Scout Is Fired Successfully At Wallops Island

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The Langley Research Center's Scout rocket, fast becoming the workhorse in space probes calling for small payloads, successfully lifted a ionosphere research package into the skies at 2:27 a.m. today from the NASA Wallops Station.

The solid-propellant four-stage rocket hoisted the P-21A experiment to a peak altitude of 3,910 statute miles. The payload, "working beautifully all the way," according to NASA scientists, landed in the Atlantic Ocean some 4,370 statute miles down range from Wallops Station. Flight time of the experiment was clocked at 79 minutes...from lift-off to ocean impact.

SCOUT performance "functioned smoothly," project engineers reported. All three upper stages of the rocket fired on schedule.

The 147 pound payload, carrying test instruments, was the second in a series of ionosphere measurement probes. Designed to measure the electron density profile, ion density and type of ions in the ionosphere, in hopes of improving communications on earth and between vehicles in space, the P-21A was for nighttime research only. A similar daytime probe was conducted at Wallops on Oct. 9.

As follow-on research to the daytime probe, the P-21A is expected to tell scientists that the lower boundary of a helium region found on previous experiments drops lower to the earth when temperatures are cooler especially at night. Prior to these current research projects, it was believed that hydrogen was the most important atmospheric constituent at altitudes around 700 miles.

On the P-21 launch last fall, the helium layer was discovered at about 700 miles altitude. Scientists expect the edge of this layer to drop close to 200 miles nearer the earth under "cooling conditions."

ON THE BASIS of these findings, and if today's launch "proves" earlier test, it will help scientists to establish the point in the atmosphere where one transceeds into interplanetary space. Theoretical estimates are that a transition may occur at about 2,000 miles from helium to hydrogen which is the principal element of deep space.

Today's experiment carried three separate research items: (1) a continuous wave propagation experiment to determine electron density and associated parameters of the ionosphere; (2) a swept-frequency probe to attempt direct measurement of electron density, and (3) a positive ion experiment to attempt to count ion concentration.

A secondary mission of the flight was to test the newly established ionospheric ground stations at Wallops and Blossom Point, Md. The Goddard Space Flight Center was in charge of the P-21A payload.

The Scout concept originated in 1958 at the Langley Research Center. Its first full-scale launch occurred on July 1, 1960, at Wallops. The solid-fuel rocket, has become one of the most reliable research launch vehicles in the country today.

Scout was the nation's first solid-propellant rocket to plant a payload in orbit when it placed the Explorer IX plastic sphere into the skies on Feb. 16, 1961. Designed to hoist 150-pound satellites in a 300 mile orbit or send a 50-pound package nearly 5,500 miles high, the rocket is also a key source in reentry tests.

It can subject a "space package" to conditions like those encountered by space vehicles returning to the atmosphere.