

SATELLITES

Astronomy observatory planned

A High-Energy Astronomy Observatory carrying experiments for stellar astronomy is being proposed for launch in 1974.

The experiments would be designed to measure X-ray, gamma-ray and cosmic-ray emissions from stars.

The National Aeronautics and Space Administration has invited scientists to submit experiment proposals by May 31 of this year.

The first HEAO is tentatively planned to be octagonal, 30 feet long and about 9 feet in diameter. It is expected to rotate so that the experimental equipment can see the whole celestial sphere in a six-month period.

Present plans are for the observatory to be launched by a Titan III-D vehicle. It would carry an experiment payload of 14,000 pounds, in comparison to the 1,000-pound capability of the current Orbiting Astronomical Observatories.

HEAO I would be followed by three more observatories, launched in subsequent years.

AERONAUTICS

Rotary-powered silent plane

An airplane that looks like a stub-nosed glider is being touted by Lockheed Aircraft Corporation as the quietest thing in the air.

The Q-Star owes its silence to design, a slow-turning wooden prop, muffler and a low-powered engine. In its current configuration, the plane has a 57-foot wingspan and a multibladed propeller supported by a pylon over its flat nose. A 10-foot shaft passes from the engine, which is behind the cockpit, to the propeller.

The plane's rotary 185-horsepower engine built by Curtiss-Wright Corp., rotates the pistons in a circular chamber. It is the first craft to fly with a Wankel-type rotary engine.

The Q-Star was developed primarily for military use but the lessons learned could be applied to small and general aviation, says Lockheed. The Q-Star has flown 140 knots and reached an altitude of 14,000 feet. Theoretically it could fly at 19,000 feet.

MANNED FLIGHT

Future Apollo crews, sites

The Apollo 15 lunar landing team, the National Aeronautics and Space Administration announced last week, will be commanded by David R. Scott, veteran of Gemini 8 and Apollo 9. The command module pilot will be a rookie, Air Force Maj. Alfred M. Worden, as will the lunar module pilot, Lt. Col. James E. Irvin.

The backup crew for the flight includes the first scientist-astronaut, geologist Jack Schmitt. Other backup members are Richard Gordon, who flew on Gemini 11 and Apollo 12, and Vance Brand, a civilian who has not made a space debut yet.

Although site selection will depend on the results of preceding missions, Davy Rille is the most probable target for the landing, though Censorinus has been considered. The flight is planned for spring of 1971.

april 11, 1970

Apollo 14 crewmen, announced earlier this year, are veteran Alan Shepard and rookies Edgar Mitchell and Stu Rossa. The site for Apollo 14 is also tentative, but Littrow, a rough area strewn with volcanic material, is the best candidate.

SATELLITES

Last nuclear detection Velas

A Titan III-C rocket was scheduled to carry the last pair of Vela satellites into orbit this week.

Velas 11 and 12 will join ten similar satellites already in orbit. The Velas detect nuclear explosions in the earth's atmosphere and deep space by X-ray, gamma ray, neutron, optical and electromagnetic pulse detectors.

In addition to nuclear detection, the Velas supply data on radiation and solar flare activity.

The last two were to be placed into 60,000-nautical-mile orbits on opposite sides of the earth. A responsibility of the Advanced Research Projects Agency of the Department of Defense, the satellites are monitored from the Air Force's Space and Missile System organization at Sunnyvale, Calif.

NAVIGATION

Moving map for aircraft

A new combination of aircraft navigation systems is being demonstrated by England's Marconi Aeronautical Division.

The chief feature of the system is a moving map, which displays the position of an aircraft at the center of a map projected on a display screen in the cockpit. As the plane moves, the map moves across the screen under the control of a navigation computer. According to the designers, the system can store more than four times as much map information as any similar navigation system.

Combined with this is the capacity of the system to contain the entire route structure of any airline in the world, with room left for additional information.

APOLLO 13

Weather conditions critical

Two lightning events occurred during the launch of Apollo 12, and the astronauts momentarily lost their entire guidance and navigation systems.

Although no serious spacecraft damage resulted, Apollo directors have revised the weather rules to include restrictions that would have prohibited the launchings of Apollo 12 and possibly Apollo 9. It also makes the three-and-one-half hour launch window this week for Apollo 13 look very narrow. Missing the April 11 launch date would mean postponing the mission almost a month.

To avoid a repeat of the Apollo 12 thriller, NASA will prohibit launch if there are nonthunderstorm clouds 10,000 feet or higher in development, middle-layer clouds more than 6,000 feet in vertical development, or cumulus clouds with tops above 10,000 feet. Under these conditions, very likely in April, lightning could occur.

369