Italians Trained At Langley To Launch First San Marco Satellite Friday At Wallops

By BEN ALTSHULER

An Italian launch crew trained at Langley Research Center and Wallops Station will place in orbit Friday the first satellite in Project San Marco, a joint venture by the United States and Italy to make continuing measurements of air density.

This will be the first time a team of foreign nationals has launched a satellite in the national Aeronautics and Space Administration's international cooperative program. U.S. launch crews have placed in orbit two United Kingdom satellites and one Canadian satellite.

It will be a kind of final examination and graduation exercise for some 75 Italian engineers and technicians who have spent much of the last 20 months getting ready at Langley and Wallops for what a NASA spokesman described as "perhaps the most ambitious" joint U.S.-foreign satellite attempt so far.

San Marco I will be launched from Wallops on a Langley-managed rocket, the four-stage solid propellant Scout, which has succeeded in nine of its last 10 shots. Key Langley personnel in the project are Roland D. English, vehicle project manager, and Louis P. Tosti, field operations director. Wallops has Tom W. Peary as project engineer, and Raymond H. Stanley as technical advisor for range instrumentation systems design, implementation and training.

The payload, a 254-pound spherical satellite 26 inches across, was developed and built at the Aerospace Research Center in Rome by a group headed by Prof. Luigi Broglio, chairman of the Italian Commission for Space Research.

San Marco is designed not only to measure air density but to investigate characteristics of the ionosphere related to interferences with long-range radio transmissions. The ionosphere is a kind of electronic mirror in the upper atmosphere.

Later San Marco spacecraft, will be launched into orbit over the equator from a towable "Texas Tower" platform in the Indian Ocean. Friday's satellite will head east from Wallops at an angle of 37.7 degrees to the equator. Its orbit is expected to range from 135 to 420 miles high.

The San Marco satellites will be the first ones to carry instruments permitting continuous measurement of air density and continual readout by telemetry. Every air density measurement gathered by NASA so far, starting with Echo 1, has been calculated from ground-based tracking of a lightweight balloon.

Continuous measurement will be made possible by building the San Marco satellite of a heavy instrumented core attached to a lightweight outer shell by spring balances, which resemble the working part of the old fashioned hanging butcher's scales. When the satellite hits a slightly denser part of the upper atmosphere that slows the outer shell a bit, the "floating" core will not lose any speed until a braking force is transmitted through the spring balances. Sensitive strain gages will monitor the tiny movements of the spring balances in terms of air density.

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