NASA tackles wind shear dangers head-on

The threat of thunderstorms

NASA research pilots are flying through Central Florida thunderstorms this month in search of "microbursts," which can produce dangerous wind shears causing airliners to crash on take-off and landing. About 500 people have been killed and 200 injured in these types of crashes since 1964.

1. When an airliner making a final approach to a runway encounters a microburst, a strong headwind causes the plane to lift away from its intended path of descent.

2. A pilot's natural reaction is to reduce engine power to return the aircraft to its intended path of descent.

3. The plane then encounters a strong downdraft followed by a tailwind. These rapidly reduce the plane's airspeed, and combined with the earlier cut in engine power, can cause the plane to crash.

NASA tests warning systems

Three systems that measure factors used to predict wind shear are being tested by NASA and might give pilots 20 to 40 seconds warning of a microburst — enough time to avoid a deadly crash. They are:

- A laser system that measures the movement of aerosols and dust particles in the atmosphere.
- A microwave radar system that measures the direction and speed of raindrops.
- An infrared sensor system that measures changes in air temperature.

Source: NASA

Warning systems should increase airport safety

By Todd Halvorson
FLORIDA TODAY

Put yourself in the pilot's seat.

You are making your final approach to the runway in a raging thunderstorm, with lightning flashing and cracking around the aircraft.

Heavy turbulence is rocking the jumbo jet and its 150 passengers when you hit a strong, fast headwind that suddenly increases your aircraft's lift — speeding it forward and lifting it away from your path of descent.

A pilot's 'natural reaction' is to reduce engine power to slow the aircraft and get back on course. Cutting power at this crucial moment, however, can be a deadly mistake. You might be in the midst of a "microburst," which can produce a perilous type of wind shear. It can cause aircraft to crash on takeoff or landing.

"It can be very dangerous," said Fred Farrar, a spokesman for the Federal Aviation Administration in Washington, D.C. "What you have is a sudden shift in wind speed and wind direction that can literally cause the airplane to fall out of the sky."

NASA research pilots this month are flying through Central Florida thunderstorms in an effort to develop sensors that can provide advanced warning of microbursts. The test flight program is being conducted with a NASA-owned Boeing 737 now stationed at Orlando

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