold improvement in fractional linewidth. They also demonstrated that their experimental results closely matched the newly updated theory of the Schawlow-Townes linewidth as it applied to lead-salt diode lasers. It was an even more convincing empirical demonstration of the Schawlow-Townes theory, and the results stand to this day.

Lead-salt diode lasers are now used in such fields as isotope analysis, pollution monitoring, toxin detection, fiber-optics communications, semiconductor processing, oil exploration, combustion diagnostics and explosives detection for law enforcement.

"This gift is important for two reasons. First, we will be preserving an important and significant technology of the late 20th century. Second, we are adding two artifacts to the collection that remind us of the vital partnership between MIT and industry."

Jane Pickering , director of the MIT Museum

AdVentures

LFCU Branch Closed Until April 1

Langley Federal Credit Union's (LFCU) Langley Research Center branch will remain closed through **April 1** for renovations.

Although the branch will be closed, an LFCU ATM will be available on-site for no-surcharge withdrawals. The Langley Air Force Base (LAFB) branch, located in LAFB Bldg. 157, and the Poquoson branch, located at 415 Wythe Creek Road, also will be open as usual.

Robotics Competition March 9-10

Langley Research Center and Virginia Commonwealth University's School of Engineering will host the second annual For Inspiration and Recognition of Science and Technology (FIRST) Robotics Competition on **March 9** and **10** at the Siegel Center in Richmond.

The event is free and open to the public. For more information, visit the competition Web Site at <http://robots.larc.nasa.gov> or contact Jeff Seaton at <j.m.seaton@larc.nasa.gov>.

NARFE Meeting March 12

Chapter 682 of the National Association of Retired Federal Employees (NARFE) will hold its monthly meeting at 10 a.m. **March 12** in the Midtown Community Center in Newport News. All federal employees are invited to attend. For more information, call Catherine Askew at 247-1558.

LAA To Meet On March 13

Langley Research Center's Alumni Association (LAA) will meet at 11:30 a.m. **March 13** in the private dining room of the Center cafeteria. The program will feature Mary Yakamowski of the Hampton School System.

Colloquium Lecture On March 13

K.R. Sridhar, a professor of aerospace and mechanical engineering at the University of Arizona, will present a Colloquium lecture entitled, "Recipes For Living Off The Land On Mars" at 2 p.m. **March 13** in Langley Research Center's H.J.E. Reid Conference Center. A Sigma Series lecture will follow at 7:30 p.m. at the Virginia Air and Space Center in Hampton.

Sridhar

For more information about the lecture series, visit <http://shemesh.larc.nasa.gov/Lectures/> on the Web.

Duplicate Bridge Game March 14

Langley Research Center's Duplicate Bridge Club will host a game at 5:30 p.m. **March 14** in the Langley Room of the H.J.E. Reid Conference Center.

The winners of the Feb. 14 game were: first place, Jay Robinson and Tom Norum; second place, John Ferrainolo and S.N. Sankaran; and third place, Tom Finley and Judy Ferris. For more information, call Tom Norum at 864-7902 or Larry Bement at 864-7084.

CLASSIFIED

FOR SALE: Waterfront home in Hampton's Elizabeth Lakes. Custom-built brick ranch on 1.2 acre lot in cul-de-sac. 3,800 square feet, four bedrooms, 3.5 baths. More details online at <http://164.106.209.169/ vqine/bill/>. $295,000. Call 851-0612.

FOR SALE: 12-by-15-foot mauve rug with pad, excellent condition; miscellaneous light fixtures and pictures. Call 898-1749.

FOR RENT: Four-bedroom, two-bath house in Mercury Central. Central heat and air, wall-to-wall carpet, fenced-in back yard. $625 per month, plus $625 deposit. Call 851-7709.

LAA Hosting St. Patrick's Day Party

Langley Research Center's Activities Association (LAA) will host a St. Patrick's Day TGIF party from 4 to 9 p.m. **March 16**. The party will feature corned beef and cabbage, giveaways from a Budweiser representative and entertainment by Cindy Kayes.

Remember: Due to the Center's new access policy, all LAA guests must pre-register with the Security Office and be issued visitor badges. For more information, call Cathy Clark at 864-1583.

Mammograms Offered On-Center

Langley Research Center's Management and Employee Support Branch will host mammographic exams on **March 21** and **26**.

Langley employees, contractors and retirees — and their family members — are eligible for the exams. To schedule an appointment, call the Riverside Diagnostic Center at 594-3900. Time spent at the exam may be charged to J.O. B1008. The cost is $75. Payment may be made by cash, check or Visa/MasterCard.

For more information, call Langley's Management and Employee Support Branch at 864-3194.

ODU Planning 'Womengineers Day'

Old Dominion University's College of Engineering and Technology will host its inaugural "Womengineers Day" on **April 21.**

The day-long event, held on the university campus in Norfolk, will feature information, support systems and networking opportunities for women entering or already working in the engineering field, including scholarship and financial aid opportunities, career and job information, materials and supports for teachers of aspiring engineers and panel discussions on the various issues facing women in engineering.

Rear Adm. Kathleen K. Paige, Assistant Secretary of the Navy for Research, Development and Acquisition, will give the luncheon keynote address.

"Womengineers Day" is free and open to the public. Reservations can be made by e-mailing <womengin@odu.edu>. For more information, call 683-3789 or visit the "Womengineers Day" Web site at <web.odu.edu/engr/womengineers/>.

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Researcher News

National Aeronautics and
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Center Snapshot

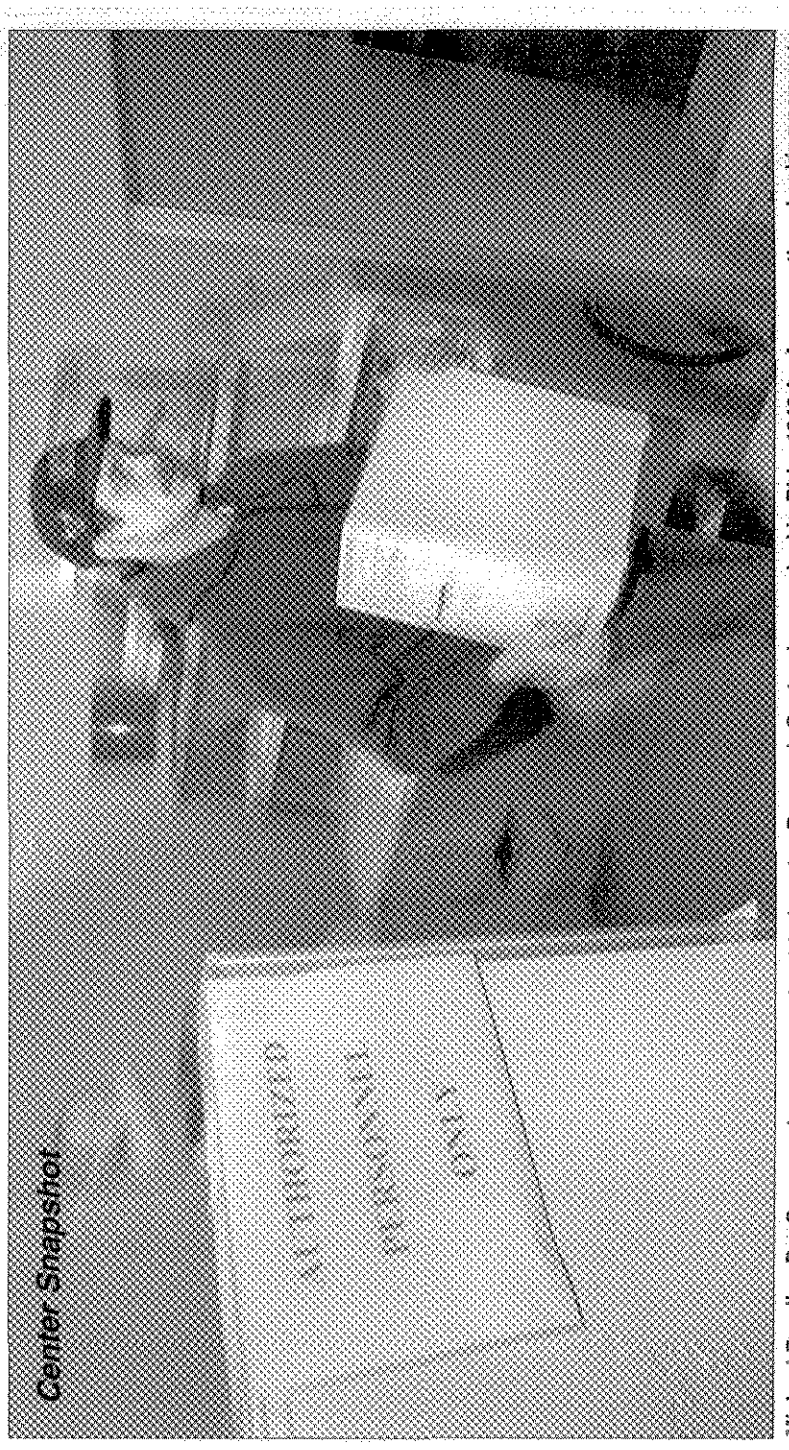
Photo by Jeff Caplan

Michael Ezell, a DynCorp employee on contract to Langley Research Center, has worked in Bldg. 1240 for four months, checking computer equipment in to Excess Property. Born in Texas City, Texas, he moved to Virginia at a young age and now resides in Hampton with his wife and their two children. He is an electrician by trade, working in custom home construction before coming to Langley. In his free time, he enjoys spending time with his family, tinkering with computers and learning to play the drums. What does he like about working at Langley? "It's a comfortable place to work," he says. "For once, I enjoy coming to work in the morning."

National Aeronautics and Space Administration
Langley Research Center

News Researcher

Biweekly Employee and Contractor Publication

Volume 15 ❖ Issue 6 ❖ March 23, 2001

Astronaut Daniel T. Barry (left) practices using the clamp that will be used to attach Langley Research Center's Materials International Space Station Experiment (MISSE) to the International Space Station (ISS). Barry and fellow astronaut Patrick G. Forrester (second from left) will attach MISSE to the ISS during a spacewalk on Space Shuttle mission STS-105, which is scheduled to launch on July 12.

Photo by Jeff Caplan

MISSE In Action

Astronauts Visit To Examine ISS-Bound Experiment

By JIM ROBERTS
Researcher News editor

Four astronauts visited Langley Research Center on March 5 to examine Langley's Materials International Space Station Experiment (MISSE), the first experiment to be performed on the International Space Station (ISS).

Two of the astronauts — Daniel T. Barry and Patrick G. Forrester — will be responsible for attaching MISSE to the ISS during a spacewalk on Space Shuttle mission STS-105, which is scheduled to launch on July 12.

MISSE, like Langley's historic Long-Duration Exposure Facility (LDEF) experiment, is designed to evaluate the performance, stability and long-term survivability of more than 700 materials and components planned for use by NASA, the Department of Defense and commercial spacecraft manufacturers.

"Space is a hostile environment, destructive to many materials," said William Kinard, who led the LDEF experiment in 1984 and is now Langley's program scientist for MISSE. "New, affordable materials are the enablers for advanced spacecraft. In-situ space testing, as provided by MISSE on the ISS, is an essential part of the development process for these new space materials."

Sheila A. Thibeault, Langley's principal investigator for MISSE, said some of the space polymers to be flown on the experiment were invented by John W. Connell of Langley's Advanced Materials and Processing Branch and former Langley employee Anne K. St. Clair.

"Langley is world famous for the development of space-tailored polymers," she said. "But before we can use our polymers in space, we must test them in space. ... The ultimate proof of their performance in the space environment comes from space experiments such as MISSE."

LMS Audit Done

Center Setting Sights On New ISO Standard

By JIM ROBERTS
Researcher News editor

The Langley Management System (LMS) recently underwent another International Organization for Standardization (ISO) surveillance audit, the third since it received ISO 9001 registration in August of 1999.

"We did as well as we could have hoped," Doug Price, the LMS Management Representative, said after the audit took place. "Everyone who spoke with the auditor did a really good job."

Brooke Lerch, the auditor from Det Norske Veritas (DNV), said in his closing remarks on March 9, "As usual, it was an interesting audit."

He reported no "findings" of non-conformity to the standard but said he saw opportunities for improvement, especially in the area of internal and external agreements used in performance of work at Langley Research Center.

After auditing four program offices — Aviation Safety, Earth and Space Science, Space Access and Exploration, and Technology Commercialization — Lerch reported that finding procedures used by the different program offices was not easy, and locating the appropriate records of this activity was also challenging.

"Sometimes the path to get to the result (evidence of compliance to the standard) is

Continued on Page 3

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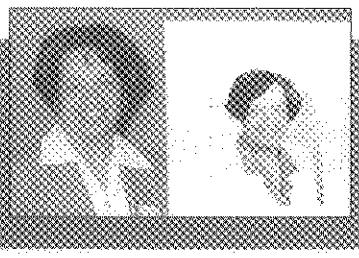
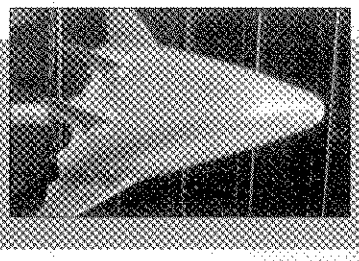


Darden Inducted Into NAS Portrait Collection *Page 2*



X-33 Cancellation Won't Affect Langley *Page 3*

News Briefs

Around the Agency

GALILEO GETS ONE LAST MISSION EXTENSION

The resilient Galileo spacecraft doesn't know when to call it quits. So, NASA has outlined the details of one last mission extension, which includes five more flybys of the Jovian moons before a final plunge into the crushing pressure of the giant planet's atmosphere.

Galileo has been orbiting Jupiter for more than five years and survived radiation exposure more than three times what it was built to withstand. Galileo's mission has previously been extended twice and during that time it has returned an enormous wealth of scientific information, including evidence of a subsurface ocean on Jupiter's moon Europa.

More information about Galileo is available on the Internet at <http://galileo.jpl.nasa.gov/>. RELEASE: 01-41

TELESCOPES DOUBLE-TEAM HAWAIIAN NIGHT SKY

Proving that two telescopes are better than one, NASA astronomers have gathered the first starlight obtained by linking two Hawaiian 10-meter telescopes.

This successful test at the W.M. Keck Observatory on Mauna Kea makes the linked telescopes, which together are called the Keck Interferometer, the world's most powerful optical telescope system. The project will eventually search for planets around nearby stars and help NASA design future space-based missions that can search for habitable, Earthlike planets.

Additional information and images are available on the Internet at <http://www.jpl.nasa.gov/pictures/keck> and <http://origins.jpl.nasa.gov>. RELEASE: 01-42

X-RAYS REVEAL UNIVERSE FULL OF BLACK HOLES

For the first time, astronomers believe they have proof that black holes of all sizes once ruled the universe. NASA's Chandra X-ray Observatory provided the deepest X-ray images ever recorded, and those pictures deliver a novel look at the past 12 billion years of black holes.

Two independent teams of astronomers today presented images that contain the faintest X-ray sources ever detected, which include an abundance of active super-massive black holes.

More information is available on the Internet at <http://chandra.harvard.edu> and <http://chandra.nasa.gov>. RELEASE: 01-37

NASA RESEARCH SIMULATES COLD STARS

In research with the potential to help study stars and improve space navigation, scientists have successfully used lasers to cool a cloud of lithium atoms sufficiently to observe unusual quantum properties of matter. Although current technology does not permit humans to travel to the stars, scientists can create a simulated star laboratory on Earth.

The scientists, at Rice University in Houston, successfully simulated and photographed the process by which white dwarfs and neutron stars retain their size and shape, a mechanism called Fermi pressure. White dwarfs and neutron stars are dense, compact objects created when normal stars use up their fuel, cooling and succumbing to the forces of gravity.

More information can be found on the Internet at <http://atomcool.rice.edu>, <http://spaceresearch.nasa.gov> and <http://funphysics.jpl.nasa.gov>. RELEASE: 01-38

News Researcher

The Researcher News is an official publication of Langley Research Center, National Aeronautics and Space Administration, Hampton, Va., 23681-2199. It is published every other Friday in the interest of all Langley staff, contractors and retirees and has a circulation of approximately 8,100. It is distributed to all Langley civil service employees, contractors, retirees and on-site university personnel, with limited distribution to NASA Headquarters, other NASA centers and, by special request, to other non-NASA individuals and organizations. Questions related to the content and distribution of the Researcher News should be addressed to Keith Henry, Mail Stop 115, (757) 864-6120. Submit contributions/SDL 026, 055, 110 changes to the editor via e-mail <j.r.roberts@larc.nasa.gov>, fax (757) 864-6477, telephone (757) 864-8150 or Mail Stop 293. Articles, photos and announcements are due at noon the Monday following the date of this issue.

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Planners Collaborative/
Science and Technology Corp.

The privilege of listing announcements in this publication is restricted to the employees, contractors and retirees of the Langley Research Center. Articles must be offered without regard to race, color, religion, sex or national origin. All materials are subject to editing.

People

Langley Research Center employee Christine Darden (center) recently was inducted into the National Academy of Sciences' Portrait Collection of African Americans in Science, Engineering and Medicine. Accompanying her to the Feb. 26 induction ceremony were Ruth Martin (left), Langley's Associate Director for Program Integration, and Langley Center Director Dr. Jeremiah F. Creedon (right).

Photo courtesy of Christine Darden

Darden Inducted Into NAS Portrait Collection

Langley Research Center employee **Christine Darden** recently was inducted into the National Academy of Sciences' (NAS) Portrait Collection of African Americans in Science, Engineering and Medicine.

The collection recognizes the achievements of African Americans; each year, several outstanding African Americans are chosen for the collection.

Darden, the director of Langley's Aero Performing Center Management Office, was inducted on Feb. 26 along with Marian Wright Edelman, the founder of the Children's Defense Fund, and Bernard Harris, the first African-American to walk in space.

"It was indeed a great honor to be included in the Portrait Collection," Darden said. "To be inducted with Dr. Bernard Harris and Marian Wright Edelman was a double honor, since I have admired both of them and their careers from afar."

Darden, a native of Monroe, N.C., earned a bachelor's degree in mathematics from Hampton Institute, a master's degree in applied mathematics from Virginia State College and a doctorate degree in mechanical engineering from George Washington University. She also holds a certificate of advanced study in management from Simmons College Graduate School of Management.

During her career, Darden has authored more than 54 technical papers and articles, primarily in the areas of sonic boom prediction, sonic boom minimization and supersonic wing design.

AIAA Elects Edwards To Grade Of Fellow

The American Institute of Aeronautics and Astronautics (AIAA) announced on March 13 that Langley Research Center employee **John W. Edwards** has been elected to the grade of Fellow.

Edwards, a senior research engineer in Langley's Aeroelasticity Branch, is being honored for sustained outstanding leadership and pioneering contributions to advanced computational aeroelasticty methodologies which have significantly contributed to the nation's preeminence in aviation.

"John Edwards was the first to formulate unsteady aerodynamic loads in the time domain and use in the framework of modern control to demonstrate flutter suppression," said Peretz Friedmann of the University of Michigan. "Subsequently, John devoted himself to computational aeroelasticity in which field he has become an undisputed leader and elder statesman."

Edwards

Presentation of the new Fellows will take place at AIAA's Global Air and Space 2001 International Business Forum and Exhibition, which will take place May 7-9 in Arlington.

Retirement

Langley Research Center's Electromagnetics Research Branch will host a retirement party honoring **M.C. Bailey** on March 30 at the Omni Newport News Hotel. A cocktail hour will begin at 6 p.m., and dinner will be served at 7 p.m.

The reservation deadline was March 9. For more information, contact Robin Cravey at 864-1819, Erik Vedeler at 864-2933 or Delores Williams at 864-1772.

In Memoriam

Margery Elizabeth Hannah

Margery Elizabeth Hannah died on Feb. 15 at the age of 89. Hannah was a NASA retiree.

Rolf W. Seidel

Rolf W. Seidel died on March 2 at the age of 70. Seidel, a native of Frankfurt, Germany, lived in Hampton since 1958 and worked for Modern Machine and Tool on contract to Langley Research Center for 36 years, retiring in 1996.

Langley Unaffected By X-33 News

By JIM ROBERTS
Researcher News editor

NASA's recent cancellation of the X-33 and X-34 programs should have little effect, if any, on Langley Research Center.

"Langley's involvement, in terms of funding and people, in X-33 and X-34 during last year and this year has been minimal, so the cancellation of these programs doesn't have a significant effect," said David E. Bowles of Langley's Space Access and Exploration Program Office.

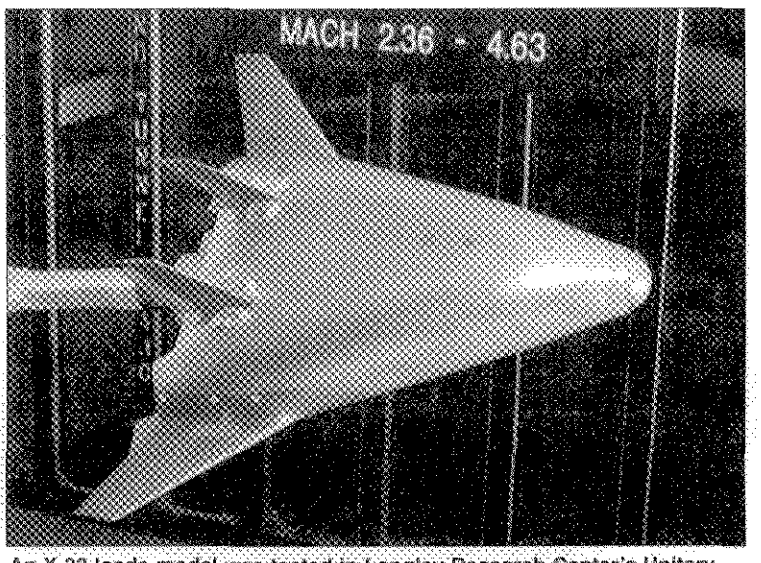
In fact, Bowles said, Langley will continue to serve as the lead center for the airframe projects associated with NASA's 2nd Generation Reusable Launch Vehicle (2nd Gen RLV) and Advanced Space Transportation programs.

"In addition to leading the airframe projects, we also play a major role in supporting the systems analysis activities involved with these two programs," Bowles said.

NASA announced on March 1 that it will not add Space Launch Initiative (SLI) funds to the X-33 or X-34 programs. As a result, the current X-33 program will come to completion when the cooperative agreement between NASA and Lockheed Martin expires on March 31. NASA also is in the process of ending its X-34 contract with Orbital Sciences Corp. of Dulles.

Langley played a significant role in the early phases of each program, contributing in the areas of systems analysis and design, aerodynamics, aerothermodynamics and structures and materials. Langley also had a significant role in the failure investigation of the X-33 composite cryotank.

"Langley's involvement in future space transportation vehicles will build on our expertise developed in past programs and be in those areas mentioned above, as well as an expanded role in airborne systems technologies," Bowles said.

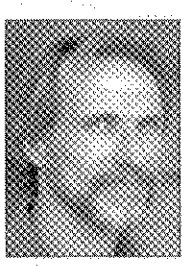


An X-33 loads model was tested in Langley Research Center's Unitary Plan Wind Tunnel in 1998.
Photo by Peggy Hopkins

Colloquium and Sigma Series Lectures

Powars On 'The Chesapeake Bay Impact Crater'

David S. Powars will present a Colloquium lecture entitled, "The 35 Million-Year-Old Chesapeake Bay Impact Crater" at 2 p.m. April 3 in Langley Research Center's H.J.E. Reid Conference Center. A Sigma Series lecture will follow at 7:30 p.m. at the Virginia Air and Space Center in Hampton.


Powars

The Lecture

Some 35 million years ago, a brilliant flash of light crossed the sky, a prelude to one of the greatest catastrophic collisions in the history of our planet. A two-mile-wide comet or asteroid travelling more than 50,000 miles per hour slammed into the Earth near the present-day mouth of the Chesapeake Bay.

The impact ejected huge amounts of seawater, sediment and shattered molten rock high into the atmosphere. The energy generated during the impact, comparable to the simultaneous detonation of several thousand nuclear weapons, triggered widespread wildfires.

The impact set off a gigantic tsunamis with waves perhaps exceeding 100 feet in height. The impact left a 50 mile-wide crater and still affects the quality of present-day ground water in certain areas of Hampton Roads.

During the summer of 2000, scientists from the U.S. Geological Survey (USGS) drilled a 2,000 foot-deep hole and obtained a near continuous core of rock and sediment from beneath the Langley Research Center to investigate the 35-million-year-old impact crater.

The Speaker

Powars, a USGS geologist and a co-discoverer of the Chesapeake Bay Impact Crater, was one of the scientific leaders of the USGS drilling project at Langley.

Powars works at the USGS Water Resource Division in Richmond and has lived in Virginia since 1970. He received a bachelor's degree from George Mason University and a master's degree from George Washington University.

In 2000, Powars and two colleagues received the Thomas Jefferson Award for their discovery of the Chesapeake Bay Impact Crater.

Upcoming Lectures

- May 1: Earll Murman on "Challenges and Opportunities in Aeronautical Design, Engineering and Manufacturing."
- June 5: Raffaello D'Andrea on "ROBOCUP: International Robotic Soccer Competition."
- Aug. 7: Bryan Palaszewski on "Advanced Fuels and Propellants — Exciting Ways of Improving Future Transportation and Exploration."

For more information about the lecture series, visit <http://shemesh.larc.nasa.gov/Lectures/> on the Web.

LMS

Continued from Page 1

torturous," Lerch said. "As long as it's there, it meets the standard. But that doesn't mean it's a slick process."

Price pointed out that the four program offices were chosen for audit specifically because they each operated differently and worked through different organizations at NASA Headquarters.

Lerch also audited the Systems Engineering and Aerodynamics, Aerothermodynamics and Acoustics competencies for "Handling, Storage, Packaging, Preservation and Delivery" and recommended that Langley — and perhaps the entire Agency — look into adopting a universal standard for clean room procedures.

Price said all of Lerch's recommendations were made in the interest of making procedures "clearer and easier for ourselves and for the auditor" and emphasized that it is most important that the procedures work for us, not that they are easy to audit.

> *"The goal is to develop a management system that really works for us, and is incidentally compliant to the ISO 9001 standard. ... The only way the management system improves is if it helps us do our jobs easier and better."*
>
> **Doug Price**

The next periodic audit will take place in August and will focus on areas of "Design Control" and "Purchasing."

"The 2000 Standard"

Lerch used his time on-Center as an opportunity to discuss ISO's "2000 Standard," which Langley will implement over the next three years. "Now is the time to put something in place that is going to really work for you," he said.

The new standard streamlines ISO 9001's 20 clauses into eight and emphasizes the effectiveness of the procedures. "It's focused more on the results and customer satisfaction and not so much on the process," Price said.

"The 2000 version more easily fits the way we do business."

With two significant transitions in the future — the switch from DNV as the contracted ISO 9001 Registrar to National Quality Assurance (NQA) in February of 2002 and LMS' ISO re-registration due in August of 2002 — it has not yet been determined when implementation of the new standard will take place.

However, Price said the transition should ideally be "completely transparent" to most employees. He and Kathryn Suddreth, the operations manager for the LMS Project Office, are in the process of developing a gap analysis and transition plan.

Price and Suddreth said they hope employees realize the benefits of the LMS and don't become burdened with constant thoughts of ISO compliance. "The goal is to develop a management system that really works for us, and is incidentally compliant to the ISO 9001 standard," Price said. "The only way the management system improves is if it helps us do our jobs easier and better. The LMS is there to help and not hinder that process."

For more information, visit the LMS Web page at <http://lms.larc.nasa.gov/>.

The *Researcher News* is online at <http://researchernews.larc.nasa.gov>

A FIRST Learning Experience

Team Hopes To Rebound After Richmond Competition

By KIMBERLY LAND
Public Affairs Office

The "NASA Knights" robotics team was eliminated in the quarterfinals of the For Inspiration and Recognition of Science and Technology (FIRST) regional competition held March 8-10 in Richmond.

Despite being eliminated in Richmond, the team will compete in a second regional competition in Philadelphia.

The NASA Knights team is sponsored by Langley Research Center and the New Horizons Regional Education Center and mentored by Jeff Seaton of Langley's Aerospace Systems, Concepts and Analysis Competency.

"Our team learned a lot in Richmond, I think, and should be pretty competitive in Philly now," Seaton said.

The team also will participate in the national competition in April in Orlando.

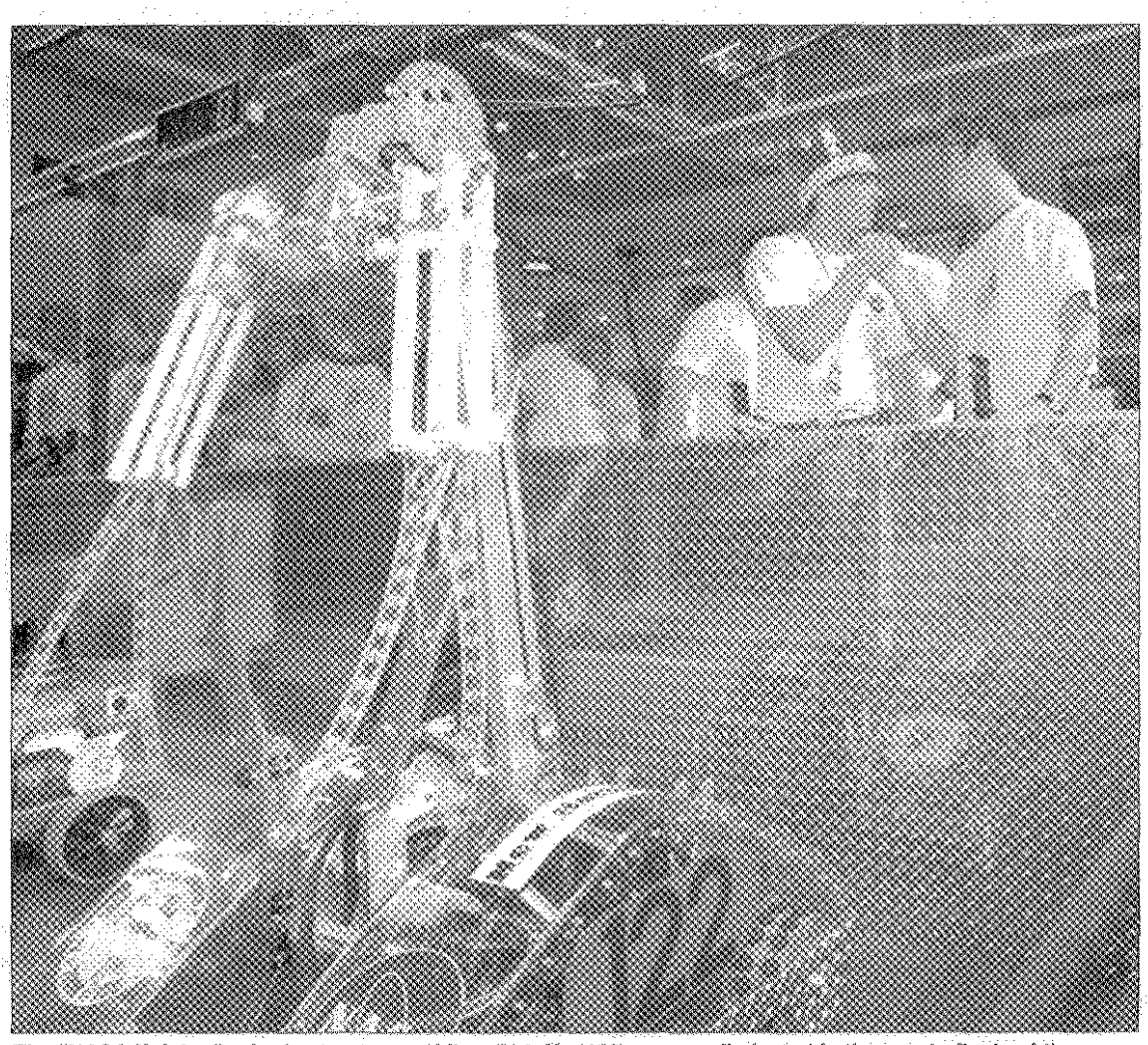
Sixty-seven teams comprised of more than 1,000 high school-age students and their industry mentors came from as far away as Brazil to compete in the Richmond event.

The competition was broadcast live via the Internet on March 9 and 10, and NASA Television broadcast the competition live on March 10.

Each year, FIRST develops the robotics competition by supplying a "problem" and a kit of parts to teams of students. Each team has just six weeks to organize, design, build, program and test its robot for competition.

FIRST is a non-profit organization established in 1989 by Dean Kamen, an entrepreneur and inventor with more than 100 patents. FIRST's mission is to stimulate student interest in math and science. In 1992, FIRST began organizing a national robotics competition.

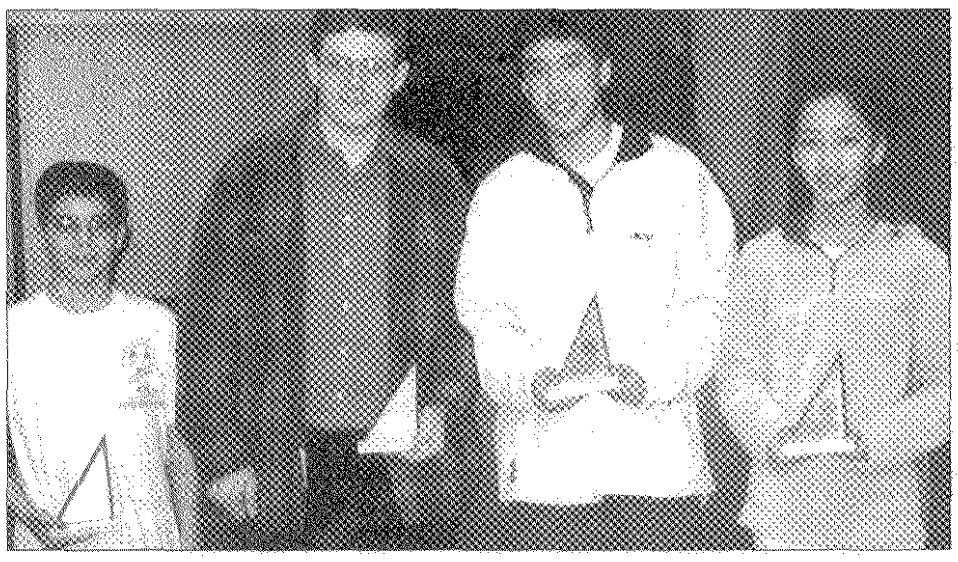
The event has become known as the "Super Bowl" of engineering and the "the ultimate mind sport."



The "NASA Knights" robotics team — and its robot, No. 122 — were eliminated in the quarterfinals of the FIRST regional competition held March 8-10 in Richmond. The team will now compete in a second regional competition in Philadelphia and also will participate in the national competition in April in Orlando.

Photo by Jeff Caplan

Langley Hosts Annual MATHCOUNTS Event



Poquoson Middle School students Couvillion Brock, Jimmie Bird, Andrew Pao and Catherine Pao were among the top scorers in the MATHCOUNTS competition.

Photo courtesy of Gwen Wheatle

By GWEN WHEATLE
Office of Education

Langley Research Center's Office of Education hosted the 18th annual regional MATHCOUNTS competition on Feb. 17 in Langley's H.J.E. Reid Conference Center.

Sixth-, seventh- and eighth-grade students from 10 private and public schools competed in individual and team events designed to foster mathematical thinking, reasoning and problem-solving.

The top four schools — Berkeley Middle School, Benjamin Syms Middle School, Hampton Roads Academy and Poquoson Middle School — advanced to the state-level contest along with individual winners Nicolas Sher and Xiao Tao from Berkeley Middle School and Andrew and Catherine Pao from Poquoson Middle School. The top four scorers from the state will progress to the national finals.

MATHCOUNTS is sponsored by the National Society of Professional Engineers. It is a competition program designed to stimulate middle school students' interest and achievement in mathematics; develop students' awareness of the relevance of mathematics to everyday life; and encourage students to pursue mathematics-related careers.

NASA supports the annual competition by sending the top team and the top three individual winners to Space Camp.

The regional competition held at Langley was one of several National Engineers Week outreach activities supported by the Center during February.

NASA Software Award Nominations Due April 14

Langley Research Center's Technology Commercialization Program Office (TCPO) is accepting nominations for NASA's 2001 Software of the Year Award.

To qualify for the competition, the software must meet the following criteria:

- NASA must have an intellectual property interest in the software;
- the software must have been supported, adopted, sponsored or used by NASA;
- the software must be significant to the NASA mission; and
- the software must be of commercial-grade (not alpha or beta phase), i.e., the software must have been released by the nominating NASA Center Release Authority to qualified users or has been dedicated for use in NASA missions.

Nomination packages should consist of a NASA Form 1329 "ICB Space Act Award Application," a Summary Evaluation Document and letters of endorsement.

The NASA Form 1329 and Summary Evaluation Form are available online at <http://icb.nasa.gov/swoyinfo.html>. The completed Summary Evaluation Form should include focused, concise and relevant answers and should not exceed six pages.

A NASA Form 1679 "Disclosure of Invention and New Technology" also should be completed and submitted to the Office of Patent Counsel prior to or together with the nomination.

All Langley entries and supporting material must be submitted to the TCPO (Bldg. 1229, Room 122C or Mail Stop 200) by April 14.

For more information, contact Sherry Sullivan at 864-2556 or <s.l.sullivan@larc.nasa.gov>.

Community Corner

Small Town Is Big On Volunteering

By BARBARA NEWTON
NASA retiree

In the foothills of the Blue Ridge Parkway is located a town called Tyro that can boast of no stoplights.

There are many activities going on during the apple-picking season of September through October.

After the picking season is over, several of the orchard owners allow our church's Awana Club members to glean the remaining apples for our local foodbank. What this means is that we can go in designated areas to pick apples that have been left on the trees and those that have fallen to the ground as they can no longer be sold to the public.

Our club picked up apples on a couple of beautiful sunny days. They are then washed and placed in sacks that are given out in November and December to families receiving food from the foodbank.

My husband and I are leaders in our club and are always looking for ways to encourage our youth to do activities for the community. We are making plans to adopt a section of Route 56 to keep clean from trash thrown on side of the road. The highway department will furnish safety vests and plastic containers to use for this activity.

During weekends in April and October — usually the last weekend of each month — more than 160 trailriders come to ride their horses on a 25-mile trailride. We are fortunate to have Fleetwood School which has been turned into a center used for community activities. I help in cleaning the auditorium room, setting up the tables and chairs and preparing and serving hot meals to the hungry trailriders who return year after year.

Our day begins early at 5 and we don't usually get finished cleaning up until after 9. It is hard work but so rewarding to see so many people enjoy all that we offer. I try to talk to the riders as they come through the line for food and find that many are from Virginia Beach, Suffolk and Gloucester.

April and October are beautiful months to come here for a visit. Many people from NASA are aware of this area as we are close to hiking trails, Crabtree Falls, Wintergreen and the Blue Ridge Parkway.

To share your volunteering experience, contact Pam Verniel at 864-2449 or <p.j.verniel@larc.nasa.gov> or Sandra West at 864-3957 or <s.c.lemons@larc.nasa.gov>.

From the Office Of Safety And Mission Assurance

Report Unsafe Conditions Before An Accident Occurs

Safety Is The Shared Responsibility Of All Employees

Langley Research Center's goal is to provide a safe and healthful work environment for all employees. That means the work environment must be free from hazards that could result in loss of life or injury or could cause damage to equipment and property.

All employees can help the Center meet that goal by reporting all hazards and close calls should be reported to a supervisor. A hazard is an unsafe condition or activity that, if left uncontrolled, can contribute to an accident. A close call is a work-related incident that could cause an accident, injury or illness. Before hazards can be controlled, they must be identified and reported.

Look For Potential Hazards

Before performing any task, employees should assess their work procedures and environment for potential hazards to determine whether unsafe conditions exist. They should then eliminate those hazards within their control and report to their supervisor any hazards they are unable to eliminate. The Facility Safety Head (FSH), Facility Coordinator (FC) also can be contacted. No job is so important that it cannot be performed in a safe manner.

If a hazard is reported, supervisors, FSHs or FCs should immediately initiate the appropriate corrective action to eliminate the hazard. If assistance is required to ensure that the proper action has been taken to eliminate the hazard, the Office of Safety and Facility Assurance (OSFA) should be contacted at 864-SAFE (864-7233).

Notify Safety Officials

To report an unsafe condition, employees should submit a Langley Form 164, "Report of LaRC Safety/Health Concerns."

A Langley Form 164 enables an employee to identify a hazard and its location. It also serves a record of whom the hazard has been reported for corrective action.

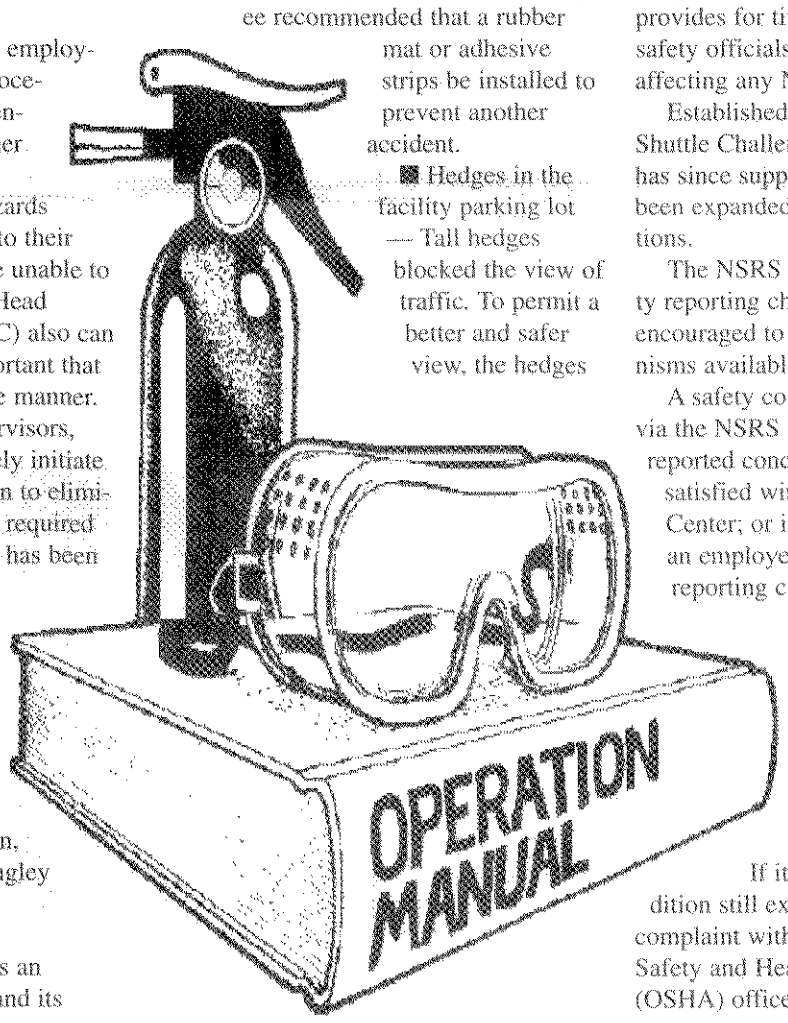
The form may be submitted as a hard copy or electronically. The form also may be submitted anonymously.

The following are examples of safety hazards reported on NASA Langley Form 164:

■ Access ramp to facility compressed gas cylinder storage area — Because the ramp is very steep, individuals using a cart to roll bottles down the ramp during inclement weather conditions have slipped. The result was a close-call incident.

■ Tile floor in area next to the dishwasher — The area was slick and caused an employee to slip and fall. The employee recommended that a rubber mat or adhesive strips be installed to prevent another accident.

■ Hedges in the facility parking lot — Tall hedges blocked the view of traffic. To permit a better and safer view, the hedges had to be trimmed.



These safety concerns were immediately investigated by the OSFA, and appropriate corrective actions were implemented to prevent reoccurrence.

Copies of NASA Langley Form 164 may be found in Langley's Stockroom, cafeterias and Bldgs. 1149, 1194, 1202 and 1219. The forms are also available on the Internet at <http://safety.larc.nasa.gov/F164/SafetyConcern.taf?> and <http://littlemac.larc.nasa.gov:8000/default.htm>.

NASA Safety Reporting System (NSRS)

The NSRS is a confidential, voluntary and responsive channel for NASA employees and contractors. The NSRS provides for timely notification of NASA safety officials concerning safety hazards affecting any NASA-related activity.

Established in 1987 after the Space Shuttle Challenger accident, the NSRS has since supported all flights and has been expanded to cover all NASA operations.

The NSRS supplements standard safety reporting channels. All employees are encouraged to use the reporting mechanisms available at Langley.

A safety concern should be reported via the NSRS if no action is taken on a reported concern; if an employee is dissatisfied with the action taken by the Center; or if fear of reprisal prevents an employee from using the standard reporting channels.

Reporting forms are available in the cafeterias and on the NSRS Web site at <http//www.hq.nasa.gov/nsrs>.

OSHA Office

If it is felt that the unsafe condition still exists, employees may file a complaint with the local Occupational Safety and Health Administration (OSHA) office by calling 441-3820.

National Women's History Month

By DANIEL S. GOLDIN
NASA Administrator

March 2001 is National Women's History Month. Let's show appreciation for women's historic and contemporary contributions to our nation.

The theme for 2001 is "Celebrating Women of Courage and Vision." This theme emphasizes the joy of recognizing and celebrating the diverse and historic accomplishments of women.

By honoring women of courage and vision, we set a standard for ourselves and provide a beacon of inspiration for future generations. At NASA, we are proud of the courage and vision of our women astronauts, scientists and engineers in their scientific exploration, as well as our women in other fields of endeavor. We pause during Women's History Month to recognize and honor their accomplishments.

By honoring women of courage and vision, we set a standard for ourselves and provide a beacon of inspiration for future generations.

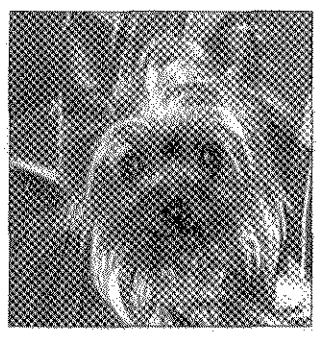
In keeping with the established NASA tradition, I encourage you to celebrate the accomplishments of women and participate in the planned programs and activities at Headquarters, your Centers and within your community.

AdVentures

CLASSIFIED

FOR SALE: Two twin beds, matching sheets and comforter sets, three-drawer dresser and night stand. Good condition. $350. Call 898-8463.

FOR SALE: Brother Intellifax 620 fax machine with all manuals and partial box of paper. $50. Yakima rooftop bike rack, rain gutter mounts, currently set up for two bikes, includes locks. $65. Call 874-3121.



ANNOUNCEMENT: Doc and Susan Little are trying to locate the Langley Research Center employee who adopted their miniature Yorkshire Terrier and miniature Schnauzer before they moved to Hawaii in April of 2000. The Littles can be contacted at 7432-D Ohana Nui Circle, Honolulu, HI 96818, 808-422-4755 or <doc-suelittle@hawaii.rr.com>.

Mammograms Offered On-Center

Langley Research Center's Management and Employee Support Branch will host mammographic exams on **March 26**.

Langley employees, contractors and retirees — and their family members — are eligible for the exams. To schedule an appointment, call the Riverside Diagnostic Center at 594-3900. Time spent at the exam may be charged to J.O. B1008. The cost is $75. Payment may be made by cash, check or Visa/MasterCard.

For more information, call Langley's Management and Employee Support Branch at 864-3194.

VASC To Host Book Signing

The Virginia Air and Space Center (VASC) will host a breakfast and book signing with Chris Kraft from 8:30 to 11 a.m. **March 31**. Kraft, NASA's first flight director and the voice of Mission Control during the Apollo missions, is the author of the recently published "Flight."

Tickets, which cover admission to the catered breakfast and an IMAX film presentation, are $12. (NASA employees and retirees will receive a $2 discount.) For reservations or more information, call 727-0900, ext. 782.

VASC will host a public book signing from 11 a.m. to 3 p.m.

LFCU Branch Closed Until April 1

Langley Federal Credit Union's (LFCU) Langley Research Center branch will remain closed through **April 1** for renovations.

Although the branch will be closed, an LFCU ATM will be available on-site for no-surcharge withdrawals. The Langley Air Force Base (LAFB) branch, located in LAFB Bldg. 157, and the Poquoson branch, located at 415 Wythe Creek Road, also will be open as usual.

Armed Forces Job Fair On April 20

The Virginia Peninsula Chamber of Commerce's (VPCC) Military Affairs Council will host its semiannual Armed Forces Job Fair from 9 a.m. to 3 p.m. **April 20** at the Holiday Inn Hotel and Conference Center in Hampton.

Representatives from more than 140 companies will be on-hand, and four seminars will be offered: "How to Work a Job Fair," "Employers Panel: What We Look For," "Starting Your Own Business" and "Job Searching on the Internet."

For more information, call 262-2000 or visit the VPCC Web site at <www.vpcc.org>.

ODU Planning 'Womengineers Day'

Old Dominion University's College of Engineering and Technology will host its inaugural "Womengineers Day" on **April 21.**

"Womengineers Day" is free and open to the public. Reservations can be made by e-mailing <womengin@odu.edu>. For more information, call 683-3789 or visit the "Womengineers Day" Web site at <web.odu.edu/engr/womengineers/>.

Open House Volunteers Needed

Langley Research Center's Public Services Office is recruiting volunteers to support the Center's Open House, which will take place from 9 a.m. to 4 p.m. **April 28**.

Volunteers are needed before and during the Open House for a variety of activities. All civil servants, contractors and retirees are invited to volunteer. To participate, contact Pam Verniel at <p.j.verniel @larc.nasa.gov>.

VASC Memberships For Sale

Langley Research Center's Exchange Shop now sells discounted memberships to the Virginia Air and Space Center (VASC).

Annual membership privileges include free exhibit admission to the VASC and more than 200 science centers worldwide, free IMAX tickets (depending on the membership level purchased), a subscription to the "CenterLine" newsletter and discounts on birthday parties, science camps and museum store items.

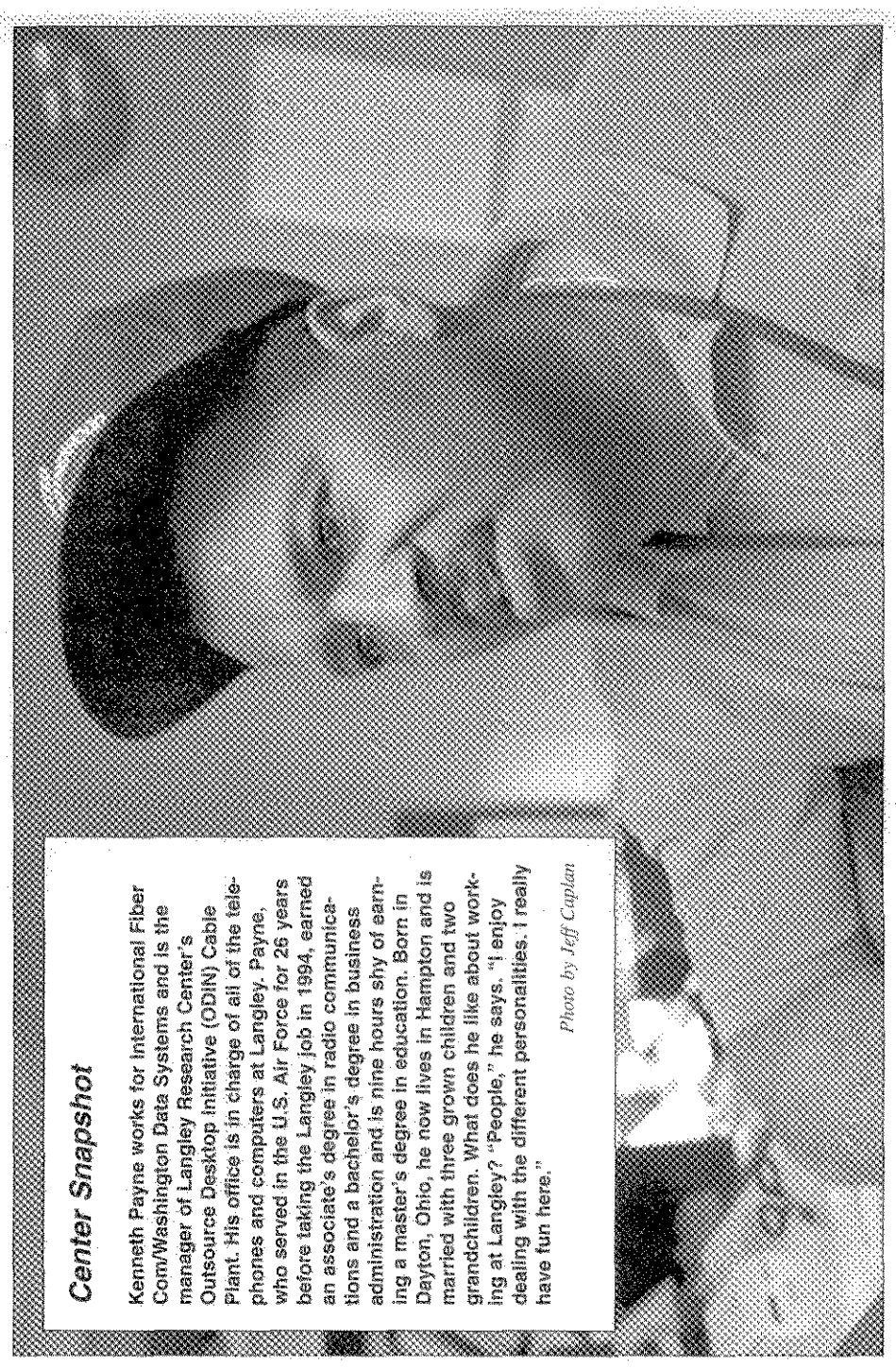
Everyone joining before **April 30** will receive a free "Star Trek: Federation Science" poster and limited-edition pin.

For more information, call the Exchange Shop at 864-1585.

SED To Hold Reunion On June 16

Langley Research Center's Systems Engineering Division (SED) will host a reunion for all former SED employees, friends from other divisions and their families on **June 16** on Langley's picnic grounds. The cost will be $10 for adults and $5 for children 5-12.

Please RSVP by **May 25** to Gene Kelsey at 564-6169 or <ekelsey@aol.com>; Ralph Muraca at 868-0920 or <rmuraca@mail.hroads.net>; or Barry Price at 864-7146 or <b.l.price@larc.nasa.gov>.



Center Snapshot

Kenneth Payne works for International Fiber Com/Washington Data Systems and is the manager of Langley Research Center's Outsource Desktop Initiative (ODIN) Cable Plant. His office is in charge of all of the telephones and computers at Langley. Payne, who served in the U.S. Air Force for 26 years before taking the Langley job in 1994, earned an associate's degree in radio communications and a bachelor's degree in business administration and is nine hours shy of earning a master's degree in education. Born in Dayton, Ohio, he now lives in Hampton and is married with three grown children and two grandchildren. What does he like about working at Langley? "People," he says. "I enjoy dealing with the different personalities. I really have fun here."

Photo by Jeff Caplan

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Researcher News

National Aeronautics and
Space Administration

Langley Research Center
Hampton, Virginia 23681-0001

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National Aeronautics and Space Administration
Langley Research Center

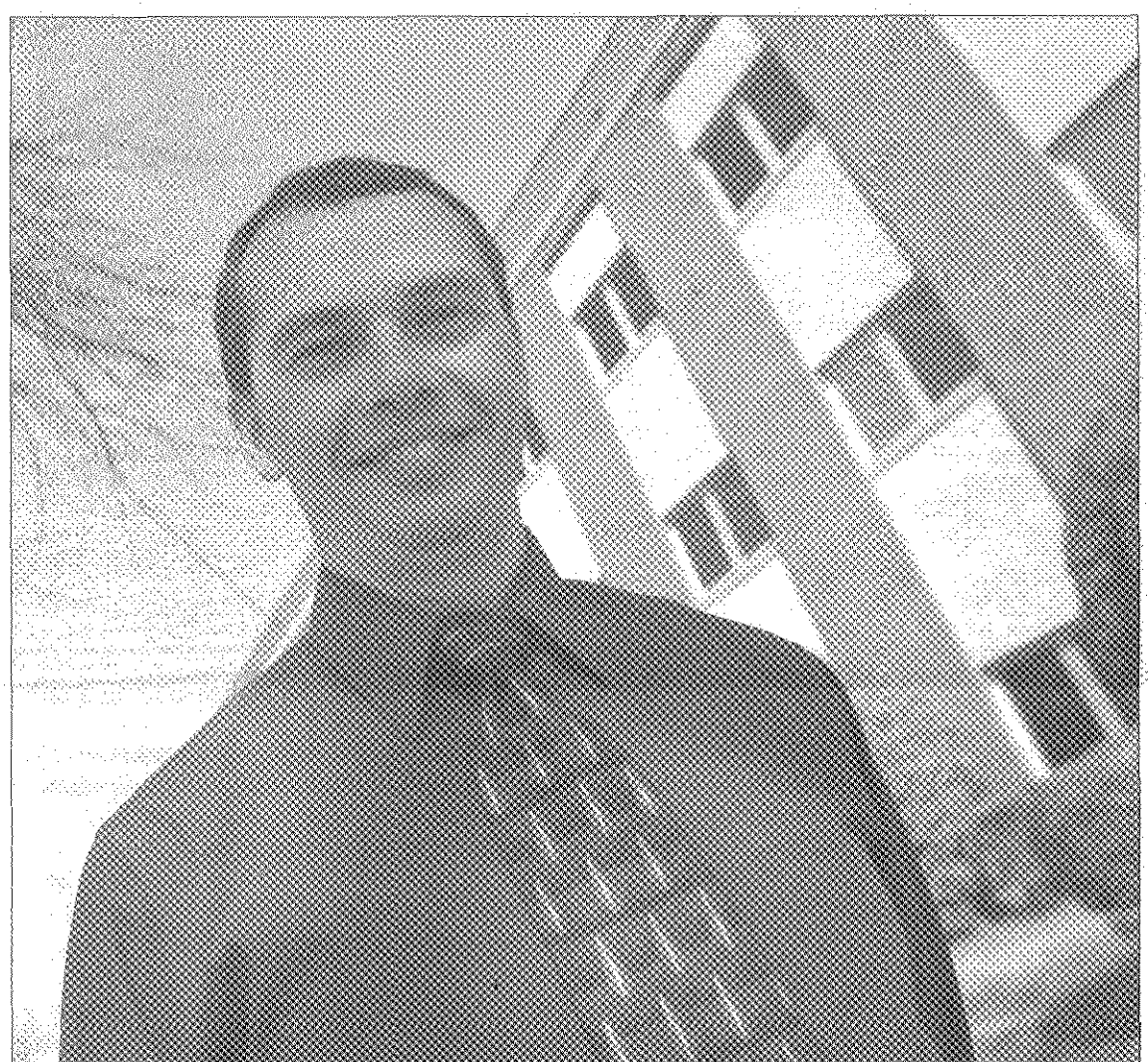
Researcher News

Biweekly Employee and Contractor Publication

Volume 15 ❖ Issue 7 ❖ April 6, 2001

Engineer Of The Year

Langley Employee Steven Bauer Earns AIAA Honor



Langley Research Center employee and world-renowned passive porosity technology expert Steven X.S. Bauer has been selected to receive the 2001 AIAA Engineer of the Year Award.

Photo by Jeff Caplan

By JIM ROBERTS
Researcher News editor

The American Institute of Aeronautics and Astronautics (AIAA) recently announced that Langley Research Center employee Steven X.S. Bauer has been selected to receive the 2001 AIAA Engineer of the Year Award.

The Engineer of the Year Award recognizes an individual member of AIAA who has distinguished himself or herself in some facet of aerospace engineering.

The citation for Bauer's award will read, "For maturing and innovatively applying Passive Porosity Technology to achieve improved controllability of aerospace vehicles."

Bauer is a recognized expert in aerodynamic design, advanced aerodynamic control effectors, and passive porosity technology (PassPorT). He has successfully extended PassPorT to numerous aerodynamic flow control, aerodynamic control effector, propulsion system and ground vehicle drag-reduction concepts as the principal investigator for passive porosity and aerodynamic design in joint research programs with the Department of Defense, the Office of the Secretary of Defense, the Department of Transportation, the U.S. Navy, the U.S. Air Force, The Boeing Aircraft Company, Lockheed Martin Aircraft Company, Newport News Shipbuilding and Southeastern Trucking Inc.

Many of these organizations also have sought out Bauer's experience in resolving issues associated with flow control and drag reduction in the fields of aerodynamics, fluid dynamics, aero-acoustics and hydrodynamics.

"I was very honored when I was nominated for AIAA Engineer of the Year," Bauer said. "I was quite surprised and excited when I found out that I had been chosen as the national Engineer of the Year."

Bauer, the nominee from the AIAA's Hampton Roads Section (HRS), is an aerospace engineer in Langley's Configuration

Continued on Page 5

Open House April 28

Volunteers Still Needed To Help With Event

By KATHY BARNSTORFF
Public Affairs Office

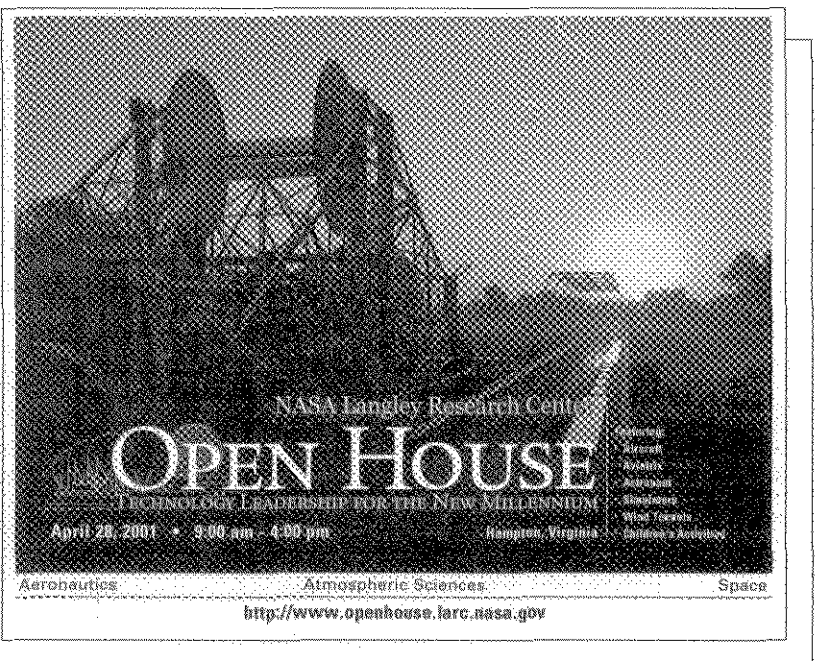
Langley Research Center employees will have a rare opportunity on April 28 to show their families and the rest of Hampton Roads just what goes on behind the gates of the federal facility.

Nineteen different locations will open their doors and invite visitors in to see how Langley technologies are advancing air travel and space exploration and improving life for people everywhere.

The open house, called "Technology Leadership for the New Millennium," will showcase Langley's latest breakthroughs with the help of exhibits and interactive displays.

Pam Verniel, a public affairs specialist in

Continued on Page 5



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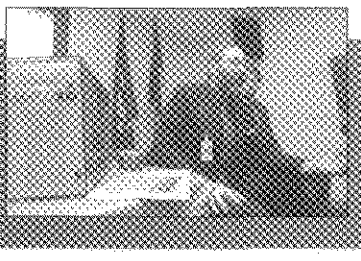
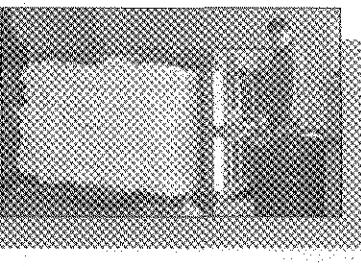


HAL Supercomputer Arrives At Langley — Page 3



What Happens To Langley's Paper? — Page 4

News Briefs

Around the Agency

NASA ADMINISTRATOR HONORED BY NAFEO

NASA Administrator Daniel S. Goldin recently received the Federal Leadership Award from the National Association for Equal Opportunity in Higher Education (NAFEO).

The award is presented to leaders in the federal government who have demonstrated outstanding leadership in advancing Historically Black Colleges and Universities and other minority serving institutions in their efforts to educate the nation's next generation of scientists and engineers.

For more information on NAFEO, visit <http://www.nafeo.org/> on the Internet. RELEASE: 01-53

IMAGE REVEALS GIANT CHIP IN ANTARCTICA

There appears to be a new crack in the Antarctic's icy armor. The massive iceberg-to-be was captured by a NASA satellite that's also tracing hidden continental features that shape the future of the world's largest ice sheets.

Landsat 7, a cooperative mission between NASA and the United States Geological Survey, completed its second annual continent-wide mapping of Antarctica last month. With its capability to see features as small as 15 meters across, Landsat 7 provides the most detailed observations available of the remote continent, many parts of which have never been mapped at this resolution before.

Photos are available on the Internet at <http://www.gsfc.nasa.gov/gsfc/earth/environ/antarctic/pineisland.htm>. RELEASE: 01-50

ROCKET, PLEASE 'PHONE HOME'

Imagine a day when self-diagnostic tools allow future rockets to phone home with vital information about their condition, location and performance. NASA engineers hope that day comes sooner than later and believe the technology could replace expensive ground systems, reducing the cost of space flight.

The "Flight Modem," being developed at the NASA Goddard Space Flight Center's Wallops Flight Facility, allows a rocket or any other flight vehicle to communicate with ground controllers without the traditional and costly equipment typically associated with flight missions.

More information can be found on the Internet at: <http://www.wff.nasa.gov/~fltmodm/> and <http://thinh.gsfc.nasa.gov/arti/arti4.htm>. RELEASE: 01-44

NASA TRACKING SMOKE AND SMOG PARTNERSHIP

New research sponsored by NASA may soon help scientists do a better job of tracking pollution plumes around the world and help provide people more advance warning of unhealthy air.

Researchers have discovered that smoke and smog move in different ways through the atmosphere. A series of unusual events several years ago created a blanket of pollution over the Indian Ocean. In the second half of 1997, smoke from Indonesian fires remained stagnant over Southeast Asia while smog, which is tropospheric, low-level ozone, spread more rapidly across the Indian Ocean toward India.

More information is available on the Internet at <http://toms.gsfc.nasa.gov/> and <http://metosrv2.umd.edu/~tropo/>. RELEASE: 01-43

News Researcher

The Researcher News is an official publication of Langley Research Center, National Aeronautics and Space Administration, Hampton, Va., 23681-2199. It is published every other Friday in the interest of all Langley staff, contractors and retirees and has a circulation of approximately 8,100. It is distributed to all Langley civil service employees, contractors, retirees and on-site university personnel, with limited distribution to NASA Headquarters, other NASA centers and, by special request, to other non-NASA individuals and organizations. Questions related to the content and distribution of the Researcher News should be addressed to Keith Henry, Mail Stop 115, (757) 864-6120. Submit contributions/SDL 026, 055, 110 changes to the editor via e-mail <j.r.roberts@larc.nasa.gov>, fax (757) 864-6477, telephone (757) 864-8150 or Mail Stop 293. Articles, photos and announcements are due at noon the Monday following the date of this issue.

Managing Editor Keith Henry

Editor Jim Roberts
Planners Collaborative/
Science and Technology Corp.

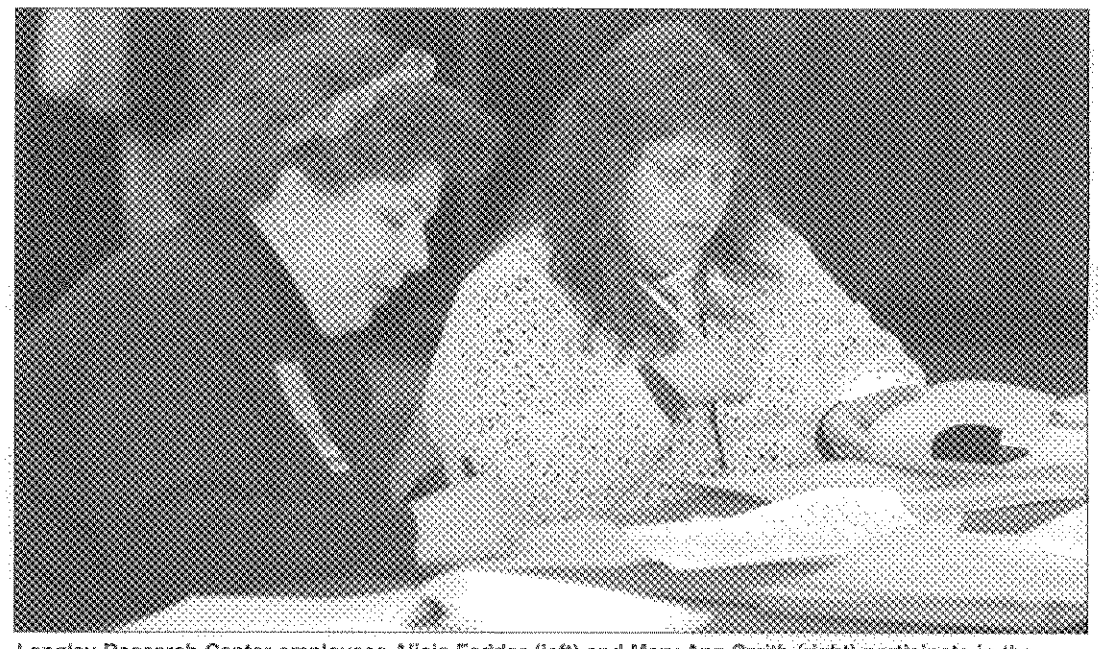
Assistant Editor Meghan Woodcock
Planners Collaborative/
Science and Technology Corp.

Photographer Jeff Caplan
Planners Collaborative/
Science and Technology Corp.

The privilege of listing announcements in this publication is restricted to the employees, contractors and retirees of the Langley Research Center. Articles must be offered without regard to race, color, religion, sex or national origin. All materials are subject to editing.

People

NSIP Judging



Langley Research Center employees Alicia Feddor (left) and Mary Ann Smith (right) participate in the NASA Student Involvement Program (NSIP) judging in Langley's H.J.E. Reid Conference Center on March 27. Twenty-four volunteer judges spent the day evaluating 131 project entries from students in Virginia, West Virginia, North Carolina, South Carolina and Kentucky. The regional winners in five categories — "Design a Mission to Mars," "Watching Earth Change," "Earth Systems in My Neighborhood," "Aeronautics & Space Science Journalism" and "Flight Opportunities" — will advance to the national competition in May. Representatives from Cooperating Hampton Roads Organizations for Minorities in Engineering (CHROME), the First Flight Centennial Commission of North Carolina, the Institute for Global Environmental Strategies (IGES), Thomas Nelson Community College (TNCC) and the Virginia Air and Space Center (VASC) also participated as volunteer judges. For more information, visit <www.nsip.net> on the Internet or contact Gresha Brown at 864-5288.

Photo by Jeff Caplan

In Memoriam

Edward Fleenor Jr.

Edward Fleenor Jr. died on March 24 at the age of 74. Fleenor, a resident of Hampton, served in the U.S. Navy and was a veteran of World War II. He graduated from the NASA Apprentice School in 1954 and went on to work for NASA, retiring in 1981.

Mildred L. Hardy

Mildred L. Hardy died on March 17 at the age of 90. Hardy was a Langley Research Center retiree.

John L. James Jr.

John L. James Jr. died on March 20 at the age of 82. James, a native of Mathews, served in the U.S. Army Air Corps and was a veteran and prisoner of war of World War II. He was a Langley Research Center retiree.

Garland D. Reece

Garland Dale Reece died on March 23 at the age of 49. Reece, a native of Newport News, completed a four-year apprenticeship as a machinist and a two-year certification as a tool-and-die maker and went on to work as an engineering technician at Langley Research Center for 17 years. At the time of his death, he was an active employee in Langley's Computer Aided Technologies (CAT) Section.

"Garland is the type of employee that every manager would like to have on his team. He tackles every new task with enthusiasm and volunteers to support many of the Center's activities," said Ellwood Peele, Reece's supervisor in the CAT Section. "Garland gave of himself freely to help anyone in the Langley community and will be sorely missed by all."

O. Earl Shortt

O. Earl Shortt died on March 25 at the age of 73. Shortt, a native of Raven, served NASA for 41 years, retiring in 1984 as a section head in Langley Research Center's Operational Support Division.

Charlie E. Spruill Jr.

Charlie E. Spruill Jr. died on March 22 at the age of 62. Spruill served in the U.S. Army and was a veteran of the Vietnam War and the recipient of two Bronze Stars, the Army Accommodation Medal, the National Defense Service Award and the Vietnam Service Award. He went on to serve as an engineering technician at NASA for 20 years, retiring in February.

"Charlie always made you laugh," said Charles Poupard, a former supervisor. "He was quick to give advice and offer an opinion. Charlie was much more than a co-worker — he was a friend."

Corrections

The "Battle-Tested Bronco" story in the March 9 edition of the *Researcher News* contained two errors. It stated that the only Air Force Medal of Honor given during the Vietnam War was awarded to an OV-10 Bronco pilot. In fact, there were 12 Air Force Medals of Honor awarded during the Vietnam War. The article also stated that the OV-10 Bronco operates on 175 horsepower. It should have said 715 horsepower.

The "Laser Donated To MIT" story in the same edition also warrants clarification: The U.S. Patent Office recently overturned the laser-related patents issued to Arthur Schawlow and Charles Townes and gave all patent rights for the invention of the laser to Townes' student, Gordon Gould. More information is available in Nick Taylor's book, "Laser: The Inventor, the Nobel Laureate, and the Thirty-Year Patent War."

'You Can Call Me HAL'

Langley Takes Delivery Of Star Bridge Supercomputer

By JIM ROBERTS
Researcher News editor

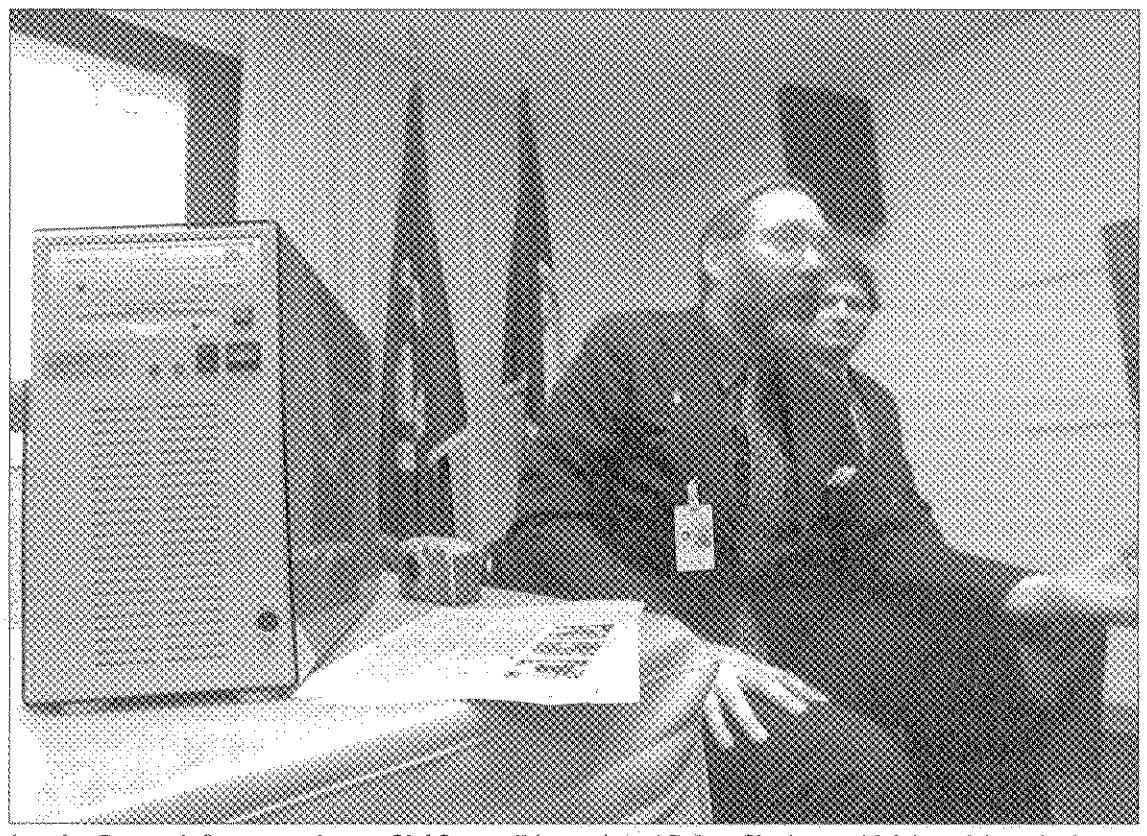
Representatives of Star Bridge Systems, Inc. visited Langley Research Center on March 27 to demonstrate and deliver one of its Hyper Algorithmic Logic (HAL-15) supercomputers.

Star Bridge President Brent Ward and Chief Executive Officer Kent Gilson presented the supercomputer to Doug Dwoyer, Langley's Associate Director for Research and Technology Competencies, after press and technical briefings in the Pearl Young Theater.

HAL-15 operates 2,000 times faster than a Pentium 800 and takes up a fraction of the space. It also plugs into a 110-volt wall outlet and requires no special room or cooling system.

"We believe it is nothing less than the computer reinvented," Ward said.

HAL-15 is the first of a new breed of high-performance computers that replaces the traditional central processing units with faster Field Programmable Gate Arrays (FPGAs), specialty chips on a circuit board that can reconfigure themselves hundreds or thousands of times a second. The FPGAs make it possible for multiple applications to run at the same time on the same chips, making them thousands of times faster than traditional CPUs.



Langley Research Center employees Olaf Storaasli (center) and Robert Singleterry (right) participate in the Hyper Algorithmic Logic (HAL-15) supercomputer "unveiling" on March 27. HAL-15 operates 2,000 times faster than a Pentium 800 and takes up a fraction of the space.

Photo by Jeff Caplan

Also participating in the ceremony were Langley researchers Robert Singleterry and Olaf Storaasli, who visited Star Bridge's headquarters in Midvale, Utah, to train on HAL-15's proprietary programming language, VIVA. The graphic-based language facilitates rapid custom software development by the system's users.

"Once you get your hands on it, it's pretty stimulating," Singleterry said.

Storaasli said supercomputing is responsible for the advancements being made in all areas of science. "We want to be able to go the fastest and best and exploit this," he said. "We want to be on the cutting edge of technology."

Langley will use HAL-15 to explore solutions for structural, electromagnetic and fluid analysis, radiation analysis for astronaut safety, atmospheric science analysis, digital signal processing, pattern recognition, and acoustic analysis.

"With better computing," Singleterry said, "we hope to get a better world ... and a more economical and cheaper world."

Besides Langley, other initial users will include the San Diego Supercomputer Center and the Department of Defense.

MCLT's 'Spice of Life'

How To Handle Cultural Conflicts

By MICHAEL D. UENKING
Crew/Vehicle Integration Branch

Among the many ways people are dissimilar is in how they approach dealing with their differences.

Though conflict is a natural, normal part of life, few people are comfortable with it, and employees are always seeking constructive methods that are more effective than pouting or sulking or, worse yet, verbal and physical abuse.

The following are a variety of options for handling differences.

1. Approaching another person, one-on-one, directly to resolve the differences.

This approach is mainstream American in its directness. It theoretically involves only those who need to be involved. It intends to keep the conflict at its lowest, least volatile point. Depending on the depth of the difference, it can provide the quickest resolution. Hint: Before approaching someone to solve this difference, be very clear about what you want and equally clear about what you're willing to do to get what you want.

Effective conflict resolution is always a series of trade-offs, and negotiations where all parties feel they got something is important in the exchange.

2. Initiating an issue in the team environment and negotiating it on the spot in the group.

Resolving conflicts when they occur can be very productive for the team because it eliminates the performance blocks that exist when people are upset, frustrated or angry. This method, however, requires a skilled facilitator, particularly when different cross-cultural norms are part of the dynamics. There is strong conflict aversion in Pacific Rim and Latin American cultures, for example. And while team members may experience the conflict, that doesn't necessarily mean they are at all willing to deal with it openly.

MULTICULTURAL LEADERSHIP TEAM
MCLT
NASA LANGLEY RESEARCH CENTER

This reality brings to mind wisdom from someone who used to say, "Don't open a can of worms unless you have the recipe for worm soufflé."

A few considerations will help you create the soufflé you want. First, avoid criticizing the person. Ground rules are helpful because they depersonalize the issue and focus instead on behaviors important to the welfare of the group. Those who are feeling the conflict have a responsibility to be specific in stating changes they want, as well as being open to different points of view and any changes they are willing to make as well. It always helps when all parties are flexible.

3. Denying or Suppressing

While these responses are not your best option, they can offer some short-term benefit as a way to integrate a new reality. However, long-term they are unattractive choices.

A cross-cultural training seminar was performed in Tokyo and the issue of conflict was discussed in that session. One Japanese man in the group made the statement that in his culture, people are taught to bury their feelings and the result is negative, both for people feeling the conflict and the group. His perception was that denial is not constructive or helpful to the individual or the team. Use it only as a short-term strategy, and infrequently at that.

By accepting conflict as a normal, natural part of life, and by appropriately using the options mentioned here, it is possible to make conflict an opportunity for growth and learning rather than fear and intimidation.

In the next article, we will look at diversity from the standpoint of those with disabilities and try to dispel some of the myths about disability in the workplace.

This article was derived from HR Press' Diversity Works Article Service. Employees' submissions and ideas are welcomed. Send submissions to Michael D. Uenking at <m.d.uenking@larc.nasa.gov>.

Center Exhibits Headed South For Sun 'n Fun

By **KEITH HENRY**
Public Affairs Office

Langley Research Center will play an active role once again at the Sun 'n Fun International Aviation Convention, which will take place from April 8-14 in Lakeland, Fla.

The annual convention and fly-in is affiliated with the Experimental Aircraft Association (EAA), organizer and host of the famous "Oshkosh" aviation event held each summer in Wisconsin. The same elements that make the Oshkosh event so successful are being applied to the rapidly growing Sun 'n Fun event.

Langley will be represented by aviation and space exhibits and by employees participating in the speaker's forum.

Other NASA aerospace technology centers and Florida's own Kennedy Space Center also support the show. Overall, the NASA exhibit will be expanded this year.

Langley exhibits will highlight the Advanced General Aviation Transport Experiments (AGATE) and the Small Aircraft Transportation System (SATS) programs and the 757 aircraft cockpit display. Langley's Technology Commercialization Program Office (TCPO) also will be represented.

One of the speaker's forum participants will be Karen Jackson, an Army Research Laboratory aerospace engineer working at Langley's Impact Dynamics Facility. She will speak about the Center's "Crash Safety Research Program."

Managing Langley's presence at this year's event will be Sandra West, also an Army employee.

Other Langley personnel traveling to support Sun 'n Fun this year include Randall Bailey of the Crew/Vehicle Integration Branch, Karen Credeur, head of the Public Services Office, Gail Langevin of the Public Services Office and Pete Thomas of the Office of Education.

For more information, visit the Sun 'n Fun Web site at <http://www.sun-n-fun.org/>.

Children Invited To Annual Event

Take Our Daughters And Sons to Work Day April 26

By **PATSY CAMPBELL**
Office of Equal Opportunity

Langley Research Center's Federal Women's Program Committee (FWPC) invites all Center employees — civil servants and contractors — to sign up a child for Take Our Daughters and Sons to Work Day.

The event, which will take place on April 26, is open to employees' daughters, sons, nieces, nephews, grandchildren ... even neighbors' children.

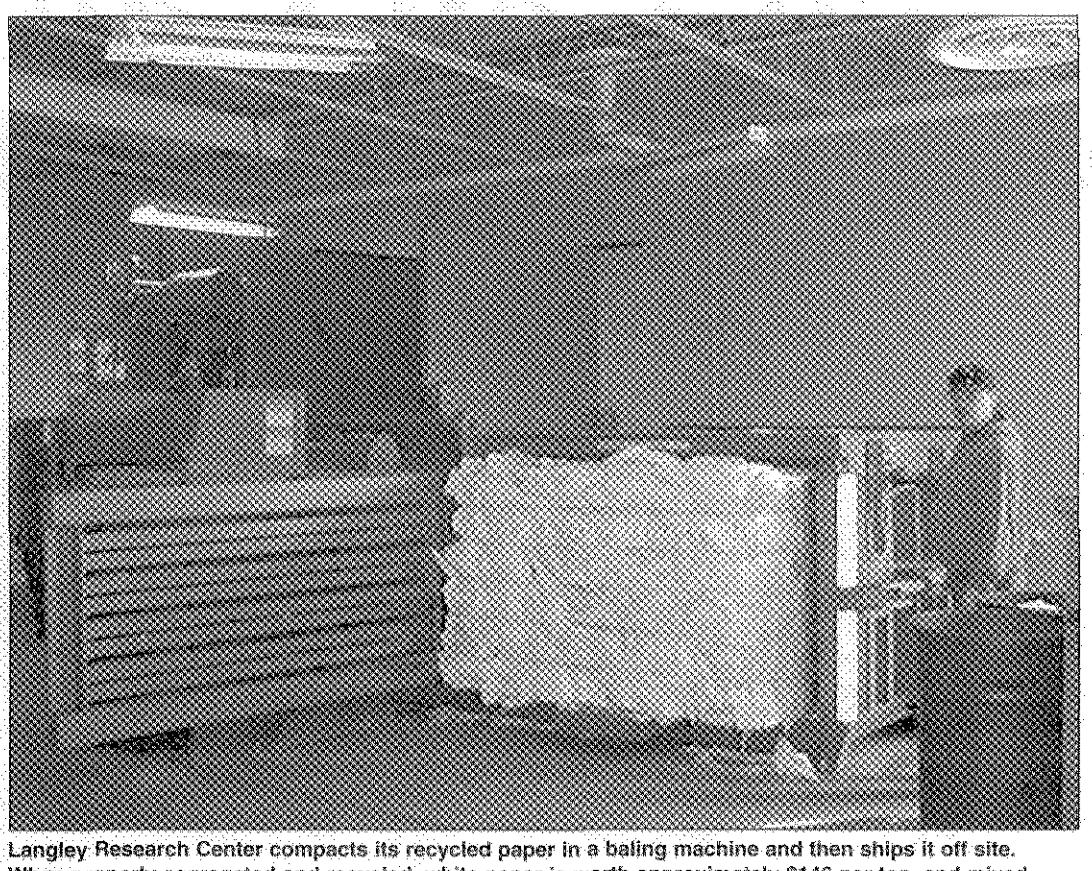
This year's participants will be able to choose from a schedule of workshops and tours. There are also two general events all children may participate in: a group photo before the lunch period and a videotelecon-ference with children at NASA Headquarters.

The FWPC will confirm all participants' registration with a letter containing the workshop and tour times and locations. The confirmation package also will include a sample letter for requesting an excused absence from school, NASA educational materials and critiques for the children to complete and return to the FWPC.

The deadline to register is April 10.

For a registration form or more information, contact Patsy Campbell at 864-8832 or <p.l.campbell@larc.nasa.gov>. More information also is available online at <http://www.takeourdaughterstowork.org/>.

From the Environmental Management Office



Langley Research Center compacts its recycled paper in a baling machine and then ships it off site. When properly segregated and recycled, white paper is worth approximately $146 per ton, and mixed paper is worth approximately $3 per ton.

Photo by Jeff Caplan

Recycling 101

What Happens To Paper After It's Put In The Center Recycling Bins?

Ever wonder what happens to all the paper at Langley Research Center?

The Center has an active recycling program that requires employees to place their used paper into their facilities' recycling bins. The paper is then brought to the Center's recycling facility in Bldg. 1181. It gets compacted in a baling machine and is eventually shipped off site.

Langley sells the paper bales, and all of the proceeds are returned to the Center's Pollution Prevention (P2) fund.

The Center's Recycling and Affirmative Procurement Program is run by the Environmental Management Office's (EMO) support contractor, SAIC. Every Monday, Wednesday and Friday morning, Science Applications International Corp. (SAIC) employees Kenneth Smalls and William Warne pick up the recycled paper on-Center. On each run, they pick up approximately 1,500 pounds of white paper and 450 pounds of mixed paper.

Picking up paper may sound like a boring and monotonous job, but Smalls and Warne come across some pretty unusual "recycled" items. (See their accompanying "Top 10 List.") Typically, they will "tag" a contaminated bin with a note saying why it was left behind.

"The Top 10 Most Outrageous Items Found In Langley's Paper Recycle Bins"

10. Plastic food wrappers
9. Phone cord
8. Banana peel
7. VCR tape
6. CDs
5. Beer bottle
4. Batteries
3. WD-40 cans
2. Lead pipe
1. Brand-new VCR

"Recycling is important, but even more important is to properly segregate," Warne said.

When properly segregated and recycled, white paper is worth approximately $146 per ton, and mixed paper is worth approximately $3 per ton. In addition, if the mixed paper is contaminated, it becomes regular trash and ends up in a local landfill.

"When the bins are contaminated, the white paper gets downgraded to mixed paper, and the Center loses a lot of money," Small said.

Despite the occasional unusual item, Smalls and Warne said most Center employees do a great job at recycling their paper.

"Recycling is something that everyone should feel good about," Warne said. "Here at Langley, over the last 12 months we have recycled about 106 tons of white paper. That means from white paper alone the Center has helped save 1,802 trees. Many people don't realize that it takes 17 trees to make one ton of paper. That is a lot of trees!"

Recycling paper also saves water and energy and creates jobs for thousands of people.

The EMO offers free training classes for those facilities that may need help with proper recycling. For more information about the EMO and its Recycling and Affirmative Procurement Program, visit <http://osemant1.larc.nasa.gov/rapp/> on the Internet.

Open

Continued from Page 1

Langley's Public Services Office, leads the more than 30-person committee that's planning the event, which will run from 9 a.m. to 4 p.m. April 28.

"Langley's Open House is a great opportunity to show the public what we do," Verniel said. "But a large number of people are required to make it possible."

Verniel said more volunteers, employees and retirees are needed before and during the event to help make it a success.

"Employees and retirees can help by placing posters at businesses, schools and other places in the community," Verniel said. "During the Open House, you can direct traffic to parking lots; hand out bags, decals and brochures at the Main and Wythe Creek gates; help with children's activities; work in one of the 19 facilities that will be open; or work in the Communications Center."

What will visitors be able to see and do? It depends on where they go.

In Bldg. 1230, plans are to involve visitors in interactive demonstrations ranging from holograms to infrared scanners. Employees in the Nondestructive Evaluation Sciences Branch will even set up a micro-meteorite simulator that will allow visitors to shoot a paintball at a target and see how acoustic sensors detect where it lands.

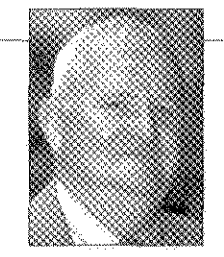
In the Flight Research Hangar, 10 aircraft are expected to be on display, including the B-757 Airborne Research Integrated Experiments System (ARIES) and the Center's three new general aviation planes.

The hangar also will feature a guest appearance from an aviation pioneer: 89-year-old Elinor Smith. Smith took her first airplane ride at age 6 in 1917, the same year crews started building Langley's first structure. She soloed at 15 and became the youngest licensed pilot in the United States when Orville Wright signed her flying license.

Two wind tunnels will be open, as well as a machine shop, acoustics and structures and materials laboratories, simulators, atmospheric science facilities and crash- and tire-test buildings.

There also will be activities for children and food and souvenirs for sale at a few locations.

For more information, visit the Open House Web site at <http://openhouse.larc.nasa.gov>. To volunteer, contact Pam Verniel at 864-2449 or <p.j.verniel@larc.nasa.gov>.



Langley Research Center will hold an Open House for the public from 9 a.m. to 4 p.m. Saturday, April 28. I view this as an opportunity to highlight for our neighbors what goes on behind the gates that can benefit them now and for years to come. It is also an opportunity for us to thank the many individuals and groups who value the research done at this Center.

I fully support the activities now being planned for the April 28 event. Finally, I want to thank the Open House committee for its direction of this effort and all the volunteers who will make this event a rousing success.

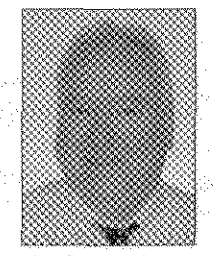
I hope each of you will take this opportunity to bring your family to the Center. I also encourage you to invite your neighbors and friends to visit.

Delma C. Freeman,
Deputy Director

The following facilities will be open for the Open House:

- Bldg. 1148, Structures and Materials Lab
- Bldg. 1202A, Pearl Young Theater and adjoining cafeteria
- Bldg. 1208, Acoustics Research Lab
- Bldg. 1212, 7- by 10-Foot Wind Tunnel
- Bldg. 1213, Cafeteria
- Bldg. 1214, Basic Aerodynamics Research Tunnel (BART)
- Bldg. 1220, High-Intensity Radiated Fields (HIRF) Laboratory and the Systems and Airframe Failure Emulation Testing and Integration (SAFETI) Laboratory
- Bldg. 1222, H.J.E. Reid Conference Center
- Bldg. 1222B, Gym (children's activities)
- Bldg. 1225, Machine Shop
- Bldg. 1230B, Non-Destructive Evaluation Sciences (NDE) Laboratory
- Bldg. 1244, Flight Research Hangar
- Bldg. 1250, Atmospheric Sciences
- Bldg. 1256, Combined Loads Test Systems (COLTS)
- Bldg. 1262, Aircraft Landing Dynamics Facility
- Bldg. 1268A, Flight Simulators
- Bldg. 1268C, Atmospheric Sciences Data Center
- Bldg. 1297, Impact Dynamics Research Facility
- Bldg. 1299, Low Frequency Antenna Test Facility

CFD Pioneer To Give ICASE Award Lecture



MacCormack

Robert W. MacCormack will deliver the Theodorsen Lectureship Award lecture, "Reflections on 30 Years in Computational Fluid Dynamics (CFD)," at 10 a.m. April 24 in Langley Research Center's Pearl Young Theater.

The Theodorsen Lectureship Award is a biennial award sponsored by Langley and the Institute For Computer Applications in Science and Engineering (ICASE). It recognizes individuals who have made theoretical contributions in the field of aeronautical sciences and engineering." Past recipients have been Sir James Lighthill (1993), Anthony Jameson (1997) and Mark Morkovin (1999).

MacCormack, a professor in Stanford University's department of aeronautics and astronautics, earned undergraduate degrees in physics and mathematics at Brooklyn College before joining Ames Research Center's Hypersonic Free Flight Branch in 1961.

MacCormack went on to earn a master's degree in mathematics at Stanford and in 1971 was named assistant chief of Ames' newly formed Computational Fluid Dynamics Branch. He subsequently served as senior staff scientist of Ames' Thermo- and Gas Dynamics Division.

MacCormack began his academic career in 1981 as professor in the department of aeronautics and astronautics at the University of Washington in Seattle. In 1985, he accepted his professorship at Stanford.

MacCormack's major contributions to CFD include, among others, his explicit two-step scheme that fundamentally transformed CFD in the early 1970s, and, more recently, his formulation of the magnetohydrodynamic equations in a form that allows the use of flux-vector splitting.

Bauer

Continued from Page 1

Aerodynamics Branch. He joined Langley in 1983 as a cooperative education student and in 1986 as an aerospace technologist.

Bauer was a key member of NASA's High Speed Research (HSR) Program and Aircraft Tactical Technology and Advanced Controls (ATTAC) Program and is presently a key member of NASA's Revolutionary Concepts (REVCON) Program. In addition, he has worked on a wide variety of problems, including hypersonic vehicle "waverider" design, nonlinear wing design, advanced aerodynamic control effectors and high-lift and high angle-of-attack systems.

He has authored more than 36 technical publications. In recent years, he has given several invited lectures to national and international aeronautics, ground transportation and naval research communities as well as universities and schools. He also donates several hours a week to tutoring students in local elementary schools.

Bauer will receive the award at a dinner during the 2001 Aviation Week's Aerospace Exposition, which will be held Oct. 16-18 in Los Angeles.

Winners Of BWB Design Contest Announced

By PAT LINK
Office of Education

Langley Research Center's Office of Education recently announced the winners of its Blended Wing Body (BWB) Interior Design Contest.

Katherine Gura, a seventh-grade student from Chapel Hill, N.C., was the grand prize winner, earning $1,000 plus a scholarship to the Aviation Challenge at Space Camp.

The contest, sponsored by Langley in association with Boeing, Disney and Hampton University, challenged students to design an interior plan based on criteria spelled out by BWB project engineers. Working with their teachers, the students were encouraged to integrate their creative ideas with math and science skills to produce a workable design.

More than 500 sixth-, seventh- and eighth-grade students from Virginia, West Virginia, Kentucky, North Carolina and South Carolina participated in the contest. Some of the more revolutionary designs included basketball courts, swimming pools, a bowling alley and fast food restaurants.

Some of the award-winning designs will be on display from June 29 to July 17 at Disney's Epcot Center as part of the Inspiration Station Project.

To show the most innovative ideas in the final product, NASA engineers will take the best elements of all the designs and incorporate them into a composite Blended Wing Body interior mock-up drawing. Boeing is also reviewing the entries for unique concepts.

A complete list of winners' names and pictures of their winning designs can be found on the Internet at <http://edu.larc.nasa.gov/bwb/>.

AdVentures

CLASSIFIED

FOR SALE: Waterfront house in Hampton's Elizabeth Lakes. Custom-built brick ranch on 1.2-acre lot in cul-de-sac; 3,800 square feet, four bedrooms, 3.5 baths. More details online at <http://164.106.209.169/vqi-inc/bill/>. $295,000. Call 851-0612.

FOR SALE: Two-story brick/vinyl house in Poquoson; five bedrooms, three full bathrooms, den with fireplace, living room, dining area and kitchen with three-stool bar; single garage with opener, lots of storage space; large fenced back yard; just painted in and out; about 2,000 square feet; immediate occupancy. $155,000. Call 868-8796.

FOR SALE: Gateway Solo laptop computer, 450 MHz, 96MB memory, $800 or best offer. 1.5 years old, original price $2,200. Call 827-6447.

FOR SALE: Kawasaki 454, low miles; entertainment center, sturdy, good shape, $100; HealthRider, $75. Call 826-1862.

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Read the *Researcher News* online at <http://researchernews.larc.nasa.gov>.

NARFE Meeting April 9

Chapter 682 of the National Association of Retired Federal Employees (NARFE) will hold its monthly meeting at 10 a.m. **April 9** in the Midtown Community Center in Newport News. All federal employees are invited to attend. For more information, call Catherine Askew at 247-1558.

LAA To Meet On April 10

Langley Research Center's Alumni Association (LAA) will meet at 11:30 a.m. **April 10** in the private dining room of the Center cafeteria. The program will feature John V. Quarstein, director of the Virginia War Museum, who will talk about local Civil War preservation efforts.

Duplicate Bridge Game April 11

Langley Research Center's Duplicate Bridge Club will host a game at 5:30 p.m. **April 11** in the Langley Room of the H.J.E. Reid Conference Center.

The winners of the March 14 game were: first place, John Ferrainolo and S.N. Sankaran; second place, Bill and Nan Jones; and third place, Larry and Joan Bement. For more information, call Tom Norum at 864-7902, Larry Bement at 864-7084, S.N. Sankaran at 864-3516 or John Ferrainolo at 864-2385.

Armed Forces Job Fair On April 20

The Virginia Peninsula Chamber of Commerce's (VPCC) Military Affairs Council will host its semiannual Armed Forces Job Fair from 9 a.m. to 3 p.m. **April 20** at the Holiday Inn Hotel and Conference Center in Hampton.

Representatives from more than 140 companies will be on-hand, and four seminars will be offered.

For more information, call 262-2000 or visit the VPCC Web site at <www.vpcc.org>.

ODU Planning 'Womengineers Day'

Old Dominion University's College of Engineering and Technology will host its inaugural "Womengineers Day" on **April 21.**

"Womengineers Day" is free and open to the public. Reservations can be made by e-mailing <womengin@odu.edu>. For more information, call 683-3789 or visit the "Womengineers Day" Web site at <http://web.odu.edu/engr/womengineers/>.

J-Lab Open House On April 21

The Thomas Jefferson National Accelerator Facility (J-Lab) in Newport News will hold an Open House from 10 a.m. to 4 p.m. **April 21**.

For more information, call 269-7444 or 269-7689 or visit <www.jlab.org/openhouse> on the Internet.

ODU Hosting Exhibit On May 4

Old Dominion University's (ODU) Center for Advanced Engineering Environments will host an Advanced Learning Technologies exhibit from 9 a.m. to 5 p.m. **May 4** in Langley Research Center's H.J.E. Reid Conference Center.

Exhibitors will include Access Technologies Group, Active Education, Adaptiv Learning Systems, Centra Software, Inc., Cisco, Elumens Corp., Ethereal Technologies, Global Knowledge, HorizonLive, JDH Technologies, KnowledgePlanet.com, Inc., Lachesis Solutions, Learning Tree Int., Mentergy, Ninth House, ODU's Applied Research Center (ARC), ODU's Virginia Modeling, Analysis and Simulation Center (VMASC), Paradigm Learning, SkillSoft Corp., Smart Technologies, WBT Systems and WebCE.com.

For more information, visit <http://odu-aee-www.larc.nasa.gov/workshop/may01_ALE/> on the Internet.

SED To Hold Reunion On June 16

Langley Research Center's Systems Engineering Division (SED) will host a reunion for all former SED employees, friends from other divisions and their families on **June 16** on Langley's picnic grounds. The cost will be $10 for adults and $5 for children between ages 5 and 12.

Please RSVP by **May 25** to Gene Kelsey at 564-6169 or <ekelsey@aol.com>; Ralph Muraca at 868-0920 or <rmuraca@mail.hroads.net>; or Barry Price at 864-7146 or <b.l.price@larc.nasa.gov>.

Garden Club Accepting Members

Langley Research Center's Garden Club is accepting applications for membership. The club provides plots, water and tillers; members provide the rest. There are 60 plots available, each measuring approximately 20 feet by 50 feet. Memberships will be awarded on a first-come, first-served basis until all plots are assigned. Dues for 2001 are $20, payable upon acceptance.

For more information, contact Barry Price at 864-7146 or <b.l.price@larc.nasa.gov>.

Center Snapshot

Gautam Shah has worked at Langley Research Center for 14 years as an aerospace technologist. He is assigned to Langley's Vehicle Dynamics Branch, but he currently supports NASA's Aviation Safety Program and the U.S. Navy's F/A-18E/F program. Shah, born in Vadodara, India, and raised in upstate New York and Baltimore, now resides in Hampton with his wife. He graduated from Embry-Riddle Aeronautical University and then earned a master's degree in aeronautical engineering from George Washington University. In his free time, he enjoys traveling and attending driving schools. What does he like about working at Langley? "The opportunity to develop and work on new and interesting technologies in aviation," he says.

Photo by Jeff Caplan

National Aeronautics and Space Administration

Langley Research Center
Hampton, Virginia 23681-2199

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Researcher News

Reminder: Langley's Open House Will Take Place April 28

National Aeronautics and Space Administration
Langley Research Center

News Researcher

Biweekly Employee and Contractor Publication

Volume 15 ❖ Issue 8 ❖ April 20, 2001

'Very Good For Langley'

NASA's Budget Up 2 Percent; Langley's Up 4 Percent

By JIM ROBERTS
Researcher News Editor

NASA's 2002 budget proposal includes a 2 percent increase in funding for the Agency and a 4 percent increase for Langley Research Center. If passed, Langley's budget will increase from $660 million in 2001 to $687 million in 2002, bringing the Center's budget back nearly equal to what it was in 1998.

"Bottom line is I think it's a good budget for NASA," Center Director Jeremiah F. Creedon said at an April 9 press briefing in the Pearl Young Theater. "It's a very good budget for Langley."

At a preceding news conference at NASA Headquarters, Administrator Daniel S. Goldin said, "The President's budget provides an increase in funding for NASA at a time when many other federal agencies are getting less.

"The President has challenged NASA to examine its priorities to ensure that our workforce and institutions are most effectively focused on those key efforts that

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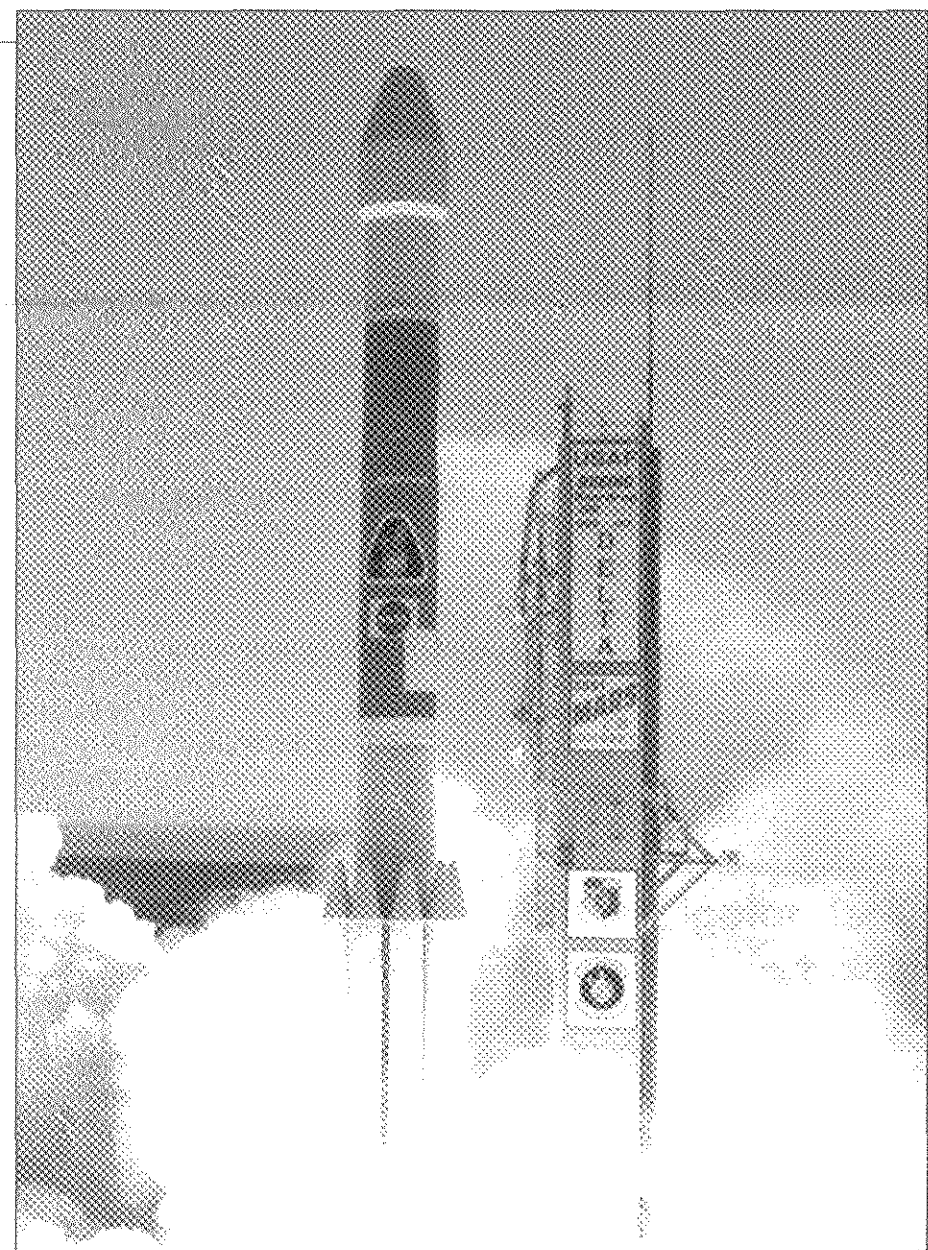


NASA's 2001 Mars Odyssey launched aboard a Delta 11 rocket at 11:02 a.m. April 7 from Cape Canaveral, Fla. Langley researchers will support the Jet Propulsion Laboratory in the mission's critical 45- to 70-day aerobraking phase during which the spacecraft will gradually dip into the the Martian atmosphere and guide itself to the desired orbit.

Photo courtesy of Kennedy Space Center

Odyssey Launches

Langley Tapped To Support Mission's Aerobraking Phase

By DONALD SAVAGE
NASA Headquarters

By MARY HARDIN
Jet Propulsion Laboratory

NASA's 2001 Mars Odyssey launched from Cape Canaveral Air Force Station, Fla., on April 7, carrying a suite of scientific instruments designed to tell us what makes up the Martian surface and provide vital information about potential radiation hazards for future human explorers.

"The launch of 2001 Mars Odyssey represents a milestone in our exploration of Mars — the first launch in our restructured Mars Exploration Program we announced last October," said Ed Weiler, NASA's Associate Administrator for Space Science. "Mars continues to surprise us at every turn. We expect Odyssey to remove some of the uncertainties and help us plan where we must go with future missions."

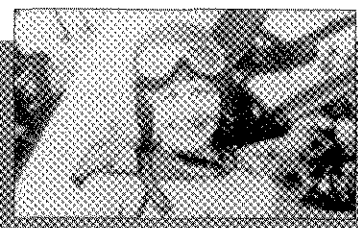
Odyssey is NASA's first mission to Mars since the loss of two spacecraft in 1999. Other than our Moon, Mars has attracted more spacecraft exploration attempts than any other object in the solar system, and no other planet has proved as daunting to success. Of the 30 missions sent to Mars by three countries over 40 years, fewer than one-third have been successful.

The Odyssey team conducted vigorous reviews and incorporated "lessons learned" in the mission plan.

"The project team has looked at the people, processes and design to understand and reduce our mission risk," said George Pace, 2001 Mars Odyssey project manager at NASA's Jet Propulsion Laboratory (JPL). "We haven't been satisfied with just fixing the problems from the previous missions. We've been try-

Continued on Page 3

Inside This Issue:



Pioneer Aviatrix To Visit Langley — Page 3

Center Has Strict Laser Guidelines — Page 4

News Briefs

Around the Agency

SUN TAKES ANOTHER SOLAR SHOT

An angry Sun fired off another powerful X-class flare on April 10. X-class flares are the most powerful classification, and this flare, rated X-2, was the most recent in a series that included one of the most powerful solar blasts in 25 years.

An eruption of electrified gas, called a Coronal Mass Ejection, or CME, was observed shortly after the April 10 flare, and it is heading our way. Depending on the orientation of the magnetic field carried by the CME cloud, it may cause a magnetic storm when it impacts the Earth's own magnetic field.

More information on the recent stormy solar activity is available on the Internet at <http://sohowww.nascom.nasa.gov/>. RELEASE: 01-71

BROWN NAMED AA FOR PUBLIC AFFAIRS

NASA Administrator Daniel S. Goldin recently named Jerry Brown, a senior corporate communications executive, as the Associate Administrator for Public Affairs.

Before joining NASA, Brown was vice president for Walls Communications, Inc., based in Washington, D.C, where he served as senior counsel to the firm's Fortune 100 clients. RELEASE: 01-69

GOLDIN HONORED FOR ACADEMIC EFFORTS

NASA Administrator Daniel S. Goldin recently was honored for his interest and efforts to bring students back to the studies of science and engineering.

On April 7, the Metropolitan Washington Chapter of the Achievement Rewards for College Scientists (ARCS) Foundation, a national organizational dedicated to providing scholarships and other financial assistance to academically outstanding students, presented Goldin with the 2001 Eagle Award. RELEASE: 01-68

MIT SCIENTISTS FIND CLUES TO 'STARQUAKES'

By spinning ultra-cold sodium gas in a laboratory, NASA-funded scientists at the Massachusetts Institute of Technology (MIT) in Cambridge have created a gas cloud that resembles rounded Swiss cheese and is riddled with tiny whirlpools, like those that cause "starquakes" in space.

This research may teach scientists more about the history of our universe and the stars within it and may eventually lead to vast improvements in highly precise atomic clocks.

Visual depictions of the experiment are available on the Internet at <http://www.jpl.nasa.gov/pictures/funphysics>. RELEASE: 01-64

SUPERNOVA SHEDS LIGHT ON DARK UNIVERSE

NASA's Hubble Space Telescope has seen a burst of light from an exploding star located much farther from Earth than any previously seen — a supernova blast in the early Universe that is casting light on a mystery of truly cosmic scale.

This stellar explosion is extraordinary not only because of its tremendous distance, 10 billion light-years from Earth, but also because its discovery greatly bolsters the case for the existence of a mysterious form of "dark energy" pervading the universe. The concept of dark energy was first proposed, then discarded, by Albert Einstein early in the last century.

Images are available on the Internet at <http://oposite.stsci.edu/pubinfo/pr/2001/09>. RELEASE: 01-58

News Researcher

The Researcher News is an official publication of Langley Research Center, National Aeronautics and Space Administration, Hampton, Va., 23681-2199. It is published every other Friday in the interest of all Langley staff, contractors and retirees and has a circulation of approximately 8,100. It is distributed to all Langley civil service employees, contractors, retirees and on-site university personnel, with limited distribution to NASA Headquarters, other NASA centers and, by special request, to other non-NASA individuals and organizations. Questions related to the content and distribution of the Researcher News should be addressed to Keith Henry, Mail Stop 115, (757) 864-6120. Submit contributions/SDL 026, 055, 110 changes to the editor via e-mail <j.r.roberts@larc.nasa.gov>, fax (757) 864-6477, telephone (757) 864-8150 or Mail Stop 293. Articles, photos and announcements are due at noon the Monday following the date of this issue.

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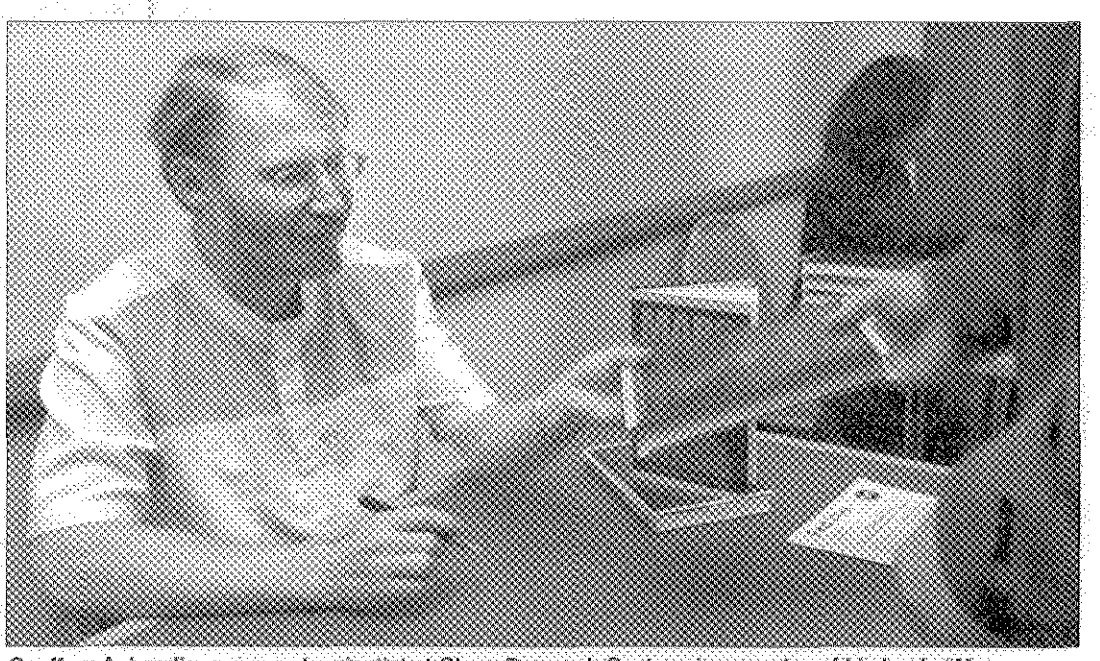
The privilege of listing announcements in this publication is restricted to the employees, contractors and retirees of the Langley Research Center. Articles must be offered without regard to race, color, religion, sex or national origin. All materials are subject to editing.

People

Book Signing



Geoffrey A. Landis, a research scientist at Glenn Research Center, signs copies of his book, "Mars Crossing," on April 4 in the private dining room of Langley Research Center's cafeteria. Landis' novel, his first, has been called the most accurate ever written about Mars exploration. Signed copies of "Mars Crossing" are on sale in the Langley Exchange Shop.

Photo by Jeff Caplan

NASA Retirees Honored For Volunteering At VASC

The Virginia Air and Space Center (VASC) honored 170 docents and volunteers at its annual Volunteer Recognition Celebration on March 27. The honorees contributed more than 14,000 hours of service during the year 2000.

NASA retirees **Llewellyn Bird, Robert Huston** and **William King**, were recognized for exceeding 1,000 hours of service.

"The volunteers have helped the Virginia Air and Space Center achieve its most successful year to date," said Todd Bridgford, VASC's executive director. "Our dedicated volunteers have enabled the Center to extend its outreach in the community and significantly enhance the visitors' experience at the museum."

Mainthia Technologies Employee Named To IFC

Greg Kyte, a Mainthia Technologies employee on contract with Langley Research Center's Office of Safety and Mission Assurance, has been appointed to the International Fire Code (IFC) Development Committee, which recently held public hearings in Portland, Ore.

The IFC was developed to provide code enforcement officials, architects, engineers, designers and contractors with a single and consistent set of fire and life safety requirements for use throughout the United States.

In Memoriam

Gordon F. Bullock

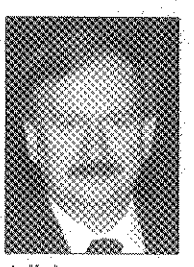
Gordon Fletcher Bullock died on March 26 at the age of 68. Bullock, a native of Tarboro, N.C., served in the U.S. Air Force for five years and went on to work as an aerospace engineer at Langley Research Center, retiring in 1989. After his retirement, Bullock served as a docent for the Virginia Air and Space Center.

Howard S. Carter

Howard Sidney Carter died on March 31 at the age of 80. Carter, a native of Johnson City, Tenn., served in the U.S. Army Air Corps and the U.S. Air Force Reserves and was a veteran of World War II. He went on to work as an aeronautical engineer at NASA, retiring in 1973.

Antony Jalink Jr.

Antony Jalink Jr. died April 9 at the age of 64. Jalink, a native of the Netherlands, worked as an engineer at Langley Research Center for 39 years. At the time of his death, he was an active employee in Langley's Sensor Systems Branch.



Jalink

"It is extremely difficult to sum up the breadth of Tony's career at Langley," said Pamela L. Rinsland, head of the Sensor Systems Branch. "He brought a high degree of accomplishment, energy and enthusiasm to every job, whether it was dealing with foreign visitors, troubleshooting an on-board anomaly or devising a new technique for pollution removal. Most important is the fact that many employees have used two words — brilliant and kind — to describe this fine research engineer."

Patricia G. Reagon

Patricia G. Reagon died on April 6 at the age of 58. Reagon, a native of Sacramento, worked as a mathematics technician, computer programmer and data systems manager at Langley Research Center from 1962 to 1977 and from 1979 to 1998. She also worked as a software development programmer for Wyle Laboratories from 1978 to 1979 and returned to work there in 2000 as a data system manager supporting Langley's Low Turbulence Pressure Tunnel.

Pioneer Aviatrix To Visit

Elinor Smith Will Deliver Lecture And Attend Open House

Smith

Elinor Smith will visit Langley Research Center the week of April 23 to film part of a documentary on the future of aviation and to fly Langley's experimental general aviation aircraft, AGATE 1B.

While she's at Langley, Smith will deliver a lecture entitled, "Flying: Past, Present and Future" at 2 p.m. April 27 in the Center's Pearl Young Theater. She also will attend Langley's Open House on April 28, signing autographs from 10 to 11 a.m. near the General Aviation exhibit in the hangar.

Smith is considered a pioneer of female aviation and aviation in general. In 1928, at age 16, she earned national recognition as the youngest pilot to receive a license from the Federal Aviation I. Her license was signed by Orville Wright.

In 1930 — the same year Jimmy Doolittle won the title of "best aviator" — Smith was voted "best female pilot" by her peers, a group that included Amelia Earhart.

Smith's aviation experiences in the 1920s and 30s led to many records and world-wide fame. Only a few years later, she gave it all up to marry Patrick Sullivan and raise four children. Not until the 1960s did Elinor return to flying.

Liz Ward of Langley's General Aviation Programs Office pointed out that Smith's lecture will take place in the theater named for the first female professional at Langley: Pearl I. Young.

"This coincidence marks the significant achievements of both women in the same week that Langley sponsors 'Take Our Daughters (and Sons) to Work Day,'" Ward said.

For more information about Elinor Smith, visit <http://www.lihistory.com/ specpio/air1.htm> and <http://www.tsixroads.com/Corinth_MLSANDY/rt081.html> on the Internet.

Colloquium and Sigma Series Lectures

Murman On 'Better, Faster, Cheaper'

Murman

Earll M. Murman will present a Colloquium lecture entitled, "Challenges in Aeronautical Design, Engineering and Manufacturing" at 2 p.m. May 1 in Langley Research Center's H.J.E. Reid Conference Center. A Sigma Series lecture will follow at 7:30 p.m. at the Virginia Air and Space Center in Hampton.

The Lecture

"Better, Faster, Cheaper" (BFC) emerged in the 1990s as a new paradigm for aerospace. Murman's talk will explore some underlying reasons for BFC and offer thoughts to help frame the thinking and action of aeronautical professionals in this new era.

Literature on industrial innovation indicates that aeronautical products have evolved to a "dominant design" and entered the "specific phase" of their product life cycle.

Innovation in this phase centers on: incremental product improvement (especially for productivity and quality), process technology and technological innovations that offer superior substitutes. Results for process improvements from the Massachusetts Institute of Technology's (MIT) Lean Aerospace Initiative research program will be presented to indicate opportunities to achieve BFC. Concepts of "value" will be introduced as conceptual framework for future thinking.

Concluding remarks will offer some challenges to industry, government and academics in aeronautical design, engineering and manufacturing.

The Speaker

Murman is the Ford Professor of Engineering at MIT and the co-director of the MIT's Lean Aerospace Initiative. He previously served as head of MIT's department of aeronautics and astronautics and director of Project Athena.

In addition to his 21 years in academia, his aerospace engineering career includes 10 years in industry and three years at Ames Research Center.

Murman is a member of the National Academy of Engineering and a Fellow of the American Institute of Aeronautics. His professional interests include aerodynamics, systems engineering, product development and engineering education.

Upcoming Lectures

- **June 5:** Raffaello D'Andrea on "Cooperative Control of Autonomous and Semi-Autonomous Vehicles."
- **Aug. 7:** Bryan Palaszewski on "Advanced Fuels Research."
- **Sept. 11:** Stephen B. Pope on "Turbulent Combustion."
- **Oct. 2:** 30th Anniversary Lecture; speaker to be determined.

For more information about the lecture series, visit <http://shemesh.larc.nasa.gov/Lectures/> on the Web.

Mars

Continued from Page 1

ing to anticipate and prevent other things that could jeopardize the success of the mission."

Odyssey is part of NASA's Mars Exploration Program, a long-term robotic exploration initiative launched in 1996 with Mars Pathfinder and Mars Global Surveyor. "The scientific trajectory of the restructured Mars Exploration Program begins a new era of reconnaissance with the Mars Odyssey orbiter," said Jim Garvin, lead scientist for NASA's Mars Exploration Program. "Odyssey will help identify and ultimately target those places on Mars where future rovers and landers must visit to unravel the mysteries of the Red Planet."

NASA's latest explorer carries three scientific instruments to map the chemical and mineralogical makeup of Mars: a thermal-emission imaging system, a gamma ray spectrometer and a Martian radiation environment experiment. The imaging system will map the planet with high-resolution thermal images and give scientists an increased level of detail to help them understand how the mineralogy of the planet relates to the landforms. The part of Odyssey's imaging system that takes pictures in visible light will see objects with a clarity that fills the gaps between the Viking orbiter cameras of the 1970s and today's high-resolution images from Mars Global Surveyor.

Like a virtual shovel digging into the surface, Odyssey's gamma ray spectrometer will allow scientists to peer into the shallow subsurface of Mars, the upper few centimeters of the crust, to measure many elements, including the amount of hydrogen that exists. Since hydrogen is mostly likely present in the form of water ice, the spectrometer will be able to measure permanent ground ice and how that changes with the seasons.

"For the first time at Mars we will have a spacecraft that is equipped to find evidence for present near-surface water and to map mineral deposits from past water activity," said Steve Saunders, 2001 Mars Odyssey project scientist at JPL. "Despite the wealth of information from previous missions, exactly what Mars is made of is not fully known, so this mission will give us a basic understanding about the chemistry and mineralogy of the surface."

Mars Odyssey is designed to provide vital information about the Martian surface and potential radiation hazards for future human explorers.

The Martian radiation environment experiment will be the first to look at radiation levels at Mars as they relate to the potential hazards faced by future astronauts. The experiment will take data on the way to Mars and in orbit around the Red Planet. After completing its primary mission, the Odyssey orbiter will provide a communications relay for future American and international landers, including NASA's Mars Exploration Rovers, scheduled for launch in 2003.

JPL manages the 2001 Mars Odyssey mission for NASA's Office of Space Science. Principal investigators at Arizona State University, the University of Arizona and Johnson Space Center will operate the science instruments. Lockheed Martin Astronautics developed and built the orbiter and is the prime contractor for the project. Mission operations will be conducted jointly from JPL, a division of the California Institute of Technology in Pasadena, and Lockheed Martin.

Office Of Safety And Mission Assurance

Laser Safety Guidelines

Center Has Strict Procedures For Training On And Operating Lasers

Hundreds of lasers are in use at Langley Research Center for fluid velocity measurement, lidar research, plume evaluation, flow visualization tests, particle imaging, gas density and temperature measurements.

All laser activities should meet the requirements of Langley Procedures and Guidelines (LAPG) 1710.8, "Nonionizing Radiation."

A laser is a device that produces a beam of monochromatic light in which all the waves are in phase or are coherent. The term "laser" is an acronym for Light Amplification by Stimulated Emission of Radiation.

Laser Classification

Laser classification is based on the beam output power — or energy per pulse — and the hazard the laser presents. Lasers are labeled with the appropriate warning labels. The following laser classifications are used throughout Langley:

■ **Class I:** Visible lasers that are used in scanning devices. These lasers are not hazardous for continuous viewing.

■ **Class II:** Lasers at low power that emit visible laser radiation. They do not normally present a hazard.

■ **Class IIIa:** Lasers at medium power that normally would not cause injury to the eye if viewed momentarily but would present a hazard if viewed using collecting optics (e.g. a fiber optics loupe or telescope).

■ **Class IIIb:** Lasers at medium power involving intrabeam viewing and specular reflections, through the use of an optical resonator, such as a mirror. This laser classification presents an eye and skin hazard if viewed directly.

■ **Class IV:** Lasers at high power that present an eye hazard from direct, specular and diffuse reflections. Associated hazards include fire and airborne contaminants.

Radiation Hazard Form

The Langley Form 44A, "Radiation Hazard Form," should be completed by the user or operator of the laser or laser system before the laser is obtained. The form is reviewed by the Organizational Facility Safety Head (OFSH) or the Principal Facility Safety Head (PFSH). It is also reviewed by the Radiation Safety Officer (RSO), Langley Safety Manager, the Office of Procurement and the Office of Logistics Management.

Permit Process

Before operating a Class IIIb or Class IV laser the following steps should be followed:

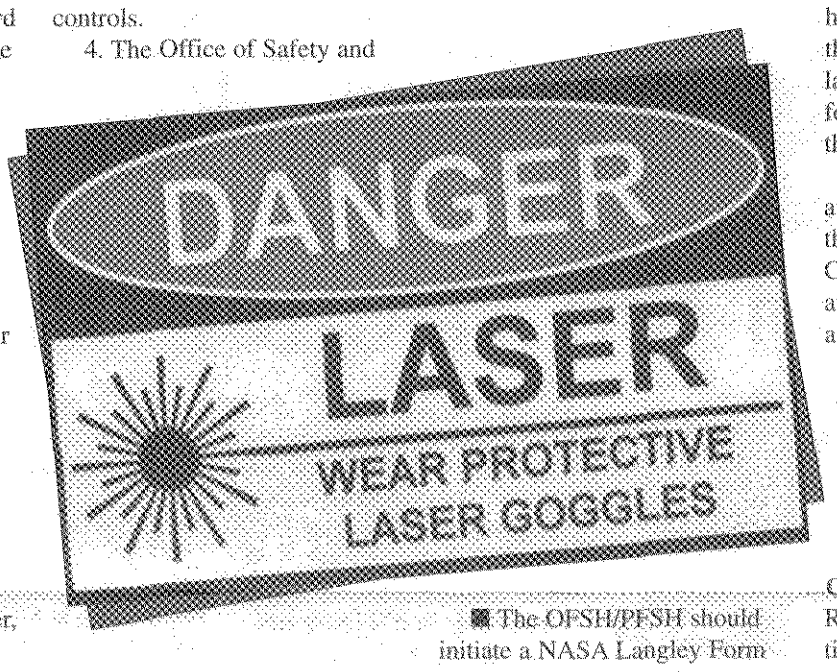
1. A Langley Form 49, "Safety Permit Request — Laser/Microwave," should be initiated by the OFSH or the PFSH, whichever is applicable.

2. The Form 49 should describe the purpose of laser operation, laser operators, laser specifications and safety operating plans. The form also must include a diagram indicating where the laser will be used within the facility.

3. A preoperational survey will be conducted by the RSO to determine safety interlocks, overrides and other associated controls.

4. The Office of Safety and Facility Assurance (OSFA) then initiates a NASA Langley Form 498, "Safety Permit," for review and approval of the OFSH/PFSH, RSO, Nonionizing Radiation Committee Chairperson and Langley Safety Manager.

5. When approvals are obtained, Form 498 will be issued for a one-year initial period and thereafter for four-year periods. Permits can be granted for temporary periods less than one year.



Training and Certification

Personnel who operate lasers are required to be trained and certified in accordance with LAPG 1710.8 and LAPG 1740.6, "Personnel Safety Certification." Requirements include the following:

■ The OFSH/PFSH should initiate a NASA Langley Form 66, "Worker Certification Form," for each employee involved in the laser operation. The form should be submitted before the employee begins working with the laser.

■ The employee should receive an initial and annual medical physical while involved with laser operations at Langley. When the employee is terminated, another physical is necessary.

■ Training is provided by the RSO. When the training and the medical exam are successfully completed, the employee receives a NASA Langley Form 492, "Radiation Worker's Certification Card." Form 492 is revalidated annually.

Responsibilities For Laser Operations

The Langley Safety Manager has the primary responsibility for the management of lasers and laser operations at Langley. The following individuals assist in this effort, as indicated.

■ **RSO:** Oversees laser operations by serving as a member of the Nonionizing Radiation Committee, performing preoperational and annual audits/surveys and conducting training.

■ **OFSH and PFSH:** Serve as the primary individuals responsible for a laser operation by overseeing the procurement, use, inventory and disposal of the laser operation.

■ **Nonionizing Radiation Committee Chairperson:** Reviews requests for laser operations; recommends approval or disapproval to the Langley Safety Manager.

■ **Occupational Health Officer:** Provides medical surveillance and documentation.

■ **Laser operators:** Have responsibility for the safe operation of laser operations according to the safety operating plans outlined in the Langley Form 498 issued for the operation.

For more information on laser operations, refer to LAPG 1710.8. Questions should be directed to the RSO, Sheri Vann at 864-3210.

Community Corner

Credit Langley's 'Question Man' With An Assist

By PAM VERNIEL
Public Services Office

Anyone who has ever attended a Langley Research Center Colloquium lecture or "town meeting" knows Larry Bement as "the question man."

What many people don't know is that Larry is a pyrotechnic engineer who has worked at Langley for 37 years. He serves in the Test and Development Branch, working with explosive and propellant actuated devices.

What even fewer people know about Larry is that he volunteers every day at a local assisted-living home. He began his volunteer work about a year ago when an 86-year-old friend moved in. Larry started going by to visit his friend and to help him with his dinner. After a while, he noticed other residents that needed help as well.

The staff at the home feeds approximately 50 residents, and it takes a while to serve all of them. The residents are not able to get their own coffee, and some are so crippled with arthritis that they can't open things. Larry just jumps in and helps out where he can. He helps serve food, give out snacks, pour coffee and open sugar and condiment packages.

Larry said the residents are always appreciative of the little things. It is a joy to see them smile and say "thank you," he said.

Most of the people are very ill. Some are diabetics; some have had strokes and can't talk — they just gesture and point. They are still vital people with varied backgrounds, and Larry takes time to talk with them. He said they enjoy the recognition and being around someone who cares.

Larry has been going to the home so long now that some of its residents think he is a staff member. One time, he said, a lady yelled, "Hey, you forgot to give me my dessert. You guys always forget to give me my dessert." He turned around and said, "I think I just got bawled out," and everyone laughed.

Most residents tell him they are glad to see him and appreciate the things he does. The highlight of their days is their meals. That is why it is such a joy for him to help. It takes time, but he likes to see his many friends.

Everyone deserves human contact, especially in the twilight years. Active people don't like to think about getting old and feeble. Therefore, some don't feel comfortable visiting assisted-living and nursing homes. Nevertheless, we will all get old one day. Let's hope there will always be caring volunteers like Larry.

Editor's note: *At press time, Larry Bement had taken ill and was hospitalized at Riverside Regional Medical Center.*

To share your volunteering experience, contact Pam Verniel at 864-2449 or <p.j.verniel@larc.nasa. gov>.

FY 00 - 02 Total Langley Budget ($M) - 4/6/01
FY 02 President's Budget

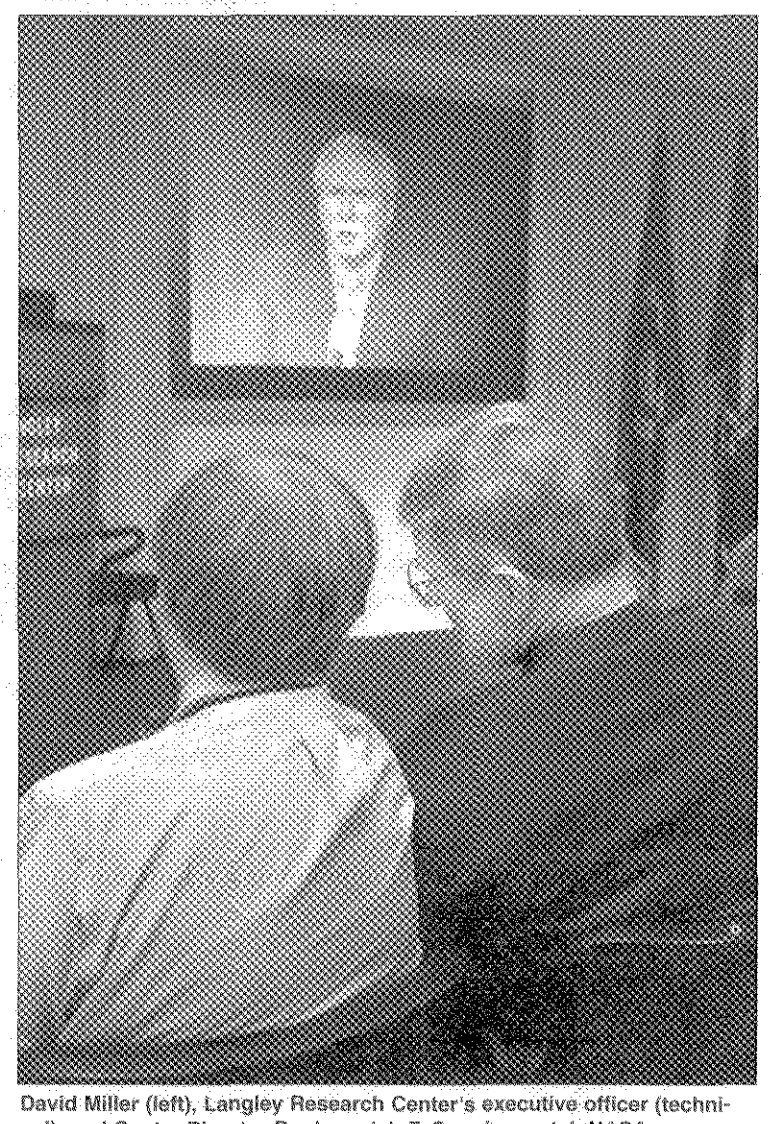
	2000	2001	2002
Research & Program Management	203.1	216.1	224.5
Salaries/Benefits	198.0	211.1	219.6
Travel	5.1	5.0	4.9
Research Operations Support	28.0	21.2	29.7
Capital Investments (Facilities)	19.9	17.9	22.0
Construction of Facilities	19.8	17.8	20.9
Environ. Compliance & Restoration	0.1	0.1	1.1
Gross Research & Development	329.0	404.8	410.6
Aero-Space Technology	210.9	263.8	285.8
Aero-Space	177.1	213.0	216.0
Space Transportation	16.1	33.6	51.8
Commercial Technology	17.7	17.1	18.0
Earth Science	93.2	118.3	107.2
Space Science	13.9	8.7	6.4
Human Space Flight/Human Exploration & Dev	3.6	4.6	0.7
Biological & Physical Research	0.1	0.0	0.0
Safety, Mission Assurance, Eng. & Adv Concepts	5.1	5.9	6.2
Academic Programs	2.2	3.5	4.3
02 President's Budget (Apr 01)	580.0	660.0	686.8

FY 00 - 02 LaRC Aero-Space Technology ($M) - 4/6/01

	2000	2001	2002
Aero-Space Base	107.6	131.9	131.3
Vehicles Systems Technology	95.8	106.5	112.2
Propulsion & Power Systems	1.9	1.4	2.3
Operations Systems	0.0	0.0	0.0
Flight Research	2.6	2.2	1.3
Computing, Info & Comm Tech	4.3	3.9	9.0
Rotorcraft	2.4	4.0	0.0
Intelligent Synthesis Environment	0.6	7.7	0.0
Aerospace Base NRA	0.0	6.2	6.5
Interdisciplinary Technology	0.0	0.0	0.0
Aero Focused Programs	69.5	81.1	84.7
High Speed Research	0.0	0.0	0.0
Advanced Subsonic Technology	0.0	0.0	0.0
Aviation System Capacity	14.5	13.1	20.6
High Performance Computing	4.2	4.3	0.0
Aviation Safety	40.3	43.8	41.1
Ultra Efficient Engine Technology	1.5	3.5	0.0
Quiet Aircraft Technology	9.0	7.4	8.0
Small Aircraft Transportation	0.0	9.0	15.0
Space Transportation Programs	16.1	33.6	51.8
X-33, X-34, Pathfinder	2.9	2.0	0.1
Space Trans. & Launch Tech.	13.2	4.9	6.0
2nd Generation RLV	0.0	26.7	45.7
Commercial Technology	17.7	17.1	18.0
Total Aero-Space Funding	210.9	263.8	285.8

FY 00 - 02 LaRC Earth Science ($M) - 4/6/01

	2000	2001	2002
Earth Observing System Program	30.8	25.0	21.4
TERRA (CERES)	0.0	0.0	0.0
AQUA (CERES)	1.0	0.8	0.0
Meteor SAGE III/SAGE III FOO	2.8	0.4	0.1
CERES Element	1.2	0.8	2.0
EOS Follow-On Projects	0.0	0.7	0.0
EOSDIS Project	11.3	14.3	12.8
EOS Algorithm Dev. Proj. (CERES)	14.5	6.8	5.3
Focused Algorithm Dev. Proj. (SAGE III)	0.0	1.2	1.2
Earth Probes Program	21.8	18.7	18.1
GRACE	0.1	0.1	0.0
PICASSO	21.2	17.7	18.0
ESSP	0.0	0.6	0.1
CLOUDSAT	0.0	0.0	0.0
UNESS	0.5	0.3	0.0
Mission Operations	0.4	0.5	0.0
UARS Operating Mission	0.4	0.5	0.0
Research and Technology	39.3	73.3	67.8
Research and Analysis	20.3	24.6	24.7
GIFTS	7.6	34.0	30.0
Tech. Infusion (New Millennium)	7.5	6.3	2.1
Mission Science Teams	3.9	8.4	11.0
UAV Science	0.1	0.0	0.0
Investment - ES	0.9	0.8	0.0
Minority University Research	0.9	0.8	0.0
Total Earth Science Funding	93.2	118.3	107.2



David Miller (left), Langley Research Center's executive officer (technical), and Center Director Dr. Jeremiah F. Creedon watch NASA Administrator Daniel S. Goldin during an April 9 video news conference broadcast in Langley's Pearl Young Theater. "The President's budget provides an increase in funding for NASA at a time when many other federal agencies are getting less," Goldin said.

Photo by Jeff Caplan

Budget

Continued from Page 1

are most important to moving the country forward in the pursuit of science and technology discoveries."

That "examination of priorities" led to the elimination of four programs that were funded at Langley in 2001— Rotorcraft ($4 million), Intelligent Synthesis Environment ($7.7 million), High Performance Computing and Communications ($4.3 million) and Advanced Aircraft.

However, Creedon expressed hope at an April 10 employee "town meeting" that some funding — notably for Rotorcraft and Advanced Aircraft — may be restored before the budget is passed. He also said funding in the areas of Aerospace Technology and Earth Science could be increased as much $5 million and $10 million, respectively, bringing Langley's overall budget to more than $700 million.

The proposed budget does call for the addition of five new programs — 21st Century Aerospace Vehicle Technology, Research Engineering Technology, Bio-Nano Technology, Virtual Aerospace Modeling, Design For Safety — and an increased role for Langley in the 3rd Generation Launch Vehicles program and International Space Station activities.

> *"Bottom line is I think it's a good budget for NASA. It's a very good budget for Langley."*
> **Center Director Dr. Jeremiah F. Creedon**

The 21st Century Aerospace Vehicle Technology program, which will receive $22 million Agency-wide in 2002, was highlighted in the NASA Headquarters news conference. The program, which will grow out of Langley's "Morphing" project, will work toward building an airplane that continually optimizes flying conditions much like a bird instinctively uses nerves and muscles on its wings to control its flight.

Creedon cited the project as an opportunity for Langley to lead the Agency. "It's kind of up to us to rise to the occasion and make these ideas come true," Creedon said.

More information about NASA's 2002 budget is available on the Internet at <http://www.nasa.gov/budget/budget2002_index.html>.

AdVentures

ODU Planning 'Womengineers Day'

Old Dominion University's College of Engineering and Technology will host its inaugural "Womengineers Day" on **April 21.**

"Womengineers Day" is free and open to the public. Reservations can be made by e-mailing <womengin@odu.edu>. For more information, call 683-3789 or visit the "Womengineers Day" Web site at <http://web.odu.edu/engr/womengineers/>.

J-Lab Open House On April 21

The Thomas Jefferson National Accelerator Facility (J-Lab) in Newport News will hold an Open House from 10 a.m. to 4 p.m. **April 21**.

For more information, call 269-7444 or 269-7689 or visit <www.jlab.org/open-house> on the Internet.

FWPC To Host April 24 Seminar

Langley Research Center's Federal Women's Program Committee (FWPC) will host "Confessions Of The World's Worst Secretary ... How Common Sense And Humor Help You Do Your Job," a seminar by award-winning speaker Hope Mihalap, at 1 p.m. **April 24** in the H.J.E. Reid Conference Center.

The seminar is part of Langley's "Salute to Secretaries," but the event will be open to all civil servants and contractors who provide administrative support to their respective organizations.

Civil servants may charge their time to J.O. B1005. For more information, contact Patsy Campbell at 864-3291.

LFCU To Celebrate Renovations

Langley Federal Credit Union's Langley Research Center branch will commemorate its recent renovations with a reception from 11 a.m. to 3:00 p.m. **April 25**. Refreshments will be provided.

Open House On April 28

Langley Research Center's Open House will take place from 9 a.m. to 4 p.m. **April 28**.

Nineteen different locations will open their doors and invite visitors in to see how Langley technologies are advancing air travel and space exploration and improving life for people everywhere.

For more information, visit the Open House Web site at <http://openhouse.larc.nasa.gov>.

Prayer Breakfast On May 3

Langley Research Center's Prayer Club will host a National Day of Prayer breakfast from 7:30 to 8:30 a.m. **May 3** in the private dining room of the Center cafeteria. Danny Forshee, the senior pastor of Liberty Baptist Church, will speak, and Langley employee Buddy Chapman will perform.

For more information about the National Day of Prayer, visit <http://www.ndptf.org/> on the Internet.

ODU Hosting Exhibit On May 4

Old Dominion University's (ODU) Center for Advanced Engineering Environments will host an Advanced Learning Technologies exhibit from 9 a.m. to 5 p.m. **May 4** in Langley Research Center's H.J.E. Reid Conference Center.

For more information, visit <http://oduaee-www.larc.nasa.gov/workshop/may01 _ALE/> on the Internet.

CLASSIFIED

FOR SALE: 1998 Four Winds RV, 31 feet, loaded, like new. Call 898-3805.

FOR SALE: Five-piece wicker living room set, includes sage-colored cushions, good condition, $400 or best offer. Call 896-0718.

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Visit the *Researcher News* Web site at <http://researchernews.larc.nasa.gov>.

Ames To Host AMS From May 9-11

The Mechanisms Education Association will sponsor the 35th Aerospace Mechanisms Symposium (AMS) from **May 9-11** at Ames Research Center.

The AMS promotes discussions of problems related to the design, fabrication, test and operational use of mechanisms. Thirty papers will be presented with emphasis on hardware developments, and authors are encouraged to discuss anomalies that have occurred during design and development of mechanisms and thus help avoid similar problems in the future.

For more information, call Ron Mancini at (650) 604-6319 or visit <http://www.aeromechanisms.com/> on the Internet.

SED To Hold Reunion On June 16

Langley Research Center's Systems Engineering Division (SED) will host a reunion for all former SED employees, friends from other divisions and their families on **June 16** on Langley's picnic grounds. The cost will be $10 for adults and $5 for children between ages 5 and 12.

Please RSVP by **May 25** to Gene Kelsey at 564-6169 or <ekelsey@aol.com>; Ralph Muraca at 868-0920 or <rmuraca@mail.hroads.net>; or Barry Price at 864-7146 or <b.l.price@larc.nasa.gov>.

LAA To Meet On May 10

Langley Research Center's Alumni Association (LAA) will meet at 11:30 a.m. **May 10** in the private dining room of the Center cafeteria. The program will feature Mike Powell of Newport News Shipbuilding.

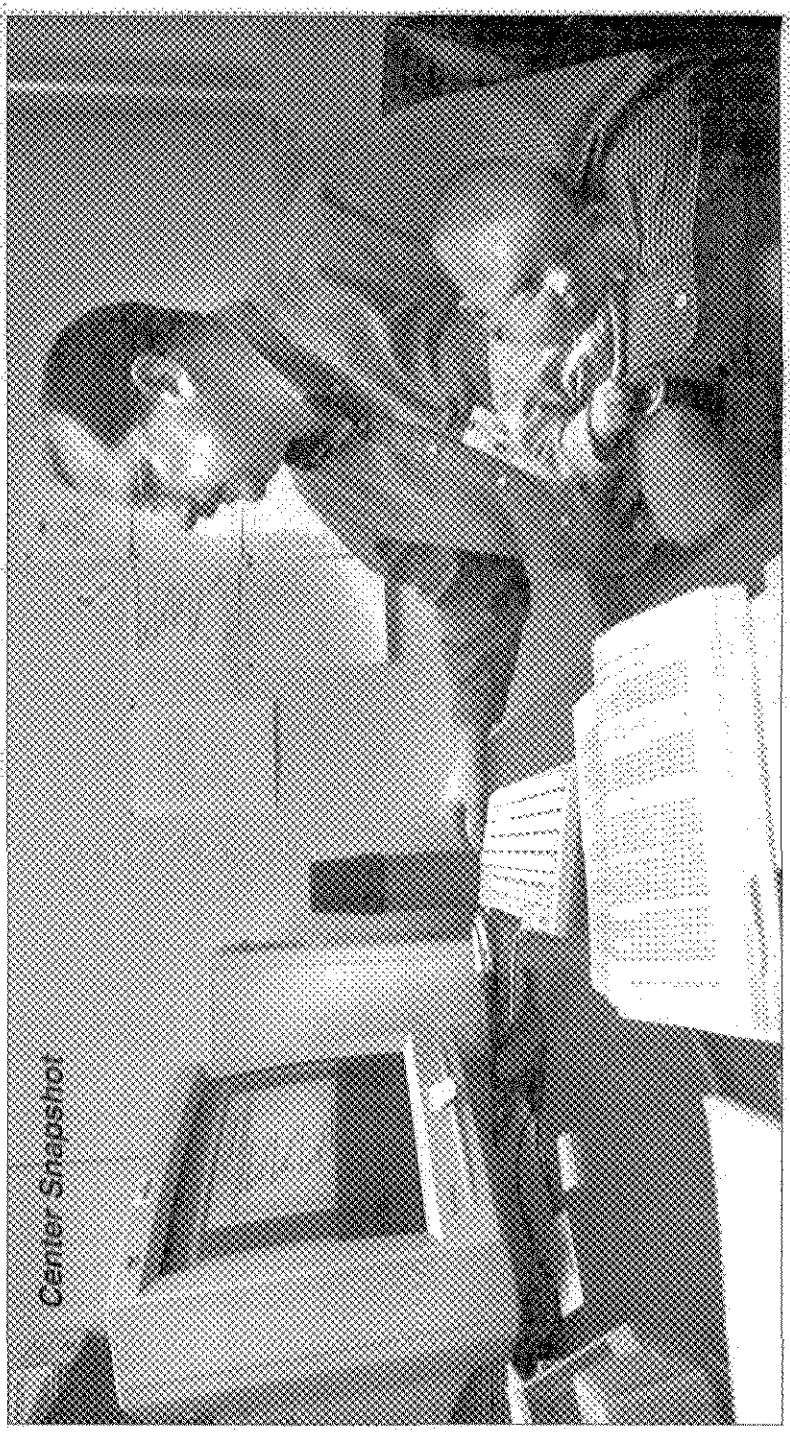
Instrument Loan Pool Closes

Langley Research Center's Instrument Loan Pool, formerly located in Bldg. 1230 and operated by Wyle Laboratories, closed on April 2.

Assets will be disposed of through an official transfer of accountability. Equipment not transferred will be disposed of as excess property.

For more information, contact Austin Moody at 864-4844 or Jim Walsh at 864-4640.

Center Snapshot



Duane Pettit, pictured with his 4-week-old daughter, Kristen, works in Langley Research Center's Systems Analysis Branch, providing Reliability Engineering support to the Office of Mission Assurance. Duane was watching Kristen while his wife, Darlene, a fellow Langley employee who is on maternity leave, was on-Center for a meeting. In addition to Kristen, the Pettits have two other children: Kevin, 15, and Amanda, 11. Duane said his family has enjoyed the area's great history and many activities since moving to Virginia two years ago.

Photo by Jeff Caplan

Researcher News

National Aeronautics and Space Administration

Langley Research Center
Hampton, Virginia 23681-2199

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Langley Research Center

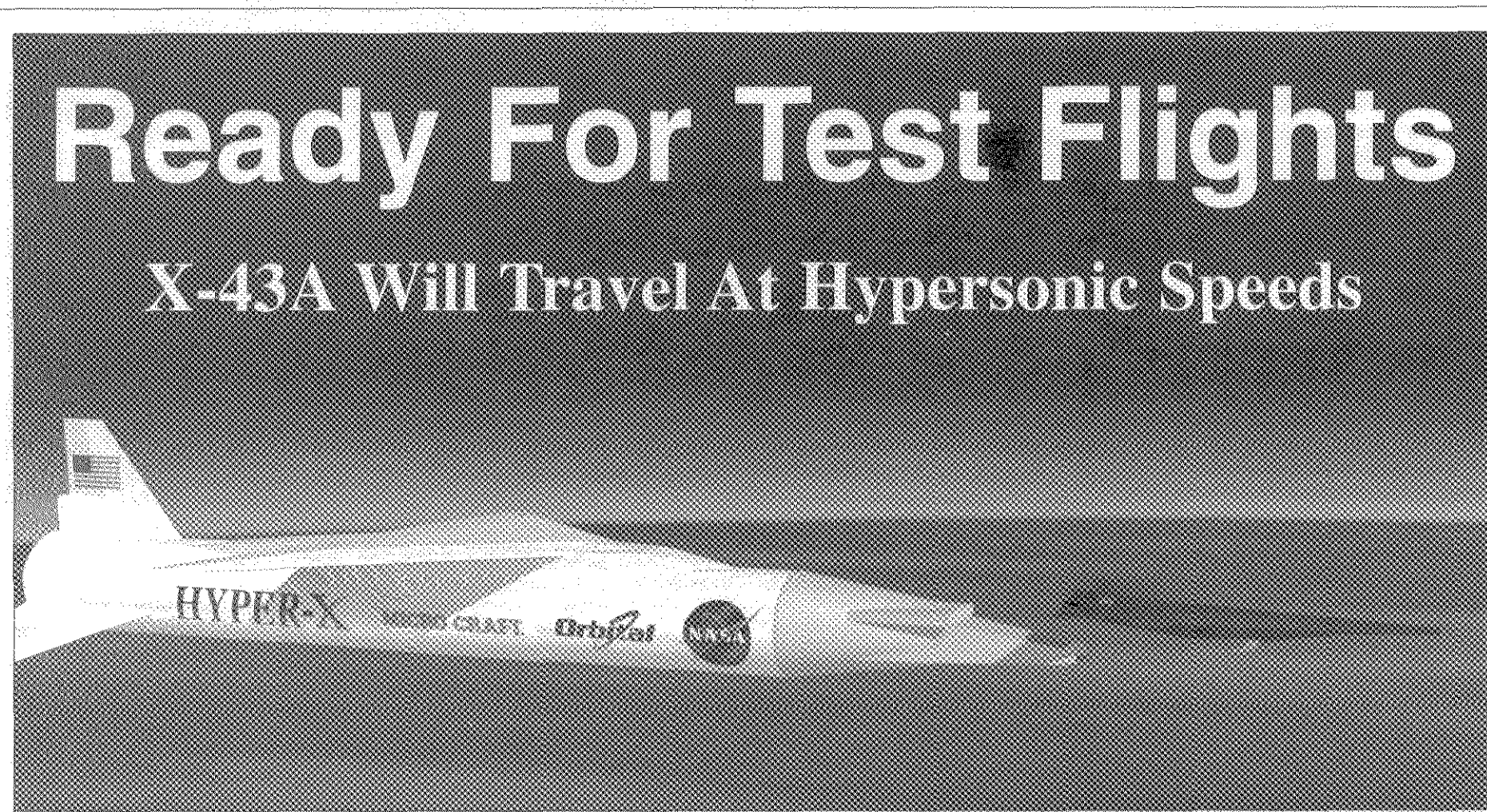
News Researcher

Biweekly Employee and Contractor Publication

Volume 15 ❖ Issue 9 ❖ May 4, 2001

Ready For Test Flights

X-43A Will Travel At Hypersonic Speeds



The first unpiloted X-43A (right) and its Pegasus booster rocket (left) will be air-launched from a B-52 from Dryden Flight Research Center. The booster will accelerate the X-43A to Mach 7 at approximately 95,000 feet. At booster burnout, the X-43 will separate and fly under its own power on a pre-programmed flight path. "Within the next few weeks, you will see the vehicle in the air," Vince Rausch said at an April 18 press briefing.

Animation by Joseph Ponthieux

Imagine a new breed of space transportation vehicle, able to fly at seven times the speed of sound, using a next-generation air-breathing jet engine. Langley Research Center takes a hypersonic leap into the future of aerospace technology with the flight of the scramjet-powered X43A.

It will be the first time a non-rocket-propelled, air-breathing engine has powered a vehicle in flight at hypersonic speeds, or five times the speed of sound. An aircraft moving at Mach 5 would travel about one mile per second, or about 3,600 mph at sea level, far faster than any air-breathing aircraft has ever flown.

Unlike a rocket that carries its own oxygen for combustion, the X-43A's scramjet scoops air from the atmosphere, making the aircraft lighter, which enables it to carry heavier payloads. The hydrogen-fueled aircraft has a wingspan of approximately 5 feet, measures 12 feet long and weighs about 2,800 pounds.

The first unpiloted X-43A and its Pegasus booster rocket will be air-launched from a B-52 from NASA's Dryden Flight Research Center. The booster will accelerate the X-43A to Mach 7 at approximately 95,000 feet. At booster burnout, the X-43 will separate and fly under its own power on a pre-programmed flight path.

The NASA Hyper-X Program's development and flight testing of the X-43 vehicle is conducted jointly by Langley and Dryden. "The Hyper-X Program and the X-43A Flight Project have forged a very fruitful partnership and national asset," said Joel Sitz, Dryden's X-43 project manager. "What the country is witnessing is the rebirth of hypersonics."

Sitz added, "After a successful X-43A mission, the 'brain trust' will exist to move forward with future propulsion-research vehicles that will ultimately result in more efficient space access vehicles."

"The Hyper-X program takes what we've been doing for the last 40 years in wind tunnel research to flight. Flight is

Continued on Page 4

Wind Tunnel Stand-Down

Safety Concerns Prompt Center To Stand-Down Six Wind Tunnels

By MICHAEL FINNERAN
Office of External Affairs

Langley Research Center has issued a "stand-down" order temporarily halting operation of six wind tunnels while a review of research test procedures is conducted.

The stand-down, put into effect April 23, was prompted after an accident investigation at the 16-Foot Transonic Tunnel on Feb. 5 suggested there may be procedural problems at some of the Center's major facilities that could affect safety and test results.

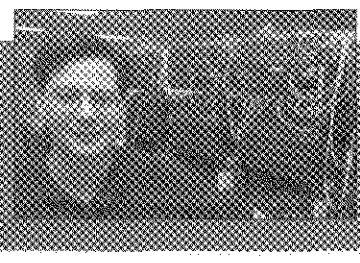
"Safety is the number one priority of NASA and of Langley," said Center Director Dr. Jeremiah F. Creedon. "We are standing down these tunnels to go the extra mile to ensure that we are operating safely and our data has integrity."

The facilities to be taken offline are the 16-Foot Transonic Tunnel, the National Transonic Facility, the 14- By 22-Foot Subsonic Tunnel, the 8-Foot High Temperature Tunnel, the Unitary Plan Wind Tunnel and the Low-Turbulence Pressure Tunnel.

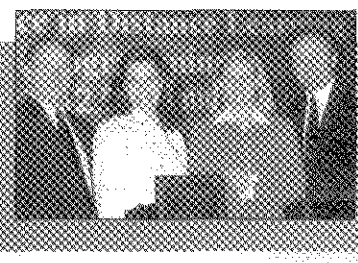
"Operation of these facilities will resume only after an in-depth review of

Continued on Page 4

Inside This Issue:



LaRCNET Undergoing Three-Tiered Upgrade *Page 3*



'CONNECT' Honored By USDLA ... Again *Page 5*

News Briefs

Around the Agency

MARS ODYSSEY SNAPS EARTH DAY PORTRAIT

NASA's Mars Odyssey spacecraft turned its multipurpose camera homeward on April 19 and took its first picture — a shot of a faint crescent Earth — as the spacecraft heads off toward its destination, the planet Mars.

The image was taken as part of the calibration process for the Thermal Emission Imaging System (THEMIS), the camera system that is one of three science instrument packages on the spacecraft. The imaging system will study the Martian surface in both the visible and the infrared and will help determine what minerals are present. It also will map landscapes on Mars at resolutions comparable to that of NASA's Landsat Earth observing satellite.

The images are available on the Internet at <http://www.jpl.nasa.gov/pictures/odyssey>. RELEASE: 01-81

ACTING AA FOR LEGISLATIVE AFFAIRS NAMED

NASA Administrator Daniel S. Goldin recently appointed Jeff M. Bingham as the Acting Associate Administrator for Legislative Affairs, effective immediately.

Bingham, who joined the Office of Legislative Affairs in 1994, provided support to the Bush-Cheney Transition Team and was appointed Special Assistant to NASA Chief of Staff Courtney Stadd in January. RELEASE: 01-80

HOT SPACE RESEARCH YIELDS COOL BENEFITS

A paper-thin coating of an innovative NASA material used to prevent space vehicles from burning up during planetary reentry may soon be available to protect your house, car and boat from fire.

Protective Ceramic Coating (PCC), invented at Ames Research Center, repels heat from virtually any surface it covers. This allows it to shield ceramics, wood, steel, plastics and fiberglass from high temperatures. Wessex, Inc., based in Blacksburg, has licensed the coating from Ames and will continue to develop and market the material. RELEASE: 01-77

NASA AND ISA AGREE TO ISS COOPERATION

NASA and the Italian Space Agency (ASI) recently announced their agreement on the framework of a potential bilateral cooperative agreement, that could result in ASI development of a U.S. Habitation Module for the International Space Station. This agreement allows the U.S. to explore an alternative approach to achieve full crew Habitation for the ISS within the constructs of the President's FY2002 budget blueprint guidance and budget run out. RELEASE: 01-76

ACTING DIRECTOR NAMED FOR MARS PROGRAM

NASA recently announced that Mars Program Director G. Scott Hubbard has decided to leave that position following a successful year leading the agency's robotic exploration program. Orlando Figueroa, currently the Deputy Chief Engineer for Systems Engineering at NASA Headquarters, was appointed to replace Hubbard as Acting Director, starting May 6. RELEASE: 01-75

News Researcher

The Researcher News is an official publication of Langley Research Center, National Aeronautics and Space Administration, Hampton, Va., 23681-2199. It is published every other Friday in the interest of all Langley staff, contractors and retirees and has a circulation of approximately 8,100. It is distributed to all Langley civil service employees, contractors, retirees and on-site university personnel, with limited distribution to NASA Headquarters, other NASA centers and, by special request, to other non-NASA individuals and organizations. Questions related to the content and distribution of the Researcher News should be addressed to Keith Henry, Mail Stop 115, (757) 864-6120. Submit contributions/SDL 026, 055, 110 changes to the editor via e-mail <j.r.roberts@larc.nasa.gov>, fax (757) 864-6477, telephone (757) 864-8150 or Mail Stop 293. Articles, photos and announcements are due at noon the Monday following the date of this issue.

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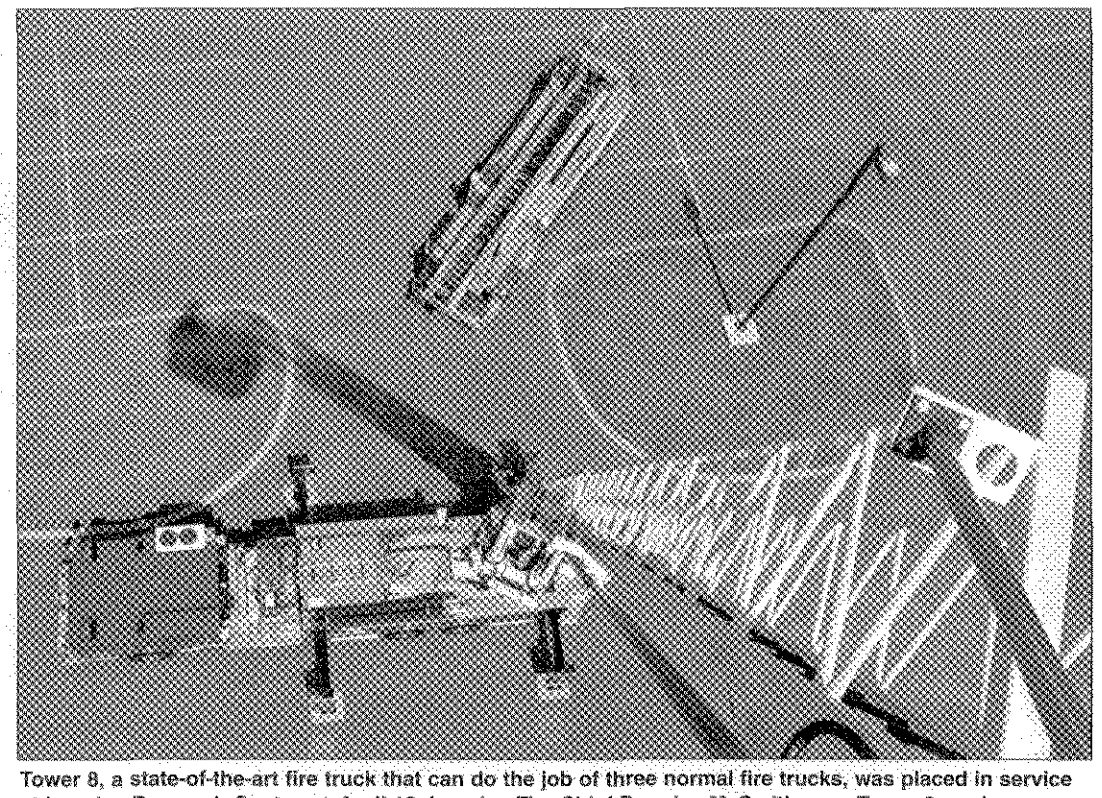
Planners Collaborative/
Science and Technology Corp.

Photographer ..... Jeff Caplan
Planners Collaborative/
Science and Technology Corp.

The privilege of listing announcements in this publication is restricted to the employees, contractors and retirees of the Langley Research Center. Articles must be offered without regard to race, color, religion, sex or national origin. All materials are subject to editing.

New Fire Truck



Tower 8, a state-of-the-art fire truck that can do the job of three normal fire trucks, was placed in service at Langley Research Center on April 16. Langley Fire Chief Douglas M. Smith says Tower 8 carries more than 2,200 feet of hose and can pump 2,000 gallons of water per minute. It also carries 115 feet of ground ladders and has an aerial platform that can extend 100 feet in the air. "Tower 8 will allow the Langley Fire Department to better utilize its manpower while answering an average of 1,000 calls per year, and most importantly, meet our primary goals to safeguard lives and property from fire and other unforeseen disasters," Smith says.

Photo by Jeff Caplan

Retirements

Langley Research Center's Aerodynamics Research Support Branch will host a retirement social for **Mack "Buk" Lawrence** at 4 p.m. May 18 on the Langley Activities Association's picnic grounds.

In lieu of a gift, Lawrence has requested that donations be made to the Virginia chapter of Childhelp USA, which is one of America's leading organizations in the field of child abuse prevention and treatment.

The cost to attend is $9 per person (with donation) or $7.50 (without donation). Charity-only donations are also welcome.

Please RSVP by May 11 to Vicki Johnson at 864-6295 or <v.a.johnson@larc.nasa.gov>.

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Employees on the NCI/DynCorp contract supporting Langley Research Center's Office of Logistics Management will host a retirement reception for **Inez Jenkins** from 4 to 6 p.m. May 23 in the H.J.E. Reid Conference Center.

Jenkins has worked at Langley for 31 years, starting her career in 1969 with Klate-Holt.

Gift donations are welcome. For more information, call Sylvia Charity 864-2057, Lolia Deal 864-8307 or Tanya Lane 864-2058.

Letters

"Barbara and I and our three daughters would like to take this opportunity to thank all those that attended our retirement luncheon. Working at Langley all these years has changed me a lot — gained 20 pounds, increased blood pressure, loss of hearing, redistribution of hair ... but the best thing is working with the greatest people in the world. Thanks for the memories!"

Stu Flechner

❖ ❖ ❖

"I want to thank the very many old friends and coworkers, retired and active, who have provided so much love and support to me following the recent passing of my husband, Mike. The sheer number of you that I have heard from by cards, calls, visits and gifts has overwhelmed me and made me remember all over again why I loved working at NASA Langley. You are still very special people."

Jackie Kallick

In Memoriam

Arthur W. Carter

Arthur Wesley Carter died on April 10 at the age of 89. Carter served in the U.S. Navy, retiring at the rank of captain. He went on to work as an engineer at Langley Research Center.

Catharine W. Gough

Catharine Waters Gough died on April 3 at the age of 93. Gough, a native of Emporia, was the widow of Melvin N. Gough, who served as chief of Flight Research for the National Advisory Committee on Aeronautics at Langley and was an early leader in the NASA Space Program at Cape Canaveral, Fla.

Ada Hadden

Ada Hadden died on March 23 at the age of 94. Hadden, a native of Primghar, Iowa, worked in Langley Research Center's Fiscal Division, retiring in 1971 after 35 years of service.

Stephen K. Park

Stephen K. Park died on April 16 at the age of 59. Park worked at Langley Research Center from 1964 until 1986, when he joined the faculty at The College of William and Mary. He chaired the college's computer sciences department from 1991 to 2000.

Lloyd E. Yeatts

Lloyd Edward Yeatts died on April 9 at the age of 78. Yeatts, a native of Lunenburg County, served in the U.S. Merchant Marine and was a veteran of World War II. He went on to work at Langley Research Center, retiring in 1988 after 31 years of service.

'New And Improved'

LaRCNET Undergoing Three-Tiered Upgrade

By SUSAN COSTELLO
ACS Government Solutions Group

and N. DUANE MELSON
Network and Computer Services Branch

LaRCNET, the network serving the information-sharing needs of Langley Research Center, has three fundamental parts: the building networks inside the individual buildings, the network backbone that connects the buildings to each other, and the Internet connection of the backbone to the networks outside Langley.

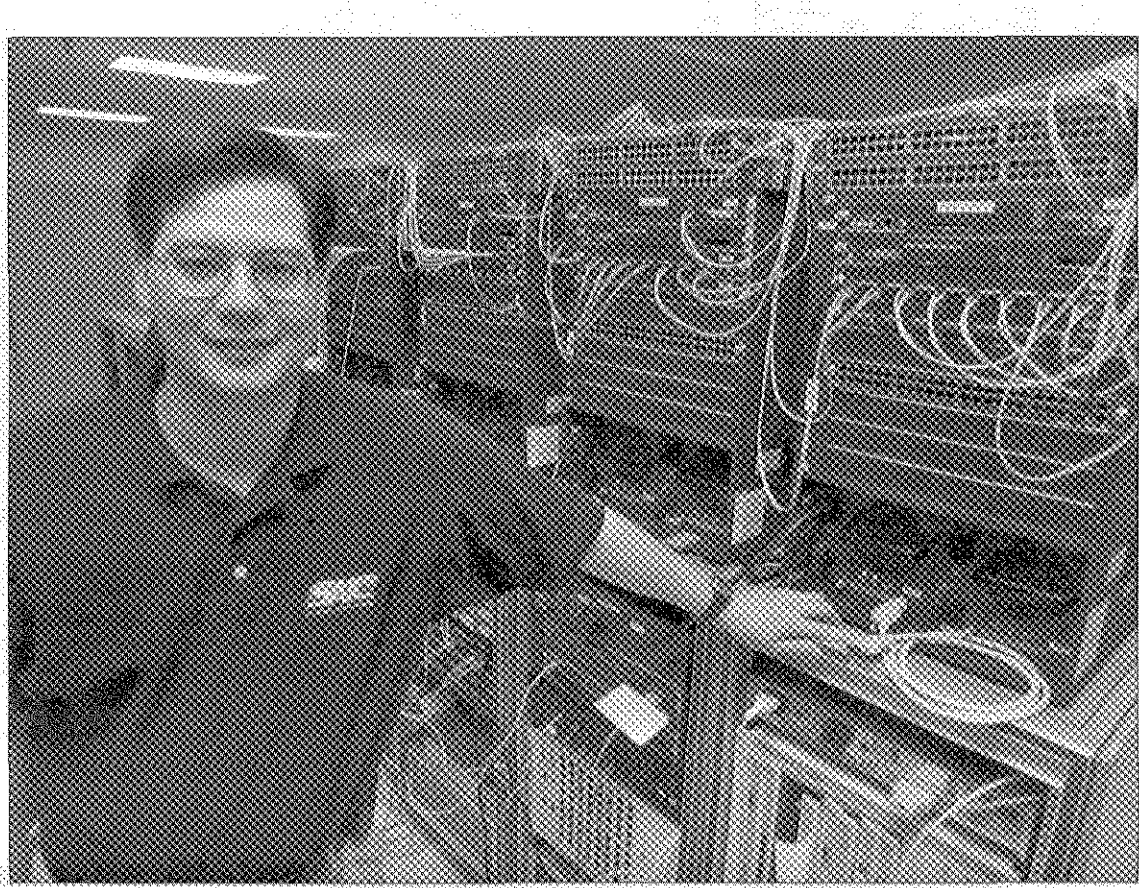
The NASA Network Team in Langley's Network and Computer Services Branch (NCSB) and the Outsource Desktop Initiative (ODIN) Engineering Team have partnered to design and implement upgrades to the three parts of LaRCNET. Work is ongoing to upgrade all three parts of the network to provide faster, more reliable service to users.

Funded by Langley program support through the Information Technology Service Activity (ITSA), the backbone upgrade is the first step toward enhancing network capability for users at Langley, at the same time facilitating future growth in capacity and capabilities of the network.

Internal and independent studies of LaRCNET in the last two years have shown that there is a significant increase in traffic on LaRCNET. When the nightly computer disk backups are performed, typical network utilization is 80 to 90 percent of capacity. Special events like collaborative sharing of large files on Web sites can saturate network capacity. The studies also show that the age and technology level of the hardware in LaRCNET place it at increasing risk of failure. Portions of LaRCNET are experiencing more frequent outages.

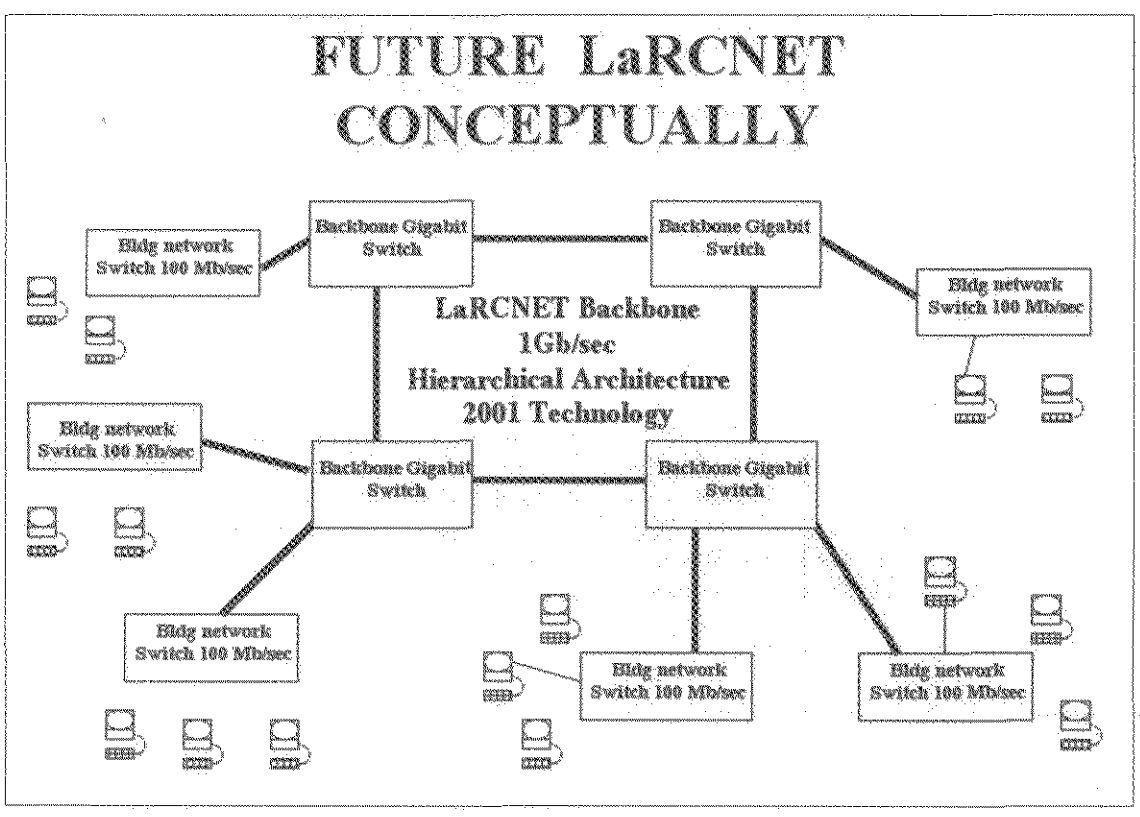
The design speed of the new backbone, coupled with the distance between buildings at Langley, requires a different type of fiber optic cable than is currently in place. Therefore, installation of single mode fiber optic cabling is a major portion of the project, and from February through April, work crews installed the cable in steam tunnels between Langley buildings.

Currently, the predominant information-sharing medium in use at Langley is Ethernet. The backbone upgrade uses Gigabit Ethernet technology. Gigabit Ethernet and single-mode fiber cabling provides 1000 Mbps bandwidth. This high capacity, coupled with relatively low cost, makes Gigabit Ethernet a natural upgrade strategy for the backbone connections between buildings at Langley. It is an extension and enhancement to the Ethernet technology in use at Langley for the past 18 years.



Tony Arviola, an SAIC employee supporting Langley Research Center's Systems Engineering Competency, displays the four Cisco 6509 core switches that will improve the Center's network performance and permit active measurement of network loads. Whereas the current system has only limited tools to measure performance, the new system will enable network administrators to observe the volume of network flow and determine where resource demands are highest. Based on this information, the network can be reconfigured, modified or upgraded as user requirements change and demands increase.

Photo by Jeff Caplan



Driving the backbone will be four Cisco 6509 core switches (see above chart) that will improve network performance and permit active measurement of network loads. Whereas the current system has only limited tools to measure performance, the new system will enable network administrators to observe the volume of network flow and determine where resource demands are highest. Based on this information, the network can be reconfigured, modified or upgraded as user requirements change and demands increase.

Since the new backbone is being built in parallel to the existing backbone, users will be migrated to the new network as installation progresses. The new backbone is also connected to the old backbone. This implementation method will minimize disturbances to existing network services and enable effective disaster recovery until the new service is available across Langley and the old backbone is retired.

The first stage of the backbone upgrade is to be completed by June 20. Not all Center users will be directly connected to the new network by that date, since the new cable installation connects only the 29 buildings with the highest measured network traffic.

However, because traffic on the old network will be greatly reduced by the migrations to the new network, users still on the existing network will notice improved service as well. After June 20, additional buildings will be connected to the new backbone as budget permits to allow full utilization of the new services.

Completion of the network upgrades to the backbone, the individual buildings and the Internet connectivity not only will allow Langley users to do their current work faster, but will also offer additional capabilities, such as new backup strategies and enhancements to Web, file, print and authentication services. Work has already begun to increase our Internet connection bandwidth for speedier access to our technology partners beyond our borders — in aerospace industry, universities and research laboratories.

The integration of Gigabit Ethernet technology at Langley will enable the deployment of many bandwidth-intensive, interdisciplinary applications. A combination of features such as higher speeds and ease of management makes Gigabit Ethernet an ideal solution for next-generation network technology. Plus, the design choice of single mode fiber and Cisco 6509 switches allows for future growth in the backbone speed to 10 Gigabit simply by swapping the network cards in the backbone switches.

The NCSB and ODIN are already working with Cisco to demonstrate 10 Gigabit per second service for time-critical, information-hungry research activities. Consistent with a long heritage of groundbreaking research, Langley is one of the few locations worldwide currently testing this developmental technology.

Langley Credited

RETScreen Developers Laud SSE Data At Canadian Summit

By JULIA COLE
SAIC

A renewable-energy product supported by Langley Research Center recently received international attention at the Summit of the Americas.

Data from the Surface Meteorology and Solar Energy (SSE) Project, managed by Langley, are essential to the global application of RETScreen, a software tool developed by CANMET Energy Diversification Research Laboratory (CEDRL) for Natural Resources Canada (NRCan).

NRCan, which has used SSE data since 1999, promoted RETScreen at the summit in Quebec City, Canada. The meeting, attended by heads of state, stressed the development of a focused agenda to meet collective challenges, including approaches to energy issues, for nations in the Western Hemisphere.

RETScreen, which helps people evaluate the viability of implementing renewable-energy technologies, is just one example of how SSE's private and government partnerships help promote the commercial potential of data from NASA's earth science satellites.

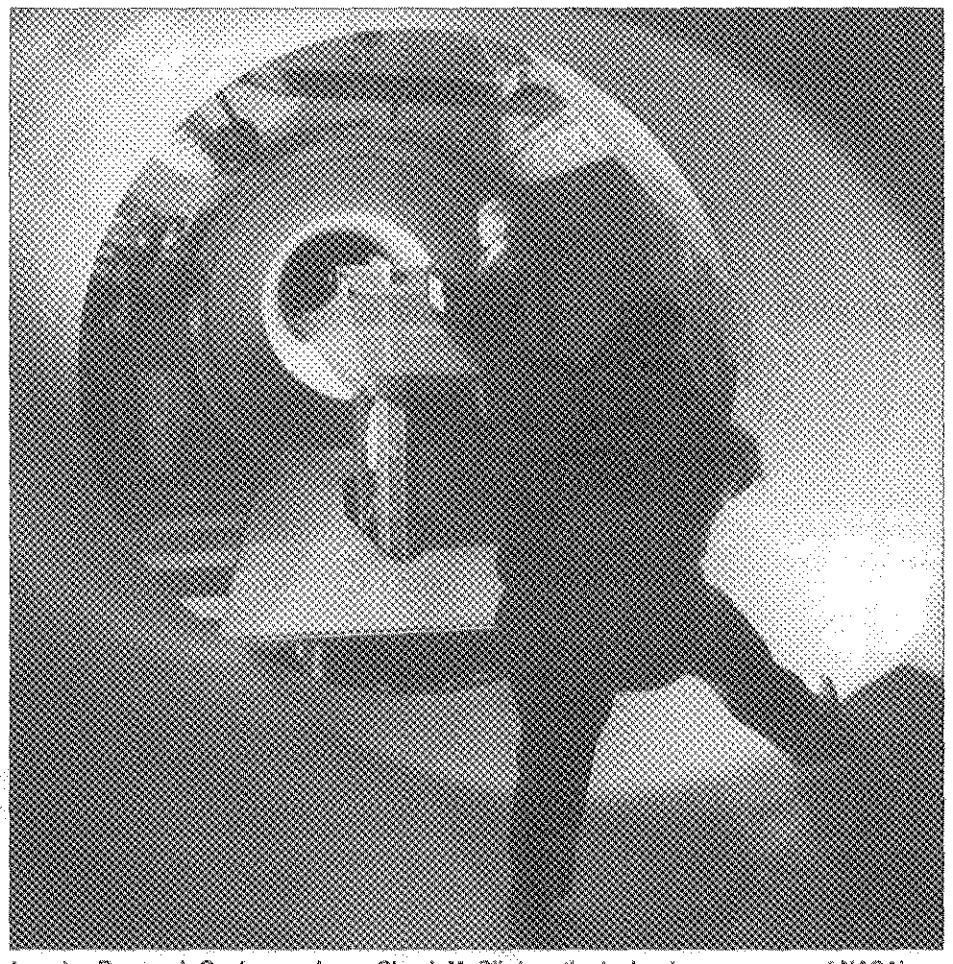
"This has been a great effort by NASA, and they deserve a lot of credit for making their very valuable data available in a user-friendly format to users around the globe," said Gregory L. Leng, section head of CEDRL's Renewable Energy Capacity-Building Program.

The SSE Project found a way to translate satellite data into formats that are readily usable by commercial companies, like NRCan. This was a major breakthrough for engineers who design systems that convert natural energy into electricity because these data not only provide a global perspective, they also fill the voids from remote areas where there are no ground-based monitoring stations and therefore no available data.

> *"This has been a great effort by NASA, and they deserve a lot of credit for making their very valuable data available in a user-friendly format to users around the globe."*
> **Gregory L. Leng**

"The goal of the SSE Project is to put state-of-the-art, satellite derived solar and meteorology data into the hands of individuals who are involved in the research and analysis of the feasibility of renewable energy technologies," said Roberta DiPasquale, the SSE marketing manager, Science Applications International Corporation.

Users can create resource maps based on global satellite and ground data for a specific area at a certain time. SSE data are available via an innovative data delivery system at http://eosweb.larc.nasa.gov/sse/. Since June 1999, the SSE Web site has generated 315,000 hits, and approximately 2,000 registered users have downloaded over 22,600 data documents.



Langley Research Center employee Chuck McClinton, the technology manager of NASA's Hyper-X Program, explains how the Hyper-X's scramjet engine will work inside Langley's 8-Foot High-Temperature Tunnel following a press briefing on April 18.

Photo by Jeff Caplan

Hyper-X

Continued from Page 1

reality," said Vince Rausch, Hyper-X program manager at Langley. "The program is structured around the scramjet engine and should be a major leap forward in the national capability for access to space. The country is looking for safer, more flexible, less expensive ways to get to space, and that's what the scramjet engine would bring us."

Scramjet technology could also allow more traditional aircraft-like operations of launch vehicles, with horizontal take-off, landing and servicing, which could greatly reduce operational cost and time between flights.

Three X-43A flights are planned; the first two will fly at Mach 7 and the third at Mach 10. Valuable performance data will be relayed electronically to Dryden and Langley. Each experimental aircraft will fly once in the Naval Air Warfare Center Weapons Division Sea Range off the southern coast of California and impact into the Pacific Ocean.

Like the comparatively slower ramjet counterpart, the scramjet has a simple mechanical design with no moving parts. However, scramjet combustion occurs at supersonic air speeds in the engine. Rather than using a rotating compressor like a turbojet engine, the forward velocity and vehicle aerodynamic design compress air into the engine. There, fuel (usually hydrogen) is injected and the expanding hot gases from combustion accelerate the exhaust air and create thrust. In the case of X-43, the thrust will propel the vehicle at hypersonic speeds up to Mach 10.

The first free-flight test will be approximately three weeks after an upcoming captive-carry flight, where the B-52 flies with the X-43A "stack" to the test range for a series of flight systems tests.

Following the first series of X-43A hypersonic flights, the next step is an expanded hypersonics research ground and flight program currently in place as part of the Advanced Space Transportation Program, which is led by Marshall Space Flight Center.

The vehicle contractor team, led by MicroCraft, includes The Boeing Co. and GASL, Inc. The booster is a modified Pegasus rocket from Orbital Sciences Corp.

Stand-Down

Continued from Page 1

each of these facilities has been completed and we establish that the operating procedures are sufficient to assure the safe operations and integrity of the test results," Creedon said.

A special team to conduct the review has been formed. Employees in the affected wind tunnels will assist with the review during the stand-down. About 85 civil servants and 20 contractors work in the six tunnels. The tunnels are among 25 active tunnels at Langley. Another eight have been closed since 1993 and two put on standby.

> *"Safety is the number one priority of NASA and of Langley. We are standing down these tunnels to go the extra mile to ensure that we are operating safely and our data has integrity."*
> **Center Director Dr. Jeremiah F. Creedon**

The 16-Foot tunnel was damaged during an accident in which a test model became separated from its support and was blown down the tunnel at Mach 0.8, or approximately 550 mph. Damaged were fan blades and components of the facility, including a structure called a turning vane that stabilizes and smoothes the air-flow at corners of the tunnel.

The accident caused an estimated $1 million in damage, which is being repaired.

The accident also destroyed the test model, an aluminum engine inlet, or jet engine intake, taken from a salvaged aircraft. The model had undergone a total of about 50 hours of wind tunnel testing prior to the incident and was nearing the end of the test program.

'CONNECT' Wins USDLA Award

Educational Series Honored For The Third Time

By KIMBERLY LAND
Public Affairs Office

The United States Distance Learning Association (USDLA) recently named the 2000-2001 "NASA CONNECT" television series the best K-12 distance learning program for 2001. This is the third time that NASA CONNECT has received the USDLA award.

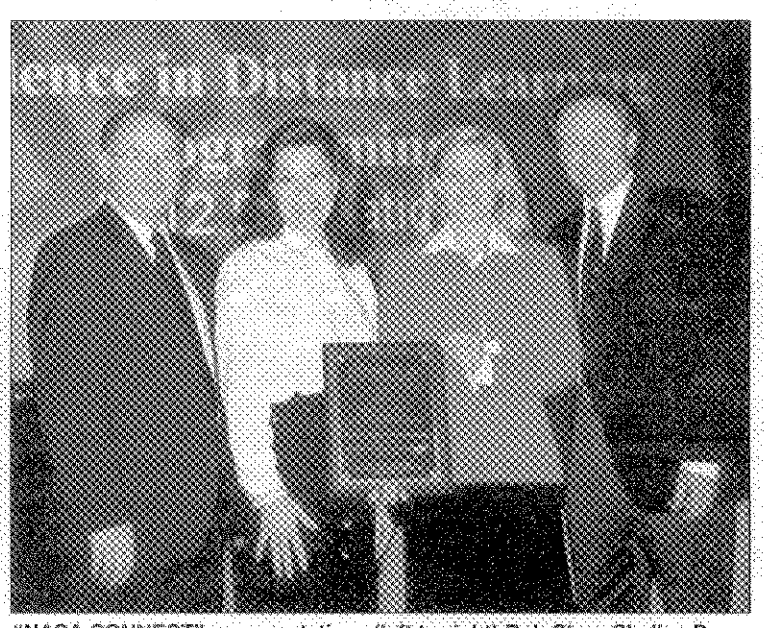
The award recognizes organizations that have designed and delivered an outstanding and comprehensive distance learning program or series.

Members of the "NASA CONNECT" team accepted the award on April 19 at the e-Learning Conference and Expo in Washington, D.C.

The award, based on the five programs in the 2000-2001 "NASA CONNECT" series, was judged on instructional quality of the programs, appropriate target audience, technical production, as well as integration of print, video and Web-based media. Currently about 178,000 educators, representing more than 9 million students, are registered for "NASA CONNECT."

"NASA CONNECT" is produced by Langley Research Center's Office of Education with technical assistance provided by Planners Collaborative, Inc., the Learning Technologies Project and the Media Services Center.

The USDLA is a non-profit organization founded in 1987 to promote the development and application of distance learning for education and training. USDLA represents 2,000 members from pre-K through 12 and higher education, continuing education, corporate, military and government training and telemedicine. The USDLA is the leading source of information and distance learning policy recommendations for Congress, government agencies and industry. In 1993, USDLA began the process of establishing chapters in all 50 states.



"NASA CONNECT" representatives (left to right) Bob Starr, Shelley D. Canright, Jennifer Pulley and Bill Bensen were on-hand to accept the United States Distance Learning Association award on April 19 in Washington, D.C.

Photo courtesy of Bill Bensen

'NASA Knights' Finish In Final Four

The "NASA Knights" robotics team placed first in its division before being eliminated in the semifinals of the national For Inspiration and Recognition of Science and Technology (FIRST) competition held April 5-7 at Disney's Epcot Center in Orlando.

The team, which is sponsored by Langley Research Center and the New Horizons Regional Education Center, competed in one of four divisions against 83 teams from around the country. Overall, 334 teams participated in the competition.

"Orlando was a remarkably successful trip for the FIRST program here at Langley," said team mentor Jeff Seaton of Langley's Computational Aerospace Sciences Team.

The success at the national event came after quarterfinal-round eliminations at regional competitions in Richmond and Philadelphia.

"From an award standpoint, it was our best year yet," Seaton said. "Even without the trophies and awards, the program is having a significant impact on the students and mentors that are involved. But it is always nice to get recognition and a big trophy!"

Demo Planned At VASC

The "NASA Knights" robotics team will demonstrate its award-winning robot during the opening of the Virginia Air and Space Center's (VASC) new exhibit, "Robot Zoo," on May 25 and 26.

For more information, call 727-0900, ext. 782.

Seaton served as one of five emcees for the event, which drew nearly 15,000 students along with their corporate mentors and sponsors.

"We took a break in Saturday's matches on all five fields to watch the Odyssey launch," Seaton said. "It was great to be one of the emcees on the field, working for NASA, to be able to talk about the mission and then watch the liftoff."

Florida Gov. Jeb Bush and Frank Owens, the director of education at NASA Headquarters, attended the national competition, which received national media coverage on CNN and ABC's "Good Morning America."

MCLT's 'Spice of Life'

Dispelling Common Myths About Disabilities

By MICHAEL D. UENKING
Crew/Vehicle Integration Branch

The Americans with Disabilities Act (ADA) of 1990 has brought the issue of individuals with disabilities to the forefront in many organizations.

Where it was once rare to find individuals with physical disabilities in the workplace, on the bus or at the mall, it is now a fairly common occurrence. Yet with all the increased visibility and mainstreaming, myths about people with disabilities still abound. Take a look at five myths that are prevalent in today's workplace.

Myth 1: *There aren't that many disabled people.*

Statistics show otherwise. "Mainstream" magazine reports that close to 50 million or 19 percent of Americans have a disability. If one out of five Americans is disabled, chances are physical disability touches your life. Think about it. You probably know a family member, friend or coworker who has some significant physical limitation.

Myth 2: *Mainstreaming legislation such as ADA has already taken care of the obstacles preventing people with disabilities from entering the workplace.*

Significant barriers still exist. While many people with disabilities are employed, according to "Mainstream," the rate of unemployment of those with disabilities is over 75 percent.

Myth 3: *People with disabilities don't want to work.*

A National Organization on Disability survey found that almost 80 percent of adults with disabilities would like to work. According to the survey, what prevents them from working are obstacles such as lack of transportation, skills or training, as well as some employers' limiting assumptions about their capability.

Myth 4: *People with disabilities can't perform as well as able-bodied employees.*

The idea that hiring people with disabilities lowers standards is a common, yet inaccurate perception. A 1990 Dupont study found that 97 percent of people with disabilities rated average or above average in safety, the same percentage as their able-bodied coworkers. In addition, over 90 percent of employees with disabilities rated average or above in job performance.

Myth 5: *Workplace accommodations for people with disabilities are too costly and place too great a financial burden on the company.*

While the most evident accommodations such as ramps or elevators may be expensive, "Mainstream" reports that 50 percent of accommodations cost less than $50 and most of those cost nothing at all. Only 12 percent of changes and adaptations cost more than $1,000. The biggest accommodations needed appear to be ones of attitude rather than money.

In the next article, we will continue to look at constructive ways to deal with diversity and the cultural challenges that face us in the workplace and in our daily lives.

This article was derived from HR Press' Diversity Works Article Service. Employees' submissions and ideas are welcomed. Send submissions to Michael D. Uenking at <m.d.uenking@larc.nasa.gov>.

AdVentures

CLASSIFIED

FOR RENT: Seascape condo in Nags Head, N.C. June 16-23. $775. Call 596-8484.

FOR RENT: Cottage in Kill Devil Hills, N.C., fully furnished, sleeps nine, A/C, deck, deeded rights to beach. Call 868-6427.

FOR SALE: Kenmore side-by-side refrigerator/freezer, white, 22-inch, water and ice dispensing in door, excellent condition, $500 or best offer; Kenmore heavy-duty washer and dryer, good condition, $300 or best offer; matching sofa and love seat, very good condition, $300 or best offer. Call 850-7045.

FOR SALE: Ready-made bedroom set including dresser with mirror, bookcase headboard with matching nightstands with drawers, and one double bed with frame. Also, mattress pad, set of sheets, bedspread and three decorative matching throw pillows included. Very good condition, $375. Call 898-8463.

FOR SALE: Hitachi M272 digital VHS VCR with remote, $40; Kenwood five-CD carousel player, $40; two JBL 10-inch three-way speakers and one JBL center channel speaker, $100. Call 864-2552.

ODU Hosting Exhibit On May 4

Old Dominion University's (ODU) Center for Advanced Engineering Environments will host an Advanced Learning Technologies exhibit from 9 a.m. to 5 p.m. **May 4** in Langley Research Center's H.J.E. Reid Conference Center.

For more information, visit <http://oduaee-www.larc.nasa.gov/workshop/may01_ALE/> on the Internet.

Duplicate Bridge Game May 9

Langley Research Center's Duplicate Bridge Club will host a game at 5:30 p.m. **May 9** in the Langley Room of the H.J.E. Reid Conference Center.

The winners of the April 11 game were: first place, Bill and Nan Jones; second place, S. Balakrishna and Vijaya Unnam; and third place, Geoff and Marty Tennille. For more information, call Tom Norum at 864-7902, S.N. Sankaran at 864-3516 or John Ferrainolo at 864-2385.

Ames To Host AMS From May 9-11

The Mechanisms Education Association will sponsor the 35th Aerospace Mechanisms Symposium (AMS) from **May 9-11** at Ames Research Center.

The AMS promotes discussions of problems related to the design, fabrication, test and operational use of mechanisms. Thirty papers will be presented with emphasis on hardware developments, and authors are encouraged to discuss anomalies that have occurred during design and development of mechanisms and thus help avoid similar problems in the future.

For more information, call Ron Mancini at (650) 604-6319 or visit <http://www.aero-mechanisms.com/> on the Internet.

LAA To Meet On May 10

Langley Research Center's Alumni Association (LAA) will meet at 11:30 a.m. **May 10** in the private dining room of the Center cafeteria. The program will feature Mike Powell of Newport News Shipbuilding.

'Starship 2040' To Visit VASC

Marshall Space Flight Center's Starship 2040 traveling exhibit will be on display at the Virginia Air and Space Center from **May 22-24.**

The exhibit, a mock-up of what a passenger spaceliner might look like in 40 years, is designed to illustrate the technological advances now being made by NASA researchers and their partners in industry, academia and government, advances that will make a future much like the one demonstrated in the exhibit a near-term reality.

There is no admission fee. For more information, visit the Starship 2040 Web site at <http://www.Starship2040.com>.

VASC Memberships For Sale

Langley Research Center's Exchange Shop now sells discounted memberships to the Virginia Air and Space Center (VASC).

Annual membership privileges include free exhibit admission to the VASC and more than 200 science centers worldwide.

For more information, call the Exchange Shop at 864-1585.

ODU To Host Workshop May 30-31

Old Dominion University's Center for Advanced Engineering Environments will host a free, two-day training workshop on "Nondeterministic Approaches and Their Potential for Future Aerospace Systems" from **May 30-31** in Langley Research Center's H.J.E. Reid Conference Center. An online registration form can be found at <http://oduaee-www.larc.nasa.gov/register.htm>, and more information about the workshop can be found at <http://oduaee-www.larc.nasa.gov/confer.htm>.

SED To Hold Reunion On June 16

Langley Research Center's Systems Engineering Division (SED) will host a reunion for all former SED employees, friends from other divisions and their families on **June 16** on Langley's picnic grounds. The cost will be $10 for adults and $5 for children between ages 5 and 12.

Please RSVP by **May 25** to Gene Kelsey at 564-6169 or <ekelsey@aol.com>; Ralph Muraca at 868-0920 or <rmuraca@mail.hroads.net>; or Barry Price at 864-7146 or <b.l.price@larc.nasa.gov>.

AIAA Offers Wright Graduate Awards

The American Institute of Aeronautics and Astronautics (AIAA) Foundation is accepting applications for the first-ever Orville and Wilbur Wright Graduate Awards.

The $10,000 awards will be presented annually, beginning in 2002, to four students participating in master's or doctoral thesis research in engineering/science.

The deadline to apply is **Jan. 31, 2002.** For an application or more information, visit <http://www.flight100.org/activities/awards.html> on the Internet.

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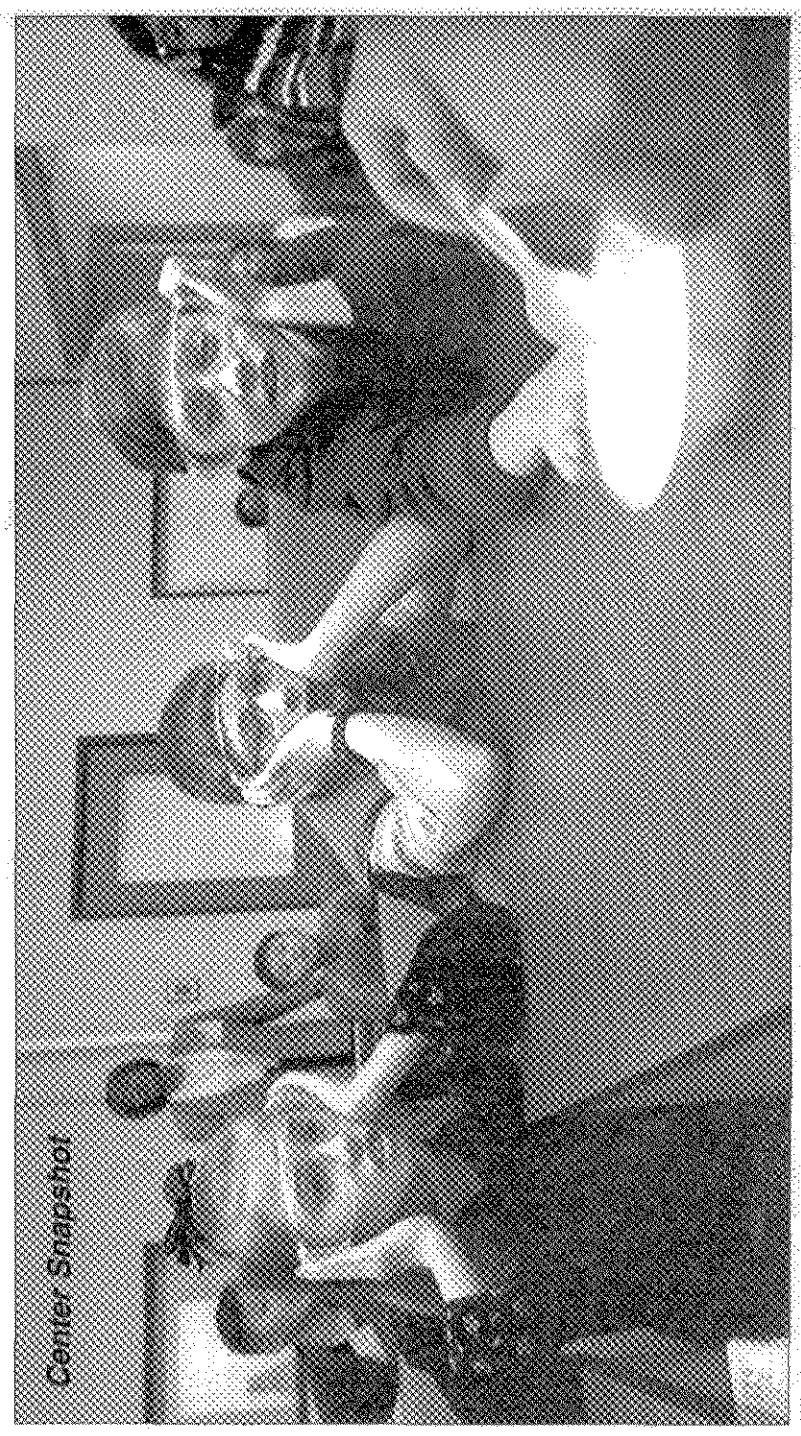
News Researcher



Elizabeth, Woodson and Clay Gates, the children of Langley Research Center employee Thomas S. Gates, hold their safety glasses in place while watching a demonstration in Langley's Electronics Applications Technology Branch during the Center's observance of Take Our Daughters and Sons to Work Day. Langley employee Michael Oliver was showing the group of children how to freeze marshmallows using liquid nitrogen. Patsy Campbell of Langley's Office of Equal Opportunity and the Federal Women's Program Committee said this year's event drew 250 participants. "It's the most we've ever had," she said.

Photo by Jeff Caplan

May Is Asian/Pacific American Heritage Month ... See Page 4

National Aeronautics and Space Administration
Langley Research Center

News Researcher

Biweekly Employee and Contractor Publication

Volume 15 ❖ Issue 10 ❖ May 18, 2001

Twenty years from now, airplane wings may be structured more like bird wings using advanced materials and systems now being investigated for air and spacecraft at Langley Research Center.

Animation by Joseph Ponthieux

'Morphing Project' Will Apply Bird-Like Qualities To Aircraft

By KIMBERLY LAND
Public Affairs Office

Imagine an airplane with wings lined with tiny jets programmed to react to any flight situation. Imagine the wings imbedded with reactive materials that allow them to bend and twist like those of a bird in flight. Imagine the same airplane that can fly very fast and very slow and even hover.

McGowan

Twenty years from now, airplane wings may be structured more like bird wings using advanced materials and systems now being investigated for air and spacecraft at Langley Research Center.

Researcher Anna McGowan heads the future-looking project. Called the "Morphing Project," McGowan's team of researchers and technicians is drawn from many different disciplines.

"Morphing essentially means extremely efficient adaptability enabling an airplane to adapt to a wide variety of flight conditions and even unforeseen problems very safely and very efficiently," McGowan said.

Expanding on the current research, McGowan believes that people will some day have personal aircraft that can take them to and from home in the same way automobiles are used today. But for that to happen, airplanes will need to be more adaptable — able to fit into garages — yet have a large enough wing span to fly safely over large distances.

"Twenty years into the future, we see airplanes becoming much more adaptable than they are today," McGowan said. "Morphing technologies will enable greater versatility in the same airplane. We are working to make airplane wings more flexible, enabling them to fly more like birds, not to mimic nature, but learn from nature and its principles."

Some future aircraft may fly in flocks or "swarms." Comprised of very small, remotely-guided aircraft, the military applications are wide-ranging.

Instead of sending one, large vulnerable aircraft with multiple crew members into a "hot" area for a surveillance mission, a swarm of micro-air vehicles could accomplish the same task without risk to a pilot, crew or aircraft.

Such a swarm also could aid in civilian fire fighting, disaster relief and search-and-rescue efforts.

Other applications are being researched using these versatile morphing materials. Because of their light weight and flexibility, they may be used as sensors for medical applications where they'll work to monitor a patient's heartbeat, or as tiny sensing probes to assist doctors in surgical procedures.

The same materials also can be placed in home appliances such as washers and dryers or dishwashers to reduce vibration. They may even be used in automobiles to aid in the deployment of airbags.

14 x 22 Tunnel Reopens

Facility Had Been 'Stood Down' For Safety Concerns

By MICHAEL FINNERAN
Office of External Affairs

The first wind tunnel has gone back online and more are expected to follow after a "stand-down" to review research test procedures of six facilities at Langley Research Center.

The 14- x 22-Foot Subsonic Tunnel hummed back to life on May 1, just eight days after the stand-down went into effect. The April 23 action was taken after an investigation of a Feb. 5 accident at the 16-Foot Transonic Tunnel suggested there may be procedural problems at some of the Center's major facilities that could affect safety and test results.

"This is good news all around," said Delma C. Freeman, Langley's deputy director. "We have learned from this first review and expect to learn much more by the time all of the reviews are complete."

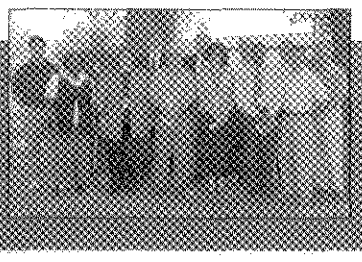
Freeman

The 14- x 22 was reopened after tunnel operators satisfied a list of requirements for improving test procedures. "Those procedural changes are significant, but obviously were not show-stoppers or anything of a huge magnitude or the tunnel wouldn't be back on line so quickly," Freeman said.

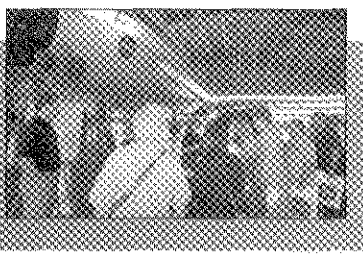
Operation of each wind tunnel is resuming only after an in-depth review establishes that

Continued on Page 4

Inside This Issue:



Speakers Honored At Annual Ceremony *Page 2*



A Look Back At Open House *Page 5*

News Briefs

Around the Agency

NASA HELPS IN SEARCH FOR 'HEAVENLY COFFEE'

A NASA research mission will use an unpiloted aircraft, known as an "Uninhabited Aerial Vehicle" or "UAV," to aid Hawaiian coffee growers by providing the growers with spectral images of their crops. From this information the growers will know, down to the day, the best time for harvesting the beans, bringing the best flavor to consumers.

Part of NASA's UAV-based science demonstration program, these flights will show the ability of this type of aircraft to carry Earth-viewing scientific payloads in long-duration missions at altitudes exceeding the endurance of a pilot in a traditional aircraft. These capabilities will benefit both U.S. scientific and commercial objectives well into the new millennium. RELEASE: 01-90

BLACK HOLES MAY TAKE SPACE FOR A SPIN

As if black holes weren't menacing enough, astronomers now have observational evidence that at least some of them spin about like whirlpools, wrapping up the fabric of space with them.

Tod Strohmayer of Goddard Space Flight Center has studied one such black hole system with NASA's Rossi X-ray Timing Explorer and found unique patterns in the X-ray radiation that have previously only been seen in spinning neutron stars. With these new parameters, he could verify that a black hole, like a neutron star, can spin.

Additional information is available on the Internet at <http://heasarc.gsfc.nasa.gov/docs/xte/learning_center/>. RELEASE:01-86

NEW ENGINE PROMISES SAFER SHUTTLE RIDE

The next space shuttle crew can expect an even safer ride into orbit, thanks to the completion of a new Space Shuttle Main Engine. Workers installed one of the new engines, called the Block II configuration, on Space Shuttle Atlantis on April 24 at Kennedy Space Center.

Atlantis' first flight using the new engine is targeted for no earlier than June 14 on mission STS-104 to the International Space Station. Atlantis will use one Block II main engine and two Block IIA main engines to complete its full complement of three engines. RELEASE: 01-79

NASA CONTINUES CSC CONTRACT

NASA has elected to continue the existing contract with the Computer Sciences Corporation (CSC) of Falls Church to provide information services to agency centers and facilities.

The priced option, valued at $108,428,576, covers the period May 1, 2001, through April 30, 2002. It continues services under a contract entitled "Program Information Systems Mission Services (PrISMS)," originally awarded to CSC in 1994. RELEASE: C01-k

News Researcher

The Researcher News is an official publication of Langley Research Center, National Aeronautics and Space Administration, Hampton, Va., 23681-2199. It is published every other Friday in the interest of all Langley staff, contractors and retirees and has a circulation of approximately 8,100. It is distributed to all Langley civil service employees, contractors, retirees and on-site university personnel, with limited distribution to NASA Headquarters, other NASA centers and, by special request, to other non-NASA individuals and organizations. Questions related to the content and distribution of the Researcher News should be addressed to Keith Henry, Mail Stop 115, (757) 864-6120. Submit contributions/SDL 026, 055, 110 changes to the editor via e-mail <j.r.roberts@larc.nasa.gov>, fax (757) 864-6477, telephone (757) 864-8150 or Mail Stop 293. Articles, photos and announcements are due at noon the Monday following the date of this issue.

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Planners Collaborative/
Science and Technology Corp.

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Planners Collaborative/
Science and Technology Corp.

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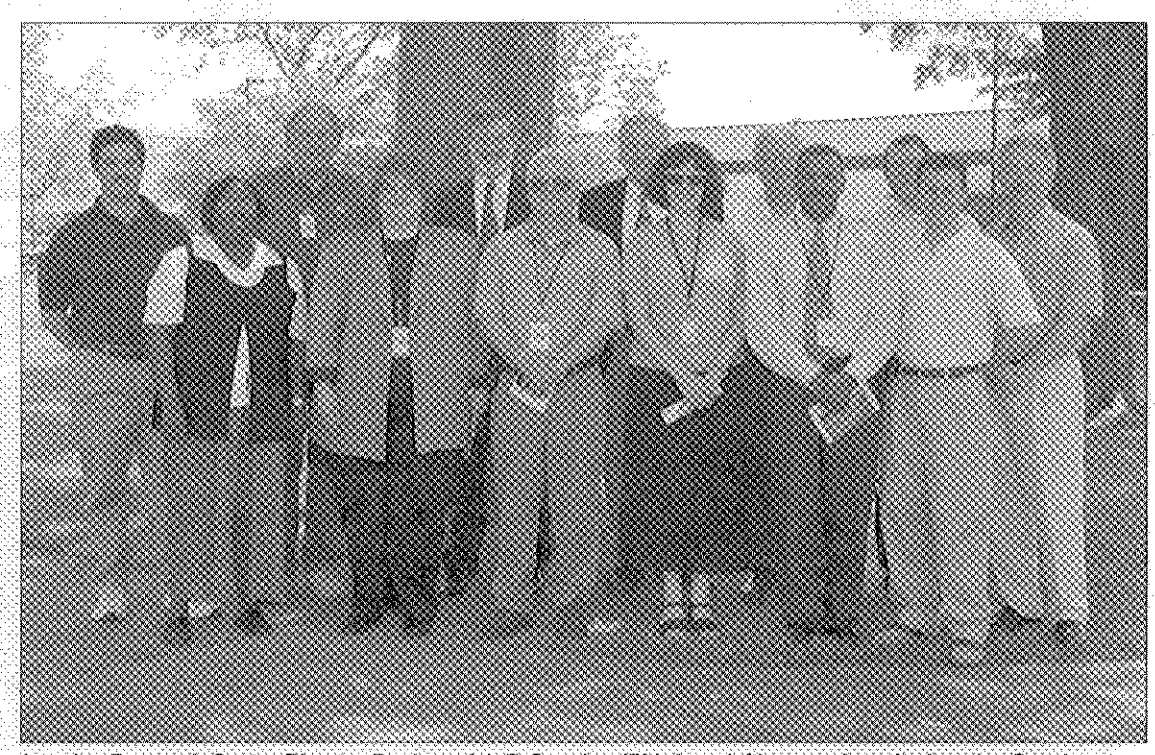
Planners Collaborative/
Science and Technology Corp.

The privilege of listing announcements in this publication is restricted to the employees, contractors and retirees of the Langley Research Center. Articles must be offered without regard to race, color, religion, sex or national origin. All materials are subject to editing.

Read the *Researcher News* online at <http://researchernews.larc.nasa.gov>.

People

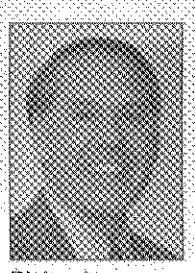


Langley Research Center Director Dr. Jeremiah F. Creedon (fifth from left) recognizes the Langley Speakers Bureau members who gave three or more talks in 2000 (from left): Lawrence Huebner, Myra Walton, Tom Yager, Jane Hogge, Larry Cooper, Ed Prior, Debbie Martinez, Richard Davis, Luther Jenkins, William "Al" Ragsdale, Robert Braun and Bruce Fisher.

Photo by Peggy Hopkins

Speakers Recognized At Annual Ceremony

Langley Research Center's Speakers Bureau held its annual award ceremony on May 3, recognizing Jane Hogge as the Speaker of Year for the second year in a row.



Richardson

Hogge gave 15 talks to groups as far away as Massachusetts. Her topics ranged from aeronautics and model-making to manned space flight to exploring the universe.

Center Director Dr. Jeremiah F. Creedon was on-hand to recognize the speakers who gave three or more talks: Myra Walton (10), Rob Rivers (8), Larry Bement (7), Larry Cooper (6) and Tom Yager (5). Richard Davis, Lawrence Huebner, Debbie Martinez and Ed Prior each gave four talks, and Robert Braun, Bruce Fisher, Luther Jenkins, William "Al" Ragsdale and Kurt Severance each gave three.

In all, 77 speakers gave 158 talks to 15,049 stakeholders in 2000.

Greg Richardson of Goodman Consulting, a former fighter pilot and member of the National Speakers Association, delivered the keynote address.

Retirements

Langley Research Center's Aerodynamics Research Support Branch will host a retirement social for **Mack "Buk" Lawrence** at 4 p.m. May 18 on the Langley Activities Association's picnic grounds.

❖ ❖ ❖

Employees on the NCI/DynCorp contract supporting Langley Research Center's Office of Logistics Management will host a retirement reception for **Inez Jenkins** from 4 to 6 p.m. May 23 in the H.J.E. Reid Conference Center.

For more information, call Sylvia Charity 864-2057, Lolia Deal 864-8307 or Tanya Lane 864-2058.

In Memoriam

Laurence J. Bement

Laurence John Bement died on April 30 at the age of 59. Bement, a native of Missoula, Mont., served as a pyrotechnic engineer at Langley Research Center for 37 years and was an active employee in the Test and Development Branch at the time of his death.

Bement was the author of more than 100 technical publications and was awarded at least 17 patents. He received a NASA Exceptional Engineering Achievement Medal for significant contributions to pyrotechnic technology.

Bement served on Langley's Colloquium Committee and was president of the Engineers Club of the Virginia Peninsula and the Langley Bridge Club.

Richard A. Foss, Bement's branch head, said, "Larry will long be remembered by his co-workers for his inquisitive nature and for the energy and passion that he displayed for his work."

Barbara J. Durling

Barbara Jean Durling died on April 24 at the age of 79. Durling, a native of Michigan, served at Langley Research Center for 57 years.

Anne M. Kerr

Anne McGinnis Kerr died on April 22 at the age of 80. Kerr, a native of Amherst, served as a librarian at Langley Research Center and Fort Monroe.

16 Langley Employees Honored

Members Of Three Teams Receive Acquisition Improvement Awards

By JIM ROBERTS
Researcher News editor

Seventeen Langley Research Center employees recently received NASA Acquisition Improvement Awards.

Jeanne D. Covington, Rosemary C. Froehlich, Robert K. Hedgepeth, Craig S. Kleckner, Marilyn E. Ogburn, Stan S. Smeltzer, David L. Wall Jr., C. Thomas Weih, and **Jennifer D. McCardell** were recognized for their participation on the Systems Analysis and Mission Support (SAMS) Source Evaluation Board (SEB), and **Lisa M. Harvey, Kenneth L. Jacobs, Robert L. Krieger, Mary K. McCaskill, Samuel A. McPherson III** and **Juliet Z. Pao** were recognized for their participation on the Consolidated Information Technology Services (CONITS) Source Evaluation Team.

According to NASA Policy Directive, the award program "rewards acquisition and program individuals for creating and implementing improved results on individual contracts, or innovative changes in contracting processes that save resources and enhance mission attainment."

The SAMS SEB successfully consolidated two Langley contracts into a single, integrated small business set-aside contract and was the first at Langley to use Fed Select software as a tool in performing the evaluation. It also provided a complete draft RFP to prospective offerors, conducted a pre-solicitation conference and met with many offerors during an "open door" period.

The CONITS team performed a streamlined evaluation for this consolidated contract using General Services Administration (GSA) Information Technology multiple award contracts. The team extensively used electronic commerce, set a new standard of openness with industry, provided performance-based contracting training for the procurement users and set up an efficient electronic process for handling tasks.

"I think Langley always does an excellent job on our SEBs. It's not surprising that we would get these awards for our major procurements on a regular basis."
Rosemary C. Froehlich

"The whole idea is to enhance competition and to select the contractor whose proposal offers the best value to the government," said Froehlich, the head of Langley's Grants and Research and Development Studies Contracting Branch and a member of both teams. "I think we did.

"I think Langley always does an excellent job on our SEBs," she said. "It's not surprising that we would get these awards for our major procurements on a regular basis."

Langley employees **Alan Farrow** and **R. Todd Lacks** also were recognized for their participation on the IFMP Core Financial Software procurement, which was led by Marshall Space Flight Center.

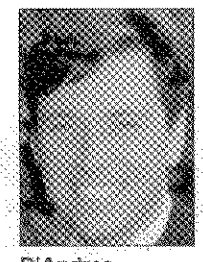
Another Langley employee, **Timothy J. Marshall**, was the Center's nominee for the Agency-wide Contracting Officer's Technical Representative (COTR) of the Year award.

Although Marshall didn't win the award, Froehlich said he should be commended for his nomination. "Being a COTR is kind of a thankless job," she said. "It's a chance for us to let at least one COTR know how important he is."

Colloquium and Sigma Series Lectures

D'Andrea On 'Robots Playing Soccer'

Raffaello D'Andrea will present a Colloquium lecture entitled, "Cooperative Control of Autonomous and Semi-Autonomous Vehicles," at 2 p.m. June 5 in Langley Research Center's H.J.E. Reid Conference Center. A Sigma Series lecture entitled, "Robots Playing Soccer," will follow at 7:30 p.m. at the Virginia Air and Space Center in Hampton.


D'Andrea

The Lecture

Recent years have seen the emergence of technologically advanced sensors and actuators, the continued increase of computational capabilities at decreased costs, and a proliferation of communication networks, standards and protocols. These advances have been matched by vigorous research in the areas of automatic control and artificial intelligence.

As a result, we are moving closer and closer to fulfilling the dream of autonomous entities aiding human beings in dangerous applications such as space exploration, disaster relief and national defense.

D'Andrea's talk will describe the Cornell RoboCup team, a squad of five fully autonomous soccer-playing robots that captured the international F180 RoboCup championship in 1999 and 2000. In particular, D'Andrea will describe the technical problems associated with coordinating a fleet of autonomous and semi-autonomous vehicles to achieve a collective objective, his approaches for solving problems and the applications of his research.

The Speaker

D'Andrea received a bachelor's degree in engineering science from the University of Toronto in 1991 and master's and doctorate degrees in electrical engineering from the California Institute of Technology in 1992 and 1997. Since then, he has served as an assistant professor in Cornell University's department of mechanical and aerospace engineering.

His research interests include the development and application of tools for controlling complex systems. His teaching interests include systems engineering and robot soccer.

D'Andrea is the recipient of a Natural Sciences and Engineering Research Council of Canada Centennial Graduate Fellowship (1991-1996), the American Control Council O. Hugo Schuck Best Paper Award (1994),the IEEE Conference on Decision and Control Best Student Paper Award (1996), an NSF Career Award (2000) and several departmental and college-wide teaching awards at Cornell.

Upcoming Lectures

- **July 10:** Theresa S. Mayer "Molecular Electronics."
- **Aug. 7:** Bryan Palaszewski on "Advanced Fuels Research."
- **Sept. 11:** Stephen B. Pope on "Turbulent Combustion."
- **Oct. 2:** 30th Anniversary Lecture; speaker to be determined.

For more information about the lecture series, visit <http://shemesh.larc.nasa.gov/Lectures/> on the Web.

OEd Announces Partnership With ePALS

By KIMBERLY LAND
Public Affairs Office

Langley Research Center's Office of Education (OEd) recently announced a partnership with ePALS Classroom Exchange, Inc., the world's largest online classroom community.

As the lead center for distance learning programming and technology integration, Langley is working to promote excellence in education by supporting mathematics, science and technology programs and activities for both students and teachers. The partnership with ePALS will give 3.5 million students and teachers in 191 countries access to the OEd's collaborative tools and education resources.

"Our partnership with ePALS provides educators with an instrument for continuing and expanding educational experiences beyond the classroom," said Robert M. Starr, an instructional media specialist in the OEd.

"With ePALS, educators have a model for technology integration and a means of connecting their curriculum and students to NASA and the resource-rich world that resides outside of the classroom."

John Irving, the chief executive officer of ePALS Classroom Exchange, said, "ePALS is very pleased to be working with NASA's Office of Education who share our commitment to advancing the use of technology and education.

"We are very excited to provide teachers and students with even more tools to share knowledge and learn from their peers in the areas of science, mathematics and technology."

Through the ePALS Web site, <http://www.epals.com/>, students and teachers can find and speak with their counterparts in "NASA CONNECT." These tools include teacher-monitored e-mail with instant language translation, moderated discussion boards and private chat rooms.

Van Tours Will Resume May 26

The Virginia Air and Space Center's (VASC) van tours of Langley Research Center and Langley Air Force Base will resume on May 26.

Due to demand, the 2001 schedule has been expanded and will run through October. The tours will run at:

- 2 p.m. Saturday and Sunday from May 26 through June 30;
- 11 a.m. and 2 p.m. Monday through Saturday and 2 p.m. Sunday from July 1 through Sept. 3;
- 2 p.m. Saturday and Sunday from Sept. 4 through Oct. 31; and
- 2 p.m. Monday through Sunday from Dec. 23 through Dec. 31.

"Last year, over 1,000 stakeholders learned about Langley through this program," said Karen R. Credeur, head of Langley's Public Services Office. "We are delighted that the expanded schedule and larger vehicle will allow many more to participate."

Transportation for the tours will be provided by Hampton Roads Transit.

The cost will be $5 per person with VASC admission or $7 per person without. VASC admission, which includes admission to one IMAX film, is $9.50 for adults; $8.50 for seniors and military and NASA personnel; and $7.50 for children between the ages 3 and 11. Children under 12 must be accompanied by an adult on the tour.

The VASC is Langley's official visitor center. For more information, call 727-0900 or visit the VASC Web site at <www.vasc.org>. For information on how to serve as a tour docent, call Steve Devan at 898-9290.

East Area Roads Closed For Asbestos Removal

Several roads in Langley Research Center's East Area have been closed temporarily for asbestos panel removal from the outside of Bldg. 646.

The affected area includes Andrews Street and Hunting Avenue — the area between the 30- by 60-Foot Wind Tunnel and the Spin Tunnel.

Work began on May 7 and is expected to take three months, but the road closures should only take four to six weeks.

"We're not expecting any harm," said Rick Vogel, a safety and facility assurance industrial hygienist in Langley's Office of Safety and Mission Assurance (OSMA). "However, delays are possible when dealing with construction."

Roads are being closed and work zones cordoned off for the safety of traffic and passers-by due to heavy paneling being removed.

"Asbestos panels are removed intact and precautions are taken to prevent asbestos dust," said Carter Ficklen, an industrial hygienist for Hernandez Engineering Inc., which supports OSMA. "The asbestos is non-friable, and paneling is misted with water to prevent dust emission."

Ficklen said air sampling will be conducted daily to ensure that airborne asbestos fiber concentrations are within Occupational Safety and Health Administration (OSHA) and Environmental Protection Agency (EPA) limits.

Asian/Pacific American Heritage Month

Asian/Pacific Americans 'Merit Special Recognition'

Asian/Pacific American Heritage Month, 2001

By the President of the United States of America

A Proclamation

As we move into the 21st century, the United States continues to greatly benefit from the contributions of its diverse citizenry. Among those who have influenced our country, Asian/Pacific Americans merit special recognition. Their achievements have greatly enriched our quality of life and have helped to determine the course of our nation's future.

Many immigrants of Asian heritage came to the United States in the 19th century to work in the agricultural and transportation industries. Laboring under very difficult conditions, they helped construct the western half of the first transcontinental railroad. Their hard work was invaluable in linking together the East and West coasts, thus vastly expanding economic growth and development across the country. Over time, other immigrants journeyed to America from East Asia, Southeast Asia and the Asian Subcontinent. Today, Asian/Pacific Americans are one of the fastest-growing segments of our population, having increased in number from fewer than 1.5 million in 1970 to approximately 10.5 million in 2000.

Asian/Pacific Americans bring to our society a rich cultural heritage representing many languages, ethnicities and religious traditions. Whether in government, business, science, technology or the arts, Asian/Pacific Americans have added immeasurably to the prosperity and vitality of our society. As family members, citizens and involved members of the community, they reinforce the values and ideals that are essential to the continued well-being of our nation.

Diversity represents one of our greatest strengths, and we must strive to ensure that all Americans have the opportunity to reach their full potential. By recognizing the accomplishments and contributions of Asian/Pacific Americans, our nation celebrates the importance of inclusion in building a brighter future for all our citizens.

To honor the achievements of Asian/Pacific Americans, the Congress, by Public Law 102-450, has designated the month of May each year as "Asian/Pacific American Heritage Month."

Now, therefore, I, George W. Bush, President of the United States of America, by virtue of the authority vested in me by the Constitution and the laws of the United States, do hereby proclaim May 2001 as Asian/ Pacific American Heritage Month. I call upon the people of the United States to learn more about the contributions and history of Asian/Pacific Americans and to celebrate the role they have played in our national story.

In witness whereof, I have hereunto set my hand this seventh day of May, in the year of our Lord two thousand one, and of the Independence of the United States of America the two hundred and twenty-fifth.

14 x 22

Continued from Page 1

operating procedures are sufficient to assure safe operation and the integrity of test results.

About 85 civil servants and 20 contractors work in the six tunnels, and many of them have been assisting in the review.

The facilities taken offline were the 16-Foot Transonic Tunnel, the National Transonic Facility, the 14- x 22-Foot Subsonic Tunnel, the 8-Foot High Temperature Tunnel, the Unitary Plan Wind Tunnel and the Low-Turbulence Pressure Tunnel. They are among 25 active tunnels at Langley.

> *"This is good news all around. We have learned from this first review and expect to learn much more by the time all of the reviews are complete."*
>
> **Delma C. Freeman**

Of the six facilities, the Low-Turbulence Pressure Tunnel already was offline as part of its normal schedule. The 8-Foot High Temperature Tunnel was not running because of improvements being made to the facility. And the 16-Foot tunnel was offline for repairs from the February accident.

The 16-Foot was damaged when a test model became separated from its support and blew down the tunnel at Mach 0.8, or approximately 550 mph. Damaged were fan blades and components of the facility, including a structure called a turning vane that stabilizes and smoothes the air-flow at corners of the tunnel.

The accident caused an estimated $1 million in damage, which is being repaired.

The accident also destroyed the test model, an aluminum engine inlet, or jet engine intake, taken from a salvaged aircraft. The model had undergone a total of about 50 hours of wind tunnel testing prior to the incident and was nearing the end of the test program.

The last major wind tunnel accident at Langley occurred in 1988, when a chunk of metal broke from a piece of machinery and destroyed fan blades in the 16-Foot Transonic Tunnel. After that, a "catcher screen" was installed and foam tips were put on the fan blades to minimize damage. Both improvements limited damage to the 16-Foot in the February accident.

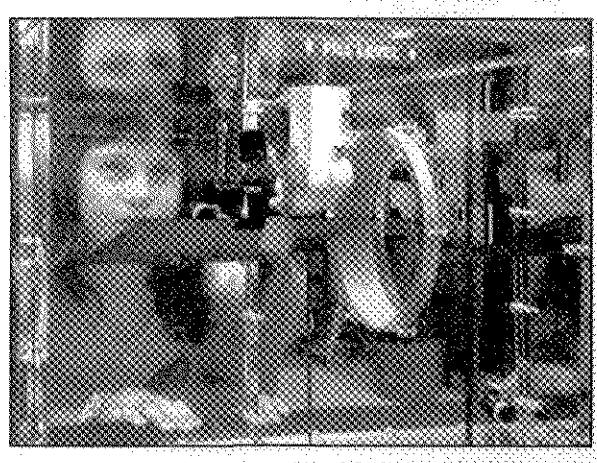
Read the *Researcher News* online at <http://researchernews.larc.nasa.gov>.

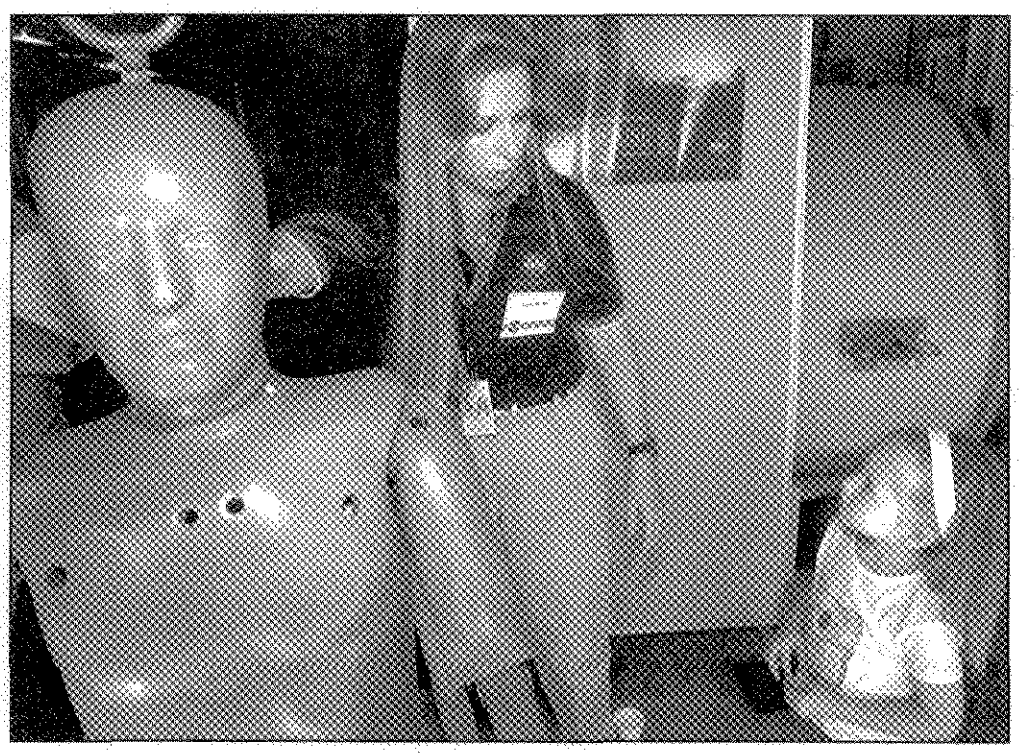
NASA astronaut Garrett E. Reisman signs autographs for Betti Ann Perry, Ashley Perry and Catherine Olbrych after giving a lecture in the Pearl Young Theater.

Open House

A Look Back at Langley Research Center's April 28 Event

Visitors crowd into the hangar to see Langley aircraft and learn about the new technologies the Center is developing.



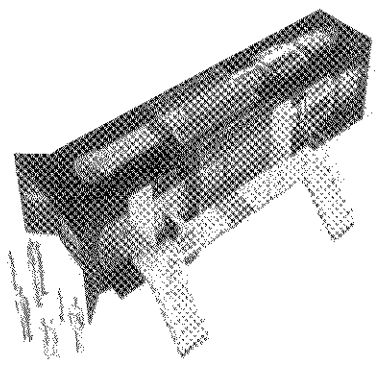


Above: Allison Lorenz, 10, of Suffolk looks at sample material in a water bath that Langley engineers are analyzing using sound waves.

Right: Lisa Jones of Langley's Structural Dynamics Branch explains to a young visitor how she takes data readings from a crash test dummy.

All photos by Jeff Caplan.

AdVentures



Starship 2040 To Visit VASC

Marshall Space Flight Center's Starship 2040 traveling exhibit will be on display at the Virginia Air and Space Center from **May 23-25.**

Langley Research Center employees are invited to a "sneak preview" from 2 to 5 p.m. **May 22.**

The exhibit, a mock-up of what a passenger spaceliner might look like in 40 years, is designed to illustrate the technological advances now being made by NASA researchers and their partners in industry, academia and government.

There is no admission fee. For more information, visit the Starship 2040 Web site at <http://www.Starship2040.com>.

AIAA Awards Banquet On May 22

The Hampton Roads Section of the American Institute of Aeronautics and Astronautics (AIAA) will host its annual awards banquet on **May 22** in Langley Research Center's H.J.E. Reid Conference Center. Social will begin at 6 p.m., dinner will begin at 6:30, and the program — AIAA Distinguished Lecturer Thomas S. Momiyama speaking about "Secret Attack Aircraft of the Imperial Japanese Navy" — will begin at 7:15.

The cost is $10 for members and their guests, $12 for non-members and $8 for student members. Non-members who join the AIAA at the event will receive a complimentary dinner.

For more information, contact Robin Hardy at 864-7159 or <r.c.hardy@larc.nasa.gov>.

Blood Drive On May 23

Langley Research Center will host a blood drive from 9 a.m. to 3 p.m. **May 23** in the H.J.E. Reid Conference Center. Civil service employees may charge their time to Job Order B-1004.

Future Langley blood drive dates are July 25, Sept. 26 and Nov. 21. For more information, contact Alice Eley at 864-3191 or <a.e.eley@larc.nasa.gov>.

ODU To Host Workshop May 30-31

Old Dominion University's Center for Advanced Engineering Environments will host a free, two-day training workshop on "Nondeterministic Approaches and Their Potential for Future Aerospace Systems" from **May 30-31** in Langley Research Center's H.J.E. Reid Conference Center. An online registration form can be found at <http://oduaee-www.larc.nasa.gov/ register.htm>, and more information about the workshop can be found at <http://oduaee-www.larc.nasa.gov/confer.htm>.

CLASSIFIED

FOR RENT: Seascape condo in Nags Head, N.C., June 23-30. $775. Call 596-8484.

FOR SALE: Tiffen Polarizer filter, 52 mm. $7. Like new condition. Call 864-2552.

VANPOOL: Looking for three riders for a new vanpool between Williamsburg and Langley. Save gas, money and wear-and-tear on your car. Call 565-0696.

World War II Aircraft On Display

The Old Dominion Squadron, a unit of the American Airpower Heritage Museum, will host "Gathering Of Eagles 2001" from 9 a.m. to 6 p.m. **June 15-17** at Hampton Roads Executive Airport in Chesapeake.

The event, co-sponsored by Chesapeake Parks and Recreation and the Hampton Roads Executive Airport, will feature vintage World War II aircraft and post-war aircraft for public view and inspection. The event also will include fly-bys, period military vehicles and a military encampment.

Donations are $7 for adults and $2 for children between the ages 6 and 12. For more information, call Bob Halsey at 836-3408 or visit <www.olddominionsquadron.com>.

SED To Hold Reunion On June 16

Langley Research Center's Systems Engineering Division (SED) will host a reunion for all former SED employees, friends from other divisions and their families on **June 16** on Langley's picnic grounds. The cost will be $10 for adults and $5 for children between ages 5 and 12.

Please RSVP by **May 25** to Gene Kelsey at 564-6169 or <ekelsey@aol.com>; Ralph Muraca at 868-0920 or <rmuraca@mail.hroads.net>; or Barry Price at 864-7146 or <b.l.price@larc.nasa.gov>.

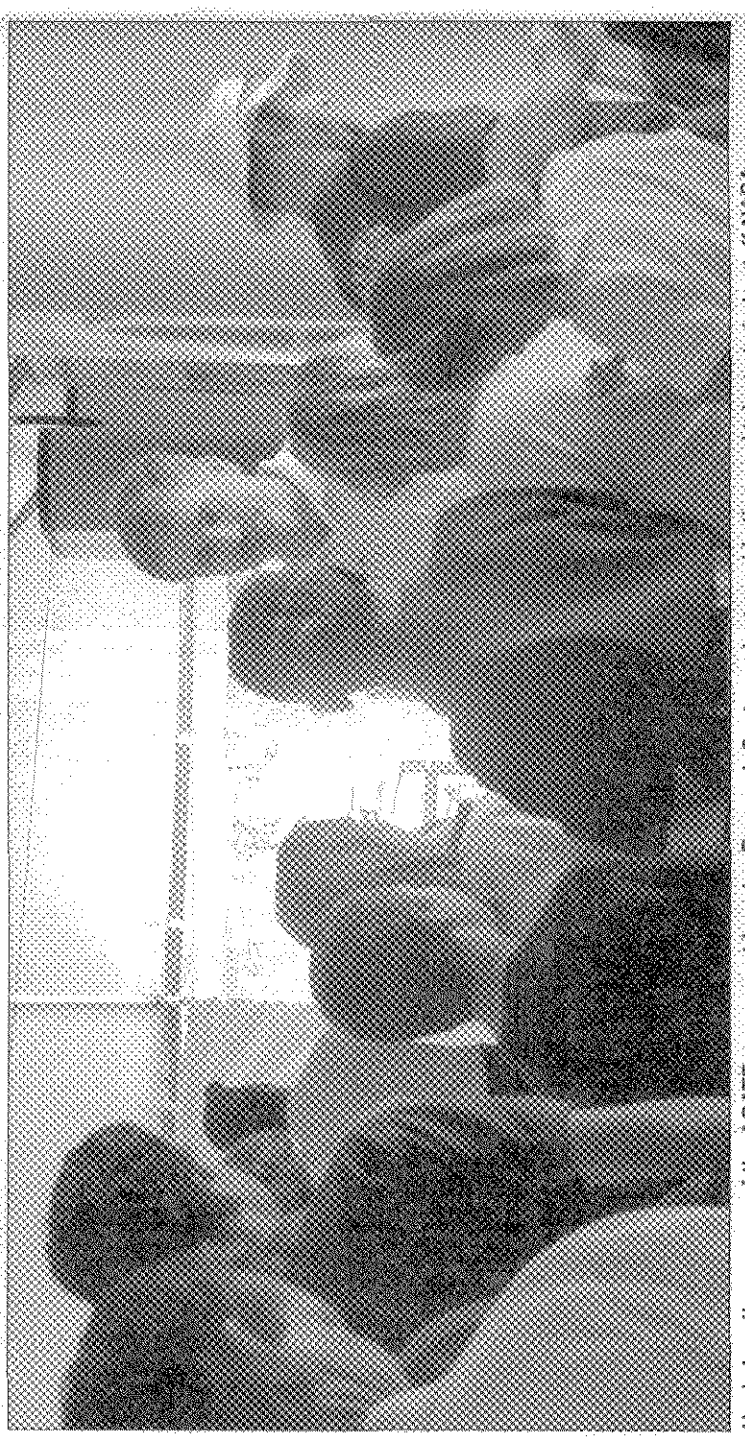
AIAA Offering Graduate Awards

The American Institute of Aeronautics and Astronautics (AIAA) Foundation is accepting applications for the first-ever Orville and Wilbur Wright Graduate Awards.

The $10,000 awards will be presented annually, beginning in 2002, to four students participating in master's or doctoral thesis research in engineering/science.

The deadline to apply is **Jan. 31, 2002.** For an application or more information, visit <http://www.flight100.org/activities/awards.html> on the Internet.

Center Snapshot



Hank Jarrett, manager of the AGATE program at Langley Research Center, volunteers his time and talents to help staff NASA Headquarters' education exhibit at the Sun 'n Fun International Aviation Convention. The event, which took place from April 9-14 at Linder Regional Airport in Lakeland, Fla., drew nearly 700,000 visitors, making it the second-largest air show in the world. Langley supports the annual event by supplying educational literature, exhibits, staff and forum speakers. For more information, visit the Sun 'n Fun Web site at <http://www.sun-n-fun.org/>.

Photo by Meghan Woodcock

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Researcher News

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Langley Research Center
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Langley Research Center

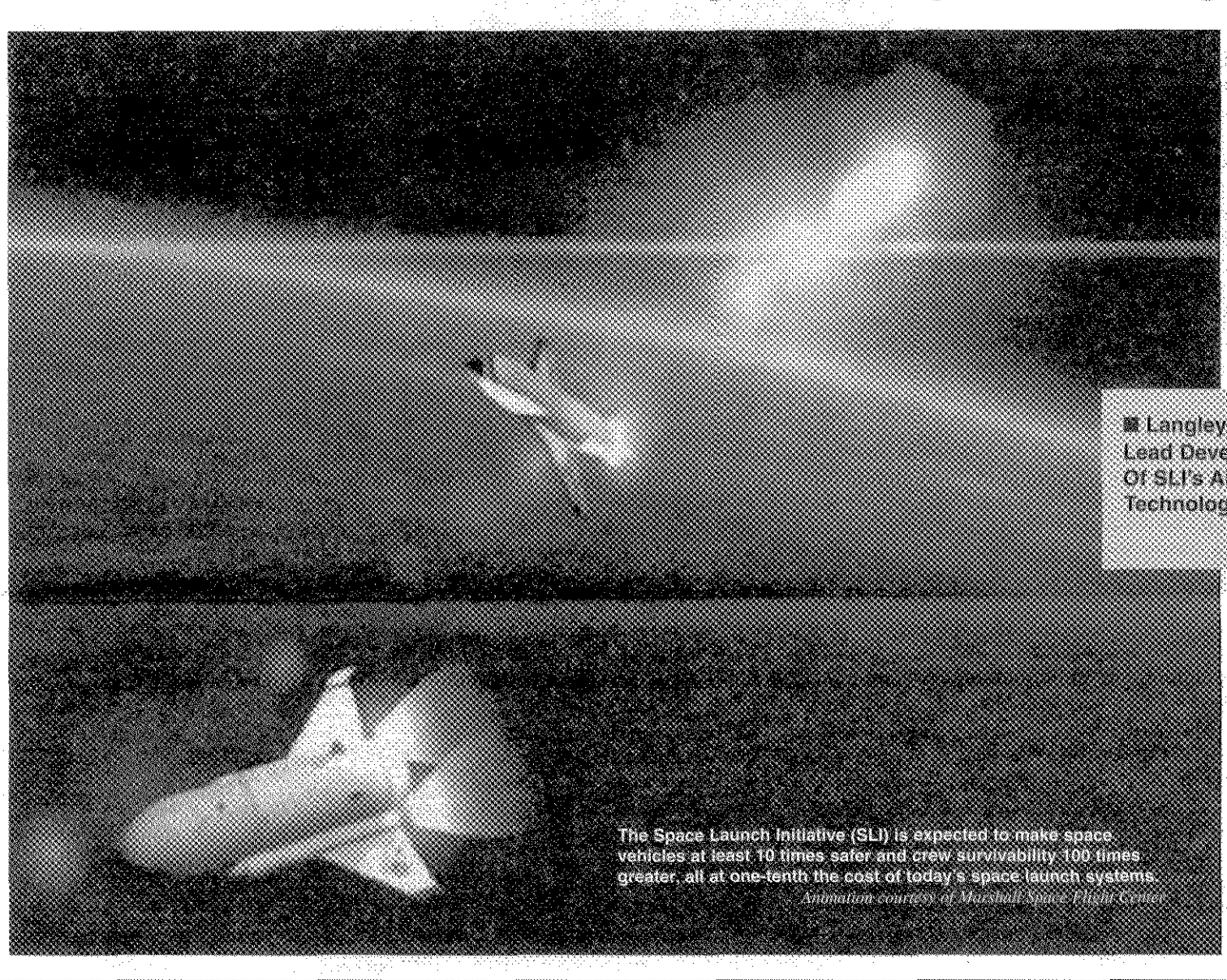
News Researcher

Biweekly Employee and Contractor Publication

Volume 15 ❖ Issue 11 ❖ June 1, 2001

SLI Contracts Announced

$767 Million Will Be Shared By 22 Companies, Large And Small



The Space Launch Initiative (SLI) is expected to make space vehicles at least 10 times safer and crew survivability 100 times greater, all at one-tenth the cost of today's space launch systems.
Animation courtesy of Marshall Space Flight Center

By JIM CAST
NASA Headquarters

and JUNE MALONE
Marshall Space Flight Center

NASA announced on May 17 the first round of contract awards in an Agency initiative to find a more affordable and reliable highway into space. The Space Launch Initiative (SLI) is a research and development effort designed to substantially improve safety and reduce the high cost of space travel.

■ Langley Will Lead Development Of SLI's Airframe Technologies
Page 5

The studies initiated with these awards are not intended to provide a specific vehicle design. This first step marks the beginning of a process that will lead to the development of a common set of alternative technologies that NASA will make available to all U.S. companies. These cutting-edge developments will be used for future government and commercial

Continued on Page 5

AVOSS Wins Administrator's Award

Three Other Langley Projects Recognized At TGIR Conference

By KATHY BARNSTORFF
Public Affairs Office

Langley Research Center's Aircraft Vortex Spacing System (AVOSS) won the Administrator's Award at NASA's Turning Goals into Reality (TGIR) 2001 Conference on May 17. Three other Langley projects — Synthetic Vision, airframe noise reduction efforts and high temperature composite development — also were singled out at the conference.

AVOSS is a revolutionary new technology that can predict aircraft wake turbulence on final approach so airliners can be spaced more safely and efficiently.

AVOSS researchers installed equipment at Dallas/Fort Worth International Airport that determined how winds and other atmospheric conditions affect the wake vortex patterns of different types of aircraft. The system used lidar technology to confirm the accuracy of the forecasts. Then computer programs crunched all the numbers and came up with safe spacing criteria automatically.

Tests showed AVOSS would increase arrival rates and save the airlines money. So critical is this technology that earlier this year the Air Transport Association named AVOSS to its "top 10" list of air traffic control improvements.

Synthetic Vision addresses the single largest contributing factor in fatal worldwide airline and general aviation crashes: limited visibility. Langley engineers and their industry partners are developing an advanced cockpit display that will give pilots another set of eyes on the ground and in the air.

Using NASA's 757 aircraft, researchers tested a Synthetic Vision system at Dallas/Fort Worth International Airport in October 2000. The tests included components that provided flight crews with a three-dimensional perspective of the world, an electronic moving map of the airport surface, a runway traffic alerting system and advanced sensor information.

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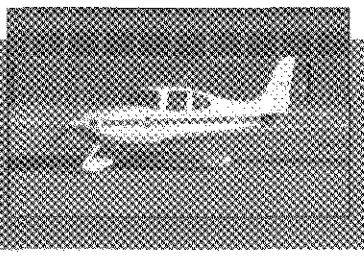
Inside This Issue:



Cirrus Aircraft Arrives On-Center
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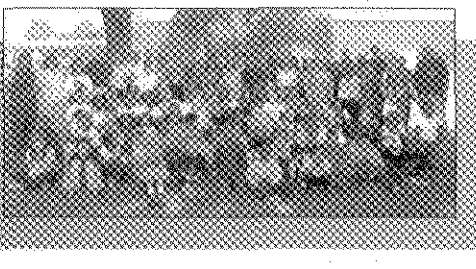

School Honors Study Buddies
Page 4

News Briefs

Around the Agency

DROUGHTS AGGRAVATED BY DUST IN THE WIND

Windblown desert dust can choke rain clouds, cutting rainfall hundreds of miles away. This new discovery, made with the help of NASA satellites, suggests that droughts over arid regions, such as central Africa, are made worse by damaging land and livestock management that expand the desert.

The findings, reported in the Proceedings of the National Academy of Sciences, present a new view of the decades-long drought in the African Sahel, which has been accompanied by increasing levels of airborne dust during the rainy season.

Satellite images of the March 2000 Saharan dust storm and other visuals related to this research are available on the Internet at <http://www.gsfc.nasa.gov/gsfc/earth/dust/rainfall.htm>. RELEASE: 01-92

COMET LINEAR EXPOSES ITS DEEPEST SECRETS

Breaking up is hard to do, even for a comet. When such a cosmic break-up occurred last year, scientists watched it happen and came away with new insights and new questions.

Teams of scientists, using telescopes ranging from the W. M. Keck Observatory and NASA's Infrared Telescope Facility, both on Mauna Kea, Hawaii, to the European Southern Observatory's (ESO) Very Large Telescope in Chile, the NASA/European Space Agency (ESA) SOHO satellite and NASA's Hubble Space Telescope, have been studying Comet LINEAR (C/1999 S4). This spectacular comet last year broke apart as it circled the Sun. The researchers' results appear in a special issue of the journal Science dedicated to studies of the comet.

Information about the Hubble and VLT observations are available on the Internet at <http://oposite.stsci.edu/pubinfo/pr/2001/14>. RELEASE: 01-94

X-40A FREE FLIGHTS COMPLETED AT DRYDEN

NASA's X-40A, a prototype of a space-return vehicle, successfully completed its seventh and final test flight, gathering information and clearing the way for future flights of its larger brother, the X-37.

The unpiloted X-40A, an 85-percent scale model of the X-37, 22 feet long and about 2,600 pounds, was released from an Army helicopter above NASA's Dryden Flight Research Center. The series of two-minute descents provided valuable information for development and testing of the full-scale X-37 orbital and re-entry vehicle. RELEASE: 01-98

NASA APPROVES DEEP IMPACT MISSION

NASA approved development of a robotic spacecraft mission that reads more like a story line from a science fiction movie script. Imagine intercepting a comet in deep space and using a heavy projectile to blow a hole in the celestial body, some seven stories deep and about the size of a football field.

In a space exploration first, NASA's Deep Impact Mission will attempt to use a probe to collide with a comet in an attempt to peer beneath its surface. Scheduled for launch in January 2004, the unique spacecraft is expected to arrive at comet Tempel 1 in July 2005. RELEASE: 01-99

News Researcher

The Researcher News is an official publication of Langley Research Center, National Aeronautics and Space Administration, Hampton, Va., 23681-2199. It is published every other Friday in the interest of all Langley staff, contractors and retirees and has a circulation of approximately 8,100. It is distributed to all Langley civil service employees, contractors, retirees and on-site university personnel, with limited distribution to NASA Headquarters, other NASA centers and, by special request, to other non-NASA individuals and organizations. Questions related to the content and distribution of the Researcher News should be addressed to Keith Henry, Mail Stop 115, (757) 864-6120. Submit contributions/SDL 026, 055, 110 changes to the editor via e-mail <j.r.roberts@larc.nasa.gov>, fax (757) 864-6477, telephone (757) 864-8150 or Mail Stop 293. Articles, photos and announcements are due at noon the Monday following the date of this issue.

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Planners Collaborative/
Science and Technology Corp.

Assistant Editor ..... Meghan Woodcock
Planners Collaborative/
Science and Technology Corp.

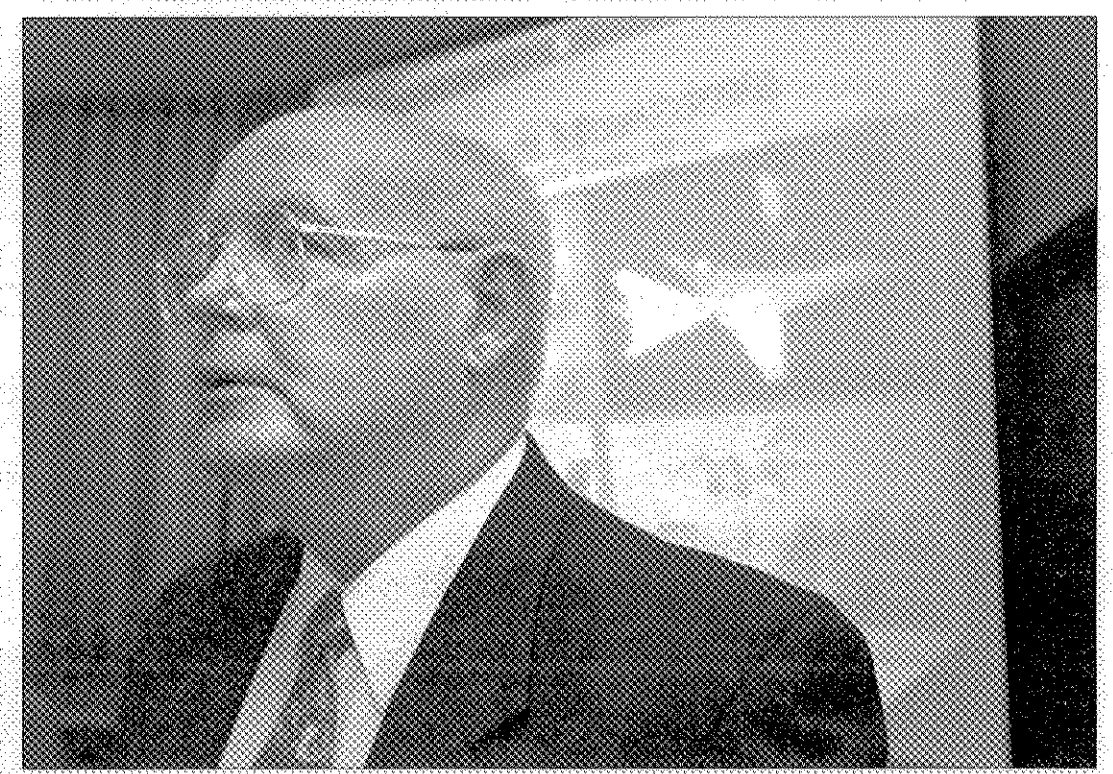
Photographer ..... Jeff Caplan
Planners Collaborative/
Science and Technology Corp.

The privilege of listing announcements in this publication is restricted to the employees, contractors and retirees of the Langley Research Center. Articles must be offered without regard to race, color, religion, sex or national origin. All materials are subject to editing.

Read the *Researcher News* online at <http://researchernews.larc.nasa.gov>.

People

'Partners In Freedom'



Langley Research Center retiree Joseph Chambers spoke on-Center on May 23 and signed copies of his new book, "Partners in Freedom: Contributions of the Langley Research Center to U.S. Military Aircraft of the 1990s." Chambers, the recipient of the NASA Exceptional Service Medal and the NASA Outstanding Leadership Medal, participated in the development of virtually every Air Force and Navy aircraft of the past 30 years. Copies of his book are available in Langley's Exchange Shop. For more information, call 864-1585 or 864-7918.

Photo by Jeff Caplan

Runners' Club Announces Results From Spring Races

Langley Research Center's Runners' Club recently hosted two races as part of NASA's semi-annual Intercenter Running Competition. Nineteen Langley employees and contractors took part in a 10K race and 41 in a two-mile race.

Erik Vedeler was the top runner in the 10K race with a time of 36:46. He was followed by **Scott Bartram** (38:57) and **Andrew Culter** (39:44). **Caroline Diehl** was the first-place woman with a time of 43:51, followed by **Jan Spangler** (48:44) and **Florence Hutcheson** (52:53).

Vedeler was also the top runner in the two-mile race with a time of 10:54. He was followed by **Bartram** (11:27); third was a tie between **Walt Bruce** and **Culter** (12:03). **Allison Roberts** was the first-place woman with a time of 13:42, followed by **Spangler** (15:09) and **Hutcheson** (15:22).

The race times will be combined with times from the other NASA centers for the overall results.

For information about the Langley Runners' Club, contact Richard Shearer at 864-7036 or visit the club's Web Page: <http://larc-exchange.larc.nasa.gov/laa/runners>.

Retirement

Langley Research Center's Facility Systems Technology Area will host a retirement social for **Nancy N. Shields** at 5:30 p.m. June 13 in the Williamsburg Room of the Langley Air Force Base Officer's Club. Heavy hors d'oeuvres will be served and a cash bar will be available. The cost is $18 per person. To make reservations, contact Diana Kusmira at 864-8473 or Mary Harris at 864-6840 by June 4. Gift-only contributions are also welcome.

In Memoriam

Don E. Forney Sr.

Don E. Forney Sr. died on July 21, 2000, at the age of 76. Forney served as the head of the Langley Support Office at the NASA Western Test Operations Center in Lompoc, Calif. He retired in 1980 but continued to work as a contractor in support of Scout launch vehicle operations until 1994.

Millard H. Granger Jr.

Millard Hawthorne Granger Jr. died on May 6 at the age of 79. Granger, a native of Battery Park, served in the U.S. Navy and was a veteran of World War II. He then served as a model maker at Langley Research Center, retiring in 1977 after 27 years of service.

Eugene S. Love

Eugene Stone Love died on May 13 at the age of 80. Love, a native of Elizabeth City, N.C., served in the U.S. Army Air Corps and was a veteran of World War II. He went on to serve as a research scientist in supersonic aerodynamics at Langley Research Center, holding supervisory positions in the Hypersonic Branch, the Aero-Physics Division, the Space Systems Division and the Space Shuttle Task Group.

Love was a two-time recipient of NASA's Exceptional Service Medal and an elected fellow of the American Institute of Aeronautics and Astronautics (AIAA).

Charles H. McLellan

Charles Herbert McLellan died on May 12 at the age of 86. McLellan, a native of Seattle, retired from NASA after 36 years of service.

From The Office Of Safety And Mission Assurance

Safety Also Applies To Office Employees

At Langley Research Center, good safety habits apply to all work areas. Even for employees who don't work with heavy machinery or tools, safety is important.

If you work in an office, be aware of potential hazards and take proper precautions to avoid accidents and serious injury.

To Avoid Slips, Trips And Falls

■ Keep offices tidy and free of clutter. Boxes of materials and supplies should be stacked away from traffic areas.

■ Clean up any spills immediately.

■ Keep garbage off the floor.

■ Route cords and cables from electrical equipment and phones away from traffic areas.

■ Keep chairs and stools in good repair.

■ Remove damaged chairs from the office.

■ Report slipping and tripping hazards, such as spills and loose flooring.

■ Use stepladders and step stools if you have to climb. Never use makeshift climbing devices, such as stacked boxes or chairs on desks.

To Prevent Clutter

■ Do not stack loose paper or magazines on your desk or table; they can fall to the floor and create a slip hazard. Ensure that paper items are neatly stacked; if not in use, file the items.

■ Do not clutter your office area with boxes and other items in walkways; they can cause a trip hazard. Designate a specific place for every item.

■ Clean up your walkway to avoid tripping over items on the floor.

To Make Cabinets Safe

■ Load the cabinet from the bottom up. If you fill the top drawer first, the cabinet may fall over.

■ Open just one drawer at a time. Opening more than one drawer may cause the cabinet to fall.

■ Never stack filing cabinets on top of one another, even small ones. It is too easy to pull the top cabinet on yourself.

■ Do not place items on top of storage cabinets. Opening and shutting the doors may cause an injury if a loose item falls and strikes an employee in the head.

■ Keep the drawers of desks and filing cabinets closed to avoid tripping over them.

On-the-job accidents can occur in the relatively "safe" environment of an office. Take inventory of all potential hazards in your office and apply the recommended work practices to avoid them.

A Look At Langley's Executive Safety Board

Langley Research Center's Executive Safety Board (ESB) maintains an overview of the Center's safety program.

The ESB reports to the Center Director. The Deputy Director serves as chair and the Director of the Office of Safety and Mission Assurance serves as vice-chair.

Other ESB members include:

■ The associate directors for Business Management; Program Integration; and Research and Technology (R&T) Competencies.

■ The directors of four R&T Competencies: Aerodynamics, Aerothermodynamics and Acoustics; Atmospheric Sciences; Structures and Materials; and Systems Engineering.

■ The head of the Office of Human Resources.

■ Representatives of the American Federation of Government Employees, Local 2755 and the International Association of Machinists and Aerospace Workers, Local PM 2829.

Quarterly meetings are held to review major mishaps and review Center injury/illness statistics. The members look for trends in the statistics and prescribe corrective actions, if needed. At each meeting, the Occupational Health Program is reviewed to ensure that it meets the needs of Langley's workers.

The ESB establishes a standing committee system to focus Center expertise on safety issues, especially those not covered by precedent. The following committees have been created by the ESB:

■ **Electrical Systems Committee**: maintains an overview of all elements of electrical safety at Langley.

■ **Airworthiness and Safety Review Board**: recommends airworthiness and safety requirements for flight operations at Langley.

■ **Institutional Review Board**: protects human research subjects by reviewing all ground-based and aeronautical flight research involving human subjects.

■ **Ionizing Radiation Committee**: Reviews and provides guidance on safety measures instituted for the use of accelerators, radioactive materials and X-ray equipment.

■ **Non-Ionizing Radiation Committee**: Reviews and provides guidance on the safety aspects of lasers, infrared devices and radio frequency (RF) equipment.

■ **Potentially Hazardous Materials Committee**: Reviews and provides guidance on use of oxidants, cryogenics and toxic chemicals.

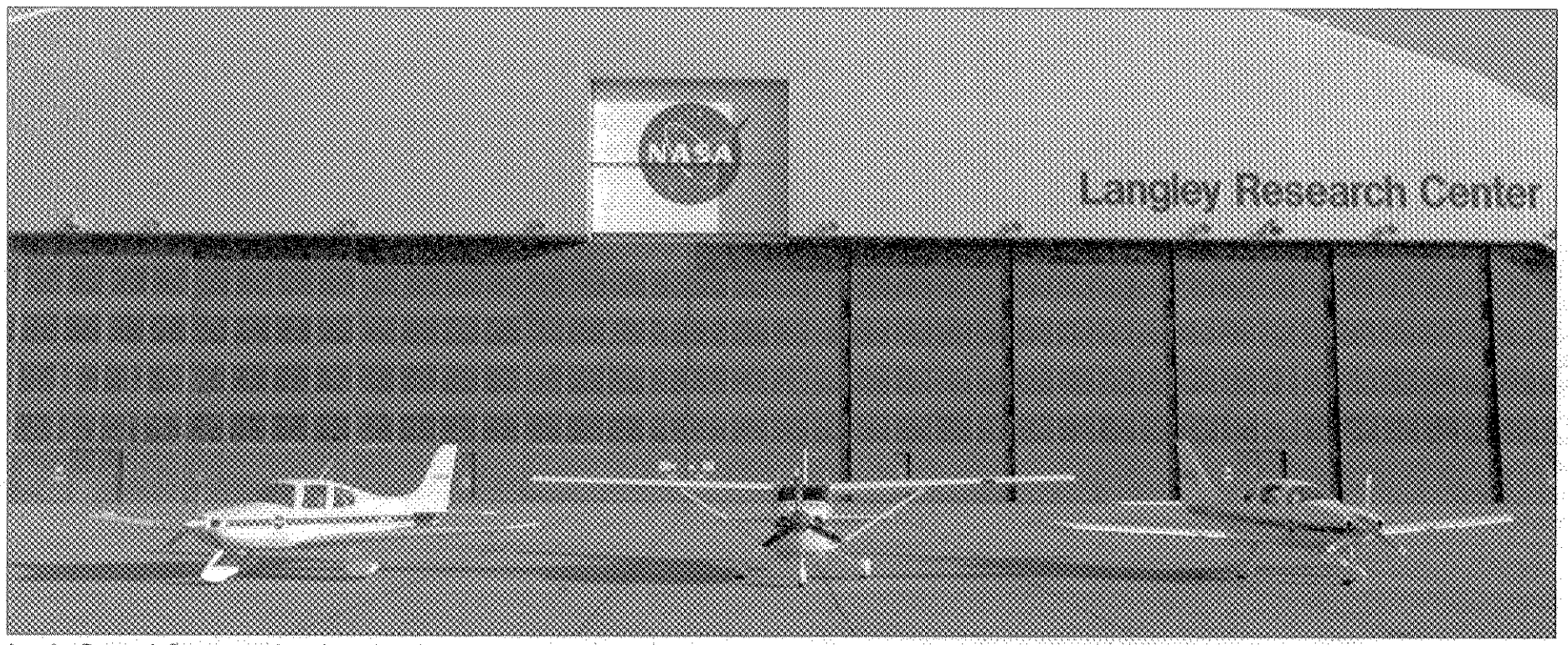
■ **Pressure Systems Committee**: Reviews and provides guidance on safety of ground or flight pressure systems using gaseous or fluid medium.

■ **Systems Operations Committee**: Conducts reviews and provides guidance on safety of activities such as operating a facility from a total system standpoint.

■ **Facility Safety Advisory Board**: evaluates safety policy prior to implementation and reviews items requiring management attention.

■ **Labor/Management Safety and Health Advisory Committee**: provides a forum for personnel to discuss problem areas, through their union representatives and safety and health management.

Trifecta!



Langley Research Center completes its stable of new, single-engine research aircraft with the recent arrival of the Cirrus SR22 (far left), manufactured by Cirrus Design of Duluth, Minn. Like the Lancair Columbia 300 (far right), it includes various Langley-pioneered technologies, ranging from modified wing leading edges for spin resistance to energy-absorbing airframes to state-of-the-art cockpit systems inspired by the Langley-led Advanced General Aircraft Trasnportation Experiments (AGATE) program. Langley's recently acquired Cessna 206 (center) also is being readied to support a variety of AGATE projects, including Aviation Weather Information (AWIN) and Synthetic Vision.

Photo by Jeff Caplan

Study Buddies

Machen Elementary School in Hampton recognized its 42 Study Buddies and the 79 students they tutored during a special "thank you" ceremony on May 23. Two of the 42 Study Buddies were employees at Langley Air Force Base; the remainder were Langley Research Center employees and contractors and George Washington University Joint Institute for Advancement of Flight Sciences (GWU JIAFS) students. For more information about how to participate in the Study Buddy program next year, contact Pat Cosgrove at 864-2031.

Photo by Jeff Caplan

MCLT's 'Spice of Life'

Learn To Avoid Discriminating Unconsciously

By MICHAEL D. UENKING
Crew/Vehicle Integration Branch

Most people don't wake up in the morning thinking, "Who can I discriminate against today?" or, "Let's see how I can be unfair in dealing with people." Yet we see all too often that inequities in treatment and biases in decisions exist because for the most part, unfairness is unintended and influenced by factors over which we are usually unaware. Even those of us who mean well who want to be scrupulously fair in the treatment of others can unintentionally have our judgment skewed by unconscious influences. The following are a few of these factors.

1. The "Second-Hand Smoke Effect" of Societal Stereotypes

Generalizations about specific groups exist in every society and community, and these set pictures or stereotypes seem to be a common phenomenon of human nature. Even though as individuals we may reject such preconceived notions and negative assumptions about groups, these prevailing generalizations pervade the atmosphere and invade our minds. Much like the effect of second-hand smoke, the damage of these views is done even if we are not active carriers of them.

Movie images, newspaper articles, television and radio newscasts, talk show discussions, comedians' routines and even everyday conversations are full of stereotypical views about safe neighborhoods, good schools, valuable property and areas going downhill. In popular media, many of the ills of the modern world such as gangs, graffiti, poverty, drugs and prostitution are often associated with minorities. This "second-hand smoke effect" of prevailing negative images plays out in interpersonal interactions and often subtly influences our actions.

These kinds of stereotypes have even wider ripples. A Los Angeles Times article reported an incident that demonstrated how subtly these assumptions impact important interactions. Two minority borrowers asked about mortgage loans. They were given applications only for a fixed-rate mortgage and failed to qualify for the loan. Two non-minority borrowers with the same general income were told about both adjustable-rate and fixed-rate mortgages and were given help in filling out their ultimately successful application. Chances are, if asked about these incidents, the bank employees involved would deny any prejudicial treatment in dealing with these applicants.

2. Comfort and Trust in Likeness and Sameness

Another reason for disparate treatment is that, generally, individuals tend to gravitate toward and feel more comfort with those who are like them in some significant way. When we feel an affinity with someone, we tend to find it easier to trust them and build rapport. Who do you sit by at meetings? With whom do you eat lunch and spend breaks? Why do you feel more comfortable with some coworkers than others?

Try a little experiment. Imagine an ideal co-worker, employee or customer, one whom you'd like to work with or serve. Picture the individual as well as some of the characteristics about the person. Include in your mental picture all you can about this individual. Jot down as much about that person as you can from your mental image, from age and gender to more abstract information such as the kind of values the person embodies, such as the importance of family, hard work, honesty or paying debts. Then analyze how similar or different the person is to you. What does this tell you about whom you like to do business with? What do your answers tell you about your preferences? Can you detect any patterns in your own comfort and trust levels?

3. Past Experiences

Experience is a powerful teacher. If you have had a series of problems or a pattern of negative interactions with a number of people of a particular group, you will probably be less apt to spend your time and energy with the next person of that group. In such cases, you might not go the extra mile to look for another way or you might stop short of doing that one more thing that could have made a difference.

However, when it comes to past experiences, we often have selective memories. A psychological phenomenon called cognitive dissonance can play a role. According to this theory, we create a picture of how things are. Then we collect evidence that supports that view, while ignoring or rejecting evidence to the contrary. Our experiences connect with our preconceived notions and serve to lock in set generalizations about groups. They then become self-fulfilling prophecies, with each experience proving we were right and we continue to build an arsenal of "I-told-you-so" examples.

The challenge is to continue to see each person as new, each situation as unique, each interaction as a fresh opportunity to have a productive and positive experience.

In the next article, we will continue to look at expanding our understanding of what diversity really means and how to incorporate it into the workplace.

This article was derived from HR Press' Diversity Works Article Service. Employees' submissions and ideas are welcomed. Send submissions to Michael D. Uenking at <m.d.uenking@larc.nasa.gov>.

SLI

Continued from Page 1

launch systems and space transportation operations.

The SLI investment is expected to pay off with full-scale spacecraft development options by mid-decade.

"A second-generation reusable launch vehicle will open up the space frontier and significantly improve life on Earth," said Art Stephenson, director of NASA's Marshall Space Flight Center (MSFC), which is leading the program.

"The Space Launch Initiative is a comprehensive R&D effort that provides technology developments that dramatically increase the safety, reliability and affordability of space transportation systems," Stephenson added. "Through this new initiative, NASA's mission requirements will be met more efficiently, the U.S. launch industry can better compete in the international launch market, and our nation's leadership in space will continue to grow in the new century."

NASA first solicited proposals last fall and has awarded contracts valued at $767 million dollars to 22 contractors, including large and small companies, to allow maximum competition.

The money will be used to develop concepts and the technologies needed to pioneer the effort, which is expected to make the vehicle at least 10 times safer and crew survivability 100 times greater, all at one-tenth the cost of today's space launch systems.

These leap-ahead technologies include crew survival systems, advanced tanks and airframe structures, long-life rocket engines and thermal protection systems.

"We've got a clean sheet of paper and a wide open competition," Stephenson said. "The goal is to develop technologies to enable a mid-decade decision regarding the full-scale development of a versatile space transportation system that can be used for both government and commercial services."

Nearly 300 experts throughout NASA, with technical support from the Air Force Research Laboratory, evaluated numerous proposals leading to this initial down-select and awards for this first round of SLI contracts. The awards are for a 10- month base period with options for one or more additional years.

The options enable NASA to measure performance on a yearly basis to make sure the program's ambitious goals are met. This approach also allows for continued competition in key technology areas and for NASA to take advantage of new emerging technologies.

The planned budget for the Space Launch Initiative totals $4.8 billion through fiscal year 2006. Additional solicitations in the fall of 2001 and 2002 will commit significant additional funds to the effort.

All NASA's field centers and the Air Force Research Laboratory are actively participating in the Space Launch Initiative and are vital to its success. MSFC is NASA's lead center for SLI. The Air Force Research Laboratory includes research and development facilities at nine U.S. Air Force bases.

Additional information on NASA's Space Launch Initiative, including a complete list of the selected contractors, is available on the Internet at <http://www.slinews.com>.

"A second-generation reusable launch vehicle will open up the space frontier and significantly improve life on Earth."
Art Stephenson

Langley Will Lead Development Of SLI's Airframe Technologies

By IVELISSE GILMAN
Public Affairs Office

NASA's Space Launch Initiative (SLI) is poised to revolutionize space travel. A focused investment in risk reduction and technology development, SLI is a comprehensive, long-range plan to increase the safety, reliability and affordability of space transportation systems.

Whether it is doing business in Earth orbit or exploring distant worlds, the toughest part of the journey is the first few hundred miles through the atmosphere to and from space. Consequently, it is critical that the airframe of any future vehicle be optimized for maximum performance while incorporating minimum weight — the classic aerospace dilemma.

Langley Research Center is world renowned for its research into the performance of winged vehicles and space vehicles. Langley scientists, engineers and technicians have done pioneering work on hypersonic gliders, the X-15 rocket plane and the nation's space shuttle. Furthermore, it's experience ranges from the days of Mercury, Gemini and Apollo to today's X-vehicle programs. Continuing this tradition, and leveraging the Center's unique facilities and state-of-the-art tools, the Agency is looking to Langley to lead the development and demonstration of airframe technologies for SLI.

Airframe technologies include the development and optimization of structures such as wings, fuselages and tanks with minimum weight and maximum strength; as well as the design and assessment of the aerodynamics and aerothermodynamics, which control the loads and temperatures to which the vehicle will be subjected. Langley has experience in understanding the fabrication and behavior of light-weight metallic and composite structures. Langley also has wind tunnels, which can assess vehicles across the entire speed range. Center researchers also have specialized expertise in cryogenic tanks, able to hold fuel such as liquid hydrogen at very cold temperatures, as well as expertise in high-temperature metallic thermal protection systems. As part of the SLI airframe project, Langley is working with the Marshall Space Flight Center in the development of the cryotanks and with the Ames Research Center on the thermal protection systems (TPS).

Vital to attaining the SLI goal of safety, reliability and affordability is the development of a reusable launch vehicle (RLV) that operates very much like a jetliner — "reusable" being the key word. Toward this end, the focus of the airframe systems team is on developing and demonstrating:

- advanced airframe design and integration methods to improve reliability and reduce design cycle time;
- robust, low-cost, low-maintenance structures, tanks, thermal protection systems and thermal structures; and
- aerodynamic and aerothermodynamic assessments which yield higher-fidelity information early in the design process.

Langley is also playing a significant role in systems engineering and analysis, which will help define the technologies that are required to meet the goals of the SLI. Langley is also supporting Johnson Space Center in the development of advanced cockpit technologies to improve safety and reliability.

SLI Contracts

The following were among the airframe-related SLI contracts announced on May 17:

- **Boeing**, Seal Beach, Calif., $74,826,000;
- **Northrop/Grumman**, El Segundo, Calif., $50,455,000;
- **Materials Research & Design**, Bethlehem, Pa., $13,35,000;
- **Oceaneering**, Houston, $5,347,000;
- **Lockheed**, Denver, $5,226,000;
- **Southern Research Institute**, Birmingham, Ala., $1,633,000; and
- **North Carolina State University**, Raleigh, N.C., $583,000.

TGIR

Continued from Page 1

Synthetic Vision technologies will not only improve aviation safety, they'll also help increase efficiency at airports by giving pilots a clear and accurate picture of what's outside, no matter what the weather or time of day. Synthetic Vision has been endorsed by the Commercial Aviation Safety Team (CAST), the national industry/government association guiding the U.S. aviation safety agenda.

For the airframe noise reduction project, engineers worked to understand and quiet the loudest parts of aircraft, not including the engine. The team, headquartered at Langley, used flow physics to discover exactly what causes airframe sounds. They focused on three locations: slats, flaps and landing gear. The team conducted a variety of tests at wind tunnels across the country, which helped develop and test noise reduction concepts. They also developed new physics-based noise prediction tools, which could allow manufacturers to design quieter airplanes.

Their efforts to decrease aircraft noise is key to airport growth, since noise plays an important role in community decisions about airfield expansion.

Langley's developments in high temperature composite materials are expected to make airplanes and spacecraft lighter in the future. Scientists created a series of new high temperature resins that can be made into composite structures through resin transfer molding (RTM) and resin infusion (RI). These processes allow carbon fiber fabrics to be filled with resins to produce materials that can withstand temperatures up to 550 degrees. The new methods also allow parts to be cured in an oven, which saves money.

These breakthrough processes would mean that spacecraft could be made more efficiently, lighter and less expensive to operate. A number of private industries have expressed interest in these materials for commercial use.

This year's TGIR theme was "Innovation in Aerospace Transportation." It explored what's new and what's needed in aerospace transportation to keep the growing economy on track; create new markets in air travel and commercial space; and improve the quality of life for all citizens through safe, affordable and accessible air travel.

For more information about the TGIR awards, visit <http://www.aerospace.nasa.gov/curevent/tgir> on the Internet.

Read the *Researcher News* online at <http://researchernews.larc.nasa.gov>.

AdVentures

CLASSIFIED

FOR SALE: Fiberglass Ferrari 328 body on 1986 Fiero chassis, 40,000 original miles, V6, five speed, A/C, etc. Done right. $17,000. Call 565-1849.

FOR SALE: 1987 Jeep Commanche truck, short bed, four speed, Kenwood CD player, bedliner, truckbox, tow package, $1,500 or best offer. Call 566-4421.

FOR SALE: Dinette set, white laminated wood table with leaf, four cushioned chairs on wheels, cushions covered in Williamsburg blue tweed fabric, excellent condition, $450. Call 898-1671.

FOR SALE: Browning Fusion compound bow with soft case, 34-inch draw, sights and broadtips included, shot only three times, $200 or best offer; set of men's golf clubs with Lynx Black Cat stand bag, 3 through PW with steel shafts, driver and 3 wood with graphite shafts, $250 or best offer; kneeboard with rope, $50. Call 566-4421.

FOR SALE: Brother 600 Intellifax fax machine, $50. Call 566-4421.

FOR ADOPTION: Two 1-year-old male tabby cats, both neutered and declawed with up-to-date shots, wonderful disposition and great with children. Call 865-6246.

'Robot' Colloquium On June 5

Raffaello D'Andrea, an assistant professor in Cornell University's department of mechanical and aerospace engineering, will present a Colloquium lecture entitled, "Cooperative Control of Autonomous and Semi-Autonomous Vehicles," at 2 p.m. **June 5** in Langley Research Center's H.J.E. Reid Conference Center. A Sigma Series lecture entitled, "Robots Playing Soccer," will follow at 7:30 p.m. at the Virginia Air and Space Center in Hampton.

D'Andrea

For more information about the lecture series, visit <http://shemesh.larc.nasa.gov/Lectures/> on the Web.

LAA Touring Ford Plant On June 14

Langley Research Center's Alumni Association will tour the Ford plant in Norfolk on **June 14.** Members are invited to meet at 8:45 a.m. in the Coliseum Mall parking lot on the corner of Mercury Boulevard and Coliseum Drive to carpool.

World War II Aircraft On Display

The Old Dominion Squadron, a unit of the American Airpower Heritage Museum, will host "Gathering Of Eagles 2001" from 9 a.m. to 6 p.m. **June 15-17** at Hampton Roads Executive Airport in Chesapeake.

The event, co-sponsored by Chesapeake Parks and Recreation and the Hampton Roads Executive Airport, will feature vintage World War II aircraft and post-war aircraft for public view and inspection. The event also will include fly-bys, period military vehicles and a military encampment.

Donations are $7 for adults and $2 for children between the ages 6 and 12. For more information, call Bob Halsey at 836-3408 or visit <www.olddominion squadron.com>.

East Area Roads Closed

Several roads in Langley Research Center's East Area have been closed temporarily for asbestos panel removal from the outside of Bldg. 646.

The affected area includes Andrews Street and Hunting Avenue — the area between the 30- by 60-Foot Wind Tunnel and the Spin Tunnel.

Work began on May 7 and is expected to take three months; the road closures were expected to be in effect four to six weeks.

SED To Hold Reunion On June 16

Langley Research Center's Systems Engineering Division (SED) will host a reunion for all former SED employees, friends from other divisions and their families on **June 16** on Langley's picnic grounds. The cost will be $10 for adults and $5 for children between ages 5 and 12.

For more information, contact Gene Kelsey at 564-6169 or <ekelsey@aol. com>; Ralph Muraca at 868-0920 or <rmuraca@mail. hroads.net>; or Barry Price at 864-7146 or <b.l.price@larc. nasa.gov>.

Technology Expo On July 19

The Federal Business Council will host a Federal Technology Exposition from 10 a.m. to 2 p.m. **July 19** in Langley Research Center's H.J.E. Reid Conference Center.

For more information, visit <http://www.fbcinc.com/newpromos/NASA_7_19_01.gif> on the Internet.

Van Tours Offered On Weekends

The Virginia Air and Space Center (VASC) will offer van tours of Langley Research Center and Langley Air Force Base at 2 p.m. Saturday and Sunday through **June 30**. Beginning **July 1**, tours will be offered at 11 a.m. and 2 p.m. Monday through Saturday and 2 p.m. Sunday.

The cost is $5 per person with VASC admission or $7 per person without. Children under 12 must be accompanied by an adult on the tour.

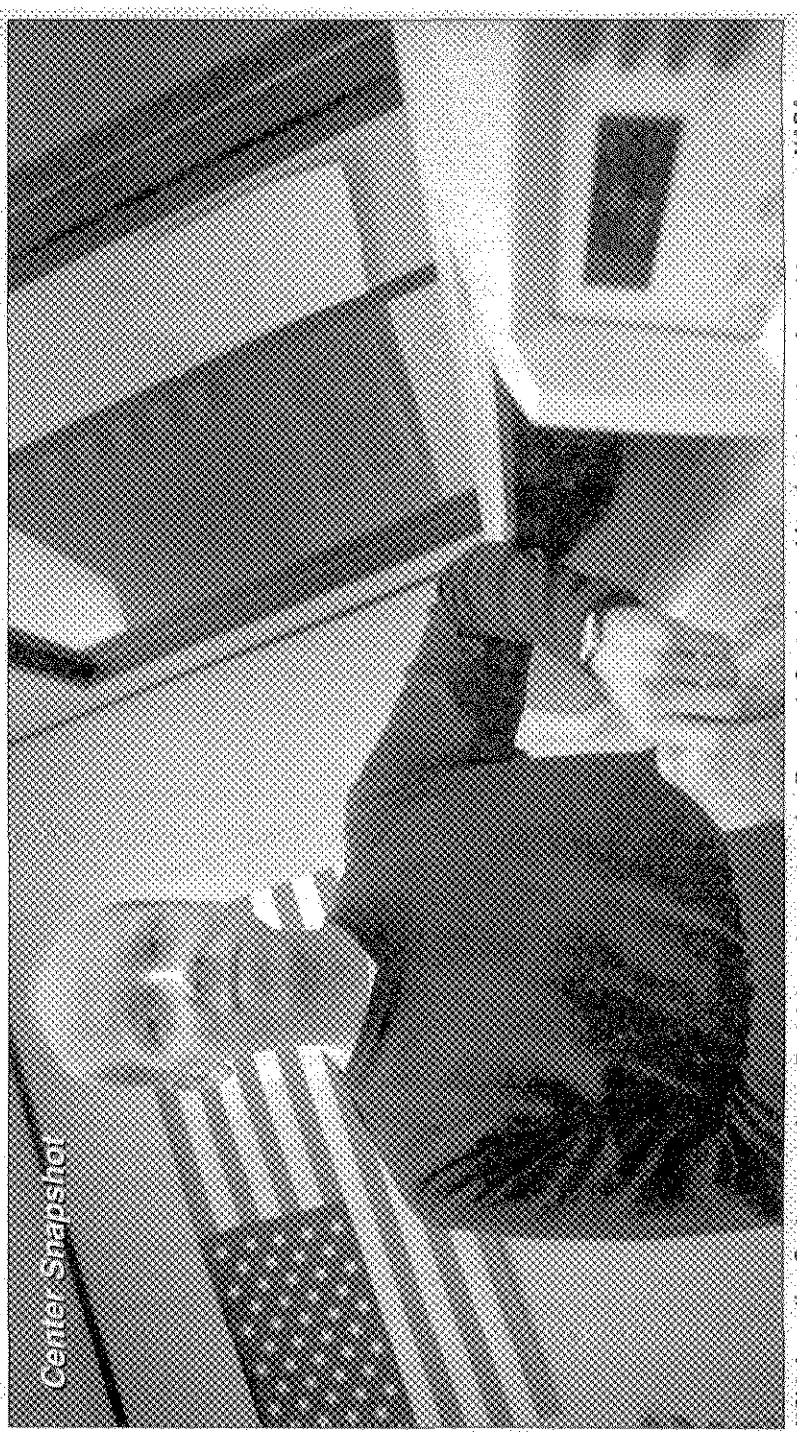
For more information, call 727-0900 or visit the VASC Web site at <www.vasc.org>. For information on how to serve as a tour docent, call Steve Devan at 898-9290.

AIAA Offering Graduate Awards

The American Institute of Aeronautics and Astronautics (AIAA) Foundation is accepting applications for the first-ever Orville and Wilbur Wright Graduate Awards.

The $10,000 awards will be presented annually, beginning in 2002, to four students participating in master's or doctoral thesis research in engineering/science.

The deadline to apply is **Jan. 31, 2002**. For an application or more information, visit <http://www.flight100.org/activities/awards.html> on the Internet.



Center Snapshot

NCI Information Systems employee Rod Adams leaves Langley Research Center's graphics department on June 1 to manage NASA Headquarters' Printing and Design Department. Adams, who grew up in Newport News, was hired in 1986 to do calligraphy on awards and certificates and was promoted to department manager in 1993. During his Langley tenure, he was instrumental in integrating computers into the graphics section. "I have learned so much working at Langley for the past 15 years and have had the privilege of working with some amazing people," Adams says. "I've made a lot of good friends, but I think I'll miss the Scarecrow most of all."

Photo by Jeff Caplan

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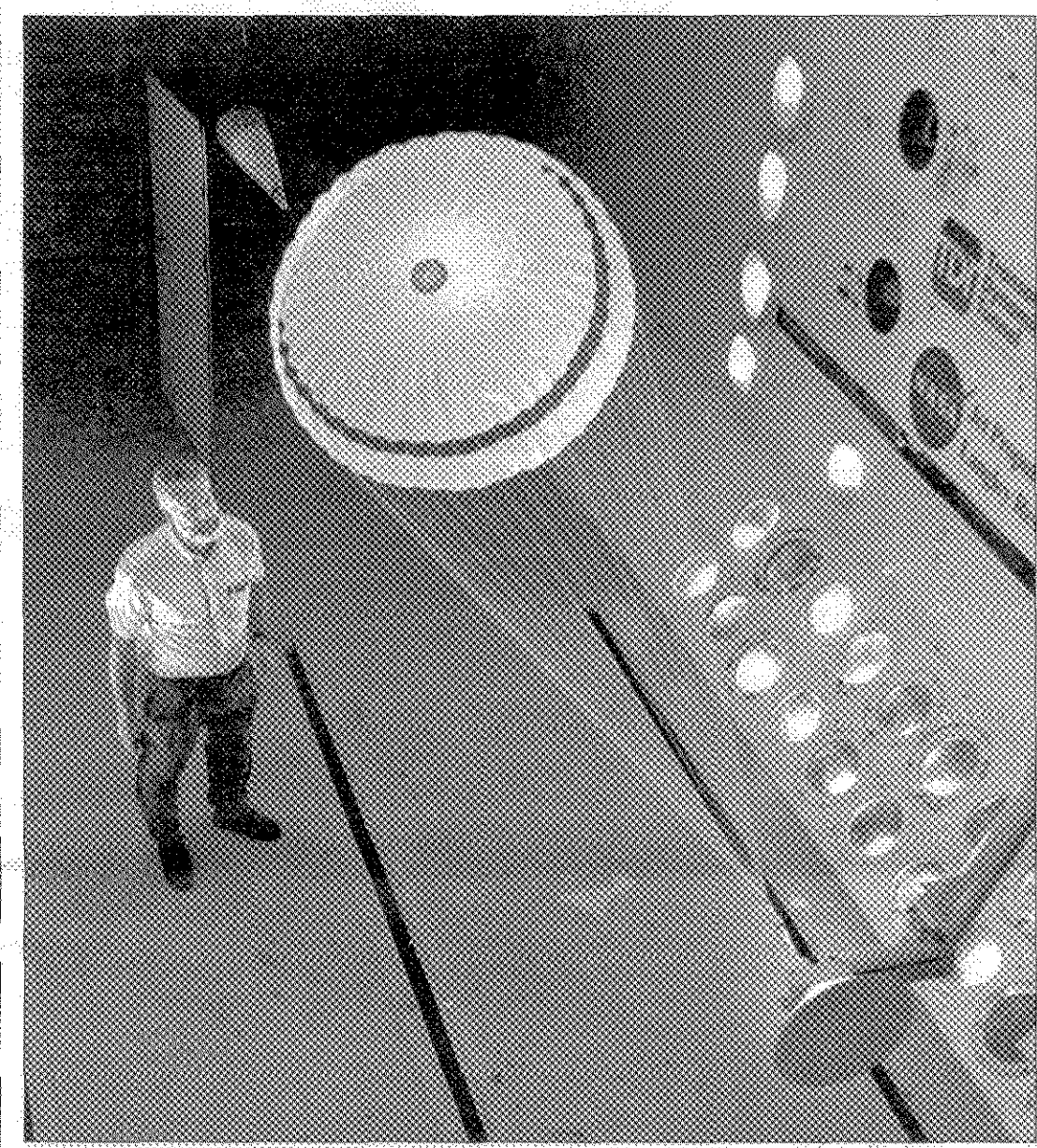
Mars Rover Parachute Test



Stan Cole, the facility manager of Langley Research Center's Transonic Dynamics Tunnel (TDT), monitors the behavior of a parachute during a safety check at idle conditions. Langley is responsible for testing the drag and stability qualities of the parachutes that will be used in NASA's 2003 Mars Rover Mission. Prasun Desai, Langley's technical lead on the mission, described the Center's role: "Langley is performing analysis on the flight of the capsule as it flies through the atmosphere of Mars and subsequent landing. This analysis requires determining the aerodynamics of the capsule and the parachute. This information will enable Langley to calculate the capsule's motion as it descends through the atmosphere of Mars." Juan Cruz, the Exploration Programs Office employee who defined and conducted the parachute tests, said, "The parachute has to be strong enough to withstand large loads, yet be lightweight and compact enough to fit inside the capsule. Parachutes also have to produce a high enough drag for slowing down the capsule yet keep it stable."

Photo by Jeff Caplan

Employees Active At AGU Event

16 Make Presentations At The Spring Meeting

By JULIA COLE
SAIC

Edward Browell was one of 16 Langley Research Center employees to present a paper or poster exhibit at the American Geophysical Union (AGU) spring meeting, which took place May 29 through June 2 in Boston.

Browell

Browell's presentation, "Reasons for Increased Ozone Amounts in Remote Regions during the Springtime," was the result of the Tropospheric Ozone Production about the Spring Equinox (TOPSE) field experiment funded by the National Science Foundation and led by the National Center for Atmospheric Research (NCAR).

They discovered that the high springtime ozone levels in the lower atmosphere at high northern latitudes, such as over Canada and the Arctic, are caused by the long-range transport of air pollution and not by natural processes in the atmosphere.

Background levels of ozone exist in the lower atmosphere at all times, but a peak occurs during the springtime at high northern latitudes. The timing of the peak is unusual because other areas, such as over most of the United States, experience their highest seasonal ozone levels during the summer.

"Springtime ozone levels in the high northern latitudes have been increasing with time, and we wanted to understand if this was a natural process or not," said Browell, head of the Lidar Applications Group at Langley and lead author of the investigation. Scientists have known for

Continued on Page 5

NASA Begins X-43A Investigation

June 2 Test Flight Aborted Before Separation From Booster Rocket

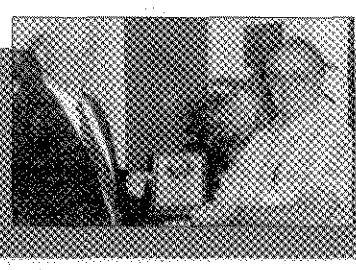
NASA has launched an investigation into the cause of the loss of the first of its three X-43A hypersonic research vehicles. The mishap occurred before the X-43A was to have separated from its booster rocket during its first flight on June 2.

"There's been a tremendous amount of testing leading up to this flight, and I can't emphasize enough that we've had a great team to put this program together," said Vince Rausch, Hyper-X Program Manager. "We're obviously disappointed, but we're going to go find out what happened, fix it and fly again successfully."

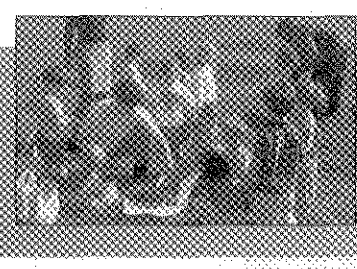
The X-43A and its modified Pegasus booster rocket were launched at 1:43 p.m. from NASA's B-52 aircraft flying at about 24,000 feet altitude over the Pacific Ocean several hundred miles west of the California coast. Seconds after ignition of the rocket, however, a malfunction occurred that caused the Hyper-X stack, the booster and X-43A to go out of control. The test range safety officer ordered that the flight be terminated. The debris fell harmlessly into the Pacific Ocean within the pre-cleared test range impact area. There were no injuries and no damage to the launch or chase aircraft or to property on the ground.

Continued on Page 5

Inside This Issue:



Employee Earns FAA Recognition Page 2



LCDC Students Plant A Garden Page 3

News Briefs

Around the Agency

NASA SELECTS TWO PLUTO-KUIPER BELT STUDIES

In the first step of a potential two-step process, NASA has selected two proposals for detailed mission feasibility studies as candidates for a Pluto-Kuiper Belt (PKB) mission to explore the only planet in our Solar System yet to be visited by a spacecraft from Earth.

The President's FY 2002 budget request does not contain development funding for a Pluto mission. The Congress requested that NASA not do anything precipitous which would preclude the ability to develop a Pluto-Kuiper mission until the Congress could consider it in the context of the FY 2002 budget. RELEASE: 01-114

STAR FACTORY BATHED IN HIGH-ENERGY X-RAYS

Near the crowded core of the Milky Way galaxy, where stars are so plentiful and shine so brightly that planets there would never experience nighttime, astronomers have found a new phenomenon: a cauldron of 60-million degree gas enveloping a cluster of young stars.

Professor Farhad Zadeh of Northwestern University and his collaborators used NASA's Chandra X-ray Observatory to trace the gas around the Arches cluster, a well-studied region of star formation that is home to some of our galaxy's largest and youngest stars.

Images associated with this release are available at <http://chandra.harvard.edu and http://chandra.nasa.gov>. RELEASE: 01-113

NASA SPURS NEXT COMPUTING REVOLUTION

NASA would like to examine our home planet just as scientists study living cells under a microscope or an atom in an accelerator. NASA wants to understand how nature's energy is transformed and used by Earth, and the role it plays in global climate change.

Advanced computing systems are the only tools we have to model our planet as a whole interactive system to mimic nature's behavior. NASA's Earth Science Enterprise is dedicated to developing computer models that will unlock the secrets to how natural and human-induced changes impact our global environment. RELEASE: 01-107

SATELLITE PROVIDES URBAN SPRAWL INSIGHT

A major advance in satellite-based land surface mapping has led to the creation of more accurate and detailed maps of our cities. These maps provide urban planners with a better understanding of city growth and how rainfall runoff over paved surfaces impact regional water quality.

Maps taken from space are invaluable to city planners and state agencies monitoring water quality in urban areas, and are replacing the more expensive and time-consuming traditional aerial photography.

Additional information and images can be found on the Internet at <http://www.gsfc.nasa.gov/gsfc/earth/landsat/sprawl.htm>. RELEASE: 01-101

News Researcher

The Researcher News is an official publication of Langley Research Center, National Aeronautics and Space Administration, Hampton, Va., 23681-2199. It is published every other Friday in the interest of all Langley staff, contractors and retirees and has a circulation of approximately 8,100. It is distributed to all Langley civil service employees, contractors, retirees and on-site university personnel, with limited distribution to NASA Headquarters, other NASA centers and, by special request, to other non-NASA individuals and organizations. Questions related to the content and distribution of the Researcher News should be addressed to Keith Henry, Mail Stop 115, (757) 864-6120. Submit contributions/SDL 026, 055, 110 changes to the editor via e-mail <j.r.roberts@larc.nasa.gov>, fax (757) 864-6477, telephone (757) 864-8150 or Mail Stop 293. Articles, photos and announcements are due at noon the Monday following the date of this issue.

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Science and Technology Corp.

The privilege of listing announcements in this publication is restricted to the employees, contractors and retirees of the Langley Research Center. Articles must be offered without regard to race, color, religion, sex or national origin. All materials are subject to editing.

Read the *Researcher News* online at <http://researchernews.larc.nasa.gov>.

People

Awards Keep Coming For OEd Series

Two television series produced by Langley Research Center's Office of Education (OEd) continue to rack up accolades. "The NASA 'Why?' Files" recently received a third-place "Certificate for Creative Excellence" at the U.S. International Film and Video Festival, and "NASA CONNECT" has been nominated by the Washington, D.C., chapter of the Academy of Television Arts and Letters for a regional Emmy Award.

"The NASA 'Why?' Files" was honored for its program, "The Case of the Barking Dogs." It was one of 1,500 entries from 33 countries in the 34th annual awards competition and was noted for its exceptional creative efforts.

"NASA CONNECT" was nominated for an Emmy in the children's programming category for the "Glow With the Flow" episode, which featured an appearance by actor Jackie Chan.

The Emmy awards ceremony will be held on June 16 in Washington, D.C. "NASA CONNECT" won two Emmy Awards in last year's competition.

FAA Award

Delma C. Freeman (left), the Deputy Director of Langley Research Center, presents a plaque to employee David Wineman on behalf of the Federal Aviation Administration (FAA). The FAA sent a letter of appreciation to Wineman in May for participating in the 737 Flight Controls Engineering Test and Evaluation Board in Renton, Wash., from May 1999 to July 2000. The letter, written by FAA Administrator Jane F. Garvey, says, "You should be very proud of the fact that your work will have a significant impact on the safety of the Boeing 737 fleet."

Photo by Bill Salyer

Branscome Named Acting Associate AD

Langley Research Center's Office of Director announced on June 6 that **Darrell R. Branscome** has been designated as Acting Associate Director for Program Integration while Associate Director **Ruth M. Martin** chairs the Strategic Resource Review Team.

The assignment will be effective through approximately July 16. **Mark P. Saunders** will be responsible for the day-to-day operations in the Space Access and Exploration Office (SAEPO).

FIRST Takes Another Award

Langley Research Center and the Virginia Commonwealth University (VCU) School of Engineering received the "Technology Skill Builders" award at the Greater Richmond Technology Council's sixth annual Technology Awards Gala. Langley and VCU were honored for co-hosting the For Inspiration and Recognition of Science and Technology (FIRST) regional competition.

Langley employees and FIRST mentors **Jeff Seaton** and **John Evans** were on-hand to accept the award. Langley employees **Bill Gilbert** and **Susan Holland** also attended the event.

Retirement

Langley Research Center's Advanced Measurement and Diagnostics Branch will host a retirement social for **David R. Schryer** at 5:30 p.m. June 15 in the the H.J.E. Reid Conference Center. Heavy hors d'oeuvres will be served, and a cash bar will be available. The cost is $10 per person, gift included. Gift-only contributions are welcome. For more information, contact Joyce Hutchinson at 864-4581 or Patricia Davis at 846-4724.

In Memoriam

Donald Dooley

Donald Dooley died on June 2 at the age of 74. Dooley, a native of Fox Hill, served in the U.S. Navy and was a veteran of World War II and a graduate of the NACA Apprentice School.

Edward C. Polhamus

Edward Charles Polhamus died on June 4 at the age of 78. Polhamus, a native of Washington, D.C., served at Langley Research Center from 1944 to 1981, when he retired as head of the Fluid Dynamics Branch. Upon retirement, he continued to serve as a Distinguished Research Associate.

Polhamus was active in a broad range of aerodynamic research related to high-speed aircraft technology, aerodynamic prediction methods and cryogenic wind-tunnel development. His work led directly to the development of the Langley-based National Transonic Facility. He also earned a patent for his work on variable sweep wings.

Polhamus is recognized in the National Air and Space Museum's Flight Technology Gallery, and he was the recipient of a NASA Medal for Exceptional Scientific Achievement. He served on National Academy of Sciences Advisory Committees, was a member of NATO's Fluid Dynamics Panel and was an Associate Fellow of the American Institute of Aeronautics and Astronautics.

Abe Silverstein

Abe Silverstein died on June 1 at the age of 92. Silverstein, a leading figure in 20th century aerospace engineering, began his career with NASA's predecessor, the National Advisory Committee for Aeronautics (NACA) at Langley Research Center in 1929.

"NASA has lost a true founding member," said NASA Administrator Daniel S. Goldin. "Early in my career, I had the opportunity to work with Silverstein. He was a man of vision and conviction."

A complete obituary appears on page 5.

From The Environmental Management Office

What? No Brussels Sprouts?

LCDC Students Learn To Love Vegetables In Their Own Garden

By CAROLINE DIEHL
SAIC

Kids hate vegetables, right?

Actually, that may not be the case at the Langley Research Center's Child Development Center (LCDC). Students there recently planted a garden and plan to harvest a wide variety of vegetables, including cucumbers, zucchini, squash, corn, potatoes, green beans, tomatoes, peppers, onions, radishes and carrots. (Notice, however, that they didn't plant any Brussels sprouts!)

The garden project was initiated by the LCDC's Parent-Teacher Organization (PTO). After failing to receive a grant from the National Garden Association, the PTO decided to go ahead with the project using PTO funds and parent donations.

The goal of the project is to teach the students about nature and the environment in an exciting, interactive way. (When asked where apples come from, several LCDC students answered, "From the store!") Also, the students will get to eat the food they grow, and if some of them don't already like to eat their vegetables, the project may turn them into "veggie lovers."

The PTO held a planning meeting to decide the logistics and teaching goals of the garden project. Barry Price, president of the Langley Garden Club, also attended the meeting to offer guidance on vegetable selection, proper sun orientation and plot preparation.

The result is a garden divided into six plots, each about 20 by 40 feet.

"His gardening experience was extremely helpful, and we are very grateful for the time and effort he gave to the project," said Isabelle Paris, a member of the PTO planning committee.

Almost all of the supplies for the garden project were donated by the parents. The Langley Garden Club loaned a tiller, and Frank Beams, a Johnson Controls employee, donated fertilizer.

Suzanne Zaremski, a Hernandez Engineering employee and parent of a child at the LCDC, contacted Langley's Environmental Management Office (EMO) during the planning stages for assistance with making the project "environmentally friendly." The EMO provided drip hoses and water timers to help save water and also teach the students about water conservation.

Students also plan to cultivate the garden without the use of chemical fertilizers, weed-control chemicals and pesticides harmful to the environment.

Students in Langley Research Center's Child Development Center (LCDC) recently planted a garden and plan to harvest a wide variety of vegetables, including cucumbers, zucchini, squash, corn, potatoes, green beans, tomatoes, peppers, onions, radishes and carrots.
Photo courtesy of Caroline Diehl

HU Hosting SHARP PLUS Students

By SONJA ALEXANDER
NASA Headquarters

and DANIEL DOWDS
QEM Network

Hampton University (HU) is one of 10 universities nationwide hosting students in the 2001 NASA Summer High School Apprenticeship Research Program, known as SHARP PLUS.

NASA and the Quality Education for Minorities (QEM) Network selected 200 high school students from more than 700 applicants. This year's apprentices represent 153 high schools in 32 states, the District of Columbia, Guam, Puerto Rico and the Virgin Islands.

The SHARP PLUS Program is a major strategy for increasing, strengthening and diversifying the country's future pool of mathematics, science, engineering and technology majors and professionals.

Although SHARP PLUS apprentices have excelled in mathematics and science courses, most students have not had the opportunity to apply this knowledge in a true research environment. To provide this experience, the program links students to professional research scientists and engineers in university and industry settings.

"SHARP PLUS creates an opportunity for students to work with professional researchers and gain hands-on experience in mathematics, science, engineering and technology," said Deborah Glasco, Program Manager of NASA's Education Division. "If we seek to make a contribution to the rapidly changing laboratories of tomorrow, we must support science initiatives that introduce and excite our youth today."

The students participate in hands-on research projects under the guidance of professional mentors and gain a better understanding of the discipline, responsibility and enjoyment associated with scientific research.

Apprentices prepare papers on their research and formally present their findings at the conclusion of the program. This summer, from June 11 to Aug. 3, SHARP PLUS apprentices will reside on the campuses of the 10 universities that have joined in partnership with NASA and QEM to implement the program.

In addition to research, the apprentices participate in a wide variety of enrichment activities organized by the host universities. These activities range from information sessions on math, science and engineering careers, to test-taking and computer skills workshops, to an overview of college admissions and financial aid procedures.

The other universities that will host the 2001 NASA SHARP PLUS students are:

- California State University
- Cornell University
- Jackson State University
- North Carolina A&T State University
- University of Michigan
- University of New Mexico
- Tennessee State University
- Texas A&M University
- University of Wisconsin-Madison

"SHARP PLUS sets high expectations for academic achievement and seeks to increase the participation and success rate of talented students from groups underrepresented in challenging mathematics and science courses at the pre-college level," said Shirley McBay, president of the QEM Network and the SHARP PLUS program director.

SHARP PLUS is managed for NASA's Education Division by QEM Network in Washington, D.C. QEM is a non-profit organization dedicated to improving the education of minorities and other underrepresented groups.

For more information and a complete list of students selected for the program, visit <http://qemnetwork.qem.org/sharp-plus.html>.

Hampton University's SHARP PLUS Participants

- Sabrina Mercado Aponte, Cayey, Puerto Rico
- Shaneen F. Braswell, Oak Park, Mich.
- Kamaljit S. Chahal, Detroit, Mich.
- Yasmin Colon, Guayama, Puerto Rico
- Swati D. Deshmukh, East Lyme, Conn.
- David J. Fortson, Greensboro, N.C.
- Daniel Gonzalez, El Paso, Texas
- Yamayra F. Guzman, Bayamon, Puerto Rico
- Robert D. Hazan, Mamaroneck, N.Y.
- Kelly N. Kilts, Lakeland, Fla.
- Jorge M. Moreno, Rincon, Puerto Rico
- Jessica Luo, Norman, Okla.
- Matthew D. Marko, Roosevelt, N.J.
- Etenia M. Ponder, Pensacola, Fla.
- Devon Trupp, Long Beach, Calif.
- Santiago M. Vallinas, Loudonville, N.Y.
- Tina Wadhwa, East Hanover, N.J.
- Shari Wiltshire, St. Croix, U.S. Virgin Islands
- Catherine J. Yeh, Tampa, Fla.

Centennial Of Flight

Aviation Week Will Help Promote 2003 Activities

By SARAH KEEGAN
NASA Headquarters

The U.S. Centennial of Flight Commission and Aviation Week's The Next Century of Flight (NCF) on April 24 announced their partnership to promote upcoming activities and events that will celebrate the 100th anniversary of powered, controlled flight in 2003 and the history and future of aviation.

The partnership will capitalize on the commission's mandate to serve as a national and international source of information about activities to commemorate the centennial of the Wright Brothers' first powered flight on the sands at Kitty Hawk, N.C., on Dec. 17, 1903, and on Aviation Week's global multimedia leadership.

"We are extremely pleased to be able to work so closely with Aviation Week's Next Century of Flight," said U.S. Centennial of Flight Commission Chair General John R. (Jack) Dailey. "This is a tremendous opportunity for us to work together to educate and inspire the public in the celebration of the achievements of the Wright Brothers and a century of powered flight. More importantly, the celebration represents an opportunity to stimulate a new generation of inventors, innovators and dreamers. Our desire is to engage the American public and the world in a renewed appreciation of the technological marvel known as powered flight."

"We are proud to have this unique opportunity to work with the U.S. Centennial of Flight Commission to help raise global awareness of the extraordinary accomplishments that 100 years ago set the stage for the 20th Century," said Kenneth E. Gazzola, Aviation Week's executive vice president and publisher. "This alliance will help us to deliver on our commitment to educate audiences around the world about aviation's incredible history and its exciting vision for the Next Century of Flight."

The U.S. Centennial of Flight Commission (COFC) was created by the U.S. Congress to advise the President, Congress and federal agencies on the most effective ways to encourage national and international commemoration of the achievements of Orville and Wilbur Wright and the centennial of powered flight. The commission hopes to generate enthusiasm for the commemoration by publicizing and fostering programs and events that will involve, educate and inspire the maximum number of people. The Web site of the Centennial of Flight Commission is at <http://www.centennialofflight.gov>.

The Next Century of Flight campaign was launched in 1998, and integrates print, online, event and broadcast media to add perspective and insight to the story of flight's past and the promise of its future. Its most recent campaign successfully launched an exclusive Internet channel on the AviationNow.com portal at <http://www.AviationNow.com/NextCentury>.

The six members of the Centennial of Flight Commission represent the First Flight Centennial Foundation of North Carolina; Inventing Flight: Dayton 2003 of Ohio; aeronautical societies, foundations and organizations outside of Ohio and North Carolina, represented by the President of the Experimental Aircraft Association; the Smithsonian Institution's National Air and Space Museum; the Federal Aviation Administration; and the National Aeronautics and Space Administration.

The NCF Channel spotlights the people and airplanes of aviation's past, present and future in unique interactive features and forums. It is also a source for information about NCF program developments such as the NCF Legends and Leaders initiative and NCF Scholarship program and for links to NCF program partners: the American Institute of Aeronautics and Astronautics, Computer Sciences Corporation, Embry-Riddle Aeronautical University, the U.S. Federal Aviation Administration, the Society of British Aerospace Companies, Iconixx, plus the ongoing collaboration with NASA.

Aviation Week is a division of The McGraw-Hill Companies. Additional information is available at <http://www.mcgraw-hill.com>.

Agency Charters Advisory Board To Support Commission

By SARAH KEEGAN
NASA Headquarters

NASA has chartered the First Flight Centennial Federal Advisory Board to advise the U.S. Centennial of Flight Commission. The Advisory Board will offer counsel to the commission as it develops support for activities involving the public in the celebration of the 100th anniversary of powered flight, Dec. 17, 2003.

The Board is composed of 19 members, five whose positions are included by statute and 14 other U.S. citizens meeting various statutory criteria: six of whom are appointed by the President of the United States; four by the Majority Leader of the U.S. Senate; and four by the Speaker of the U.S. House of Representatives.

The Board, chartered under the provisions of the Federal Advisory Committee Act, will meet in open sessions and report its findings and recommendations to the commission. Tom Crouch of the Smithsonian Institution's National Air and Space Museum in Washington, D.C., will serve as board chair.

The U.S. Centennial of Flight Commission was set up by Congress to provide recommendations and advice to the President, Congress and Federal agencies on the most effective ways to encourage and promote national and international commemoration of the centennial of powered flight. More information on the commission can be found at <http://www.centennialofflight.gov>.

Statutory Members

- The Hon. Gale Norton, Secretary of the Interior
- James H. Billington, The Librarian of Congress
- The Hon. Lawrence J. Delaney, Secretary of the Air Force (Acting)
- The Hon. Robert R. Pirie, Secretary of the Navy (Acting)
- The Hon. Norman Y. Minetta, Secretary of Transportation

Appointees of the President of the United States

- Patty Wagstaff, Patty Wagstaff Airshows, Inc., St. Augustine, Fla.
- Tom Crouch, Advisory Board Chair, National Air & Space Museum, Smithsonian Institution
- Todd M. Hamilton, CAMP Systems International, Ronkonkoma, N.Y.
- Martha King, King Schools, Inc., San Diego
- John Howard Morrow Jr., University of Georgia
- Kathryn Sullivan, Center of Science and Industry (COSI), Columbus, Ohio

Appointees of the Speaker of the House

- Terry Kohler, Windway Capital Corp., Sheboygan, Wis.
- Kurt Russell, Pacific Palisades, Calif.
- Mary Matthews, Carillon Historical Park, Dayton, Ohio
- Neil Armstrong, Lebanon, Ohio

Appointees of the Majority Leader of the Senate

- Peggy Baty Chabrian, Women in Aviation International, Temple Terrace, Fla.
- The Hon. Lauch Faircloth, Clinton, N.C.
- Dr. Sylvia Stewart, DVM, Jackson, Miss.
- Robert R. Ferguson III, Midway Airlines Corp., Morrisville, N.C.

X-43

Continued from Page 1

"The Hyper-X program is a prime example of the high-risk, high-payoff research this Center is known for," Langley Research Center Director Dr. Jeremiah F. Creedon told members of the Hyper-X team on June 6. "It is disappointing that we didn't get to the experiment phase [on this flight]. We will find out what went wrong, fix it and move forward."

An interim incident investigation team, headed by former astronaut Vance Brand, currently deputy director of Aerospace Projects at Dryden Flight Research Center, was immediately formed and began preserving data from the flight.

The June 2 X-43A mission was the first of three opportunities to flight-demonstrate an airframe-integrated "air-breathing" supersonic-combustion ramjet or "scramjet" engine. The NASA X-43A hypersonic research vehicle and its Pegasus booster rocket, mounted beneath the wing of their B-52 mother ship, had a successful first captive-carry flight on April 28, 2001.

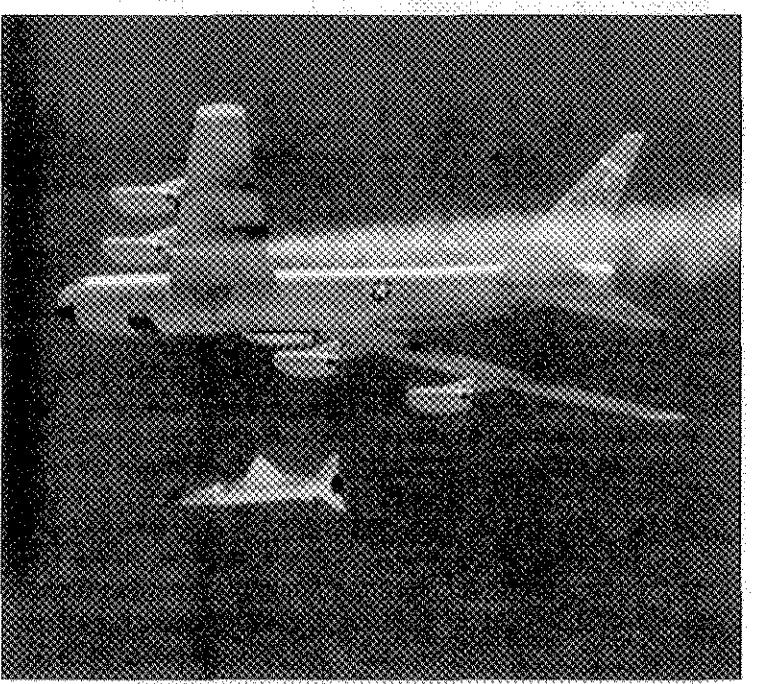
A dress rehearsal for the subsequent free flight, the captive-carry flight kept the X-43A-and-Pegasus combination attached to the B-52's wing pylon throughout the almost two-hour mission from Dryden, over the Pacific Missile Test Range, and back to Dryden.

Langley manages the Hyper-X program and is responsible for hypersonic technology development. Dryden is responsible for flight research.

Langley Employee Named To The Investigation Team

Langley Research Center employee Luat T. Nguyen has been named to the X-43A mishap investigation team.

The team, which is gathering at Dryden Flight Research Center, consists of members from other agency centers, including: John J. Deily of Goddard Space Flight Center, Joseph J. Lackovich Jr. of Kennedy Space Center and Victoria A. Regenie of Dryden. Robert Hughes of Marshall Space Flight Center is serving as the team's chairman.



Moments after release from NASA's B-52 carrier aircraft, the Hyper-X stack is seen before ignition of the Pegasus rocket. Seconds after ignition, however, a malfunction occurred that caused the Hyper-X stack, the booster and X-43A to go out of control. The test range safety officer ordered that the flight be terminated, and the debris fell harmlessly into the Pacific Ocean within the pre-cleared test range impact area. There were no injuries and no damage to the launch or chase aircraft or to property on the ground.

Photo by Jim Ross/Dryden Flight Research Center

AGU

Continued from Page 1

many years from ground-based and balloon measurements that ozone amounts were higher in the high latitudes of the Northern Hemisphere during the spring than in other seasons.

Scientists determined that these higher springtime ozone amounts could not be explained by an increase in the natural transport process called stratosphere-troposphere exchange. This process mixes ozone-rich air into the troposphere (the atmosphere from the surface to 8 to 10 kilometers at high latitudes) from the stratosphere.

From field experiments, researchers found that long-range transport moved air pollution into remote Arctic areas during the winter and into the spring. In the springtime, processes convert some of the air pollution into ozone in the troposphere.

Ozone is produced by photochemical processes that begin when sunlight comes into contact with chemically active molecules like those found in the air pollution. Scientists concluded the transported pollution was responsible for causing the production of the highest seasonal ozone levels over Canada and the Arctic.

"It's important to study these remote regions to better assess the relative impact of human activities versus natural processes. If we separate those processes, we see the effects of human activities all over these areas," Browell added.

From February to May 2000, researchers made seven flights to high latitudes from Broomfield, Colo., with bases in Churchill, Canada, and Thule, Greenland.

They took remote lidar measurements of ozone and aerosols above and below the aircraft and integrated them with meteorological analyses, chemical model results, and in situ measurements to arrive at their conclusions.

Other Langley employees presenting research at the AGU meeting included:

- Amy Balok, "Development of Daily Global Tropospheric Ozone Distributions";
- Linwood Callis, "Possible New Solar-Terrestrial Mechanism Affecting Odd Nitrogen and Ozone";
- Er-Woon Chiou, "Further Assessment of Multi-Year Satellite Observations of Water Vapor";
- Richard Ferrare, "Evaluation of Terra Moderate-Resolution Imaging Spectroradiometer (MODIS) Sensor";
- Jack Fishman, "Future Satellite Could Provide New Insight Into Air Pollution and the Atmosphere";
- Bill Grant, "Interpretation of the Arctic Troposphere during the Springtime";
- Zhonghai Jin, "Solar Radiation Measurements at the Chesapeake Bay Lighthouse";
- Louis Nguyen, "Calibration of Meteorological Satellite Imagers";
- Nikita Pougatchev, "Simulations of the Geosynchronous Imaging Fourier Transform Spectrometer (GIFTS)";
- Ken Rutledge, "Measurements of Coastal Ocean Albedo at COVE";
- Ellis Remsburg, "Quality of Halogen Occultation Experiment (HALOE) Measurements in the Mesosphere" and "Model and Data Comparisons of Atmospheric Chemistry Compounds";
- Wenying Su, "Validation of CERES Measurements";
- Susan Walters, "Students On-Line Atmospheric Research (SOLAR): Enhancing Earth Science Education"; and
- John Olson, Nancy Ritchey, and Nichole Silvers "Data Products from Terra and Tropical Measuring Mission (TRMM) Satellites."

In Memoriam: Abe Silverstein

'NASA Has Lost A True Founding Member'

By BOB JACOBS
NASA Headquarters

and LORI RACHUL
Glenn Research Center

Silverstein

Abe Silverstein, a leading figure in 20th century aerospace engineering and director of Lewis Research Center (now Glenn Research Center) from 1961 to 1969 died on June 1. He was 92.

Silverstein began his career with NASA's predecessor, the National Advisory Committee for Aeronautics (NACA) at Langley Research Center in 1929. In 1943, he transferred to the NACA Laboratory in Cleveland, where he performed pioneering research on large-scale ramjet engines.

After World War II, Silverstein conceived, designed and constructed the first U.S. supersonic propulsion wind tunnel. The 10-foot by 10-foot Supersonic Wind Tunnel is still operational at Glenn, which supported the development of supersonic aircraft.

In 1958, Silverstein moved to NACA Headquarters in Washington, D.C., where he helped create and then directed efforts leading to the Mercury space flights. He later named and laid the groundwork for the Apollo missions that put the first man on the Moon.

"NASA has lost a true founding member," said NASA Administrator Daniel S. Goldin. "Early in my career, I had the opportunity to work with Silverstein. He was a man of vision and conviction.

"His effective leadership, both at Headquarters and at Lewis, directly contributed to the ultimate success of America's unmanned and human space programs, and his innovative, pioneering spirit lives on in the work we do today."

When he returned to Cleveland to become Director of Lewis, Silverstein was a driving force behind the creation of the Centaur launch vehicle, particularly the hydrogen-oxygen upper stage propulsion system. Silverstein demonstrated that liquid hydrogen was light, powerful and safe enough to use for rocket propulsion, thus getting the nation's space program off the ground.

In 1997, Silverstein received the prestigious Guggenheim Medal for his "technical contributions and visionary leadership in advancing technology of aircraft and propulsion performance, and foresight in establishing the Mercury and Gemini manned space flight activities."

"NASA Glenn is an outstanding Center because of Abe's leadership when NASA was a growing organization. He was an exceptionally talented engineer whose pioneering work paved the way to many successes," said Glenn Center Director Donald J. Campbell. "He was by far the cornerstone for many of the accomplishments at Glenn."

More information is available on the Internet at <http://ctd.grc.nasa.gov/history/abe.html>.

AdVentures

CLASSIFIED

FOR SALE: Two-story townhouse in Hampton, four minutes from Langley. Three bedrooms, 1-1/2 bathrooms, eat-in kitchen, living room, fireplace, laundry room, lots of storage, fenced backyard, new carpet, great neighborhood. $77,300. Call 855-6178 or visit <http://www.geocities.com/corwin30us>.

FOR SALE: '97 Ford F150 XLT SuperCab, long bed, third door, automatic, A/C, radio/cassette player with six CD changer, 4WD, 5.4L Triton V8, all power, camper cap, tow package, excellent condition, one owner, low miles, $18,500, negotiable. Call 539-0849.

FOR SALE: '92 Ford Explorer, 2WD, good condition, 115,000 miles, new transmission, new brakes and tires, power steering, power locks, A/C, cruise control, two-tone green/gold, $5,199 or best offer. Call 838-1234.

FOR SALE: 18K and platinum marquise diamond ring, .77 carat total weight. Appraised $2,000, will sell for $1,500. Call 827-7515.

FOR SALE: Large collection of electronic gear: testers, signal generators, scope, solid state parts, meters, transformers, etc. Call 229-5434 for appointment.

World War II Aircraft On Display

The Old Dominion Squadron, a unit of the American Airpower Heritage Museum, will host "Gathering Of Eagles 2001" from 9 a.m. to 6 p.m. **June 15-17** at Hampton Roads Executive Airport in Chesapeake.

The event, co-sponsored by Chesapeake Parks and Recreation and the Hampton Roads Executive Airport, will feature vintage World War II aircraft and post-war aircraft for public view and inspection. The event also will include fly-bys, period military vehicles and a military encampment.

Donations are $7 for adults and $2 for children between the ages 6 and 12. For more information, call Bob Halsey at 836-3408 or visit <www.olddominionsquadron.com>.

SED To Hold Reunion On June 16

Langley Research Center's Systems Engineering Division (SED) will host a reunion for all former SED employees, friends from other divisions and their families on **June 16** on Langley's picnic grounds. The cost will be $10 for adults and $5 for children between ages 5 and 12.

For more information, contact Gene Kelsey at 564-6169 or <ekelsey@aol. com>; Ralph Muraca at 868-0920 or <rmuraca@mail. hroads.net>; or Barry Price at 864-7146 or <b.l.price@larc. nasa.gov>.

Technology Expo On July 19

The Federal Business Council will host a Federal Technology Exposition from 10 a.m. to 2 p.m. **July 19** in Langley Research Center's H.J.E. Reid Conference Center.

For more information, visit <http://www.fbcinc.com/newpromos/NASA_7_19_01.gif> on the Internet.

FWPC Announces Contest Winners

Langley Research Center's Federal Women's Program Committee (FWPC) recently announced the winners of its Paper Airplane Distance Contest. **Logan Threlkeld** won the 3- to 5-year-old age group with a distance of 46 feet; **Dustin Lopatic** won the 6- to 8-year-old age group with a distance of 61 feet; **Braeden Wyatt** won the 9- to 12-year-old age group with a distance of 72 feet; and **Andrew Pao** won the 13- to 15-year-old age group with a distance of 72 feet.

Ninety-five children participated in the contest, which was held during Langley's Open House on April 28.

Van Tours Offered On Weekends

The Virginia Air and Space Center (VASC) will offer van tours of Langley Research Center and Langley Air Force Base at 2 p.m. Saturday and Sunday through **June 30**. Beginning **July 1**, tours will be offered at 11 a.m. and 2 p.m. Monday through Saturday and 2 p.m. Sunday.

The cost is $5 per person with VASC admission or $7 per person without. Children under 12 must be accompanied by an adult on the tour.

For more information, call 727-0900 or visit the VASC Web site at <www.vasc.org>. For information on how to serve as a tour docent, call Steve Devan at 898-9290.

AIAA Offering Graduate Awards

The American Institute of Aeronautics and Astronautics (AIAA) Foundation is accepting applications for the first-ever Orville and Wilbur Wright Graduate Awards.

The $10,000 awards will be presented annually, beginning in 2002, to four students participating in master's or doctoral thesis research in engineering/science.

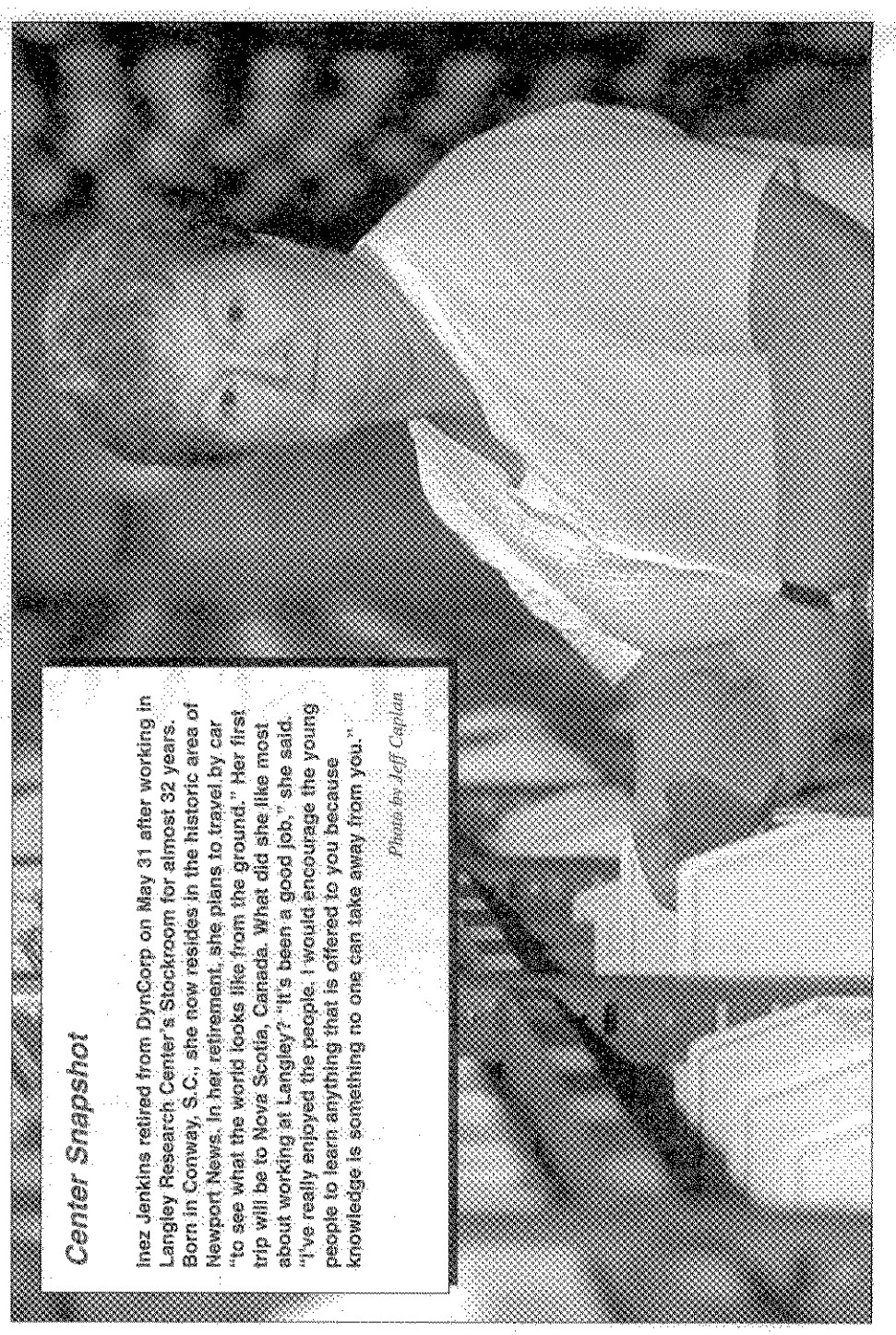
The deadline to apply is **Jan. 31, 2002**. For an application or more information, visit <http://www.flight100.org/activities/awards.html> on the Internet.

AIAA Offering Graduate Awards

The American Institute of Aeronautics and Astronautics (AIAA) and the Ballistic Missile Defense Organization (BMDO) will host the 10th annual AIAA/BMDO Technology Conference and Exhibit from **July 23-26** at the Williamsburg Marriott.

The intent of the conference is to promote the free exchange of classified information between engineers and scientists who work in the missile defense arena. The annual event was initiated in 1992 and has become the only one of its kind that addresses all missile defense technologies in a classified forum.

The early-bird registration deadline is June 22; security clearance deadline is July 13. To register online, visit <www.aiaa.org>. For more information, contact AIAA at 1-800-639-2422 or <custserv@aiaa.org>.



Center Snapshot

Inez Jenkins retired from DynCorp on May 31 after working in Langley Research Center's Stockroom for almost 32 years. Born in Conway, S.C., she now resides in the historic area of Newport News. In her retirement, she plans to travel by car "to see what the world looks like from the ground." Her first trip will be to Nova Scotia, Canada. What did she like most about working at Langley? "It's been a good job," she said. "I've really enjoyed the people. I would encourage the young people to learn anything that is offered to you because knowledge is something no one can take away from you."

Photo by Jeff Caplan

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Researcher News

National Aeronautics and
Space Administration

Langley Research Center
Hampton, Virginia 23681-2199

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National Aeronautics and Space Administration
Langley Research Center

News Researcher

Biweekly Employee and Contractor Publication

Volume 15 ❖ Issue 14 ❖ July 13, 2001

NASA Hosts Event On Hill

By DONNA G. ROPER
Public Services Office

NASA recently hosted the second annual "Aerospace Technology Days on the Hill" event to inform members of Congress about the importance of investing in aerospace research.

Approximately 200 people — including three members of Congress and 100 staffers — attended the two-day event, which was held June 27 and 28 in the Rayburn House Office Building.

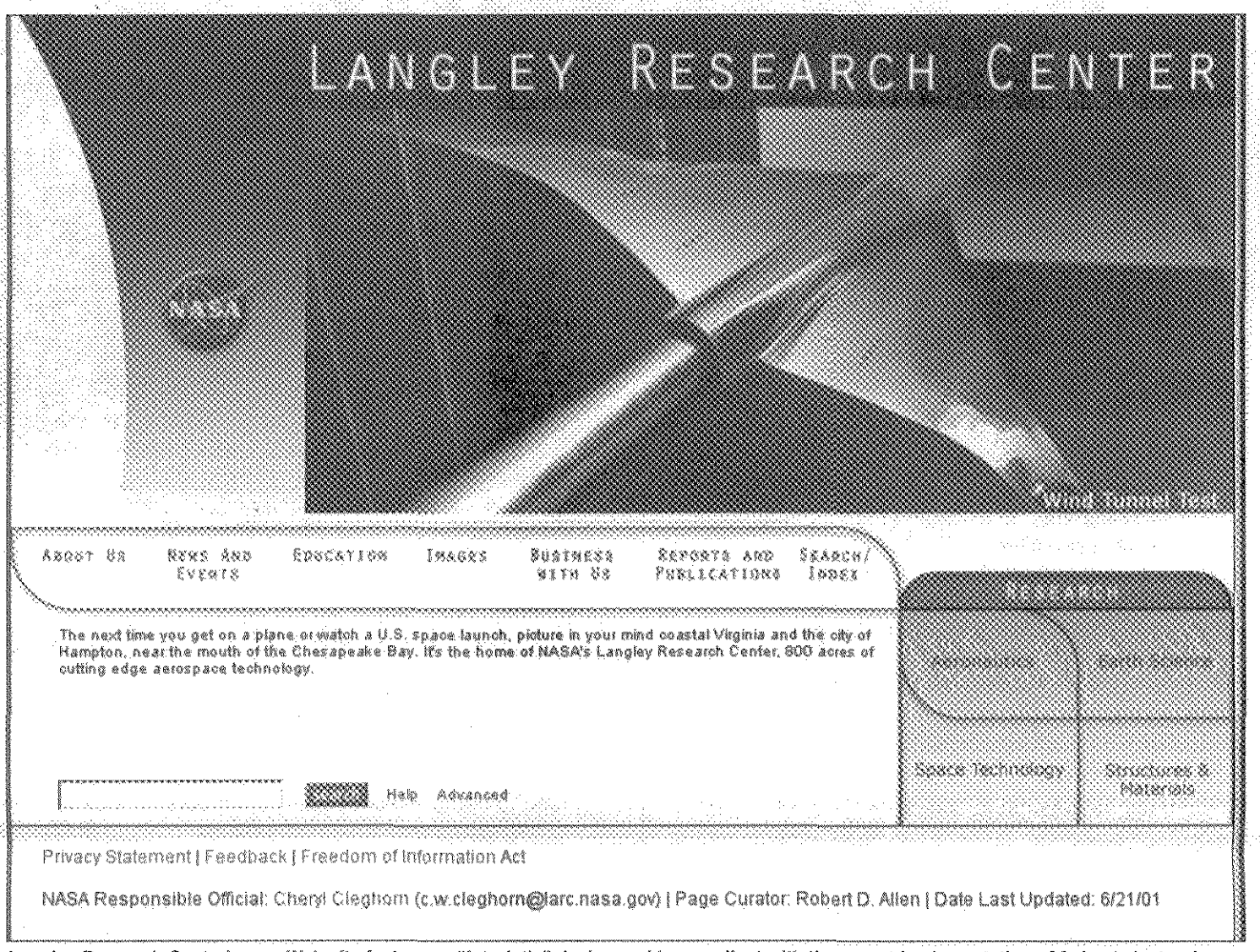
NASA Associate Administrator for Aerospace Technology Samuel L. Venneri kicked off the event with a briefing on the challenges in aerospace transportation and how NASA's research will respond to those needs.

"America needs an investment portfolio in aerospace that is results-oriented but not subsidy based," Venneri said. "NASA wants to develop superior technology products that absolutely drive U.S. capabilities beyond what international companies can do."

To that end, Venneri said, NASA is developing a "Blueprint for the Aeronautics Vision of the 21st Century." The document, which will be available by the end of September, will outline an aerospace technology investment strategy to ensure the continued growth and economic well-being of the nation's evolving transportation system.

"Air transportation does a lot more for our economic engine than most people realize," Venneri said. "You don't see the

Continued on Page 6



Langley Research Center's new Web site features a "futuristic" design and is compliant with the recent implementation of federal electronic information technology accessibility laws. The site can be found at <http://www.larc.nasa.gov/>.

Welcome Home

Langley Unveils New Web Site

By ROBERT D. ALLEN
Public Affairs Office

Langley Research Center's public Web site got a facelift on June 21.

The URL, or Web address, of the site remains the same: <http://www.larc.nasa.gov/>.

"We had two primary goals in redesigning the Web site — make it more accessible for individuals with disabilities and make it easier for everyone to use," said Michael Finneran, head of Langley's Office of External Affairs (OEA). "Plus, we wanted a newer, more futuristic look to reflect the NASA mission. We think we've got all that with this new Web site."

The redesign of the Langley Web site coincides with the June 21 implementation of federal electronic information technology accessibility laws.

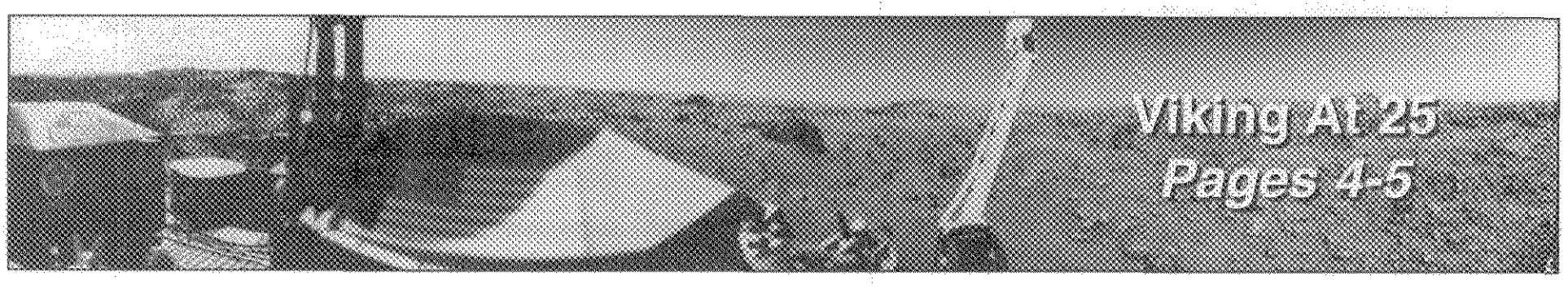
Section 508 of The Rehabilitation Act of 1973, as amended by the Workforce Investment Act of 1998, requires that federal departments ensure their information technologies allow individuals with disabilities to have access to and use of information comparable to that of persons without disabilities.

Planners Collaborative, Inc., a management and communications firm based in Boston, designed the site working with OEA representatives.

Langley Research Center also has unveiled a Web site dedicated the 100th anniversary of the Wright brothers' first powered flight.

The site, which can be found at <http://www.larc.nasa.gov/2003>, provides information on the past, present and future of aviation and the events leading up to Dec. 17, 2003.

The Web site includes "News," "Events," "Flight Pioneers," "Modern Flight," "Kids Corner" and "Organizations" pages. The site will be updated as more information becomes available.



News Briefs

Around the Agency

NASA AND ESA SET NEW CASSINI-HUYGENS PLAN

Managers for an international mission to Saturn have announced a revised plan to work around a telecommunications problem and avoid loss of scientific data after the Cassini spacecraft releases the Huygens probe to descend to the surface of Titan, Saturn's biggest moon, in 2005.

The new plan will change the planned release date and geometry for the part of the mission in which the Huygens probe will parachute into the thick atmosphere of Titan. The new date will be Jan. 14, 2005, seven weeks later than originally planned. The plan will also position the Cassini orbiter farther away during that descent.

More information about Cassini-Huygens is available on the Internet at <http://www.jpl.nasa.gov/cassini/> and at <http://sci.esa.int/huygens/>. RELEASE: 01-132

HYPERION ROBOT STAYS IN SYNC WITH THE SUN

A new robotic explorer, smart enough to know when it's lost or in trouble and designed to follow the Sun in a whole new way, is ready to face its first test in the harsh elements of the Canadian Arctic.

The prototype robot, named Hyperion, has the potential to be self-sufficient and will help researchers test a technique called Sun-synchronous navigation.

More information about Hyperion and the Sun-Synchronous Navigation Project can be found on the Internet at <http://www.frc.ri.cmu.edu/sunsync/>. RELEASE: 01-127

BIOTECHNOLOGY PROPOSALS SELECTED

NASA has selected 43 researchers to receive grants totalling approximately $27 million over four years to conduct biotechnology research on Earth and in space. This research will create knowledge in important areas of biotechnology such as tissue engineering, gene expression and biosensor technology.

Sponsored by NASA's Office of Biological and Physical Research, this research offers investigators the opportunity to take advantage of the low-gravity environment of space and develop experiments for the International Space Station.

A list of the selected principal investigators, institutions and research titles can be found on the Internet at <ftp://ftp.hq.nasa.gov/pub/pao/pressrel/2001/01-126a.txt>. RELEASE: 01-126

CENTENNIAL OF FLIGHT ANNOUNCES ALLIANCE

The U.S. Centennial of Flight Commission and the Evolution of Flight Campaign of the American Institute of Aeronautics and Astronautics (AIAA) recently announced their partnership to promote upcoming activities and events that will celebrate the 100th anniversary of powered, controlled flight in 2003 and the history and future of aviation.

The U.S. Centennial of Flight Commission's Web site can be found at <http://www.centennialofflight.gov>. More information about the AIAA's Evolution of Flight Campaign is available at <http://www.flight100.org>. RELEASE: 01-124

Researcher News

The Researcher News is an official publication of Langley Research Center, National Aeronautics and Space Administration, Hampton, Va., 23681-2199. It is published every other Friday in the interest of all Langley staff, contractors and retirees and has a circulation of approximately 8,100. It is distributed to all Langley civil service employees, contractors, retirees and on-site university personnel, with limited distribution to NASA Headquarters, other NASA centers and, by special request, to other non-NASA individuals and organizations. Questions related to the content and distribution of the Researcher News should be addressed to Keith Henry, Mail Stop 115, (757) 864-6120. Submit contributions/SDL 026, 055, 110 changes to the editor via e-mail <j.r.roberts@larc.nasa.gov>, fax (757) 864-6477, telephone (757) 864-8150 or Mail Stop 293. Articles, photos and announcements are due at noon the Monday following the date of this issue.

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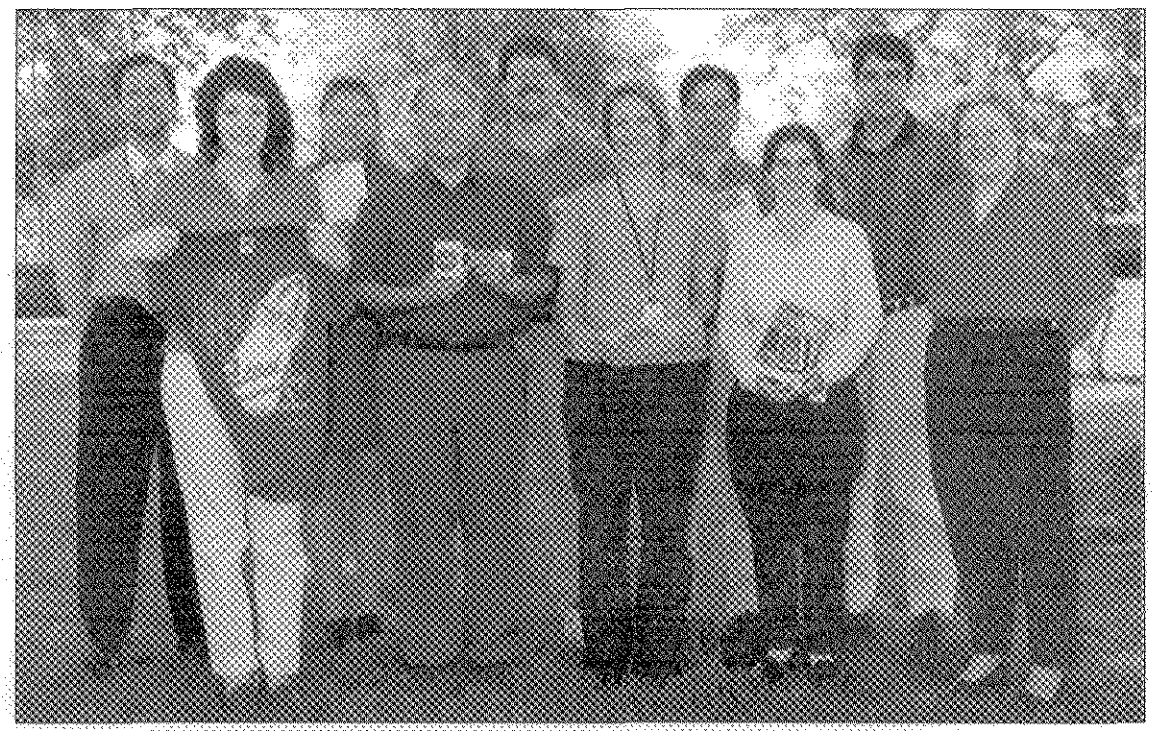
Planners Collaborative/
Science and Technology Corp.

The privilege of listing announcements in this publication is restricted to the employees, contractors and retirees of the Langley Research Center. Articles must be offered without regard to race, color, religion, sex or national origin. All materials are subject to editing.

Read the *Researcher News* online at <http://researchernews.larc.nasa.gov>

People



@LaRC Coordinator Rose Mustain (far right) poses with nine of the @LaRC Treasure Hunt contest winners. The winners included (left to right) Barry Gibbens, Jennifer Guerin, Leslie Johnson, Ellwood Peele, Kevin Kinzie, Pamela Weissinger, Bryan Barmore, Sharon Burton and Keith Johnson.

Photo by Peggy Hopkins

@LaRC Announces Winners Of Its Treasure Hunt Contest

@LaRC, Langley Research Center's Web portal, has announced the 15 winners of its recent Treasure Hunt contests.

■ Computer Sciences Corp. employee **Bryan Barmore** won the book, "Einstein Simplified: Cartoons on Science."

■ Science Applications International Corp. (SAIC) employee **Sharon Burton** won an office organizer.

■ **Leslie Johnson** of the Mission Assurance Office won a set of NASA 40th anniversary envelopes and stamps.

■ **Kevin Kinzie** of the Aeroacoustics Branch won a Slinky astronaut.

■ **Troy Merryfield** of the Employee and Organizational Development Branch won three NASA golf balls.

■ **Ellwood Peele** of the Composite Applications Technology Branch won a NASA coffee mug.

■ **Reuben Williams** of the Electromagnetics Research Branch won a NACA key chain.

■ **Charles Bobbitt** of the Research Facilities Branch and **Jennifer Guerin** of the Office of Equal Opportunity won T-shirts commemorating the 20th anniversary of the space shuttle.

■ Winning $5 cafeteria coupons were **Barry Gibbens** of the Technology Commercialization Program Office, **Keith Johnson** of the Process, Electrical and Control Systems Branch, **Allen Kilgore** of the Research Facilities Branch, **Jane Leffel** of the Laser Systems Branch, **Melissa Morehouse** of the Configuration Aerodynamics Branch, and **Pamela Weissinger** of the Vehicle Analysis Branch.

Lisa Ryan and Rita Welty of the Langley Exchange provided the gift certificates and prizes.

For the answers to the Treasure Hunt questions, visit @LaRC at <http://atlarc.larc.nasa.gov/>. Type "treasure hunt" in the "Search Articles" field and click go. (Note: @LaRC is accessible only to registered hosts in the <larc.nasa.gov> domain.)

In Memoriam

John C. Page

John C. Page died on June 27 at the age of 72. Page served in the U.S. Air Force and was a veteran of the Korean War. He went on to work at Langley Research Center, serving in the Scout Project Office, the National Transonic Facility and the Systems Engineering Division. He also worked as a contract specialist, retiring from NASA in 1989.

Xuwu Xiang

Xuwu Xiang died on June 22 at the age of 46. Xiang, a native of Beijing, was an active employee at Langley Research Center, working for Science Applications International Corp. (SAIC) in support of the Atmospheric Sciences Competency's Radiation Sciences Branch.

"Xuwu was a first-class mathematician, computer programmer and atmospheric scientist," said Charles McKinley, the deputy contract manager for SAIC at Langley. "He became extremely popular with his peers and working associates because of his buoyant personality, good humor and cooperative spirit. We miss him as a friend as well as a masterful technical performer."

David F. Fromal

David F. "Frank" Fromal died on June 20 at the age of 73. Fromal, a lifelong Peninsula resident, worked on the Scout and Viking projects at Langley Research Center, retiring from NASA after 43 years of service.

Clarification

The obituary for Jesse D. Timmons in the June 29 edition of the *Researcher News* incorrectly stated that he worked as a contractor at Langley Research Center for 32 years. Timmons, who died on June 11, worked as a civil servant in Langley's Lunar Orbiter and Viking Project Offices. He went on to work as a contractor after retiring as a civil servant in 1990.

IFMP Rollout Beginning

Updated Program Will Improve Agency's Business Processes

NASA's Integrated Financial Management Program (IFMP) is an initiative to modernize and improve the Agency's business processes and systems centered around financial management, procurement, human resources and logistics.

IFMPs major objectives are:

- to provide necessary management information to support the Agency's mission success;
- to re-engineer NASA's business infrastructure in the context of industry's "best practices"; and
- to implement enabling technology.

IFMP success is critical to NASA and Langley Research Center as many of the Agency's and Center's business systems are legacy systems and are in need of upgrades and repairs. More important, the current systems provide inconsistent financial, procurement and logistics information and do not have the ability to support Agency management processes and program decisions.

IFMP consists of eight major modules that vary in complexity and impact: Core Financial, Travel Manager, Resume Management, Time and Attendance, Budget Formulation, Human Resources, Procurement and Purchase Requests and Integrated Asset Management.

Upon completion of IFMP implementation, NASA's financial and business environment will be characterized by integrated systems that support the mission needs and automated processes extending across the Agency with consistent data available in "real-time" for decision-makers.

NASA's first IFMP program was not successful, mainly because its custom-developed software did not work and the Agency attempted to implement too many modules at the same time.

The new IFMP program was formulated last year, and its implementation was reformulated based on the lessons learned from the old IFMP. The main principles of the new approach include: modular implementation, ownership across all centers, standardized processes and the use of commercial, off-the-shelf software.

IFMP will be implemented throughout NASA in phases over the next six years. At Langley, four of the modules will be implemented over the next year and will significantly improve processes.

- **Resume Management** will automate and speed up the hiring process by providing employees with online job postings and managers with a computer-assisted rating and referral system. It is scheduled for implementation from August to October.
- **Travel Manager** will provide faster processing of travel requests and travel vouchers and payment by electronic initiation. It also will facilitate budgeting. It has been piloted at Langley since June; full rollout is scheduled for September through December.
- The **Time and Attendance** system will replace the antiquated TADS system, allowing all employees to use a Web-based interface to enter their time and attendance information. It is scheduled for implementation from October through February 2002.
- The **Purchase Request** system will replace the EPRS system, allowing users to use a modern, Web-based software package to initiate and track acquisition requests. The primary users will be those initiating purchase requests and bankcard funding documents. It is scheduled for implementation from January to April 2002.

IFMP is managed at NASA Headquarters by the Office of the Chief Financial Officer (OCFO). At Langley, Associate Director for Business Management Lana Couch has overall responsibility for successful implementation.

Langley also has an IFMP Implementation Office in place, led by the Center's OCFO in partnership with the Office of Chief Information Officer, the Office of Human Resources and the Office of Procurement.

Langley's IFMP Implementation Office requests that employees remain open-minded and attend briefings and training as deployments of specific modules approach.

For more information, call David Gosselin at 864-9055 or Manjula Ambur at 864-2384 or visit Langley's IFMP Web page at <http://ifmp.larc.nasa.gov/>. NASA's IFMP Web page can be found at <http://www.ifmp.nasa.gov/>.

ifm PROGRAM

Langley's IFMP Web page can be found at <http://ifmp.larc.nasa.gov/>.

NASA's IFMP Web page can be found at <http://www.ifmp.nasa.gov/>.

Resume Management

As part of IFMP, NASA is introducing a new resume management process and system called NASA Staffing and Recruitment System (NASA STARS) which uses state-of-the-art technology to automate and expedite the hiring process.

How will NASA STARS benefit employees? They will be able to access NASA job opportunities through the NASAJobs Web site at <www.nasajobs.nasa.gov>, and the electronic resume will replace the cumbersome application forms that were used before. Furthermore, employees no longer will need to address "Knowledges, Skills and Abilities" (KSAs) as their total skills will be captured on one resume. With just one electronic document, applicants will be able to apply for multiple positions at different locations.

How will NASA STARS benefit hiring managers? NASA STARS uses a commercial off-the-shelf applicant rating and referral software system called Resumix which reads words and phrases "in context" and extracts skills information from resumes. In a very short time period, Resumix identifies resumes submitted for a vacancy announcement and searches those resumes for skills to match the position requirements. It will allow selecting officials to quickly access lists and resumes electronically and make informed and speedy selections. Online access to job opportunities and the Resume Builder will facilitate recruiting at colleges and job fairs.

Initial rollout at Langley Research Center is scheduled for the week of Aug. 20.

As NASA STARS is rolled out, Langley will provide briefings, brochures and periodic updates on the new process. All potential applicants will be asked on vacancy announcements to submit a resume to receive consideration for job openings. Once their resume is in the database, applicants will simply submit a Quick Apply form to apply for a job at NASA according to the filing instructions on the announcement.

For more information on NASA STARS, call Elizabeth Ford at 864-8108 or Lois Allise at 864-3509 or visit the NASAJobs Web site at <http://www.nasajobs.nasa.gov> or the NASA STARS Web site at <http://nasastars.nasa.gov>.

Travel Manager

Langley Research Center was selected last September as the lead Center for NASA's IFMP Travel Management Project. Its goal was to bring an automated travel system to the Agency by reconfiguring a commercial, off-the-shelf product.

The Travel Management Project team — which is supported by NASA Headquarters, Goddard Space Flight Center, Johnson Space Center and Marshall Space Flight Center as well as Raytheon and NCI employees from Langley's CONTIS contract — selected Travel Manager Plus, the most widely used travel software product in the federal marketplace.

After some initial training on the software, the team began its effort to establish the Agency configuration. Testing started in March and was completed in May.

Deployment of the software began in May with a pilot phase. Langley's Office of Chief Financial Officer signed on first, followed by the Office of Chief Information Officer and the Aviation Safety Program Office. Parts of the Authority Systems Competency are currently being trained and will be migrated to production soon. In the last pilot phase, parts of the Structures and Materials Competency will be trained and moved to production.

The pilot phase will be followed by a Center-wide rollout in September.

Travel Manager brings with it several changes and improvements. Users will be able to initiate a Travel Authorization electronically, and much of the information required for travel will be pre-filled with data from an employee database. Per diem rates for locations and other information also will be available electronically.

Travel Authorizations will be routed electronically for review and approval and will process through to the Travel Office. Once processed, the traveler will be notified by e-mail that the travel documents are ready. Travelers will be able to print their travel documents without ever leaving their desks.

Travel Manager also brings improvements to the Travel Voucher process. Travelers will able to pre-fill most of their information to initiate their vouchers. Again, electronic routing will be used.

For more information, call Chris Trumper at 864-8040 or visit Langley's Travel Manager Web site at <http://travelmanager.larc.nasa.gov>.

Viking At 25

Historic Mars Mission Celebrates Its Silver Anniversary On July 20

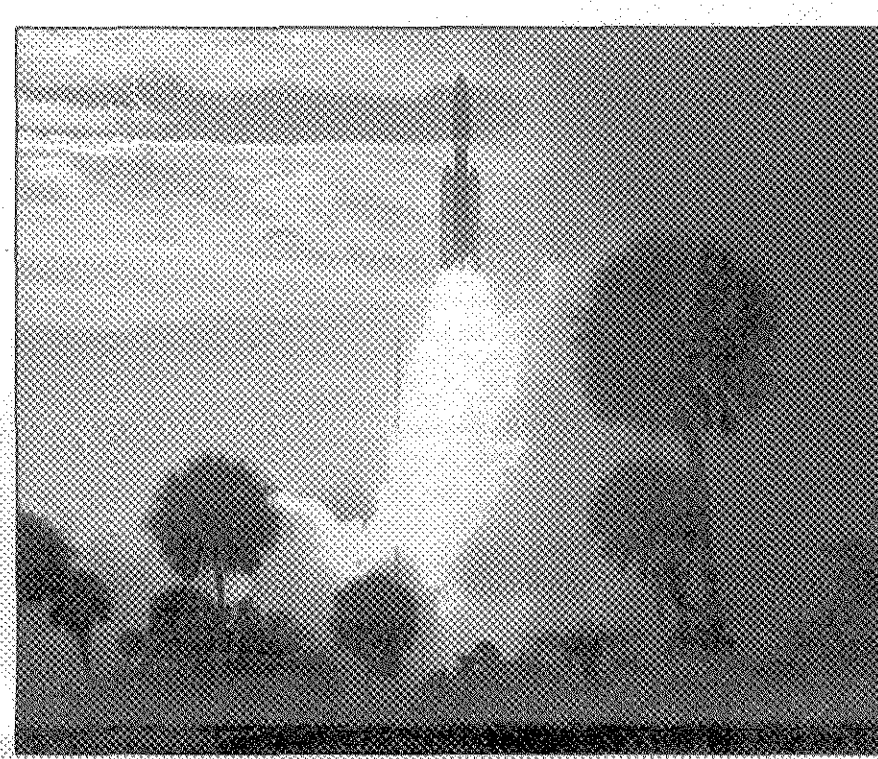
By BRIAN IGELMAN
Planners Collaborative, Inc.

Mars ... throughout history, no other planet in our solar system has captured human imagination like the red planet. For centuries, scientists wondered if Mars might be covered with vegetation — or even inhabited by intelligent beings.

Today, we know Mars to be quite different. It is a frozen, desert world with towering volcanoes — now silent — and deep canyons. Polar ice caps expand and contract with the Martian seasons. Evidence of ancient rivers and vast oceans indicate a warmer, wetter past.

Only in the past several decades have we been able to see Mars so clearly. Further, much of what we now know is due to the extraordinary efforts of a group of NASA scientists, engineers and technicians who — 25 years ago — came together and created an ambitious robotic mission ... a mission they called Viking.

In August and September of 1975, two large, nearly identical spacecraft were launched from Cape Canaveral, Florida. Vikings 1 and 2, named for the fearless Nordic explorers of Earth, would finally give humans a close-up look at this alien world.



The Viking 1 spacecraft was launched by a Titan/Centaur rocket at Cape Canaveral Air Force Station at 5:22 p.m. Aug. 20, 1975. It ended its 500 million-mile journey 11 months later, landing on Mars on July 20, 1976.

Photo courtesy of Kennedy Space Center

The Beginning ...

The Viking mission began nearly a decade before at NASA's Langley Research Center. In 1968, James Martin, former assistant manager for the Lunar Orbiter Project, was chosen to lead the mission to Mars.

"We came off Lunar Orbiter with five out of five successes," Martin said. "We were not used to failing."

Managed from Langley, Viking was truly a collaborative effort. The Jet Propulsion Laboratory (JPL) in California built the orbiters and would later manage the science mission. Glenn Research Center in Cleveland, known then as NASA Lewis, designed the Atlas/Centaur rockets. Martin Marietta was the principal contractor. Jim Martin led them all with commanding style.

"Jim had the experience," said Tom Young, Viking's mission director. "He knew what it took to make a project successful. He had the strength and the integrity to do those things that were necessary to make it work.

"We were really trying to learn about Mars. I don't think there was anyone on the program — be they engineer, administrator, scientist — who didn't really appreciate, respect and agree that it was a science mission," Young continued.

Project scientist Gerald Soffen, now deceased, admitted the team was not quite sure how to search for life on Mars, so they did the obvious. They searched for the small creatures always associated with the higher forms of life. They searched for microorganisms.

"I don't know how you measure it, but Gerry was probably the difference between Viking being an extraordinary science missio
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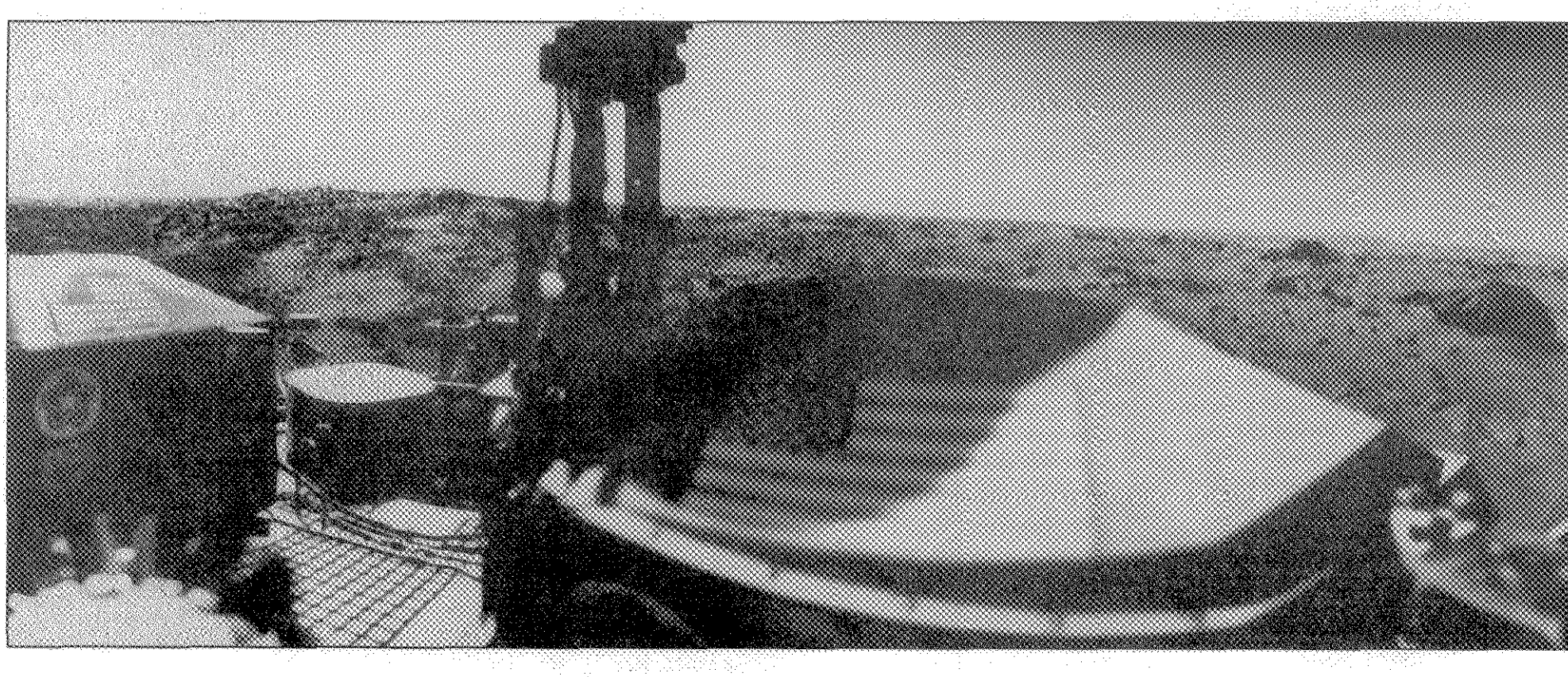

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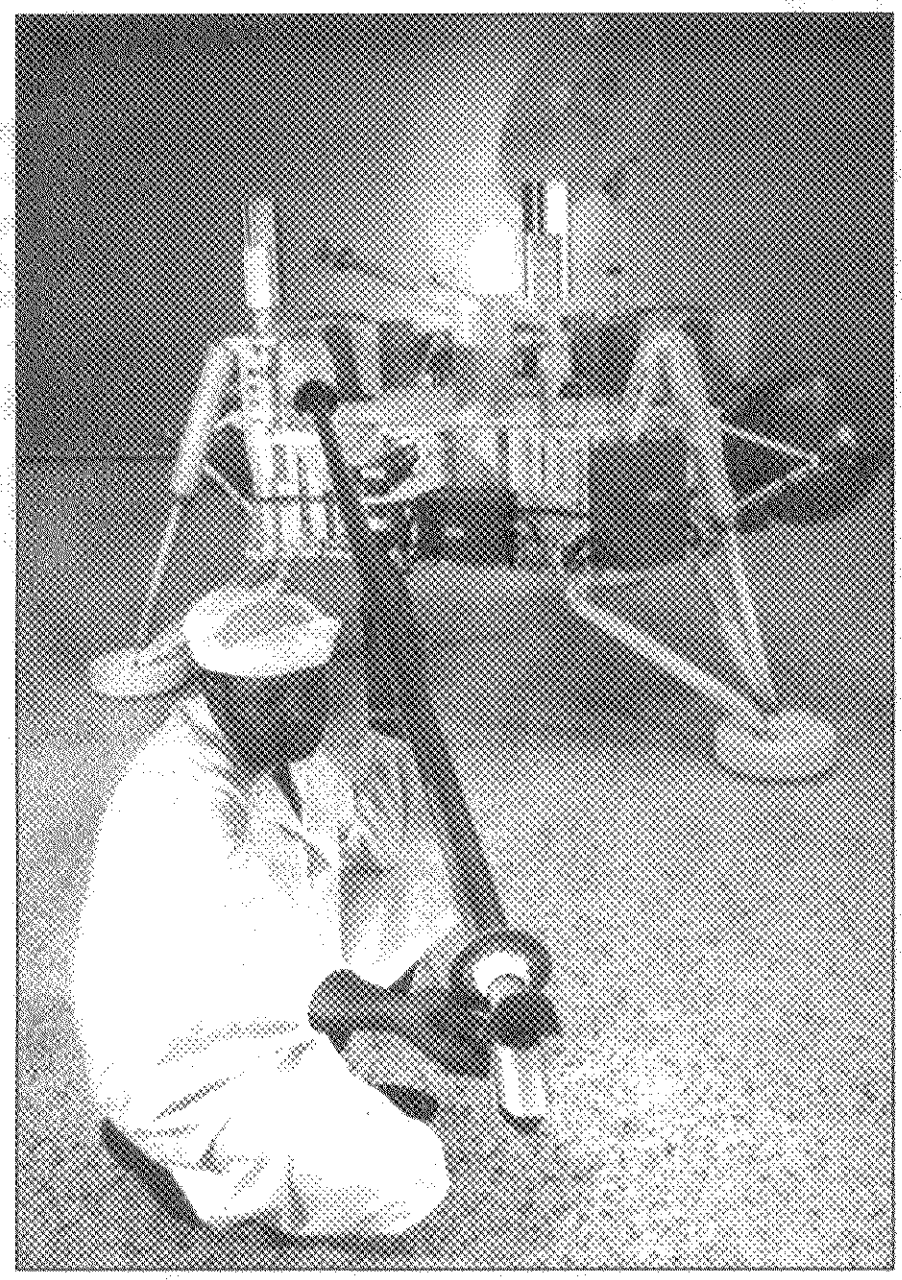


A Martin Marietta Corp. technician checks the Viking Lander's soil sampler in 1971. The Viking Lander was designed, fabricated and tested by Martin Marietta Corp. of Denver, under the direction of the Viking Project Office at Langley Research Center.

Photo courtesy of NASA Headquarters

ing!" Young said. "People were hugging each other, jumping up and down — doing all those things you do when an extraordinary event has taken place."

Immediately after touchdown, the lander's camera took its first picture and relayed the historic image back to Earth. That first picture was of the lander's foot — to see how far it had sunk into the Martian surface.

"And we couldn't have asked for anything better," Martin said. "That picture was really worth a thousand words."

The Viking team repeated this gut-wrenching process with Viking 2 which settled solidly on Martian soil on Sept. 3, 1976.

Over the following years, the two Viking spacecraft conducted experiments studying atmospheric and soil composition, meteorology and seismology. These craft provided a catalog of more than 65,000 images from the Martian surface as well as from orbit.

The Science ...

The principal reason for the Viking mission was to look for evidence of life.

Young aptly posed the central questions: "Are we alone or are there other living things out there? Might there have been other living things out there sometime in the past?"

The landers dug soil samples from the frozen surface and looked for signs of respiration — an indication of biological activity. Though the initial results were thought promising, Viking found no conclusive signs of life.

The spacecraft, originally designed to function for 90 days, continued collecting data for more than six years. In that time, the Mars textbook was rewritten. The mission ended in 1982, but the Viking data proved timeless.

Follow-on Missions ...

Viking laid the groundwork for more recent NASA successes - like Pathfinder and Mars Global Surveyor.

Mars Odyssey which launched in early April, the Mars Exploration Rover mission due for launch in 2003, the Mars Reconnaissance Orbiter scheduled for launch in 2005, the Mars Smart Lander scheduled for a 2007 liftoff, and the 2011 Mars Sample Return mission - all rely on Viking technologies.

"It's very exciting to me and to the whole team of folks here at Langley to be carrying on in the Viking tradition to continue to explore Mars," said Mary Kae Lockwood, Planetary Team Lead in the Vehicle Analysis Branch.

As it did for the Viking mission team 25 years ago, Mars continues to hold a special fascination. Thanks to the dedication of men and women working at NASA centers across the country, the mysterious Mars of our past is becoming a much more familiar place.

Perhaps, in the not too distant future, a mission will be undertaken to establish a human presence of Mars. That next generation of Mars explorers will know that their trail was blazed — by Vikings.

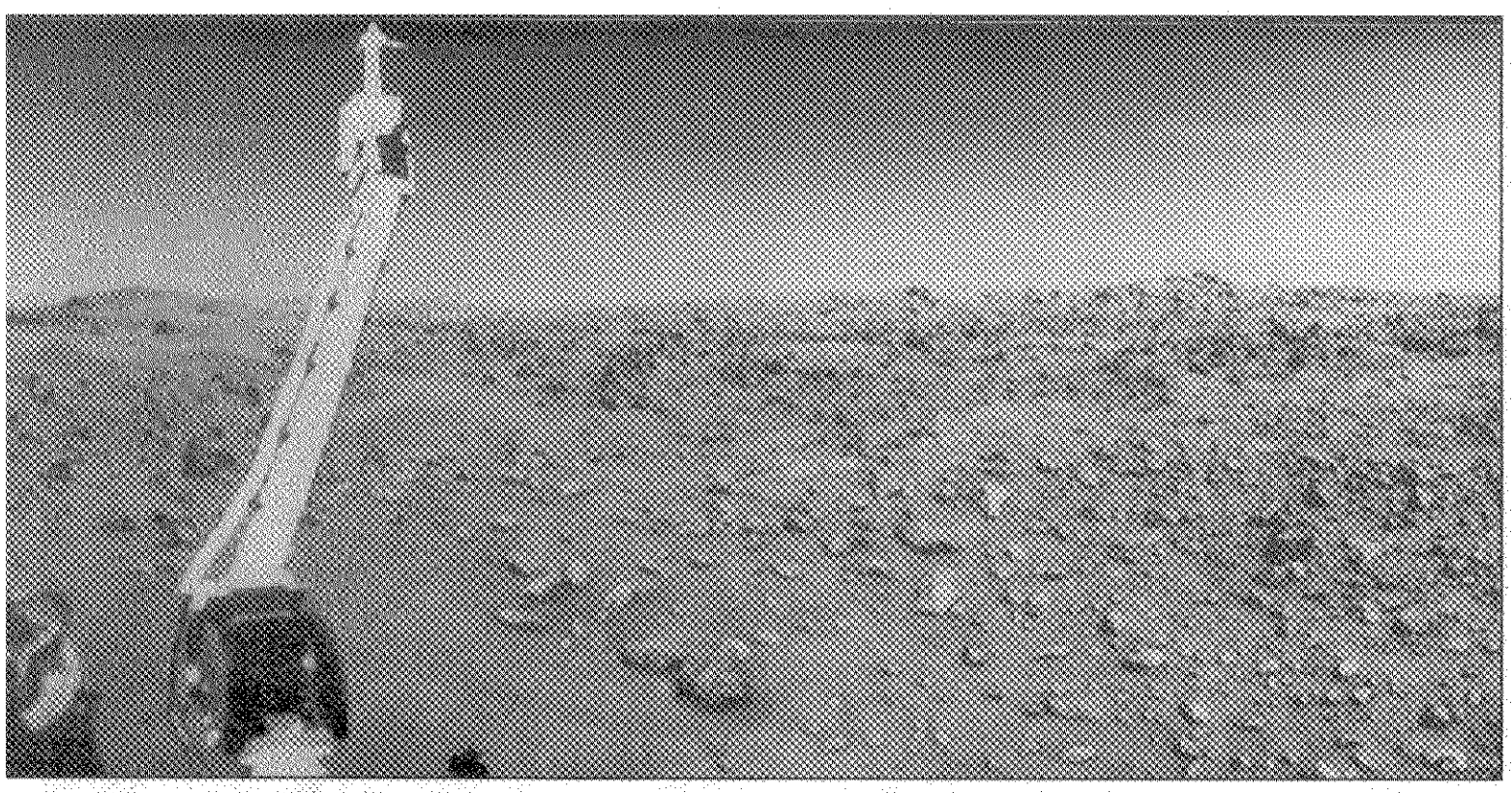
Three Special Events Planned

■ Langley Research Center will host a forum celebrating the 25th anniversary of the Viking mission at 1:30 p.m. **July 20** in the H.J.E. Reid Conference Center. Panelists will include Jim Martin, John Young, Gentry Lee, Jim Garvin and Mary Kae Lockwood discussing "Lessons Learned From Viking," "Viking Mission Operations," "Viking Science," "Future Mars Exploration" and "Langley's Role in Mars Exploration." A reception will follow.

The forum is co-sponsored by the Hampton Roads Section of the American Institute of Aeronautics and Astronautics, Lockheed Martin Corp. and Langley's Colloquium Committee.

■ Langley will cohost the Viking 25th Anniversary Reunion with the Viking 25 Committee on **July 21** at the Virginia Air and Space Center in Hampton. The reunion will begin with a cocktail hour at 7 p.m. and will include dinner at 8, program at 8:45 and a group photograph at 9:15. Tickets are $40 per person. For more information, contact Gus Guastaferro at 258-3039 or <GusGuastaferro@cs.com>.

■ Lockheed Martin will host a Mars/Viking Symposium from 1 to 5:30 p.m. July 19 in the National Geographic Society's Grosvenor Auditorium in Washington, D.C. A reception will follow from 6 to 8 p.m. For more information, call 303-971-5618 or visit <http://www.astronautical.org> on the Internet.



ıgs, Project Viking rated as one of the greatest technological
— James R. Hansen, author of "Spaceflight Revolution"

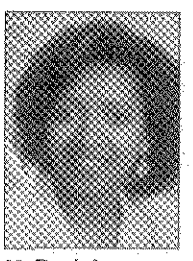
GSRP Students Due On July 25

Program Allows Students To Participate In Research Being Done At Langley

By SUSAN HUBSCHER
Public Affairs Office

Langley Research Center's Office of Education will sponsor the 2001 Graduate Student Researchers Program (GSRP) Orientation and Workshop from July 25-27.

Forty-nine students from 26 universities will be on-Center to meet with their advisers and attend an annual safety and security briefing. They also will participate in a variety of presentations, tours and lectures, including a keynote address by Patricia McDaniel. McDaniel, a former GSRP student who went on to work in Langley's Composite and Polymers Branch, now serves as the Quality Control Manager for Composites and Bonding Technologies at Ashland Chemical Company.


McDaniel

The GSRP is a highly competitive program allowing graduate students in science, math and engineering to become involved in a real-time research project being conducted at Langley. (Sixty-two percent of this year's participants are working on doctorate degrees.)

"I think the GSRP Program recognizes the contributions and knowledge that graduate students can bring to the table," said Gwen Ogle, a GSRP student who will finish her doctorate at Virginia Polytechnic Institute and State University next year. "In return, the GSRP program supports graduate students in their pursuit of a degree — financially, opportunistically and with its accessibility to experts in the field.

"This opportunity not only supported and furthered the progress toward my degree, but it helped toward meeting NASA's mission to support educational excellence," Ogle said.

NASA initiated the GSRP in 1980 to help meet the continuing needs of NASA's aeronautics and space efforts by increasing the number of highly trained scientists and engineers in aerospace engineering, life sciences, space applications and space technology while enhancing research ties to academia and the nation's aerospace industry.

Selected students receive a fellowship for up to $22,000 a year, renewable for up to three years based on satisfactory progress. The participants conduct their research at their host universities and spend some time at Langley, taking advantage of the Center's research facilities and resources.

The selection process is rigorous. Each student must develop and submit a research proposal to a committee of Langley scientists. The scientists rank each proposal on the student's academic qualifications, proposed research and plan of study. The top proposals are supported by funds from NASA Headquarters. This year, Langley researchers and their individual projects are funding 76 percent of the students.

Kara Latorella, a former GSRP student now assigned to Langley's Vehicle Integration Branch, tells graduate students to submit proposals that their faculty members are interested in.

"In fact, I called and got a list of proposed projects in my discipline and tailored my proposal to one of those topics," she said, "I then went through the university's Office of Sponsored Programs early, while at the same time talking to a person at NASA Langley in my discipline. By collecting this information, you will be more likely to write a proposal that matches the ongoing research interest of the Center."

Latorella said the benefit to both student and NASA researcher is invaluable.

"The researchers not only have access to young minds and fresh ideas, they are able to create associations with academic colleagues by virtue of students as liaisons," she said. "They gain enthusiastic, focused student workers, they are allowed an opportunity to identify desirable future colleagues, and involvement with the GSRP publicizes the work that's done here to a broader cross-section of the tax-paying public. This awareness rings particularly true for students that come to the program from outside this regional area."

Applicants must be United States citizens enrolled in a fully accredited U.S. college or university as a full-time graduate student with a GPA of 3.0 or better. All applicants must submit one original and five copies of all materials by Feb. 1, 2002. For more information, visit the GSRP Web site at <http://education.nasa.gov/gsrp>.

Susan Hubscher is a Langley Aerospace Research Summer Scholars (LARSS) student in Langley's Public Affairs Office.

From The Environmental Management Office

Center Earns HRSD Pollution Prevention Award

By CAROLINE DIEHL
SAIC

Langley Research Center was one of seven organizations to receive a 2001 Hampton Roads Sanitation District (HRSD) Pollution Prevention Award on May 9.

The award recognizes businesses and government facilities within the HRSD service area for outstanding multimedia (air, land and water) pollution prevention efforts that focus on source reduction before treatment or disposal.

Langley won the award for two water conservation projects that were implemented at the Steam Plant (Bldg. 1215) last year. Combined, the two projects saved more than 2.6 million gallons of water and the associated treatment costs. (More information about the projects can be found in the August 2000 issue of the "Environmental Insight" newsletter.)

Langley's pollution prevention program, which began in 1992, has continued to improve over the last nine years and is still going strong. Pollution prevention has reduced hazardous waste on-Center by 79 percent and non-hazardous waste by 38 percent. It also has cut air emissions from ozone-depleting substances by more than 100 tons.

HRSD encompasses 13 cities and jurisdictions, has a service area of more than 2,400 square miles and serves approximately 1.5 million customers. To protect the environment and human health, HRSD permits and monitors pretreated wastewater discharged from business and industries within this area.

For more information about Langley's pollution prevention initiatives, call the Environmental Management Office at 864-3500.

Hill

Continued from Page 1

impact of not investing in R&D until 10 years later. ... You can't make this up."

Steven Zaidman, the Federal Aviation Administration's Associate Administrator for Research and Acquisitions, participated in the briefing, saying that the FAA is "one of NASA's best customers." He said the FAA relies heavily on NASA's research to help meet its objectives in three key areas: aviation safety, flight efficiency and environment.

NASA Administrator Daniel S. Goldin also was on-hand to stress the importance of investing in long-term research. In order for America to maintain its superiority in defense and civil aviation, he urged Congress to support 10- to 15-year technology investments.

> *"You don't see the impact of not investing in R&D until 10 years later. ... You can't make this up."*
>
> **Sam Venneri**

In addition to attending the aerospace briefings, Congressmen and their staffers were able to visit technology exhibits from Ames Research Center, Dryden Flight Research Center, Glenn Research Center, Langley Research Center and Marshall Space Flight Research Center. Senior staff from NASA, including Langley Center Director Dr. Jeremiah F. Creedon, were on-hand to talk about the Agency's latest accomplishments and the importance of aerospace technology research.

The technologies exhibited promised an exciting future for aerospace. Langley exhibits highlighted the Aircraft Vortex Spacing System (AVOSS), Aviation Weather Information (AWIN), Hyper-X, Quiet Aircraft Technology, the Small Aircraft Transportation System (SATS), Synthetic Vision and 21st Century Aerospace Vehicle Technologies.

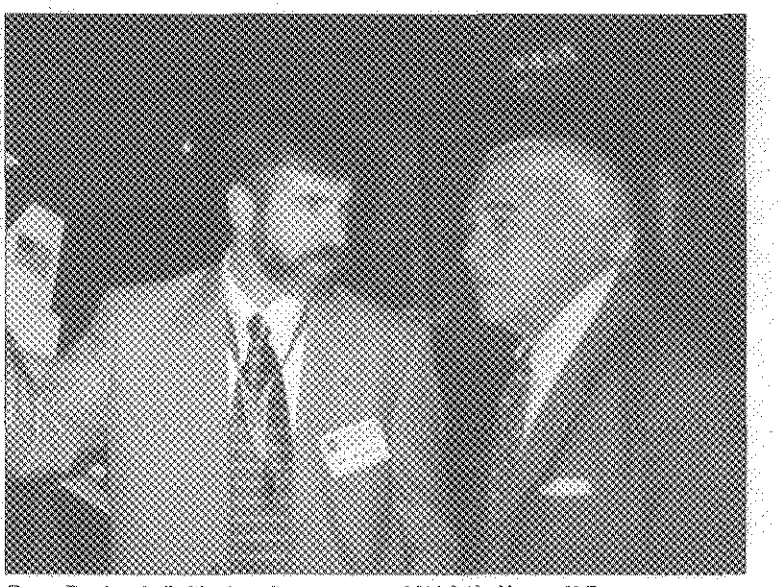

Dave Reubush (left), deputy manager of NASA's Hyper-X Program Office, explains Hyper-X technologies and program objectives to Rep. Benjamin A. Gilman (R-N.Y.) at the second annual "Aerospace Technology Days on the Hill." The event, which attracted three members of Congress and 100 staffers, was held June 27 and 28 in the Rayburn House Office Building.

Photo by Donna G. Roper

From The Office Of Safety And Mission Assurance

Laboratory Safety Requires Prior Planning

Specialized research laboratories are located throughout Langley Research Center. All employees working in a laboratory have the responsibility to practice safe and sensible laboratory procedures.

Laboratory safety can be accomplished by planning the experiments before they are performed and by identifying the hazards and potential risks of the chemicals used in the experiments.

Prior Planning and Prevention

Prior planning may be conducted through a formal review or an informal verbal review. The Potentially Hazardous Materials (PHM) permit process is an example of a formal review. An informal verbal review is conducted by a principal investigator, the Facility Safety Head, other personnel involved in the laboratory operation and health and safety professionals from Langley's Office of Safety and Facility Assurance (OSFA).

The hazards and potential risks that may be encountered in laboratories can be divided into two categories: physical hazards and health hazards. It is possible to have more than one type of hazard associated with the use of a chemical. Principal investigators should examine both the physical hazards and health hazards that may result from their research activities. They also should anticipate situations that could occur and develop procedures to minimize the hazards.

Physical Hazards

Physical hazards are those that result from a sudden and forceful release of energy that can cause immediate harm to workers. Physical hazards that can be encountered in laboratories are: flammable and combustible materials; oxidizers; organic peroxides and peroxidizable compounds; water reactive agents; pyrophorics; incompatible chemicals; explosives; unstable reactions; compressed gases; nonflammable cryogens; high-pressure reactions; vacuum work; ultraviolet; visible or near infrared radiation; radio frequency and microwave hazards; ionizing radiation; electrical hazards; and magnetic fields.

Health Hazards

Health hazards occur when chemicals enter the body by inhalation, ingestion, injection or absorption through the skin. Health effects caused by chemicals can be acute and can happen immediately at the point of contact. They also can be chronic, or the effects can accumulate over time, causing injury or disease in parts of the body distant from the point of contact. Health hazards that may be encountered in laboratories are: irritants, corrosive substances, sensitizers or allergens, asphyxiants, toxic agents, reproductive and developmental toxins, carcinogens and biological agents.

Check the Chemical Hygiene Plan (CHP), the Material Safety Data Sheets (MSDSs), product labels and online sources to identify the potential hazards and risks associated with the use of chemicals in the laboratories.

The CHP describes laboratory procedures, equipment, personal protective equipment and work practices that protect employees from the health hazards of hazardous chemicals. The plan gives details about the following subjects: roles and responsibilities for laboratory safety; chemical hazard identification; controlling chemical exposures; standard operating procedures for work with specific classes of chemicals; fume hood evaluations; information and training; emergency action plans; prior approval for laboratory procedures; medical examinations and consultations; particularly hazardous substances; and laboratory inspections and audits.

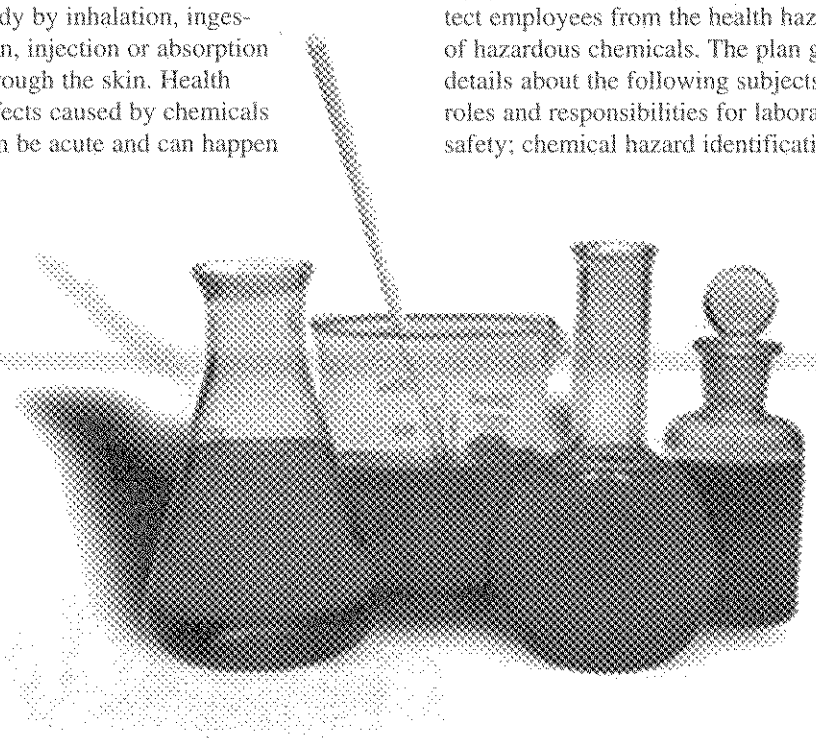
MSDSs identify health and physical hazards and toxicity testing associated with a product. The manufacturer or distributor is required to attach an MSDS to the products used in the laboratories. Each facility is required to keep MSDSs on file. The data sheets also are available on the Internet at <http://cmts/cmts/>.

Product labels should be kept intact on the product. Chemical manufacturers are required by law to include warning labels on their products. If a chemical is transferred from its original container to another, the label should be placed on the secondary container with the product name, the chemical constituent and the primary hazard warnings.

Online databases provide useful information about the hazards and the potential risks associated with the chemicals used in laboratories. Visit:

- **Fisher Scientific**, <http://www.fishersci.com>; and
- **Sigma Aldrich**, <http://www.sigma-aldrich.com>.

Prior evaluation and planning of laboratory experiments can reduce or eliminate many of the hazards encountered by laboratory workers. Use the hazard lists, the CHP, MSDSs, product labels and other information sources to assess the hazards and potential risks in laboratory operations and to ensure safety.



MCLT's 'Spice of Life'

Learn More About The People You Work With

By MICHAEL D. UENKING
MCLT Subteam Leader

There are many ways individuals can create harmony and understanding about diversity in the workplace.

It all boils down to taking a little extra effort to learn more about the people you work with. You can do this through various methods. Some of them include the following:

- Get to know your colleagues who are from different backgrounds by spending time with them at lunches or breaks.
- Teach others about your own cultural background.
- Look for areas of common ground, not just differences.
- Be sensitive of how you speak to others and what you say to them to ensure that what you say is not exclusive or offensive.
- Learn more about the cultures of your coworkers. Ask them about holidays, celebrations and customs that are part of their background.
- Invite colleagues of different backgrounds to your home for dinner or an evening of conversation.
- Explore different ethnic restaurants with your multicultural coworkers.
- Take part in recreational activities with coworkers that involve people of different backgrounds. (Langley Research Center provides a means for this through the Langley Activities Association (LAA). Visit the following Web sites to see what club and athletic opportunities are available: <http://larc-exchange.larc.nasa.gov/LaRCExchange/Athletics.html> and <http://larc-exchange.larc.nasa.gov/LaRCExchange/Clubs.html>.

These are but a few of the many ways you can learn and appreciate your coworkers' various multicultural backgrounds.

Langley has made a commitment to ensure that its employees are more culturally aware of the diversity that exists on-Center. In 1994, it established the Multicultural Leadership Team (MCLT) to serve as an advisory body to Langley's Senior Staff.

The MCLT makes recommendations to Senior Staff for activities and initiatives that demonstrate that aforementioned commitment to multicultural values in the Center's management practices. These recommendations come from various meetings that are held the second Thursday of each month.

The MCLT is comprised of three subteams: Benchmarking/Diversity Plan, Communications and Education. There are also ad hoc committees that form based on need. Membership on the MCLT is for three years.

If you are interested in joining the MCLT, be on the lookout for an announcement on @LaRC in October or November. To find out more information about the MCLT, visit the MCLT Web site at <http://mclt>.

The next article will introduce you to the members associated with the MCLT.

This article was derived from HR Press' Diversity Works Article Service. Employees' submissions and ideas are welcomed; send them to Michael D. Uenking at <m.d.uenking@larc.nasa.gov>.

AdVentures

CLASSIFIED

FOR SALE: House in Woods Of Tabb, two miles from NASA. Four bedrooms, 2.5 bathrooms, attached two-car garage, 2,700 square feet, 1/3 acre lot, screened porch, fenced back yard, kitchen with hardwood floor and oak cabinets, master bath with jetted tub and shower, his and her closets. $230,000. Call 865-8227.

FOR SALE: 1986 mobile home in Newport News. 15 minutes from Langley. Two bedrooms, two bathrooms, central heat and air conditioning, washer/dryer, stove, refrigerator, wall-to-wall carpet, roofed porch, one owner. Asking $11,500. Call 244-0058.

FOR SALE: 6.5 foot couch, multicolored, good condition, $75 or best offer. Large wardrobe, shelves on one side, hanging rail on the other, excellent condition, $75 or best offer. Call 723-2868.

FOR SALE: 13.1 cubic foot Kenmore freezer, $50. Tiffen 62 mm UV Protector lens and Nikon HN-1 Hood for Nikon N90, never used, $10. Will sell separately. Call 898-8463.

FOUND: Baseball glove found on North Armistead Avenue on June 28. Call George at 864-1544 to identify and claim.

Technology Expo On July 19

The Federal Business Council will host a Federal Technology Exposition from 10 a.m. to 2 p.m. **July 19** in Langley Research Center's H.J.E. Reid Conference Center.

For more information, visit <http://www.fbcinc.com/newpromos/NASA_7_19_01.gif> on the Internet.

Space Camps Planned At Wallops

The Virginia Space Flight Academy will hold weeklong summer camps for 12- to 14-year-olds from **July 22-27** and **Aug. 5-10** and for 14- to 16-year-olds from **Aug. 12-17** at NASA's Wallops Flight Facility on the Eastern Shore of Virginia.

Participants will be involved in a host of hands-on experiences, from repairing the malfunctioning Hubble Space Telescope in "Alien Encounter" to designing a space station in "Project Space Colony." Tuition is $550, which includes double-occupancy housing, meals, a T-shirt and all instructional materials.

The Academy is supported by the Eastern Shore Regional Partnership, the Virginia Space Flight Center, NASA, NOAA and the U.S. Navy.

For more information, call 1-866-75SPACE or e-mail <spaceacademy@intercom.net>.

AIAA/BMDO Conference July 23-26

The American Institute of Aeronautics and Astronautics (AIAA) and the Ballistic Missile Defense Organization (BMDO) will host the 10th annual AIAA/BMDO Technology Conference and Exhibit from **July 23-26** at the Williamsburg Marriott.

Viking Events Planned

July 20 is the 25th anniversary of Viking 1 landing on Mars. For a list of the special events that are planned — including a forum and reception at Langley Research Center — see page 5.

The intent of the conference is to promote the free exchange of classified information between engineers and scientists who work in the missile defense arena. The annual event was initiated in 1992 and has become the only one of its kind that addresses all missile defense technologies in a classified forum.

To register online, visit <www.aiaa.org>. For more information, contact AIAA at 1-800-639-2422 or <custserv@aiaa.org>.

Blood Drive On July 25

Langley Research Center will host a blood drive from 9 a.m. to 3 p.m. **July 25** in the H.J.E. Reid Conference Center. Participating civil servants may charge their time to Job Order B-1004.

For more information, contact Alice Eley at 864-3191 or <a.e.eley@larc.nasa.gov>.

Second Diversity Day On Aug. 3

Langley Research Center's Multicultural Leadership Team (MCLT) will sponsor the Center's second annual Diversity Day from 11 a.m. to 3 p.m. **Aug. 3** on the picnic grounds of the H.J.E. Reid Conference Center. The event will feature a variety of culturally diverse entertainment and ethnic foods.

To participate, contact James Fields Jr. at 864-5565 or <j.fields@larc.nasa.gov> or Nicole Turner at 864-2105 or <n.turner@larc.nasa.gov> by July 20.

Diversity Day is in alignment with NASA's mission; employees who participate in Diversity Day should charge their time to J.O. B1000.

AIAA Offering Graduate Awards

The American Institute of Aeronautics and Astronautics (AIAA) Foundation is accepting applications for the first-ever Orville and Wilbur Wright Graduate Awards.

The $10,000 awards will be presented annually, beginning in 2002, to four students participating in master's or doctoral thesis research in engineering/science.

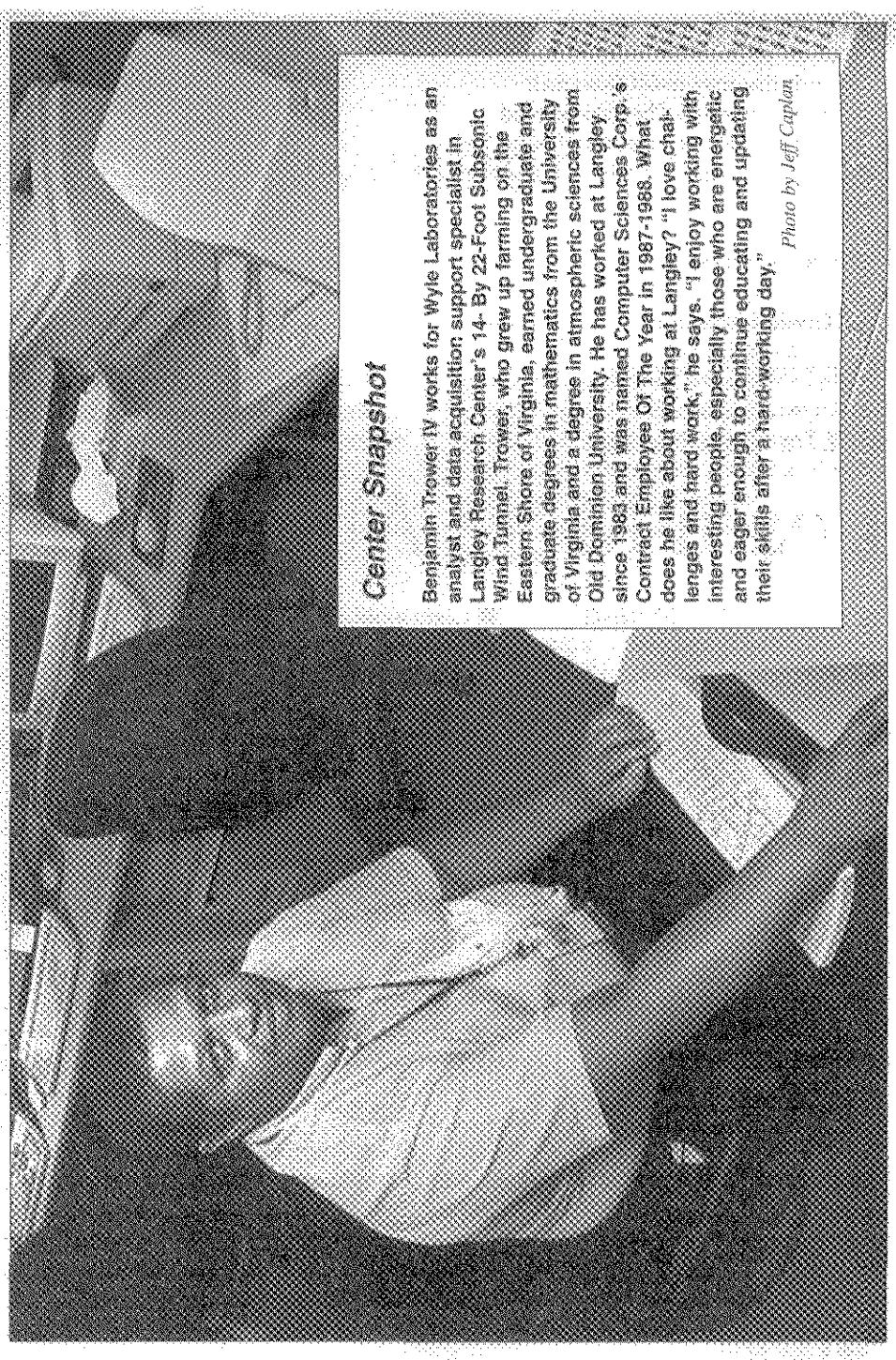
The deadline to apply is **Jan. 31, 2002**. For an application or more information, visit <http://www.flight100.org/activities/awards.html> on the Internet.

Tour Schedule Expanded For Summer

The Virginia Air and Space Center (VASC) offers van tours of Langley Research Center and Langley Air Force Base at 11 a.m. and 2 p.m. Monday through Saturday and 2 p.m. Sunday.

The cost is $5 per person with VASC admission or $7 per person without. Children under 12 must be accompanied by an adult on the tour.

For more information, call 727-0900 or visit the VASC Web site at <www.vasc.org>. For information on how to serve as a tour docent, call Steve Devan at 898-9290.



Center Snapshot

Benjamin Trower IV works for Wyle Laboratories as an analyst and data acquisition support specialist in Langley Research Center's 14- By 22-Foot Subsonic Wind Tunnel. Trower, who grew up farming on the Eastern Shore of Virginia, earned undergraduate and graduate degrees in mathematics from the University of Virginia and a degree in atmospheric sciences from Old Dominion University. He has worked at Langley since 1983 and was named Computer Sciences Corp.'s Contract Employee Of The Year in 1987-1988. What does he like about working at Langley? "I love challenges and hard work," he says. "I enjoy working with interesting people, especially those who are energetic and eager enough to continue educating and updating their skills after a hard-working day."

Photo by Jeff Caplan

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Researcher News

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National Aeronautics and Space Administration
Langley Research Center

News Researcher

Biweekly Employee and Contractor Publication

Volume 15 ❖ Issue 15 ❖ July 27, 2001

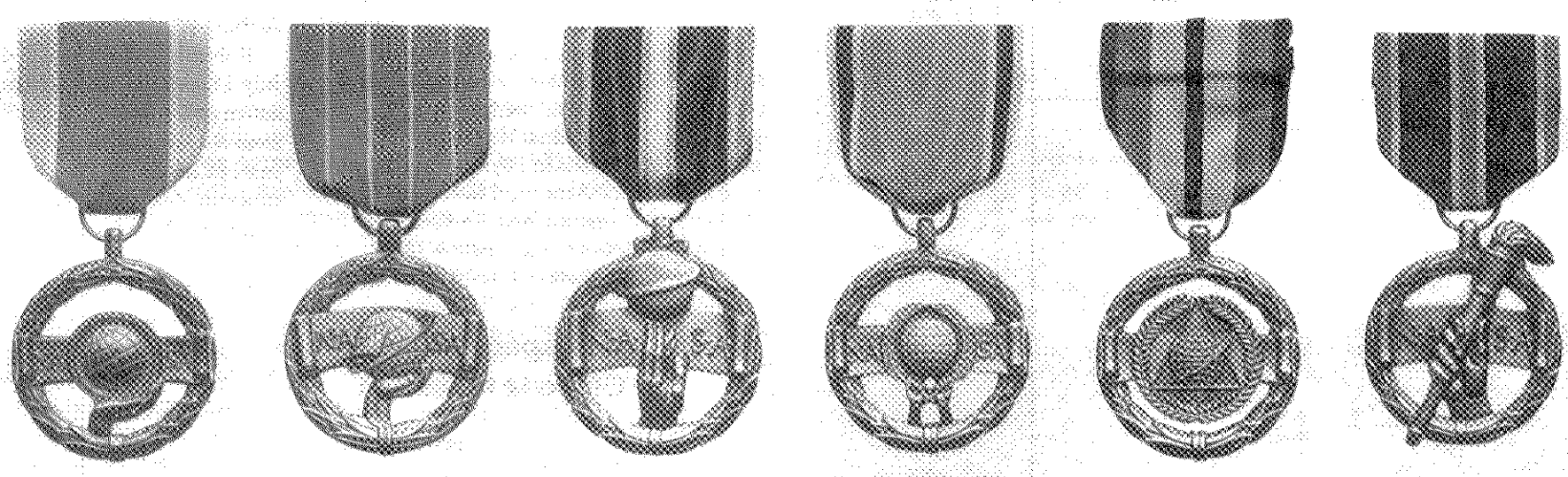
Summer Sled'din'

Langley Testing New Space Shuttle Tires

Langley Research Center's Full-Scale Impact Dynamics Research Facility provided a unique view of the recent tire tests conducted at the adjacent Aircraft Landing Dynamics Facility. Engineers are using the facility — which boasts the fastest water-powered sled in the world — to test different tire structures and tread patterns to see if manufacturers can make a space shuttle tire that is more maneuverable and less subject to wear. Among the issues being considered is how the various designs perform on wet runways with different kinds of pavement.

Photos by Jeff Caplan

Inside: Coverage Of The 2001 Honor Awards



■ Complete coverage of the July 20 Viking anniversary events will appear in the next edition of the *Researcher News*.

News Briefs

Around the Agency

HELIOS AIMS FOR RECORD ALTITUDE

The sky is black 100,000 feet above ground, and you can clearly see the curvature of the Earth. The air is so thin it is incapable of supporting life. It is also incapable of supporting sustained horizontal flight of an aircraft — until now.

It is into that hostile environment 19 miles above ground that a small group of engineers from Dryden Flight Research Center and AeroVironment, Inc., plan to fly the unique unmanned solar-powered Helios Prototype. RELEASE: 01-145

SOLAR ACTIVITY MAY BRING MORE GRAY DAYS

NASA-funded earth science researchers have discovered that during periods of increased solar activity, much of the United States becomes cloudier, possibly because the jet stream in the troposphere moves northward causing changes to regional climate patterns.

The new study supports earlier findings by suggesting there is a relationship between increased cloud cover over the United States and the solar maximum, the most intense stage of activity on the Sun.

More information is available on the Internet at <http://www.gsfc.nasa.gov/topstory/20010712cloudcover.html>. RELEASE: 01-141

GENESIS SET TO CATCH A PIECE OF THE SUN

NASA's next robotic space explorer is ready to do a little sunbathing on a mission to catch a wisp of raw material from the luminous celestial body around which the Earth and other planets revolve.

Genesis, set for launch July 30 from Florida's Cape Canaveral Air Force Station, is designed to collect tiny pieces of the Sun and return them to Earth. The mission is expected to capture about 10 to 20 micrograms of the solar wind, made up of invisible charged particles expelled by the Sun.

Additional information is available on the Internet at <http://genesismission.jpl.nasa.gov> and <http://www.jpl.nasa.gov>. RELEASE: 01-139

NASA TESTS NEW AIRBORNE TRACKING SYSTEM

Keeping up with aircraft flying over the Gulf of Mexico is difficult if not impossible in some instances. Now, that may change, with the help of NASA and the Department of Transportation (DOT), which are testing a new in-flight tracking system that is smaller, less costly and more flexible than anything seen to date.

The Advanced Air Transportation Technologies (AATT) project led by Ames Research Center and the DOT's Volpe National Transportation Systems Center are putting the new system through its paces in Louisiana, offshore from Intercoastal City. The current testing is designed to evaluate the operational benefits of the system for fleet management in the Gulf. RELEASE: 01-137

News Researcher

The Researcher News is an official publication of Langley Research Center, National Aeronautics and Space Administration, Hampton, Va., 23681-2199. It is published every other Friday in the interest of all Langley staff, contractors and retirees and has a circulation of approximately 8,100. It is distributed to all Langley civil service employees, contractors, retirees and on-site university personnel, with limited distribution to NASA Headquarters, other NASA centers and, by special request, to other non-NASA individuals and organizations. Questions related to the content and distribution of the Researcher News should be addressed to Keith Henry, Mail Stop 115, (757) 864-6120. Submit contributions/SDL 026, 055, 110 changes to the editor via e-mail <j.r.roberts@larc.nasa.gov>, fax (757) 864-6477, telephone (757) 864-8150 or Mail Stop 293. Articles, photos and announcements are due at noon the Monday following the date of this issue.

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Planners Collaborative/
Science and Technology Corp.

Photographer ..... Jeff Caplan
Planners Collaborative/
Science and Technology Corp.

The privilege of listing announcements in this publication is restricted to the employees, contractors and retirees of the Langley Research Center. Articles must be offered without regard to race, color, religion, sex or national origin. All materials are subject to editing.

People

New And Improved LFCU

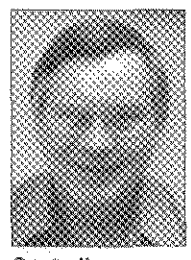
Langley Federal Credit Union (LFCU) recently remodeled its Langley Research Center branch. The floor, walls, ceiling and ductwork were all redone, and a new service area, restrooms, kitchen and workrooms were installed. The fire, security and electrical systems also were upgraded, and the ATM and night depository were enclosed within the entrance for added security. The branch hosted a grand reopening to commemorate the renovations on April 25.

Photo by Jeff Caplan

NDES Employee Honored By Chinese Academy of Sciences

Langley Research Center employee **John H. Cantrell** has been awarded the Chinese Academy of Sciences (CAS) First Prize in Natural Sciences.

Cantrell, who works in Langley's Nondestructive Evaluation Sciences (NDES) Branch, was recognized along with Menglu Qian and QingRui Yin for "scanning electron acoustic microscopy and image analysis of advanced inorganic materials."



Cantrell

The prize was awarded in December at the CAS Headquarters in Beijing.

Cantrell's contribution is based on work performed at Cambridge University's Cavendish Laboratory from 1988-1989 as Langley's first recipient of the Hugh L. Dryden Fellowship and for work performed in 1998 at Langley on domain imaging of ferroelectric solids.

While at Cambridge, Cantrell and Qian developed a compressive analytical model of electron-acoustic signal generation and contrast mechanisms and obtained experimental verification of the model in a variety of advanced materials. The breakthrough research at Cambridge and later at Langley has led to the uncovering of basic physical properties of materials not obtainable by other microprobe tools and methods.

Cantrell is a Fellow of the American Physical Society and the Acoustical Society of America, and is a Chartered Physicist and Fellow of the Institute of Physics in London.

Aerospace Research Office Is Renamed

Langley Research Center's Office of Director announced on July 16 that the Aerospace Research Office has been renamed the Aerospace Vehicle Systems Technology Office.

The General Aviation Programs Office is moving to Bldg. 1000. The new address is 3130 N. Armistead Avenue, Mail Stop 916.

For more information, contact Pam Stacy at 864-4918 or <p.j.stacy@larc.nasa.gov>.

In Memoriam

Robert W. Hess

Robert Winfield Hess died on July 14 at the age of 72. Hess, a native of Devon, Pa., retired from NASA in 1988 after 35 years of service. He worked as a structural dynamics research engineer at Langley Research Center and was a recognized expert in panel flutter.

Hess consulted on design modifications to the Saturn-Apollo Launch Vehicle and later performed wind tunnel tests on early space shuttle models and pioneering tests on unsteady transonic pressure models in cryogenic wind tunnels. He held multiple patents on dynamic measurement equipment and was the author of more than 20 technical reports.

Read the *Researcher News* online at <http://researchernews.larc.nasa.gov>.

NASA Scholarship Awarded

By CHRIS RINK
Public Affairs Office

Langley Research Center Director Dr. Jeremiah F. Creedon presented one of seven NASA College Scholarship Fund awards to Jyothi Natarajan on July 12.

Natarajan, a 2001 graduate of Hampton Roads Academy, is the daughter of Murali and Sudha Natarajan, who both work at Langley. Murali is a research scientist in the Chemistry and Dynamics Branch; Sudha works for G&A Technical Software, Inc. in the Spacecraft and Sensors Branch.

Natarajan will attend Swarthmore College in the fall and plans to study environmental science.

The NASA College Scholarship Fund was established to award scholarships Agency-wide to qualified dependents of NASA and former NASA employees. The fund was established as a direct result of a gift by Pulitzer Prize winning author James A. Michener.

Other major contributors include the Freedom Forum (to honor the Hubble crewmembers in 1994 and again in 1997 to honor Shannon Lucid) and other chapters of the NASA Alumni League. Many NASA employees have contributed to the fund directly or through the Combined Federal Campaign.

This year's winners of the NASA College Scholarship Fund bring the total number of recipients to 97.

OEd Series Collect Two More Awards

By KIMBERLY LAND
Planners Collaborative, Inc.

Two products of Langley Research Center's Office of Education (OEd) continue to collect accolades.

The "NASA CONNECT" television series recently was awarded a Regional Emmy, and the "NASA 'Why?' Files" Web site received a Grand Award from Awards for Publication Excellence (APEX).

The Emmy, awarded in the "Best Children's Program" category by the Rocky Mountain Southwest Chapter of the National Academy of Television Arts and Sciences, is the third for the television series. "NASA CONNECT" partnered with Wyoming Public Television and the Mountain Plains Distance Learning Consortium and featured Native American middle school students from the Wind River Indian Reservation in Fort Washakie, Wyo., in the winning episode.

"The Emmy Award is only proof of the quality work we are putting out here," said Bill Bensen, producer for "NASA CONNECT."

The APEX awards honor outstanding work in graphic design, editorial content and the ability to achieve overall communications excellence.

"Receiving the APEX award is a testimony to the quality of the work being done at NASA Langley," said Jeff Seaton, who leads the "NASA 'Why?' Files" Web team. "It means a lot to have an external organization tell us we are creating an excellent product."

> *"The Emmy Award is only proof of the quality work we are putting out here."*
> **Bill Bensen**

The "NASA 'Why?' Files" Web site is produced by Langley's Learning Technologies Project in cooperation with Christopher Newport University and is funded by NASA's LEARNER's Cooperative Agreement.

Since its inception in 1996, "NASA CONNECT" has reached more than 9 million students worldwide. "NASA 'Why?' Files," which will begin its second season in the fall, has 140,000 registered educators representing more than 3.3 million students.

For more information on "NASA CONNECT," visit <http://edu.larc.nasa.gov/connect> on the Internet. For more information on "NASA 'Why?' Files," visit <http://whyfiles.larc.nasa.gov>.

Teachers On-Center For Atmospheric Sciences Workshops

By THOMAS DECKER
Public Affairs Office

Forty-five teachers from across the United States visited Langley Research Center this summer to learn more about two Atmospheric Sciences Competency projects.

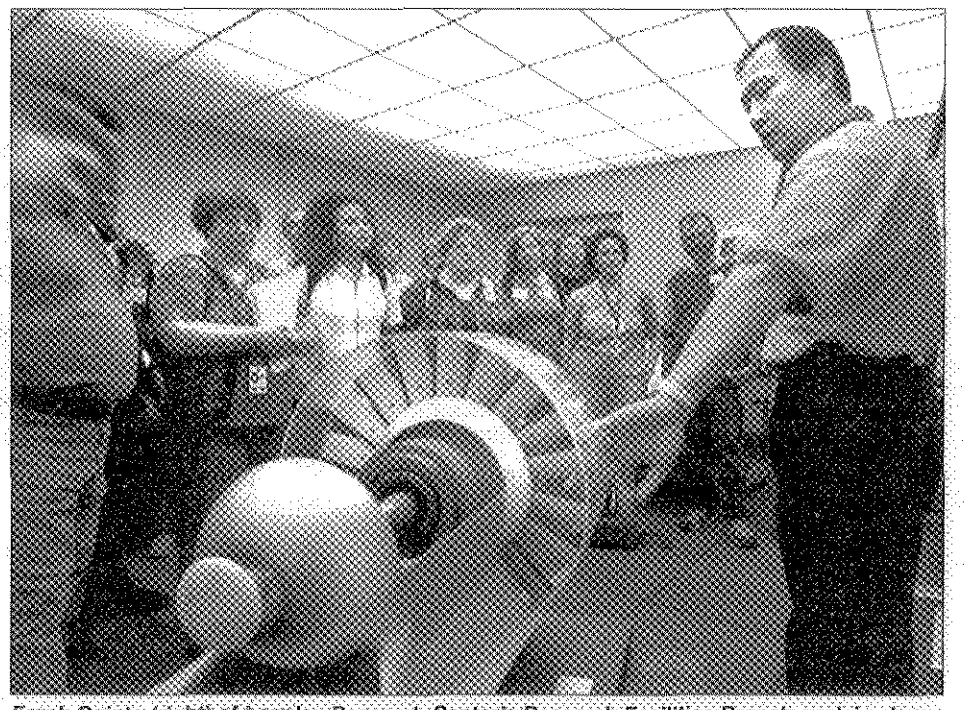
Twenty-one middle and high school science teachers participated in the Student's On-line Atmospheric Research (SOLAR) workshop, which took place from June 25-29, and 24 elementary, middle and high school teachers participated in the third annual Summer Cloud Observations Online Project (S'COOL) workshop, which took place from July 16-20.

SOLAR is an educational outreach component of the Stratospheric Aerosol and Gas Experiment III (SAGE III), which monitors the global distributions of aerosols, ozone and other important trace gases in Earth's atmosphere. Likewise, S'COOL is a project in which school children provide ground truth measurements to assist in the validation of NASA's Clouds and the Earth's Radiant Energy System (CERES) instrument.

Teachers participating in both workshops attended lectures and tours and were involved in a variety of hands-on activities. Teachers in the SOLAR workshop, for instance, built and tested hand-held sun photometers and will have their students use the instruments to take measurements during the school year and report their results back to NASA.

David Woods, SOLAR's principal investigator, said the workshops gave the participating teachers an opportunity to learn more about atmospheric research and also gave them ideas on how to integrate what they had learned into their lesson plans.

Thomas Decker is a Langley Aerospace Research Summer Scholars (LARSS) student in Langley's Public Affairs Office.



Frank Quinto (right) of Langley Research Center's Research Facilities Branch explains how a wind tunnel works during a Student's On-line Atmospheric Research (SOLAR) workshop tour.

Photo by Jeff Caplan

2001 Honor A

Langley Research Center hosted its annual Honor Awards Ceremony on July 12 in t
Former Center Director Edgar M. Cortright was the guest

Public Service Group Achievement Award

■ **AGATE Flight Training Curricula Team** accepted by **Steve Hampton** of Embry-Riddle Aeronautical University

For exceptional team performance in creating and validating the AGATE Unified Instrument-Private Pilot Curriculum

Group Achievement Awards

■ **Aerosol and Polar Stratospheric Cloud Lidar Team** accepted by **Chris A. Hostetler**

For exceptional achievement in the design, development and implementation of a new airborne aerosol and polar stratospheric cloud lidar system

■ **Airborne Information for Lateral Spacing (AILS) Research Team** accepted by **R. Brad Perry**

For developing, validating and demonstrating the AILS concept to increase parallel runway capacity during instrument meteorological conditions

■ **Aircraft VOrtex Spacing System (AVOSS) Team** accepted by **David A. Hinton**

For significant team achievement in the multidisciplinary development and international industry demonstration of AVOSS at the Dallas-Fort Worth International Airport

■ **CERES Students' Cloud Observations On-Line (S'COOL) Project Team** accepted by **Lin H. Chambers**

For outstanding contributions to the success of the CERES S'COOL educational outreach project

■ **Large-Scale Propulsion Integration Team** accepted by **Noel A.Talcott Jr.**

For the successful development of a full-scale revolutionary propulsion integration system for advanced survivable aircraft

■ **NASA CONNECT Distance Learning Team** accepted by **Thomas E. Pinelli**

For the development of the NASA CONNECT Distance Learning Program

■ **X-33 LH2 Tank Failure Investigation Technical Support Team** accepted by **Charles E. Harris**

For exemplary efforts to quantify the root causes of failure of the X-33 Liquid Hydrogen Tank

■ **Y2K Project Team** accepted by **Manjula Y. Ambur**

For outstanding performance in ensuring the Y2K readiness of Langley's research facilities, infrastructure systems and organizational computing resources resulting in the successful transition to the 21st century with minimum impact to the Center's safety and mission

Public Service Medal

■ **D. Chris Benner** of the College of William and Mary

In recognition of outstanding contributions to the success of the HALOE Experiment

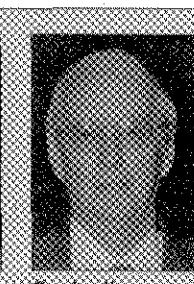
■ **Michael S. Cisewski** of G&A Technical Software, Inc.

In recognition of outstanding leadership and dedication to the mission objectives of Langley's atmospheric science research programs using unique remote sensing spaceflight hardware/software operations

H.J.E. Reid Award

■ **Fred B. Beck, Capers R. Cockrell, Manohar D. Deshpande, Kenneth L. Dudley, Jay J. Ely, Truong X. Nguyen** and **Stephen A. Scearce** for their paper entitled, "Investigation of Electromagnetic Field Threat to Fuel Tank Wiring of a Transport Aircraft."

Beck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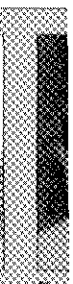
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Paul F. Holloway Non-Aerospace Technology Transfer Award

■ The Biocybernetic Team (CREW and EAST): **Robin W. Edwards, Helen M. Galus, Marisol E. Garcia, Alan T. Pope** and **David T. Shannon Jr.**

Edwards

Ely

Galus

Richard T. Whitcomb Aerospace Technology Transfer Award

■ The Atomic Oxygen Resistant Polymer Technology Team: **John W. Connell, Paul M. Hergenrother, Ross Highghat** (Triton Systems), **Peter Schuler** (Triton Systems) and **Joseph G. Smith**

Nguyen

Pope

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Exceptional Engineering Achievement Medal

■ **Pieter G. Buning**

For exceptional contributions to the advancement of computational fluid dynamics for complex aerospace geometries through the development and continuous improvement of the overset grid based methodology known as OVERFLOW

■ **Daniel J. Jobson**

For analytical, experimental, and commercial implementation of the Multi-Scale Retinex with Color Restoration image processing, which has provided a practical solution to improving space-derived imagery

Exceptional Scientific Achievement Medal

■ **David F. Young**

In recognition of outstanding scientific contributions in advancing the understanding of Earth's radiation budget and its impact on climate

Exceptional Service Medal

■ **Junilla I. Boatwright Applin**

For significant, sustained contributions to the mission of NASA demonstrated in the superior execution of multiple NASA aerospace projects and initiatives

■ **Rebecca W. Bales**

For exceptional personal contributions to the effective administration of major programs and projects at Langley

■ **Harold G. Bush**

For outstanding contributions to the development of advanced concepts and test capabilities for aerospace structures

■ **Fayette S. Collier Jr.**

For exceptional service and outstanding leadership contributing to the successful development, ISO 9001 registration and effective implementation of the Langley Management System

■ **Buena E. Crawford**

For exceptional service and outstanding contributions to the success of Langley's and the Agency's resources management and management accountability and control requirements

■ **Maria K. Elliott**

For outstanding performance and administrative contributions to the Langley Research Center

■ **John M. Franke**

For sustained technical contributions in optical physics and leadership in assessing and marketing Langley-developed technologies

■ **Charles H. Greenhalgh Jr.**

For sustained distinguished service in the support and advancement of nondestructive evaluation and fabrication technology at Langley

■ **Hillary W. Hawkins**

For outstanding achievements in enhancing the commercial value of Langley's technologies through patenting and licensing

■ **H. Keith Henry**

For exceptional service in communicating NASA's value to stakeholders — national decision-makers, industry partners and the general public

■ **Reginald M. Holloway**

For outstanding contributions and management of the development of advanced spaceborne remote sensing instruments

■ **Artie D. Jessup**

For exemplary service to Langley in validating technology advancement through flight research

■ **Frederick**

For exception
Center in provid
Center's researc
enhancement to
Research Progra

■ **Donna G.**

For exception
NASA's value to
makers, industry

■ **Stephen P.**

For exception
advanced electro
instrumentation

■ **Nelson L.**

For exception
research activitie

■ **W. Jefferse**

For dedicated
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■ **Peter Vasq**

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■ **Michael J.**

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H.J.E. Reid Conference Center.
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Robert C. Blanchard
For outstanding contributions to benchmarking aerodynamic forces in rarefied flow regime and revelation of density dispersions at high altitudes in the development and implementation of OARE and HiRAP

Gregory J. Brauckmann
For exceptional contributions to development of benchmark aerodynamic information required for flight of reusable launch vehicle/advanced technology demonstrator X-34 vehicle

Vikie S. Connors
For outstanding efforts in leading the review and selection process for the TRACE-P Campaign

Charles E. Harris
For exemplary efforts as the first senior technologist of NASA's Center of Excellence for Structures and Materials

Patricia A. Kerr
For sustained excellence in providing a world-class geometry modeling and grid generation capability contributing significantly to the quality of computational research at NASA

Robert W. Moses
For outstanding achievements leading to the transfer of buffeting loads alleviation technology

James L. Rogers Jr.
For the conception, implementation and technology transfer of pioneering methods for reducing the time and cost of complex analysis and design processes

Emilie J. Siochi
For outstanding service in biomimetics research and development at Langley Research Center

Alan W. Wilhite
For outstanding and timely contributions to the establishment of Langley's Systems Management Office and the Intelligent Synthesis Environment Program

Outstanding Leadership Medal

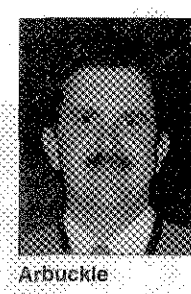
P. Douglas Arbuckle
For outstanding leadership of the Airborne Systems Competency and major Center activities

David A. Hinton
For outstanding leadership in the development of an Aircraft VOrtex Spacing System (AVOSS) and its successful demonstration at the Dallas-Fort Worth International Airport

Charles G. Miller III
For outstanding leadership in the development of a complete aerothermodynamics capability in support of space transportation and planetary exploration programs

Upendra N. Singh
For significant contributions and distinguished, internationally recognized, scientific and technical leadership of NASA programs in the area of active and passive remote sensing of the atmosphere

Ambur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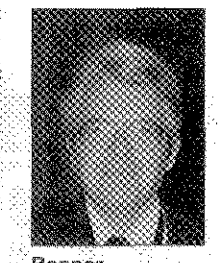
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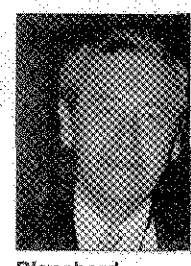
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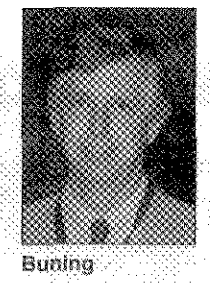
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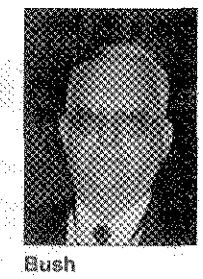
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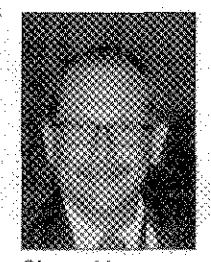
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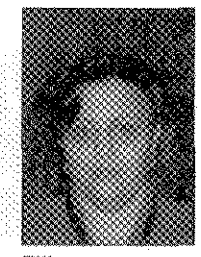
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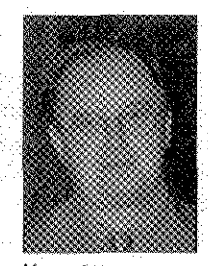
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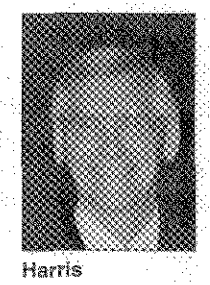
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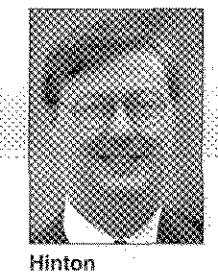
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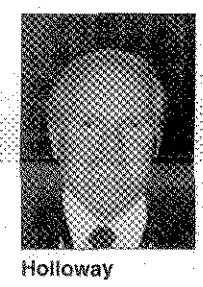
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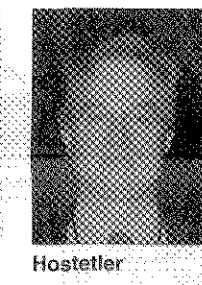
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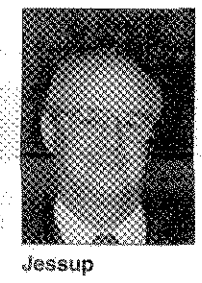
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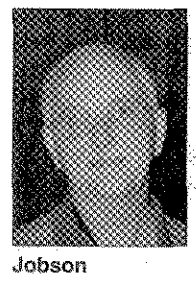
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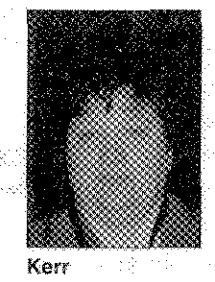
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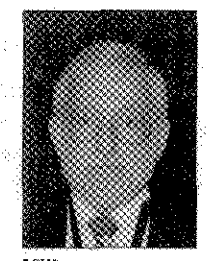
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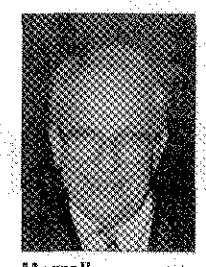
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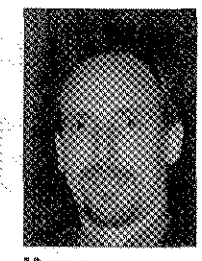
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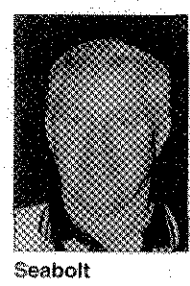
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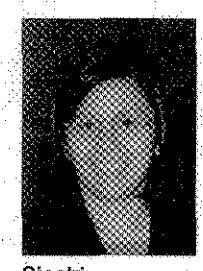
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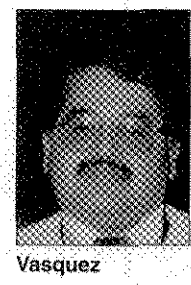
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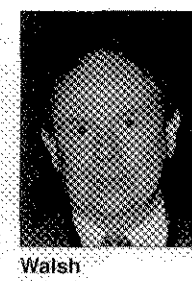
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Foreign Travel Policy Changed

Form 1167 Must Be Submitted Three Weeks Prior To Departure

Langley Research Center's Office of Director announced this month that travel requests requiring a NASA Form 1167, "Request for Approval of Foreign Training and Nonprogram Travel or Participation in Domestic Outside Symposia," must be received for approval and transmittal to NASA Headquarters at least three weeks prior to the scheduled departure date.

Late foreign travel requests will be denied, and approval will be made on a case-by-case basis. In order for a late request to be considered for approval, it must be accompanied by a justification memo that is signed by the approving official and approved by the Organizational Unit Manager and sent to Richard Williams, NASA Headquarters, Mail Code ID, Washington, D.C. 20546.

Poor planning or indecision will not be considered a justification.

LMS CP-0012 will be revised to reflect the new policy.

Colloquium and Sigma Series Lectures

Palaszewski On 'Fuels And Propellants'

Bryan Palaszewski will present a Colloquium lecture entitled, "Advanced Fuels and Propellants — Exciting Ways of Improving Future Transportation And Exploration" at 2 p.m. Aug. 7 in Langley Research Center's H.J.E. Reid Conference Center. A Sigma Series lecture will follow at 7:30 p.m. at the Virginia Air and Space Center in Hampton.

The Lecture

NASA and the United States Air Force, along with their industry partners, have been conducting research into some exotic advanced fuels and propellants: Monopropellants have the oxidizer and fuel mixed together, and by using one tank instead of separate tanks, operations for launch can be simplified and a designer theoretically can reduce the weight and complexity of new rocket propulsion vehicles and spacecraft. Alternative hydrocarbons under study are designer jet fuels and rocket propellants with higher energy content.

Palaszewski

Increasing the safety of commercial aircraft using fuel additives is another area of investigation under NASA's Aviation Safety Program. Gelled hydrogen and metallized gelled propellants, obtained by adding gellants and/or metal particles, increase fuel density and the payload to orbit. Solid hydrogen can be used to store atoms of hydrogen, boron, carbon or aluminum. Potentially, these atomic propellants have many times the performance of any chemical rocket, leading to a revolution in space access.

The Speaker

Palaszewski has worked at Glenn Research Center since 1989 and is currently directing research on high-performance propellants. He led the accident mitigation aspects of NASA's Aviation Safety Program, investigating ways of making aircraft and their fuels safer. Recent work has focused on providing safer, denser propellants with higher rocket performance.

For six years, Palaszewski led studies of advanced space systems for orbital and interplanetary travel at Jet Propulsion Lab; he also was the lead propulsion subsystem engineer on the Ocean Topography Experiment (TOPEX) for three years.

Palaszewski received a bachelor's degree in mechanical engineering from the City College of New York in 1981, and he holds a master's degree in mechanical engineering from the Massachusetts Institute of Technology.

Upcoming Lectures

- **Sept. 11:** Stephen B. Pope on "Computational Combustion: From Molecular Processes to Combustor Design."
- **Oct. 2:** Joel S. Levine on "Exploring Other Worlds: Past, Present and Future."
- **Nov. 6:** Nancy Leveson on "How Far Should We Trust Software?"

For more information about the lecture series, visit <http://shemesh.larc.nasa.gov/Lectures/> on the Web.

ODU Professor Receives Lifetime AIAA Honor

Surendra Tiwari received the American Institute of Aeronautics and Astronautics (AIAA) Thermophysics Award at the 35th Thermophysics Conference on June 12 in Anaheim.

The award, which represents a lifetime achievement in thermophysics, was presented "for significant contributions in analysis of radiation heat transfer, combustion, thermal protection of entry vehicles, and atmospheric radiation, and in education of thermal sciences."

Tiwari

Tiwari, an eminent professor and scholar of mechanical engineering at Old Dominion University (ODU), is the founder and director of the Institute for Scientific and Educational Technology (ISET), which administers several higher education programs, including NASA-sponsored graduate study and post-doctoral programs. He also serves as the co-director of the Langley Research Center American Society for Engineering (ASEE) Education Summer Faculty Fellowship Program.

Tiwari has conducted and supervised major research efforts in radiative energy transfer in gases, atmospheric radiation and heat balance of planetary atmospheres, computational fluid dynamics, combustion processes and flow of chemically reacting and radiating gases, high temperature gas kinetics and plasma physics, hypersonic flows, planetary entry heating and thermal protection of entry vehicles. He is considered to be a leader in the fields of radiation modeling and analysis and computation of chemically reacting and radiating flows.

He has contributed to more than 400 technical publications and 10 books, and he has supervised research studies of 33 master's and 41 doctoral students.

Tiwari is a Fellow of the ASME and Associate Fellow of the AIAA.

In 1986, the State University of New York at Stony Brook honored him with a Distinguished Alumnus Award. In 1990, he received the Outstanding Faculty Research Award from the State Council of Higher Education of Virginia (SCHEV). In 1996, he received ODU's Alan Rufus Tonelson Distinguished Faculty Award for Research/Scholarly Activities. He also is the recipient the NASA's Group Achievement Award for developing the Aerothermal Protection System for the Galileo Probe.

AIAA Seeking Nominations For Engineer Of The Year

The Hampton Roads Section (HRS) of the American Institute of Aeronautics and Astronautics (AIAA) is soliciting nominations for the 2002 Engineer of the Year Award.

The award recognizes a member of the HRS for distinguishing himself or herself in some facet of aerospace engineering. Nominees shall have made a recent significant contribution to the art and science of aerospace engineering that is worthy of recognition. Nominees also shall be AIAA members but not members of the HRS Council.

The Engineer of the Year will be required to deliver the Matson Lecture during National Engineers Week.

Nominations should consist of a write-up of no more than two pages detailing the nominee's recent contributions to aerospace engineering and three letters of reference from AIAA members. Nomination packages should be sent by **Oct. 1** to Jamshid A. Samareh at Mail Stop 159.

For more information, visit <http://www.seva.net/~aiaa/awards.html> on the Internet or contact Jamshid Samareh at 864-5776 or <j.a.samareh@larc.nasa.gov> or Robin Hardy at 864-7159 or <r.c.hardy@larc.nasa.gov>.

Read the *Researcher News* online at <http://researchernews.larc.nasa.gov>.

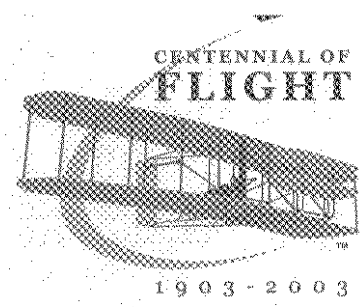
Window To The World

NASA Astronaut Susan J. Helms admires the view from the optical window in the International Space Station's Destiny Laboratory during the STS-100 mission. Don Avery of Langley Research Center's Space Science Support Office led the 60-person, multi-agency team that developed the window's optical specifications and design. The Destiny Laboratory has been in orbit since January and will be ready for Earth and atmospheric observational research when the Window Observational Research Facility (WORF) is launched in 2002.

Photo courtesy of Don Avery

Regional Firm Selected For COF Contract

By SARAH KEEGAN
NASA Headquarters



The U.S. Centennial of Flight Commission has selected Carter Ryley Thomas Public Relations and Marketing Counsel (CRT) of Richmond to support the Commission in encouraging and promoting national and international commemoration of the centennial of powered flight.

CRT will develop and implement a detailed and wide-ranging plan to increase awareness of centennial events and the centennial itself, which will occur on Dec. 17, 2003.

"We were impressed by CRT's thorough understanding of our goals for this anniversary celebration," said Sherry Foster, executive director of the U.S. Centennial of Flight Commission. "Their research, their ideas and their presentation really showed the passion and strengths of CRT."

"This is a wonderful opportunity," said CRT President Mark Raper. "We will be helping share this compelling story of innovation while capturing imaginations and inspiring future inventors. We look forward to working hand-in-hand with the commission on a project of such magnitude."

CRT's outreach plan will focus particularly on reaching school children in all 50 states and serve as a resource for organizations promoting the centennial. Work on the three-year contract, which was awarded to CRT on June 20, began July 1.

More information on the Commission and the centennial can be found on the Internet at <www.centennialofflight.gov>.

CRT, which also has offices in Los Angeles, Norfolk, Roanoke and Charleston, S.C., is Virginia's largest public relations firm and ranks 31st among the largest independent agencies in the nation.

More information is available on the Internet at <www.crtpr.com>.

Co-op Spotlight

Student Spends His Time 'Milling' About

By THOMAS DECKER
Public Affairs Office

Langley Research Center's Cooperative Education Program has been a feeding ground for students hungry for gaining hands-on experience in their fields of study, giving them a chance to participate in current NASA projects and research.

Michael Fuchs, for example, is a co-op working under the guidance of Mike Sorokach in Langley's Model Systems Branch of the Aerodynamics, Aerothermodymanics, and Acoustics Competency (AAAC). Fuchs, an undergraduate from the University of New Mexico, is directly involved in research aimed to reduce cycle time in the manufacturing of prototype wind tunnel models.

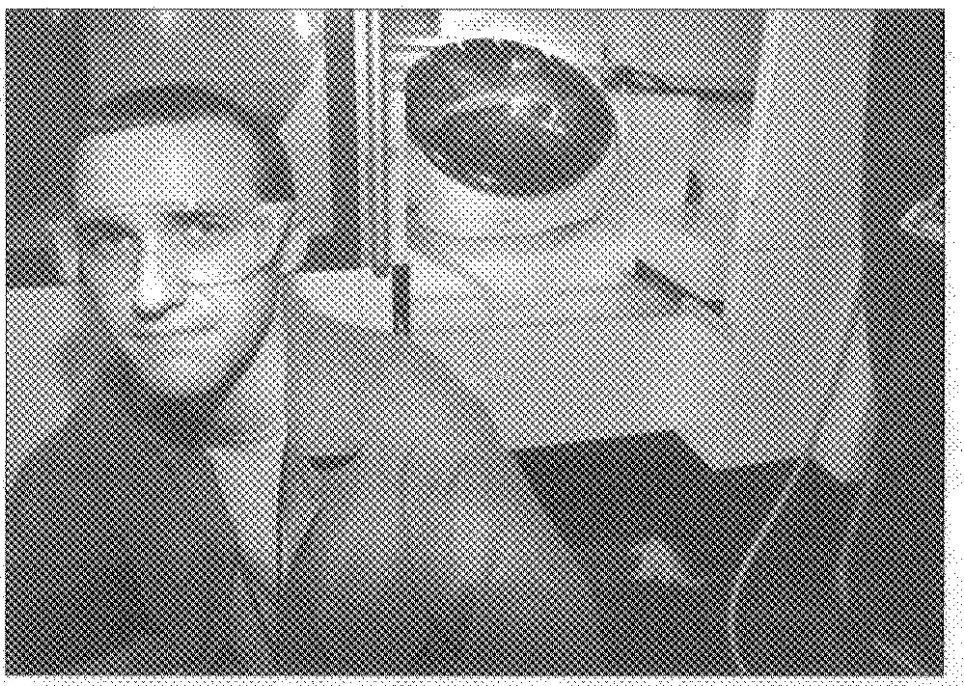
Fuchs is helping develop a simulation of Langley's new Huron milling machines that will detect any programming errors before a part is run. Not only will this give Langley a more economical manufacturing technique, but it will also allow greater productivity and the possibility for more complicated and delicate parts.

"It has been a great experience for me, not only to be involved with an organization like NASA, but also to see the full process of ideas being turned into finished products and playing an important role in their development," Fuchs said.

"These are the sorts of things that can't be taught in an academic environment. To truly understand this process you have to get out and be involved in it, which has been a fantastic learning experience for me."

To learn more about Michael Fuchs and some of the projects he has worked on outside of NASA, visit his Web page at <http://www.unm.edu/~jetman>.

Thomas Decker is a Langley Aerospace Research Summer Scholars (LARSS) student in Langley's Public Affairs Office.



Michael Fuchs, a co-op student from the University of New Mexico, is helping Langley Research Center's Model Systems Branch develop a simulation of of the Center's new Huron milling machines that will detect any programming errors before a part is run.

Photo by Jeff Caplan

AdVentures

Van Tour Schedule Expanded

The Virginia Air and Space Center (VASC) offers van tours of Langley Research Center and Langley Air Force Base at 11 a.m. and 2 p.m. Monday through Saturday and 2 p.m. Sunday.

The cost is $5 per person with VASC admission or $7 per person without. Children under 12 must be accompanied by an adult on the tour.

For more information, call 727-0900 or visit the VASC Web site at <www.vasc.org>. For information on how to serve as a tour docent, call Steve Devan at 898-9290.

AIAA Summer Picnic On Aug. 2

The Hampton Roads Section of the American Institute of Aeronautics and Astronautics (AIAA) will host "A Family Affair," its annual summer picnic, at 4:30 p.m. **Aug. 2** on the picnic grounds of Langley Research Center's H.J.E. Reid Conference Center. "Mugsy the Clown" will be on-hand to entertain children from 5 to 7 p.m.

The cost is $5 for members and their guests, $6 for non-members, $4 for student members and $3 for children between the ages 6 and 12. Children under 6 will be admitted free. Anyone joining AIAA at the picnic will be admitted free, along with one guest.

Reservations are requested by July 30, but payment can be made "at the door."

For more information, contact Mamad Takallu at 864-7671 or <m.a.takallu@larc.nasa.gov> or Robin Hardy at 864-7159 or <r.c.hardy@larc.nasa.gov>.

Second Diversity Day On Aug. 3

Langley Research Center's Multicultural Leadership Team (MCLT) will sponsor the Center's second annual Diversity Day from 11 a.m. to 3 p.m. **Aug. 3** on the picnic grounds of the H.J.E. Reid Conference Center.

This year's event will feature a variety of cultural displays, a fashion show and performances by Middle Eastern dancers, the Hellenic Youth Dancers, the Suwabi African Ballet and Langley employee Raul Mejia. Free food sampling will take place from noon to 2 p.m.

The guest speaker will be Kelly Wright, the co-anchor of "Fox43 News at 10."

For more information, contact James Fields Jr. at 864-5565 or <j.fields@larc.nasa.gov> or Nicole Turner at 864-2105 or <n.turner@larc.nasa.gov>.

Diversity Day is in alignment with NASA's mission; employees who participate in Diversity Day should charge their time to J.O. B1000.

Space Camps Planned At Wallops

The Virginia Space Flight Academy will hold weeklong summer camps for 12- to 14-year-olds from **Aug. 5-10** and for 14- to 16-year-olds from **Aug. 12-17** at NASA's Wallops Flight Facility on the Eastern Shore of Virginia.

Participants will be involved in a host of hands-on experiences, from repairing the malfunctioning Hubble Space Telescope in "Alien Encounter" to designing a space station in "Project Space Colony." Tuition is $550, which includes double-occupancy housing, meals, a T-shirt and all instructional materials.

The Academy is supported by the Eastern Shore Regional Partnership, the Virginia Space Flight Center, NASA, NOAA and the U.S. Navy.

For more information, call 1-866-75SPACE or e-mail <spaceacademy@intercom.net>.

CLASSIFIED

FOR SALE OR RENT: Poquoson Place Townhouse, 3 bedrooms, 2.5 baths, living room, dining room, eat-in kitchen, lots of closets, storage room off patio, fenced back yard, gas heat, water heater and logs. Rent for $750 or buy for $93,000. Call 825-5250, 838-6000 or 868-5386.

FOR SALE: '97 Ford F-150, XLT SuperCab, 4x4, 5.4L Triton V8, automatic, all power, A/C, third door, long bed, tow package, radio/cassette player with six-CD changer, burgundy with matching camper cap, excellent condition, one owner, low miles, $18,000. Call 539-0849.

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The next edition of the *Researcher News* will be published on Aug. 11. Please send submissions to <j.r.roberts@larc.nasa.gov> by July 30.

Duplicate Bridge Game Aug. 8

Langley Research Center's Duplicate Bridge Club will host a game at 5:30 p.m. **Aug. 8** in the Langley Room of the H.J.E. Reid Conference Center.

The winners of the July 11 game were: first place, Judy Ferris and Tom Finley; second place, S. Balakrishna and Vijaya Unnam; and third place, John Ferrainolo and Sankara Sankaran.

For more information, call Tom Norum at 864-7902, Larry Bement at 864-7084, S.N. Sankaran at 864-3516 or John Ferrainolo at 864-2385.

JIAFS Registration Aug. 13 and 14

George Washington University's Joint Institute for Advancement of Flight Sciences (JIAFS) at Langley Research Center will hold registration for fall semester classes on **Aug. 13** and **14**.

JIAFS offers graduate and post-graduate degrees in aeronautics, astronautics, fluid mechanics and thermal sciences, and structures and dynamics.

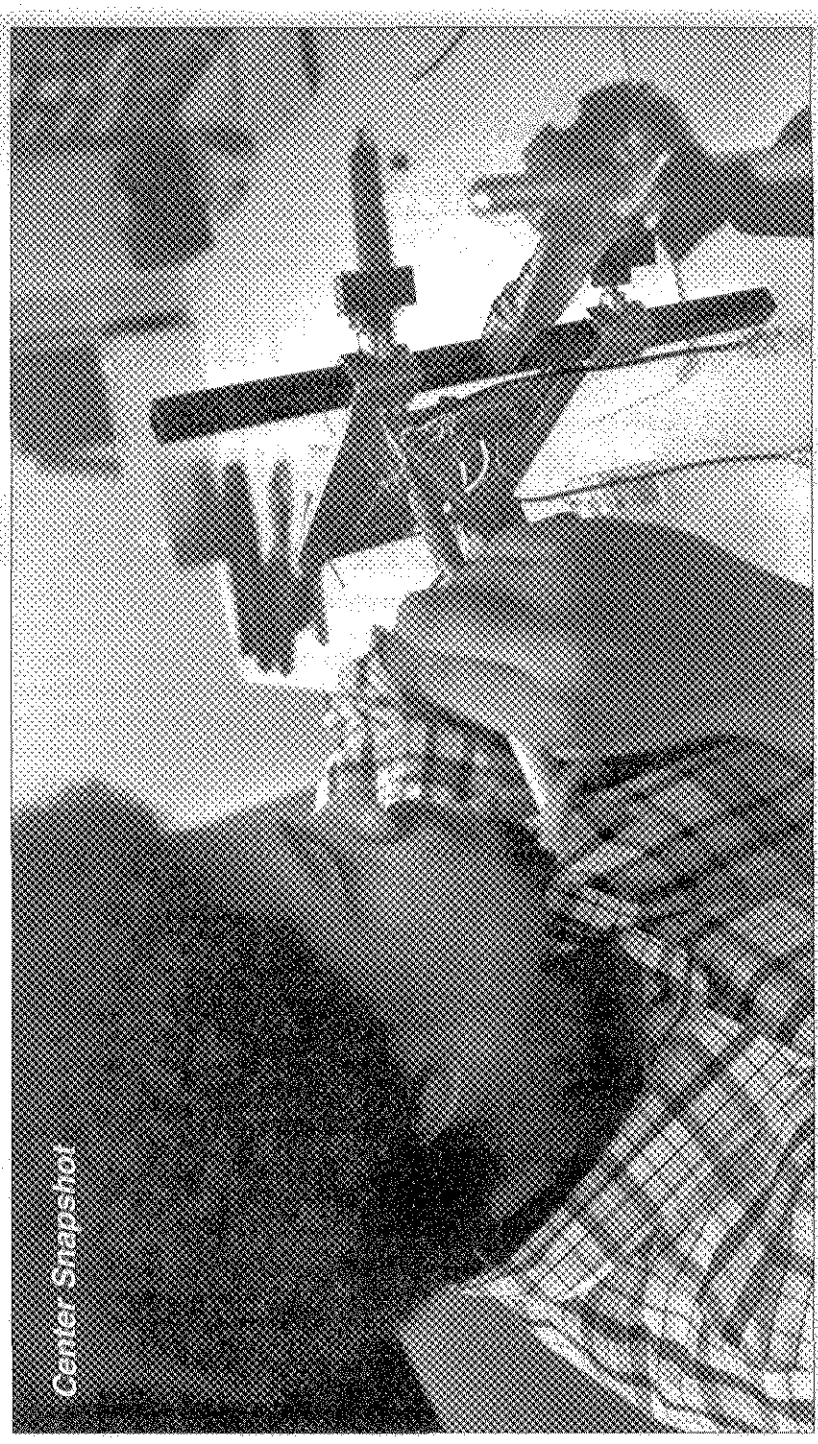
For more information, contact the JIAFS office at 864-1982 or <jiafs@larc.nasa.gov> or visit the JIAFS Web site at <http://www.seas.gwu.edu/~jiafs/fall.html>.

AIAA Offering Graduate Awards

The American Institute of Aeronautics and Astronautics (AIAA) Foundation is accepting applications for the first-ever Orville and Wilbur Wright Graduate Awards.

The $10,000 awards will be presented annually, beginning in 2002, to four students participating in master's or doctoral thesis research in engineering/science.

The deadline to apply is **Jan. 31, 2002**. For an application or more information, visit <http://www.flight100.org/activities/awards.html> on the Internet.



Harvon Jemiel Rose, a rising sophomore at Florida A&M University, has been working with Clyde Medley in Langley Research Center's Structures Acoustics Branch this summer as part of the Increase Minority Access to Graduate Engineering (IMAGE) Program. Rose said he plans to earn bachelor's degrees in electrical engineering and computer engineering. What does he like about working at Langley? "I'm just learning a lot," he said. "It has opened my eyes to a lot of new stuff."

Photo by Jeff Caplan

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Langley Research Center

News Researcher

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Volume 15 ❖ Issue 16 ❖ Aug. 10, 2001

Research Beacon

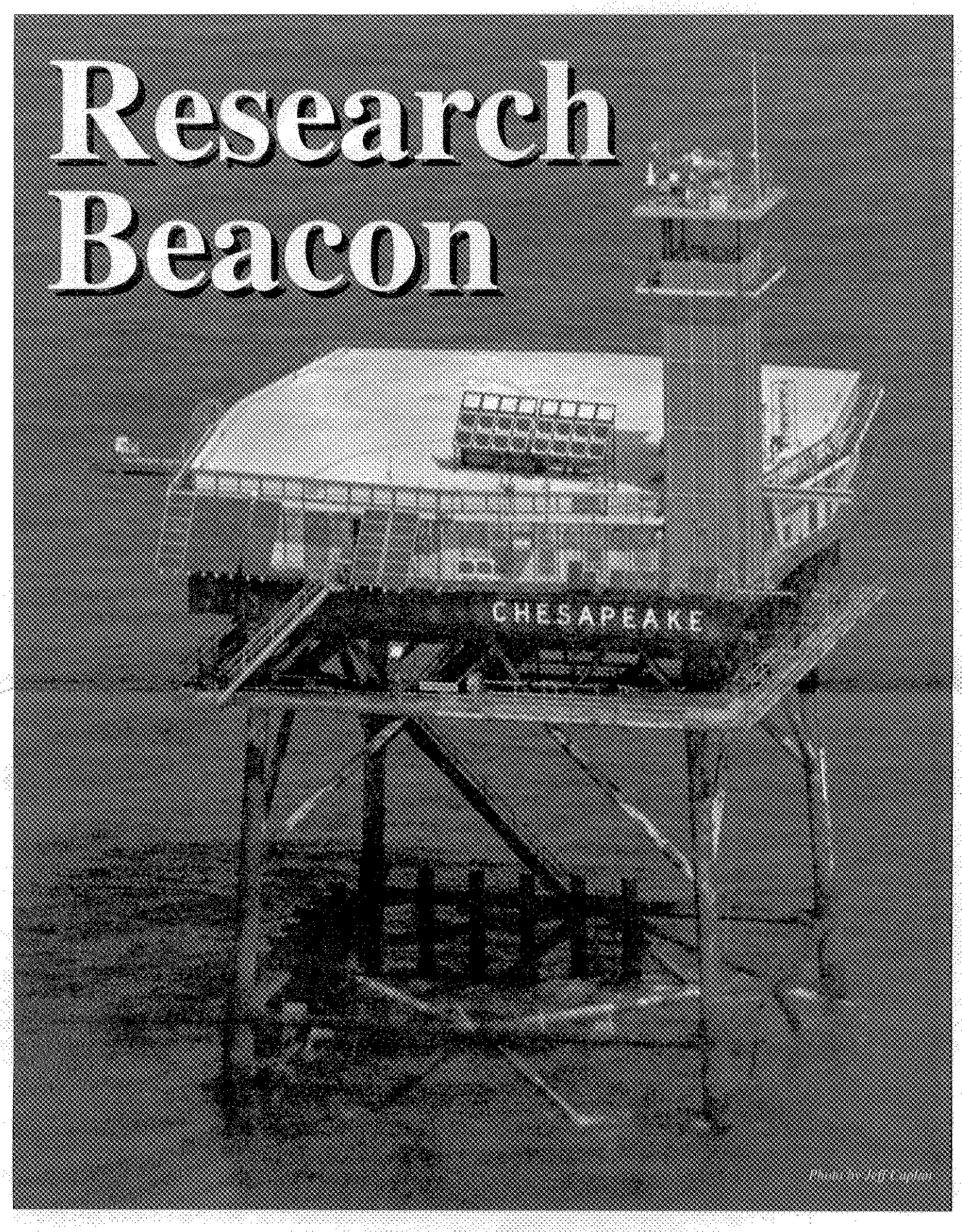


Photo by NASA Langley

Lighthouse Helps Provide Data On How The Ocean Affects The Atmosphere

By JULIA COLE
SAIC

NASA scientists are using a Virginia lighthouse, research aircraft and a satellite for a unique field study this summer. On the sea, in the sky and from outer space, they are hoping for a better understanding of global climate change.

Led by Langley Research Center, the Chesapeake Lighthouse and Aircraft Measurements for Satellites (CLAMS) campaign started in early July. Scientists are using equipment mounted on the U.S. Coast Guard's Chesapeake lighthouse about 15 miles off the coast of Virginia Beach, as

Continued on Page 3

Contest Winners Named

Embry-Riddle Wins With Retrofitted Engine

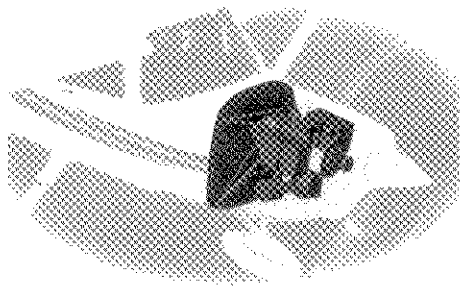
By MARY SANDY
Virginia Space Grant Consortium

NASA, the Federal Aviation Administration (FAA) and the Air Force Research Laboratory (AFRL) recognized the winners of the National General Aviation Design Competition July 27 at AirVenture2001, the Experimental Aircraft Association's Annual Convention and Fly-In at Oshkosh, Wis.

The competition calls for individuals or teams of U.S. students to participate in a major national effort to rebuild the U.S. general aviation sector. Participants are challenged to meet the engineering goals of NASA's Advanced General Aviation Transport Experiment (AGATE) project. For the purpose of the contest, general aviation aircraft are typically defined as single- or twin-engine (turbine or piston), single-pilot, fixed-wing aircraft for two to six passengers. NASA, the FAA and AFRL hope to stimulate breakthroughs in technology and their application in the general aviation marketplace.

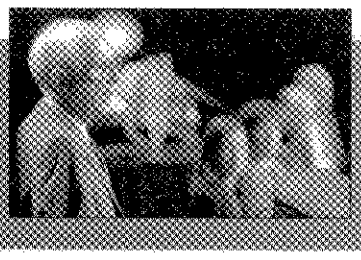
The first-place award was presented to a team from Embry-Riddle Aeronautical University. The team's design seeks to retrofit the popular Cessna 182 Skylane with a modern, turbocharged, reciprocating diesel engine that runs on readily available jet A fuel. The review panel, comprised of representatives from NASA, FAA, industry and academia, praised the design for its practicality and

Continued on Page 5

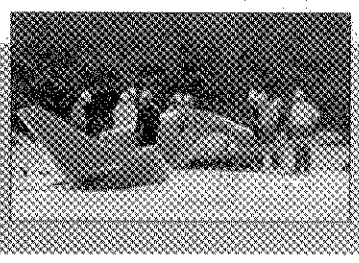


Embry-Riddle Aeronautical University's award-winning design seeks to retrofit the popular Cessna 182 Skylane with a modern, turbocharged, reciprocating diesel engine that runs on readily available jet A fuel.
Courtesy of Embry-Riddle Aeronautical University

Inside This Issue:



Forum Marks Viking Anniversary *Page 3*



AGATE Drop Tests Composite Aircraft *Page 4*

News Briefs

Around the Agency

GOLDIN ANNOUNCES ISS REVIEW TEAM

A diverse team of world-renowned experts, including two Nobel laureates and the world's most famous heart surgeon, make up an independent task force created by NASA Administrator Daniel S. Goldin to take a focused look at the budget and management challenges facing the International Space Station (ISS) program.

"In the last year, we have successfully carried out all of the 14 scheduled assembly missions to the International Space Station. We did so with unbelievable precision and execution, completing the second phase of space station construction," Goldin said. "It's an incredible management and engineering achievement, but we must ensure it is carried out in a more efficient and effective manner."

The panel will report its findings to the NAC by Nov. 1, 2001. RELEASE: 01-152

RESEARCHERS MAKE MATERIALS DISCOVERY

A NASA-funded study in materials science has yielded a discovery that may significantly change the way electronics, paint, cosmetics and pharmaceutical industries develop products.

Researchers discovered a new approach for suspending fine particles in fluids. Such collections of particles, called colloids or colloidal suspensions, may help researchers better understand how to manipulate small particle assemblies found in fluids such as water or organic solvents (e.g., ethanol).

More information on NASA's Biological and Physical Research Program is available at <http://spaceresearch.nasa.gov>. RELEASE: 01-154

BULGING STAR EYED BY ASTRONOMERS

For the first time ever, a star spinning so fast its mid-section is stretched out has been directly measured by an ultra-high-resolution NASA telescope system on Palomar Mountain near San Diego.

"Measuring the shape of this star, Altair, was as difficult as standing in Los Angeles, looking at a hen's egg in New York, and trying to prove that it's oval-shaped and not circular," said Charles Beichman, chief scientist for astronomy and physics at NASA's Jet Propulsion Laboratory.

Images and animation of Altair are available at <http://www.jpl.nasa.gov/images/stars/index.html>. RELEASE: 01-150

NASA REJOINS JAPAN IN OBSERVATORY PROJECT

The United States and Japan will team up to rebuild and launch a powerful observatory for measuring high energy phenomena in the Universe.

The Astro-E2 observatory will replace the original Astro-E satellite, which was lost during launch in February 2000. The Japanese government recently approved the Astro-E2 mission and has invited NASA to participate.

For more information about Astro-E, visit <http://astroe.gsfc.nasa.gov> on the Internet. RELEASE: 01-147

News Researcher

The Researcher News is an official publication of Langley Research Center, National Aeronautics and Space Administration, Hampton, Va., 23681-2199. It is published every other Friday in the interest of all Langley staff, contractors and retirees and has a circulation of approximately 8,100. It is distributed to all Langley civil service employees, contractors, retirees and on-site university personnel, with limited distribution to NASA Headquarters, other NASA centers and, by special request, to other non-NASA individuals and organizations. Questions related to the content and distribution of the Researcher News should be addressed to Keith Henry, Mail Stop 115, (757) 864-6120. Submit contributions/SDL 026, 055, 110 changes to the editor via e-mail <j.r.roberts@larc.nasa.gov>, fax (757) 864-6477, telephone (757) 864-8150 or Mail Stop 293. Articles, photos and announcements are due at noon the Monday following the date of this issue.

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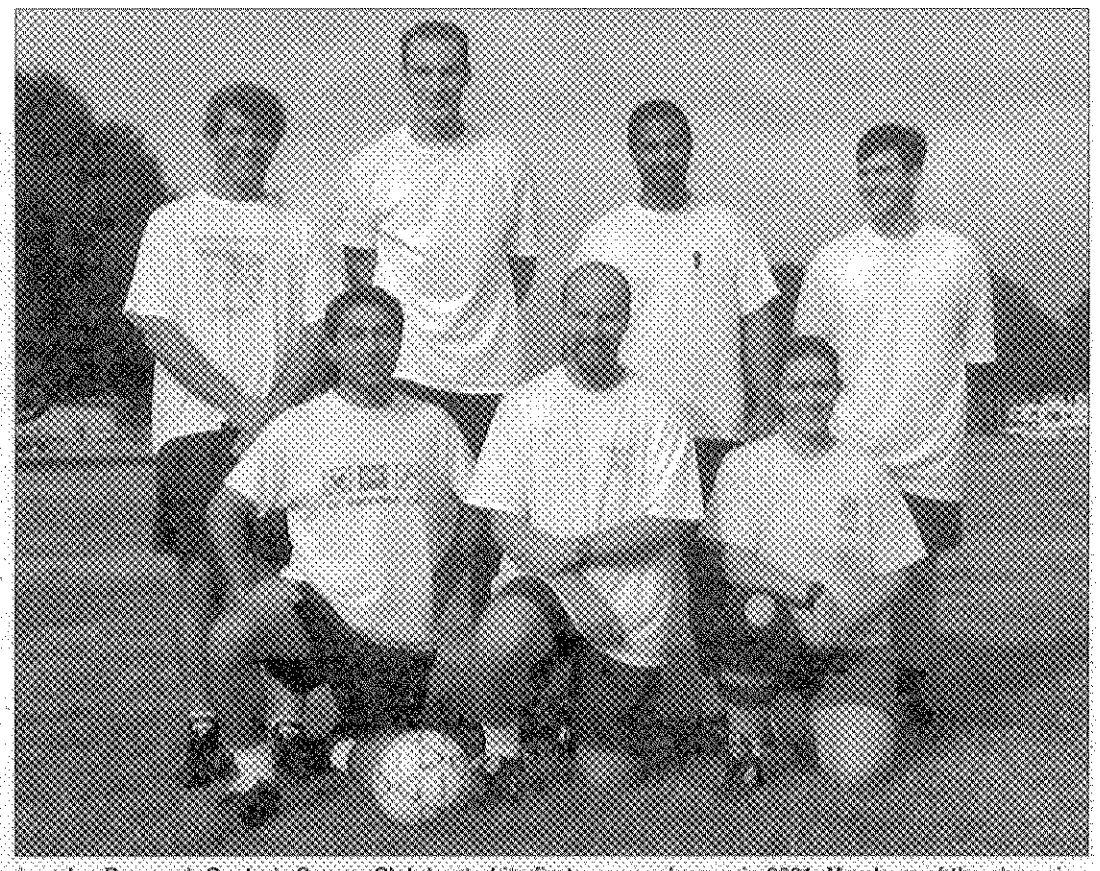
Planners Collaborative/
Science and Technology Corp.

The privilege of listing announcements in this publication is restricted to the employees, contractors and retirees of the Langley Research Center. Articles must be offered without regard to race, color, religion, sex or national origin. All materials are subject to editing.

Read the *Researcher News* online at <http://researchernews.larc.nasa.gov>.

People

League Champs!



Langley Research Center's Soccer Club hosted its first summer league in 2001. Members of the championship team were: (standing, left to right) Jeffery Murch, Richard Lawrence, Micah Solter and Joe Del Corso; and (kneeling, left to right) Mahyar Malekpour, Brian Wenny and Jen Parker. (Team members Ben George and Rob Kramer were not present.) For more information about the club, visit <http://members.aol.com/mahyarfa/soccer.htm>. For photos of all the club's teams, visit the Researcher News Online at <http://researchernews.larc.nasa.gov>.

Photo courtesy of Mahyar Malekpour

OHR Offering Resume Workshops

Langley Research Center's Office of Human Resources will host 10 "NASA STARS Resume Building Sessions" in August. The sessions will take place from 9 to 10:30 a.m. and 1:30 to 3 p.m. Aug. 16 and 17 in Bldg. 1195C, Room 127 and from 9 to 10:30 a.m. and 1:30 to 3 p.m. Aug. 20-22 in Bldg. 1224T7 behind the H.J.E. Reid Conference Center.

The workshops are being provided to show employees how to build resumes for inclusion on NASA Staffing And Recruitment System (STARS). STARS is one of 10 components of NASA's Integrated Financial Management Program (IFMP) project.

To register, use the online registration system at <http://class.larc.nasa.gov/cgi-bin/edb/index.cgi>.

For more information, call Liz Ford at 864-8108 or Lois Alliss at 864-2509 or e-mail <nasastars@larc.nasa.gov>. More information also is available at the NASA STARS Web site: <http://nasastars.nasa.gov>.

Letters

"Thank you for the wonderful retirement party. It was great to see current friends and old friends. Thank you all for your kind words and special gifts. I will always remember this occasion with great fondness."

Milt Holt

"I want to thank all my friends and co-workers who attended and contributed to my retirement dinner both in person and spirit. It was one of the best I ever had the honor to attend. I appreciate that you all took the time and effort to wish me well in my retirement. Many thanks for your gifts and most generous contributions to the 'Boater's World' gift certificates. Now I have the pleasure of picking out something that will bring you all to mind upon use. Once again thank you."

Theresa C. Walker

"I would like to thank all of my co-workers and friends at NASA for my wonderful retirement party. I will truly miss each and every one of you. It has been a joy working with you over the years and you will forever be a part of my life."

Inez Jenkins

In Memoriam

Lavinia R. Agee

Lavinia "Lou" Rew Agee died on July 19 at the age of 87. Agee, a native of Accomac, worked as a conference coordinator at Langley Research Center, retiring in 1980.

Corrections

Due to an editing error, Larry Bement's name appeared as a contact person in the Langley Duplicate Bridge Club announcement in the July 27 edition of the *Researcher News*. Bement passed away on April 30.

In the same edition, due to a printing error, the subheadline and photo caption associated with the story "NASA Scholarship Awarded" were omitted.

The *Researcher News* regrets the errors.

CLAMS

Continued from Page 1

well as instruments on six research airplanes and the orbiting Terra research satellite to enhance their knowledge of how the ocean affects the atmosphere.

"Ultimately, we are trying to improve our understanding of the Earth's climate," said Langley researcher Bill Smith Jr., the CLAMS lead mission scientist.

Scheduled through early August, CLAMS' goals are to improve satellite-based estimates of aerosol measurements and to measure ocean characteristics. This will create a better understanding of how Earth maintains its overall temperature or energy budget.

Researchers fly the aircraft at the same time, one above another, to scan the ocean and sample air high into the atmosphere. CLAMS is using the NASA OV-10, the NASA ER-2, the University of Washington Convair 580, a Proteus aircraft, a Learjet and a Cessna during the mission. Mission operations and some of the planes are based at the NASA Wallops Flight Facility on Wallops Island.

> *"Ultimately, we are trying to improve our understanding of the Earth's climate."*
> **Bill Smith Jr.**

Scientists will combine measurements from aircraft instruments and from the long-term CERES Ocean Validation Experiment (COVE) at the lighthouse to improve information from Clouds and the Earth's Radiant Energy System (CERES) and other instruments on NASA's Terra satellite.

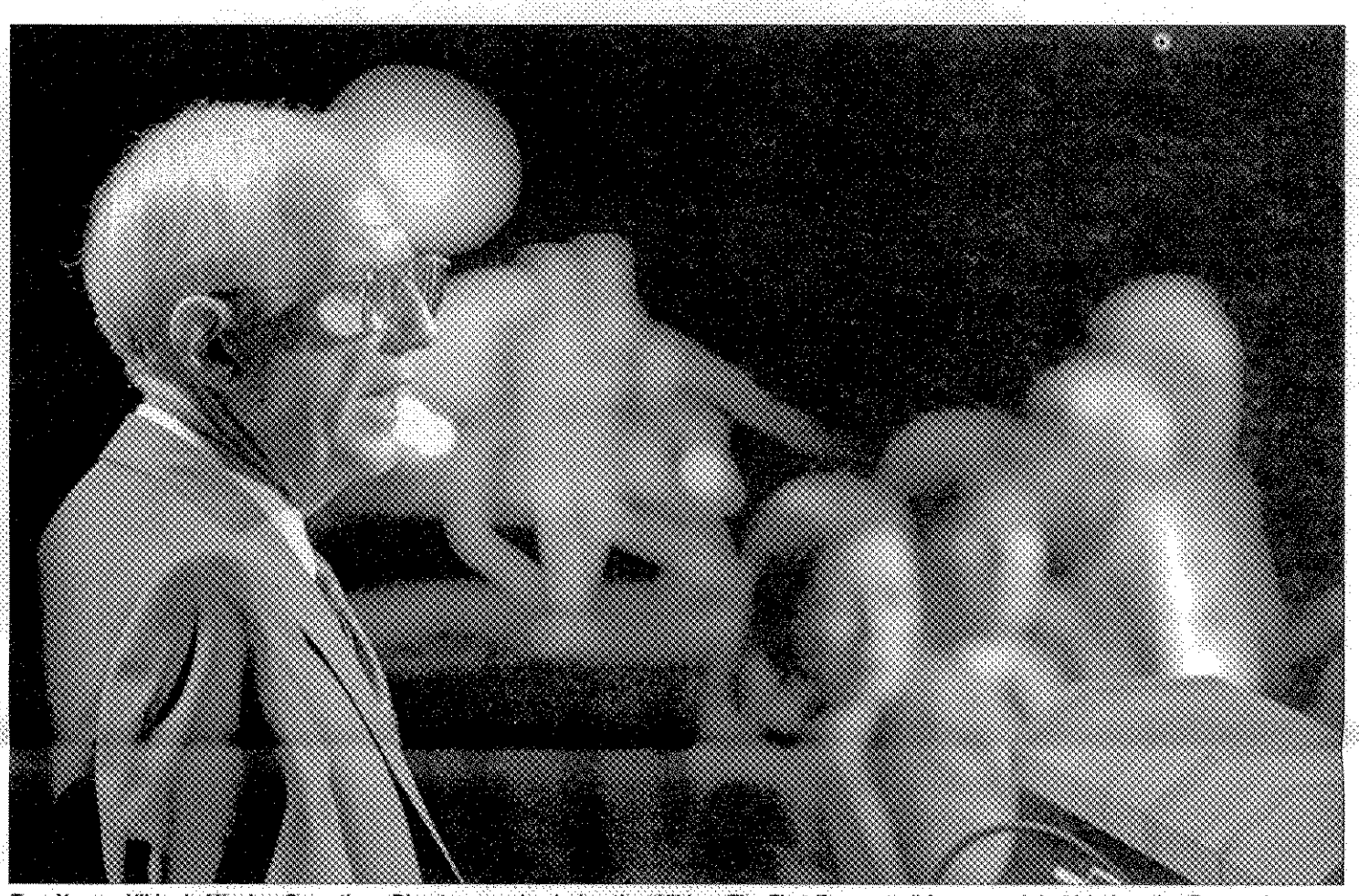
"CLAMS is focusing on understanding some important pieces of the climate prediction puzzle, such as ocean properties and atmospheric aerosols, so we can improve estimates of the Earth's energy budget," Smith said.

The Terra spacecraft is part of NASA's Earth Science Enterprise, a long-term research effort dedicated to understanding how human-induced and natural changes affect our global environment.

Additional information is available on the Internet at <http://snowdog.larc.nasa.gov/clams/>.

Chris Rink of Langley's Public Affairs Office also contributed to this story.

'A Shining Light Of Achievement'



Tom Young, Viking's Mission Operations Director, speaks during the "Viking: The First Encounter" forum on July 20 in Langley Research Center's H.J.E. Reid Conference Center. Also participating in the forum were Mary Kae Lockwood, Jim Garvin, Gentry Lee and former Center Director Edgar M. Cortright.

Photos by Jeff Caplan

Forum Marks Viking's 25th Anniversary

By JIM ROBERTS
Researcher News editor

Langley Research Center marked the 25th anniversary of the Viking mission by hosting "Viking: The First Encounter," a forum in the H.J.E. Reid Conference Center that was simulcast on NASA TV, on July 20.

Panelists included Tom Young, Viking's Mission Operations Director; Gentry Lee, Viking's Director of Science and Mission Planning; Jim Garvin, Lead Scientist of NASA's Mars Exploration Program; and Mary Kae Lockwood, Planetary Team Lead of Langley's Vehicle Analysis Branch.

Former Center Director Edgar M. Cortright, who replaced Jim Martin as the forum's moderator, kicked off the event, calling Viking "a shining light of achievement for space technology."

Lee carried on that theme, saying, "The accomplishment has lost none of its luster." He called Viking "the mission against which all other missions will be measured."

The forum was co-sponsored by the Hampton Roads Section of the American Institute of Aeronautics and Astronautics (AIAA), Lockheed Martin Corp. and Langley's Colloquium Committee.

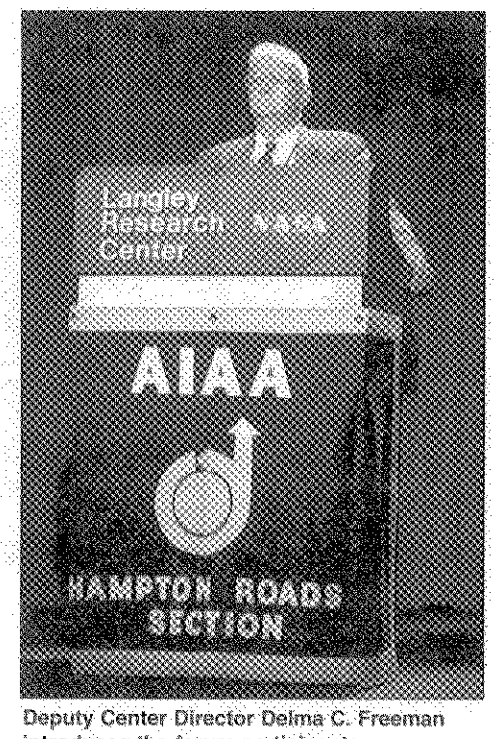
Other special events taking place included a Mars/Viking Symposium sponsored by Lockheed Martin on July 19 in Washington, D.C., and the Viking 25th Anniversary Reunion on July 21 at the Virginia Air and Space Center in Hampton.

President George W. Bush also recognized the anniversary by writing a commendation letter to NASA Administrator Daniel S. Goldin. "The exploration of Mars brings out the best in Americans," the President wrote. "It challenges us to learn, to strive and to achieve dreams that were impossible for earlier generations."

The complete text of the President's commendation can be read on the Internet at <http://www.nasa.gov/newsinfo/viking_potus2001.html>.

Viking's historic mission to Mars changed our understanding of Earth's neighbor and inspired a robust Martian exploration program that lives on today.

Langley managed the Viking project until 1978, when it was turned over to NASA's Jet Propulsion Laboratory.



Deputy Center Director Delma C. Freeman introduces the forum participants.

LARSS: 15 And Still Going Strong

Summer Program Has Grown From 20 Students To More Than 120

By SUSAN HUBSCHER
Public Affairs Office

More than 120 students from 59 universities participated in Langley Research Center's Summer Scholars (LARSS) program this year.

Photos by Jeff Caplan

More than 120 students from 59 universities participated in Langley Research Center's Summer Scholars (LARSS) program this year. Ed Prior, deputy director of Langley's Office of Education (OEd), credits the genesis of the LARSS program to Samuel Massenberg, OEd's director.

"He wanted to bring undergraduate students to Langley to raise their interest in the future of NASA, specifically in the areas of math, science and engineering," Prior said. "That was fairly daring the first year he did it because we were the first NASA center to try that type of program. Fast forward 15 years to today, and LARSS is the most popular of all NASA Langley's university programs."

Roger Hathaway, Langley's University Affairs Officer, said the students chosen for the LARSS program need more than just an impressive resume.

"We are looking for students who are excited about the ongoing research that Langley is involved in, but more important, students who are excited about future opportunities to explore an area of research that might be of great benefit to them — and to NASA," he said.

LARSS students get the chance to contribute to real-time projects using NASA technology and resources, assisted by experienced guidance from a mentor. The benefits for the student, researcher and the Center are immeasurable.

"The program is competitive," said Dan Moyers, a LARSS student from West Virginia University. "But once you get in, you gain access to all the resources to conduct your research and you are guided by the best research engineers in the world."

Although research-based, LARSS is not just for engineers and scientists. More than 35 academic disciplines are represented, including aerospace engineering, chemistry, computer science, accounting, mass communication, physics and law.

The research in all of these fields center around hands-on experience. For example, Jason Calhoun operated a flight simulator, Luis Pizana and Allyson Keener helped improve the computer program of Langley's 3-D experimental world, and Rachel Shaia and Michael Green balanced accounts and paid bills in the finance division. In fact, LARSS students are scattered throughout Langley's facilities.

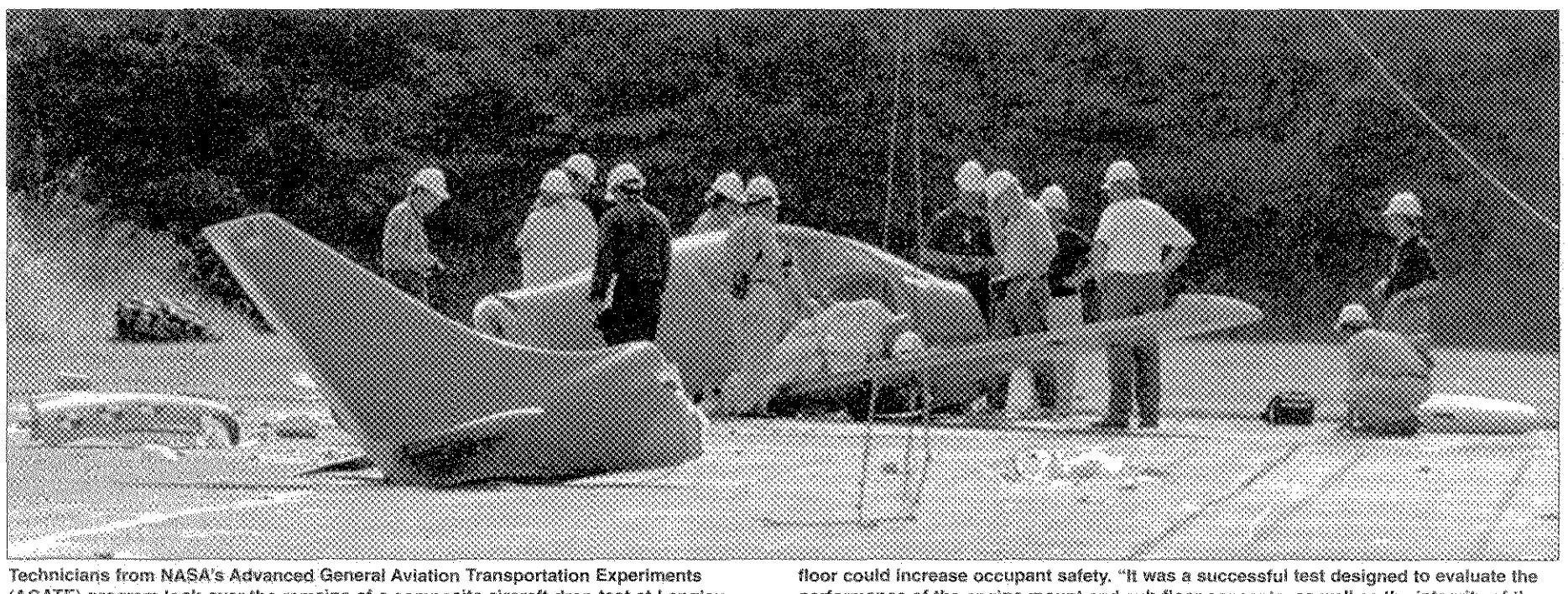
The program is designed to give these students a first-hand look at a possible career with Langley after graduation. In addition, the students are able to apply their book knowledge to help further current scientific research. LARSS students are encouraged throughout the program to use all of these experiences to pursue further education with a graduate and doctorate degree.

"It's really important to be able to jump out of the academic world into a project that can be applied to real life situations," said Ngan Huang, a senior at the Massachusetts Institute of Technology. "In school, we learn the fundamental concepts. It is one thing to know the concepts, and it's another to apply them to real research that can be used to benefit society."

For more information about the LARSS program, visit <http://edu.larc.nasa.gov/larss/> on the Internet.

Susan Hubscher is a Langley Aerospace Research Summer Scholars (LARSS) student in Langley's Public Affairs Office.

Composite Aircraft Drop Test



Technicians from NASA's Advanced General Aviation Transportation Experiments (AGATE) program look over the remains of a composite aircraft drop test at Langley Research Center's Impact Dynamics Research Facility. The test, which took place in July, was conducted to determine if a redesigned engine mount and energy-absorbing sub-floor could increase occupant safety. "It was a successful test designed to evaluate the performance of the engine mount and sub-floor concepts, as well as the integrity of the occupant compartment," said test engineer Karen Lyle.

Photo by Jeff Caplan

Contest

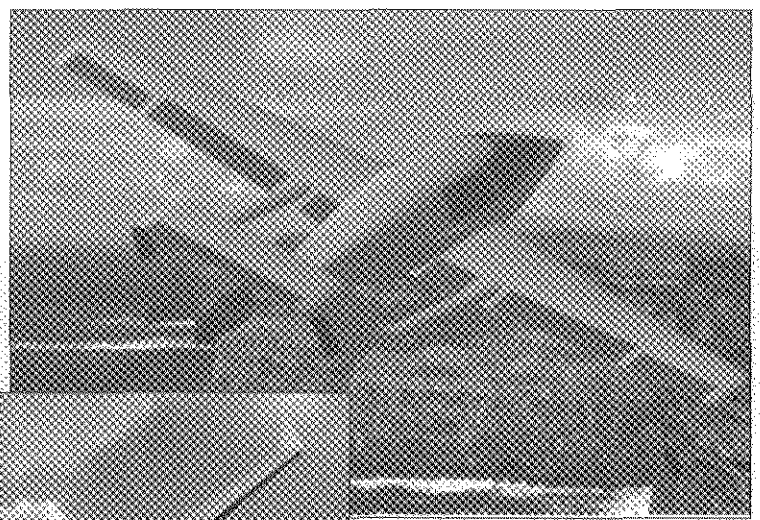
Continued from Page 1

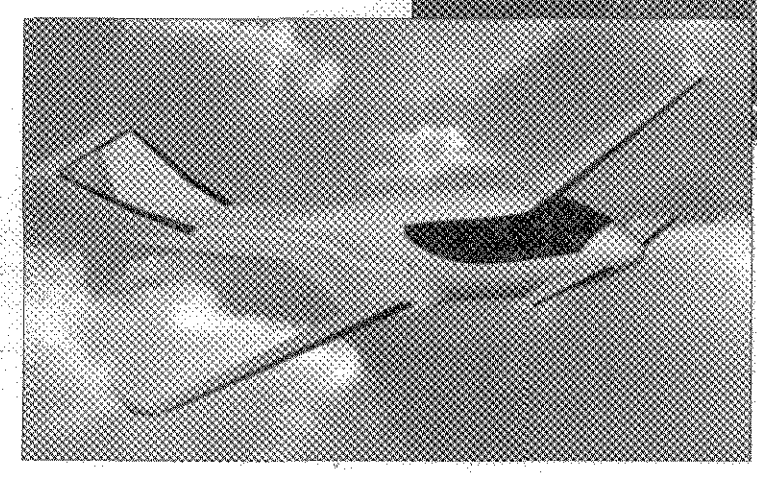
rated the design effort as outstanding overall.

The first-place award provides a total of $3,000 to Embry-Riddle's team members and a $5,000 award to the university's Aerospace Engineering Program. James Ladesic and Reda Mankbadi served as the team's faculty advisors.

Second-place honors went to Penn State University. The team's design, "Defiance," features a four-place, single engine, turbofan-powered, general aviation aircraft. The twin-tail-boom, twin-vertical-tail layout uses both aluminum and modern composite materials, and features advanced aerodynamics, avionics and support systems. The second place award provides a $2,000 prize to the team. Hubert C. "Skip" Smith was the team's faculty advisor. Penn State has placed in every year of the competition.

The third-place award went to the University of Virginia for a design dubbed "Vector Evolution." The design combines the fast, high-altitude performance of a business jet with the short takeoff and landing performance of a typical general aviation aircraft. The team's faculty advisor was James McDaniel. For third place, the team will share a $1,000 prize.





Penn State University took second-place honors for its design, "Defiance," (right) and the University of Virginia took third place for "Vector Evolution" (below).

An honorable mention in the General Aviation Design Competition went to Virginia Tech and its collaborating international partner, Loughborough University, for "Tempus," an aircraft with a 3,600-nautical-mile range. The team set a goal of efficient, affordable and comfortable transportation between international destinations. James Marchman was the Virginia Tech faculty advisor, and Gary Page and Lloyd Jenkinson served as faculty advisors at Loughborough.

The best use of Air Force-developed technologies award was presented to the University of Virginia's "Vector Evolution" design. The team received an additional $3,000 from the AFRL. The technologies included: wireless flight controls; non-hydraulic, electric actuator systems; and aerogel and serrated engine-nozzle-edge noise-reduction techniques.

The competition for the 2000-2001 academic year was managed by the Virginia Space Grant Consortium. The AGATE project will end in September, and the new competition will be managed by the General Aviation Programs Office at Langley Research Center.

For more information, visit <http://oea.larc.nasa.gov/designimages> on the Internet.

Keith Henry of Langley Research Center's Public Affairs Office, Michael Braukus of NASA Headquarters and Tony Molinaro of the FAA Great Lakes Region also contributed to this story.

MCLT's 'Spice of Life'

Get To Know The MCLT's Members

By MICHAEL D. UENKING
MCLT Subteam Leader

In our previous column, we encouraged Langley Research Center employees to learn more about the people they work with. To that end, this column introduces the members of Langley's Multicultural Leadership Team (MCLT) and provides brief cultural backgrounds of a few.

The MCLT is led by Ledora Akanni, chairperson; Stephen Scotti, co-chairperson; and Nicole Turner, secretary.

This year's members are Ray Carpio, Pat Cosgrove, Theon Danet, John Diamond, Harriett Dismond, James Fields, Sam Harper, Jesse James, Betsy Kennedy, Sandra Keyes, Raul Mejia, Gerri Rankin, Henry Russell, Michael Uenking and Bernice Weinstein.

The MCLT's sponsor is Lana Couch, the Center's Associate Director for Business Management, and the advisor is Vivian Merritt, head of the Office of Equal Opportunity Programs.

Here are descriptions of some of the members:

■ **Stephen Scotti** was born and raised in New Jersey in an extended Italian-American family that had migrated and remained there from the early 1900s. Although he attended various Catholic schools for his primary and secondary educations, he later married a woman that helped him to learn to be more culturally diverse who influenced him to become a member of the Baha'i faith. He currently resides in York County.

■ **Patrick Cosgrove** is of Irish and German descent and was born in Boston. He was raised in suburban Chicago in a family of four older brothers. He was raised as a Roman Catholic. He later moved to Virginia in 1989 and has been here ever since. He has family spread out into California, Arkansas and Florida.

■ **Harriett Dismond** is an African-American of deep Southern heritage. Her mother is from Houston, and her father was born and raised in Hampton. Her father served in the U.S. Army. In fact, Harriett was born in France while her father was serving a tour of duty there. Her family later returned to Hampton where she was raised. She is very active in various civic organizations. She has experienced some of her adult life in Richmond and New York City. She has been at NASA since 1988.

MULTICULTURAL LEADERSHIP TEAM
MCLT
NASA LANGLEY RESEARCH CENTER

■ **Jesse James** graduated from high school in Newport News. He is of Afro-American descent. His best assessment of his ancestral history points towards Ghana near the Ivory Coast. He enjoys spending time studying the Spanish language and its culture.

■ **Betsy Kennedy** was born in Baton Rouge, La., but does not consider herself to be of Cajun descent. She considers herself a Southern belle and was raised entirely in the deep south. She moved to the Peninsula in 1988 and claims Virginia as her home now.

■ **Sandra Keyes** was born and raised in Virginia with her older brother. She grew up in a fishing and farming community which to this day is still very rural. She didn't have an initial appreciation for religious beliefs but later embraced Christian theology. She has some Native American descent on her father's side. She is heavily involved in her church activities and volunteers in her local community. She has been a NASA employee since 1990.

■ **Raul Mejia** was born in the Dominican Republic as a Hispanic (with blood lines from Spain, France and Africa). When he was 14, he left the Dominican Republic to come to the United States. He attended a prep school and college in Alabama and then later graduate schools in Mississippi and Louisiana. He was a teacher in a junior high school, a high school, and in a Houston college before becoming an employee of the aerospace industry and later NASA.

■ **Michael Uenking** was born in the Philippines to a Filipino mother and an American father who was of Polish Czechoslovakian descent. He was adopted and grew up in an U.S. Navy family home. His adopted mother is of Portuguese descent and his adopted father was of German descent. He attended two different Catholic elementary schools and then transferred to the public school system in ninth grade. Although being raised in a Catholic environment, he later embraced the ideals practiced in a nondenominational Christian church. He currently resides in Newport News and has been employed at NASA since 1988.

■ **Bernice Weinstein** was born in New Jersey to two Jewish parents. All of her grandparents were immigrants to this country. She was raised in New Jersey in an area where Jews were a minority.

As you can see, the MCLT itself is very diverse and culturally molded. If you want to find out more about the MCLT or how you can help the team, feel free to contact any of the members.

Employees' submissions and ideas are welcomed; send them to Michael D. Uenking at <m.d.uenking@ larc.nasa.gov>.

Read the *Researcher News* online at <http://researchernews.larc.nasa.gov>.

AdVentures

CLASSIFIED

FOR SALE: '97 Ford F150, XLT SuperCab, 4x4, 5.4L Triton V8, automatic, all power A/C, third door, long bed, tow package, radio/cassette player with six-CD changer, burgundy with matching camper cap, excellent condition, one owner, low miles, $17,800. Call 539-0849.

FOR SALE: Washer, dryer and freezer, $475. Call 369-1868 after 7 p.m.

FOR SALE: Wood and cast iron entertainment center in good condition, Western style, holds 27-inch TV, shelf and cabinet for components, $100. Call 249-3988.

FOR ADOPTION: Kittens, two male, one female, about 16 weeks old, already have first shots, love outdoors, very playful. Call 850-1934 after 5 p.m.

❖ ❖ ❖

The next edition of the *Researcher News* will be published on Aug. 24. Please send submissions to <j.r.roberts@larc.nasa.gov> by Aug. 13.

Open House Photos Now Online

Pictures taken during Langley Research Center's Open House on April 28 can now be seen on the Langley Image Scanning, Archival and Retrieval (LISAR) Web site: <http://lisar.larc.nasa.gov/>. To access the photos, click on "Browse library of digital images" and then on numbers 26 through 35.

Space Camp Planned At Wallops

The Virginia Space Flight Academy will hold a weeklong summer camp for 14- to 16-year-olds from **Aug. 12-17** at NASA's Wallops Flight Facility on the Eastern Shore of Virginia.

Participants will be involved in a host of hands-on experiences, from repairing the malfunctioning Hubble Space Telescope in "Alien Encounter" to designing a space station in "Project Space Colony." Tuition is $550, which includes double-occupancy housing, meals, a T-shirt and all instructional materials.

The Academy is supported by the Eastern Shore Regional Partnership, the Virginia Space Flight Center, NASA, NOAA and the U.S. Navy.

For more information, call 1-866-75SPACE or e-mail <spaceacademy@intercom.net>.

NARFE Summer Luncheon Aug. 13

Chapter 682 of the National Association of Retired Federal Employees (NARFE) will hold its summer luncheon at 11:30 a.m. **Aug. 13** at the Langley Air Force Base Officers Club.

The cost is $11 per person. All federal employees are invited to attend. For more information, call Catherine Askew at 247-1558.

JIAFS Registration Aug. 13-24

George Washington University's Joint Institute for Advancement of Flight Sciences (JIAFS) at Langley Research Center will hold registration for fall semester classes from **Aug. 13-24**.

JIAFS offers graduate degrees in aeronautics, astronautics, fluid mechanics and thermal sciences, and structures and dynamics.

For more information, contact the JIAFS office at 864-1982 or <jiafs@ larc.nasa.gov> or visit the JIAFS Web site at <http://www.seas.gwu.edu/~jiafs/fall. html>.

LAA Touring Paper Plant On Aug. 14

Langley Research Center's Alumni Association (LAA) will tour the Smurfit-Stone Paper Plant in West Point on **Aug. 14**. For reservations or more information, call 864-7330.

AIAA Soliciting EOY Nominations

The Hampton Roads Section (HRS) of the American Institute of Aeronautics and Astronautics (AIAA) is soliciting nominations for the 2002 Engineer of the Year (EOY) Award.

The award recognizes a member of the HRS for distinguishing himself or herself in some facet of aerospace engineering. Nominees shall have made a recent significant contribution to the art and science of aerospace engineering that is worthy of recognition.

Nomination packages should be sent by **Oct. 1** to Jamshid A. Samareh at Mail Stop 159.

For more information, visit <http://www.seva.net/~aiaa/ awards.html> on the Internet or contact Jamshid Samareh at 864-5776 or <j.a.samareh@larc.nasa.gov> or Robin Hardy at 864-7159 or <r.c.hardy@larc.nasa.gov>.

AIAA Offering Graduate Awards

The American Institute of Aeronautics and Astronautics (AIAA) Foundation is accepting applications for the first-ever Orville and Wilbur Wright Graduate Awards.

The $10,000 awards will be presented annually, beginning in 2002, to four students participating in master's or doctoral thesis research in engineering or science.

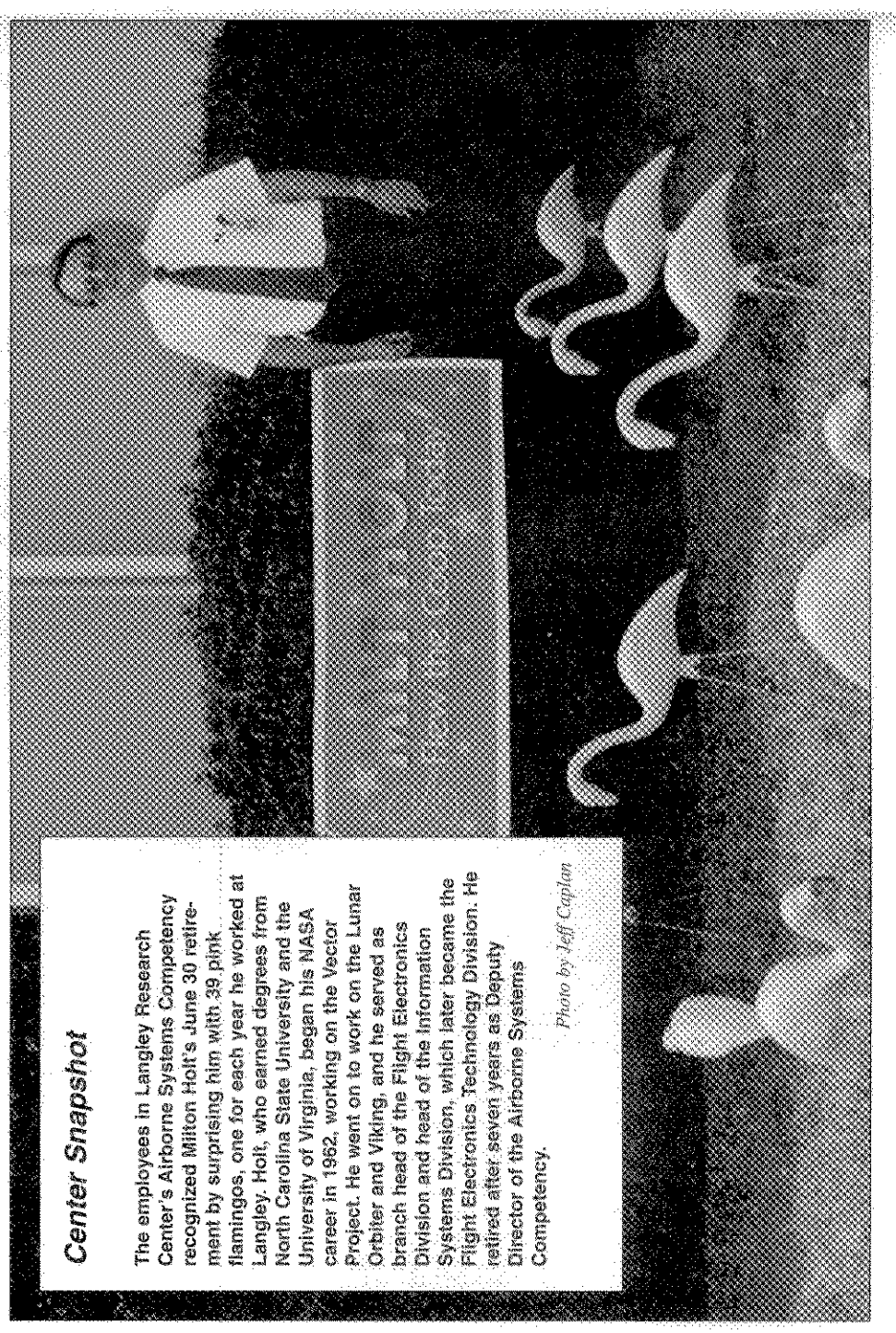
The deadline to apply is **Jan. 31, 2002**. For an application or more information, visit <http://www.flight100.org/activities/awards.html> on the Internet.

Tour Schedule Continues

The Virginia Air and Space Center (VASC) offers tours of Langley Research Center and Langley Air Force Base at 11 a.m. and 2 p.m. Monday through Saturday and 2 p.m. Sunday.

The cost is $5 per person with VASC admission or $7 per person without. Children under 12 must be accompanied by an adult on the tour.

For more information, call 727-0900 or visit the VASC Web site at <www.vasc.org>. For information on how to serve as a tour docent, call Steve Devan at 898-9290.



Center Snapshot

The employees in Langley Research Center's Airborne Systems Competency recognized Milton Holt's June 30 retirement by surprising him with 39 pink flamingos, one for each year he worked at Langley. Holt, who earned degrees from North Carolina State University and the University of Virginia, began his NASA career in 1962, working on the Vector Project. He went on to work on the Lunar Orbiter and Viking, and he served as branch head of the Flight Electronics Division and head of the Information Systems Division, which later became the Flight Electronics Technology Division. He retired after seven years as Deputy Director of the Airborne Systems Competency.

Photo by Jeff Caplan

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Researcher News

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Hampton, Virginia 23681-2199

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National Aeronautics and
Space Administration
Langley Research Center

News Researcher

Biweekly Employee and Contractor Publication

Volume 15 ❖ Issue 17 ❖ Aug. 24, 2001

Diversity Day 2001

Langley Research Center's Multicultural Leadership Team (MCLT) hosted the Center's second annual Diversity Day on Aug. 3 on the picnic grounds of the H.J.E. Reid Conference Center. The event featured a variety of culturally diverse entertainment and ethnic foods. Left: Kelly Wright, the co-anchor of Fox 43's "News At 10," was the event's keynote speaker. Far left: Lynn Jenkins of Langley's Office of Procurement demonstrates a tribal-style Middle Eastern dance. Below: Walter Bailey, a contractor supporting Langley's Office of Security and Environmental Management, and Peggy Harmon of Langley's Systems Engineering Competency enjoy some Jamaican jerk chicken.

Photos by Jeff Caplan

AA Praises Earth Science Work On Visit

By JULIA COLE
SAIC

Ghassem Asrar, NASA's Associate Administrator for Earth Science, visited Langley Research Center on Aug. 10, highlighting the Center's present and future roles in the Enterprise.

"We had the most successful year in the 25-year history of Earth Science at NASA," Asrar said. "We are enabling unprecedented views for understanding the Earth system."

Asrar cited the success of the Earth Observing System (EOS), a mission dedicated to long-term observations of Earth's systems that includes Langley instruments such as Clouds and the Earth's Radiant Energy System (CERES).

"By the end of 2003, we will complete the first phase of EOS," Asrar said.

The completion highlights a first step in a top priority of the Earth Science Enterprise: fulfilling NASA's commitments. One of the promises is to gain new insights into Earth's systems and to share the information with scientists, educators and the public worldwide.

Asrar

"We need to move aggressively to implement this plan, answer the science questions and provide those answers in forms useful to the nation," Asrar said.

According to Asrar, a new administration, Congress and the American taxpayers want to know how NASA's research will benefit them. NASA has responded by offering three areas where Earth science research is important: weather prediction, climate change and natural hazards.

"I believe Langley can contribute, especially in terms of climate change and weather prediction, specifically from the aviation point of view," Asrar said. "NASA counts on your active engagement in this program."

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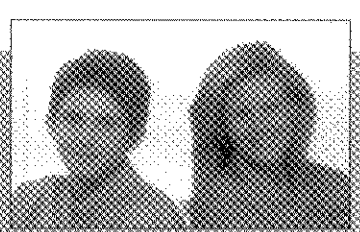

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News Briefs

Around the Agency

JUPITER-SIZED PLANET FOUND ORBITING STAR

A team of astronomers has found a Jupiter-sized planet orbiting a faint nearby star similar to our Sun, raising intriguing prospects of finding a solar system like our own.

The planet is the second found orbiting the star 47 Ursae Majoris in the Big Dipper, also known as Ursa Major or the Big Bear. The new planet is at least three-fourths the mass of Jupiter and orbits the star at a distance that, in our Solar System, would place it beyond Mars but within the orbit of Jupiter. RELEASE: 01-166

HELIOS SOLAR AIRCRAFT SETS ALTITUDE RECORD

NASA's solar-powered, propeller-driven Helios aircraft set a new world record altitude of 96,500 feet on Aug. 13, surpassing the old record for aircraft without rocket power by more than 10,000 feet. Sustained operations at that altitude promise to enable capabilities ranging from environmental monitoring to radically improved communications on Earth to simulating flight in the atmosphere of Mars.

NASA Administrator Daniel S. Goldin, who has been a strong supporter of solar-powered flight, said, "This is a groundbreaking accomplishment which will advance this technology to new heights." RELEASE: 01-165

FUSE TRACES STRUCTURE OF EARLY UNIVERSE

NASA's Far Ultraviolet Spectroscopic Explorer (FUSE) satellite has given astronomers their best glimpse yet at the ghostly cobweb of helium gas left over from the Big Bang, which underlies the universe's structure. The helium is not found in galaxies or stars but spread thinly through the vastness of space.

The observations, published in the Aug. 10 issue of Science, help confirm theoretical models of how matter in the expanding universe condensed into a web-like structure pervading all the space between galaxies. The helium traces the architecture of the universe back to very early times. This structure arose from small gravitational instabilities seeded in the chaos just after the Big Bang.

More information on FUSE can be found on the Internet at <http://fuse.pha.jhu.edu>. RELEASE: 01-160

NASA NAMES SOFTWARE OF THE YEAR WINNERS

Computer programs that reduce aircraft engine analysis time and improve the study of fluid dynamics in rocket engines have been selected as NASA's 2001 software of the year winners.

The Numerical Propulsion System Simulation (NPSS) software allows multi-fidelity analysis in designing aircraft engines, offering key technological advances to increasing the U.S. aerospace industry's competitiveness.

The Generalized Fluid System Simulation Program (GFSSP) is a general purpose computer program for analyzing fluid-flow rate, pressure, temperature and concentration in rocket engines, turbo pumps and fuel tanks. The program is capable of modeling liquid fuel phase changes including compressibility, mixture thermodynamics and the effects of external influences, such as gravity and centrifugal force. RELEASE: 01-156

Researcher News

The Researcher News is an official publication of Langley Research Center, National Aeronautics and Space Administration, Hampton, Va., 23681-2199. It is published every other Friday in the interest of all Langley staff, contractors and retirees and has a circulation of approximately 8,100. It is distributed to all Langley civil service employees, contractors, retirees and on-site university personnel, with limited distribution to NASA Headquarters, other NASA centers and, by special request, to other non-NASA individuals and organizations. Questions related to the content and distribution of the Researcher News should be addressed to Keith Henry, Mail Stop 115, (757) 864-6120. Submit contributions/SDL 026, 055, 110 changes to the editor via e-mail <j.r.roberts@larc.nasa.gov>, fax (757) 864-6477, telephone (757) 864-8150 or Mail Stop 293. Articles, photos and announcements are due at noon the Monday following the date of this issue.

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Planners Collaborative/
Science and Technology Corp.

The privilege of listing announcements in this publication is restricted to the employees, contractors and retirees of the Langley Research Center. Articles must be offered without regard to race, color, religion, sex or national origin. All materials are subject to editing.

Read the *Researcher News* online at <http://researchernews.larc.nasa.gov>.

People

NEW Workshop

Educators from Kentucky, North Carolina, South Carolina, Virginia and West Virginia — and two from France — participate in Langley Research Center's NASA Educator Workshop (NEW). During the two-week summer program, the participants learned about NASA products, visited NASA facilities, attended seminars by NASA researchers, engineers and technicians, and studied topics ranging from aeronautics to interplanetary exploration. NEW is funded by NASA's Education Division and is a collaborative effort between Langley's Office of Education and the National Science Teachers Association.

Photo courtesy of Gwen Wheatle

Center Changes Procedure For Boarding Authorizations

Langley Research Center's Airborne Systems Competency recently announced a new procedure for preparation of Boarding Authorizations (BAs). Effective immediately, all BAs should be prepared using the following Web site: <http://cast/boarding.html>.

The BA, formerly referred to as Limited Open Authorization (LOA), functions as a boarding pass to fly aboard NASA and non-NASA aircraft under prescribed circumstances. Current LOAs will remain in force until the end of Fiscal Year '01.

A password is required to enter data and prepare BAs through the Web site. For password assignment, contact Sandy Johnson at <s.g.johnson@larc.nasa.gov> or 864-6222.

CP-0904, "Authorizing Flight Aboard Non-NASA Aircraft," and CP-0905 "Authorizing Flight Requests for LaRC Aircraft" have been revised to reflect the new procedure.

Langley Retiree Elected President Of The VSBA

Langley Research Center retiree **Ronnie Henk** recently was elected president of the Virginia State Beekeepers Association (VSBA).

Henk, who also serves as treasurer of Langley's Apiculture Club, will serve a one-year term for the association, which has nearly 500 members.

Henk worked at Langley for 35 years, retiring from the Facilities Engineering Division in 1998.

Letters

"Thank you for your prayers, visits, cards and flowers during my illness. Your prayers were heard and answered; your visits were gracious for your time is most precious; your thoughtful cards of encouragement made the road less arduous; flowers brightened the days, and books brought enlightenment and laughter. Thank you for sharing and easing my burdens and those of my family and, most of all, for being our friends."

Thayer Sheets

"I thank all my friends for their kind thoughts on my retirement. Langley has been like family for me — for more than 36 years. I have so many kind and warm memories of all the wonderful people who mentored me — all dear friends. The opportunity to do research — to reach into the unknown, to work with some of the best scientists and engineers in the world — has given me a wonderful life. I wish the same for the next generation. Keep the gem in the federal crown glowing!"

Joe Heyman

In Memoriam

William S. Haywood Jr.

William Stephen Haywood Jr. died on Aug. 5 at the age of 80. Haywood, a native of Newport News, worked for NACA and NASA, retiring in 1980 from Langley Research Center's Flight Instrumentation Division.

Thomas K. Lusby Jr.

Thomas Kirk Lusby Jr. died on Aug. 12 at the age of 73. Lusby, a native of Newport News, graduated from the NASA Apprentice School in 1961 and went on to work at Langley Research Center, retiring in 1988 as head of the Electronics Fabrication Section.

Helen H. Willey

Helen Hudson Willey died on Aug. 9 at the age of 90. Willey, a native of Kinsale, worked as a supervisory mathematician for NASA, retiring in 1973 after 32 years of service.

Retinex Technology Licensed

Software Allows Amateur Photographers To Enhance Their Images

By SUSAN HUBSCHER
Public Affairs Office

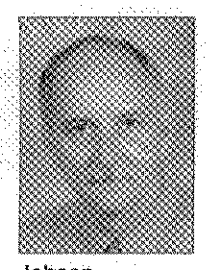
and KEITH HENRY
Public Affairs Office

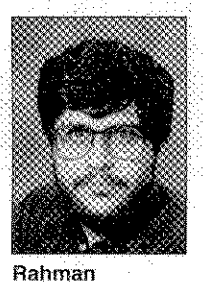
If a picture is worth 1,000 words, new technology jointly developed by NASA and industry will increase the average photographer's vocabulary many times over. It will especially help weekend photographers who use the increasingly popular digital format.

Retinex Imaging Processing will potentially affect the billions of images captured each year by the growing use of low-cost digital color cameras, color printers and desktop and Internet publishing programs.

The technology originally was developed for remote sensing of the Earth by researchers at Langley Research Center and Science and Technology Corporation (STC).

TruView Imaging Company, an affiliate of STC, has licensed the technology from NASA and plans to market it in the form of a software product for home, professional and industrial use by the end of the year.


Jobson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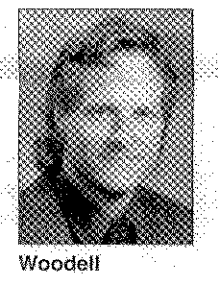
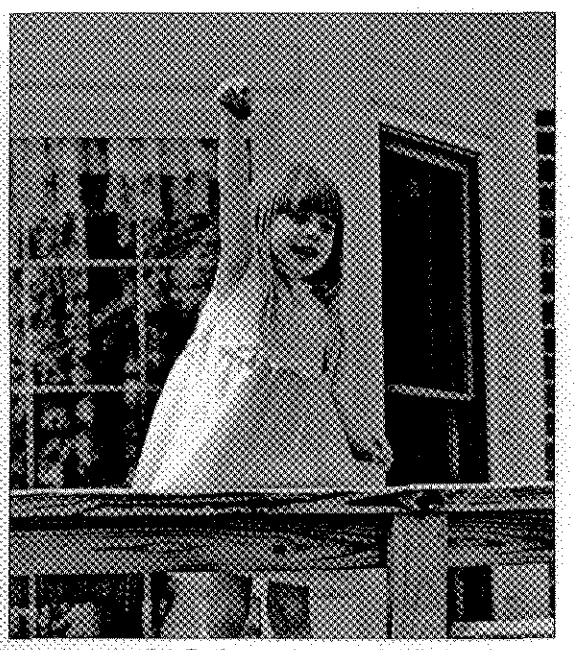

Woodell

With it, amateur photographers, armed with nothing more than their personal computer and a desire to get the most from the images they capture, will have the ability to increase the brightness, scene contrast, detail and overall sharpness of images with much more ease than they have been able to do so before.

What distinguishes this technology from existing image enhancement technologies is that it makes corrections automatically, yet allows the end-user to manipulate the image as desired. As a result, the average photographer is more likely to use the technology and use it successfully. It won't correct every image but was impressive enough to win a NASA Space Act Award as one of the Agency's top inventions of the year in 1999.

"What makes Retinex technology so valuable is that every image can stand a little improving, especially dark, low contrast images," said Langley's Glenn Woodell, one of three inventors of the technology.

Dan Jobson, also of Langley and the technology's principal investigator, teamed with co-inventors Woodell and STC's Zia-ur Rahman to modify the technology for commercial applications.


These pre- and post-Retinex images demonstrate the software's potential. Retinex enhances details lost in shadows or other low-light level zones in a picture.

Photos by Glenn Woodell

"STC thinks consumers will find this technology so easy and gratifying to use that people who would never consider doing anything more than snapping a picture will let Retinex finish the job," Rahman said.

The realistic beauty and visual impact of photographs can be diminished, damaged or ruined by a variety of possible problems.

For example, colors and details can be lost or suppressed in shadows or other low-light level zones in a picture. These same scenes, when viewed directly by the human observer, are vivid by comparison to the recorded image. Consequently, the user loses both the visual quality and emotional intensity of that captured memory.

"Existing image enhancement methods used to correct these limitations are either insufficiently powerful or require tedious and extensive manual user interactions," said Marisol Garcia, Langley's Retinex commercialization project manager.

Langley has demonstrated the software-based technology for general purpose applications such as home photography, as well as specialized applications such as surveillance imaging, medical imaging and space-related imaging. The latter includes severe high-contrast images of on-orbit Space Shuttle operations and Earth observations from space.

The technology is currently being refined for video image enhancement, where the technology's high-speed, automatic correcting features should make quick work of an otherwise tedious and extensive process.

Susan Hubscher is a Langley Aerospace Research Summer Scholars (LARSS) student in Langley's Public Affairs Office.

Colloquium and Sigma Series Lectures

Pope On 'Computational Combustion'

Stephen B. Pope will present a Colloquium lecture entitled, "Computational Combustion: from Molecular Processes to Combustor Design" at 2 p.m. Sept. 11 in Langley Research Center's H.J.E. Reid Conference Center. A Sigma Series lecture, "Computational Combustion: Bunsen Burners to Jet Engines," will follow at 7:30 p.m. at the Virginia Air and Space Center in Hampton.

Pope

The Lecture

Since the Industrial Revolution and before, combustion has been used as a source of heat, light and power. Engineers have been successful in increasing the efficiency of combustion devices while reducing the levels of pollutant emissions. However, these advances have been hard won and depend on a large measure of empiricism.

Pope's talk will describe the progress that has been made in the development of computational approaches to combustion. These approaches aim at providing detailed quantitative predictions of the combustion process, and hence facilitate the design, optimization and control of combustion devices.

The Speaker

Pope, the Sibley College Professor at Cornell University, earned undergraduate and graduate degrees in mechanical engineering at Imperial College in London. His doctoral research was concerned with turbulent flows and included measurements using Laser-Doppler anemometry, numerical calculation of turbulent flows, and the development of the PDF method for turbulent combustion.

Pope spent two post-doctoral years as a research fellow at Imperial, one year as a research fellow at the California Institute of Technology and three years on the faculty at the Massachusetts Institute of Technology. He has been at Cornell since 1982. In addition to PDF methods, his research activities include stochastic modeling of turbulence phenomena, direct numerical simulations of turbulence, and computational methods for combustion chemistry.

Pope published the textbook, "Turbulent Flows," as well as more than 100 research papers. He has presented his work in invited talks to national meetings of the Society of Industrial and Applied Mathematics, the Society of Engineering Science and the American Institute of Chemical Engineers.

Pope, the 1996 recipient of the J.P. and Mary Barger Excellence in Teaching Award, has been a consultant to The Boeing Company, Exxon, General Electric, General Motors, Rolls-Royce and UTRC and is a director of TQ Group Ltd.

Upcoming Lectures

- **Oct. 2:** Joel S. Levine on "Mars: A Strange and Complex Planet."
- **Nov. 6:** Nancy Leveson on "How Far Should We Trust Software?"
- **Dec. 4:** Robert L. Park on "Voodoo Science."

For more information about the lecture series, visit <http://shemesh.larc.nasa.gov/Lectures/> on the Web.

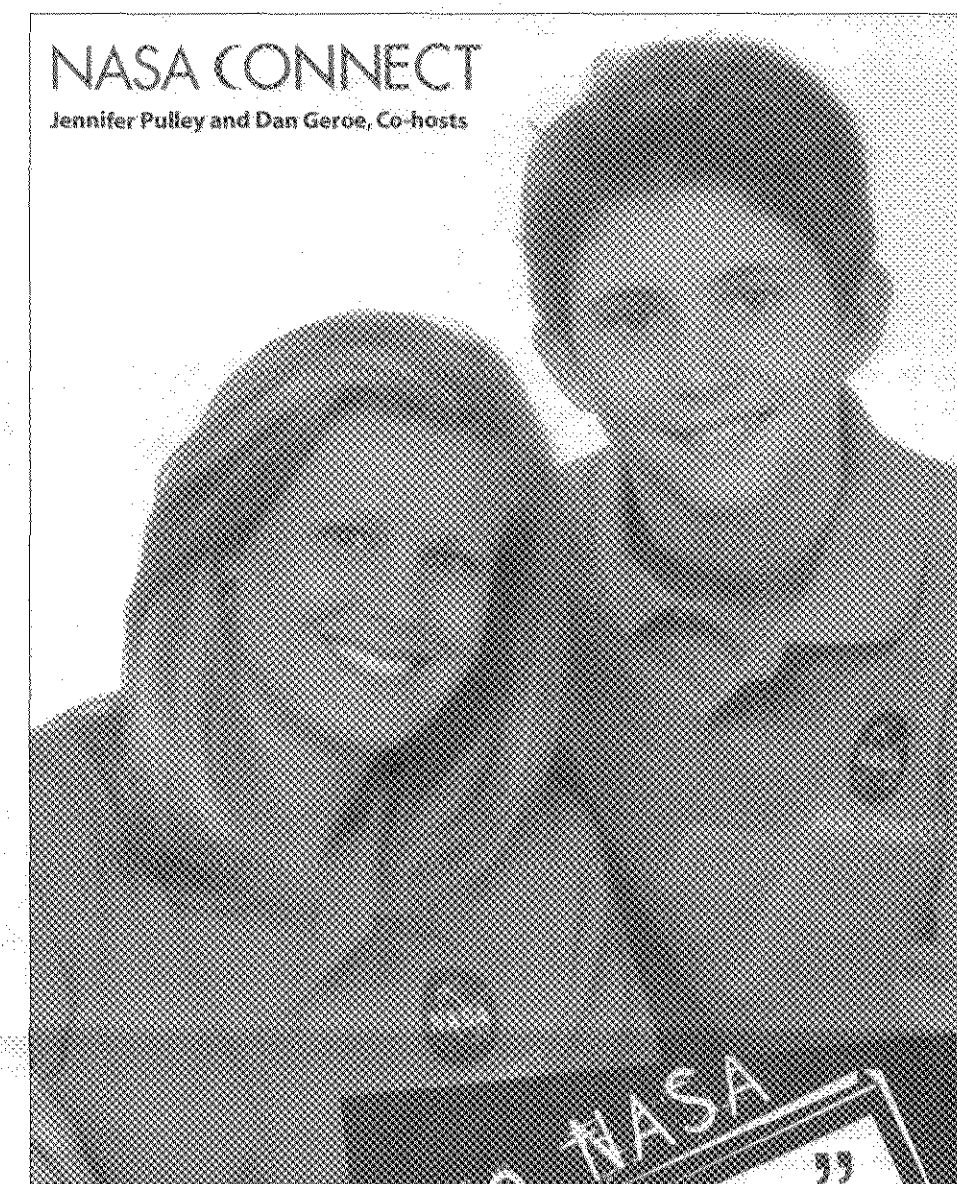
From The Office Of Education

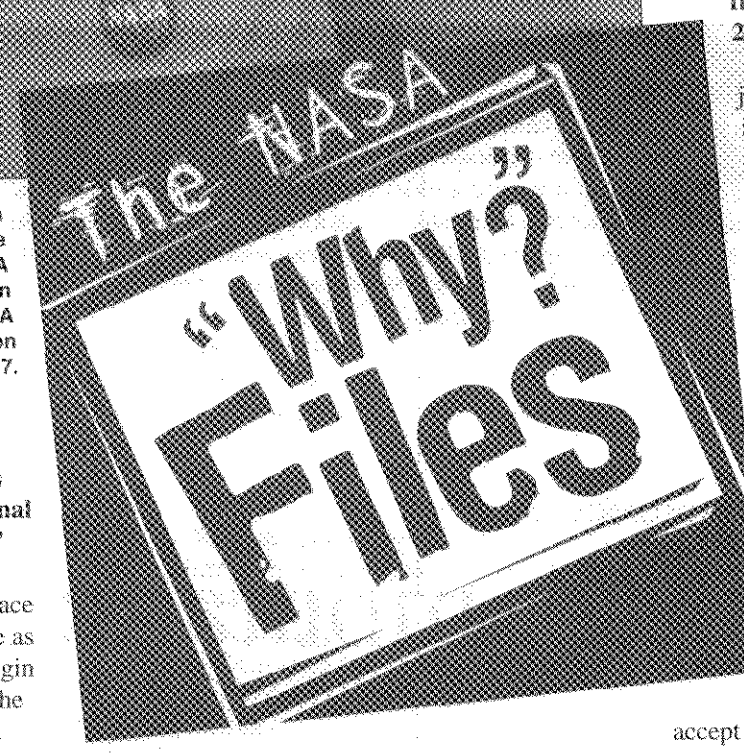
Series Announce '01-'02 Schedules

Langley Research Center's Office of Education recently announced the 2001-2002 program schedules for its award-winning television series, "NASA CONNECT" and "The NASA 'Why?' Files."

Combined, the shows reach more than 12 million students worldwide.

For more information on "NASA CONNECT," visit <http://edu.larc.nasa.gov/> on the Internet. For more information on "The NASA 'Why?' Files," visit <http://why-files.larc.nasa.gov>.





Jennifer Pulley and Dan Geroe (above) will host the 2001-2002 season of "NASA CONNECT," which will begin on Sept. 27. "The NASA 'Why?' Files" (right) season will begin on Oct. 17.

"NASA CONNECT"
Each program will run from 11 to 11:30 a.m.

Program 1: "Measurement, Ratios and Graphing: Safety First," Sept. 27.
NASA engineers and researchers use measurement, ratios and graphing to maintain high levels of aviation safety and develop new technologies to meet the growing demands — keeping you safe in tomorrow's skies.

Program 2: "Measurement, Ratios and Graphing: 3, 2, 1, Crash!" Oct. 25. ***RERUN***
Crashing planes, skidding tires and blasting water. NASA engineers work to improve airplane performance and safety.

Program 3: "Geometry and Algebra: The Future Flight Equation," Nov. 29.
NASA engineers and researchers use geometry and algebra to design, develop and test tomorrow's aircraft.

Program 4: "Geometry and Algebra: Glow With The Flow," Dec. 13. ***RERUN***
NASA aerospace engineers use scale models to see how air flows and why materials glow under wind tunnel conditions.

Program 5: "Data Analysis and Measurement: Ahead, Above The Clouds," Jan. 31, 2002. ***RERUN***
Predicting severe weather, tracking clouds and monitoring pollutants in the air are activities undertaken by NASA engineers and scientists as they seek to better understand the Earth's climate.

Program 6: "Patterns, Functions and Algebra: Wired For Space," Feb. 28, 2002. ***RERUN***
NASA researchers are developing new and innovative ways to propel spacecraft.

Program 7: "Data Analysis and Measurement: Having A Solar Blast," March 28, 2002.
NASA engineers and researchers use data analysis and measurement to predict solar storms, anticipate how they will affect the Earth and improve our understanding of the Sun-Earth system.

Program 8: "Functions And Statistics: International Space Station: Up To Us," April 25, 2002. ***RERUN***
Ground research plus space research equals true science as international researchers begin working together onboard the International Space Station.

Program 9: "Functions And Statistics: Dressed For Space," May 9, 2002.
Building on past space suit technologies, NASA engineers and researchers use functions and statistics to create the next generation of space suits for the International Space Station and beyond.

"The NASA 'Why' Files"
Each program will run from 11 a.m. to noon.

Program 1: "The Case of the Mysterious Red Light," Oct. 17.
Have you ever seen an unusually bright red sunrise or sunset and wondered why? That's exactly what happens in "The Case of the Mysterious Red Light" as the treehouse detectives accept the challenge of trying to find the source of the red light.

Program 2: "The Case of the Barking Dogs," Nov. 14. ***RERUN***
The treehouse detectives accept the challenge of determining why dogs in the surrounding neighborhoods have unexpectedly started barking in the morning and late at night. In determining the "why," the detectives learn about sound: what it is, how it is transmitted and how humans and animals hear.

Program 3: "The Case of the 'Wright' Invention," Dec. 5.
Travel back in time with the treehouse detectives to learn about the process of invention from two of the greatest inventors of all time: Orville and Wilbur Wright. As the treehouse detectives try to create their own invention, they get help from the Wright Brothers, NASA researchers and other experts in the community. The treehouse detectives find that inventing is not as easy as it seems, and it really does take the "Wright" stuff to be a good inventor.

Program 4: "The Case of the Electrical Mystery," Jan. 16, 2002. ***RERUN***
The treehouse detectives are baffled: Why is the electricity on in the treehouse but off in the houses across the street? They accept the challenge to solve the problem. The detectives learn about electricity and how it is generated. They also learn about current, circuits and distribution. In solving the case, they learn that the "electrical mystery" is not simply an "open" and "closed" case.

Program 5: "The Case of the Inhabitable Habitat," Feb. 13, 2002.
Students are invited to actively join the treehouse detectives as they investigate the devastating changes that have occurred in the local fishing industry. The fish have disappeared! In solving this case, the treehouse detectives learn about various habitats on land, in the water and even in space. They learn about the animals that depend on these habitats and how changes created by both man and nature affect their existence. The treehouse detectives determine that habits can have a big impact on habitats.

Program 6: "The Case of the Challenging Flight," March 13, 2002. ***RERUN***
The treehouse detectives accept a challenge to compete in an "egg-stra-ordinary" airplane contest. Our detectives design and build an airplane by using common household materials and learn about the four basic components of flight: lift, thrust, drag and weight.

Program 7: "The Case of the Phenomenal Weather," April 10, 2002.
Join the treehouse detectives as they plan a trip to the Caribbean and encounter problems in trying to predict the weather. In this case the treehouse detectives will learn about violent storms, such as hurricanes and tornadoes, weather fronts, global wind patterns and climates. While solving the case, they will discover that predicting the weather is not predictable at all!

Read the *Researcher News* online at <http://researchernews.larc.nasa.gov>.

'Brown Bag Series' Begins Sept. 13

By JULIA COLE
SAIC

Langley Research Center's Atmospheric Sciences Competency will kick off its "Brown Bag Lunch Series" at 11:30 a.m. Sept. 13 in the Pearl Young Theater.

The series, which will continue every Thursday through Nov. 15, will feature lead scientists discussing current and future atmospheric studies, including joint aeronautical and atmospheric research opportunities.

"We want to point out how atmospheric science is a good fit with Langley's aeronautical programs and how we can work better together," said Lenny McMaster, director of the Atmospheric Sciences Competency.

Atmospheric science research at Langley can trace its beginnings to the Center's aeronautical studies. In the 1960s, scientists began exploring how atmospheric dynamics, density and temperature varied with altitude to understand their affect on aircraft performance. By the 1970s, Langley scientists had expanded their efforts to include atmospheric chemistry research and shifted their research emphasis to environmental concerns.

Rich in aeronautical heritage, Langley's atmospheric science research impacted how all of NASA studies Earth. Langley's early involvement in atmospheric chemistry and dynamics evolved into it being the lead center for atmospheric science research for the Earth Science Enterprise.

In addition, Langley's engineering expertise in technology development for aeronautics was a major contributor to Earth remote-sensing instruments. McMaster said Langley has developed a significant portion of all NASA spaceborne atmospheric research instruments.

"The key to the success of this work has been that the technologists and engineers are able to work on a day-to-day basis with atmospheric scientists to innovate the next generation of remote sensing tools for both aeronautical and earth science applications," McMaster said.

Today the Atmospheric Sciences Competency's mission is to understand how natural and human-induced actions are impacting Earth's atmosphere and global climate change. While atmospheric science research at Langley emphasizes environmental issues, there are still many opportunities for atmospheric and aeronautical scientists to work together.

"That kind of connection continues today in aviation safety, weather and wake vortex prediction studies," said McMaster.

McMaster will begin the series with an overview of the Competency. On Sept. 20, Research Scientist Brad Pierce will talk about atmospheric dynamics and transport research. Other Brown Bag topics are tropospheric and stratospheric chemistry, technology, the Atmospheric Sciences Data Center and major remote-sensing missions.

Volunteers Needed For Annual Events

By PAMELA J. VERNIEL
Public Services Office

Langley Research Center's Public Services Office once again is recruiting employees and retirees to participate in two annual events: the Community Day of Caring and the School Tools Drive.

The 11th annual Community Day of Caring will take place from 9 a.m. to 4 p.m. Sept. 14.

Volunteers are needed for a variety of assignments, from painting and planting to constructing playgrounds for children and houses for families. Talent is needed in the following areas: plumbing, electricity, air conditioning, landscaping, carpentry and computers. Volunteers also are needed for general clean-up, fix-up chores, office work, housekeeping, help with day camps, and stocking food pantries.

There is something for everyone.

Center Director Dr. Jeremiah F. Creedon has approved up to eight hours of administrative leave for Langley civil service employees.

Contractors who wish to participate should contact their corporate offices for leave policies. As always, retirees are invited and encouraged to participate.

Employees interested in participating should complete the online volunteer participation form at <http://it-services.larc.nasa.gov/caring>.

Assignments are made on a first-come, first-serve basis. As in the past, T-shirts will be furnished by the United Way.

The deadline to register is Aug. 31.

Employees also are invited to participate in the annual School Tools Drive by donating pens, pencils, notebooks, crayons, glue and other school supplies. Collection boxes will be located in the Langley cafeteria and "The Aerodyner" (Bldg. 1202A) until Sept. 12.

Donated items will be delivered to The Volunteer Center and then distributed to needy children on the Peninsula.

State Fair Needs Help, Too

Langley Research Center's Public Services Office is recruiting civil servants, contractors and retirees to volunteer to staff exhibits at the Virginia State Fair, which will take place from Sept. 27 to Oct. 7 at the Richmond Raceway Complex.

Volunteers are needed during the following shifts: 10 a.m. to 3 p.m. Monday through Saturday; 3 to 8:30 p.m. Monday through Saturday; 11 a.m. to 3:30 p.m. Sunday; and 3:30 to 8 p.m. Sunday.

Free NASA T-shirts will be provided to the first 75 volunteers. Van transportation to and from the fair will be offered for each shift.

A volunteer training and information session will be held at 10 a.m. Sept. 18 in the Pearl Young Theater. To volunteer, sign up online at <http://larcpubs.larc.nasa.gov/ StateFair/> or call Harmony Hunter at 864-3297.

Community Corner

Volunteering Combines Employee's Two Loves

By PAMELA J. VERNIEL
Public Services Office

Margaret "Meg" Holloman of Langley Research Center's Quality Applications Technology Branch loves children and gardens. That in itself is not unique, but Meg has been able to find volunteer work that combines both of her loves: Last year, she volunteered as a reading tutor in Langley's Study Buddies Program, and she is also a regular participant in Day of Caring at the Langley Child Development Center (LCDC).

Holloman

Study Buddies Program

Meg, the mother of a 5-year-old boy, knows that knowledge and capabilities steadily increase through the time she spends reading with him. Therefore, she was excited to offer this opportunity to other children in our community by volunteering in the Study Buddies Program.

Study Buddies began in 2000 and is sponsored by Langley's Office of Education. Participants visit first- through fifth-grade students at Machen Elementary School in Hampton to tutor them in reading and math.

This year, 40 tutors assisted 74 students by using prepared lesson plans provided by the teachers. Meg spent approximately 30 minutes a week with each of her two students, practicing reading and playing vowel- and word-recognition games. Tutors strive to motivate students through words of encouragement.

A mid-year report prepared by teachers showed that most students improved their vocabulary, reading fluency and math ability — and looked forward to the time spent with their tutors. The one-on-one experience between tutors and students helped to increase the child's self-esteem as well.

Meg said she plans to continue with the program because she enjoys being with such open, creative children. She and the children both benefited from this year's experience. The students received special attention, and she gained experience in the classroom that will help her son as he enters first grade and others that she tutors.

Day of Caring

Meg has been a Day of Caring volunteer for the past three years at the LCDC, where her son attends. She has spent a day each year with approximately five additional volunteers improving the grounds, including flowerbeds, around the facility.

Meg says gardening is one of her favorite hobbies and that is why she enjoys helping out at the LCDC. At home, she weeds, plants flowers and cleans organic debris from existing flowerbeds. She enjoys working in her 20- by 30-foot garden where she grows fruit trees, vegetables and flowers.

During Day of Caring, volunteers provide their own tools and the LCDC provides the topsoil and plants. There she helped plant rose bushes, crocuses, daffodils and azaleas around the buildings, put flowers in planters, and pruned bushes.

They also improved the area around the patio where teachers and parents often have lunch or visit with their children.

Each day when she goes to the LCDC, she gets to see the fruit of her labor and enjoy the fact that what she accomplished made a difference.

To share your volunteering experience, contact Pam Verniel at 864-2449 or pj.verniel@larc.nasa.gov.

AdVentures

CLASSIFIED

FOR SALE: Alto saxophone, used only two and a half years, perfect for students. Comes with case, neck piece, mouthpiece, neckstrap, ligature, reeds and reedguard. Excellent condition. Asking $425. Call 868-0046.

FOR SALE: Wood and cast iron entertainment center in good condition. Western style, holds 27-inch TV, shelf and cabinet for components. $50. Call 826-8074.

FOR SALE: From 1975 General Motors Nova: Sears air conditioner, $30; HEI distributor, $20; 14-inch stock wheels, $5 each. Call 838-1077.

CARPOOL: Looking for carpool or ride share from Williamsburg area. Call Bart at 253-9414.

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The next edition of the *Researcher News* will be published on Sept. 7. Please send submissions to <j.r.roberts@larc.nasa.gov> by Aug. 27.

Open House Photos Now Online

Pictures taken during Langley Research Center's Open House on April 28 can now be seen on the Langley Image Scanning, Archival and Retrieval (LISAR) Web site: <http://lisar.larc.nasa.gov/>. To access the photos, click on "Browse library of digital images" and then on numbers 26 through 35.

JIAFS Registration Ends Aug. 24

Registration for fall semester classes at George Washington University's Joint Institute for Advancement of Flight Sciences (JIAFS) at Langley Research Center ends on **Aug. 24**.

JIAFS offers graduate degrees in aeronautics, astronautics, fluid mechanics and thermal sciences, and structures and dynamics.

For more information, contact the JIAFS office at 864-1982 or <jiafs@ larc.nasa.gov> or visit the JIAFS Web site at <http://www.seas.gwu.edu/~jiafs/fall. html>.

Volleyball Registration Continuing

Langley Research Center's Volleyball Club will offer online registration for its fall indoor leagues through 4 p.m. **Aug. 30**.

Three six-person, co-ed leagues will be offered in increasing skill level: C, Tuesdays; B, Thursdays; and BB, Tuesdays. An additional league will be offered with no co-ed restriction and is typically the highest level of play: Open, Wednesdays.

Each league will be limited to eight teams. Exceptions for additional teams will be made as schedules permit. The registration fee is $120 per team.

Play will begin the week of Sept. 3. To register, visit the club's Web site at <http://volleyball.larc.nasa.gov/>.

AIAA Soliciting EOY Nominations

The Hampton Roads Section (HRS) of the American Institute of Aeronautics and Astronautics (AIAA) is soliciting nominations for the 2002 Engineer of the Year (EOY) Award.

The award recognizes a member of the HRS for distinguishing himself or herself in some facet of aerospace engineering. Nominees shall have made a recent significant contribution to the art and science of aerospace engineering that is worthy of recognition.

Nomination packages should be sent by **Oct. 1** to Jamshid A. Samareh at Mail Stop 159.

For more information, visit <http://www.seva.net/~aiaa/ awards.html> on the Internet or contact Jamshid Samareh at 864-5776 or <j.a.samareh@larc.nasa.gov> or Robin Hardy at 864-7159 or <r.c.hardy@larc.nasa.gov>.

ISS Conference Oct. 15-18

NASA and The Boeing Company will host "Conference and Exhibit on International Space Station (ISS) Utilization 2001" from **Oct. 15-18** in Cape Canaveral, Fla.

The conference will provide an opportunity for researchers and entrepreneurs to exchange ideas and information with ISS personnel and their colleagues.

Key speakers will include: Kathie Olsen, NASA's Chief Scientist; Roger Crouch, Senior Scientist in NASA's Office of Space Flight; Tommy Holloway, ISS Program Manager at Johnson Space Center; Brewster Shaw, vice president and general manager of Boeing's ISS Program; and Gen. Roy Bridges, Director of Kennedy Space Center.

For more information or to register online, go to <http://www.aiaa.org> or call 1-800-639-2422.

AIAA Offering Graduate Awards

The American Institute of Aeronautics and Astronautics (AIAA) Foundation is accepting applications for the first-ever Orville and Wilbur Wright Graduate Awards.

The $10,000 awards will be presented annually, beginning in 2002, to four students participating in master's or doctoral thesis research in engineering or science.

The deadline to apply is **Jan. 31, 2002.** For an application or more information, visit <http://www.flight100.org/activities/awards.html> on the Internet.

Tour Schedule Continues

The Virginia Air and Space Center (VASC) offers tours of Langley Research Center and Langley Air Force Base at 11 a.m. and 2 p.m. Monday through Saturday and 2 p.m. Sunday.

The cost is $5 per person with VASC admission or $7 per person without. Children under 12 must be accompanied by an adult on the tour.

For more information, call 727-0900 or visit the VASC Web site at <www.vasc.org>. For information on how to serve as a tour docent, call Steve Devan at 898-9290.

Center Snapshot

Jerome Harris has worked at Langley Research Center since 1987, when he graduated from the Thomas Nelson Apprentice School. He works in the Fluid Mechanics Support Section but also is working in the Technical Career Development Program to learn optical laser integration. In his spare time, he enjoys weightlifting, tennis, biking, swimming and reading. What does he like about working at Langley? "It's a learning environment," he says, "and it also gives you all the freedom that you want."

Photo by Jeff Caplan

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Researcher News

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Langley Research Center

News Researcher

Biweekly Employee and Contractor Publication

Volume 15 ❖ Issue 18 ❖ Sept. 7, 2001

MISSE Attached To ISS

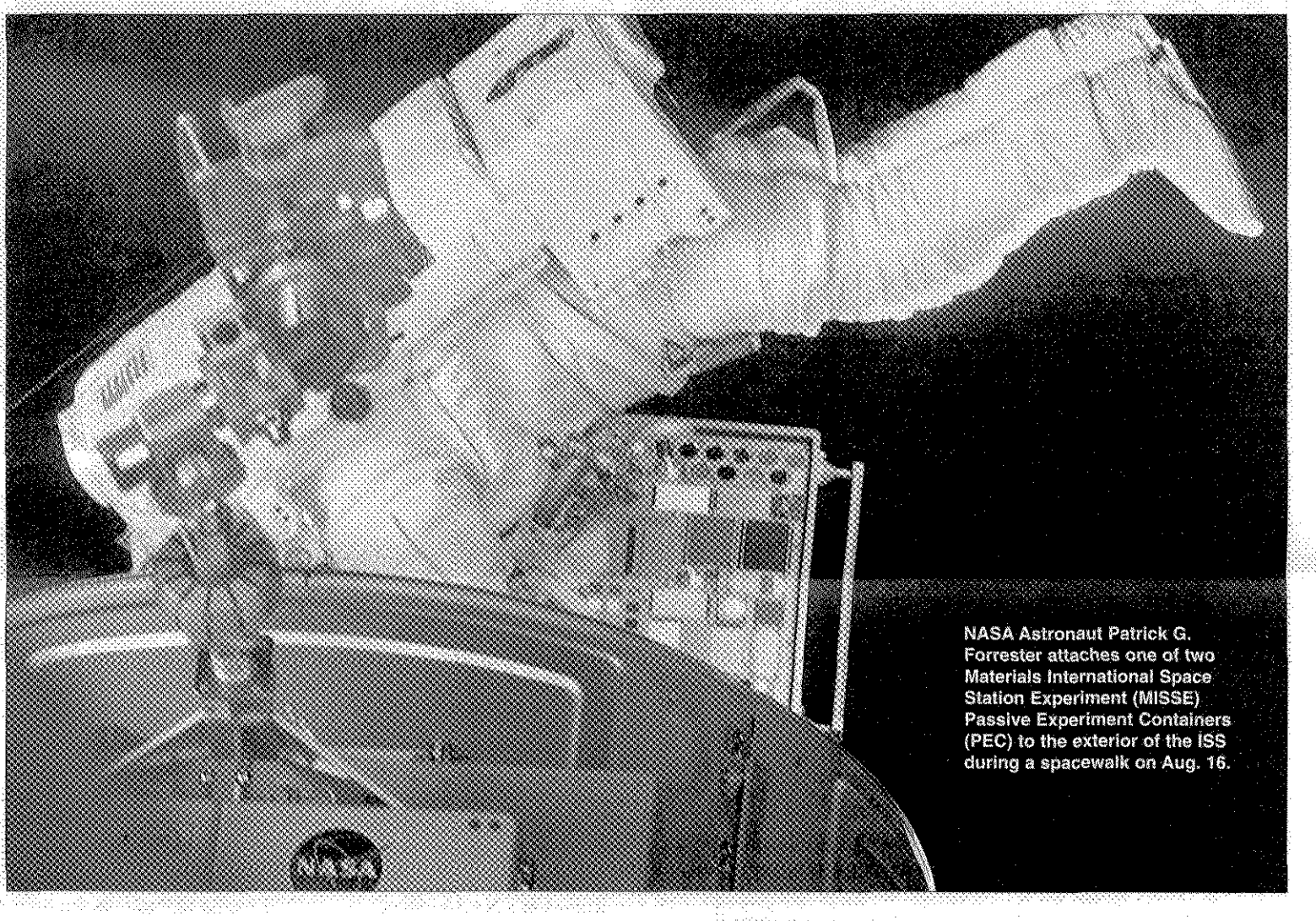
Langley Experiment Will Be Retrieved Next Year

By IVELISSE GILMAN
Public Affairs Office

NASA Astronauts Dan Berry and Patrick G. Forrester attached Langley Research Center's Materials International Space Station Experiment (MISSE) to the exterior of the ISS during a spacewalk on Aug. 16. Once attached, the two suitcase-like Passive Experiment Containers (PECs) were opened, exposing approximately 750 materials to the space environment.

The MISSE racks will be retrieved by spacewalking astronauts late next year and replaced by two more PECs which contain approximately 750 additional samples. Once the materials are returned to Earth, researchers will begin to assess the impact the space environment had on the next-generation space materials. This will enable them to build stronger, more durable spacecraft and come up with better radiation shielding to protect astronauts in future Mars missions from the very energetic

Continued on Page 5



NASA Astronaut Patrick G. Forrester attaches one of two Materials International Space Station Experiment (MISSE) Passive Experiment Containers (PEC) to the exterior of the ISS during a spacewalk on Aug. 16.

Center Considers Outsourcing Work

Bush Administration Intends To Build A Stronger, Smaller Government

By MARNY SKORA
Public Affairs Office

Langley Research Center is considering giving more work to private industry and strategically redeploying its civil service work force through retraining, reassignments, attrition and possibly employee buyouts.

The effort is in response to a presidential directive intended to build a stronger, smaller government that is more responsive to the public. Langley's approach will have to be reviewed by NASA Headquarters and the Office of Management and Budget (OMB) in Washington, D.C., before any action is taken.

The directive ordered federal agencies, including NASA field centers across the country, to strategically assess their resources. To that end, Langley is examining its work force and facilities to ensure that each is poised to continue delivering revolutionary aerospace research.

"Over the past eight years, Langley Research Center has become significantly more efficient and effective," said Langley Director Dr. Jeremiah F. Creedon. Operating costs have been cut by 40 percent; civil servant employees have been reduced from 2,900 to 2,396; underused facilities have been mothballed; innovative partnerships have been formed with industry and academia.

"This Center has always obtained routine business services from the private sector," Creedon told employees at an Aug. 23 town meeting. "We will be looking for more opportunities to compete selected services."

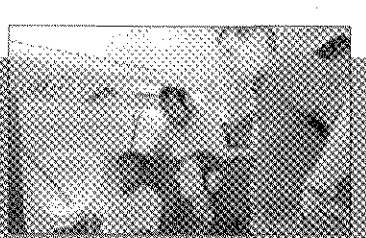
While options for which services could best be performed by private sector contractors are being explored, no decisions have been made and none are anticipated until late fall.

Options could include more contractor involvement in facility operations and research test article fabrication.

"This is an opportunity to rebalance our skill mix to better match the needs of the country," Creedon said.

According to the presidential directive, five years would be allowed to put into effect whatever plan is approved. Langley will propose phasing options to minimize the impact on employees.

Inside This Issue:



LASE Team Takes Part In CAMEX-4 *Page 3*

IFMP PROGRAM

First Two IFMP Modules Rolled Out *Page 4*

News Briefs

Around the Agency

GOLDIN FILLS TWO HEADQUARTERS POSITIONS

NASA Administrator Daniel S. Goldin recently announced the appointments of Glenn Mahone as the Acting Associate Administrator for Public Affairs and David Saleeba as Director of the newly formed Office of Security Management and Safeguards.

Mahone was first appointed to the Administrator's office in April 2000. As a senior advisor and press secretary, he provided advance and on-site communications guidance, coordinating the Administrator's appearances for national and local events, often involving the White House, members of Congress and aerospace industry leaders.

Saleeba's principal responsibilities include the oversight and assessment of the Agency's physical and information/technology security programs, as well as representing NASA to the external security community, and advising the Administrator on all security issues. RELEASES: 01-169 and 01-171

NASA EXERCISES OPTION FOR ESSP 3/CLOUDSAT

NASA recently announced that it is exercising a contract option with The Boeing Co. for a Delta II vehicle to launch the ESSP 3/CloudSat mission. The spacecraft are planned for launch on April 30, 2004.

This firm-fixed price option is covered under the NASA Med-Lite contract awarded to Boeing in 1996. NASA's total launch services budget for the ESSP 3/CloudSat mission is valued at approximately $60 million.

ESSP-3 (formerly Picasso-CENA), the third mission of the NASA Earth System Science Pathfinder (ESSP) program, will carry three instruments to study clouds and chemicals in the Earth's atmosphere. The ESSP-3 satellite flies in formation with the Aqua spacecraft to provide a comprehensive global dataset which will greatly improve our ability to predict future climate change. RELEASE: c01-p

NASA HELPS IN RESPONSE TO WILDFIRES

U.S. firefighters and land managers are using the most modern NASA satellite data to combat wildfires. NASA's Terra satellite is providing a view of fires across the entire United States, helping local officials manage fires more effectively, both during and after wildfires. The effort is a collaboration between NASA, the University of Maryland, College Park and the U.S. Department of Agriculture's Forest Service.

The Terra satellite beams daily images of western U.S. wildfires to NASA within a few hours of the time it passes over the region. The images and active fire detections are transmitted to the Forest Service and will become a regular part of its fire-monitoring toolkit.

The MODIS Rapid Response Fire Maps can be accessed through the RSAC Fire Maps link at the National Interagency Fire Center Web site: <http://www.nifc.gov/firemaps.html>. RELEASE: 01-168

News Researcher

The Researcher News is an official publication of Langley Research Center, National Aeronautics and Space Administration, Hampton, Va., 23681-2199. It is published every other Friday in the interest of all Langley staff, contractors and retirees and has a circulation of approximately 8,100. It is distributed to all Langley civil service employees, contractors, retirees and on-site university personnel, with limited distribution to NASA Headquarters, other NASA centers and, by special request, to other non-NASA individuals and organizations. Questions related to the content and distribution of the Researcher News should be addressed to Keith Henry, Mail Stop 115, (757) 864-6120. Submit contributions/SDL 026, 055, 110 changes to the editor via e-mail <j.r.roberts@larc.nasa.gov>, fax (757) 864-6477, telephone (757) 864-8150 or Mail Stop 293. Articles, photos and announcements are due at noon the Monday following the date of this issue.

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The privilege of listing announcements in this publication is restricted to the employees, contractors and retirees of the Langley Research Center. Articles must be offered without regard to race, color, religion, sex or national origin. All materials are subject to editing.

Read the *Researcher News* online at <http://researchernews.larc.nasa.gov>.

People

Sen. Allen Tours Langley

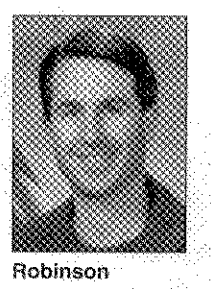
Sen. George Allen sits in the pilot's seat of Langley Research Center's Lancair Columbia 300X while Bruce Holmes, sitting to his right, explains how the research aircraft will be modified to incorporate experimental avionics systems for NASA's Small Aircraft Transportation System (SATS) Program. Center Director Dr. Jeremiah F. Creedon (left) hosted Allen's recent visit to the Center. Allen is the ranking member of the Senate's Science, Technology and Space Subcommittee.

Photo by Jeff Caplan

Former Langley Employee Named To Shuttle Mission

Former Langley Research Center employee **Stephen K. Robinson** has been named to the crew of STS-114, which is scheduled to launch in November 2002.

Robinson's NASA career began in 1975 as a co-op at Ames Research Center. After graduating from the University of California at Davis, he joined Ames full-time as a research scientist in the fields of fluid dynamics, aerodynamics, experimental instrumentation and computational scientific visualization.



Robinson

In 1990, Robinson was named chief of Langley's Experimental Flow Physics Branch, where he led a group of 35 engineers and scientists engaged in aerodynamics and fluid physics research.

Robinson was selected as an astronaut in December 1994, and he reported to Johnson Space Center in March 1995. He already has logged more than 497 hours in space, flying on STS-85 and STS-95 in 1997 and 1998.

For more information about Robinson and all NASA astronauts, visit <http://www.jsc.nasa.gov/Bios/> on the Internet.

For more information, contact Vickie Connors at 864-5849 or <v.s.connors@larc.nasa.gov> or Richard Bendura at 864-5830 or <r.j.bendura@larc.nasa.gov>.

Letters

"I would like to take the time to personally thank my friends at Langley Research Center for all of the leave that was donated to me during my pregnancy and maternity leave. I never expected to be out of work prior to the delivery of our son but, with your help, it allowed me to remain out during the weeks after he was born and I did not have to worry about leave. Thank you again; I am very blessed to have such wonderful friends here at Langley!"

Tracey Redman

Retirements

Langley Research Center's Chemistry and Dynamics Branch will host a retirement cookout for **Jim Raper** from 4:30 to 7 p.m. Sept. 26 at the H.J.E. Reid Conference Center picnic area.

Hamburgers, hot dogs, fried chicken, barbecue, tea, soft drinks and beer will be served at a cost of $10. Gift contributions also will be accepted. Please send checks to Jeanette Reavis at Mail Stop 401B.

Langley Research Center's Structural & Thermal Analysis Branch will host a retirement social and birthday party for **Thomas C. Jones** from 2 to 4 p.m. Oct. 1 in Bldg. 1209, Room 180. Jones has requested no gifts — just to see and talk to his colleagues.

Please RSVP to Jill Marlowe at 864-7027 by Sept. 26.

In Memoriam

Jarrett K. Huffman Sr.

Jarrett Kyle Huffman Sr. died on Aug. 14 at the age of 71. Huffman, a native of Beckley, W.Va., served in the U.S. Air Force and went on to work as an aeronautical engineer at Langley Research Center. He retired from NASA in 1992 as safety coordinator of Langley's 7- by 10-Foot Wind Tunnel.

Duane M. Sparks

Duane M. Sparks died on Aug. 13 at the age of 70. Sparks, a native of Newport News, retired from the NASA Security Office in 1981.

Langley Active At CAMEX-4

LASE Will Help Predict When and Where Hurricanes Will Strike

By JULIA COLE
SAIC

The height of hurricane season is here, and Langley Research Center is looking for the next big storm.

Langley scientists are taking part in the fourth Convection and Moisture Experiment (CAMEX-4) based out of Naval Air Station, Jacksonville, Fla., through September. On board specially instrumented aircraft, researchers are flying in and around hurricanes approaching the East Coast and Gulf of Mexico regions of the United States. They will combine their storm data with readings from other ground and orbiting satellite instruments to get a better understanding of tropical cyclones. Their efforts should provide meteorologists and other researchers with information to help improve hurricane predictions that may decrease coastal evacuations and increase warning time.

During CAMEX, Langley's Lidar Atmospheric Sensing Experiment (LASE) system will use laser light pulses to measure water vapor, clouds and aerosols. It will compare the absorption and scattering of different laser pulses creating an atmospheric map of the hurricane area above and below the aircraft.

"We are going to further investigate the characteristics of hurricanes and what type of importance our remote-sensing instrument has on hurricane forecasts," said LASE Team Leader Ed Browell. "LASE will help define the energy source for hurricanes by better understanding how much moisture is flowing into it."

LASE will fly aboard NASA's DC-8. Other research aircraft involved in the mission include the high-flying NASA ER-2 and the remotely piloted Aerosonde aircraft.

Langley Research Center Lidar Atmospheric Sensing Experiment (LASE) team members (left to right) Larry Petway, Syed Ismail, Susan Kooi and Ed Browell collect hurricane data during a 1998 flight.

Photo by Jeff Caplan

CAMEX-4 is the latest in a series of field research investigations sponsored by NASA's Earth Sciences Enterprise. It unites researchers from 10 universities, five NASA centers and the National Oceanic and Atmospheric Administration (NOAA).

After CAMEX, LASE scientists plan to participate in the International Water Vapor Project, a field campaign to understand the development of clouds and improve rainfall forecasts. This experiment, led by the National Center for Atmospheric Research, will be conducted over the Southern Great Plains of Oklahoma during the spring of 2002.

Langley Entry Wins BWB-Naming Contest

Langley Research Center employee Dan Vicroy recently won the "Name the Blended-Wing Body Low-Speed Vehicle (BWB LSV) Contest."

Vicroy's entry, "ASENDER," is an acronym for Advanced Subsonic Envelope Departure Research vehicle, referring to the BWB LSV Project's intent to test the aircraft to the very edge of the envelope of controllable flight. Vicroy's entry also noted that the name refers to "ascending to ever greater heights in the advancement of commercial aircraft technology, in a never-ending quest to fulfill the expanding needs of human transportation."

Vicroy, an employee in Langley's Vehicle Dynamics Branch, is the principal investigator for the BWB LSV Project. His entry was selected from 13 entries from BWB LSV Project members at Langley, Dryden Flight Research Center and The Boeing Company.

For his winning entry, Vicroy received a framed certificate and a desktop model of the BWB LSV airplane from Kurt Detweiler, the BWB LSV Project Manager (Acting), at a recent award ceremony.

The BWB LSV is a 35-foot wingspan composite-material airplane being built at Langley. It will be powered by three rear-mounted jet engines and controlled remotely when it is flight tested at Dryden.

The airplane is shaped something like a giant manta ray, with wings smoothly blended into the fuselage. Benefits of the blended-wing shape include significantly increased fuel economy.

Complete Brown Bag Series Schedule Announced

Langley Research Center's Atmospheric Sciences Competency recently announced the complete lineup for its Brown Bag Lunch Series. The following lectures will take place from 11:30 a.m. to 12:30 p.m. in the Pearl Young Theater:

- **Sept. 13,** Leonard McMaster on the "Atmospheric Sciences Competency";
- **Sept. 20,** Brad Pierce on "Dynamics and Transport";
- **Sept. 27,** Jim Crawford on "Tropospheric Chemistry";
- **Oct. 4,** Richard Eckman on "Stratospheric Chemistry";
- **Oct. 11,** Lamont Poole on "Earth System Science Pathfinder Three (ESSP3)";
- **Oct. 18,** Bruce Wielicki on "Radiation";
- **Oct. 25,** Upendra Singh on "Technology";
- **Nov. 1,** Bill Smith on "Geosynchronous Imaging Fourier Transform Spectrometer (GIFTS)";
- **Nov. 8,** Bruce Barkstrom on "Atmospheric Sciences Data Center"; and
- **Nov. 15,** Program Director on "Earth and Space Sciences Program Office."

ifm PROGRAM

Integrated Financial Management Program (IFMP) Update

First Two Modules Rolled Out

Implementation Has Begun For NASA STARS And Travel Manager

Two modules of NASA's Integrated Financial Management Program (IFMP) — the NASA STaffing And Recruitment System (STARS) and Travel Manager — already are being implemented at Langley Research Center.

Here is a summary of the two modules.

NASA STARS

NASA STARS will use the Internet and other state-of-the-art technologies to transform the way NASA job candidates search and apply for jobs.

For job candidates, that means the process of finding and applying for NASA vacancies will be quicker and easier. For NASA's managers and supervisors, it means becoming more competitive in today's job market and filling job openings faster.

NASA STARS will allow job candidates to access openings through the NASAJobs Web site: <www.nasajobs.nasa.gov>. The site also will allow candidates to prepare an electronic resume with the "Resume Builder" link and immediately apply with the "Quick Apply" link.

Job candidates will no longer need to fill out cumbersome forms or write "Knowledges, Skills and Abilities" (KSAs) to apply for jobs; all they need is a resume. Once created, resumes will be available electronically for five years to view, edit and print.

NASA STARS will then generate electronic "selection lists" for managers and supervisors to make informed and expeditious selections of candidates. The process will make it easier to recruit on campuses and at job fairs and will eliminate the extensive delays inherent in NASA's manual hiring process.

All Langley employees are encouraged to prepare a resume using NASA's Resume Builder, even if they have not thought about applying for another job. Why? Two reasons: One, to expedite the application process if and when they are interested in another job; two, to support NASA's skills inventory for workforce planning.

Langley's Office of Human Resources staff underwent intensive NASA STARS training and subsequently offered Resume Builder workshops in August. Employees who were unable to attend are encouraged to visit the Resume Builder link on the NASAJobs Web site.

Langley is expected to transition fully to NASA STARS by late September.

For more information, contact Liz Ford at 864-8108 or Lois Alliss at 864-2509 or e-mail at <nasastars@larc.nasa.gov>. More information also is available at the NASA STARS Web site: <http://nasastars.nasa.gov>.

Travel Management

One of NASA's IFMP goals is to bring an automated travel processing system called Travel Manager to the Agency by reconfiguring a commercial, off-the-shelf product.

The Langley-led Travel Manager Project Office (TMPO) began a pilot phase for Travel Manager in May. The first organizations brought up were the Office of the Chief Financial Officer (OCFO) and the Aviation Safety Program Office (AvSPO). Training for the Structures and Materials Competency began the week of Aug. 26.

Training courses were offered based on user type: "preparers," "travelers" and "approvers." Currently, all courses are instructor-led and are taught in a computer lab setting, but Web- and computer-based training also is being considered.

The organizations' experience with Travel Manager has been positive.

"Since mid-June, I have been using Travel Manager to prepare and submit travel vouchers for trips taken," said Dee Poupard of the OCFO. "After doing the first couple, it has become a very speedy and effective tool to use for completing the vouchers. The system basically walks you through the steps necessary, and you only fill in the sections required. No more trying to fill out that paper voucher form and wondering what goes where!"

Glenn Bond of the AvSPO added, "The Travel Authorization process is quick, and the various computer prompts are very helpful. The information from Travel Authorization fills part of the information required to submit the travel voucher. The traveler only has to go in and do some edits, as required, and the computer prompts help fill in the rest of the voucher. With the electronic submit, the traveler should receive confirmation of payment within days, instead of waiting a couple of weeks, as in the past."

> *"It has become a very speedy and effective tool to use for completing the vouchers."*
> **Dee Poupard**

> *"With the electronic submit, the traveler should receive confirmation of payment within days, instead of waiting a couple of weeks, as in the past."*
> **Glenn Bond**

In early September, the TMPO will host a forum for pilot phase users to provide feedback and suggestions for improvements. The TMPO will then deliver an evaluation to the IFMP Office and recommend whether Travel Manager should be deployed Center- and Agency-wide. If the project receives approval, rollout to the remainder of Langley will commence in October, with completion expected by January 2002.

An organizational sequence for "going live" has yet to be determined. In the coming months, the TMPO will establish points of contact at each organizational level to determine a training schedule and ultimately migrate to production.

For more information, contact Chris Tremper at 864-8040 or <c.w.tremper@larc.nasa.gov>.

AvSP Sponsors Risk Analysis Workshop

By KATHY BARNSTORFF
Public Affairs Office

Langley Research Center's Aviation Safety Program (AvSP) recently hosted the third annual Risk Analysis and Safety Performance Measurements in Aviation Workshop in downtown Hampton.

The three-day seminar, which was co-sponsored by the Federal Aviation Administration's (FAA) Airport and Aircraft Safety R&D Division and Office of System Safety, drew 150 participants, some from as far away as New Zealand. It offered government organizations, airlines and air operators a forum to share their philosophies, approaches, models and methodologies for assessing risk and judging safety performance.

> *"This is the one chance each year for all us working in aviation safety to come together. We get to exchange experiences, lessons learned and hear about current issues facing the community."*
> **Vince Schultz**

"This is the one chance each year for all us working in aviation safety to come together," said Langley's Vince Schultz, the AvSP's technical integration manager. "We get to exchange experiences, lessons learned and hear about current issues facing the community."

Three dozen speakers and panelists from NASA, the FAA, airlines, aviation organizations and universities spoke about their groups' efforts to improve aviation safety and the gathering of safety information. (Accurate data and its comprehensive analysis are key aspects in the AvSP's attempt to reduce the fatal aircraft accident rate by 80 percent in 10 years.)

John Goglia, a U.S. National Transportation Safety Board member who has helped investigate a number of transportation accidents, was the event's keynote speaker.

"This whole data collection, risk management change in culture is the future," Goglia said. "This will drive down the accident rate if we can get a handle on it."

Read the *Researcher News* online at <http://researchernews.larc.nasa.gov>.

Langley Research Center's Materials International Space Station Experiment (MISSE) team includes (left to right) Jeff Pierro, Vernon Marshall, Charles Bailey, George Whitehurst, Tom Levin, Irby Jones, Junilla Applin, Tom Grepiotis, Sheila Thibeault, Tom Seals, Jim Jones, Bill Kinard, Don Athearn and Glen King. "The performance of the entire MISSE team was exceptional," said Applin, MISSE's project manager.

Photo by Jeff Caplan

MISSE

Continued from Page 1

cosmic rays found in interplanetary space.

"The biggest obstacle to a manned mission to Mars is the ability to shield humans from the extreme radiation," MISSE Project Scientist Bill Kinard said during a Mission Status Review following the spacewalk. "Right now, we don't have the materials that can provide that shielding and are of an acceptable weight."

MISSE is the first experiment to be mounted to the exterior of the ISS. However, MISSE is not the first experiment of its kind. The Long Duration Exposure Facility (LDEF), retrieved in 1990 after spending 69 months in low-Earth orbit, revealed that space environments are extremely hostile to many spacecraft materials and components.

"Some of the materials did not even exist any longer. They were gone," said Sheila Thibeault, Langley's principal investigator on MISSE. "There were bare threads hanging from pits, holes and craters."

Atomic oxygen, the most prevalent atomic species encountered in low-Earth orbit, is highly reactive with plastics and some metals, causing severe erosion. Extreme ultraviolet radiation, the vacuum of space, meteoroid impacts and orbiting man-made debris all damage materials exposed to space.

"The radiation environment is worse in space because it is not filtered by our atmosphere," Thibeault said. "The temperatures in space also range from very hot to very cold, and this has a very deteriorating effect on materials."

"The combined effects of all of these environments on spacecraft can only be investigated in space," Kinard said. "The synergystic effects of all the environments is what is really crucial. In the laboratory, we can test each individual environment, but we can't test them all at once."

While the LDEF mission evaluated the performance of materials that were state of the art in the 1970s, MISSE will evaluate materials currently being used and those planned for use in future space missions.

MISSE samples range from components such as switches, sensors and mirrors to materials like polymers, coatings and composites. There are also biological materials such as seeds, spores and various types of bacteria. Included in the MISSE racks are the black coatings that may be used on the sun shield of the Next-Generation Space Telescope, new generations of solar cells with longer expected lifetimes and advanced optical components planned for future earth observation satellites.

Langley researchers are flying several materials on MISSE, including gossamer films for use on vast, ultra-lightweight solar sails that would use the pressure of sunlight to travel across interstellar space. These spacecraft must be able to withstand the inevitable impact of micrometeors zipping through space at high speeds. MISSE will help determine if candidate materials are durable enough.

MISSE also will shed light on the premature wear and tear that has already been observed in a number of the materials used to construct the ISS modules that are now on orbit.

"The performance of the entire MISSE Team was exceptional," said MISSE project manager Junilla Applin. "Clear evidence of the team's outstanding level of achievement is orbiting the Earth, the first science experiment attached to the International Space Station."

The MISSE project is managed by Langley and is a cooperative venture involving NASA, the U.S. Air Force and members of the aerospace industry.

LCDC Earns Accreditation From NAEYC

Langley Research Center's Child Development Center (LCDC) recently earned accreditation from the National Association for the Education of Young Children (NAEYC), the nation's leading organization of early childhood professionals.

"We're proud to be accredited by NAEYC and recognized for our staff's commitment to reaching the highest professional standards," said LCDC Director Kathryn Skinner. "Accreditation also sends a message to families in our community, who will know their children are getting the best early education experiences."

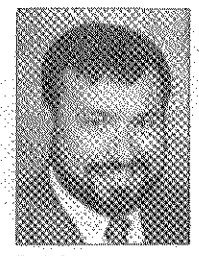
More than 7,600 early childhood programs — serving more than 650,000 children — are currently accredited by NAEYC.

"In recent years, we've seen a growing number of child care and preschool programs earning accreditation, but most programs still haven't reached this voluntary professional standard," said Mark Ginsberg, executive director of the NAEYC. "By earning accreditation, the LCDC has become a leader in a national effort to raise the quality of early childhood education and to help give all children a better start."

Nationally, fewer than 10 percent of all child care and early childhood programs are accredited by the NAEYC.

The NAEYC created its accreditation program in 1985 to set professional standards for early childhood education and to help families identify high-quality child care and early education programs. To earn NAEYC's accreditation, a program conducts a self-study to determine how well it meets the standards.

After necessary improvements are made, the program is observed by independent, professional validators, and then reviewed by a national panel. Programs are accredited by NAEYC for a three-year period.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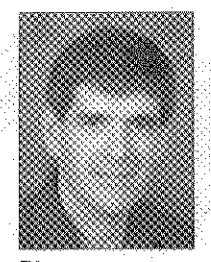
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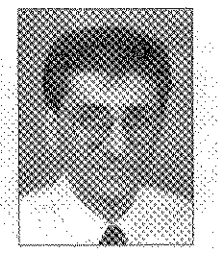
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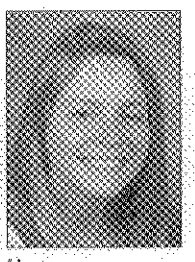
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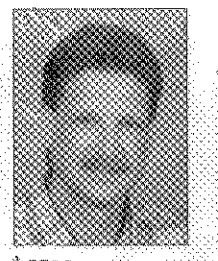
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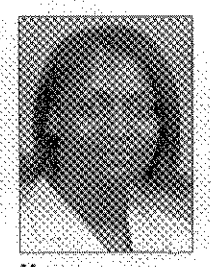
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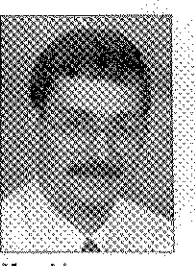
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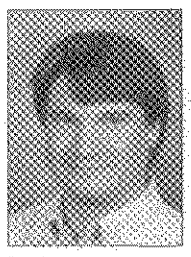
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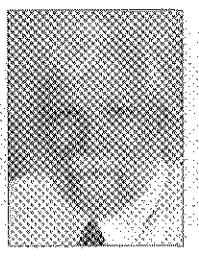
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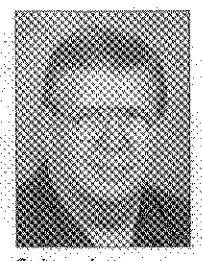
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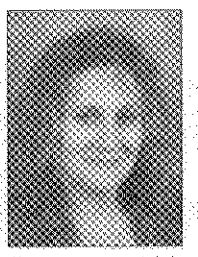
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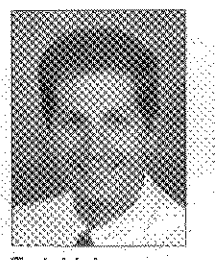
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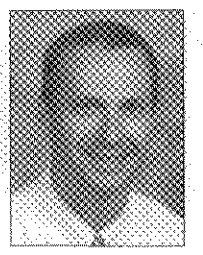
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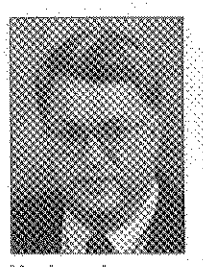
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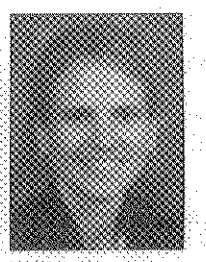
Walker

18 Earn Advanced Degrees

By GEORGE D. ALLISON
Office of Human Resources

Eighteen Langley Research Center employees earned advanced degrees in 2001 through the Center's Advanced Study Program.

The program, established in the 1940s, provides Langley engineers, scientists and administrators an opportunity to improve their proficiency in aeronautical and space research and earn graduate credit while at Langley. More than 1,500 employees have earned masters or doctorate degrees through the program.

■ **Harry L. Belvin** of the Advanced Materials and Processing Branch earned a master of engineering degree in operations research from Old Dominion University.

■ **Max L. Blosser** of the Metals and Thermal Structures Branch earned a doctor of philosophy degree in mechanical and aerospace engineering from the University of Virginia.

■ **Kamran Daryabeigi** of the Metals and Thermal Structures Branch earned a doctor of philosophy degree in mechanical and aerospace engineering from the University of Virginia.

■ **Jennifer Heeg** of the Aeroelasticity Branch earned a doctor of philosophy degree in aerospace engineering from Duke University.

■ **Barry S. Lazos** of the Flow Physics and Control Branch earned a doctor of philosophy degree in mechanical engineering from Leigh University.

■ **Debbie Martinez** of the Systems Development Branch earned a master of engineering degree from Old Dominion University.

■ **Angela J. Mason** of the Structural Dynamics Branch earned a master of science in engineering management degree from George Washington University.

■ **N. Ronald Merski Jr.** of the Aerothermodynamics Branch earned a doctor of science degree in fluid mechanics and thermal science from George Washington University.

■ **Kelly J. Murphy** of the Aerothermodynamics Branch earned a master of aerospace engineering degree from the University of Texas at Austin.

■ **Peter Parker** of the Model Systems Branch earned a master of science degree in applied physics and computer science from Christopher Newport University.

■ **John J. Rehder** of the Intelligent Synthesis Environment Program Office earned a doctor of philosophy degree in computer science from the College of William and Mary.

■ **Anton Schuszler II** of the Metals and Thermal Structures Branch earned a master of materials science and engineering degree from the University of Virginia.

■ **Laura J. Smith** of the Assessment Technology Branch earned a master of arts in mathematics from the College of William and Mary.

■ **Paul V. Tartabini** of the Vehicle Analysis Branch earned a master of engineering management degree from George Washington University.

■ **Travis L. Turner** of the Structural Acoustics Branch earned a doctor of philosophy in engineering mechanics from Virginia Polytechnic Institute and State University.

■ **Carl J. Voglewede** of the Electronics Applications Technology Branch earned a master of business administration from Old Dominion University.

■ **Edgar G. Waggoner** of the Aerodynamics, Aerothermodynamics and Acoustics Competency earned a doctor of science in engineering management from George Washington University.

■ **Sandra P. Walker** of the Metals and Thermal Structures Branch earned a doctor of philosophy in mechanical and aerospace engineering from the University of Virginia.

For information on the Center's Advanced Study Program, call 864-2594.

NASA Awards Remote-Sensing Contracts

By DAVID STEITZ
NASA Headquarters

Two Langley Research Center employees were among the winners of 11 new contracts for technology development of innovative Earth Science remote-sensing instruments under NASA's Instrument Incubator Program (IIP).

Langley employee Allen M. Larar received funding for "Tropospheric Trace Species Sensing Fabry-Perot Interferometer," and Martin Mlynczak received funding for "Far-Infrared Spectroscopy of the Troposphere."

The objective of the program is to invest in new and innovative technologies that could lead to smaller, less expensive and more efficient flight instruments.

The technologies selected include active and passive techniques for measuring global carbon dioxide, the buildup of which may be a contributor to the global increase in the greenhouse effect. Also selected are instrument technologies for microwave radiometry and advanced radars to measure global precipitation, soil moisture and sea surface salinity, leading to a more accurate understanding of climate change.

In addition, investments will be made in instrument technologies for the measurement of far-infrared thermal radiation, an emerging science area not previously explored, with the potential to better understand the Earth's radiation balance.

Instrument technologies leading to the potential measurement of tropospheric ozone and other gases from space will be advanced by investments in Fabry-Perot interferometer technologies. Geomagnetic measurements enabled from investments in magnetometer technologies can provide a means to study the structure and dynamics of the Earth's interior, leading to better utilization of natural resources including water and land use and the mitigation of natural hazards such as earthquakes, volcanoes, flooding, sea level change and severe storms.

NASA received 64 proposals for technology development efforts and was able to select 11 for funding. The total funds made available for these investigations averages nearly $1 million per year for three years or a total of approximately $29.5 million.

The 11 proposals focus on near term investment to support high-priority measurements in the areas of:

■ Atmospheric Chemistry: Tropospheric profiles of O_3, CO, NO_X;

■ Solid Earth: Topography and the Deformation of Land and Ice;

■ Global Carbon Cycle: CO_2 Column Abundance and Profile;

■ Global Water and Energy Cycle: Precipitation Rate, Tropospheric Winds, and Sea Surface Salinity/Soil Moisture; and

■ Climate Variability and Prediction: GPS Altimetry and Ocean Surface Winds.

Read the *Researcher News* online at <http://researchernews.larc.nasa.gov>.

"One Small Step For ... Girls"

Girl Scouts retrieve their model rockets after launching them from behind Langley Research Center's H.J.E. Reid Conference Center on Aug. 23. Eighty-six Scouts from the Girl Scout Council of Colonial Coast participated in the activity, which was part of the Virginia Air and Space Center's "From the Seas to the Stars" day camp. The Scouts also participated in day camps with Nauticus, the Virginia Marine Science Museum and the Yorktown Victory Center. Inset: Girl Scout Amanda Andrews of Poquoson helps Jamylia Godrey of Newport News look over her rocket, which she named "Little Bow Wow."

Photos by Jeff Caplan

MCLT's 'Spice of Life'

Diversity: It's Not Affirmative Action

By MICHAEL D. UENKING
MCLT Subteam Leader

"Diversity is just Affirmative Action with a new coat of paint." This is a comment frequently heard whenever diversity is discussed. But is it accurate? A deeper look into the differences may help you answer that question.

Affirmative Action, with roots in the Civil Rights movement and Equal Employment Opportunity legislation of the '60s, aims at righting past wrongs. Because of a long history of discriminatory practices, employers have been expected to make a positive effort to recruit, hire, train and promote qualified employees of previously excluded groups. Race and gender have historically been the focus, with African Americans and women generally being the groups most aided to create parity with local workforce demographics.

The more recent focus on diversity brings with it a paradigm shift — a new way of thinking about differences among people. Rather than arguing about how to cut up the pie and which group gets the largest slice, embracing diversity strives for a workplace where there are not only enough pies but also cakes, churros and fortune cookies for all. Instead of pitting groups against one another, it works toward recognizing the uniqueness in everyone and valuing the contribution each can make. This concept aims at creating a workplace in which everyone and every group fits, feels accepted, has value and contributes. Beyond changing numbers, it aims at changing organizational cultures.

The intent of embracing diversity is not to replace Affirmative Action but to build on the critical foundation laid by workplace equity programs. Affirmative Action and managing diversity go hand-in-hand, each reinforcing the gains of the other.

The first difference between Affirmative Action and managing diversity has to do with the motivation behind them. A legal imperative drives the changes required by Affirmative Action while managing diversity is strategically driven. Capitalizing on diversity is seen as contributing to organizational goals such as profit and productivity, not just avoiding lawsuits or meeting legal requirements.

MULTICULTURAL LEADERSHIP TEAM
MCLT
NASA LANGLEY RESEARCH CENTER

In addition, Affirmative Action is quantitative, aimed at changing the demographics within the organization, while managing diversity is behavioral, aimed at developing skills and policies that get the best from everyone.

A third area of difference has to do with the targeted groups. Affirmative Action is selective in mandating changes that benefit previously disadvantaged groups while diversity is inclusive, focusing on everyone in the workplace.

Another distinction between the two has to do with their orientations. With Affirmative Action, it is a remedial approach, righting past wrongs. Managing diversity, on the other hand, brings a pragmatic orientation, focusing on benefits to the organization such as profit, productivity and morale.

Still another way the two are different has to do with their models of bringing diverse people together. Affirmative Action generally functions with an assimilation model, expecting that people brought in to the system will adapt to existing conditions. Diversity operates on a different approach: the synergy model. This view assumes the diverse groups will devise new, creative ways of working that will improve the organization.

A final area of difference has to do with results. Affirmative Action opens doors in the organization while managing diversity opens the system and the culture.

In creating a truly diverse organization, both Affirmative Action and diversity play an integral part. Without Affirmative Action's commitment to hiring and promoting diverse employees, having the diversity of staff to reach a stage where differences are valued and diversity effectively managed rarely occurs. Once diverse staff are on board, the organization can focus on creating an inclusive environment where everyone's needs and values are taken into account, where no one is disadvantaged because he or she is different, and where organizational policies and management practices work for everyone.

Employees' submissions and ideas are welcomed; send them to Michael D. Uenking at <m.d.uenking@ larc.nasa.gov>.

AdVentures

CLASSIFIED

FOR SALE: 1989 Ford Taurus SHO, great condition, fully loaded (power seats/ windows/ locks, keyless entry, moonroof, partial leather seats, etc.), 5-speed with low miles, $3,000 or best offer. Call 867-9697 and leave message.

FOR SALE: 1995 Honda CR-80, very good condition, new top end, $1,350 or best offer. 2000 Carter Mudblaster big wheel go-kart, with 8HP Honda engine, $1,000 or best offer. 6- by 8-foot flatbed trailer, new tires and rims, $350 or best offer.

FOR SALE: Vacation packages: 6 days and 5 nights in Puerto Vallarta, Mexico, for two adults and two guests; 5 days and 4 nights in Orlando for two adults and two guests; 3 days and 2 nights in Ft. Lauderdale, Fla., for two adults and two guests. Hotel accommodations only, buyer must provide transportation. Call 826-9033 ext. 346.

CARPOOL: Looking for carpool or ride-share from Queens Lake or nearby Williamsburg area. Call Bart at 253-9414.

Alumni To Meet On Sept. 10

Langley Research Center's Alumni Association (LAA) will meet at 11:30 a.m. **Sept. 10** in the private dining room of the Center cafeteria. The program will feature Debbie Magaldi, who will give an overview of the work being done at Jefferson Lab.

Combustion Colloquium Sept. 11

Stephen B. Pope will present a Colloquium lecture entitled, "Computational Combustion: from Molecular Processes to Combustor Design" at 2 p.m. **Sept. 11** in Langley Research Center's H.J.E. Reid Conference Center. A Sigma Series lecture, "Computational Combustion: Bunsen Burners to Jet Engines," will follow at 7:30 p.m. at the Virginia Air and Space Center in Hampton.

Pope

For more information about the lecture series, visit <http://shemesh.larc.nasa.gov/Lectures/> on the Web.

State Fair Volunteers Still Needed

Langley Research Center's Public Services Office is recruiting civil servants, contractors and retirees to volunteer to staff exhibits at the Virginia State Fair, which will take place from **Sept. 27** to **Oct. 7** at the Richmond Raceway Complex.

Volunteers are needed during the following shifts: 10 a.m. to 3 p.m. Monday through Saturday; 3 to 8:30 p.m. Monday through Saturday; 11 a.m. to 3:30 p.m. Sunday; and 3:30 to 8 p.m. Sunday.

Free NASA T-shirts will be provided to the first 75 volunteers. Van transportation to and from the fair will be offered for each shift.

A volunteer training and information session will be held at 10 a.m. **Sept. 18** in the Pearl Young Theater. To volunteer, sign up online at <http://larcpubs.larc.nasa.gov/StateFair/> or call Harmony Hunter at 864-3297.

Employees also are invited to participate in the annual School Tools Drive by donating pens, pencils, notebooks, crayons, glue and other school supplies. Collection boxes will be located in the Langley cafeteria and "The Aerodyner" (Bldg. 1202A) until **Sept. 12**.

Donated items will be delivered to The Volunteer Center and then distributed to needy children on the Peninsula.

AIAA Soliciting EOY Nominations

The Hampton Roads Section (HRS) of the American Institute of Aeronautics and Astronautics (AIAA) is soliciting nominations for the 2002 Engineer of the Year (EOY) Award.

The award recognizes a member of the HRS for distinguishing himself or herself in some facet of aerospace engineering. Nominees shall have made a recent significant contribution to the art and science of aerospace engineering that is worthy of recognition.

Nomination packages are due **Oct. 1** to Jamshid A. Samareh at Mail Stop 159.

For more information, visit <http://www.seva.net/~aiaa/ awards.html> on the Internet or contact Jamshid Samareh at 864-5776 or <j.a.samareh@larc.nasa.gov> or Robin Hardy at 864-7159 or <r.c.hardy@larc.nasa.gov>.

Tour Schedule Continues

The Virginia Air and Space Center (VASC) will continue to offer tours of Langley Research Center and Langley Air Force Base at 2 p.m. Saturday and Sunday through October.

The cost is $5 per person with VASC admission or $7 per person without. Children under 12 must be accompanied by an adult on the tour.

For more information, call 727-0900 or visit the VASC Web site at <www.vasc.org>. For information on how to serve as a tour docent, call Bert Smith at 727-0900 ext. 735 or Steve Devan at 898-9290.

AIAA Offering Graduate Awards

The American Institute of Aeronautics and Astronautics (AIAA) Foundation is accepting applications for the first-ever Orville and Wilbur Wright Graduate Awards.

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The next edition of the *Researcher News* will be published on Sept. 21. Please send submissions to <j.r.roberts@larc.nasa.gov> by Sept. 10.

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Researcher News

National Aeronautics and
Space Administration

Langley Research Center
Hampton, Virginia 23681-2199

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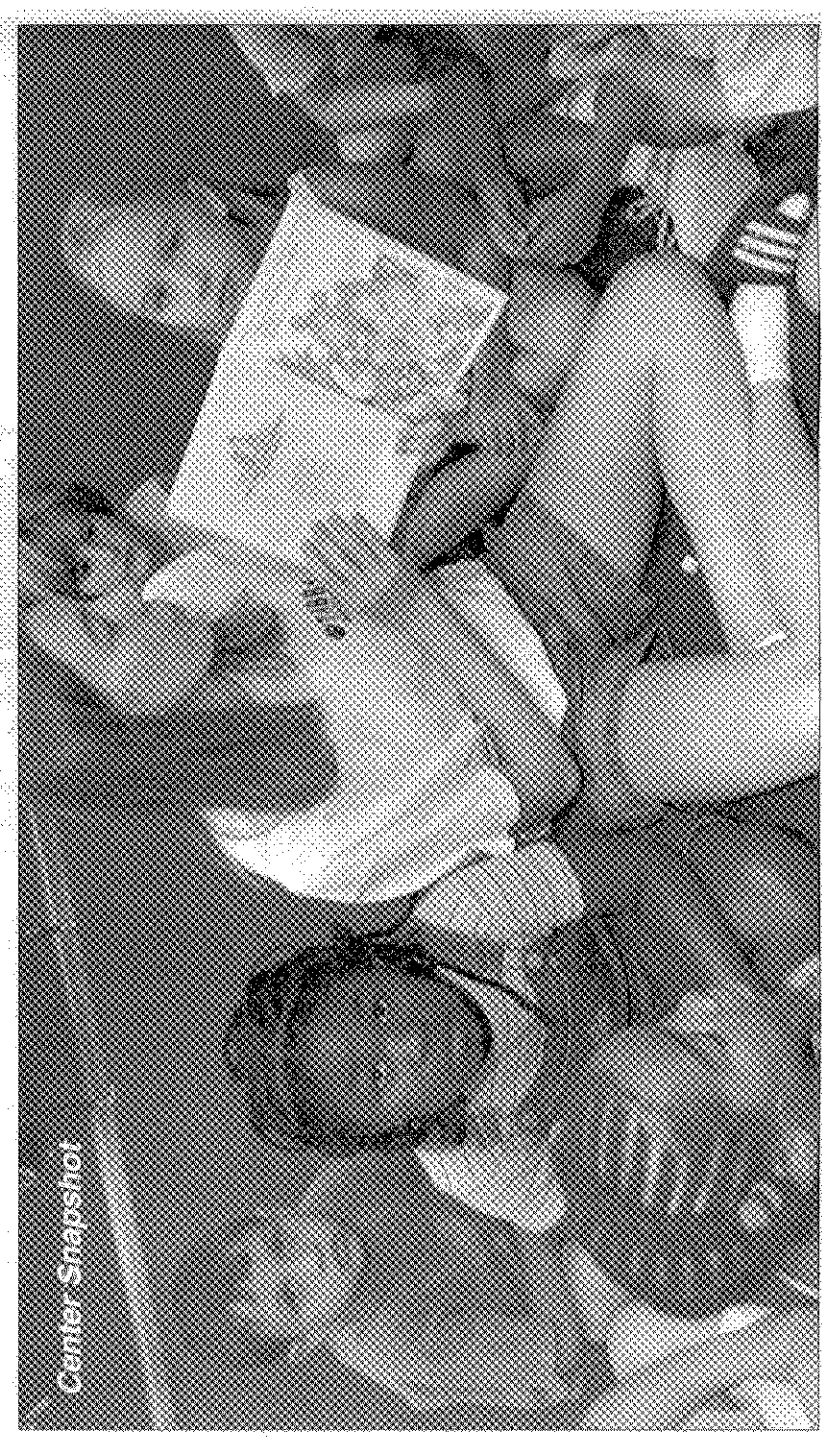

Jenna Rowe, who started attending Langley Research Center's Child Development Center (LCDC) when she was 1 year old, worked there as a summer camp counselor this year. Her primary duties were preparing food and playing games with the 5- to 7-year-old camp participants. Rowe, a rising senior at Tabb High School, plans to study elementary education at the College of William and Mary. Her hobbies are watching women's basketball and playing the flute.

Photo by Jeff Caplan

National Aeronautics and
Space Administration
Langley Research Center

News Researcher

Biweekly Employee and Contractor Publication

Volume 15 ❖ Issue 19 ❖ Sept. 21, 2001

'Awesome'

Synthetic Vision Test Flights In Colorado Considered A Success

NASA's Airborne Research Integrated Experiments System (ARIES) aircraft takes off from Eagle County Regional Airport in Colorado during a series of Synthetic Vision test flights in August and September. Inset: Head-up and head-down displays developed by NASA and Rockwell Collins can be seen in the ARIES cockpit.

Photos by Jeff Caplan

By KATHY BARNSTORFF
Public Affairs Office

"Awesome" and "way cool" were some of the words used by the pilots who flight-tested Synthetic Vision Systems, a revolutionary cockpit technology developed by NASA's Aviation Safety Program (AvSP).

Seven pilots from the airlines, The Boeing Company, the Federal Aviation Administration (FAA) and NASA used Synthetic Vision displays to fly more than 100 approaches into Eagle County Regional Airport near mountainous Vail, Colo., from Aug. 19 to Sept. 9.

"NASA chose Eagle/Vail because of its proximity to hazardous terrain and the operating environment," said Randy Bailey, principal investigator for the Colorado Synthetic Vision flight tests. "Even though it is serviced ... in the winter by five airlines, it's still a relatively challenging environment due to the terrain."

The AvSP, headquartered at Langley Research Center, is working with industry teams to create and refine Synthetic Vision. The display system would prevent deadly accidents caused by limited visibility by giving pilots an electronic picture of what's outside their windows, no matter what the weather or time of day.

> *"NASA chose Eagle/Vail because of its proximity to hazardous terrain and the operating environment. Even though it is serviced ... in the winter by five airlines, it's still a relatively challenging environment due to the terrain."*
>
> **Randy Bailey**

Langley engineers loaded a computer database depicting a three-dimensional moving map of Vail's mountainous terrain on board NASA's Airborne Research Integrated Experiments System (ARIES) aircraft. ARIES is a highly modified Boeing 757 passenger jet built in the 1980s and transformed into a "flying simulator" in the mid-1990s.

During three weeks of flights, ARIES took off from the Colorado Springs Airport and made passes over the Eagle County Regional Airport. Eagle /Vail Airport is nestled in a valley with mountains close to the runway on three sides.

The pilots tested various Synthetic Vision display concepts in the real-life, terrain-challenged environment. The Colorado flights focused on two different head up display concepts and four different head down concepts, developed by NASA and Rockwell Collins.

Pilots evaluated display sizes, fields of view and computer graphic options to help determine which configurations will be most effective in preventing accidents. The system includes visual cues that will give pilots precision navigation guidance and help them avoid obstacles.

Synthetic Vision combines Global Positioning System (GPS) satellite signals, terrain databases and advanced sensors, to project data onto displays in the cockpit. The displays are able to show terrain, ground obstacles, air traffic, approach and landing patterns, runway and taxiway surfaces and other relevant information to the flight crew.

Limited visibility is one of the greatest factors in most fatal aircraft accidents, according to Michael Lewis, director of NASA's Aviation Safety Program. "With GPS signals, pilots now can know exactly where they are," Lewis said. "Add super-accurate terrain databases and graphical displays, and we can draw three-dimensional moving scenes that will show pilots exactly what's outside. The type of accidents that happen in poor visibility just don't happen when pilots can see the terrain hazards ahead."

The Colorado deployment is the third set of AvSP Synthetic Vision flight tests in three years. The AvSP is a partnership with the FAA, the Department of Defense, aircraft manufacturers, airlines and universities. This partnership supports a national goal of reducing the fatal aircraft accident rate by 80 percent in 10 years.

For more information on the AvSP, visit <http://avsp.larc.nasa.gov> on the Internet.

A Special, Combined Federal Campaign Edition Of The *Researcher News* Will Be Published Sept. 28

News Briefs

Around the Agency

CHANDRA PROBES NATURE OF DARK MATTER

Astronomers have shed new light on dark matter, the invisible and unknown material that comprises most of the Universe.

Using NASA's Chandra X-ray Observatory, scientists have precisely determined the distribution of dark matter in a distant galaxy cluster. These new measurements serve to narrow the field of candidates that explain this puzzling element.

John Arabadjis and Mark Bautz of the Massachusetts Institute of Technology and Gordon Garmire of Pennsylvania State University announced their results at the "Two Years of Science with Chandra" symposium in Washington. Their observations enabled them to trace the distribution of dark matter in the galaxy cluster EMSS 1358+6245.

For more information on the Internet, visit <http://chandra.harvard.edu> and <http://chandra.nasa.gov>. RELEASE: 01-180

EARTH'S BECOMING A GREENER GREENHOUSE

NASA satellite data suggests that for more than two decades there's been a gradual greening of the northern latitudes of Earth.

Researchers confirm that plant life seen above 40 degrees north latitude, which represents a line stretching from New York to Madrid to Beijing, has been growing more vigorously since 1981. One suspected cause is rising temperatures possibly linked to the buildup of greenhouse gases in our atmosphere.

Over this same time period, parts of the Northern Hemisphere have become much greener and the growing season has increased by several days. Further, Eurasia appears to be greening more than North America, with more lush vegetation for longer periods of time.

Additional information is available on the Internet at <http://cybele.bu.edu> and <http://www.gsfc.nasa.gov/topstory/20010904greenhouse.html>. RELEASE: 01-178

COMPUTERS MAY REDUCE AIRPORT CONGESTION

NASA researchers have found that small, Internet-linked computers in the hands of airport workers may help unclog the nation's air terminals.

The research finding is based on studies at San Francisco International Airport and other air terminals. NASA scientists at Ames Research Center collaborated with United Airlines on the two-year project. Researchers also suggest that additional "curb-to-gate" changes, including better signs in terminals, synchronized clocks and improved check-in procedures, as well as improvements in airline and airport operations, may help reduce flight delays.

"The study recommends the development of a next generation of airport information systems. These would include use of hand-held computers to allow airline employees and others to update schedules on the tarmac, on baggage carts and in gate areas," according to Roxana Wales, a member of the Ames research team. "Delays can arise at any point in a flight, including preparations before leaving the gate; and difficulties at one point can lead to a slipped schedule at any other point." RELEASE: 01-176

News Researcher

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Science and Technology Corp.

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Planners Collaborative/
Science and Technology Corp.

The privilege of listing announcements in this publication is restricted to the employees, contractors and retirees of the Langley Research Center. Articles must be offered without regard to race, color, religion, sex or national origin. All materials are subject to editing.

Read the *Researcher News* online at <http://researchernews.larc.nasa.gov>.

People

Lawrence Taylor of NASA's Hyper-X Program Office explains hypersonic research to a visitor at the Cincinnati Lunken AirFest.

Photo by Dave Reubush

Hypersonic Research Featured At Cincinnati's Lunken AirFest

By DONNA ROPER LAWSON
Public Services Office

NASA's X-43 vehicle was the centerpiece exhibit at the 2001 Cincinnati Lunken AirFest, which took place Aug. 25-26 at Cincinnati's Lunken Airport. More than 10,000 people attended the event, and most made a point to visit the X-43, which was featured on the AirFest T-shirts, posters and advertisements.

> *"This was an opportunity we didn't want to miss."*
> **Dave Reubush**

"This was an opportunity we didn't want to miss," said Dave Reubush, deputy manager of NASA's Hyper-X Program Office, which is headquartered at Langley Research Center. "The AirFest allowed us to inform a large audience about the challenges and benefits of pursuing such revolutionary technology goals like those for the Hyper-X Program."

Charlie Pyles, AirFest's chairman, requested the presence of the X-43 exhibit after seeing it at the Experimental Aircraft Association's 2001 AirVenture air show in Oshkosh, Wis.

The exhibit filled a 30- by 60-foot tent in the center of the exhibits area. In addition to Reubush, Hyper-X Program Office employees Bob Pegg, Jeff Robinson and Lawrence Taylor were on-hand to talk about hypersonic research and answer questions.

Lunken Airport, Cincinnati's municipal airport, serves as home to a number of general aviation aircraft and corporate flight operations, including Proctor and Gamble. The airport's benefits association hosts the annual AirFest, which features both flight demonstrations and static displays.

Among the visitors were representatives from General Electric Aircraft Engines and the University of Cincinnati. Most, however, were members of the general public with an interest in aviation and NASA. Many said they would like to have an operational air-breathing, access-to-space vehicle available before the 2025 timeframe set out in current plans.

Retirements

Langley Research Center's Structural & Thermal Analysis Branch will host a retirement social and birthday party for **Thomas C. Jones** from 2 to 4 p.m. Oct. 1 in Bldg. 1209, Room 180. Jones has requested no gifts — just to see and talk to his colleagues.

Please RSVP to Bill Hunter at 864-7030 by Sept. 26.

Langley Research Center's Chemistry and Dynamics Branch will host a retirement cookout for **Jim Raper** from 4:30 to 7 p.m. Sept. 26 at the H.J.E. Reid Conference Center picnic area.

Hamburgers, hot dogs, fried chicken, barbecue, tea, soft drinks and beer will be served at a cost of $10. Gift contributions also will be accepted. Please send checks to Jeanette Reavis at Mail Stop 401B.

For more information, contact Vickie Connors at 864-5849 or <v.s.connors@larc.nasa.gov> or Richard Bendura at 864-5830 or <r.j.bendura@larc.nasa.gov>.

In Memoriam

Forrest F. Bruce

Forrest Franklin Bruce died on Aug. 26 at the age of 68. Bruce, a native of Louisa County, retired from NASA as an engineering technician in June after 33 years of service.

Langley Supporting Noise Tests

By BILL UHER
Planners Collaborative, Inc.

and JONAS DINO
Ames Research Center

Residents of communities near airports may someday breathe an audible sigh of relief as a result of NASA tests to evaluate a variety of "quiet" aircraft technologies.

Aircraft are at their loudest when landing gear, wing flaps and slats are deployed, creating large amounts of wind turbulence and generating lots of noise. Engineers at Ames Research Center, with support from Langley Research Center, are using Ames' 40- by 80-Foot Subsonic Wind Tunnel to test design modifications that reduce aircraft noise on a 26 percent-scale model of a Boeing 777 aircraft.

"This wind tunnel test is the culmination of eight years of work to make aircraft quieter during the time when the most noise is produced — take-off and landing," said Ames' Kevin James. "This is the first time all of these noise-control devices will be tested together. Each device works separately, but this test will determine how well they work together."

"These technologies, developed by NASA and an industry airframe-noise reduction team, will revolutionize the design of future generations of commercial aircraft," said Langley's Bill Willshire.

"Communities will experience less noise, and their citizens' quality of life will be improved, with the implementation of the advanced technologies to be demonstrated in this critical experiment."

The research to develop quieter aircraft is funded under the Aerospace Vehicle System Technology Noise Reduction Program managed by Langley.

The model — known as the Subsonic Transport Acoustic Research (STAR) model — consists of the left half of the aircraft. It will be mounted with the wing vertical in the test section. The model is complete with a wing, landing gear, leading-edge slats and flaps to duplicate take-off or landing conditions.

"This is one of the most detailed wind tunnel models of a commercial aircraft ever tested," James said. "The model has all the control surfaces and parts of the real aircraft. It has a semi-wingspan of 26 feet and is built to a tolerance of 0.03 of an inch. The Boeing 777 was picked for the development of these quiet modifications because it is already a relatively quiet aircraft. We wanted the challenge of making it even quieter."

Integrated Financial Management Program (IFMP) Update

Keeping Up With The Information Age

As information circulates about NASA's Integrated Financial Management Program (IFMP), its modules and implementation schedule, it is important to keep the big picture in sight. This article is about the evolution of the information age that is making IFMP inevitable.

According to history books, the computing part of the Information Age started around 1975 with the first supercomputer, Cray-1; the first personal computer kit, MITS Altair 8800; and ARPAnet, an experimental network designed to support military research. In 1977 came Apple II and its icons, and the 1980s produced more personal computers, word processing applications, massively parallel computers, relational databases, the mouse and the beginnings of e-mail.

In the early 1990s, the grand collaboration that is the Internet began to arise in the public consciousness, along with the confusing proliferation of automated, massively parallel, integrated, validated, extended, superrelational, Web-enabled, scalable, distributed computing technology.

Yes, the Information Age is hard on everyone. Oh, sure, the technical evolution of information technology (IT) revolutionized communications. And digital computing made it possible instantly to process information and create planet-wide networks. But what happens in an agency as large and complex as NASA when many programs and Centers use different hardware, software and systems to conduct its business?

The result is that practically every business process, internal and external data flow, automated and manual interface, database and historical archive produces different kinds of data. Over time, communications within and among Centers clog up like I-64 heading for the Southside on a Friday afternoon in July.

Data that's accurate, up-to-date and consistent across Centers is critical to integrating existing systems across Centers, adding new systems and getting data when and where it's needed, in usable formats. It's also critical for any agency that needs to adapt to changes involving products, markets, technology, budgets, customers, contracts, legislation and competitive shifts.

The move to standardized business processes and systems through IFMP is a critical part of NASA achieving its mission and goals. As a big part of this broader goal for NASA's future, IFMP will create a significant positive change in each Center's business and administrative processes and systems. Without IFMP there would be gaps in the Agency's ability to serve its employees and conduct business.

IFMP and other NASA IT initiatives will make sure the Agency's business operating environments are accounted for and understood. The payoff will be reliable, timely, consistent information that's available to NASA employees, suppliers, partners and customers. And that will mean better decision-making across all levels of the organization.

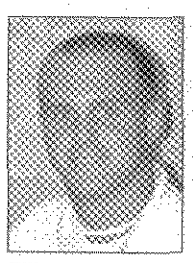
For more information, contact Manjula Ambur at 864-2384 or <m.y.ambur@larc.nasa.gov> or David Gosselin at 864-9055 or <d.j.gosselin@larc.nasa.gov>. More information also is available at Langley's IFMP Web page: <http://ifmp.larc.nasa.gov/>.

Co-op Spotlight

Student Helped In Lidar Mirror Research

By JOHNATHAN W. HAIR
Chemistry And Dynamics Branch

Dustin Elliott, a co-op student from the University of Kentucky, spent the summer of 2001 at Langley Research Center conducting research on a deformable membrane mirror (DMM) for use as a high-speed optical shutter in lidar applications.


Elliott

The work was done in conjunction with Langley's Lidar Applications Group, which is internationally recognized for developing and applying advanced lidar systems to a broad range of atmospheric investigations. These activities have included the development and application of the first airborne Differential Absorption Lidar (DIAL) systems for studies of ozone, water vapor, aerosols and clouds.

The addition of a deformable mirror in an airborne lidar system would improve the quality of the atmospheric measurements because it can act to eliminate strong near-field lidar signals that can detrimentally affect the performance of lidar detectors. This technique may replace the electronic gating technique that is currently used in optical detectors, which does not completely eliminate the influence of strong near-field lidar returns on the detector performance at longer ranges.

The deformable mirror operates by acting as a normal, flat, reflective surface until a high voltage is applied to it, after which it forms a dimpled surface, much like the surface of a golf ball. This change in the surface of the mirror gives it the capability to diffract light.

The aluminum-coated, deformable mirror can be deformed quickly, within mircoseconds, causing light to be diffracted into a 2-D pattern, which sends most of the incident light away from sensors. The reflected and diffracted beams from the mirror can then be separated with a simple aperture.

Elliott set up an optical experiment to measure the speed and contrast ratio of the mirror, which is the amount of light passing through the aperture when the mirror is deformed compared to when the mirror is flat. Using a laser at a known wavelength, the experiments were designed to measure exactly how well the mirror was matching up to theoretical analysis and the expected performance.

Elliott's experiments showed that the deformable mirror was feasible for use in airborne lidar systems. Elliott wrote a report on his measurements and presented his results in a seminar to scientists in the Lidar Applications Group.

Elliott said he hopes to incorporate his experience with optical and atmospheric instrumentation into his future work.

AdVentures

CLASSIFIED

FOR SALE: 1995 Honda CR-80, very good condition, new top end, $1,350 or best offer; 2000 Carter Mudblaster big wheel go-kart, with 8HP Honda engine, $1,000 or best offer; 6- by 8-foot flatbed trailer, new tires and rims, $350 or best offer. Call 766-0427.

FOR SALE: 1991 Pontiac Grand Am, two-door coupe, automatic, four cylinder, power windows, steering and locks, power brakes, cruise control, air conditioning, AM/FM radio cassette, new tires, new inspection, new timing chain, original owner, $1,700 or best offer. Call 587-6967 and leave message.

FOR SALE: Vacation packages: 6 days and 5 nights in Puerto Vallarta, Mexico, for two adults and two guests; 5 days and 4 nights in Orlando for two adults and two guests; 3 days and 2 nights in Ft. Lauderdale, Fla., for two adults and two guests. Hotel accommodations only, buyer must provide transportation. Call 826-9033 ext. 346.

FOR SALE: Nordic Track Pro-ski machine, very good condition, $100. Call 220-0752.

FOR SALE: Billy Goat lawn vacuum, $90; Sears Kerosene heater, $15; Small garden tiller, $70. Call 850-8242.

'Women And Flight' Exhibit Opens

The Virginia Air and Space Center (VASC) will host an opening reception for the traveling exhibit, "Women and Flight," from 6 to 8 p.m. **Sept. 21**. Anne Tunner, a member of the Women's Airforce Service Pilot (WASP) program in World War II, will speak at 6 p.m.

The cost is $3 for VASC members and $5 for non-members. For reservations or more information, call 727-0900 ext. 782.

Brown Bag Lectures Continue

The next two lectures in the Langley Research Center Atmospheric Sciences Competency's Brown Bag Lunch Series are: **Sept. 27**, Jim Crawford on "Tropospheric Chemistry"; and **Oct. 4**, Richard Eckman on "Stratospheric Chemistry." The lectures will take place from 11:30 a.m. to 12:30 p.m. in the Pearl Young Theater.

AIAA Soliciting EOY Nominations

The Hampton Roads Section (HRS) of the American Institute of Aeronautics and Astronautics (AIAA) is soliciting nominations for the 2002 Engineer of the Year (EOY) Award.

The award recognizes a member of the HRS for distinguishing himself or herself in some facet of aerospace engineering. Nominees shall have made a recent significant contribution to the art and science of aerospace engineering that is worthy of recognition.

Nomination packages are due **Oct. 1** to Jamshid A. Samareh at Mail Stop 159.

For more information, visit <http://www.seva.net/~aiaa/ awards.html> on the Internet or contact Jamshid Samareh at 864-5776 or <j.a.samareh@larc.nasa.gov> or Robin Hardy at 864-7159 or <r.c.hardy@larc.nasa.gov>.

Explorer Post Forming At Langley

Langley Research Center, in cooperation with the Boy Scouts of America, will host registration for an Explorer post dedicated to science, mathematics and technology at 7 p.m. **Oct. 9** in the H.J.E. Reid Conference Center. Explorers will have the opportunity to participate in hands-on research activities and interact with NASA engineers, scientists and technicians.

The program is open to high school students (boys and girls) who are at least 16 years old upon registration and are U.S. citizens. No previous affiliation with Scouting is required. A $25 fee will be collected during registration; checks should be made payable to the Colonial Virginia Council of the Boy Scouts of America.

For more information, contact Patricia A. Link at 864-8102 or <p.a.link@larc.nasa.gov>.

30th Anniversary Colloquium Oct. 15

Langley Research Center employee Joel S. Levine will present the Center's 30th anniversary Colloquium lecture, "Mars: A Strange and Complex Planet" at 2 p.m. **Oct. 15** in the H.J.E. Reid Conference Center. A Sigma Series lecture will follow at 7:30 p.m. at the Virginia Air and Space Center in Hampton.

A story about the lecture series will appear in the Oct. 5 edition of the *Researcher News*. For more information about the lecture series, visit <http://shemesh. larc.nasa.gov/Lectures/> on the Web.

Tour Schedule Continues

The Virginia Air and Space Center (VASC) will continue to offer tours of Langley Research Center and Langley Air Force Base at 2 p.m. Saturday and Sunday through October.

The cost is $5 per person with VASC admission or $7 per person without. Children under 12 must be accompanied by an adult on the tour.

For more information, call 727-0900 or visit the VASC Web site at <www.vasc.org>. For information on how to serve as a tour docent, call Bert Smith at 727-0900 ext. 735 or Steve Devan at 898-9290.

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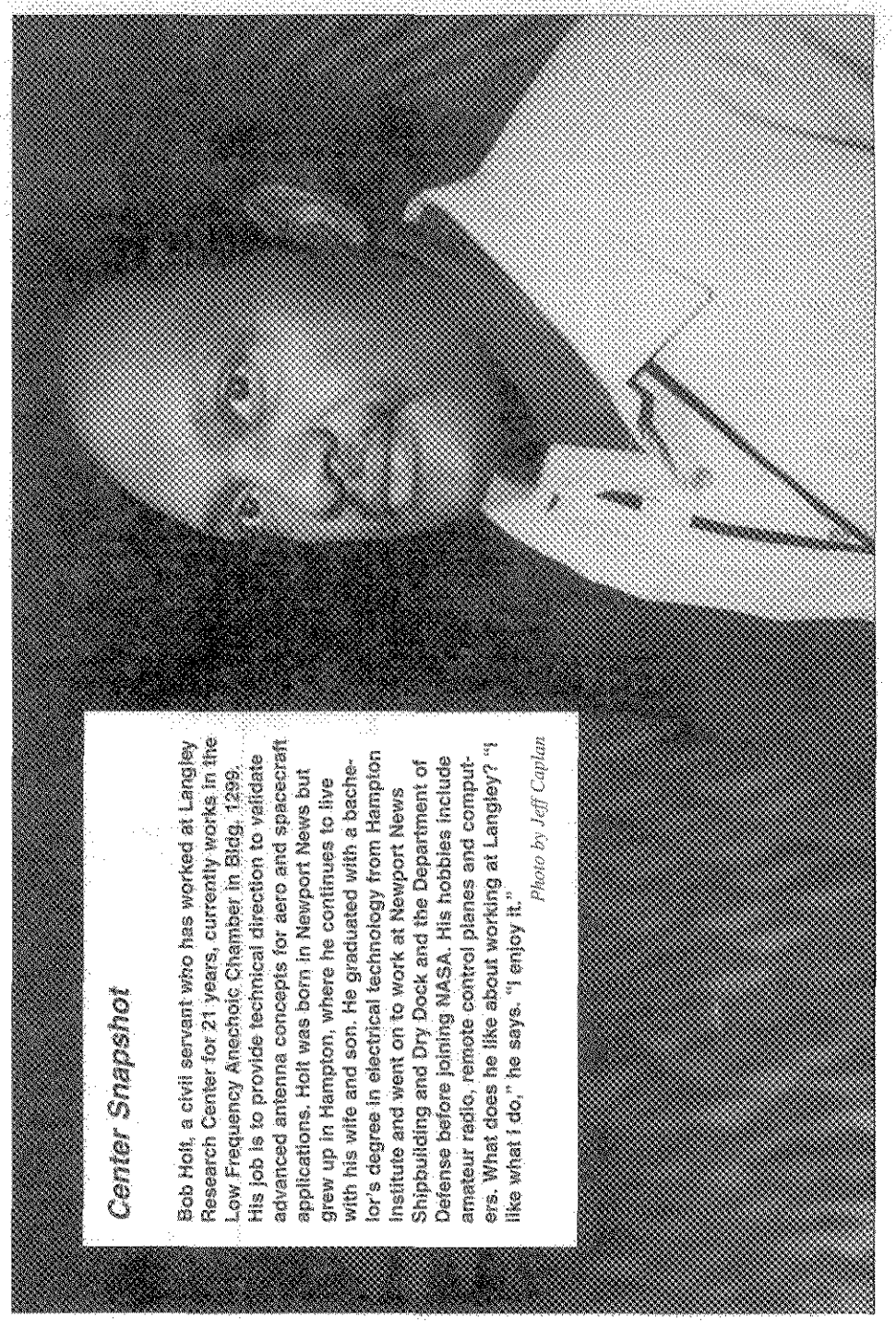

Center Snapshot

Bob Holt, a civil servant who has worked at Langley Research Center for 21 years, currently works in the Low Frequency Anechoic Chamber in Bldg. 1299. His job is to provide technical direction to validate advanced antenna concepts for aero and spacecraft applications. Holt was born in Newport News but grew up in Hampton, where he continues to live with his wife and son. He graduated with a bachelor's degree in electrical technology from Hampton Institute and went on to work at Newport News Shipbuilding and Dry Dock and the Department of Defense before joining NASA. His hobbies include amateur radio, remote control planes and computers. What does he like about working at Langley? "I like what I do," he says. "I enjoy it."

Photo by Jeff Caplan

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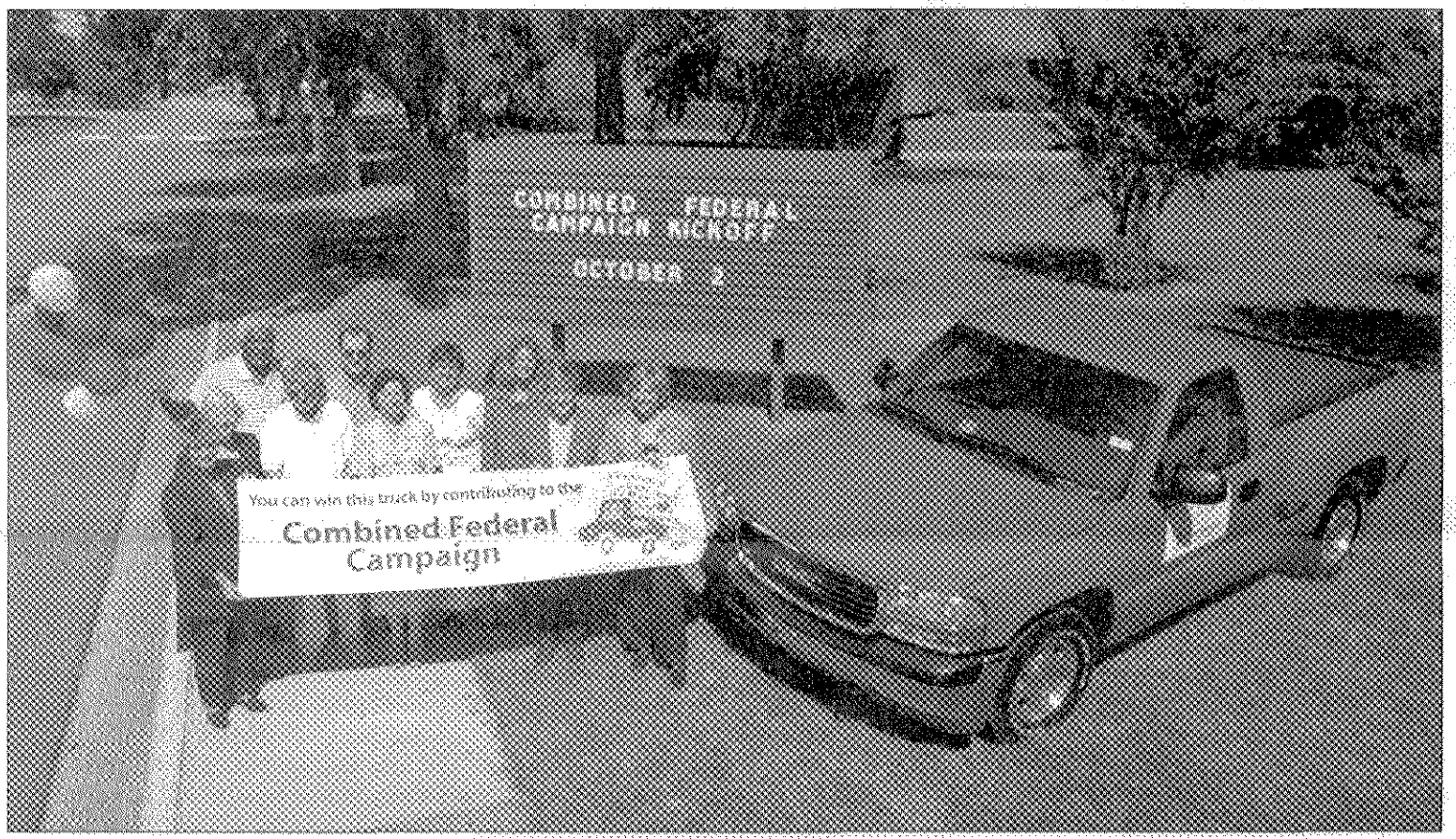
2001 CFC Kicks Off

Monthlong Campaign Begins With Oct. 2 Picnic



Langley Research Center's 2001 Combined Federal Campaign (CFC) Committee poses with the GMC pickup truck donated by Suttle Motors as an incentive for this year's campaign. (Everyone donating at least $125 to the Peninsula CFC will be eligible to win the truck; for details, see the "2001 CFC Appreciation Awards" chart on page 3.) This year's committee members are (left to right) Patsy Campbell, Karen Credeur, Vince Cowling, Richard Bennett, Robert Horne, Pam Verniel, Karen Smith, Dawn Drabeck, Rose Mustain and Kathy Kurke. Committee members James Fields and Ruth Martin are not pictured.

Photo by Jeff Caplan

By PAMELA J. VERNIEL
CFC Publicity Chair

Langley Research Center will officially begin its 2001 Combined Federal Campaign (CFC) with a "kick off" picnic from 11 a.m. to 1 p.m. Oct. 2 on the grounds of the H.J.E. Reid Conference Center.

The event will include door prizes and musical performances by Langley employees. Arrangements are being made to have local CFC agencies represented.

The menu will include grilled chicken, choice of two side orders (potato salad, baked beans, cole slaw and fruit salad), dessert and a beverage. Black bean casserole will be offered for vegetarians.

Tickets for the lunch are $6 and are available from Langley's CFC "Key Workers" and in the cafeteria. Tickets also will be available at the picnic.

One dollar from the sale of each ticket will go to the CFC.

Civil servants may charge up to one hour using J.O. B1002 for the event.

Now Is The Perfect Time To Help

By KATHY ANN KURKE
CFC Chair

Like you, I will forever remember the shocking events of Sept. 11, 2001. With the rest of America, I looked on with dumbfounded shock as I watched the horrific acts broadcast live on TV and realized that I had just witnessed a mass murder of inconceivable proportions.

My memories of the next few days are already beginning to blur because I was overwhelmed with the enormity of the devastation. I do remember a tremendous mix of emotions — disbelief, grief, anger, fear, sadness — but most of all, I remember feeling helpless. I wanted to but could not think of a way to restore the national sense of security. I wanted the power to bring back my colleague who died in the Pentagon and all of the others who lost their lives. I wanted to fight the bigotry that was growing within our own nation in the name of vengeance. I wanted to take away the despair I heard in the voices of survivors telling their heart-wrenching tales, and I wanted to ease the workload of the rescue workers.

In search of a way to begin our national and personal healing process, the whole nation rushed to donate blood and send supplies to New York. Within a few days, the New York Times reported that the city was inundated with so many donated supplies that "another mini-disaster was in the making." An American Red Cross worker was reported to have said, "I wish people would back off and pace themselves, because there's going to be work to do for months."

While the immediate outpouring of generosity was certainly useful in the short run, the enormity of the devastation necessitates a long-term commitment to charity. The existing support organizations were generally unprepared for disaster of this magnitude and duration. It is going to take months and years to clean up the city, relocate homeless people and pets, reconstruct buildings, re-establish businesses, nurse the survivors back to health, counsel the distressed and, of course, pay the bills.

By donating more generously than ever to this

Continued on Page 2

Langley Never Hesitates To Help

By DR. JEREMIAH F. CREEDON
Center Director

When given the opportunity to improve something, Langley Research Center employees don't hesitate to act, whether it is advancing technology or improving our communities. You should be proud of the effort that you put forth in advancing technology and of the way that you respond to those in our community who need help. Many of you take time from your very busy lives to give your talents to civic and religious organizations, school activities, youth organizations and agencies that help our elder citizens.

The people of the Center have helped others in need through activities such as the Community Day of Caring, Red Cross blood drives and the Combined Federal Campaign (CFC).

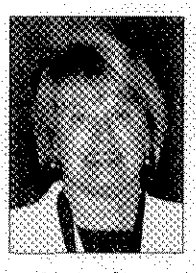
The CFC is an opportunity for us to improve the quality of life for those in need. Organizations of the CFC help children struggling with the pain of abuse and families unable to care for their children. These organizations also help families devastated by house fires or floods, help those coping with serious illnesses and help elder citizens lead quality lives. Your support of the CFC helps to ensure that our friends, neighbors and family members receive the support that they need. This year's CFC goal is challenging. If you have never participated in the CFC, please consider what can be accomplished when many people give a little. If you already participate in the CFC, please give as generously as you can.

Lead The Way By Surpassing Our Goal

By PATSY CAMPBELL
CFC Loaned Executive

The mission of the Combined Federal Campaign (CFC) is to support and promote philanthropy through a program that is employee-focused, cost-efficient and effective in providing all federal employees the opportunity to improve the quality of life for all.

Isn't it a privilege to be part of such a successful and efficient campaign that respects its donors and gives us the most impact for our dollar? This is a sound investment in improving our community and quality of life.



I want to thank Langley Research Center for giving me this opportunity to serve as its Loaned Executive to the CFC. I am honored to meet with the various government agencies on the Greater Peninsula and be able to tell them I am Langley's loaned executive — it sends the message that Langley cares about our community and is interested in making a difference!

I trust Langley will meet our goal of $370,000 so the CFC can reach its goal of $1.7 million (only $100,000 new dollars from last year)! The private sector has a goal through its United Way Campaign of $7.7 million ($500,000 new dollars from last year).

We, as civil servants, must set the example. And let Langley lead the way by not only meeting our goal but surpassing it. I urge each of you who gave in the past to increase your donation, if just a few dollars, and those who have not used the CFC to do so this year.

Giving through payroll deduction is the most cost-efficient and effective way to ensure our collective charitable contributions have the greatest impact. The local CFC works hard (through the United Way of the Virginia Peninsula) to promote all the charitable agencies' needs as well as critical issues. They do the fund-raising so the agencies can spend more time serving the communities' needs. So the more we contribute to the CFC, the less time the agencies will have to spend on fund-raising! Sounds like a sound investment to me, and there aren't many of those around today!

So please give to the CFC and make its vision a reality.

Help

Continued from Page 1

year's Combined Federal Campaign (CFC), you can do your part to help the people of New York and Washington, D.C., and throughout the nation begin to recover.

You can make a difference today by making a commitment to contribute to your charity or charities of choice through payroll deductions.

Your long-term commitment is more important than ever. You have the ability to help meet the continuing needs in the aftermath of the tragedy. The U.S. Office of Personnel Management is publishing and updating a list of national organizations and CFC participating charities involved in relief efforts following the Sept. 11 tragedies. (See related story on page 4.)

Many charities included in the CFC exist for the purpose of assisting the victims of sudden tragedy, and you can designate these charities. However, it is important not to neglect the other charities that tackle such enduring problems as researching cures for diseases, fighting injustice and social ills and providing community services. This work must not be allowed to stop as a result of the terrorists' evil deeds.

Over the years, federal employees have donated billions of dollars to eligible groups. Last year, Langley employees made generous contributions totaling approximately $350,000, with an average donation of $270.

Langley's CFC Committee originally planned on inviting you to renew and expand on last year's success and help us reach a stretch goal of $370,000 with an average donation of $286, or a mere $5.50 a week. But in view of the historic need arising out of recent events, I know you will consider being even more generous than that.

All federal employees have the right to contribute or not to contribute to the CFC. The choice is yours. But, as Bob Hope once said, "If you haven't any charity in your heart, you have the worst kind of heart trouble."

I am sure that during this time when terrorists are attacking our nation, you all share my renewed pride in service to the United States public. A friend recently reminded me of what Admiral Yamamoto said following the successful attack on Pearl Harbor. "I fear we have awakened a sleeping giant and filled him with a terrible resolve."

I am proud to be a part of that resolve, and I feel blessed to be able to serve this country in whatever small way I can contribute, both as a federal employee and as a contributor to the CFC. Let us reach out and make a difference together! Please make your pledge today.

Researcher News

The Researcher News is an official publication of Langley Research Center, National Aeronautics and Space Administration, Hampton, Va., 23681-2199. It is published every other Friday in the interest of all Langley staff, contractors and retirees and has a circulation of approximately 8,100. It is distributed to all Langley civil service employees, contractors, retirees and on-site university personnel, with limited distribution to NASA Headquarters, other NASA centers and, by special request, to other non-NASA individuals and organizations. Questions related to the content and distribution of the Researcher News should be addressed to Keith Henry, Mail Stop 115, (757) 864-6120. Submit contributions/SDL 026, 055, 110 changes to the editor via e-mail <j.r.roberts@larc.nasa.gov>, fax (757) 864-6477, telephone (757) 864-8150 or Mail Stop 293. Articles, photos and announcements are due at noon the Monday following the date of this issue.

Managing Editor ..... Keith Henry

Editor ..... Jim Roberts
Planners Collaborative/
Science and Technology Corp.

Assistant Editor ..... Meghan Woodcock
Planners Collaborative/
Science and Technology Corp.

Photographer ..... Jeff Caplan
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The privilege of listing announcements in this publication is restricted to the employees, contractors and retirees of the Langley Research Center. Articles must be offered without regard to race, color, religion, sex or national origin. All materials are subject to editing.

Read the *Researcher News* online at <http://researchernews.larc.nasa.gov>.

Messages From The IAM and AFGE Unions ...

The International Association of Machinists Union strongly supports the Combined Federal Campaign and recognizes all of its community assistance programs.

The union has always endorsed the services provided by the CFC. Each and every agency fills an important need. Therefore, the IAM membership has collectively agreed to 100 percent participation.

Richard W. Bennett
President,
International Association of Machinists, Local 2829

The American Federation of Government Employees (AFGE 2755) has always proudly endorsed the Combined Federal Campaign (CFC) at Langley Research Center.

This year's theme of "A Truckload of Good Deeds for Those in Need" is very appropriate, when you consider that this year — more than usual — we need to pitch in and help those who are less fortunate.

It is an American tradition to help one another in times of need, and this year's CFC is the right vehicle to help us deliver a truckload of good deeds to the lives of people in the Tidewater area who need our help. AFGE 2755 would like to urge everyone to give generously this year as always to the CFC.

Marie E. Lane
Vice President,
AFGE, Local 2755

Web Site Accepts Electronic Pledges

By ROBERT HORNE
CFC Financial Chair

To reduce the cost of running the Combined Federal Campaign (CFC) so more money goes to those in need, Langley Research Center has developed an online pledge contribution form for civil servant employees. It relieves contributors of performing pledge calculations, ensures agency code accuracy and presents a final receipt displaying designated agencies by name and amount of designation.

To use the form, proceed to STEP A below. The online contribution form has been designed into a series of logical screens to guide users through the contribution process. Step-by-step instructions have been placed directly on the online form. Key Workers also are available to help if needed.

Employees who wish to make a manual pledge can obtain a pledge form from their Key Worker or from the CFC Financial Chair at 864-5125. As in past campaigns, forms should be filled out and returned to a Key Worker for entry into the CFC contribution system or mailed to the CFC Financial Chair at Mail Stop 147.

STEP A – Accessing the online contribution form:

1. Start an Internet browser application and open the CFC Web page: <http://cfc.larc.nasa.gov/>. (The page will be available on Oct. 1.)
2. From the welcome page, browse the Web site or go directly to the online contribution function.

STEP B – Making a pledge electronically:

1. Click on the "Online Contribution" link in the menu bar on the left side.
2. Select the contribution amount and method (payroll deduction and/or cash or check) or, if not participating, click on the "I choose not to participate in CFC this year" box. Note: Non-participants can proceed to Step E.
3. Click the "Calculate/Review Pledge Total" button to review the payroll deduction and pledge total.
4. Once satisfied with the pledge amount, click the "Continue" button to process and for the option to designate specific agencies.

STEP C – Release Information and Agency Designation:

1. Select a release agreement option.
2. To designate specific agencies, fill in the agency code(s) and the amount(s) pledged. Otherwise, leave this section blank. Agency codes may be found by using the Shopping Cart or by selecting the "Agency Search" link.

STEP D – Giving Influence and Recognition: (This screen will be displayed only if applicable)

1. Donors who contribute more than $125 will receive a GiveSmart CFC Card offering discounts for food, entertainment and personal services.
2. If eligible for other gift awards, that information will be displayed.
3. Click "Continue."

STEP E – Pledge Authorization:

1. Enter your Langley ID Badge Number and the last four digits of your Social Security number with no dashes or spaces.
2. Check "Pledge Submitted on Behalf of Contributor" box if entering a pledge for someone other than yourself.
3. Review the pledge information and modify if necessary.

STEP F – Modify Personal Data: (This screen will display only if "Modify Personal Info" button is chosen on the Pledge Confirmation screen)

1. Review name, address and telephone number.
2. Make appropriate changes to the data. (Modifications made here will not be changed in your official record; changes to personnel records should be done through the Personnel Management Branch or by using Employee Express.) A pin number is required for this function.
3. Click "Return to Pledge."

STEP G – Print Pledge Receipt:

1. Print employee receipt.
2. Push the "Generate Receipt for Key Person" button.
3. Print a copy and sign to authorize payroll deductions.
4. Turn form into the Key Worker listed.
5. Push the "Done" button.

To reprint a receipt:

1. Go to the online contribution form.
2. Click "Reprint Receipt" option at the top of the page.
3. Enter Langley ID badge number and last four digits of Social Security number.
4. Copy should be displayed.
5. Use the print function at the top of the Internet browser window.

To change pledge after submitting electronically:

1. Mark any changes by hand on receipt and initial by the changes.
2. Submit the receipt with the marked changes to the appropriate Key Worker.

To access prior year CFC pledge:

1. Go to the online contribution form.
2. Click "Access Prior Year Pledge" option at the top of the page.
3. Enter Social Security number or ID badge number and last four digits of Social Security Number.
4. Click "Display Pledge."
5. Print using the "Print" button on the browser application.

CFC 2001

Many Agencies Involved In Relief Effort

Federal employees have the opportunity to contribute to thousands of local, national and international agencies by participating in the Combined Federal Campaign (CFC). This year, many employees may want to designate their contribution to one or more of the many agencies working in relief of the national tragedies that took place on Sept. 11.

The U.S. Office of Personnel Management has compiled a list of organizations involved in the relief efforts. (For an updated list, visit <http://www.opm.gov/cfc/opmmemos/2001/911-Disaster.htm> on the Internet.)

Please note: Many local organizations also are involved in helping to alleviate the enormous need. A complete list of local CFC agencies can be found online at <http://cfc.larc.nasa.gov/>.

Contributions to these organizations should be made by completing a CFC pledge card and choosing payroll deduction or attaching a check. The local CFC administrative structure will ensure that these contributions are forwarded to the organization designated.

- Adventist Development & Relief Agency International, CFC #1401
- America's Second Harvest, CFC #0437
- American Red Cross, CFC #0700
- AmeriCares, CFC #0333
- Amnesty International of the USA, CFC #0416
- Anxiety Disorders Association of America, CFC #0419
- Association of Gospel Rescue Missions, CFC #2022
- Association of Jewish Family and Children's Agencies, Inc., CFC #0848
- Baptist World Alliance, Baptist World Aid, CFC #2002
- Burchette, Conners, Ellington, Hereford, Lynch Memorial College Education Fund, CFC #0874
- Children's Feeding Network, CFC #2744
- Children's Food Fund/World Emergency Relief, CFC #2026
- Church World Service/CROP, CFC #0310
- Compassion International, CFC #2032
- Concerns of Police Survivors, Inc. (COPS), CFC #1209
- Covenant House, CFC #0491
- Disabled American Veterans Charitable Service Trust, CFC # 2108
- Dogs for Disabled Americans, CFC #1813
- Drug Enforcement Administration Survivors Benefit Fund, CFC #2982
- Educate America: Scholarship Fund for the Surviving Children of the Victims of Black Tuesday, CFC #2400
- Father Flanagan's Boys' Home Boys Town Center, CFC #0470
- Federal Employee Education & Assistance Fund, CFC #2808
- Feed The Children.org, CFC #2052
- Food for the Hungry, CFC #2044
- Guide Dog Foundation for the Blind, CFC #2838
- Healing the Children Northeast, CFC #2752
- International Aid, CFC #2093
- International Association of Fire Fighters Burn Foundation, CFC #0495
- International Relief Teams, CFC #0351
- KidsPeace Corporation, CFC #1146
- Kiwanis International Foundation, CFC #1215
- Lions Club International Foundation, CFC #2809
- Lutheran World Relief Disaster Response, CFC #0335
- Marine Corps – Law Enforcement Foundation, Inc., CFC #2134
- Mercy Corps International, US Emergency Fund, CFC #0365
- Mercy MedFlight, Inc., CFC #2988
- Military Chaplains Association, CFC #2118
- Miracle Flight for Kids, CFC #2849
- National Fallen Firefighters Foundation, CFC #2970
- National Hospice and Palliative Care Organization, CFC #0544
- National Law Enforcement Officers Memorial Fund, CFC #1116
- National Military Family Association, CFC #2113
- National Organization for Victim Assistance, CFC #2609
- Nazarene Compassionate Ministries, Inc., CFC #2018
- Postal Employees' Relief Fund, CFC #0183
- Ronald McDonald House Charities, CFC #0465
- The Salvation Army, CFC #0338
- The September 11th Fund c/o United Way of America, CFC #0100
- Shriners Hospitals for Children, CFC #0474
- United Methodist Committee on Relief, CFC #0352
- World Concern NY Relief, CFC #2025

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Researcher News

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CFC Snapshot

Kathy Kurke and Ruth Martin, Chair and Vice Chair of Langley Research Center's 2001 Combined Federal Campaign (CFC) Committee, pose during last year's "Senior Staff Car Wash." The inaugural fund-raiser attracted 45 cars and raised $510. This year's car wash will take place from 2:30 to 5 p.m. Oct. 4 at Langley's Vehicle Maintenance Building (Bldg. 1199). Participants will be given a receipt stating that the fair market value of the car wash is $5; anything donated above that amount is tax-deductible.

Photo courtesy of Rose Mustain

National Aeronautics and Space Administration
Langley Research Center

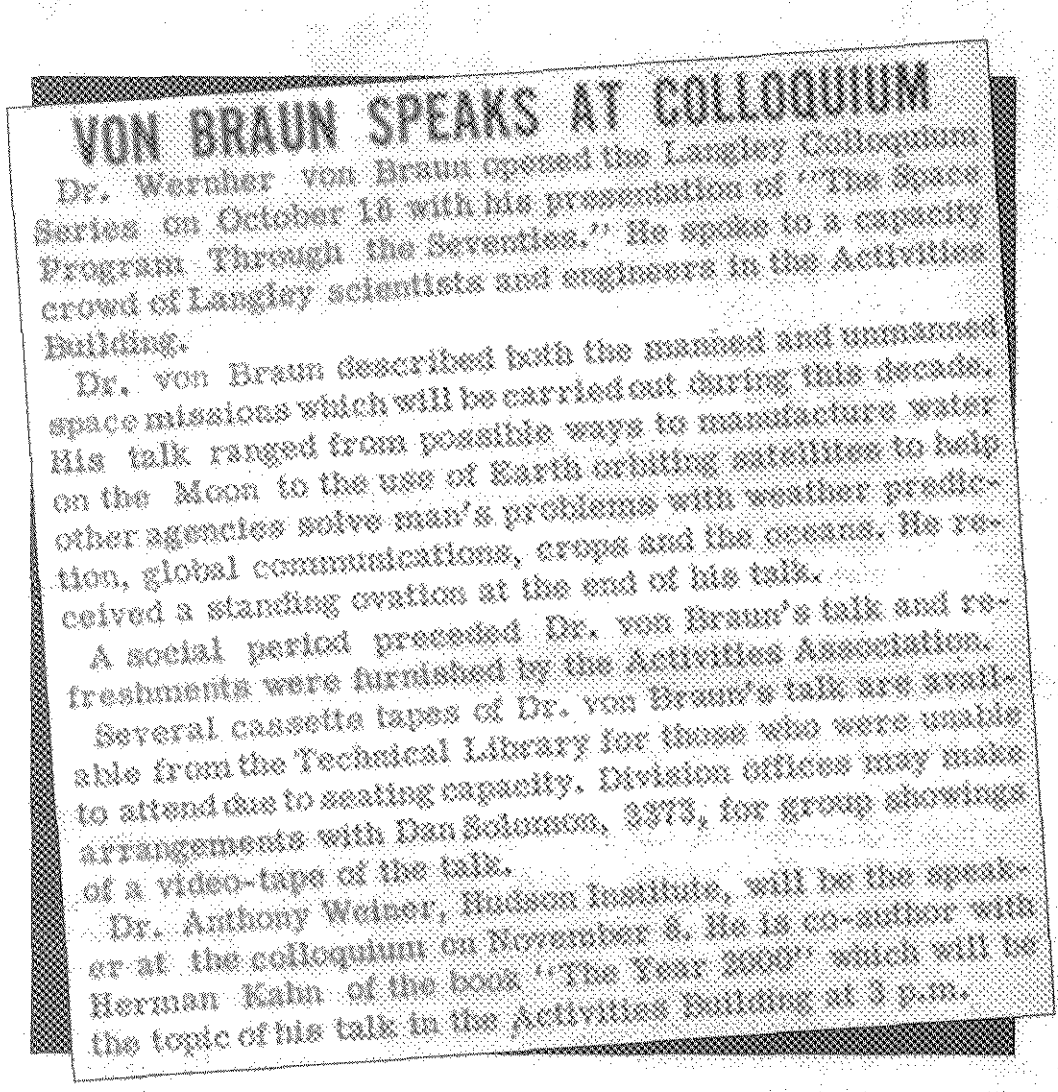
News Researcher

Biweekly Employee and Contractor Publication

Volume 15 ❖ Issue 20 ❖ Oct. 5, 2001

Lecture Series Turns 30

Wernher von Braun Spoke At First Colloquium In 1971



VON BRAUN SPEAKS AT COLLOQUIUM

Dr. Wernher von Braun opened the Langley Colloquium Series on October 18 with his presentation of "The Space Program Through the Seventies." He spoke to a capacity crowd of Langley scientists and engineers in the Activities Building.

Dr. von Braun described both the manned and unmanned space missions which will be carried out during this decade. His talk ranged from possible ways to manufacture water on the Moon to the use of Earth orbiting satellites to help other agencies solve man's problems with weather prediction, global communications, crops and the oceans. He received a standing ovation at the end of his talk.

A social period preceded Dr. von Braun's talk and refreshments were furnished by the Activities Association.

Several cassette tapes of Dr. von Braun's talk are available from the Technical Library for those who were unable to attend due to seating capacity. Division offices may make arrangements with Dan Solomon, 2373, for group showings of a video-tape of the talk.

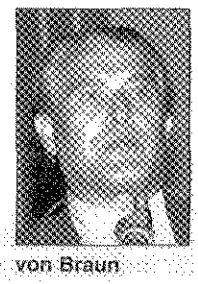
Dr. Anthony Weiner, Hudson Institute, will be the speaker at the colloquium on November 8. He is co-author with Herman Kahn of the book "The Year 2000" which will be the topic of his talk in the Activities Building at 3 p.m.

The Oct. 29, 1971, edition of the *Langley Researcher* included this story about the first Colloquium Series lecture. Contrary to what the story says in the final paragraph, Barry Bruce-Briggs replaced Anthony Weiner as the second speaker; however, his topic remained the same: "The Year 2000."

By JIM ROBERTS
Researcher News Editor

Langley Research Center's Colloquium Series turns 30 this month. It's a bit ironic, given that the idea for the series was borne of an initiative called the "Under 30 Panel."

In April of 1971, then Center Director Ed Cortright invited several young employees — hence the name "Under 30 Panel" — to an off-Center retreat to brainstorm ideas on how to improve the Center. Sheila Thibeault, who worked in the Environmental and Space Sciences Division, suggested a lecture series in a modest little talk entitled, "Our Little Corner of the World."



von Braun

"The idea was to bring in speakers who could give us insights into exciting research taking place in other laboratories," said Thibeault, who now works in Langley's Advanced Materials and Processing Branch.

Cortright liked the idea. He called Thibeault himself to tell her he appointed a committee and wanted her to run the first meeting. Six months later, on Oct. 18, the Center hosted its first Colloquium lecture: Wernher von Braun speaking about "The U.S. Space Program Through the '70s."

The lecture, which was held in the Activities Building (which is now the H.J.E. Reid Conference Center), drew a standing-room-only crowd, even after Cortright ruled that only non-supervisory personnel could attend. More lectures followed: Barry Bruce-Briggs of Hudson Institute spoke in November on "The Year 2000," and Massachusetts Institute of Technology professor Marvin Minsky spoke in December on "Artificial Intelligence."

With only a few interruptions — including last month's lecture, which was to have taken place on Sept. 11, the day of the terrorist attacks in New York City and Washington, D.C. — the lectures have continued once a month for 30 years.

"Sometimes," Thibeault said, "we have squeaked in an extra one or two."

The list of Colloquium speakers is impressive, to say the least. In addition to the dozens of scientific "experts," the series has attracted household names like Carl Sagan,

Continued on Page 3

HALOE Begins 10th Year In Orbit

By JULIA COLE
SAIC

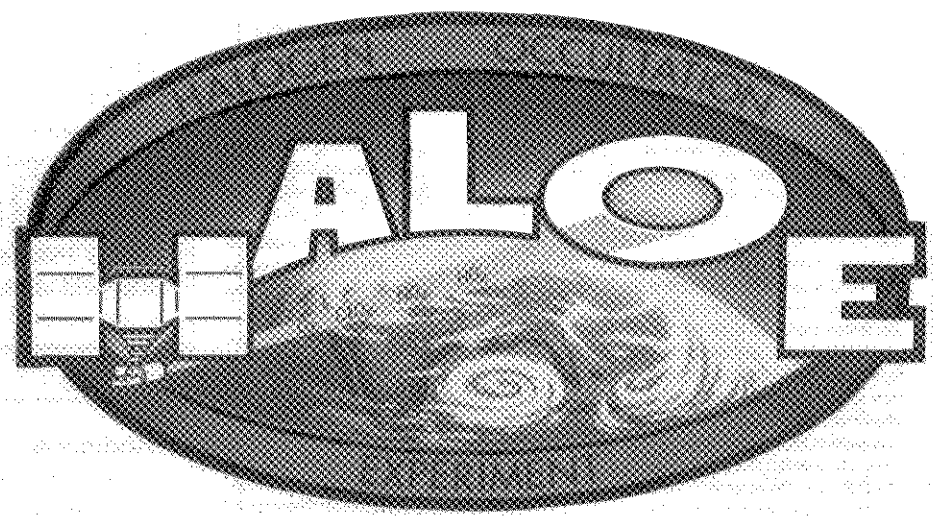
Langley Research Center's Halogen Occultation Experiment (HALOE) instrument celebrates its 10th anniversary this month after nearly a decade of measurements that are improving the understanding of ozone destruction and climate change.

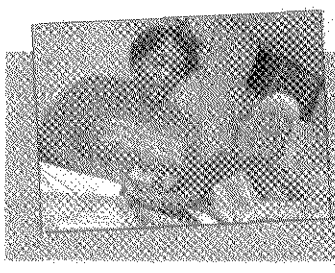
The HALOE instrument is in its 10th year in orbit aboard the Upper Atmosphere Research Satellite (UARS) with flawless operation. HALOE researchers, along with other UARS scientists, celebrated the anniversary and their latest results at a UARS science meeting in mid-September in Greenbelt, Md.

"HALOE has been operating as well as it did its first month," said Ellis Remsberg, the HALOE project scientist in Langley's Atmospheric Sciences Competency. "We've met our original science goals, but some are continuing goals that we've been able to achieve because HALOE has been operating for so long."

One goal for HALOE, which measures ozone, methane and other trace gases in the middle atmosphere, was to monitor the effects of chlorofluorocarbons or CFCs on ozone destruction. HALOE con-

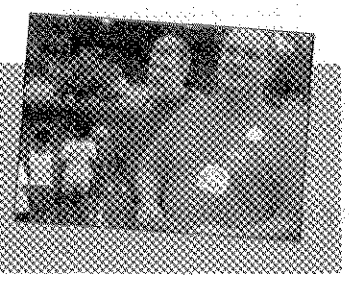
Continued on Page 7





200 Employees Volunteer At Day Of Caring

A Two-Page Pullout ... See Pages 4 and 5



News Briefs

Around the Agency

NASA CAPTURES BEST-EVER VIEW OF COMET

In a risky flyby, NASA's ailing Deep Space 1 spacecraft successfully navigated past a comet, giving researchers the best look ever inside the glowing core of icy dust and gas.

The space probe's close encounter with comet Borrelly provided the best-resolution pictures of the comet to date. The already-successful Deep Space 1, without protection from the little-known comet environment, whizzed by just 1,400 miles from the rocky, icy nucleus of the 6-mile-long comet.

Exceeding the team's expectations of how this elderly spacecraft would perform, the intrepid spacefarer sent back black-and-white photos of the inner core of the comet. It also measured the types of gases and infrared waves around the comet, and how the gases interacted with the solar wind.

More information can be found on the Deep Space 1 Internet home page at <http://nmp.jpl.nasa.gov/ds1/>. RELEASE: 01-186

HUBBLE STAND-IN GETS STARRING ROLE

With its famous twin orbiting 370 miles above Earth inside NASA's Hubble Space Telescope, the almost forgotten Earth-bound back-up mirror is finally about to step into the spotlight and get some attention of its own.

While Hubble continues to show off the wonders of the cosmos, the 2.4-meter diameter back-up mirror now goes on permanent display as part of the "Explore The Universe" exhibit in the Smithsonian Institution's National Air and Space Museum in Washington.

Large concave mirrors are the heart of large astronomical telescopes. These mirrors gather the faint light from distant objects, and specially built cameras and other instruments can be used to study those objects in different ways. The larger the mirror, the more powerful the telescope. On Earth, the largest and most powerful telescopes are located on mountaintops where the thin air causes fewer distortions such as the "twinkling" of stars caused by air turbulence.

More information about Hubble Space Telescope is available on the Internet at <http://www.stsci.edu>. RELEASE: 01-185

NASA COMMERCIALIZING AUDIO TECHNOLOGY

A 3-D audio processor developed for Space Shuttle mission controllers will soon find its way into virtual classrooms across the country.

NASA's Far West Regional Technology Transfer Center, located within the School of Engineering at the University of Southern California in Los Angeles, identified BreakAway Sound as an excellent candidate to commercialize the technology. BreakAway Sound, an African American-owned and -operated business based in Los Angeles, has received a license for further development and marketing of the Ames Spatial Auditory Display (ASAD) communication tool.

Durand R. Begault of Ames Research Center developed the processor to improve communication intelligibility for Space Shuttle mission control operators. RELEASE: 01-182

News Researcher

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People

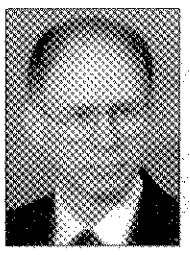
League Champs!

"Here For Beer" recently won Langley Research Center's Softball Association's "A" league championship for the fourth year in a row. Members of the championship team were: (standing, left to right) Bill Tomek, John Swartzbaugh, Ken Rock, Steve Young, Tommy Jordan, John Costulis, Sean Kenney, Mike Blythe, Steve Jones, Nick Heiner, Kevin Laferriere and Scott Sealey; and (front row, left to right) Brian Cheshire, Joe Vega, Lou Glaab and Mark Frye. (Team members Mike Brewer, John Flick, Steve Harris and Steve Sandford were not present.) "The Misfits" won the "B" league championship, and "Simulation" won the "C" league championship. For more information about the Softball Association, visit <http://larc-exchange.larc.nasa. gov/laa/softball/>.

Photo courtesy of Paul Daspit

O'Brien Receives ASC Award

T. Kevin O'Brien, a senior research scientist at the U.S. Army Research Laboratory's Vehicle Technology Directorate (VTD), has received the 2001 American Society for Composites (ASC) Outstanding Research Award.



O'Brien

The award recognizes ASC members who have made a significant impact in advancing the science and technology of composite materials through a sustained research effort over a number of years.

O'Brien leads research in characterizing, analyzing and predicting delamination behavior in composite structures at the VTD, which is located at Langley Research Center. His technical leadership and research accomplishments have forged a methodology that has been implemented into the composites design of both fixed-wing and rotorcraft structures.

O'Brien has more than 100 publications and presentations in his research area, and his work has been cited more than 1,000 times in the open literature.

The award was presented to O'Brien at the ASC's 16th annual Technical Conference, which was held at Virginia Tech from Sept. 9-12.

In Memoriam

Andrew A. Graham

Andrew Allen Graham died on Sept. 13 at the age of 64. Graham, a native of Princeton, N.J., served in the U.S. Marine Corps for three years and went on to work as a financial analyst for NASA. He retired in March with more than 30 years of service.

Marlon Mao

Marlon Mao died on Sept. 19 at the age of 37. Mao worked at Langley Research Center for 15 years; at the time of his death, he was working for Swales Aerospace in support of Langley's Space Access and Exploration Program Office.

Mao also was a member of several Langley Activities Association (LAA) organizations, including the Langley Karate Club.

"He will always be remembered for his happy-go-lucky attitude, innocent charm and his willingness to help others," said Glenn J. Bobskill of Langley's Vehicle Analysis Branch.

Charles W. Mathews

Charles W. Mathews died on Sept. 9. Mathews, who started his career at Langley Research Center, went on to manage the Gemini Program at NASA's Manned Spacecraft Center. He also was associated with the development of the vehicles for the Mercury, Apollo and space shuttle programs.

Roger W. Peters

Roger William Peters died on Sept. 12 at the age of 81. Peters, a native of Milwaukee, served in Langley Research Center's Structures Division for 35 years, retiring in 1977.

Ned D. Wagner

Ned D. Wagner died on Sept. 19 at the age of 80. Wagner, a native of Charlevoix, Mich., was a World War II veteran. He retired from Langley Research Center in 1986.

Read the *Researcher News* online at <http://researchernews.larc.nasa.gov>.

Lecture

Continued from Page 1

Isaac Asimov, James Michener, R. Buckminster Fuller, Jacques Yves Cousteau, William F. Buckley, Vice Adm. James Stockdale, Alex Haley, Mary Leakey, Arthur C. Clarke and Edwin "Buzz" Aldrin. (For a complete list of lecturers, visit the Colloquium Web site at <http://shemesh.larc.nasa.gov/Lectures/>.)

All of the lectures are funded by Langley's Employee Development Branch. "For 30 years," Thibeault said, "we have operated with funding provided by that branch, and for 30 years Millie Boone has processed the paperwork for our speakers. It is virtually unchanged."

Two things *have* changed: The committee that plans the lectures has grown to 18 members to reflect Langley's more diverse workforce, and an evening lecture series was added, cancelled and added again to make lectures that are of interest to the general public accessible off-Center.

The first public lecture series, "Our Future in the Cosmos," began in 1974 and ran for 10 years. Co-sponsored by the College of William and Mary, the lectures took place in the evening at Hampton Coliseum. A few, including Cousteau's 1979 lecture, drew full houses to the 13,800-seat venue.

Budget cuts forced "Our Future in the Cosmos" to stop in 1984, but the public lectures reappeared a few years later under the name "Sigma Series." The Sigma lectures, which are funded by Langley's Office of External Affairs, continue to this day and are co-sponsored by the Daily Press and the Virginia Air and Space Center, which hosts the lectures in its 400-seat IMAX theater. (Due to heightened security on-Center, retirees who have attended the daytime lectures now are encouraged to attend the Sigma lectures instead.)

"They've all been down to earth, humble and personable. It's been a true pleasure."
Sheila Thibeault

Although Thibeault has served on the Colloquium Committee since its inception, she has not been to every lecture. Her favorite was Cousteau's lecture on "Space and the Oceans." "It was probably the most dynamic," she said. "It brought tears to my eyes."

She also recalled that Cousteau was "very hard" to get and that he didn't accept a lecturer's fee.

"However," she said, "the first program was hard to beat."

Dana Dunham, the Assistant Director of Langley's Airborne Systems Competency, has served on the Colloquium Committee for 10 years. (She also was among those fortunate enough to see von Braun's inaugural lecture.) This month, after fulfilling a two-year term as Chair of the Colloquium Committee, she turns over the position to Arlene Levine.

Dunham's most memorable lecture was Carleen Hutchins' presentation on "Acoustics and the Violin — Past, Present and Future" in 1999. She remembers it because it was very long — possibly the longest — and one of the hardest to plan: Arrangements had to be made to transport six of Hutchins' stringed instruments from New Jersey, and three members of the Williamsburg Symphonia were commissioned to perform at the lecture. (Incidentally, videotapes of the Colloquium lectures are available in the Technical Library; Hutchins' lecture is one of the most requested.)

Susan Palmer of Langley's Model Systems Branch, who also has served on the Colloquium Committee for 10 years and is the immediate past chair, has especially fond memories of two lecturers that she hosted: Bradford W. Parkinson and W. David Lewis.

She remembers succeeding in getting Parkinson, "the father of global positioning satellites," to speak about "The Origins, Evolution and Future of Satellite Navigation" in 1997. She also remembers Lewis, who spoke about "The Disappearance and Rescue of Eddie Rickenbacker in World War II" in 1999, because she and her husband, Mike Palmer of Langley's Crew Systems and Operations Branch, met as students in one of Lewis' classes at Auburn University. (Mike was never an official member of the Colloquium Committee, but he created the Web site in 1994 and maintained it for several years before Susan took over.)

Thibeault, Dunham and Palmer all claim that the best part of serving on the Colloquium Committee is meeting the lecturers. "They've all been down to earth, humble and personable," Thibeault said. "It's been a true pleasure."

Langley employee Joel S. Levine will deliver the 30th anniversary lecture, "Mars: A Strange and Complex Planet," on Oct. 15. The Colloquium Committee also has more special events planned for next year. Beginning in January, the committee will bring back three former lecturers: Minsky will speak in January, Phillip Morrison will speak in February, and Ray Bradbury will speak in March.

The Colloquium Committee welcomes employees' suggestions for lecturers and/or topics. To make a suggestion, contact one of the committee members listed online at http://shemesh.larc.nasa.gov/Lectures/members.htm.

Colloquium and Sigma Series Lectures

Levine On 'Mars: A Complex Planet'

Joel S. Levine will present a Colloquium lecture entitled, "Mars: A Strange and Complex Planet" at 2 p.m. Oct. 15 in Langley Research Center's H.J.E. Reid Conference Center. A Sigma Series lecture will follow at 7:30 p.m. at the Virginia Air and Space Center in Hampton.

Levine

The Lecture

Today, Mars is a cold, dry planet. However, evidence suggests that in its early history, Mars was warm and wet with abundant liquid water on its surface. In 1996, it was reported that Mars meteorites found on Earth may contain evidence of microbial life.

Did or does life exist on Mars? What process or processes were responsible for the drastic change in climate on Mars? Over the next decade, NASA will attempt to answer these intriguing questions with a diverse array of planetary probes. A possible future Mars probe may be an airplane. Langley is developing an airplane for the scientific exploration of Mars.

The Speaker

Levine, a senior research scientist in Langley's Atmospheric Sciences Competency, served as Project Scientist for the joint NASA/French Space Agency 2003 Mars Airplane Micromission. Although the mission was canceled in 1999 for budgetary reasons, Levine is still developing Mars airplanes.

Levine's other research activities include assessing the impact of recent worldwide wildfires on atmospheric chemistry and climate, the search for ancient trapped gas in core samples obtained from the 35 million-year-old Chesapeake Bay impact crater and, at the request of the National Archives, measurements of the gases in the encasements containing the Declaration of Independence, the U.S. Constitution and the Bill of Rights.

Integrated Financial Management Program (IFMP) Update

Seeing STARS: Resume Submission Begins

On Sept. 24, Langley Research Center fully implemented NASA STARS, the Agency's automated Staffing and Recruitment System, one of eight modules of the Integrated Financial Management Program (IFMP).

NASA STARS, which can be accessed on the Internet at <http://nasastars.nasa. gov>, makes it easier for employees and external applicants to search for and apply for jobs at Langley and, by the end of the year, throughout the Agency.

In short, supplemental forms — including SF171s and OF612s — are no longer required, and employees and external applicants no longer need to address Knowledges, Skills and Abilities (KSAs) when applying for NASA positions. Instead, they will submit a single electronic resume they create at the Resume Builder Web site: <http://resume.nasa.gov>.

Employees are encouraged to build resumes using the Resume Builder Web site, even if they aren't immediately interested in applying for a position. For instructions, visit the Web site and click on the "How to Apply" link.

Langley's Office of Human Resources will host NASA STARS briefings for hiring managers from 9 to 10:30 a.m. Oct. 10, 17 and 24 in Bldg. 1195B, Room 127. The briefings will address management's role in the new business process and a demonstrate the Resume Builder software.

OHR also will offer resume-building workshops for Langley employees from 1:30 to 2:30 p.m. Oct. 10, 17 and 24 in Bldg. 1195B, Room 127.

Most vacancy announcements that opened after Sept. 24 — with the exception of Senior Executive Service (SES) positions — will require applicants to apply using the NASA STARS Web site. OHR will not accept hard copy resumes for vacancies listed on NASA STARS.

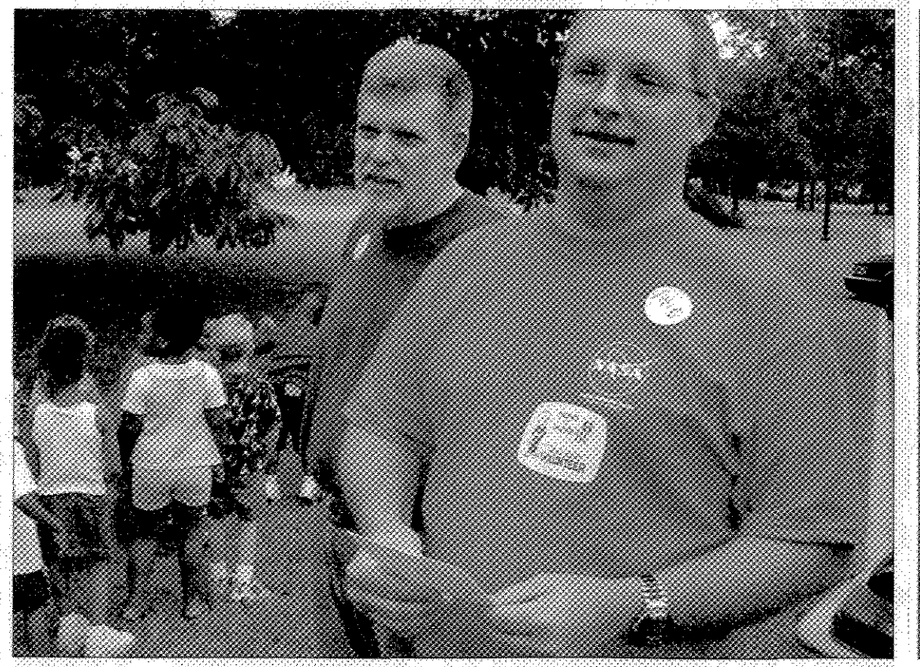
For more formation, call Liz Ford at 864-8108 or Lois Alliss at 864-2509 or send an e-mail to <nasastars@larc.nasa.gov>.

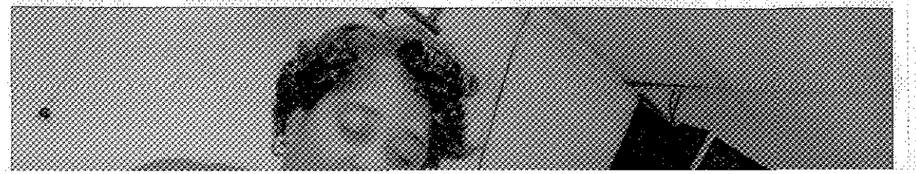
Helping Hands

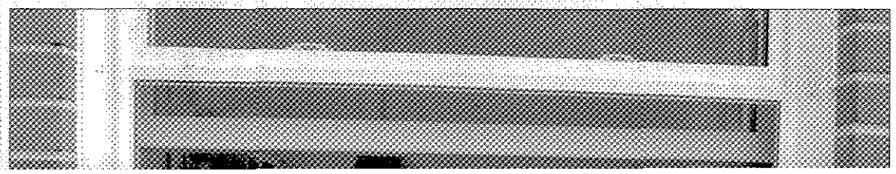
200 Langley Employees Volunteer At Day Of Caring

Langley Participants

Ledora R. Akanni
Cindy W. Albertson
Jennifer L. Allgood
Tahani R. Amer
Beverly J. Anderson
Melody A. Avery
Felecia C. Berry
Glanice L. Boone
Sheila A. Boone
Dennis P. Botkin
Angela Brown
Sherilyn Brown
Gregory M. Buck
Alpheus W. Burner
Rhonda L. Burrell
Carolyn F. Butler
Christopher M. Cagle
Patsy L. Campbell
Susan L. Campbell
Carolyn V. Carey
Anesha S. Carroll
James P. Cassidy
Lin H. Chambers
Brian C. Cheshire
Panice Clark
Velma L. Clark
Jeffrey Conover
Tammy S. Cottee
George D. Cowley
Vincent Cowling
Elaine I. Crawford
Charles A. Davidson
Angela M. Davis
Jannie Davis



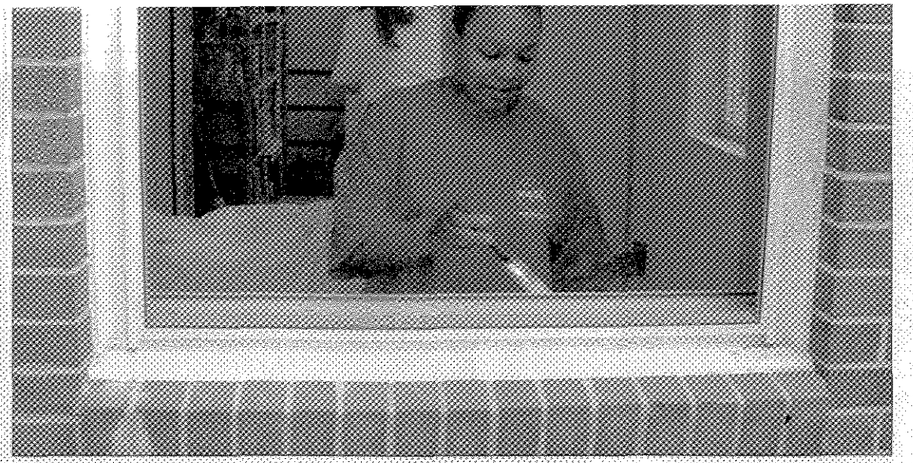




Langley Participants

Lee A. Lillard
David Lockard
Sharon Lowther
Brian S. Luoto
Virginia B. Marks
Angela J. Mason
Jennifer D. McCardell
Donna L. McIntosh
Troy J. Merryfield
James B. Miller
Larry L. Minter
Tom E. Mitchell
Christina L. Mohorn
John K. Molloy
Gene S. Monroe
Cadd T. Moore
Michelle M. Moore
Mark A. Motter
Thomas M. Moul
Kurt W. Neitzke
Bessie R. Nicholson
Laura A. O'Connor
Clifford J. Obara
Craig Ohlhorst
Lisa M. Oliver
Michael T. Oliver
Patricia L. Pahlavani
Susan O. Palmer
Hugh T. Pinkston
Gail Poulson
Bill Price
Susan N. Price
Barbara L. Pritchard
William Prosser

Kathleen Devol
Harriett R. Dismond
William Doggett
John T. Dorsey
Enette Doswell
Cathy a. Dunn
Vernon E. Dyke
Carolyn C. Eby
Mozetta A. Edwards
Cheri D. Elrahhal
Gloria S. Evans
Joey M. Falzone
Charlene S. Farquharson
James Fields
Carol Fowler
Julie B. Fowler
Dion T. Fralick
Pamela B. Fullen
Carl H. Gerhold
Judy Giacomano
Daniel P. Giesy
Wesley L. Goodman
Queenella M. Gray
Jennifer J. Guerin
Stephanie P. Hahn
Gregory A. Hajos
Marie Hamann
David W. Hamilton
Carole L. Hancock
Franklin K. Harris
Joann Harris
Joycelyn S. Harrison
Larry L. Harvey
Jim Hassel
Lisa R. Hawks
Kelly J. Hayhurst
Lana Hicks
William H. Hollingsworth
Margaret E. Holloman
Carl Horne
June Howell
Lawrence D. Huebner
Janis C. Hunt
Mary Morgan Hunter
Jesse James
Angela L. Johnson
Tricia S. Johnson
Connie D. Jones
Marian L. Jones
Octavia C. Judge
Christal L. Kellam
Bill Kleb
Roberta Knight
Cynthia Lach
John E. Lamar
Robin K. Land
Berkley A. Langford
Nita W. Langford
Willaim M. Langford
Melanie K. Lawhorne
Jane C. Leffel
Jo H. Legette
Artistine R. Lethcoe-Reid



Two hundred Langley Research Center employees volunteered at 35 agencies across the Peninsula during the 11th annual Day Of Caring on Sept. 14. Clockwise from top right: Rachelle Saunders of Langley's Business Management and Support Office works at Mission Daystar; LaVenia Williams of Langley's Flow Physics and Control Branch paints a window at Link of Hampton Roads; Helen Terrell (right) of Langley's Management Support Office helps fellow Day Of Caring volunteer Sharon Greenholden (left) sort items donated to the annual School Tools drive at Virginia Natural Gas; Carl Gerhold of Langley's Aeroacoustics Branch and Clifford Obara of Langley's Instrumentation Systems Development Brach work for Child Development Resources at Griffin Yates School. More photos can be accessed on the Internet at <ftp://epl.larc.nasa.gov>.

Photos by Jeff Caplan and Peggy Hopkins

Attacks Fail To Dampen Volunteers' Spirits

By PAMELA J. VERNIEL
Public Services Office

The 11th annual Day Of Caring took place as scheduled on Sept. 14, just three days after the terrorist attacks on New York City and Washington, D.C.

Although the events weighed heavy on volunteers' minds, they didn't dampen their spirits: More than 1,000 people participated in this year's event, including 200 from Langley Research Center.

"The Day Of Caring not only provides assistance to local non-profits, but makes area citizens aware of services available locally that benefit the community," said Marny Skora, who managed Langley's participation in the event for 10 years. "It's a win-win day out of our comfort zone and provides 'free' labor to agencies enabling them to accomplish priority projects for which they do not have the staff."

Skora, who was promoted to head of Langley's Public Affairs Office this year, relinquished her Day Of Caring management duties, but she remains involved; this year, she volunteered at Child Development Resources in Williamsburg. Other employees volunteered at 35 agencies across the Peninsula.

Sandi Strickland of Langley's Independent Program Assessment Office was assigned to the Newport News Department of Social Services. She cleaned windows in 10 different homes and trimmed bushes at another.

"I really felt like I had helped to bring a smile and a moment of happiness to someone's day," Strickland said. "Even though it was a small task that we performed, I think I felt more appreciated for the time that we spent speaking to the homeowners about their families, etc. I think the tragedy that the U.S. faced certainly made it seem even more special."

Other employees had similar experiences:

■ Paul Stough of Langley's Crew/Vehicle Integration Branch volunteered at Bluebird Gap Farm. "In one day, six volunteers restored the garden to a state that the few regulars would be taxed to do along with their other work," he said. "This provided good insight to community needs and to the work that other volunteers perform on an ongoing basis."

■ Brian Cheshire of Langley's Applied Technologies and Testing Branch helped build a deck on a Habitat for Humanity house. "I believe in helping others and am thankful that NASA continues to offer us this opportunity," he said.

■ Mozetta Edwards of Langley's Service and Construction Contracting Branch volunteered at the VA Hospital in Hampton and ended up signing on to be a permanent volunteer.

Several Langley employees worked at Virginia Natural Gas, sorting items that had been donated to the annual School Tools drive. On final count, Langley employees donated 124 notebooks, 48 packs of notebook paper, 45 packs of pencils, 34 boxes of crayons, 27 packs of dividers, 26 packs of glue sticks, 15 folders, 11 boxes of markers, nine pairs of scissors, seven packs of pens, four rulers, two zipper pouches, two pencil boxes and two erasers.

The day began with a kickoff event at Hampton Coliseum that featured the U.S. Air Force Heritage of America band. Its performance of patriotic songs, including "God Bless America," brought the volunteers to their feet, motivating them as they set out for their day of work.

Photographers Jeff Caplan and Peggy Hopkins took photos of Langley's volunteers at numerous locations. Their photos can be accessed on the Internet at <ftp://epl.larc.nasa.gov>.

"I really felt like I had helped to bring a smile and a moment of happiness to someone's day." **Sandi Strickland**

Geraldine M. Rankin
Michelle Rankin
Bob Redman
Arthur G. Ritter
Kevin Rivers
Melissa B. Rivers
Margaret H. Robbins
Melanie L. Robinson
JoAnne Rocker
James L. Rogers
Christopher L. Rumsey
Henry Russell
Andrea O. Salas
Rachelle D. Saunders
Josephine L. Sawyer
Raymond C. Scholz
Stephen J. Scotti
David P. Sheldon
Susan C. Shockcor
Marny Skora
Fran M. Sleigher
Avis Smith
Connie A. Smith
Laura J. Smith
Marshall Smith
Bill Smith
Tammy L. Spellman
Pam Stacey
Sharon H. Stack
Patricia H. Stanley
Shirley R. Stephenson
Harry P. Stough
Sandra L. Strickland
Louise H. Sykes
George N. Szatkowski
Lorelei S. Szatkowski
Ken K. Tedjojuwono
Helen F. Terrell
Gail M. Terry
John E. Teter
Nicole Turner
Crystal Topping
R. T. Topping
Tony R. Tyler
Michael D. Uenking
Richard Vaness
Robert J. Wallis
Myra L. Walton
Vernon E. Watkins
Bernice Weinstein
Dina S. Weiss
Carissa S. Whaff
Alesia L. Williams
LaToya S. Williams
LaVenia R. Williams
Patricia J. Williams
Penny L. Williams
Julie A. Williams-Byrd
Kelli F. Willshire
David A. Wineman
David W. Witte
Jo Ann H. Woodcock
Felicia Wright
Sandra G. Zumbrun

TCPO Presents Patent Awards

Langley Research Center's Technology Commercialization Program Office presented Patent Awards to 40 employees on Aug. 9. Those present for the ceremony were (left to right) Wayne W. Rohrbach, Norman P. Barnes, Erik S. Weiser, Keith E. Murray, Mikhail M. Gilinsky, Brian J. Jensen, Min Namkung, John M. Seiner, Patricia P. Davis, Glen W. Sachse, Billy T. Upchurch, Anthony L. Cook, Catherine B. McGinley, H. Kevin Rivers, George M. Wood Jr., Nelson J. Groom, Russell A. Wincheski, Purnell Hopson Jr., Robert L. Fox, Robert G. Bryant and Alan T. Pope.

Photo by Peggy Hopkins

Awards Went To 40 Employees Who Secured Patents In 2000

Langley Research Center's Technology Commercialization Program Office (TCPO) presented Patent Awards on Aug. 9 to the 40 Center employees who secured patents in 2000.

The speaker at this year's ceremony was Center Director Dr. Jeremiah F. Creedon. He presented the awards with Robin Edwards (substituting for TCPO's Linda Blackburn).

The award winners were:

■ Brian J. Jensen, "Method to Prepare Processable Polyimides with Non-Reactive Endgroups Using 1,3-Bis (3-Aminophenoxy) Benzene."

■ G. Burton Northam, Philip O. Ransone and H. Kevin Rivers, "Pistons and Cylinders made of Carbon-Carbon Composite Materials (Div of –1)."

■ Norman P. Barnes, "Method and Apparatus for Providing a Coherent Terahertz Source."

■ Norman P. Barnes and Keith E. Murray, "Method of Controlling Lasing Wavelength(s)."

■ Brian J. Jensen, "Method to Prepare Processable Polyimides with Reactive Endgroups Using 1, 3 Bis (3-Aminophenoxy) Benzene."

■ Terry L. St. Clair and Erik S. Weiser, "Aromatic Polyimide Foam (Div of LAR 15767-1)."

■ Patricia P. Davis, David R. Schryer, Billy T. Upchurch and George M. Wood Jr., "Catalyst for Oxidation of Volatile Organic Compounds."

■ John W. Connell, Paul M. Hergenrother and Joseph G. Smith Jr., "High Temperature Transfer Molding Resins."

■ G. Burton Northam, Philip O. Ransone and H. Kevin Rivers, "Carbon-Carbon Piston Architectures (Div of LAR 15492-1)."

■ Patricia R. McDaniel and Terry L. St. Clair, "Molecular Level Coating of Metal Oxide Particles."

■ Alan T. Pope, "Method for Visually Integrating Multiple Data Acquisition Technologies for Real Time and Retrospective Analysis."

■ G. Burton Northam, Philip O. Ransone and H. Kevin Rivers, "Carbon Fiber Reinforced Carbon Composite Rotary Valve for an Internal Combustion Engine (Div of LAR 15498-1)."

■ Terry L. St. Clair and Erik S. Weiser, "Hollow Polyimide Microspheres."

■ Mikhail M. Gilinsky and John M. Seiner, "Undulated Nozzle for Enhanced Exit Area Mixing."

■ Anthony L. Cook and Herbert D. Hendricks, "Apparatus for Linewidth Reduction in Distributed Feedback or Distributed Bragg Reflector Semiconductor Lasers Using Vertical Emission (Div of LAR 15258-1)."

■ Richard F. Hellbaum, Antony Jalink Jr. (deceased) and Wayne W. Rohrbach, "Ferroelectric Pump."

■ Marvin D. Rhodes, "Composite Isogrid Structures for Parabolic Surfaces."

■ Brian J. Jensen, "Modulated Fourier Transform-Ramen Fiber Optic Spectroscopy."

■ Robert G. Bryant, Benjamin M. Copeland Jr., Robert L. Fox and Richard F. Hellbaum, "Advanced Layered Composite Polylaminate Electroactive Actuator and Sensor."

■ Glen W. Sachse, "Optical Patch Switching Based Differential Absorption Radiometry for Substance Detection."

■ Robert G. Bryant, Robert L. Fox, Min Namkung and Russell A. Wincheski, "Molded Magnetic Article."

■ Robert G. Bryant, "Tough Soluble Aromatic Thermoplastic Copolyimides (CIP of LAR 15205-3)."

■ G. Burton Northam, Philip O. Ransone and H. Kevin Rivers, "Pistons and Cylinders Made of Carbon-Carbon Composite Materials."

■ Gary L. Farley, "Method for Fabricating Composite Structures Using Pultrusion Processing (Div of LAR 15128-1)."

■ Gary L. Farley, "Method for Fabricating Composite Structures Using Pultrusion Processing (Div of LAR 15128-1)."

■ Anne K. St. Clair, Diane M. Stoakley and Robin E. Southward, "Reflective Silvered Polyimide Films Via In-Situ Thermal Reduction Silver (I) Complexes."

■ Vincent B. Cruz, Purnell Hopson Jr., Catherine B. McGinley and Ralph M. Stephens, "Method of Forming Micro-Sensor Thin-Film Anemometer (Div of LAR 15112-1-CU)."

■ Terry L. St. Clair, "Fire Resistant, Moisture Barrier Membrane (Div of LAR 15437-1)."

■ Nelson J. Groom, "Magnetically Suspended Miniature Fluid Pump and Method of Designing the Same."

Read the *Researcher News* online at <http://researchernews.larc.nasa.gov>.

MCLT's 'Spice of Life'

Breaking Down Muslim Stereotypes

By MICHAEL D. UENKING
MCLT Subteam Leader

Prejudice, holding preconceived and often erroneous views about other groups, is a common human response to a complex world. Stereotypes, generalizations that are at the base of prejudice, help us organize our thinking and manage massive amounts of information.

Since none of us can know every individual in every group, we make categories to simplify our world and then slot people into those pigeonholes. Our world then becomes more manageable and more stable.

These generalizations sometimes serve a useful purpose; however, more often they serve to limit perceptions about individuals and their capabilities.

Even tragic events like what happened in New York, Pennsylvania and Washington, D.C., can serve as an impetus to cast these stereotypes across an entire religion or ethnic group such as the Islamic Religion and the Muslims. It is easier to blame the entire group than to look at the fact that the events were carried out by a small minority of individuals who actually foster more radical ideals than the general population of their particular culture.

Listed below are 10 things to help you better understand the Islamic religion and the Muslims:

1. Followers of the Islamic religion, called Muslims, are the fastest growing religious group in the United States.

2. Only 18 percent of the world's 1.2 billion Muslims live in Arab countries.

3. About 7 million Muslims live in the U.S.

4. About 64 percent of the converts to Islam are African Americans, who make up about 30 percent of Islamics in the U.S.

5. Only a tiny fraction of Islamics hates America.

6. Most of the world's Muslims condemn the murder of U.S. citizens in the Sept. 11 attacks on American soil.

7. Islamic religion does not advocate violence. In fact, a belief in the sacredness of human life is at its heart. To commit suicide is considered the road to hell and taking one human life is the taking of all of human life.

8. Terrorists practice an ideology, not a religion.

9. More Muslims than non-Muslims have died as a result of terrorism.

10. Muslim Americans face dual tragedies at once as a result of recent events: the loss of fellow Americans in New York and Washington, D.C., and the humiliation of being stereotyped as responsible for the acts of terrorists.

This article was derived from HR Press' Diversity Works Article Service. Employees' submissions and ideas are welcomed; send them to Michael D. Uenking at <m.d.uenking@larc.nasa.gov>.

From The Office Of Equal Opportunity

'Be Alert To Instances Of Harassment'

In the wake of recent tragic events, Cari M. Dominguez, chair of the U.S. Equal Employment Opportunity Commission, called on all employers and employees across the country to promote tolerance and guard against unlawful workplace discrimination based on national origin or religion.

"We should not allow our anger at the terrorists responsible for the heinous attacks to be misdirected against innocent individuals because of their religion, ethnicity or country of origin," Dominguez said. "In the midst of this tragedy, employers should take time to be alert to instances of harassment or intimidation against Arab-American and Muslim employees. Preventing and prohibiting injustices against our fellow workers is one way to fight back, if only symbolically, against the evil forces that assaulted our workplaces Tuesday morning."

EEOC encourages all employers to do the following:

- reiterate policies against harassment based on religion, ethnicity, and national origin;
- communicate procedures for addressing workplace discrimination and harassment;
- urge employees to report any such improper conduct; and
- provide training and counseling, as appropriate.

Dominguez exhorted all individuals to heed the words of President Bush, who said: "We must be mindful that as we seek to win the war [against terrorism] we treat Arab- Americans and Muslims with the respect they deserve."

Nascent Obtains Langley Patent License

OSEE Instrument Can Be Used To Measure Surface Cleanliness

By NANCY SHEHEEN
Photech, Ltd.

Nascent Technology Solutions, a client of the Hampton Roads Technology Incubator (HRTI) specializing in diagnostic measurement products and services, recently obtained an exclusive patent license from Langley Research Center for a unique technology used to measure surface cleanliness.

The technology, known as Optically-Stimulated Electron Emission (OSEE), is based upon a well-known physical principal called the photoelectric effect. The OSEE instrument illuminates the surface under inspection with low-intensity ultraviolet light and captures photo-electrons emitted from it. Variations in surface condition (such as film contamination or fingerprints) change the electron flow, enabling direct, rapid, non-contact measurement of surface cleanliness.

The NASA patent covers improvements to the basic OSEE technique, which make it much more sensitive, repeatable and reliable than similar existing instruments.

Volatile organic chemical solvents are often employed to remove the oils and silicones used in many manufacturing processes. However, cleaning surfaces this way can prove time-consuming, environmentally hazardous and costly. Nascent's OSEE instrument will help manufacturers minimize solvent usage by enabling them to measure surface cleanliness and avoid over- or under-cleaning. Such measures are important in aeronautics, automotive, metal finishing, electronics and other industries that weld, coat, plate, paint or apply structural adhesives to bond metal surfaces.

"With this computerized device and its other product lines, Nascent stands to revolutionize manufacturing processes and draw more manufacturing business to Hampton Roads," said HRTI Director Marty Kaszubowski.

"It's also possible that they'll attract worldwide attention and business thanks to their expertise in this niche technology."

Nascent President and CEO Christopher Domack said the market for surface cleanliness measurement technology will mushroom as processes become more sophisticated and tolerances grow more critical.

"The NASA-developed technology improvements we have licensed are essential to bring OSEE to broader acceptance in the billion dollar cleanliness assessment and nondestructive evaluation markets," Domack said.

For information about Nascent, call 224-0687 or visit <www.nascentnde.com>.

HALOE

Continued from Page 1

firmed the idea that byproducts of CFCs destroy ozone and is the only space-based instrument that monitored the slowdown and leveling off of chlorine, an ozone-depleting chemical, in the middle atmosphere due to reduced CFC production.

"We saw chlorine levels reach a maximum in 1997, but thereafter it is changing in a way that we don't yet understand," said Jim Russell, HALOE principal investigator at Hampton University.

The achievement was a scientific breakthrough. HALOE continues to monitor changes in chlorine and fluorine, another product of CFCs, in accordance with the Montreal Protocol, an international treaty designed to curb CFC production.

HALOE also adds to the understanding of ozone depletion in polar regions during the winter and spring and climate change studies.

A recent HALOE finding, released earlier this year, discovered that water vapor, a greenhouse gas, is increasing twice as fast as expected in the middle atmosphere.

"Using HALOE measurements, we found that the middle atmosphere is currently 40 percent wetter than it was in 1955," Remsberg said. "It was never planned that HALOE would study water vapor trends. This is a new result that was possible because HALOE has been operating 10 years," he added.

The HALOE experiment was originally conceived in 1975 by Russell, then a Langley employee, to determine the global effects of human-produced chlorine on the ozone layer — just one year after the idea that chlorine produced by CFCs could destroy ozone was first proposed. Langley engineers originally designed and built HALOE for 18 months of operation with 36 months considered optimal, but HALOE continues atmospheric measurements today.

"The HALOE instrument has remained stable over a 10-year period, which is a major tribute to the Langley engineers and technicians associated with the project," Remsberg said.

The UARS satellite was scheduled to cease operations on Sept. 27, but the instruments will remain on standby.

AdVentures

CLASSIFIED

FOR SALE: House on cul-de-sac in Sanlun Lakes. 3 bedrooms, 2.5 bathrooms, living room, den, new ceramic-top stove and built-in microwave, custom built "media wall" in den, ceiling fans, vinyl siding, beautifully landscaped yard, convenient location, $113,900. Call 766-3287.

FOR SALE: Brick ranch house in Poquoson, 1,650 square feet, 3 bedrooms, 2 bathrooms, living room, dining room, den, large kitchen, utility room, one-car garage, on .5 acre, $183,500. Call 868-4078.

FOR SALE: Blue sofa, $150; tan sofa, $140; oak entertainment center, $80; oak end tables and coffee table, $65; beveled glass kitchen table with four chairs, $90; gold floor lamp, $25; gold floor lamp with matching table lamp, $45; black floor lamp, $25. Call 868-4078.

WANTED TO BUY: 14 cubic foot upright freezer, prefer frost-free, will pick up. Call 460-5929.

WANTED TO BUY: Small chest freezer, prefer frost-free, will pick up. Call 868-0984.

CARPOOL: Seeking car pool or ride share from Williamsburg area. Call Bart at 253-9414.

TCPO Looking For Article Ideas

Langley Research Center's Technology Commercialization Program Office (TCPO) is soliciting article ideas and submissions for NASA's Tech Briefs Magazine.

Tech Briefs can be accessed on the Internet at <http://www.nasatech.com/>.

For more information, contact Sherry Sullivan at 864-2556 or <s.l.sullivan@larc.nasa.gov>.

NARFE Meeting Oct. 8

Chapter 682 of the National Association of Retired Federal Employees (NARFE) will hold its monthly meeting at 10 a.m. **Oct. 8** in the Midtown Community Center in Newport News. Guest speakers will include Ginger King of the Federation of Chapters and state delegate candidates John C. Miller and Glen Odor.

All federal employees are invited to attend. For more information, call Catherine Askew at 247-1558.

Alumni To Meet On Oct. 9

Langley Research Center's Alumni Association (LAA) will meet at 11:30 a.m. **Oct. 9** in the private dining room of the Center cafeteria. The program will feature Langley employee Alan Pope, who will who will talk about biofeedback.

NASA STARS Training Offered

Langley Research Center's Office of Human Resources will host NASA STARS briefings for hiring managers from 9 to 10:30 a.m. **Oct. 10, 17** and **24** in Bldg. 1195B, Room 127. The briefings will address management's role in the new business process and a demonstration of the Resume Builder software.

OHR also will offer resume-building workshops for Langley employees from 1:30 to 2:30 p.m. **Oct. 10, 17** and **24** in Bldg. 1195B, Room 127.

For more formation, call Liz Ford at 864-8108 or Lois Alliss at 864-2509 or send an e-mail to <nasastars@larc.nasa.gov>.

Brown Bag Lectures Continue

The next two lectures in the Langley Research Center Atmospheric Sciences Competency's Brown Bag Lunch Series are: **Oct. 11**, Lamont Poole on "Earth System Science Pathfinder (ESSP3)"; and **Oct. 18**, Bruce Wielicki on "Radiation." The lectures will take place from 11:30 a.m. to 12:30 p.m. in the Pearl Young Theater.

AIAA Offering Graduate Awards

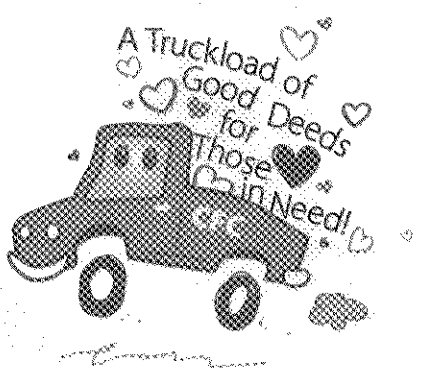
The American Institute of Aeronautics and Astronautics (AIAA) Foundation is accepting applications for the first-ever Orville and Wilbur Wright Graduate Awards.

The $10,000 awards will be presented annually, beginning in 2002, to four students participating in master's or doctoral thesis research in engineering or science.

The deadline to apply is **Jan. 31, 2002**. For an application or more information, visit <http://www.flight100.org/activities/awards.html> on the Internet.

❖ ❖ ❖

The next edition of the *Researcher News* will be published on Oct. 19. Please send submissions to <j.r.roberts@larc.nasa.gov> by Oct. 8.

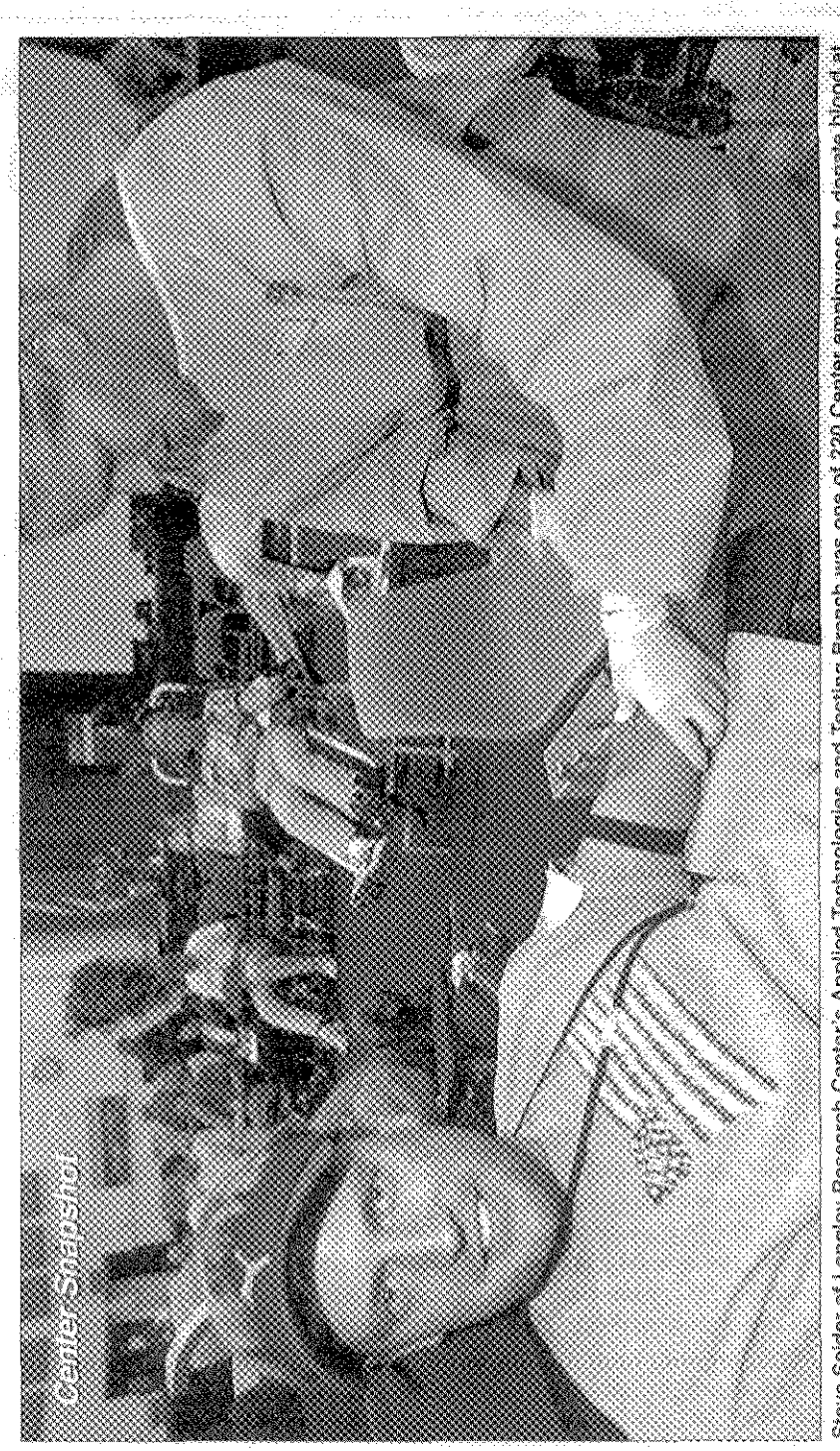


CFC Continues Through October; Truck Among 2001 Incentives

Langley Research Center's 2001 Combined Federal Campaign (CFC) "kicked off" on Oct. 2 and continues through the end of the month.

This year's theme, "A Truckload Of Good Deeds for Those In Need," reflects one of the incentives for this year's campaign: Everyone donating at least $125 will be eligible to win a GMC pickup truck donated by Suttle Motors.

To make an electronic pledge, visit the CFC Web page at <http://cfc.larc.nasa.gov/>.



Steve Seider of Langley Research Center's Applied Technologies and Testing Branch was one of 220 Center employees to donate blood at the H.J.E. Reid Center on Sept. 26. Seider said he has donated blood regularly since he started working on-Center 13 years ago. Due to the American Red Cross' call for more blood after the Sept. 11 terrorist attacks, the wait for the recent drive was as long as two hours for some donors.

Photo by Jeff Caplan

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Researcher News

National Aeronautics and
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Langley Research Center
Hampton, Virginia 23681-2199

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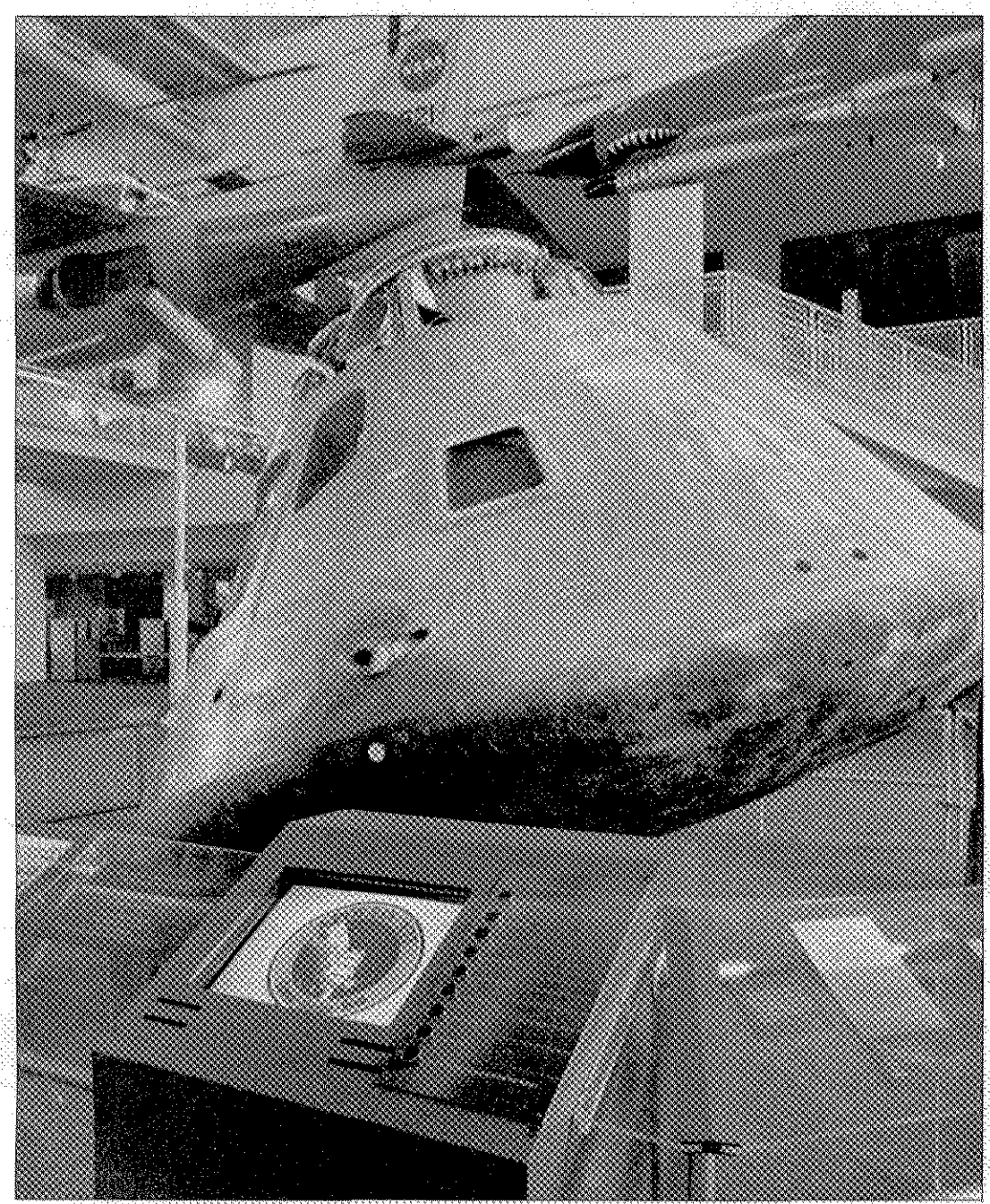
National Aeronautics and Space Administration
Langley Research Center

News Researcher

Biweekly Employee and Contractor Publication

Volume 15 ❖ Issue 21 ❖ Oct. 19, 2001



Langley Research Center recently worked with the Virginia Air and Space Center to add an "interpretive rail" to its Apollo XII Command Module display. The new plexiglass rail serves a dual purpose: It secures the module and provides a display case for artifacts, photos and videos explaining Langley's role in the Apollo Program.

Photo by Jeff Caplan

'NASA Days'

VASC Offering Incentives On Nov. 3 And 4

By DONNA ROPER LAWSON
Public Services Office

■ Two traveling exhibits from the National Air and Space Museum (NASM) recently opened at the VASC. See page 5 for details.

The Virginia Air and Space Center (VASC) has doubled its annual "NASA Day" to "NASA Days." All NASA civil servants, on-site contractors, retirees and their immediate families will receive free admission to the VASC from 10 a.m. to 5 p.m. Nov. 3 and from noon to 5 p.m. Nov. 4.

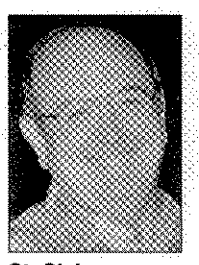
As Langley Research Center's official visitor venter, the VASC is home to numerous aerospace artifacts and interactive exhibits that help tell Langley's story to the public. Under a cooperative education agreement, Langley and the VASC sponsor new exhibits in the museum each

Continued on Page 5

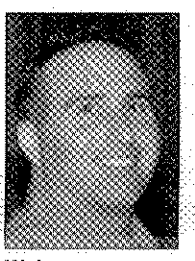
TEEK Wins R&D Award

High-Tech Foam Developed By Langley and Unitika Ltd.

By KEITH HENRY
Public Affairs Office



St. Clair



Weiser

Langley Research Center employees Terry St. Clair and Erik Weiser received R&D 100 Awards on Oct. 4 at the Chicago Museum of Science and Industry.

St. Clair and Weiser were part of an international team that developed a high-tech foam named one of the 100 most significant new technical products of 2001 by Research and Development Magazine.

The foam, called TEEK by its U.S. and Japanese developers, can take many forms and be made into dozens of different products.

Originally developed as a high-performance structural material for spacecraft, TEEK can be used as a superior flame retardant for fire protection, as thermal or acoustic insulation, or to reduce weight in structures. Because of these and other qualities, it can benefit a variety of commercial applications.

Langley developed and commercialized the technology with Unitika Ltd. of Kyoto, Japan. SORDAL, Inc. of Holland, Mich., has a non-exclusive

Continued on Page 2

Center Replaces 14-By-22 Drive

Old System Had Been In Almost Continuous Use For 30 Years

By BILL UHER
Public Affairs Office

Langley Research Center recently began installation of a new drive system in its 14- By 22-Foot Subsonic Wind Tunnel.

For more than three decades, scientists conducting advanced aeronautical research have depended on the tunnel to prove theories and test new ideas.

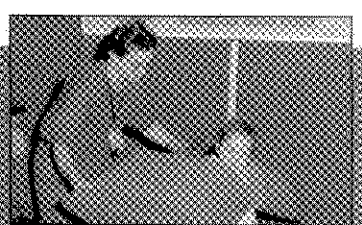
To ensure continued vitality of the tunnel, a new, 12,000 horsepower, 6,600-volt electric motor with advanced control and safety systems is being installed.

The 80-ton motor, built by ALSTOM in France, was designed specifically for the Langley application. ALSTOM has wide experience in custom designing and building motors for power generation, ship propulsion and high-speed rail systems.

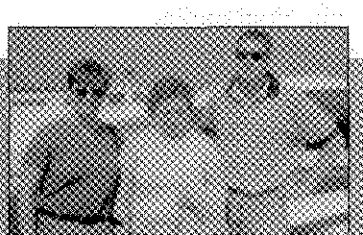
The tunnel's existing 40-ft. diameter, nine-blade fan assembly will be attached to the new motor once it is in place.

Continued on Page 3

Inside This Issue:



Langley Exhibits At 2001 State Fair Page 2



Employee Flies For Angel Flight Page 4

News Briefs

Around the Agency

NASA LAUNCHES "FLAGS" CAMPAIGN

In a unique extension of a tradition that dates back to the beginning of human space flight, NASA Administrator Daniel S. Goldin recently announced that the next mission of Space Shuttle Endeavour will honor the victims of last month's terrorist attacks in New York, Washington and Pennsylvania.

In announcing the "Flags for Heroes and Families" campaign, Goldin said thousands of American flags will be carried into space by Endeavor and its seven-member crew and will be distributed to the victims' families and survivors of the September attacks.

"The 'Flags for Heroes and Families' campaign is a way for us to honor and show our support for the thousands of brave men and women who have selflessly contributed to the relief and recovery efforts," Goldin said. "The American flags are a patriotic symbol of our strength and solidarity and our nation's resolve to prevail."

Additional information about STS-108 is available on the Internet at <http://spaceflight.nasa.gov>. RELEASE: 01-195

NASA-FUNDED PHYSICIST SHARES NOBEL PRIZE

The 2001 Nobel Prize for physics has been awarded to three scientists, including a Massachusetts Institute of Technology physicist whose NASA-funded research uses ultra-cold atoms that form a new type of matter.

The Royal Swedish Academy of Sciences said Dr. Wolfgang Ketterle and two other scientists have caused atoms to "sing in unison." Through their research, atomic particles were induced to have the same energy and to oscillate together in a controlled fashion. Laser light has these qualities, but researchers have struggled for decades to make matter behave this way. The breakthrough research has potential uses for extremely precise measurements. The discoveries may eventually lead to microscopic computers and ultra-precise gyroscopes that could dramatically improve aircraft guidance and spacecraft navigation.

More information on Ketterle's research and images of his work are available on the Internet at <http://cua.mit.edu/ketterle_group/home.htm>. RELEASE: 01-194

NASA SELECTS CONTRACTOR FOR MARS MISSION

NASA has selected Lockheed Martin Astronautics to build the Mars Reconnaissance Orbiter, a spacecraft scheduled for launch in August 2005 to return the highest resolution images yet of the Red Planet.

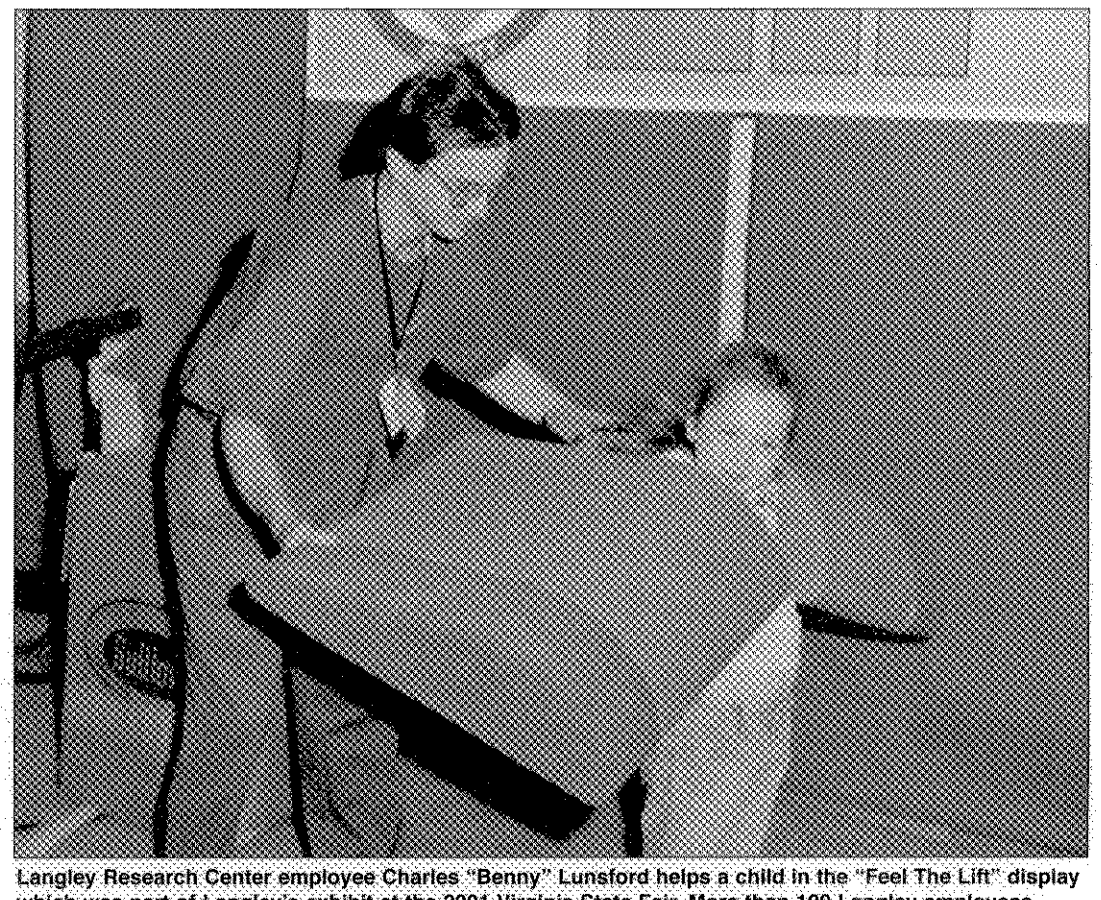
Lockheed Martin will build the orbiter bus and be responsible for integrating and testing six science instruments and two engineering payloads. Lockheed Martin will also provide spacecraft operations support for the five-and-a-half year mission. NASA's Jet Propulsion Laboratory manages the Mars Reconnaissance Orbiter Mission.

The contract awarded to Lockheed is for $145 million, including the development and operations phases.

More information about the Mars Exploration Program is available on the Internet at <http://mars.jpl.nasa.gov>. RELEASE: c01-w

People

2001 Virginia State Fair



Langley Research Center employee Charles "Benny" Lunsford helps a child in the "Feel The Lift" display which was part of Langley's exhibit at the 2001 Virginia State Fair. More than 100 Langley employees, contractors and retirees volunteered at this year's fair, which took place from Sept. 27 to Oct. 7 in Richmond. Approximately 300,000 people visited the Langley exhibit, which also included a general aviation flight simulator game, a hazardous duty robot on loan from Kennedy Space Center and the debut of a new wind tunnel walk-in display.

Photo by William Salyer

In Memoriam

Ann T. Boatright

Ann Timberlake Boatright died on Oct. 6 at the age of 80. Boatright, a native of Fredericksburg, worked for NACA.

William G. Petty Sr.

William Gordon Petty Sr. died on Oct. 4 at the age of 73. Petty, a native of Charleston, W.Va., graduated from the U.S. Naval Academy and served in the Navy. He went on to work as a mechanical engineer for NASA, supporting the missions to the moon and Mars. He retired in 1977.

David G. Stone

David Gregory Stone died on Sept. 27 at the age of 82. Stone, a native of Pocatello, Idaho, began his NASA career in Langley Research Center's 19-Foot Wind Tunnel, then went on to work in the Pilotless Aircraft Research Division and the Advanced Computer Division. He retired in 1974 after 33 years of service.

Elizabeth W. Toll

Elizabeth Wiley Toll died on Sept. 28 at the age of 88. Toll, a native of Portsmouth, worked as a technical editor for NACA.

Joseph E. Walz

Joseph Edward Walz died on Sept. 24 at the age of 63. Walz retired from NASA in 1998 after 39 years of service as a civil engineer.

News Researcher

The Researcher News is an official publication of Langley Research Center, National Aeronautics and Space Administration, Hampton, Va., 23681-2199. It is published every other Friday in the interest of all Langley staff, contractors and retirees and has a circulation of approximately 8,100. It is distributed to all Langley civil service employees, contractors, retirees and on-site university personnel, with limited distribution to NASA Headquarters, other NASA centers and, by special request, to other non-NASA individuals and organizations. Questions related to the content and distribution of the Researcher News should be addressed to Keith Henry, Mail Stop 115, (757) 864-6120. Submit contributions/SDL 026, 055, 110 changes to the editor via e-mail <j.r.roberts@larc.nasa.gov>, fax (757) 864-6477, telephone (757) 864-8150 or Mail Stop 293. Articles, photos and announcements are due at noon the Monday following the date of this issue.

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Science and Technology Corp.

Assistant Editor ..... Meghan Woodcock
Planners Collaborative/
Science and Technology Corp.

Photographer ..... Jeff Caplan
Planners Collaborative/
Science and Technology Corp.

The privilege of listing announcements in this publication is restricted to the employees, contractors and retirees of the Langley Research Center. Articles must be offered without regard to race, color, religion, sex or national origin. All materials are subject to editing.

R&D

Continued from Page 1

license with NASA and Unitika to market foam products based on the technology.

The R&D 100 award is presented annually to the innovators of the 100 most technologically significant new products of the year from around the world. A panel of 70 distinguished scientists and engineers makes the selections.

Judges were impressed with TEEK's ability to foam in place during installation and repair, greatly reducing labor and material waste costs. They also were impressed with its rating of low flammability with no toxic fumes, as well as several other mechanical and thermal qualities.

Technically a chemical compound called a polyimide, TEEK starts as a salt-like precursor powder that can be processed into polyimide foams through normal heat-based foaming techniques.

SORDAL plans to use TEEK as insulation for ship hulls, for fire-resistant construction materials, in various aerospace applications, and in a wide range of consumer products to improve safety and energy efficiency. Two Japanese companies have licensed TEEK for use in automobiles, office automation equipment, electric and electronics products, and reusable launch vehicles for space travel.

In the 34 years of Langley's participation in the R&D 100 competition, 34 Langley developments have been selected.

Also on-hand for the ceremony were Unitika employees Yoshiaki Echigo and Hisayasa Kaneshiro.

Read the *Researcher News* online at <http://researchernews.larc.nasa.gov>.

Colloquium and Sigma Series Lectures

Leveson On 'Trusting Software'

Nancy Leveson will present a Colloquium lecture entitled, "The Limits of Automation: How Far Should we Trust Software?" at 2 p.m. Nov. 6 in Langley Research Center's H.J.E. Reid Conference Center. A Sigma Series lecture, "Computational Combustion: Bunsen Burners to Jet Engines," will follow at 7:30 p.m. at the Virginia Air and Space Center in Hampton.

Leveson

The Lecture

Just as James Watt's invention of the first practical steam engine powered the Industrial Revolution, so the invention of the first practical computer 50 years ago has drastically altered society. Nearly every facet of our lives now involves computers: They control consumer products, power plants, medical devices, transportation systems, weapon systems and so on. Virtually nothing is engineered and manufactured in the U.S. today without computers affecting their design, manufacturing and operation.

Along with this use has come a level of trust in computers that may not be justified. We hear more and more about losses involving computers; software errors have resulted in loss of life, destruction of property, financial losses and environmental harm. The lecture will explore answers to questions such as: Why has this invention had such a profound effect on society and our lives? Just what is software and are there limits to how much trust we should be placing on it?

The Speaker

Leveson is a professor of aeronautics and astronautics at the Massachusetts Institute of Technology (MIT) and an adjunct professor at the University of British Columbia.

After receiving degrees in mathematics, operations research and computer science, she worked as a systems engineer and eventually became the Boeing Professor of Computer Science and Engineering at the University of Washington before moving to MIT.

Leveson received the American Institute of Aeronautics and Astronautics' Information Systems Award in 1995 for "developing the field of software safety and for promoting responsible software and system engineering practices where life and property are at stake."

Leveson is currently a consultant to the NASA Aerospace Safety Advisory Panel. She speaks and writes extensively and is author of "Safeware: System Safety and Computers."

Upcoming Lectures

- **Dec. 4:** Robert L. Park on "The Seven Warning Signs of Voodoo Science."
- **January, 2002:** Marvin Minsky
- **February, 2002:** Phillip Morrison
- **March, 2002:** Ray Bradbury

For more information about the lecture series, visit <http://shemesh.larc.nasa.gov/Lectures/> on the Web.

Centennial Of Flight

Commission Announces New Partnership

By SARAH KEEGAN
NASA Headquarters

The U.S. Centennial of Flight (COF) Commission and Inventing Flight: Dayton 2003 recently announced their partnership to promote upcoming activities and events that will celebrate the 100th anniversary of powered, controlled flight in 2003 and the history and future of aviation.

The partnership will capitalize on the COF's mandate to serve as a national and international source of information about activities to commemorate the centennial of the Wright Brothers' first powered flight.

The alliance also will build on Inventing Flight's status as a community-based organization set up to promote aviation, the Wright Brothers and the role of Dayton, Ohio, in the birth and future of flight.

"We are pleased to be able to work so closely with Inventing Flight: Dayton 2003," said Gen. John R. Dailey, COF's chair. "This is a tremendous opportunity for us to work together to communicate to the nation and the world the significance of the Centennial of Flight commemoration and all the exciting activities planned for it."

"Inventing Flight and the Commission have a common goal," said Madeline Iseli, Inventing Flight's executive director. "This alliance provides the opportunity for our organizations to create a synergy that will further excite and exhilarate our nation and the world."

Langley Research Center will play an active role in the 2003 anniversary and activities leading up to it.

For more information, visit <http://www.centennialofflight.gov> and <http://www.inventingflight.com/>.

Drive

Continued from Page 1

The new motor and control system will be able to operate continuously at peak efficiency and will provide accurate speed control over a range between 1 and 300 rpm.

To make the motor exchange, the top of the wind tunnel was cut and lifted off. A 300-ton mobile crane moved into position and successfully completed the lift the week of Oct. 1.

In preparation for the installation, the focus was on safety. Overhead power cables along Armistead Avenue (Route 172) had to be buried. And, due to the size of the crane, one lane of traffic was closed during the lifting operation.

After the installation and extensive testing, the tunnel is expected to be back in operation in December.

A 300-ton mobile crane lifts the roof and motor nacelle off of Langley Research Center's 14- By 22-Foot Subsonic Wind Tunnel in preparation to install a new drive system. To ensure safety, one lane of Armistead Avenue was closed and overhead power cables were buried.
Photo by Jeff Caplan

Community Corner

Bil Kleb: An 'Angel' In Disguise?

Langley Employee Flies Medical Missions For Angel Flight Program

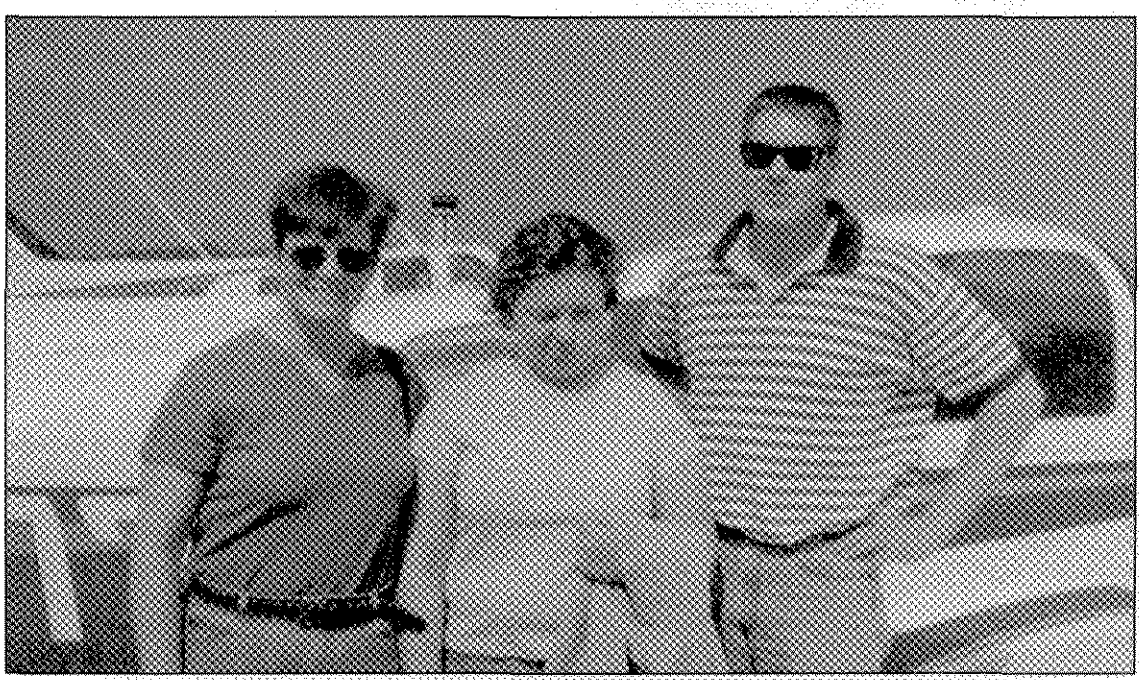
By PAMELA J. VERNIEL
Public Services Office

Bil Kleb isn't a military pilot, but he flew six "missions" last year — for a volunteer group called Angel Flight.

Angel Flight, which is funded, in part, by the Combined Federal Campaign (CFC), provides long-distance transportation to needy medical patients seeking specialized evaluation, diagnosis, treatment or rehabilitation.

Pilots — private, corporate and airline — donate their time and related costs to fly patients to the airports closest to their appointments. (Figuring in fuel, engine overhaul and other costs — hangar rent, insurance, property taxes, etc. — the expense works out to about $70 per hour for the number of hours Kleb flies in a typical year.)

Patients obviously save time and money, but what is the benefit to the pilots? In addition to the satisfaction of helping those in need, it provides an opportunity to sharpen their flying skills and keep their instrument ratings current.



Langley Research Center employee Bil Kleb (right) recently flew Bonnie and Catherine Baker from Clarksburg, W.Va., to Norfolk so Catherine could visit a neurosurgeon.

Photo courtesy of Bil Kleb

Every week, Angel Flight distributes a list of upcoming missions, detailing departure and arrival airports, numbers of passengers, and the weight of their baggage. If a pilot decides to fly a mission, an Angel Flight coordinator sends confirmation to the pilot and the patient. Then the pilot calls the patient to arrange the details of the trip. After each flight, a post-mission flight form is filled out by the coordinator.

Kleb, who works in Langley Research Center's Aerothermodynamics Branch, flies for the mid-Atlantic region of Angel Flight, which covers nine states from Virginia to Michigan. A typical mission is between 150 and 400 miles; however, if a patient needs to travel farther, Angel Flight arranges connecting flights to complete the trip.

Kleb said his flights have been both sad and rewarding: One patient he transported from rural North Carolina to Richmond for cancer treatment recently passed away; another, an infant he flew from Gloucester to Charlotte for specialized cranial treatment, is expected to outgrow the condition without complications.

Kleb learned to fly in college, and, instead of buying a new car after graduation like the rest of his classmates, partnered with fellow Langley employee Rob Scott to buy a Citabria from the local soaring operation. They recently sold the two-seat tow plane and bought a four-seat Grumman Cheetah.

For more information about Angel Flight visit <http://www.angel-flight.org> on the Internet.

To share your volunteering experience, contact Pamela J. Verniel at 864-2449 or <p.j.verniel@ larc.nasa.gov>.

National Hispanic Heritage Month

'An Opportunity To Express Appreciation'

***Editor's note:** National Hispanic Heritage Month officially ended on Oct. 15, but this Presidential proclamation was not written until Sept. 28. Due to print deadlines, this is the* Researcher News' *first opportunity to publish it.*

For more than 30 years, the United States has annually celebrated the rich history and cultural traditions of our nation's Hispanic American people. National Hispanic Heritage Month provides us an opportunity to express deep appreciation to Hispanic Americans for their countless contributions to our society and to pay tribute again to America's distinctive diversity.

Since our nation's founding, Hispanic Americans have played an integral role in our country's exceptional story of success. Hispanic Americans served with heroism in every major American military conflict. The Continental Army benefited from the valor of Bernardo de Galvez, who led his frequently outnumbered troops to numerous victories against the British. Luis Esteves organized the first Puerto Rico National Guard and rose through the ranks of the U.S. Army to become a distinguished Brigadier General. And 38 Hispanics have earned our nation's highest military decoration, the Medal of Honor. The United States' academic and scientific communities benefited from the contributions of Hispanic Americans like physicist Luis Walter Alvarez, who was awarded the Nobel Prize in Physics in 1986. Business leaders like Roberto Goizueta have had a positive effect on our nation's economy; and many Hispanics have greatly influenced America's artistic, legal and political communities.

Today, Hispanic culture continues to shape the American experience. More than 30 million Americans, about 1 in 8 people in the United States, claim Hispanic origin. They contribute to every walk of contemporary American life, while simultaneously preserving the unique customs and traditions of their ancestors. All Americans, regardless of national origin, celebrate the vibrant Hispanic American spirit that influences our nation's art, music, food and faiths. We also celebrate the practices of commitment to family, love of country and respect for others, virtues that transcend ethnicity, reflect the American spirit and are nobly exemplified in the Hispanic American community.

The strong ties that Hispanic Americans maintain with their ancestral homeland remind us that the United States must pursue robust relations with its trading partners in Latin America and the Caribbean. The future of our hemisphere is closely tied to these relationships, and improving trade will play a vital role in building important links with our Hispanic neighbors. Maintaining open and free trade creates job opportunities and promotes economic growth, improving the welfare of every citizen in every land it touches. Thus, we will negotiate for freer markets, which will allow us the opportunity to obtain better protections for our hemisphere's environment and will promote political freedom throughout the region.

> *"By working together, we can achieve a fully democratic hemisphere, bound together by good will, cultural understanding and free trade. The many contributions of Hispanic Americans to our nation will help us reach this important goal."*

We have a great opportunity before us. By working together, we can achieve a fully democratic hemisphere, bound together by good will, cultural understanding and free trade. The many contributions of Hispanic Americans to our nation will help us reach this important goal by helping connect our country with the Hispanic nations to our south. This month, we celebrate the talents, culture and spirit of Hispanic Americans, which deeply enrich our country and bless our people.

The Congress, by Public Law 100-402, has authorized and requested the President to issue annually a proclamation designating Sept. 15 through Oct. 15, as "National Hispanic Heritage Month." I am proud to do so.

Now, therefore, I, George W. Bush, President of the United States of America, by virtue of the authority vested in me by the Constitution and laws of the United States, do hereby proclaim Sept. 15 through Oct. 15, 2001, as National Hispanic Heritage Month. I call upon all the people of the United States to observe this month with appropriate ceremonies and activities.

In witness whereof, I have hereunto set my hand this 28th day of September, in the year of our Lord 2001, and of the Independence of the United States of America the 226th.

George W. Bush

This portrait of flying circus pilot Marty Goppert is one of 75 photographs featured in the traveling "Women and Flight" exhibit at the Virginia Air and Space Center. "Women and Flight" will remain on display through Dec. 16.

Photo by Carolyn Russo

Two Exhibits Open

Two traveling exhibits from the National Air and Space Museum (NASM) recently opened at the Virginia Air and Space Center (VASC) in Hampton. "Women and Flight" opened on Sept. 21 and will remain on display through Dec. 16, and "On Miniature Wings" opened on Oct. 6 and will remain on display through Jan. 6, 2002.

Women and Flight

"Women and Flight" features more than 75 black-and-white portraits of 37 American women involved in the fields of aviation and space exploration, from astronauts Lt. Col. Eileen Collins and Shannon Lucid to pilots Fay Gillis Wells and Doris Lockness.

The photographs were captured by Carolyn J. Russo, a staff photographer at the NASM, and are accompanied by brief biographies of each pilot and personal statements which reveal the variety of opportunities for women of all ages and ethnic backgrounds to soar above the Earth.

On Miniature Wings

"On Miniature Wings," a selection of 25 scale replica model aircraft from the NASM's collection of 3,000 model airplanes, examines the historic role aircraft models have played in the development of the aviation industry, with some models dating as far back as the end of the 19th century.

Aeromodeling, in addition to its popularity as a pastime enjoyed by people of all ages, has served a variety of educational, scientific and commercial purposes this century. Included in the collection are functional models that furthered aeronautical technology, such as a wind-tunnel model of a large flying boat tested by the U.S. Navy, and models used in aircraft recognition programs to help pilots identify airplane in wartime skies.

The VASC is open from 10 a.m. to 5 p.m. Monday through Saturday and from noon to 5 p.m. Sunday. Exhibit admission is $6.50 for adults, $5.50 for seniors and military/NASA personnel, and $4.50 for children between the ages of 3 and 11. (All NASA civil servants, on-site contractors, retirees and their immediate families will receive free admission on Nov. 3 and 4.)

For more information, call 727-0900 or visit the VASC Web site at <http://www.vasc.org>.

VASC

Continued from Page 1

year to highlight the past and future contributions of NASA and Langley.

For example, Langley recently worked with the museum to add an "interpretive rail" to the Apollo XII Command Module on display as the museum's centerpiece. The new plexiglass rail serves a dual purpose: It secures the module and provides a display case for artifacts, photos and videos explaining Langley's role in the Apollo Program.

NASA employees who take advantage of "NASA Days" may also want to check out two new exhibits: a six-panel overview of Langley and an interactive exhibit showing how the Center uses lidar to enhance aerospace research.

The VASC also has two new traveling exhibits on display at the museum: "Women and Flight" and "On Miniature Wings."

In addition to free admission to the museum on Nov. 3 and 4, NASA guests also will receive $3 admission to any daytime IMAX film showing, $10 off the purchase of a VASC membership, a 20 percent discount in the museum store and $20 off the purchase of an "engraved paver," the memorial bricks displayed in the courtyard outside the museum.

A NASA badge must be shown to take advantage of the benefits. For more information, call Sharon Gates at 727-0900, ext. 718.

VASC Briefs

New Films Begin

Two new IMAX films recently opened at the Virginia Air and Space Center (VASC) in Hampton. "The Old Man & the Sea" opened on Sept. 28, and "Extreme" opened on Oct. 12.

"The Old Man & the Sea," which won an Academy Award in 2000 for Best Animated Short Film, is based on Ernest Hemingway's life and his Nobel Prize-winning novella.

"Extreme" features Ross Clarke-Jones and Ken Bradshaw surfing 55-foot waves under conditions that were labeled too extreme for a surfing competition, not to mention world champion windsurfers, rock climbers, skiers, snowboarders and ice climbers.

Both films are shown daily and in the evening. For show times, call 727-0900, ext. 703 or visit the VASC Web site at <http://www.vasc.org>.

IMAX admission is $6 for adults and $5 for children between the ages 3 and 11, seniors and military and NASA personnel.

Halloween Bash Set For Oct. 27

The VASC will host its 10th annual Halloween Bash from 4 to 7 p.m. **Oct. 27.**

Activities will include a scavenger hunt, safe trick-or-treating, storytelling, costume contests and a haunted house.

Admission prices for the Halloween Bash are $4 for the general public and $3 for members. The event is presented by VASC, 106.9 The Fox, WVEC-TV13, Langley Federal Credit Union and Super Kmart Centers.

'Flight Weekend' Activities Planned

The VASC will host the following "Flight Weekend" activities from noon to 4 p.m. on Saturdays and Sundays through Dec. 16:

- **Oct. 20 and 21:** "Rocket Scientist."
- **Oct. 27 and 28:** "Bats, Ghosts and Flying Things."
- **Nov. 3 and 4:** "That Place Called Space."
- **Nov. 10 and 11:** "Solar Power."
- **Nov. 17 and 18:** "Flights of Fancy."
- **Nov. 24 and 25:** "Rocket Scientist."
- **Dec. 1 and 2:** "That Place Called Space."
- **Dec. 8 and 9:** "Lighter than Air."
- **Dec. 15 and 16:** "Storm Watchers."

Admission to "Flight Weekends" is included in regular exhibit admission.

For more information, call 727-0900 or visit the VASC Web site at <http://www.vasc.org>.

AdVentures

CLASSIFIED

FOR SALE: House, 116 Tides Run, Marlbank Cove, York County. 4 bedrooms, 2.5 baths, living room with cathedral ceiling, Pella sun room, fireplace, large kitchen and garage, sprinkler system, large deck. Call 898-0894 or 868-4100.

FOR SALE: House on cul de-sac in Sanlun Lakes. 3 bedrooms, 2.5 bathrooms, living room, den, new ceramic top stove and built-in microwave, custom built "media wall" in den, ceiling fans, vinyl siding, beautifully landscaped yard, convenient location, $113,900. Call 766-3287.

FOR SALE: 1989 Ford Taurus SHO, great condition, fully loaded (power seats/ windows/ locks, keyless entry, moonroof, partial leather seats, etc.), 5-speed with low miles, $3,000 or best offer. Call 867-9697 and leave message.

WANTED TO BUY: 17- to 23-cubic foot refrigerator, icemaker preferred, must be in good condition, any color. Will pick up. Call 480-5929.

CARPOOL: Seeking carpool or ride share from Williamsburg area. Call 253-9414.

Software Improvement Briefing Set

Langley Research Center's Software Engineering Process Group (SEPG) will host a half-day briefing on the Center's Software Process Improvement plan at noon **Oct. 22** in the Pearl Young Theater.

The goals of the plan are to improve the quality, safety and reliability of software developed by and for Langley; to increase the productivity of the developers; and to increase customer satisfaction with Langley software products. The plan is part of the Agency-wide Software Engineering Initiative established in response to concerns about NASA software problems.

All software managers and developers interested in software process improvement are encouraged to attend. For more information on the briefing, visit the "Training Classes" link at <http://class.larc.nasa.gov/>.

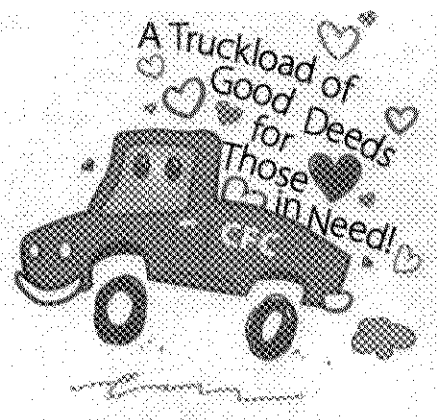
The complete text of Langley's Software Process Improvement plan can be viewed online at <http://sw-eng.larc.nasa.gov/center_plan/plan.cfm>.

NASA STARS Training Offered

Langley Research Center's Office of Human Resources will host a NASA STARS briefing for hiring managers from 9 to 10:30 a.m. **Oct. 24** in Bldg. 1195B, Room 127. The briefing will address management's role in the new business process and a demonstration of the Resume Builder software.

OHR also will offer a resume-building workshop for Langley employees from 1:30 to 2:30 p.m. **Oct. 24** in Bldg. 1195B, Room 127.

For more formation, call Liz Ford at 864-8108 or Lois Alliss at 864-2509 or send an e-mail to <nasastars@larc.nasa.gov>.



Still Going ...

Langley Research Center's 2001 Combined Federal Campaign (CFC) continues through the end of October.

This year's theme, "A Truckload Of Good Deeds for Those In Need," reflects one of the incentives for this year's campaign: Everyone donating at least $125 will be eligible to win a GMC pickup truck donated by Suttle Motors.

To make an electronic pledge, visit the CFC Web page at <http://cfc.larc.nasa.gov/>.

Brown Bag Lectures Continue

The next two lectures in the Langley Research Center Atmospheric Sciences Competency's Brown Bag Lunch Series are: **Oct. 25**, Upendra Singh on "Technology"; and **Nov. 1**, Bill Smith on "Geosynchronous Imaging Fourier Transform Spectrometer (GIFTS)." The lectures will take place from 11:30 a.m. to 12:30 p.m. in the Pearl Young Theater.

AIAA Offering Graduate Awards

The American Institute of Aeronautics and Astronautics (AIAA) Foundation is accepting applications for the first-ever Orville and Wilbur Wright Graduate Awards.

The $10,000 awards will be presented annually, beginning in 2002, to four students participating in master's or doctoral thesis research in engineering or science.

The deadline to apply is **Jan. 31, 2002**. For an application or more information, visit <http://www.flight100.org/activities/awards.html> on the Internet.

TCPO Looking For Article Ideas

Langley Research Center's Technology Commercialization Program Office (TCPO) is soliciting article ideas and submissions for NASA's Tech Briefs Magazine.

Tech Briefs can be accessed on the Internet at <http://www.nasatech.com/>.

For more information, contact Sherry Sullivan at 864-2556 or <s.l.sullivan@larc.nasa.gov>.

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The next edition of the *Researcher News* will be published on Nov. 2. Please send submissions to <j.r.roberts@larc.nasa.gov> by Oct. 22.

Researcher News

National Aeronautics and Space Administration

Langley Research Center
Hampton, Virginia 23681-2199

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Langley Research Center employees (clockwise, from far left) Tracy Soruill, Sherry Harper, Jeanne Covington, Mary McCauley and Betty Lane enjoy a picnic lunch at the Center's Combined Federal Campaign (CFC) "kick off," which took place Oct. 2 on the grounds of the H.J.E. Reid Conference Center. One dollar from the sale of each ticket went to the CFC. This year's campaign continues through the end of the month. To make an electronic pledge, visit the CFC Web page at <http://cfc.larc. nasa.gov/>.

Photo by Jeff Caplan

National Aeronautics and
Space Administration
Langley Research Center

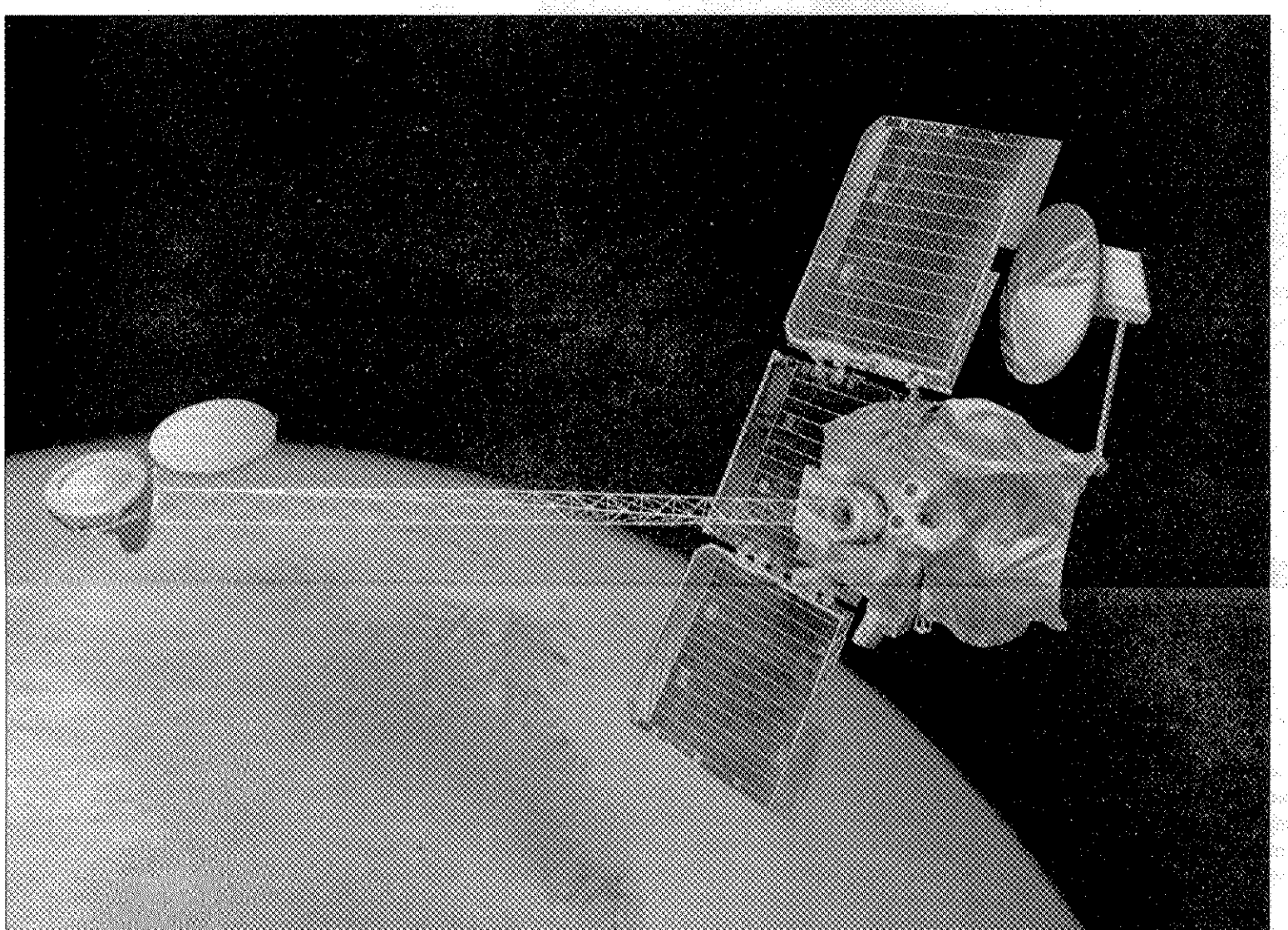
News Researcher

Biweekly Employee and Contractor Publication

Volume 15 ❖ Issue 22 ❖ Nov. 2, 2001

Odyssey Begins Orbit

Latest Mars Mission Now Enters The Critical Aerobraking Phase



NASA's 2001 Mars Odyssey spacecraft put itself into orbit around the Red Planet on Oct. 23. The explorer carries several scientific instruments to map the chemical and mineralogical makeup of Mars: a gamma ray spectrometer that includes a neutron spectrometer and a high-energy neutron detector; a thermal-emission imaging system; and a Martian radiation environment experiment.

By DONALD SAVAGE
NASA Headquarters

By MARY HARDIN
Jet Propulsion Laboratory

After traveling 200 days and logging more than 285 million miles, NASA's 2001 Mars Odyssey spacecraft fired its main engine for the only time on Oct. 23 and put itself into orbit around the Red Planet.

Odyssey was launched April 7 from Cape Canaveral Air Force Station, Fla. Other than our Moon, Mars has attracted more spacecraft than any other object in the Solar System, and no other planet has proved as daunting to success. Of the 30 missions sent to Mars by three countries over 40 years, fewer than one-third have been successful.

"The spacecraft, ground system and flight team are ready for Mars orbit insertion," Matthew Landano, Odyssey project manager at NASA's Jet Propulsion Laboratory, said before the insertion took place. "We uplinked the sequence of commands that control the orbit insertion on Oct. 15. Now we will closely monitor the space-

Continued on Page 5

Goldin Announces Resignation

Administrator To Leave On Nov. 17 After Nearly 10 Years Of Service

By BOB JACOBS
NASA Headquarters

After nearly 10 years as the head of America's space program, NASA's longest-serving Administrator, Daniel S. Goldin, announced his resignation on Oct. 17, effective Nov. 17.

"For nearly a decade, it has been my honor to serve the American people by leading our nation's space program and its dedicated personnel," Goldin said in a letter to President George W. Bush. "It was the highlight of my life when your father asked me in 1992 to serve as America's ninth Administrator for the National Aeronautics and Space Administration."

In his letter, the Administrator added that he was happy and proud to serve three presidents and considered it an honor and a duty to stay when President Bush asked him to minister the office until a new NASA Administrator was found.

Goldin

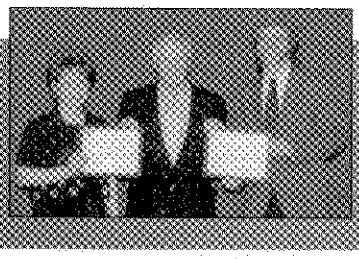
While no replacement has been selected, Goldin will work with the Administration before he leaves office to identify an interim Acting Administrator.

Goldin, 61, was appointed NASA Administrator April 1, 1992, by President George H.W. Bush and became the Agency's longest-serving chief on March 5, 2001, surpassing James Fletcher's previous record of nearly nine years during two separate terms.

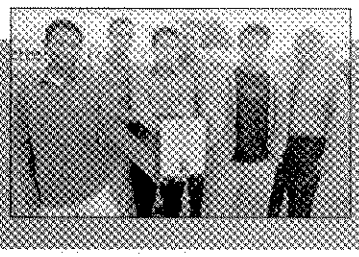
The Administrator also announced he has accepted an interim position as a Senior Fellow for the Council on Competitiveness in Washington, as he transitions into the private sector. The Council sets an action agenda to drive U.S. economic competitiveness and lead-

Continued on Page 5

Inside This Issue:



Two Employees Complete PDP *Page 2*



JIAFS Students Take Third In AIAA Contest *Page 3*

News Briefs

Around the Agency

ISS MARKS HUMAN PRESENCE MILESTONE

The International Space Station marks a milestone in space history on Nov. 2 — one full year of continuous international human presence in orbit. It's a year that has seen the space platform become the largest, most sophisticated and most powerful spacecraft ever built.

More information about the International Space Station, an archive of its operations for the past year, and associated images are available on the Internet at <http://www.spaceflight.nasa.gov/station/crew/year1>. RELEASE: 01-205

SIMULATOR EASES OVERCROWDED RUNWAYS

A unique NASA study shows relocating an existing taxiway and using new procedures could improve runway safety at Los Angeles International Airport (LAX).

In an effort to prevent planes, vehicles and other objects from possibly colliding on the ground, NASA used a control tower simulator to create computer-generated views of the airport. These potentially dangerous incidents are known as runway incursions and are a growing problem at busy airports across the country.

Studies of a half-dozen potential changes at Los Angeles took place at the virtual air traffic control tower, known as "FutureFlight Central." The two story high-tech tower simulator is located at Ames Research Center. "The LAX simulation at FutureFlight Central was the first attempt to model a major hub airport with controllers and pilots interacting in real time," said Nancy Dorighi, who manages the facility at Ames. RELEASE: 01-204

NASA PUBLISHES FIFTH 'EXPLORING' VOLUME

NASA has just published "Exploring the Cosmos," the fifth volume of "Exploring the Unknown," an ongoing series of reference books essential for anyone interested in the history and development of the U.S. civil space program.

The book is for sale from the U.S. Superintendent of Documents and from the NASA Information Center. Details on ordering the volume are available at <http://history.nasa.gov/what.html>. RELEASE: N01-59

OZONE HOLE STAYS ABOUT THE SAME SIZE

Satellite data show the area of this year's Antarctic ozone hole peaked at about 26 million square kilometers — roughly the size of North America — making the hole similar in size to those of the past three years, according to scientists from NASA and the National Oceanic and Atmospheric Administration (NOAA). Researchers have observed a leveling-off of the hole size and predict a slow recovery.

Over the past several years the annual ozone hole over Antarctica has remained about the same in both its size and in the thickness of the ozone layer. "This is consistent with human-produced chlorine compounds that destroy ozone reaching their peak concentrations in the atmosphere, leveling off, and now beginning a very slow decline," said Samuel Oltmans of NOAA's Climate Monitoring and Diagnostics Laboratory, Boulder, Colo. RELEASE: 01-198

News Researcher

The Researcher News is an official publication of Langley Research Center, National Aeronautics and Space Administration, Hampton, Va., 23681-2199. It is published every other Friday in the interest of all Langley staff, contractors and retirees and has a circulation of approximately 8,100. It is distributed to all Langley civil service employees, contractors, retirees and on-site university personnel, with limited distribution to NASA Headquarters, other NASA centers and, by special request, to other non-NASA individuals and organizations. Questions related to the content and distribution of the Researcher News should be addressed to Keith Henry, Mail Stop 115, (757) 864-6120. Submit contributions/SDL 026, 055, 110 changes to the editor via e-mail <j.r.roberts@larc.nasa.gov>, fax (757) 864-6477, telephone (757) 864-8150 or Mail Stop 293. Articles, photos and announcements are due at noon the Monday following the date of this issue.

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Science and Technology Corp.

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Planners Collaborative/
Science and Technology Corp.

The privilege of listing announcements in this publication is restricted to the employees, contractors and retirees of the Langley Research Center. Articles must be offered without regard to race, color, religion, sex or national origin. All materials are subject to editing.

Read the *Researcher News* online at <http://researchernews.larc.nasa.gov>.

People

PDP Graduates

NASA Administrator Daniel S. Goldin (center) presents Professional Development Program (PDP) certificates to Langley Research Center employees Donna Phillips (left) and Jon Thompson during a ceremony at NASA Headquarters on July 23. Participants in the PDP are competitively selected by their Centers, and they engage in a year-long intensive leadership development process that combines developmental work assignments, leadership development workshops, briefings by NASA's leadership, targeted training opportunities and individual coaching. The goal of the PDP is to provide future leaders with a broader perspective of both the Agency and the impact of NASA programs.

Photo courtesy of Maureen Dale

Letters

"I would like to thank all my friends, co-workers and managers at NASA who have given me such great support during my time of illness. It has been a depressing experience, not only because of the illness but also its unspecified nature. The well-wishes and support from the people of NASA have really kept my spirits up. Especially appreciated are the hours of donated leave that have eased the financial stresses during my time of illness enormously. Also, the support from my managers has helped me to know that I could return to my job without worry. I hope everyone at NASA knows how lucky they are to work at such a wonderful place where people not only work with you, but really care about you."

Tim Kariya

"Thank you all and NASA Langley for a wonderful retirement party. I will always remember this occasion with joy and happiness. It was great to see my friends, colleagues and my old E-24 buddies from around the country. I appreciate that so many took the time and effort to wish me and my family a fond farewell. The music was great. Thank you, thank you very much!"

Jim Newman

In Memoriam

Carmen V. DeStefano

Carmen Vincent DeStefano died on Oct. 18 at the age of 86. DeStefano, a native of Scranton, Pa., served in the U.S. Air Force and was a veteran of World War II and the Korean War. He went on to work for NASA for 20 years.

William B. Kemp Jr.

William B. Kemp Jr. died on Oct. 8 at the age of 79. Kemp, a native of College Park, Md., worked for NACA and NASA at Langley Research Center from 1942 to 1980, making pioneering contributions to transonic wind-tunnel research. At the time of his retirement, he was chief scientist of the Subsonic-Transonic Aerodynamics Division.

After retiring, Kemp served as a Distinguished Research Associate for wind-tunnel flight simulation and also served on aircraft-accident investigation committees for the U.S. Air Force and the Civil Aeronautics Board.

Raymond E. Midden

Raymond E. Midden died on Oct. 7 at the age of 65. Midden was a retired NASA engineer.

Hugh B. Milteer

Hugh Benjamin Milteer died on Oct. 20 at the age of 66. Milteer, a native of Nansemond County, worked at Langley Research Center from 1958 to 1990, contributing to the Viking mission, the Earth Radiation Budget Experiment and the Earth Observer System's Terra spacecraft. At the time of his retirement, he was head of the Flight Electronics Division's Reliability and Technical Support Office.

Milteer, who received two NASA Special Achievement Awards during his career, went on to work for several contractors in support of Goddard Space Flight Center. He retired from the QSS Group in 2000.

Russell E. Morgan

Russell Ervin Morgan died on Oct. 19 at the age of 69. Morgan, a native of King George County, served in the U.S. Air Force for 21 years. He went on to work as an electrician for EG&G at Langley Research Center for more than 20 years, retiring in 1994.

Wayne L. Palmer

Wayne Lee Palmer died on Oct. 9 at the age of 56. Palmer, a native of Lynchburg, worked as a graphic artist for NCI Information Systems at Langley Research Center.

JIAFS Students Maintain Streak

Team Places Third In AIAA Design Contest

For the fourth straight year, students from George Washington University's Joint Institute for Applied Flight Sciences (JIAFS) at Langley Research Center have won one of the top three awards in the American Institute of Aeronautics and Astronautics (AIAA) Foundation's Team Aircraft Student Design Competitions.

Students Dustin Bouch, Leslie Gould, Matthew Phillips, Dion Ramiscal and Michael Strauss placed third with their design, "Chimera." They split $1,000 in prize money.

Administered by the AIAA's Student Programs Department, the competitions are part of a wide-reaching program that recognizes excellence in aerospace engineering study at both the undergraduate and graduate level.

This year's design problem was a "common support aircraft"; the objective was to design an affordable, carrier-based family of aircraft that will meet the Navy's mission requirements. The single airframe also was required to sustain the capabilities inherent in the legacy support of the E-2C Hawkeye, S-3B Viking, ES-3A Shadow and the C-2A Greyhound, aircraft which will reach the end of their service lives soon.

The students' projects were undertaken as part of an aircraft design course series taught by JIAFS Professor Robert Sandusky. The first semester covers conceptual design; the second semester covers more detailed methods of preliminary design.

Judged by members of AIAA technical committees, the competitions seek to increase the practical skills of aerospace engineering students in both individual and team conditions.

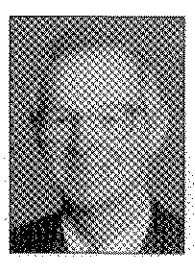
Student teams compete to devise the best design to fit the Requests for Proposal in a given time period. A rigorous series of requirements and design objectives must be adhered to, and the final report must accommodate not only the design itself, but the organization and management of the project.

Joint Institute for Applied Flight Sciences (JIAFS) students (left to right) Dion Ramiscal, Matthew Phillips, Michael Strauss, Leslie Gould and Dustin Bouch placed third in the American Institute of Aeronautics and Astronautics (AIAA) Foundation's Team Aircraft Student Design Competitions. Their professor is Robert Sandusky (far right).

Photo by Jeff Caplan

Paul MacCready To Speak On Nov. 9

Paul MacCready, the "father of human powered flight," will speak from 10 a.m. to noon Nov. 9 in Langley Research Center's Pearl Young Theater. The subject of his speech will be "Aeronautics — From Lessons Learned In Human-Powered Flight To Stealthy Micro Air Vehicles."



MacCready

MacCready, who holds a bachelor's degree from Yale University and master's and doctorate degrees from the California Institute of Technology, earned a pilot's license by age 16 and began soaring at age 20.

He is credited with developing a technique called wave soaring, a trick used by glider pilots to take advantage of strong lifting currents to achieve tremendous heights. He also invented the MacCready speed ring, an instrument used by glider pilots to select an optimum flight speed between updrafts and thermals.

In 1956, he became the first American to win the World Soaring Championship. In the 1970s, he built the "Gossamer Albatross" and flew it across the English Channel, and in the 1980s, he designed the "Solar Challenger," the world's first piloted solar powered airplane.

MacCready recently has turned his attention to micro air vehicles: small, autonomous, battery-powered flyers, about 6 inches in diameter. The vehicles are equipped with tiny video cameras that can provide real time reconnaissance for soldiers in the field.

One of MacCready's flyers, the Black Widow, weighs only 2 ounces and can fly 20 to 40 miles per hour.

MacCready's speech is sponsored by Langley's ICASE. For more information, visit <http://www.aerovironment.com/news/news-index.html> on the Internet.

ifm PROGRAM

Integrated Financial Management Program (IFMP) Update

IFMP: The What, Why, How And When

Perhaps you have heard the term "IFMP" beginning to circulate around Langley Research Center. Are you wondering what it is, why NASA is pursuing it, how it will affect you and when it's coming? Well, you are not alone. Here are some answers ...

WHAT is IFMP? IFMP is an acronym for Integrated Financial Management Program, a large, complex information technology initiative that is changing the way NASA manages its business systems and processes. IFMP will impact and benefit all Langley employees to a varying degree.

WHY is NASA pursuing IFMP? This is not just another change for change's sake; this is a change being performed out of necessity. NASA's legacy business systems are decentralized, non-integrated and inefficient with Center-unique procedures and practices. Data formats aren't standardized, and online financial information is not readily available to NASA managers. The reality is, maintenance of these systems is very expensive because data and software are duplicated at each Center.

How will it affect you? When the rollout of IFMP is complete, the automation of many current manual processes will improve effectiveness and employee productivity. The ultimate payoff will be reliable, timely, consistent information that's widely accessible to NASA employees, suppliers, partners and customers. What it all comes down to is this: With integrated business systems and automated processes extending across the Agency, NASA employees will have the means to make real-time informed decisions.

When is it coming? The work on the first four of eight IFMP modules has already begun at Langley. The Center's targeted "go live" dates of the modules are:

- **Resume Management (NASA STARS):** August through October 2001;
- **Travel Management (Pilot):** June 2001 through January 2002;
- **Travel Management Center-wide:** February through May 2002;
- **Time and Attendance (Web TADS):** April through June 2002; and
- **Core Financial:** June 2002 through September 2003.

For more information, contact Manjula Ambur at 864-2384 or <m.y.ambur@larc.nasa.gov> or David Gosselin at 864-9055 or <d.j.gosselin@larc.nasa.gov> or visit <http://ifmp/index.html> on the Internet.

From The Office Of Human Resources

Leave Scheduling and Exigencies

'Use-Or-Lose' Annual Leave Must Be Used By Jan. 12, 2002

The current leave year ends on Jan. 12, 2002. It is the joint responsibility of supervisors and employees to schedule annual leave throughout the leave year. Supervisors must approve annual leave if work load permits. However, if the leave must be denied, the supervisor and the employee should work together to reschedule the leave to the satisfaction of the employee and still meet mission requirements.

Approval of an "exigency of the public business" must be obtained prior to cancellation or denial of leave if the leave is subject to forfeiture. Use-or-lose annual leave may be restored only when the leave is forfeited due to an exigency of the public business — not for the convenience of the employee. For such leave to be considered for restoration, it must be scheduled and approved before the beginning of the third pay period prior to the end of the leave year or not later than Nov. 30. A properly executed Standard Form (SF) 71 "Application for Leave" or Office of Personnel Management (OPM) Form 71 "Request for Leave or Approved Absence" satisfies this requirement.

A key element in the leave restoration process is line management's determination that a sufficiently critical problem or situation exists to declare an exigency. Such exigencies should be rare events having significant program cost or schedule impact or involving safety considerations. Approval of an exigency of the public business must be obtained prior to cancelling or denying leave in the use-or-lose category.

For individual employees who are requesting an exigency that is not affiliated with a project or team, the request for exigency must be processed to the level of the Organizational Unit Manager (OUM) and must include the following:

- a complete description of the exigency;
- the reason why the employee cannot use scheduled annual leave and the reason why the leave cannot be rescheduled prior to the end of the leave year;
- the proposed beginning and ending dates of the exigency; and
- a completed SF-71 or OPM Form 71 for the employee affected by the exigency dated on or before Nov. 30.

Employees who are members of a project or team should check with their line management to ensure that their project or team has been submitted as a group by their OUM. The procedure for project(s)/team(s) is as follows:

- Employees associated with a project/team execute an SF-71or OPM Form 71 requesting leave use of use-or-lose annual leave;
- OUMs respond to request from the Office of Human Resources (OHR) to identify project(s)/team(s) for consideration of an exigency;
- Office of Director line-item vetoes or approves requests for project/team exigencies;
- OHR notifies appropriate offices of approved project(s)/team(s);
- Supervisors deny use of use-or-lose annual leave for the employees associated with the approved projects/team(s).

Forward copies of properly executed SF-71s or OPM Form 71s to the OHR by Feb. 8, 2002.

Note: For employees affiliated with an approved project/team, in order for the SF-71 or OPM Form 71 to be considered properly executed, it must contain the following additional information:

- name of the project/team the employee is associated with;
- number of hours actually lost, as well as number of hours scheduled; and
- employee's and supervisor's signatures, dated on or before Nov. 30.

Use-or-lose annual leave may be denied or canceled only if the Office of the Director determines that an exigency of the public business of major importance exists. Exigency requests should be routed through appropriate organizational channels to OHR at Mail Stop 174.

Use-or-lose annual leave that cannot be used by the end of the leave year may be donated to approved leave recipients in the Voluntary Leave Transfer Program (VLTP). This program permits federal employees to donate annual leave to other federal employees who are experiencing personal or family medical emergencies. A list of approved Center recipients is posted daily on @LaRC. Complete LF-199 to donate to recipients at Langley or LF-383 to donate to recipients at other Centers or agencies.

Leave donation forms should be submitted to Langley's Personnel Operations Branch at fax numbers 864-5040 or 864-7899 by Dec. 14.

From The Office Of Equal Opportunity Programs

EEO Offers Pre-Complaint Counseling

By JANET SELLARS
Office of Equal Opportunity Programs

Individuals who believe they have been discriminated against must seek pre-complaint counseling within 45 days of the discriminatory act or event before filing a formal complaint of discrimination.

There are two options available to address concerns in the pre-complaint counseling process: traditional counseling and Alternative Dispute Resolution (ADR) via mediation.

Traditional counseling normally involves the Equal Employment Opportunity (EEO) counselor engaging in interviews with the complainant, responsible officials and other witnesses to the discriminatory act or event. The EEO counselor may also review pertinent records and other data that may shed light on the concerns. The ultimate goal of the EEO counselor is to assist in resolving the informal complaint at the lowest level, if at all possible. The EEO counselor does not work for the complainant or for management; the EEO counselor's role is to maintain the integrity of the process while seeking resolution of the concerns.

Mediation is an informal process in which a neutral third party — the mediator — assists the parties in reaching a voluntary, negotiated resolution of the complaint. Since mediation is voluntary, each party must agree to participate, with the concurrence of the head of Langley's Office of Equal Opportunity Programs (OEOP). Mediation gives the parties the opportunity to discuss the issues raised in the complaint, clear up misunderstandings, find areas of agreement and, ultimately, to incorporate those areas of agreement into a final resolution of the complaint. The mediator focuses the attention of the parties upon their needs and interests rather than on their stated positions.

If traditional counseling or mediation does not result in resolution of the concerns, the complainant has the option of filing a formal complaint of discrimination.

Formal Complaints

All formal complaints are to be filed with the director of the Discrimination Complaints Division at NASA Headquarters. Once a formal complaint is filed, the Discrimination Complaints Division has the responsibility to acknowledge its receipt and determine whether it meets the requirements for acceptance for investigation under the Equal Employment Opportunity Commission (EEOC) regulations at 29 C.F.R. Part 1614. The Discrimination Complaints Division also has the responsibility of delineating the allegations in an Acceptance/Dismissal Letter (ARL) and notifies the Responsible Officials of their rights in the process.

Investigation of Formal Complaints

If a complaint is accepted for investigation, the Discrimination Complaints Division has the responsibility to arrange for the investigation of the complaint and will monitor the case throughout the process. Once the investigation is completed, depending on the issues in the complaint, the Discrimination Complaints Division office may notify the complainant of his or her right to request a hearing before an EEOC administrative judge, or receive a final Agency decision without a hearing from the Associate Administrator for Equal Opportunity Programs.

Hearing Stage

If an EEOC hearing is requested, it is the responsibility of the Discrimination Complaints Division to request an EEOC administrative judge and arrange for a court reporter to transcribe testimony taken at the hearing. The Center's Office of Equal Opportunity Programs makes the logistical arrangements for the hearing. An attorney from the Office of Chief Counsel represents the Agency at the hearing.

Final Agency Decisions

The Discrimination Complaints Division is responsible for preparing final Agency decisions on all formal complaints of discrimination and for notifying responsible officials when a final Agency decision has been rendered. If a finding of discrimination is made in a final Agency decision, NASA Headquarters must maintain oversight of the corrective action, and make determinations regarding attorneys fees and costs, and compensatory damages, as appropriate.

Appeals

Complainants may appeal the final Agency decision rendered on their complaint. The Discrimination Complaints Division has the responsibility to prepare Agency oppositions to all appeals and requests for reconsideration filed with the EEOC.

For more information, visit the OEOP Web site at <http://oeop.larc.nasa.gov/>.

Read the *Researcher News* online at <http://researchernews.larc.nasa.gov>.

MCLT's 'Spice of Life'

It's Easy To Disprove Stereotypes

By MICHAEL D. UENKING
MCLT Subteam Leader

Since none of us can know every individual in every group, we often make categories to simplify our world and slot people into them. Our world then becomes more manageable and more stable. These generalizations sometimes serve a useful purpose; however, more often they serve to limit perceptions about individuals and their capabilities.

What may be even worse, these erroneous negative assumptions often become self-fulfilling prophecies. Like the hypochondriac who had "See, I Told You So" carved on his tombstone, what we think often becomes reality. We look for behavior that validates our preconceptions and disregard what does not fit. We continue to collect evidence to prove our prejudices right and ignore that which shows us otherwise.

If, for example, you think a particular group sticks together and doesn't want to assimilate, you will notice every time employees from this group are together, talking on breaks, eating lunch or exchanging information on the job.

What you won't notice is when they are talking with people of different groups. You will probably operate according to your assumptions, ignoring people from this group, not including or inviting them to join your interactions because you believe they want to be separate. And so it goes, each time you get "proof" that your assumption is accurate, you add another brick in the barrier that separates you from them.

No one group has a corner on the market when it comes to prejudice, and no one is exempt from being the target of these preconceived notions. We hold them, not just about other racial or cultural groups, but about people from other parts of this country, those of the opposite sex, members of other professions and even people with a certain color hair. What are your assumptions about used car salesmen? Lawyers? Politicians? What prejudgments do you think others make about Californians? Bureaucrats? Feminists? Yuppies? What do others think of people in your profession?

If you truly want to overcome your own prejudice and get beyond the stereotypes that limit your thinking, try the following exercise: Check off any of the following assumptions and beliefs you have held or heard about other groups, then identify the group ...

- ❑ are smart and work hard
- ❑ tend to keep to themselves
- ❑ are lazy and unreliable
- ❑ are sneaky and not trustworthy
- ❑ are uneducated and unintelligent
- ❑ are dirty and smell bad
- ❑ are aggressive and pushy
- ❑ talk and think only about money
- ❑ have illegitimate children
- ❑ are miserly and ungenerous

Next, try to refute your judgments by finding examples of individuals who disprove the stereotype. Is it really true, for example, that all managers act a certain way? How many individuals from that group have you seen act according to the stereotype?

If you train yourself to look for these kinds of examples and if you challenge others to do the same, you will have taken a big step in freeing yourself of limiting assumptions and in making the part of the world you touch a better place.

Employees' submissions and ideas are welcomed; send them to Michael D. Uenking at <m.d.uenking@ larc.nasa.gov>.

Odyssey

Continued from Page 1

craft's progress as it approaches Mars and executes the orbit insertion burn."

To enter orbit, Odyssey's propellant tanks, the size of big beach balls, had to be pressurized, plumbing lines heated, and the system primed before 579.4 pounds of propellant was burned in exactly the right direction for just under 20 minutes.

Flight controllers at JPL saw the main engine burn begin a few seconds after 10:26 p.m. EDT on Oct. 23. The spacecraft passed behind the planet 10 minutes later and was out of contact for about 20 minutes. The burn ended at 10:46 p.m., but controllers did not receive confirmation until the spacecraft came out from behind Mars and reestablished contact with Earth at about 11 p.m.

The firing of the main engine braked the spacecraft, slowing and curving its trajectory into an egg-shaped orbit around the planet.

In the weeks and months ahead, the spacecraft will repeatedly brush against the top of the atmosphere in a process called aerobraking to reduce the long, 19-hour elliptical orbit into a shorter, 2-hour circular orbit of approximately about 250 miles altitude desired for the mission's science data collection.

NASA's latest explorer carries several scientific instruments to map the chemical and mineralogical makeup of Mars: a gamma ray spectrometer that includes a neutron spectrometer and a high-energy neutron detector; a thermal-emission imaging system; and a Martian radiation environment experiment.

The 2001 Mars Odyssey Arrival press kit is available online at <http://www.jpl.nasa.gov/news/press_ kits/odysseyarrival.pdf>.

What Is Langley's Role In The Mission?

Langley Research Center will support the Jet Propulsion Laboratory during the 70-day aerobraking phase of the Mars Odyssey mission. Langley's job will be to perform aerobraking flight simulations to help define the rate at which the vehicle goes from the initial elliptical orbit to the two-hour circular science orbit; to predict what the atmospheric density will be for each pass; to monitor the aerodynamics of the spacecraft as it passes through the thin atmosphere of Mars; and to predict how hot the spacecraft gets as it dips into the atmosphere.

By Ivelisse Gilman, Public Affairs Office

Goldin

Continued from Page 1

ership in world markets to raise the standard of living for all Americans, and focuses on strengthening domestic innovation, upgrading the workforce, and benchmarking national economic performance.

In a speech to NASA employees broadcast nationwide on NASA Television, Goldin thanked the Agency workforce and applauded their dedication.

"We have been through a lot together these past 10 years," Goldin said. "Our Agency's greatest strength is this team of highly qualified and diverse people. Each and every day, you have demonstrated an unyielding devotion to teamwork, communication, creativity and respect. You are clearly committed to excellence. I am proud to have been a part of that commitment and NASA's continuing mission to expand the frontiers of flight, space and knowledge."

During his tenure, Goldin initiated a revolution to transform America's aeronautics and space program.

Despite lower budgets, his "faster, better, cheaper" approach enabled NASA to deliver programs of high value without sacrificing safety.

"Being appointed NASA Administrator was the fulfillment of a childhood dream. This is the greatest job in the world, and it is difficult to leave a job you love," Goldin concluded. "But NASA's mission of discovery will continue. Humanity will continue to benefit from the fruits of this journey and I am proud and deeply humbled by the opportunity that was given me. The people of NASA have my unconditional respect and eternal gratitude."

Before coming to NASA, Goldin was vice president and general manager of the TRW Space and Technology Group in Redondo Beach, Calif. During a 25-year career at TRW, he led projects for America's defense and conceptualized and managed production of advanced communication spacecraft, space technologies and scientific instruments.

Goldin began his career in 1962 at NASA's Lewis Research Center in Cleveland, now known as the Glenn Research Center. While there he worked on electric propulsion systems for human interplanetary travel.

Additional images and information about Goldin and his accomplishments are available on the Internet at <http://www.nasa.gov/bios/goldin_gallery.html>.

Rothenberg Also Announces Retirement

Joseph H. Rothenberg, Associate Administrator for Space Flight at NASA Headquarters, announced his plans to retire from the Agency, effective December 15. No successor has been selected.

Rothenberg, who joined NASA in 1983, was named Associate Administrator in January 1998 and is in charge of NASA's human exploration and development of space. Before coming to NASA Headquarters, he served as Director of Goddard Space Flight Center, beginning in 1995.

AdVentures

CLASSIFIED

FOR SALE: Small burgundy and green sofa and green wingback chair, excellent condition, $200. Cream, blue and rose wingback chair, like new, $80. Call 766-0698 after 5 p.m.

FOR SALE: Three-piece gym set, good condition, used less than six months, $75. Call 825-1787.

FOR SALE: Case Logic CD tower, holds 80 CDs, made out of black plastic, $15. Call 623-4262.

❖ ❖ ❖

The next edition of the *Researcher News* will be published on **Nov. 16**. Please send submissions to <j.r.roberts@larc.nasa.gov> by Nov. 5.

AIAA Oyster Roast On Nov. 6

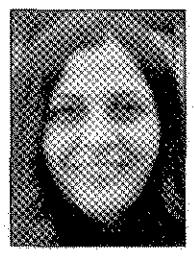
The Hampton Roads Section of the American Institute of Aeronautics and Astronautics (AIAA) will host its annual Oyster Roast at 3 p.m. **Nov. 6** at Sandy Bottom Nature Park in Hampton.

The cost is $5 for members and $7 for non-members. (Non-members who join the AIAA at the roast will be admitted free with one guest.) The menu will include all-you-can-eat oysters, crabs and fried chicken.

To make reservations, contact Mamad Takallu at 864-7671 or <m.a.takallu@larc.nasa.gov> or Robert Kudlinski at 864-6716, 864-7159 or <r.a.kudlinski@larc.nasa.gov>.

Colloquium Lecture On Nov. 6

Nancy Leveson will present a Colloquium lecture entitled, "The Limits of Automation: How Far Should we Trust Software?" at 2 p.m. **Nov. 6** in Langley Research Center's H.J.E. Reid Conference Center. A Sigma Series lecture will follow at 7:30 p.m. at the Virginia Air and Space Center in Hampton.



Leveson

For more information about the lecture series, visit <http://shemesh. larc.nasa.gov/Lectures/> on the Web.

Brown Bag Lectures Continue

The next two lectures in the Langley Research Center Atmospheric Sciences Competency's Brown Bag Lunch Series are: **Nov. 8**, Bruce Barkstrom on "Atmospheric Sciences Data Center"; and **Nov. 15**, Steve Sandford on "Earth and Space Sciences Program Office." The lectures will take place from 11:30 a.m. to 12:30 p.m. in the Pearl Young Theater.

CFC Extended

Langley Research Center's 2001 Combined Federal Campaign (CFC) has been extended through Nov 9.

To make an electronic pledge, visit the CFC Web page at <http://cfc.larc.nasa.gov/>.

AIAA Offering Graduate Awards

The American Institute of Aeronautics and Astronautics (AIAA) Foundation is accepting applications for the first-ever Orville and Wilbur Wright Graduate Awards.

The $10,000 awards will be presented annually, beginning in 2002, to four students participating in master's or doctoral thesis research in engineering or science.

The deadline to apply is **Jan. 31, 2002**. For an application or more information, visit <http://www.flight100.org/activities/awards.html> on the Internet.

TCPO Looking For Article Ideas

Langley Research Center's Technology Commercialization Program Office (TCPO) is soliciting article ideas and submissions for NASA's Tech Briefs Magazine.

Tech Briefs can be accessed on the Internet at <http://www.nasatech.com/>.

For more information, contact Sherry Sullivan at 864-2556 or <s.l.sullivan@larc.nasa.gov>.

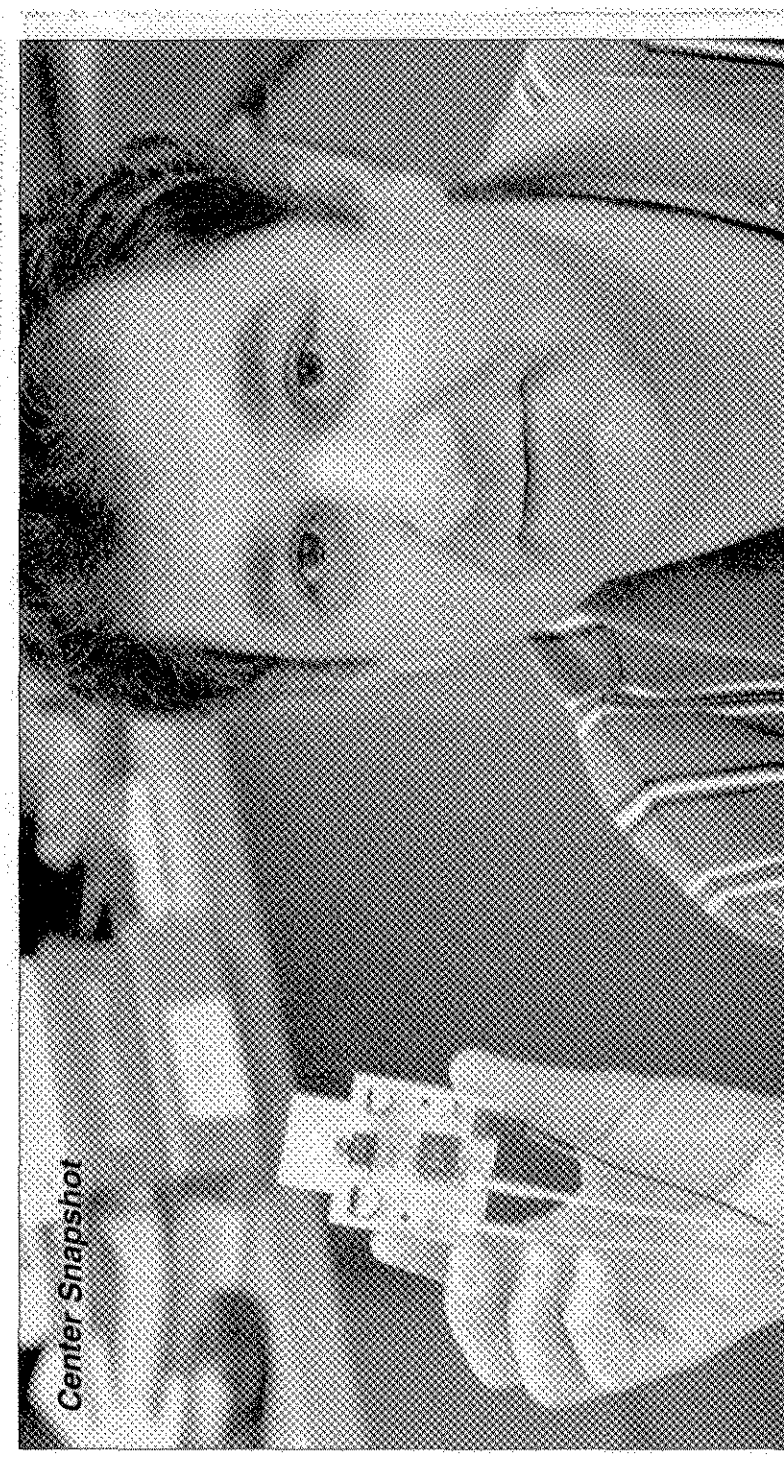
VASC Recruiting Museum Educators

The Virginia Air and Space Center is recruiting part-time museum educators.

Museum educators develop and deliver educational programs to school groups, educators and the general public. Teaching experience is required; certification and experience in science and math is preferred. Applicants must be available to teach weekday mornings, evenings and some weekend hours.

Applicants should submit letters, resumes and three references to the Virginia Air and Space Center, 600 Settlers Landing Road, Hampton, VA 23669.

The Center provides equal opportunity to all candidates for employment, regardless of race, national origin, ethnicity, religion, gender, marital status, parental status, veteran status and disability.



Paul Robinson, an electrical engineer working for Science Applications International Corporation (SAIC) on contract at Langley Research Center, holds up the miniature piezo actuator amplifier he developed. (The amplifier, which is rated for 450 volts peak to peak, still has to be reduced in size by a fourth.) Robinson was born in Arlington and now lives in Portsmouth. Outside of work, he enjoys model rocketry and computers. He is also working on inventing a better autonomous lawn mower. What does he like about working at Langley? "The people and the diversity of the projects," he says.

Photo by Jeff Caplan

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Researcher News

National Aeronautics and Space Administration
Langley Research Center

News Researcher

Biweekly Employee and Contractor Publication

Volume 15 ❖ Issue 23 ❖ Nov. 16, 2001

'The Wright Stuff'

1901 Glider Being Tested In Langley Tunnel

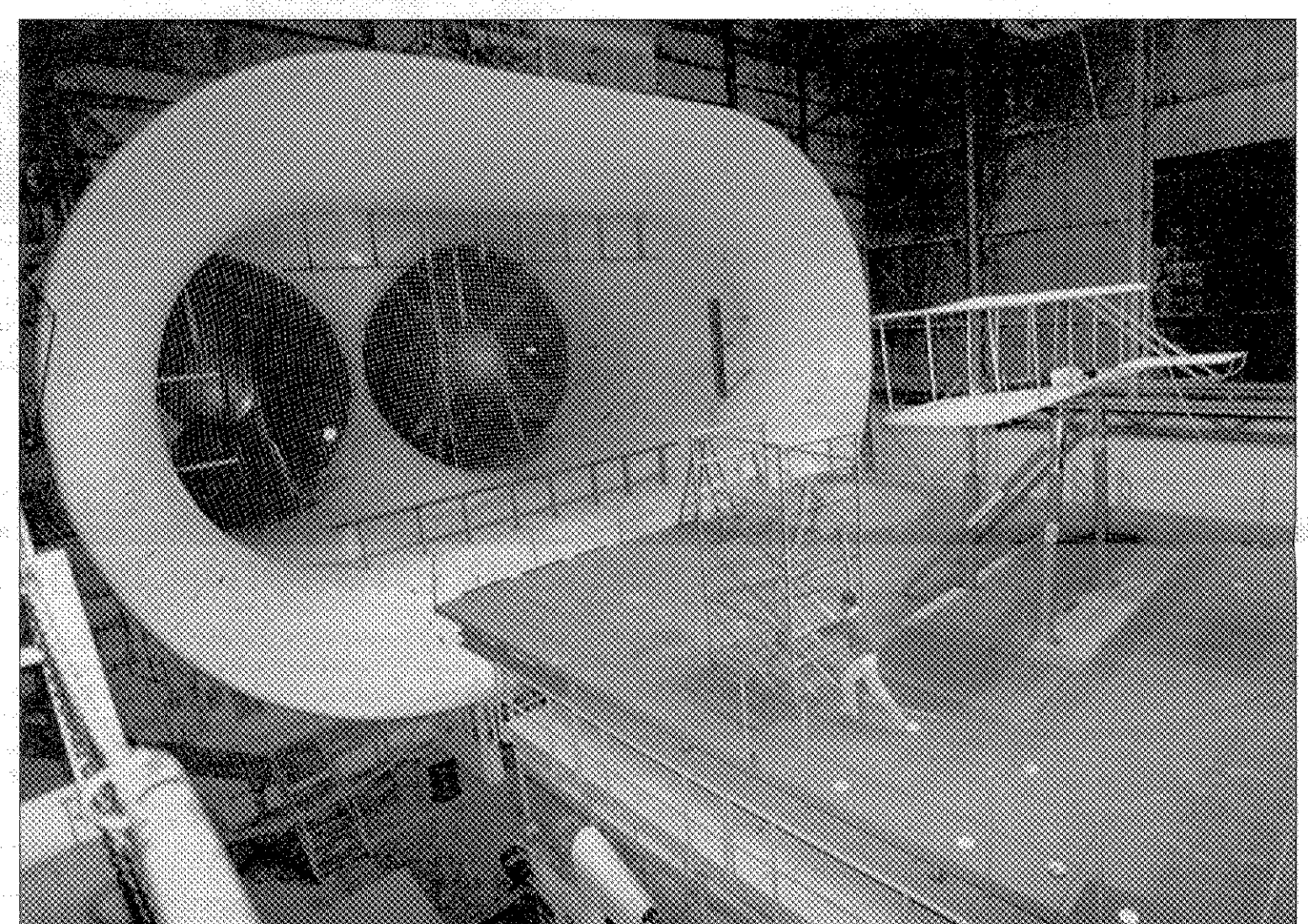
By KATHY BARNSTORFF
Public Affairs Office

Before they could learn to fly, the Wright brothers had to learn to glide. A life-size reproduction of one of the aviation pioneers' early gliders is undergoing wind tunnel tests in the Langley Full Scale Tunnel, owned by Langley Research Center and operated by Old Dominion University (ODU).

During the experiment, which is being underwritten by Langley, engineers will take a number of different measurements to determine how the Wright 1901 glider performed. The 22-foot wingspan aircraft was the second glider designed by Orville and Wilbur Wright as they worked to create the first human-powered flying machine.

"It's fitting that we invest in wind tunnel tests to document the Wrights' discoveries," said Mike Finneran, head of Langley's Office of External Affairs. "Orville Wright was on the advisory committee that established NASA's Langley Research Center in 1917, just 14 years after that first historic flight at Kitty Hawk. ... Wright

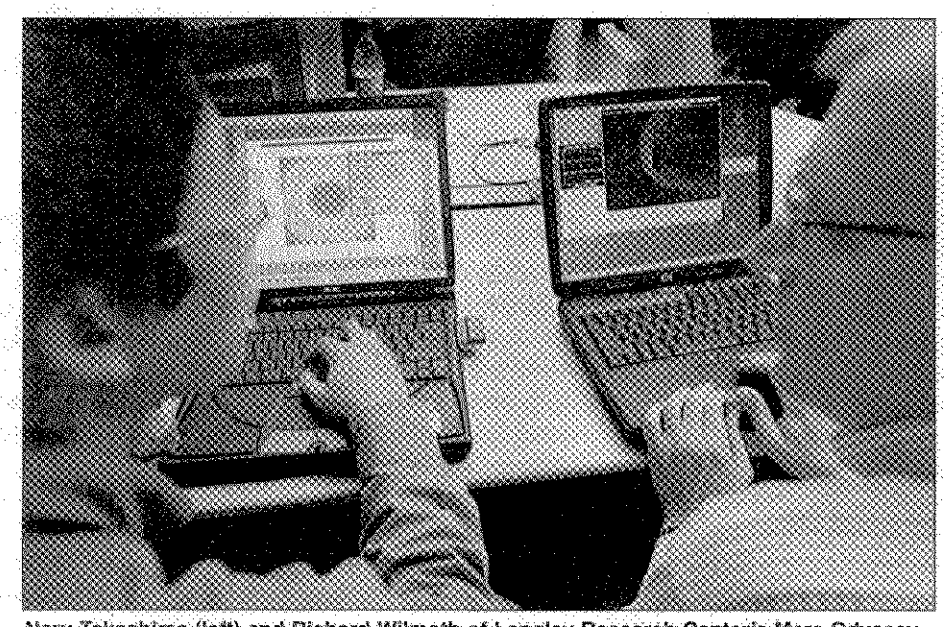
Continued on Page 3



A life-size reproduction of one of the Wright Brothers' early gliders is undergoing wind tunnel tests at the Langley Full Scale Tunnel, owned by Langley Research Center and operated by Old Dominion University.

Photo by Jeff Caplan

Odyssey Aerobraking Continues



Naru Takashima (left) and Richard Wilmoth of Langley Research Center's Mars Odyssey Aerodynamics Team compare simulation data to real data to make sure the Mars Odyssey spacecraft is turned in the proper direction.

Photo by Jeff Caplan

Critical Phase Will Finish In January

By IVELISSE GILMAN
Public Affairs Office

On Oct. 23, the 2001 Mars Odyssey spacecraft fired its main engines and successfully put itself into orbit around the Red Planet. Three days later, an 18-person team at Langley Research Center began the next critical phase in the mission: aerobraking.

Langley's role is to reduce Odyssey's long, elliptical orbit into a shorter, two-hour circular orbit at an altitude of approximately 250 miles. The process, known as aerobraking, will place the spacecraft in the proper orbit for its scientific observations.

Langley is supporting NASA's Jet Propulsion Laboratory by monitoring the aerodynamics and the heating of the spacecraft as it passes through the thin atmosphere of Mars. One of Langley's jobs is to figure out how deep the orbiter should go on each pass. If the passes are too deep, the solar panels could overheat and be damaged; if the passes are too shallow, the mission could end up in a useless orbit.

"These are very challenging and exciting missions," said Dick Powell, who leads the team of Langley and George Washington University researchers. "There are many uncertainties about Mars. The atmosphere is primarily carbon dioxide as opposed to Earth's atmosphere that is primarily

Continued on Page 4

News Briefs

Around the Agency

NASA GENERAL COUNSEL TO RETIRE

Edward A. Frankle, NASA's General Counsel for the past 13 years, has announced plans to retire, effective Dec. 28. No successor has been selected.

Frankle, who was appointed to the position as the Agency's chief legal officer in July 1988, said it is time to leave the federal government and enter the private sector.

Additional information about the Office of General Counsel is available on the Internet at: <http://www.hq.nasa.gov/ogc/>. RELEASE: 01-215

GOLDIN RECEIVES LEGION OF HONOR AWARD

NASA Administrator Daniel S. Goldin recently was awarded one of France's highest and most distinguished honors, the "Officer of the Legion of Honor."

Goldin was recognized for his contributions to the development and broadening of American-French civil space cooperation. The Administrator was presented with the award by the Ambassador of France, His Excellency Francois Bujon de l'Estang, at a ceremony at the French Ambassador's residence in Washington, D.C.

"It is a rare and distinct privilege to be included among the many illustrious individuals throughout history who have been granted this prestigious award, and I am very honored," Goldin said.

Images from the award ceremony are available on the Internet at <http://www.nasa.gov/releases/2001/01-202.html>. RELEASE: 01-202

NASA HELPS CAROLINA MAP FLOOD ZONES

NASA scientists have teamed up with researchers in North Carolina in an effort to get relief for the people who find themselves under siege each year by floodwaters spawned by strong Atlantic hurricanes.

The storms bring high winds, storm surges and heavy rains, and the resulting floods force massive evacuations, threatening the lives of thousands of residents.

Using instruments on satellites and airplanes, NASA provides data used to create highly accurate maps of suspected flood zones that can help the state's emergency management services better prepare for future storms. RELEASE: 01-209

NASA SURGICAL PROBE TO BEGIN CLINICAL TESTS

A revolutionary early breast cancer-detection tool based on NASA technology has begun human clinical trials after receiving the go-ahead from the Food and Drug Administration.

California-based BioLuminate Inc., the start-up company licensed by NASA to develop, produce and market the "Smart Surgical Probe," is set to begin human testing on volunteer patients at the University of California Medical Center in Davis and at the University of California, San Francisco. The Smart Surgical Probe originally was developed by Robert Mah at NASA's Ames Research Center. RELEASE: 01-207

News Researcher

The Researcher News is an official publication of Langley Research Center, National Aeronautics and Space Administration, Hampton, Va., 23681-2199. It is published every other Friday in the interest of all Langley staff, contractors and retirees and has a circulation of approximately 8,100. It is distributed to all Langley civil service employees, contractors, retirees and on-site university personnel, with limited distribution to NASA Headquarters, other NASA centers and, by special request, to other non-NASA individuals and organizations. Questions related to the content and distribution of the Researcher News should be addressed to Keith Henry, Mail Stop 115, (757) 864-6120. Submit contributions/SDL 026, 055, 110 changes to the editor via e-mail <j.r.roberts@larc.nasa.gov>, fax (757) 864-6477, telephone (757) 864-8150 or Mail Stop 293. Articles, photos and announcements are due at noon the Monday following the date of this issue.

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Science and Technology Corp.

Assistant Editor ..... Meghan Woodcock
Planners Collaborative/
Science and Technology Corp.

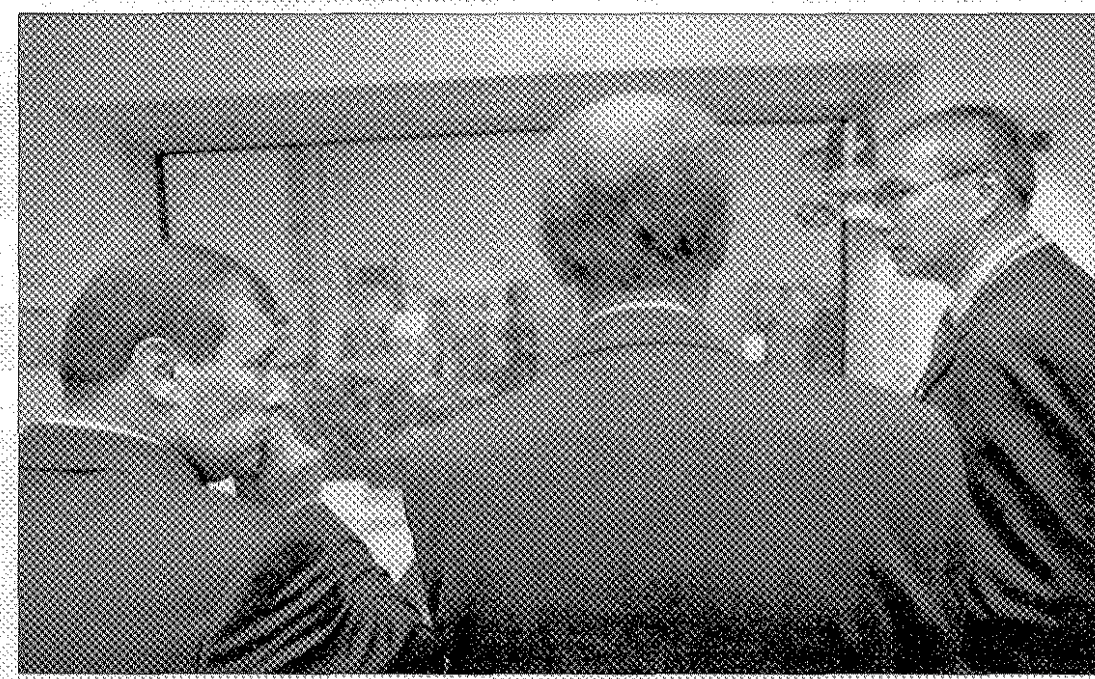
Photographer ..... Jeff Caplan
Planners Collaborative/
Science and Technology Corp.

The privilege of listing announcements in this publication is restricted to the employees, contractors and retirees of the Langley Research Center. Articles must be offered without regard to race, color, religion, sex or national origin. All materials are subject to editing.

Read the *Researcher News* online at <http://researchernews.larc.nasa.gov>.

People

Sage III Readiness Review



Leonid Alexeevich Makridenko (left) tours Langley Research Center's Atmospheric Sciences Competency on Nov. 7 with Grigori Osipov (center) and Bill Chu (right). Makridenko, the head of the Russian Aviation and Space Agency's (RASA) Space Systems for Remote Sensing, was on-Center for the Stratospheric Aerosol and Gas Experiment (SAGE) III mission readiness review. SAGE III, which will be launched in December on a Russian spacecraft from the Baikonur Cosmodrome in Kazahkstan, is expected to make precise measurements of the ozone, aerosols, water vapors and other gases so researchers can better understand how and why the climate is changing. SAGE III is a joint partnership between NASA and RASA.

Photo by Jeff Caplan

NASA Bans Use Of Cell Phones In Government-Owned Vehicles

NASA recently issued a policy which prohibits the use of cellular phones by NASA employees while driving motor vehicles owned, leased or rented by the federal government.

The notice — known as OIG Rapid Action Notice "Use of Cellular Phones in Government Vehicles" (G-01-031, Oct. 26, 2001) — can be found on the NASA Office of Inspector General (OIG) Web site at <http://www.hq.nasa.gov/office/oig/hq/inspections/g-01-031.pdf>.

Responding to the national trend to promote safer motor vehicle driving practices, NASA's OIG initiated an inspection to review NASA's policy regarding employee use of wireless cell phones while operating government vehicles. The inspection determined that neither NASA nor the General Services Administration (GSA) had developed any such guidance for employee reference.

To comment on G-01-031, send e-mail to <igrelease@hq.nasa.gov>.

Fellowship Deadline Is Feb. 28

Langley Research Center's Employee and Organizational Development Branch is soliciting applications for the 25th annual Floyd L. Thompson Fellowship Program.

The program was established in 1977 to enhance employees' research capabilities and to infuse the Center with new ideas from other centers of excellence. Applicants may propose an area of research to be pursued at Langley or other research or educational institutions. The research effort may last one to two years, of which no more than one year may be spent in a sabbatical away from Langley. One or two fellows will be selected and will be supported by salary, travel and per diem, and other general research expenses.

Interested individuals are encouraged to explore the possibilities of a research assignment with an appropriate institution and to seek the support of their management for their candidacy.

The application deadline is Feb. 28, 2002.

For more information, contact George D. Allison at 864-2594 or <g.d.allison@larc.nasa.gov> or visit <http://ohr-r.larc.nasa.gov/do.fltfpin.html>. Candidates also are encouraged to contact past recipients to obtain firsthand information.

In Memoriam

Russell C. Gentry Jr.

Russell C. Gentry Jr. died on Oct. 27 at the age of 76. Gentry was a graduate of the Newport News Shipbuilding and Drydock Apprentice School. He retired as a construction contract representative after 38 years of service at Langley Research Center.

John Ellis Hogge

John Ellis Hogge died on Nov. 1 at the age of 65. Hogge served with NASA for 34 years, retiring in 1995 as branch head of Langley Research Center's Flight Software and Graphic Division. He also taught math for more than 25 years at Thomas Nelson Community College and Christopher Newport University.

Ray Midden

Ray Midden died on Oct. 7 at the age of 65. Midden began his NASA career in 1959 in Langley Research Center's Applied Materials and Physics Division, developing ceramic-heated jets for testing re-entry materials. He retired in 1992 as the facility engineer for the Hypersonic Facilities Complex.

Throughout his career, Midden worked at the leading edge of the development and application of hypersonic facilities, including high-energy arc-jets and conventional wind tunnels, several unique in the world, for simulation of flight conditions.

TV Series In The Spotlight

'CONNECT' Announces New Partnership With Riverdeep

By KIMBERLY W. LAND
Planners Collaborative, Inc.

Riverdeep Interactive Learning, a leading developer of school-age interactive learning solutions, has announced that Langley Research Center's Center for Distance Learning will begin incorporating Destination Math, Riverdeep's award-winning math product, into "NASA CONNECT," its Emmy-award-winning, integrated math, science and technology instructional distance learning program.

"NASA CONNECT" is an annual series of 30-minute, math-focused instructional programs for grades 6 through 8. Each program includes a television broadcast, lesson guide and interactive Web activity. The lesson guide — which describes a hands-on activity and a Web activity — is provided with each "NASA CONNECT" program.

"When we were choosing which math software to incorporate, Riverdeep's Destination Math stood out as the most effective among all the options," said Bob Starr, senior instructional designer at NASA's Center for Distance Learning. "We believe the Destination Math product line is best suited and most complementary to the concepts we focus on in 'NASA CONNECT.'"

Riverdeep's Destination Math series, with coursework for grades K through 12, is built around a carefully sequenced, comprehensive curriculum. Using guided tutorials, hands-on interactivity, practice workouts and step-by-step problem solving strategies, students apply their knowledge and build their thinking skills. Lessons are correlated to state and national standards as well as major textbooks.

"We are extremely pleased to be teaming up with NASA to continue our mission of delivering the best educational tools on the market to teachers, parents and students," said Robert Antonucci, Riverdeep's executive vice president for academic services. "We have a great respect for 'NASA CONNECT' and look forward to being able to contribute our Destination Math learning tools to the program."

The partnership between NASA's Center for Distance Learning and Riverdeep also will provide students with Internet-based lessons via NASA's Learning Technology Channel to enhance the math skills highlighted in the "NASA CONNECT" programs. Students will be able to link to Destination Math's online tools through the "NASA CONNECT" Web site to access additional interactive learning activities designed to guide them through the information from the show.

"NASA CONNECT" provides educators with an opportunity to integrate technology into the classroom setting. Its three components — television broadcast, Web activity and lesson guide — are designed as an integrated instructional package. Endorsed by the National Council of Teachers of Mathematics, "NASA CONNECT" supports the national mathematics, science and technology standards.

About Riverdeep Group

Riverdeep Group is the largest publisher of K through 12 interactive learning products in the world. The company's Internet and CD-ROM products feature highly motivating and interactive problem-solving approaches and real-world applications that contribute to a student's depth of conceptual understanding.

Riverdeep's science, math and language arts learning activities are correlated to state and national curriculum standards. The award-winning products — including Destination Math, Science Explorer, Science Gateways and Tangible Math — are accessible at <www.Riverdeep.net> and are available on CD-ROM for all major operating platforms.

Riverdeep was founded in 1995 and is jointly headquartered in Dublin, Ireland, and Cambridge, Mass. For more information, write to Riverdeep Interactive Learning, 125 Cambridge Park Drive, Cambridge, MA, 02140; call 1-800-564-2587; visit <www.riverdeep.net>; or send an e-mail to <info@riverdeep.net>.

To learn more about "NASA CONNECT" and to see what's scheduled for the new season, visit <http://edu.larc.nasa.gov/connect>.

Michael Cianfrocca and Ellie McCormack of Riverdeep Interactive Learning also contributed to this story.

'Why? Files' Earns First Emmy

By KIMBERLY W. LAND
Planners Collaborative, Inc.

"The NASA 'Why?' Files" series received its first Emmy Award on Nov. 2 from the Philadelphia Regional Chapter of the National Academy of the Television Arts and Sciences. The series, which is produced by Langley Research Center's Office of Education, was named "Best Children's Series."

The Emmy was based on the four programs produced during the show's inaugural season: "The Case of the Unknown Stink," "The Case of the Barking Dogs," "The Case of the Electrical Mystery" and "The Case of the Challenging Flight."

"With a great cast of kids, great content and great support from the Langley researchers, we knew we had the right combination to make this a winning series," said Lauren Yee, the show's senior producer. "Recognition also goes to the local teachers who helped to develop the content and the story line for each program."

"The NASA 'Why?' Files" introduces students in grades 3 through 5 to NASA via the "tree-house detectives," six ethnically diverse, inquisitive schoolchildren who investigate and solve a variety of everyday problems. Each program includes hands-on classroom and home activities, virtual field trips, research experts and Dr. "D," the tree-house detectives' next-door neighbor and mentor.

Other recent honors for the series include the Awards for Publication Excellence, the International Film Festival Award and the Golden Web awards for "The NASA 'Why?' Files" Web site.

"The NASA 'Why?' Files" has reached more than 3.7 million students worldwide and about 167,000 registered educators and parents. "The NASA 'Why?' Files" can be seen on PBS-member stations across the United States and NASA TV, down-linked via Ku- and C-band satellite, and accessed via the Internet at <http://whyfiles.larc.nasa.gov>.

Wright

Continued from Page 1

also visited Langley a number of times. Our first engineers built on the Wright brothers' successes and helped advance aeronautics into a modern science."

The wind tunnel tests are part of ongoing research being done by ODU and the Warrenton-based The Wright Experience. The Wright Experience has been contracted by the not-for-profit Discovery of Flight Foundation, also in Warrenton, to uncover and document how the Wright brothers, neither of whom finished high school, managed to conquer the principles of flight in five short years. None of the Wrights' first prototype aircraft were saved, nor were their early construction documents and drawings.

To try to retrace the brothers' groundbreaking steps to flight, Wright Experience founder Ken Hyde and his team are researching, reconstructing, testing, analyzing and documenting authentic full-scale reproductions of many of the Wright brothers' aircraft and engines.

> *"Rediscovering the secrets of the Wright brothers to inspire a new generation is what motivates The Wright Experience. Our journey will continue through Dec. 17, 2003, with the flight of a reproduction of the 1903 Wright flyer at Kitty Hawk."*
>
> **Ken Hyde**

"Rediscovering the secrets of the Wright brothers to inspire a new generation is what motivates The Wright Experience," Hyde said. "Our journey will continue through Dec. 17, 2003, with the flight of a reproduction of the 1903 Wright flyer at Kitty Hawk. Our ultimate goal is to build and test all of the Wrights' aircraft. It is the Wright Experience's mission to keep the Wright brothers' dream alive."

The 1901 glider was an important step in the Wright's development of the Flyer, not because it was successful, but because it wasn't.

"The 1901 glider was extremely difficult to control, and it didn't demonstrate flight-handling characteristics that were consistent with theories used by the Wright brothers," said Professor Robert Ash, Wright test program manager for ODU. "So Wilbur and Orville decided they needed a different approach. They built a small-scale wind tunnel to evaluate nearly 200 airfoil and wing models. They started the world's first successful wind tunnel-based aircraft design program, a precursor to the systems engineering approach used by the aviation industry today."

The Wright Experience and ODU have already built and tested a number of reproductions of Wright propellers in their quest to "reverse engineer" the 1903 Wright Flyer and other early Wright aircraft. The reproduction of the Flyer is under construction at the Wright Experience workshop.

For more information on the Wright Experience visit <http://www.wrightexperience.com> on the Internet.

For more information on the Langley Full Scale Tunnel, visit <http://www.lfst.com>.

Jennifer Mullen of Old Dominion University also contributed to this story.

AdVentures

CLASSIFIED

FOR SALE: Brick rancher on 1/2 acre in Oakmoore subdivision of Poquoson. 1850 square feet, 3 BR, 2 BA, living room with fireplace, dining room, den, eat in kitchen with GE appliances, utility room with Kenmore washer and dryer, deck, garage. Asking $176,000. Call 868-4078.

FOR RENT: Studio apartment on Chesapeake Avenue in Hampton. Apartment sits above detached garage and features views of the Hampton Roads harbor. $355 per month includes heat, A/C, electricity and water. Security deposit required. Call 245-4854.

FOR SALE: Blue sofa with mauve and light blue accents, excellent condition, $130; beveled glass kitchen table with four blue chairs, $80. Call 868-4078.

FOR SALE: Case Logic CD tower, holds 80 CDs, made out of black plastic, $15. Call 623-4262.

CARPOOL: Seeking carpool or ride share from Williamsburg area. Call 253-9414.

Brown Bag Series Comes To An End

One lecture remains in the Langley Research Center Atmospheric Sciences Competency's Brown Bag Lunch Series: **Nov. 15**, Steve Sandford on "Earth and Space Sciences Program Office." The lecture will take place from 11:30 a.m. to 12:30 p.m. in the Pearl Young Theater.

VASC Hosting 'Women & Flight Day'

The Virginia Air and Space Center (VASC) will host "Women & Flight Day" from 11 a.m. to 2 p.m. **Nov. 17**. Special guests will include Marty Goppert and Evie Washington — who are featured in the "Women & Flight" exhibit — and Ann Tunner, a local pioneer of women's aviation.

VASC is the official visitor center of Langley Research Center. For more information, call 727-0900.

National Technical Association To Meet

The Hampton Roads Chapter of the National Technical Association will hold its first general meeting from 6:30 to 7:30 p.m. **Nov. 19** at the main branch of the Hampton Library (4207 Victoria Blvd.). The meeting will include discussion of events for 2002 and a presentation by William Edmondson about the IEEE.

For more information, contact Wayne Boston at <m.w.boston@larc.nasa.gov>.

AIAA Offering Graduate Awards

The American Institute of Aeronautics and Astronautics (AIAA) Foundation is accepting applications for the first-ever Orville and Wilbur Wright Graduate Awards.

The $10,000 awards will be presented annually, beginning in 2002, to four students participating in master's or doctoral thesis research in engineering or science.

The deadline to apply is **Jan. 31, 2002**. For an application or more information, visit <http://www.flight100.org/activities/awards.html> on the Internet.

TCPO Looking For Article Ideas

Langley Research Center's Technology Commercialization Program Office (TCPO) is soliciting article ideas and submissions for NASA's Tech Briefs Magazine.

Tech Briefs can be accessed on the Internet at <http://www.nasatech.com/>.

For more information, contact Sherry Sullivan at 864-2556 or <s.l.sullivan@larc.nasa.gov>.

VASC Recruiting Museum Educators

The Virginia Air and Space Center (VASC) is recruiting part-time museum educators.

Museum educators develop and deliver educational programs to school groups, educators and the general public. Teaching experience is required; certification and experience in science and math is preferred. Applicants must be available to teach weekday mornings, evenings and some weekend hours.

Applicants should submit letters, resumes and three references to the Virginia Air and Space Center, 600 Settlers Landing Road, Hampton, VA 23669.

The Center provides equal opportunity to all candidates for employment, regardless of race, national origin, ethnicity, religion, gender, marital status, parental status, veteran status and disability.

❖ ❖ ❖

The next edition of the Researcher News *will be published on* ***Nov. 30****. Please send submissions to <j.r.roberts@larc.nasa.gov> by* ***Nov. 19****.*

Mars

Continued from Page 1

nitrogen. So we have to figure out a way to modify all our computational tools to apply to these vehicles.

"Also," Powell said, "there is no infrastructure, no global positioning satellites, no meteorological satellites, so we have to allow a great deal of margin in these spacecraft to handle the unknown."

The team expects to finish by January of 2002.

Mars Odyssey is designed to detect water and shallow buried ice. The orbiter will also collect data on the radiation environment to help assess potential risks to any future human missions.

The spacecraft's first image, taken as part of the calibration process for the instrument, is a thermal infrared image of the Martian southern hemisphere that captures the polar carbon dioxide ice cap at a temperature of about minus 120 C.

The image is available on the Internet at: <http://photojournal.jpl.nasa.gov/cgi-bin/GenCatalogPage.pl?PIA03459>.

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Researcher News

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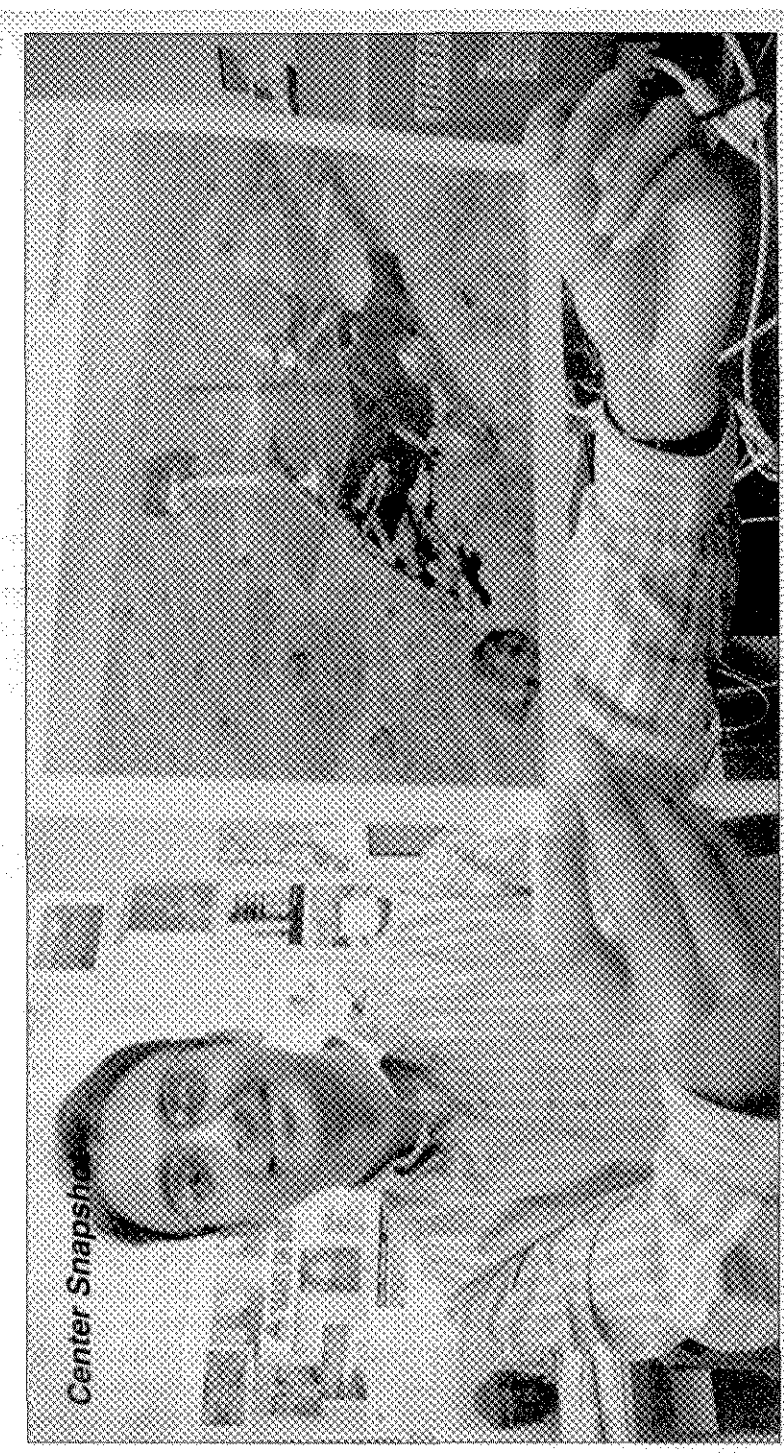
Center Snapshot



Prasun Desai, an aerospace engineer in Langley Research Center's Vehicle Analysis Branch, is leading Langley's role on the 2003 Mars Exploration Rover mission. Langley is performing analyses in the areas of flight dynamics, aerodynamics and parachutes for the mission. Desai, a New Jersey native, graduated from Rutgers University and George Washington University's Joint Institute for Applied Flight Sciences and has worked at Langley for 11 years. He is currently working on a doctorate in aerospace engineering through the University of Illinois. He lives in Hampton and enjoys the outdoors and "landing things on Mars." What does he like about working at Langley? "It's more fun than anyone should be allowed to have at work," he says.

Photo by Jeff Caplan

National Aeronautics and Space Administration
Langley Research Center

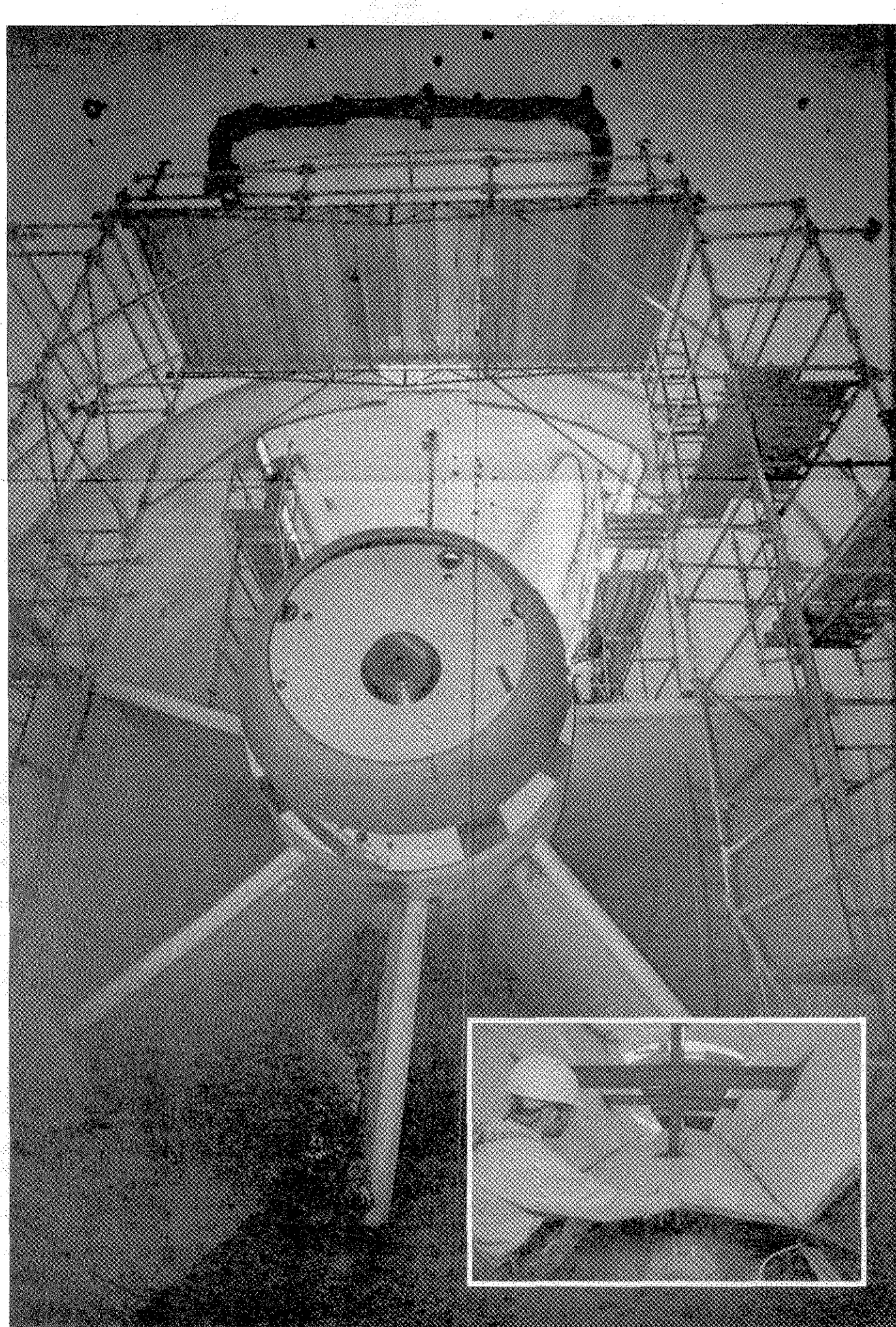
News Researcher

Biweekly Employee and Contractor Publication

Volume 15 ❖ Issue 24 ❖ Nov. 30, 2001

14-By-22 Motor Updated

Subsonic Tunnel Is Expected To Re-Open In December



Contractors from Riggins Company in Hampton reinstall the roof and motor nacelle of Langley Research Center's 14- By 22-Foot Subsonic Wind Tunnel on Nov. 7 after replacing the tunnel's 30-year-old drive system. The new system, which was built by ALSTOM in France, weighs 82 tons and is designed to power nine wooden fan blades weighing 2,000 pounds each. The controller for the new motor uses the same technology used on today's luxury cruise ships. After extensive testing, the tunnel is expected to be back in operation in December.

Photos by Jeff Caplan

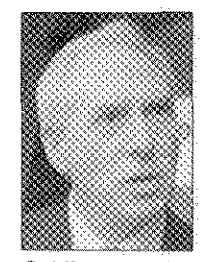
Likely Goldin Successor Named

President George W. Bush announced on Nov. 14 that he intends to nominate Sean O'Keefe to be NASA's next Administrator, succeeding Daniel S. Goldin, who resigned on Nov. 17.

O'Keefe, who currently serves as the deputy director of the Office of Management and Budget, previously served as the Louis A. Bantle Professor of Business and Government Policy at the Syracuse University Maxwell School of Citizenship and Public Affairs. In the early 1990s, he served as the Secretary of the Navy.

Before resigning, Goldin issued the following statement:

"I would like to offer my congratulations to Sean as he begins the nomination process to become NASA's next Administrator. I look forward to assisting in the transition of my leadership of America's space program to Sean.



Goldin

"Nearly 10 years ago, I accepted a job that was the fulfillment of a lifelong dream. I'm sure that Sean must feel the same excitement and anticipation I first felt when I was nominated as Administrator.

"I feel blessed to have had the unique opportunity to serve the people of this nation in an area so tied to the hopes and dreams of all Americans. I hope that Sean will feel equally blessed when he assumes his new job. The President has nominated a man of intelligence, energy and deep integrity. I wish Sean well.

"The President intends to nominate Sean to what I feel is the best job in the world, leading a team made up of the best people I've had the privilege to know.

There is no more dedicated group of people serving any agency in the federal government. I am sure NASA's creative and diverse workforce will give Sean the same outstanding support it's given me these many years."

News Briefs

Around the Agency

DEC. 7 MISSION WILL STUDY GATEWAY TO SPACE

A NASA mission will soon reveal the well-kept secrets of a mysterious region situated 40 to 110 miles above the Earth called the Mesosphere and Lower Thermosphere/Ionosphere (MLTI), where electrical currents surge and auroras cast an eerie glow over the Northern and Southern hemispheres.

The Thermosphere, Ionosphere, Mesosphere, Energetics and Dynamics (TIMED) mission will uncover the mysteries of this region by producing the very first set of comprehensive, global measurements of the MLTI.

TIMED is scheduled to launch Dec. 7 aboard a Delta II rocket from the Western Range of Vandenberg Air Force Base, Calif., during a launch window that extends from 9:58 a.m. to 10:18 a.m. EST.

Detailed information about the TIMED mission and other Solar Terrestrial Probe missions is available on the Internet at <http://stp.gsfc.nasa.gov/missions/timed/timed.htm>. RELEASE: 01-226

OCEAN-OBSERVING SATELLITE SET TO SOAR

The Dec. 7 launch of Jason 1, NASA's newest oceanography satellite, will continue the mission started by Topex/Poseidon to monitor global climate interactions between the sea and the atmosphere.

Jason 1 will monitor world ocean circulation, study interactions of the oceans and atmosphere, improve climate predictions and observe events like El Nino. Jason 1 is a joint U.S./French oceanography mission.

"Jason 1 will be a tremendous asset to our oceanography program. It will take the research and development activities done so successfully on Topex/Poseidon and add operational utility and function," said Ghassem Asrar, associate administrator for NASA's Earth Science Enterprise.

More information is available on the Internet at <http://sealevel.jpl.nasa.gov>. RELEASE: 01-225

HETE SPOTS GAMMA-RAY BURST AFTERGLOW

A rare optical afterglow of a gamma-ray burst, the most powerful type of explosion in the universe, was recently discovered by NASA's High Energy Transient Explorer (HETE), the first satellite dedicated to spotting these frequent yet random explosions that last only for a few seconds.

The burst occurred in the constellation Lacerta, and was relatively close, only about 5 billion light-years from Earth. Gamma-ray bursts (GRBs) can be more than 10 billion light-years distant. "With this first confirmed observation of a gamma-ray burst and its afterglow, we've really turned the corner," said George Ricker of the Massachusetts Institute of Technology, principal investigator for HETE.

The opportunity to see the afterglow in optical light provides crucial information about what is triggering these mysterious bursts, which scientists speculate to be the explosion of massive stars, the merging of neutron stars and black holes, or possibly both.

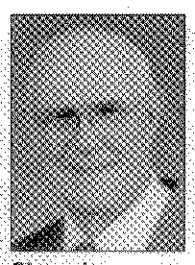
More information on HETE can be found on the Internet at <http://space.mit.edu/HETE>. RELEASE: 01-218

People

NAA Honors Champine

Test Pilot Began And Ended His Career At Langley

Former Langley Research Center employee **Robert A. Champine** was one of seven people to receive a 2001 Elder Statesmen of Aviation Award from the National Aeronautic Association (NAA) on Nov. 5.


Champine

Champine, who was cited for his accomplishments as a test pilot, joins the ranks of other aviation greats, including Igor Sikorsky, James H. Doolittle, Paul Garber, Olive Ann Beech, Sen. Barry Goldwater and Marjorie C. Stinson.

Champine served as a pilot with the U.S. Navy in World War II and joined the National Advisory Committee for Aeronautics (NACA) at Langley Memorial Aeronautical Laboratory in 1947. One year later, he transferred to NACA's High Speed Flight Research Station at Muroc, where became the sixth man to break the sound barrier in the Bell XS-1.

Champine returned to Langley in the 1960s to test fighter aircraft. He also flew simulated landing missions of the Lunar Excursion Module (LEM) and participated in research on vertical takeoff and landing (VTOL) systems. He retired as NASA's senior test pilot in 1979, having flight-tested more than 155 different different aircraft, helicopters, gliders and other devices.

The NAA established the Elder Statesmen of Aviation Award in 1954 "to honor outstanding Americans who by their efforts over a period of years have made contributions of significant value to aeronautics." Over the past 47 years, NAA has honored more than 200 men and women for their contributions to America's aerospace leadership. Candidates for the award must be U.S. citizens at least 60 years old who have been actively identified with aerospace activities for at least 15 years.

Robert Champine, who joined the National Advisory Committee for Aeronautics (NACA) at Langley Memorial Aeronautical Laboratory in 1947, was the sixth man to break the sound barrier in the Bell XS-1.
Photo courtesy of the National Aeronautic Association

Champine currently resides in Newport News.

In Memoriam

James R. Martin

James Russell Martin died on Nov. 5 at the age of 79. Martin, a native of Hampton, was a World War II veteran and a NASA retiree with 30 years of service.

Researcher News

The Researcher News is an official publication of Langley Research Center, National Aeronautics and Space Administration, Hampton, Va., 23681-2199. It is published every other Friday in the interest of all Langley staff, contractors and retirees and has a circulation of approximately 8,100. It is distributed to all Langley civil service employees, contractors, retirees and on-site university personnel, with limited distribution to NASA Headquarters, other NASA centers and, by special request, to other non-NASA individuals and organizations. Questions related to the content and distribution of the Researcher News should be addressed to Keith Henry, Mail Stop 115, (757) 864-6120. Submit contributions/SDL 026, 055, 110 changes to the editor via e-mail <j.r.roberts@larc.nasa.gov>, fax (757) 864-6477, telephone (757) 864-8150 or Mail Stop 293. Articles, photos and announcements are due at noon the Monday following the date of this issue.

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Science and Technology Corp.

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Science and Technology Corp.

The privilege of listing announcements in this publication is restricted to the employees, contractors and retirees of the Langley Research Center. Articles must be offered without regard to race, color, religion, sex or national origin. All materials are subject to editing.

Angel Tree Program Resumes

By SANDRA WEST
Public Services Office

Langley Research Center employees once again are invited to "earn their wings" by participating in The Salvation Army's Angel Tree Program.

The Angel Tree Program delivers donated gifts of warm clothing — jeans, sweatshirts, hats, mittens, boots, etc. — to needy children. Last year, more than 3,000 Peninsula children were helped through the program.

Here's how to help:

- Choose an "angel tag" from the Angel Tree in the Langley cafeteria. (Each tag carries the first name, age and size information of a needy child.)
- Purchase a gift of warm clothing.
- Do not wrap the gift and do not remove the price tag; put the gift in a clear bag and affix the angel tag.
- Place the gift under the Angel Tree by Dec. 12.

Gifts will be delivered to The Salvation Army on Dec. 14.

For more information, call 864-3957.

Read the *Researcher News* online at <http://researchernews.larc.nasa.gov>.

Holmes Named Engineer Of The Year

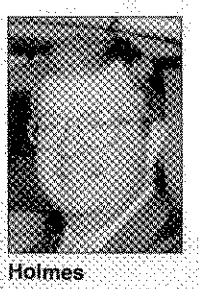
HRS Honors Manager Of NASA's General Aviation Programs Office

The Hampton Roads Section (HRS) of the American Institute of Aeronautics and Astronautics (AIAA) recently announced that Bruce J. Holmes has been named its 2002 Engineer of the Year.

Holmes, the manager of NASA's General Aviation Programs Office, which is headquartered at Langley Research Center, is being honored for his leadership in the general aviation industry. His contributions include the technology development strategies in the Advance General Aviation Transportation Experiments (AGATE) Alliance and the Small Aircraft Transportation System (SATS) program.

Holmes is widely known in the NASA and aerospace communities as an "out of the box" strategist, system thinker and entrepreneurial implementer.

Many of Holmes' earlier technical innovations are in use in commercial aviation today, including low-drag laminar flow concepts, new methods for measuring and controlling boundary layers, high-performance small aircraft design concepts, and improvements in agricultural aircraft.


Holmes

Under his leadership, several new approaches to designing aircraft systems and their operations have been developed, including guidelines for protecting aircraft against lighting strikes, streamlined composite material qualification and manufacturing processes, crashworthiness design guidelines, "highway in the sky" flightpath guidance pilot displays, low-cost digital avionics system architectures and practical digital engine controls for small aircraft.

Holmes also led the development of the SATS concept as a means of creating alternatives to existing inter-city travel that would allow more people to reach more destinations in less time.

Holmes has been active over the years in several civic activities, including the American Cancer Society, the City of Newport News, and the Rotary Club. He lives in Newport News with his wife, Connie; they have two grown sons.

Past winners of the HRS Engineer of the Year award are Robert A. Mitcheltree (2001), Steven X. Bauer (2000) and John C. Lin (1999).

For more information, visit <http://www.seva.net/~aiaa/awards.html> on the Internet.

S'COOL Activity Registers 1,000th Site

By CHRIS RINK
Public Affairs Office

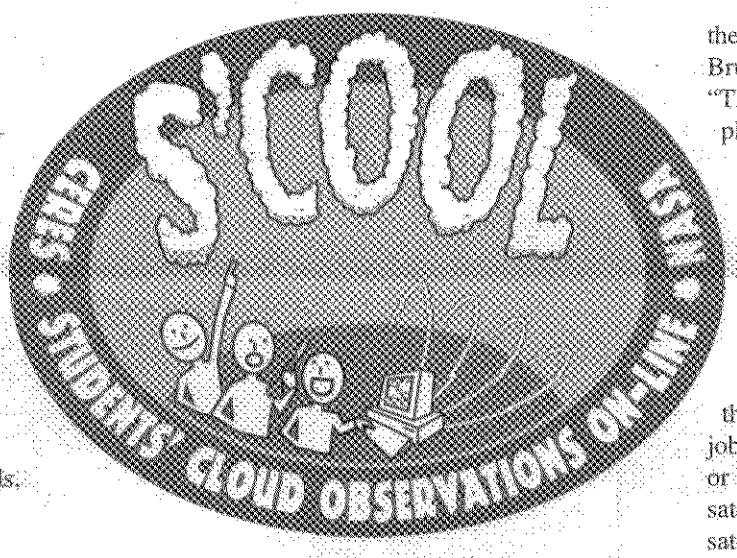
Langley Research Center's Students' Cloud Observations On-Line (S'COOL) activity recently registered Deer Creek Elementary School as its 1,000th site.

The Nevada City, Calif., school joins 999 other schools working with Langley's Clouds and the Earth's Radiant Energy System (CERES) team to study how clouds affect the Earth's energy balance.

Langley researchers are training students worldwide to observe clouds. There are currently 764 U.S. schools involved in the project. S'COOL schools take measurements in all 50 states as well as Washington, D.C., Puerto Rico, Guam, the Northern Mariana Islands, and in 57 other countries on all continents except Antarctica.

Lin Chambers, the director of the CERES S'COOL Project and a member of the CERES team, completed a survey of S'COOL teachers last fall.

"Ninety-five percent of the respondents rated the educational usefulness as great or good," she said. "And 73 percent rated student interest and learning during S'COOL as very high or high. Five hundred fifty-seven students were identified as having an increased interest in science as a career as a result of their participation."



Deer Creek and other S'COOL students send their data to a NASA computer. The students' observations are then compared to those from orbiting CERES instruments. CERES uses its vantage point from space to provide global data on the Earth's energy balance and how clouds affect it. CERES instruments are currently aboard the Tropical Rainfall Measuring Mission (TRMM) and Terra satellites.

"S'COOL has been a great experience not only for the students and teachers but also for the scientists," said Bruce Wielicki, co-principal investigator for CERES. "The S'COOL observations also get us into remote places around the world without routine weather stations. So the student data has been part of our plan to test and verify the satellite cloud data.

"Here is an example of one of the ways we use the S'COOL data," Wielicki said. "One of the most important things CERES does is to separate observations of totally clear-sky conditions from conditions with some clouds in the sky. This allows us to isolate the role of clouds in the radiation balance of the Earth. The S'COOL observations do an excellent job of picking up small scattered clouds, low level fog, or thin high clouds that we might otherwise miss in the satellite data. Matching the S'COOL observations to our satellite data then helps us quantify the amount of cloud contamination we get in our clear-sky data."

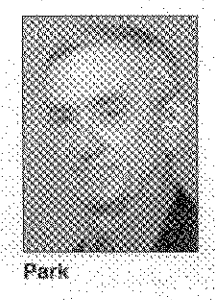
More CERES instruments are expected to be launched on NASA's Aqua satellite in March 2002. The Terra spacecraft is part of NASA's Earth Science Enterprise, a long-term research effort being conducted to determine how human-induced and natural changes affect our global environment.

For more information about S'COOL, visit <http://asd-www.larc.nasa.gov/SCOOL> on the Internet.

Colloquium and Sigma Series Lectures

Park On 'The Warning Signs Of Voodoo Science'

Robert L. Park will present a Colloquium lecture entitled, " The Seven Warning Signs of Voodoo Science" at 2 p.m. Dec. 4 in Langley Research Center's H.J.E. Reid Conference Center. A Sigma Series lecture will follow at 7:30 p.m. at the Virginia Air and Space Center in Hampton.


Park

The Lecture

In a time of dazzling scientific progress, the public has come to expect a steady stream of miracles from science. Those with little exposure to the methods and ideas of modern science, however, may have trouble distinguishing genuine scientific advances from the claims of misguided zealots or unscrupulous hucksters.

Scientists, of course, first ask whether a claim violates firmly established scientific principles, such as the Second Law of Thermodynamics, that have heretofore provided a reliable guide. The public, however, must generally look for other clues to distinguish genuine scientific advances from a noisy gaggle of false claims.

From a review of misguided science claims, Park has extracted seven of the most common warning signs that should alert the public, as well as other scientists, that the science may be voodoo.

The Speaker

Park graduated from the University of Texas in 1958 with a degree in physics and became the Edgar Lewis Marston Fellow at Brown University in 1960, receiving his doctorate in 1964. After working at Sandia Labs in the area of surface physics, he was appointed professor of physics at the University of Maryland in 1974.

Park currently divides his time between the University of Maryland and the Washington, D.C., office of the American Physical Society, for which he serves as director.

Park is the author of the book, "Voodoo Science," and "What's New," a weekly electronic commentary on science policy issues.

To read "What's New," visit <http://www.aps.org/ WN/> on the Internet.

Upcoming Lectures

- Jan. 8, 2002: Colin Brucher on "An Analysis of Flight 4, Dec. 17, 1903"
- Feb. 5, 2002: Stephen Pope on "Computational Combustion, from Molecular Processes to Combustor Design"

For more information about the lecture series, visit <http://shemesh.larc.nasa.gov/Lectures/> on the Web.

AdVentures

CLASSIFIED

FOR SALE: Brick rancher on 1/2 acre in Oakmore subdivision of Poquoson. 1850 square feet, 3 BR, 2 BA, living room with fireplace, dining room, den, eat-in kitchen with GE appliances, utility room with Kenmore washer and dryer, deck, garage. Ready to move in. Asking $176,000. Call 868-4078.

FOR RENT: House in Denbigh. 3BR, 2 BA, W/D hook-up, A/C, ceiling fans, dishwasher, disposal. $775 per month. Call 879-2111.

FOR RENT: Studio apartment on Chesapeake Avenue in Hampton. Apartment sits above detached garage and features views of the Hampton Roads harbor. $355 per month, includes heat, A/C, electricity and water. Security deposit required. Call 245-4854.

FOR SALE: 1997 VW Golf GTI, excellent condition, 73,000 miles, five speed, A/C, CD, six CD changer with eight speakers, moonroof. $7,950. More Details online at <hometown.aol.com/ghentloft>. Call 622-7775.

FOR SALE: Blue sofa with mauve and light blue accents, excellent condition, $130; beveled glass kitchen table with four blue chairs, $80. Call 868-4078.

VASC Hosting 'Breakfast With Santa'

The Virginia Air and Space Center (VASC) will host "Breakfast with Santa" events from 8 to 10 a.m. **Dec. 1** and **8**. Tickets for the **Dec. 1** breakfast are sold out, but tickets are still available for **Dec. 8**. For reservations or more information, call 727-0900, ext. 782.

The VASC is Langley Research Center's official visitor center.

CFC Keyworkers To Be Honored

Langley Research Center's Combined Federal Campaign (CFC) Committee will host an "Appreciation Awards Ceremony" for the Center's Keyworkers and Coordinators at 3 p.m. **Dec. 4** in the NACA Room of the Cafeteria.

Complete coverage of the 2001 CFC campaign will appear in the **Dec. 14** edition of the *Researcher News*.

LAA To Meet On Dec. 11

Langley Research Center's Alumni Association (LAA) will hold its monthly meeting at 11:30 a.m. **Dec. 11** at Madison's Restaurant in Grafton. The cost will be $11 per person; spouses are welcome. For more information, call the LAA Info Line at 864-7330.

AIAA Offering Graduate Awards

The American Institute of Aeronautics and Astronautics (AIAA) Foundation is accepting applications for the first-ever Orville and Wilbur Wright Graduate Awards.

The $10,000 awards will be presented annually, beginning in 2002, to four students participating in master's or doctoral thesis research in engineering or science.

The deadline to apply is **Jan. 31, 2002**. For an application or more information, visit <http://www.flight100.org/activities/awards.html> on the Internet.

TCPO Looking For Article Ideas

Langley Research Center's Technology Commercialization Program Office (TCPO) is soliciting article ideas and submissions for NASA's Tech Briefs Magazine.

Tech Briefs can be accessed on the Internet at <http://www.nasatech.com/>.

For more information, contact Sherry Sullivan at 864-2556 or <s.l.sullivan@larc.nasa.gov>.

Fellowship Deadline Is Feb. 28

Langley Research Center's Employee and Organizational Development Branch is soliciting applications for the 25th annual Floyd L. Thompson Fellowship Program.

The program was established in 1977 to enhance employees' research capabilities and to infuse the Center with new ideas from other centers of excellence. Applicants may propose an area of research to be pursued at Langley or other research or educational institutions. The research effort may last one to two years, of which no more than one year may be spent in a sabbatical away from Langley. One or two fellows will be selected and will be supported by salary, travel and per diem, and other general research expenses.

Interested individuals are encouraged to explore the possibilities of a research assignment with an appropriate institution and to seek the support of their management for their candidacy.

The application deadline is **Feb. 28, 2002.**

For more information, contact George D. Allison at 864-2594 or <g.d.allison@larc.nasa. gov> or visit <http://ohr-r.larc.nasa.gov/do.fltfpin. html>. Candidates also are encouraged to contact past recipients to obtain firsthand information.

VASC Recruiting Museum Educators

The Virginia Air and Space Center (VASC) is recruiting part-time museum educators.

Museum educators develop and deliver educational programs to school groups, educators and the general public. Teaching experience is required; certification and experience in science and math is preferred. Applicants must be available to teach weekday mornings, evenings and some weekend hours.

Applicants should submit letters, resumes and three references to the Virginia Air and Space Center, 600 Settlers Landing Road, Hampton, VA 23669.

The Center provides equal opportunity to all candidates for employment, regardless of race, national origin, ethnicity, religion, gender, marital status, parental status, veteran status and disability.

The VASC is Langley Research Center's official visitor center.

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The final edition of the Researcher News *will be published on* ***Dec. 14****. Please send submissions to <j.r.roberts@larc.nasa.gov> by* ***Dec. 3****.*

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Researcher News

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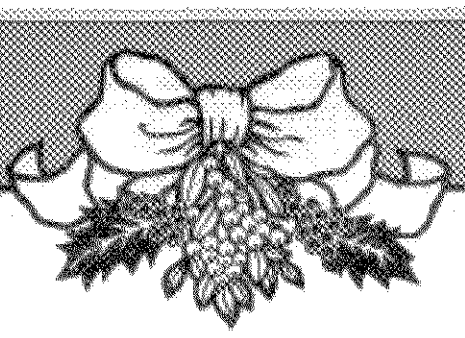


In celebration
of the holiday season,
the Director of
Langley Research Center,
Dr. Jeremiah F. Creedon,
cordially invites all
NASA civil service/contractor
employees and retirees
to attend a reception at the
H.J.E. Reid Conference Center
Tuesday, December 18,
from 2:30 to 4 p.m.

Sponsored by the
Langley Federal Credit Union
and the
NASA Langley Exchange

Refreshments and free raffle tickets will be available.
Drawings will be held at 3, 3:30 and 4 p.m.

National Aeronautics and Space Administration
Langley Research Center

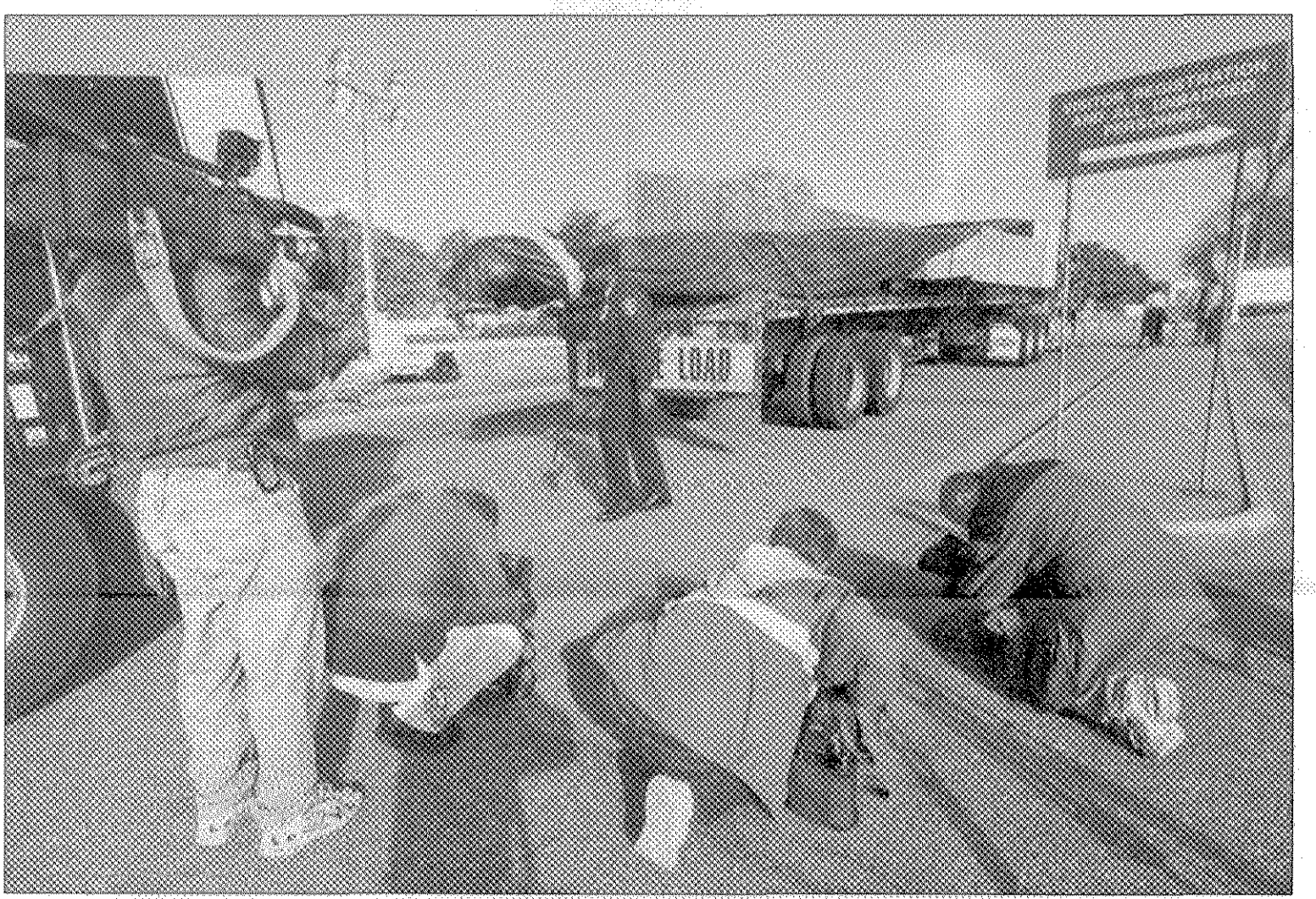
News Researcher

Biweekly Employee and Contractor Publication

Volume 15 ❖ Issue 25 ❖ Dec. 14, 2001

Flight 587 Tail Arrives

Langley Will Assist With NTSB's Investigation



Videographers from local news outlets document the arrival of the tail section of American Airlines Flight 587 to Langley Research Center on Dec. 4. Langley's Structures and Materials Competency will work with the National Transportation Safety Board (NTSB) to determine why the vertical stabilizer and rudder parts, which are made of a carbon fiber-reinforced epoxy, separated in flight on Nov. 12. The crash resulted in the deaths of 265 people.

Photo by Jeff Caplan

On Dec. 4, just three weeks after American Airlines Flight 587 crashed in New York, components from the aircraft's tail section were delivered to Langley Research Center for extensive evaluation.

The National Transportation Safety Board (NTSB) asked for Langley's help in the investigation of the crash of the Airbus A300 because of the Center's expertise with composite materials and structures.

Mark Shuart, the director of Langley's Structures and Materials Competency, said his staff will work with the NTSB to determine why the vertical stabilizer and rudder parts, which are made of a carbon fiber-reinforced epoxy, separated in flight.

The test protocols are being developed, and the extent of the examinations and testing have not yet been established. However, due to NTSB policies and the nature of the investigation, Langley will not comment on the testing methods and any findings.

Shuart did say that the investigation could also include staff

Continued on Page 6

Center Unveils Plans For Aerospace Institute

By KATHY BARNSTORFF
Public Affairs Office

Langley Research Center recently announced its plan to create a high-tech institute to further aerospace research and to attract and train the next generation of aerospace engineers and scientists.

The National Institute of Aerospace (NIA) will make its home near Langley to establish a collaborative relationship between government, academia and industry.

"The NIA will bring together the world's best and brightest researchers to conduct creative research and develop innovative technologies in a strategic partnership with Langley," said Charles E. Harris, director of the NIA project office. "It will also provide new graduate-level curricula in emerging fields of science and engineering for NASA employees and the local community from the best universities in Virginia and the nation."

Langley, which will fund part of the NIA, is looking for government, industry and university partners to share and invest in its vision: to create a facility to house a non-traditional research environment that will embrace the latest in distance learning and virtual technology.

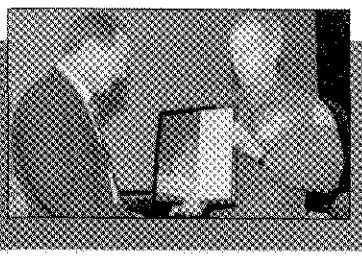
Langley officials have identified a couple of possible Langley sites for a building, but the actual location and construction will probably be determined by the not-for-profit consortium that will be selected to establish the institute.

"In creating the institute we're not interested in cloning Langley outside the gates," Harris said. "This institute will create new knowledge, intellectual property and innovative technologies and be able to move these products more quickly from the laboratory to the marketplace."

The NIA project has an ambitious time schedule to help it move forward. Langley will release a draft solicitation this month seeking interested participants. Potential bidders from academic institutions, not-for-profit organizations and industry will be invited to a pre-solicitation conference at Langley tentatively scheduled in early January, with final pro-

Continued on Page 5

Inside This Issue:



Employee Receives Silver Snoopy Award
Page 2

Employees Raise $400,000 For CFC
Page 4

News Briefs

Around the Agency

GENESIS WILL COLLECT SAMPLES OF THE SUN

NASA's Genesis mission is officially open for business, as it extends its special collector arrays to catch atoms from the solar wind. The atoms it collects, believed to have been part of the solar nebula "cloud" from which our solar system developed, will help scientists gain a better understanding of the conditions in the distant past before the Earth and other planets formed.

Genesis, managed by NASA's Jet Propulsion Laboratory, is the Agency's first sample return mission since the last Apollo mission in 1972, and the first ever to return material collected beyond the Moon.

Additional information is available on the Internet at <http://genesismission.jpl.nasa.gov>. RELEASE: 01-238

NASA SELECTS PLUTO-KUIPER BELT PROPOSAL

NASA has selected a proposal to proceed with Phase B (preliminary design studies) for a Pluto-Kuiper Belt (PKB) mission, intended to explore the most distant planet in the solar system. The mission will also explore the Kuiper Belt beyond Pluto, a source of comets and believed to be the source of much of Earth's water and the simple chemical precursors of life.

The scientific value of this mission is highly dependent on a 2006 launch that achieves a flyby of Pluto well before 2020. In order to ensure this launch date, NASA has established two conditions that must be successfully met at the conclusion of Phase B. RELEASE: 01-235

CHANDRA CAPTURES VENUS IN A NEW LIGHT

Scientists have captured the first X-ray view of Venus using NASA's Chandra X-ray Observatory. The observations provide new information about the atmosphere of Venus and open a new window for examining Earth's sister planet.

Venus in X-rays looks similar to Venus in visible light, but there are important differences. The optically visible Venus is due to the reflection of sunlight and, for the relative positions of Venus, Earth and Sun during these observations, shows a uniform half-crescent that is brightest toward the middle. The X-ray Venus is slightly less than a half-crescent and brighter on the limbs.

More information is available on the Internet at <http://chandra.nasa.gov>. RELEASE: 01-236

HUBBLE MEASURES ANOTHER ATMOSPHERE

Astronomers using NASA's Hubble Space Telescope have made the first direct detection and chemical analysis of the atmosphere of a planet outside our solar system. Their unique observations demonstrate it is possible with Hubble and other telescopes to measure the chemical makeup of extrasolar planets' atmospheres.

The planet orbits a yellow, Sun-like star called HD 209458, a seventh-magnitude star (visible in an amateur telescope) that lies 150 light-years away in the autumn constellation Pegasus. Its atmospheric composition was probed when the planet passed in front of its parent star, allowing astronomers for the first time ever to see light from the star filtered through the planet's atmosphere. RELEASE: 01-232

News Researcher

The Researcher News is an official publication of Langley Research Center, National Aeronautics and Space Administration, Hampton, Va., 23681-2199. It is published every other Friday in the interest of all Langley staff, contractors and retirees and has a circulation of approximately 8,100. It is distributed to all Langley civil service employees, contractors, retirees and on-site university personnel, with limited distribution to NASA Headquarters, other NASA centers and, by special request, to other non-NASA individuals and organizations. Questions related to the content and distribution of the Researcher News should be addressed to Keith Henry, Mail Stop 115, (757) 864-6120. Submit contributions/SDL 026, 055, 110 changes to the editor via e-mail <j.r.roberts@larc.nasa.gov>, fax (757) 864-6477, telephone (757) 864-8150 or Mail Stop 293. Articles, photos and announcements are due at noon the Monday following the date of this issue.

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Planners Collaborative/
Science and Technology Corp.

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Planners Collaborative/
Science and Technology Corp.

Photographer ..... Jeff Caplan
Planners Collaborative/
Science and Technology Corp.

The privilege of listing announcements in this publication is restricted to the employees, contractors and retirees of the Langley Research Center. Articles must be offered without regard to race, color, religion, sex or national origin. All materials are subject to editing.

Read the *Researcher News* online at <http://researchernews.larc.nasa.gov>.

People

Silver Snoopy Award

NASA Astronaut Pat Forrester (right) presents a Silver Snoopy Award to Langley Research Center employee George Whitehurst (center) in Langley's H.J.E. Reid Conference Center as Whitehurst's wife, Brenda (left), looks on. Whitehurst, who works in Langley's Test and Development Branch, was honored for his work as the test manager for numerous NASA spaceflight experiments. A letter Forrester presented to Whitehurst read: "Your work on developing test verification plans and test procedures for environmental qualification testing, as well as your performance as test director for vibration and thermal vacuum test operations, is critical to the success of these missions." Forrester, one of two astronauts who attached Langley's Materials International Space Station Experiment (MISSE) to the ISS during a spacewalk in August, visited Langley on Nov. 29 to make the presentation.

Photo by Jeff Caplan

Langley Employees Earn Presidential Rank Awards

Langley Research Center employees **Kathy Ann Kurke** and **Glenn R. Taylor** recently received Meritorious Executive Presidential Rank Awards.

The awards are presented each year to Senior Executive Service (SES) employees who achieve results and consistently demonstrate strength, integrity, industry and a relentless commitment to excellence in public service.

Kurke

Taylor

Winners are chosen through a rigorous selection process. They are nominated by their agency heads, evaluated by boards of private citizens and approved by the President. The evaluation criteria focus on the executive's leadership in producing results.

The Meritorious Executive award is given for long-term accomplishments. Only 5 percent of career SES members may receive the award, which includes a lump-sum payment of 20 percent of the employee's base pay, a silver pin and a framed certificate signed by the President.

Kurke is head of Langley's Office of the Chief Counsel; Taylor is the director of Langley's Systems Engineering Competency.

Letter

"My wife and I would like to thank everyone who planned and participated in my wonderful retirement celebration! I may have retired from NASA, but I have 33 years of fond memories and cannot think of a better place to spend a career. The friends I made during those years made it even more special. Thank you for everything!"

Jim Rogers

In Memoriam

Richard E. Bloxom

Richard Edward Bloxom died on Nov. 23 at the age of 64. Bloxom, who began his career as an engineering apprentice at Langley Research Center, retired in 1992.

Christopher W. Tremper

Christopher Wayne Tremper died on Nov. 20 at the age of 50 after a five-year battle with kidney disease and other ailments. Tremper, a native of Newport News, was an active employee in Langley Research Center's Information Systems Branch at the time of his death.

During his 11 years at Langley, Tremper led the implementation of the Electronic Purchase Request System (EPRS) and the Time and Attendance Distribution System (TADS) and served as the Center's transition manager for the Integrated Financial Management Program (IFMP). Most recently, he served as the project manager for the IFMP Travel Manager Module, which was successfully piloted for NASA at Langley.

"Chris was a good friend and dedicated co-worker who thoroughly loved his work at NASA, and we will miss him tremendously," said John M. Kusterer, acting head of the Information Systems Branch.

Tremper is survived by his wife, Linda Gallagher Tremper; son, Jason C. Tremper; and daughter, Kristin E. Tremper.

NASA Fares Well In 02 Budget

Aeronautics Research Will See An Increase Of $54.5 Million

By LEE RICH
Congressional Affairs Officer

On Nov. 26, 2001, President George W. Bush signed into law H.R. 2620, the Appropriations Bill providing FY 02 funds for the Veterans Administration, Department of Housing and Urban Development, and a number of Independent Agencies, of which NASA is one. NASA fared well in the Congressional Oversight process, which ended with a Report by a conference committee composed of 28 Representatives and Senators on the respective VA-HUD-IA Appropriations Subcommittees. Last February, the Administration's FY 02 budget request for NASA was $14.5 billion. The FY 01 appropriation was for $14.3. billion The final approved amount for FY 02 is $14.8 billion. The "Aero-Space Technology" account was increased by $113,830,000 to $2,489,570,000.

With regard to the Aero-Space Technology category under the budget item Science, Aeronautics and Technology, the Bill, now Public Law 107-73, incorporates the following language (originally requested by Rep. Virgil Goode) (I-VA, 5th): "The Conferees agree ... that by merging the budgets for aeronautics and space into a single 'aerospace technology' program several years ago, NASA has made it virtually impossible to account for the current investment in aeronautics. For this reason, the Conferees direct NASA to reestablish a consolidated aeronautics line in the fiscal year 2003 budget submission that comprehensively covers all research base, focused, and advanced technology programs, and related test facilities and civil service costs. NASA should also provide a clear budget crosscut identifying all aeronautics programmatic activities in the current budget structure in its initial fiscal year 2002 operating plan."

Aeronautics research funds were increased by $54.5 million. Some of the designated increases:

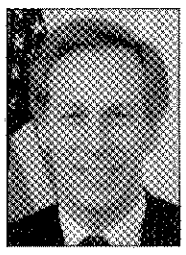
- $10 million for Ultra Efficient Engine Technology, for a total budget of $50,000,000 in fiscal year 2002
- $7.5 million for supersonic (misspelled in Conference Report) transport technology research
- $7.5 million for the advanced aircraft program
- $12.5 million for NASA's rotorcraft program.
- $15 million for aviation safety
- $6.8 million for several programs within the Aviation System Capacity program
- $2 million for a study of NASA's aeronautical test and evaluation facilities

Fairly direct language was used to characterize the management and cost-overruns of the "U.S. Core Complete" International Space Station: "The decision to reduce the ISS budget by $75,000,000 in fiscal year 2002 ... results from the conclusion that the only way management will actually manage the program, and thereby get its cost under control, is through being forced to live with less."

Conference Report language may be found on the Internet at <http://www.spaceref.com/news/viewsr.html?pid=4027>. Public Law text may be found at <http://www.access.gpo.gov/nara/publaw/107publ.html>.

Rep. Goode To Deliver 2001 Wright Lecture

The Hampton Roads Section of the American Institute of Aeronautics and Astronautics (AIAA) will sponsor the 2001 Wright Brothers Memorial Lecture at 2 p.m. **Dec. 17** in the auditorium of Langley Research Center's H.J.E. Reid Conference Center.


Goode

Rep. Virgil H. Goode Jr., a member of the House Appropriations Subcommittee on Veterans Affairs, Housing and Urban Development and Independent Agencies, will discuss "Congressional Oversight."

Several other members of Congress are expected to attend.

Center Operating Under FPC BRAVO

Langley Research Center's Office of Security and Environmental Management recently announced that the Center is operating under Force Protection Condition (FPC) BRAVO. FPC BRAVO is implemented when there is an increased and more predictable threat of hostile activity even though no particular target has been identified.

Consequently, the following security measures are in effect:

- Employees and visitors must wear badges at all times while on-Center.
- Hands-on badge checks and random vehicle inspections will be performed at the security gates. (The Durand Gate will remain closed.)
- All vehicles on-Center must have a NASA decal or temporary pass.
- NASA Resource Protection (NRP) and Mission Essential Infrastructure (MEI) facilities will maintain positive access control.
- Buildings, rooms and storage areas not in regular use should be secured.
- Suspicious persons, parcels and vehicles should be reported to Langley Emergency Dispatch by dialing 911.
- Special events and conferences on-Center must be approved by the Office of Director.
- Visitors for Langley Activities Association (LAA) events may remain on Center until the activity concludes but no later than 9 p.m.
- NASA retirees may access the Center from 6 a.m. to 6 p.m.
- Sponsored visitors may access the Center from 6 a.m. to 6 p.m. Approval from an organizational unit manager (OUM) is no longer required, and visitors who are U.S. Citizens no longer require escorts.

Langley's Visitor Decal Request System is back online at <http://visitor.larc.nasa.gov/>.

Colloquium and Sigma Series Lectures

Britcher On 'How Well Did The Flyer Fly?'

Colin P. Britcher will present a Colloquium lecture entitled, "How Well Did The Flyer Fly?" at 2 p.m. Jan. 8, 2002, in Langley Research Center's H.J.E. Reid Conference Center. A Sigma Series lecture will follow at 7:30 p.m. at the Virginia Air and Space Center in Hampton.

Britcher

The Lecture

An analysis of the flight performance of the Wright 1903 'Flyer' will be presented, based on recently available data for aerodynamic and propeller characteristics, together with accepted historical data for the engine, weather conditions, weights and dimensions.

The analysis shows that the flight performance was extremely marginal, that the 'Flyer' may have been essentially limited to operation in ground effect, and that take-off may have been impractical without a headwind. Further, the analysis shows that the commonly accepted values for in-flight engine/propeller RPM may be underestimates.

This analysis highlights the Wright Brothers' prowess at systems integration, which resulted in their successful achievement of flight with very little margin for error.

The Speaker

Britcher is an associate professor of aerospace engineering at Old Dominion University (ODU). He directs research and academic programs at the Langley Full-Scale Tunnel, the largest university-operated wind tunnel in the world, and leads ODU's master's program in experimental methods.

Britcher earned bachelor's and doctoral degrees from the University of Southampton in England in 1978 and 1983 respectively.

He is active in research and teaching in experimental methods, aerodynamics and magnetic suspensions and has authored more than 50 technical publications in these areas. He is an Associate Fellow of the American Institute of Aeronautics and Astronautics, and a member of the Society of Automotive Engineers and the American Society of Engineering Education.

Upcoming Lectures

- **Feb. 5, 2002:** Stephen Pope on "Computational Combustion: from Molecular Processes to Combustor Design"

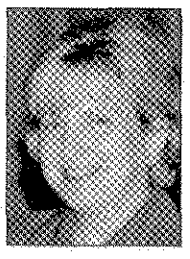
For more information about the lecture series, visit <http://shemesh.larc.nasa.gov/Lectures/> on the Web.

Langley Research Center's 2001 Combined Federal Campaign (CFC) Key Workers and Coordinators made a concerted effort to talk to every Langley employee about the campaign. Their work paid off: Langley employees contributed $399,000 to this year's campaign, with more than 60 percent participating. A complete list of Key Workers and Coordinators is available online at <http://researchernews.larc.nasa.gov/>.

Photo by Jeff Caplan

More Successful Than Ever!

Langley Employees Contributed $399,000 To This Year's CFC



Wow! Am I lucky or what?

During my tenure as chairperson of Langley Research Center's 2001 Combined Federal Campaign (CFC) Committee, I have come to realize that I am privileged to work among some of the kindest, most generous and caring people in the world!

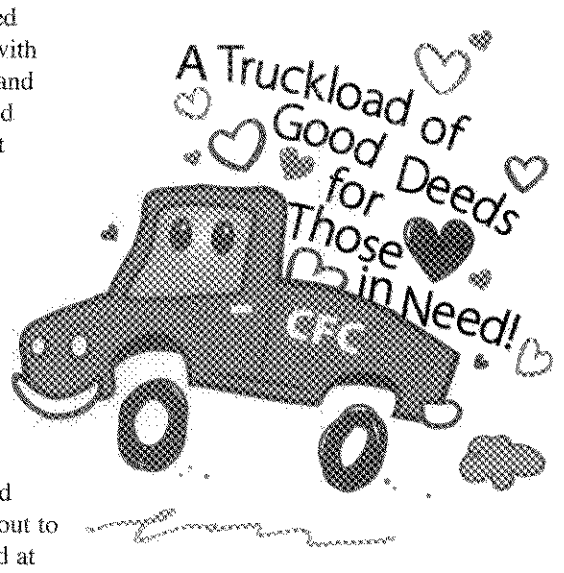
The costly tragedies arising out of the horrific attacks of Sept. 11 made this year's CFC drive the most important campaign in my 23-year career, if not in the history of the CFC. This year — more than any other — our fellow Americans needed our help. America is faced with enormous costs associated with cleaning up the crash sites, reconstructing buildings, re-establishing businesses, nursing survivors back to health, counseling distressed and, of course, paying bills for those who lost jobs in the wake of the disaster.

The CFC Committee struggled with how we could best address the problem. We knew that Langley traditionally exceeds expectations of generosity. For example, last year the CFC Committee set a target of raising $302,000 but ended up raising about $350,000. This year, we decided to take a risk: We set a very ambitious goal of $370,000 and held our breath. When your contributions were added up, we learned that not only did you rise to the challenge — but you surpassed the goal by about $30,000 with a total of about $399,000. This means that this year's total contributions were almost $100,000 more than the goal set for 2000! Unbelievable!

It became immediately apparent that Langley's employees take their "public servant" title very seriously. There was an outpouring of generosity as my co-workers joined their fellow Americans, responding with tears, a renewed sense of patriotism and donations of blood, money, goods and personal services. But you all did not stop there; you made long-term commitments to contribute through payroll deductions throughout the year.

At a time when we are all apprehensive about our national security, anxious about the condition of our economy and its impact on our own finances, and unsure about the direction of our own Agency, you selflessly looked beyond your personal concerns and reached out to help others. Many of you volunteered at the Day of Caring, and some made commitments to continue volunteering throughout the year at the CFC organizations exhibiting at the CFC Kick-off Picnic. The Key Workers and Coordinators worked particularly hard this year, making a concerted effort to talk to each and every Langley employee about the campaign. The CFC Committee's enthusiasm, creativity and effectiveness was on par with the best of teams. The volunteers for the car wash and the picnic were energized. The Langley leadership made a concerted effort to facilitate our promotion of the CFC cause.

Your remarkable generosity prompted the Peninsula United Way to honor Langley with a "Hero" award. I was proud to accept that honor on your behalf and even more proud to learn that, as of that date, Langley had raised more money for the CFC than any individual government organization on the Peninsula.



While it is true that many Americans dug deep into their pockets this year and gave more than last year, you all are shining examples of the meaning of "public servants." Our Director, Jerry Creedon, has expressed a Langley aim to "improve the quality of life." You have demonstrated that you are dedicated to this objective both in your professional endeavors and through personal philanthropy to the public.

This is the time of year when we generally stop to give thanks for what we have. Our list of blessings typically includes health, family, friends, love, freedom, safety, prosperity and a prospect for a good future. I am very fortunate and thankful to have many of the things on this list. But this year, after having the honor of serving as chairperson of Langley's CFC Committee, I am adding another very precious blessing to my list: the honor of working with all of you.

Thank you for all you have done to make this very special CFC an unprecedented success!

Kathy Ann Kurke
CFC Chairperson

P.S. I also hope that one of you gets to add a new 2002 GMC Sierra 1500 Pickup Truck to your list of blessings this March when Suttle Motors has its drawing for the winning contributor! We will report the winner when we learn who it is!

MCLT's 'Spice of Life'

Keep Workplace Festivities Secular

By MICHAEL D. UENKING
MCLT Subteam Leader

This time of year, it is easy for a lot of us to focus on the holiday that falls on Dec. 25, or what is better known as Christmas. But there are a lot of people at Langley Research Center that do not even recognize Christmas and might even get offended if you try to instill your Christmas spirit on them.

Holiday festivities and your joyful celebration of those festivities in the workplace are not intended to be offensive to anyone, but still we must take into consideration that others come from different backgrounds and celebrate different things. The ultimate objective of holiday festivities is to let people be who they are without peer pressure or intimidation.

Question: What do Buddhists, Hindus, Jews and Muslims have in common?

Answer: They practice religions that do not worship Jesus Christ.

The answer to this seemingly obvious question has implications for organizations all over the country. Members of these religious groups are among many in our country who do not celebrate Christmas. Our predominantly Christian country often creates workplace rituals around this holiday celebration. So how do we commemorate the event without making non-observers feel that they don't belong? The ramifications extend far beyond the holiday season.

The question of how to observe Christmas (or even if we should) in the workplace becomes more complicated when we realize there are Christians such as Jehovah's Witnesses or Seventh Day Adventists who believe in Christ but do not celebrate Christmas in popular fashion.

Hence, organizations trying to use the holiday season as a catalyst to acknowledge employees, build cohesion and create good will are walking through a minefield. The goals are worthy but it's the "how" that can be sticky.

To help you navigate your way through this perilous terrain, listen to what two people have to say who have dealt with this issue up close and personal.

Vickie Tomoush is a human relations professional at the City of Pasadena and a past winner of the Los Angeles County Human Relations Award. She has spent her professional life trying to increase harmony and understanding.

One of her suggestions regarding holiday celebrations is to have organizations designate several times a year as occasions to celebrate. Keep the focus both organizational and secular rather than on religious symbols. If you want to have a potluck or cocktail party, make it a non-sectarian, end-of-the-year accomplishment event.

Tomoush has seen organizations conduct gift exchanges in the context of friendship and good working relationships, not as a symbol of the Christmas celebration. Above all, she suggests that participation at these events and involvement in the gift exchange be voluntary.

Tomoush also mentioned that it works well to let people do what they want to at their own desks. If someone wants a small Christmas tree or a menorah, that's fine. But in a government office, religious observance can't be sanctioned. More to the point, if you're trying to create an environment where everyone fits, religion should not be a factor.

Discussion about how to celebrate the holidays is a perfect way to educate employees about different observances and practices. Tomoush defines both the opportunities and challenges for organizations as follows: Whatever policy or activities are pursued, all employees need to be able to be who they are without peer pressure or intimidation. The tone of any celebration should be welcoming and neutral.

The objective of honoring all people, their work accomplishments, their relationships, friendships and their different observances is a real cause for celebration.

At NASA's Jet Propulsion Laboratory (JPL), such goals are already being implemented. According to Kathy Harris, supervisor for professional development at JPL, what used to be an exclusively Christian organization is no longer that way, hence the need to broaden and change observances. Holiday celebrations are now secular. Christmas is not stressed but staff appreciation is. JPL keeps the nomenclature for holidays generic and in so doing, most people feel they can comfortably fit in.

Therein lies the key. Any holiday celebration, whatever the holiday, should leave employees feeling better about working in your organization, not worse. A little sensitivity, understanding and tolerance can go a long way toward achieving those goals and provide a real opportunity to build bridges. Now that's worth celebrating! Have a safe and happy holiday season!

Employees' submissions and ideas are welcomed; send them to Michael D. Uenking at <m.d.uenking@ larc.nasa.gov>.

NIA

Continued from Page 1

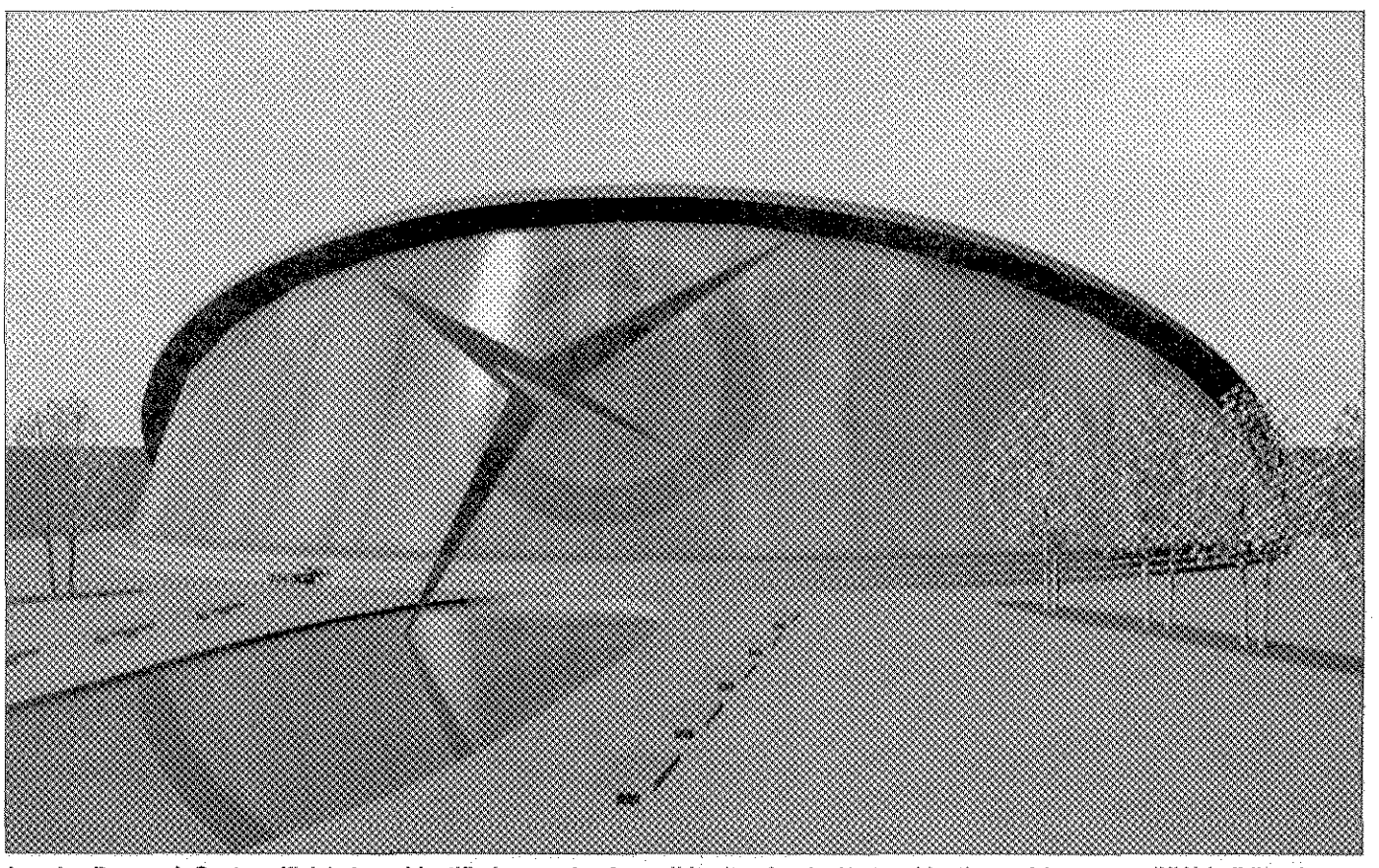
posals due in the spring of 2002. NASA expects to select the NIA partner late next summer.

"We expect the institute to be fully operational by January 2003," Harris said.

The NIA has four goals:

1. to conduct leading-edge aerospace research and develop revolutionary new technologies by creating innovative, collaborative, synergistic partnerships among Langley, academia and industry;
2. to provide comprehensive graduate education in science and engineering by using both a local campus and exploiting innovative distance-learning concepts;
3. to incubate, stimulate and commercialize new intellectual property; and
4. to promote aerospace science and engineering and provide outreach to the community and nation.

For more information about the NIA, visit <http://nia.larc.nasa.gov> on the Internet.



Langley Research Center officials have identified a couple of possible sites for the National Institute of Aerospace (NIA) building, but the actual location and construction probably will be determined by the not-for-profit consortium that will be selected to establish the institute.

Illustration by Larry Merrill

Read the *Researcher News* online at <http://researchernews.larc.nasa.gov>.

AdVentures

CLASSIFIED

FOR SALE: Townhouse in Smithy Glen section of the Yorktown's Coventry subdivision, 10 minutes from Langley, 1240 square feet, 2 BR, 2 BA, loft could be third bedroom, great room with cathedral ceiling, all appliances convey, walking distance from elementary school. Asking $94,000. Call 867-7981.

FOR SALE: 1999 Plymouth Neon, white, 52,000 miles, great condition. Assume $8,500 loan. Call 369-1880.

FOR RENT: House in Denbigh, 3BR, 2 BA, W/D hook-up, A/C, ceiling fans, dishwasher, disposal, $775 per month. Call 873-2111.

FOR SALE: Case Logic CD tower, holds 80 CDs, made out of black plastic, $15. Call 623-4262.

NBA Recruiting Players

Langley Research Center's NASA Basketball Association is recruiting teams and individual players for the 2002 season.

Preseason practice games will be played in **December**, and the regular season will begin in **January**. Games will be played Monday through Thursday evenings and Saturday afternoons.

The league is open to civil service employees and contractors and their spouses.

To register, visit <http://larc-exchange.larc.nasa.gov/laa/bball/index.htm> on the Internet. For more information, contact Mark Frye at 864-4102 or <m.w.frye@larc.nasa.gov>.

VASC Offering December Camps

The Virginia Air and Space Center (VASC) is offering a series of one-day and three-day camps in December:

- "Santa Sleuth" camps, for children between the ages 7 and 12, will take place on **Dec. 15, 22** and **29**.
- "Snowbound Santa," a camp for 7- to 12-year-olds, will take place from 10 a.m. to 3 p.m. **Dec. 26-28**.
- "Santa's Little Helpers," a camp for 5- and 6-year-olds, will take place from 9 a.m. to noon **Dec. 26-28**.

To register, call the VASC Santa Sleuth Hotline at 727-0900, ext. 780 or visit the VASC Web site at <www.vasc.org>. The VASC is Langley Research Center's official visitor center.

JIAFS Registration In January

George Washington University's Joint Institute for Advancement of Flight Sciences (JIAFS) at Langley Research Center will hold registration for the spring 2002 semester from **Jan. 2-11, 2002**.

JIAFS offers master of science, engineer and doctor of science degrees in aeronautics, astronautics, fluid mechanics and thermal sciences, and structures and dynamics.

A course schedule is available on the Internet at <http://www.seas.gwu.edu/~jiafs/spring.html>. For more information, contact the JIAFS office at 864-1982 or <jiafs@larc.nasa.gov>.

LAA Resumes On-Center On Jan. 8

Langley Research Center's Alumni Association (LAA) will hold its next monthly meeting at 11:30 a.m. **Jan. 8, 2002**, in the private dining room of the Center Cafeteria. For more information call the LAA Info Line at 864-7330.

Volunteers Needed For School Program

Langley Research Center's Contractors Steering Council is recruiting volunteers for one of the Center's key outreach programs, The Middle School Initiative.

Civil servants and contractors are needed to visit local middle school and share their expertise in "aerospace careers" with students. A training session will take place in January, and visitation will begin in March.

For more information, contact Brad Crawford at <b.l.crawford@ larc.nasa.gov> or Doug Stoddard at <d.b.stoddard@larc.nasa.gov>.

TCPO Looking For Article Ideas

Langley Research Center's Technology Commercialization Program Office (TCPO) is soliciting article ideas and submissions for NASA's Tech Briefs Magazine.

Tech Briefs can be accessed on the Internet at <http://www.nasatech.com/>.

For more information, contact Sherry Sullivan at 864-2556 or <s.l.sullivan@larc.nasa.gov>.

Tail

Continued from Page 1

from Langley's Airborne Systems Competency and Aerodynamics, Aerothermodynamics and Acoustics Competency.

American Airlines Flight 587 crashed in Belle Harbor, N.Y., on Nov. 12, resulting in the deaths of all 260 persons aboard and five persons on the ground.

According to the NTSB, the aircraft's engines have been sent to American Airlines' maintenance facility in Tulsa, Okla., for examination, and the aircraft wreckage is being moved to a long-term storage facility in Harrison, N.J.

Publication Notice

Publication of the *Researcher News* will resume on Jan. 11, 2002. The submission deadline is Dec. 31, 2001.

For breaking news, please visit the *Researcher News* Online at: <http://researchernews.larc.nasa.gov/>.

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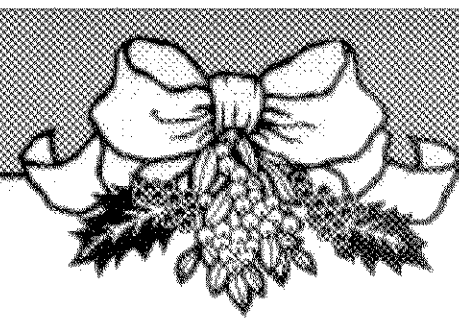

In celebration
of the holiday season,
the Director of
Langley Research Center,
Dr. Jeremiah F. Creedon,
cordially invites all
NASA civil service/contractor
employees and retirees
to attend a reception at the
H.J.E. Reid Conference Center
Tuesday, December 18, 2001,
from 2:30 to 4 p.m.

Sponsored by the
Langley Federal Credit Union
and the
NASA Langley Exchange

Refreshments and free raffle tickets will be available.
Drawings will be held at 3, 3:30 and 4 p.m.