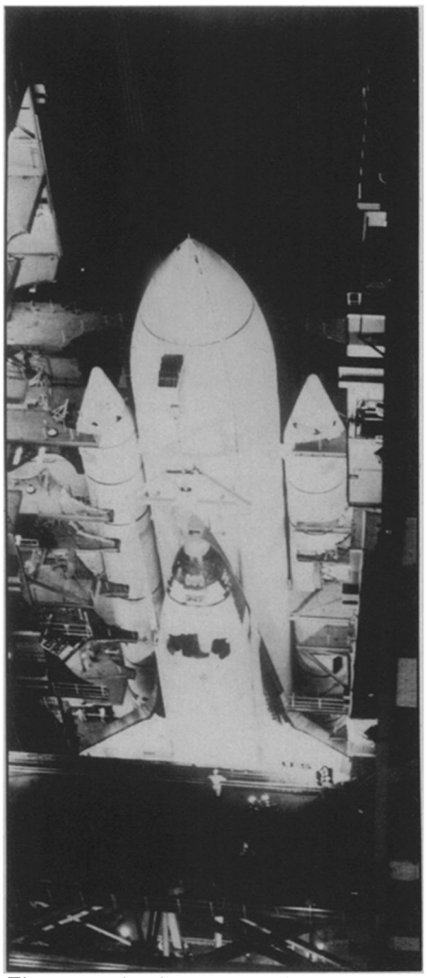
NASA 1981 launches: Shuttle and more

In 1981, the National Aeronautics and Space Administration plans to launch 13 satellites for various "outside" customers (other agencies, private corporations, consortia) and only three scientific probes for itself. This has been the pattern for the past several years, with the space agency being only a minor user of its own launching services, but this year NASA is also launching something far more important: its own future.

Currently set for Saturday, March 14, is the maiden flight to earth-orbit of the U.S. space shuttle, more than two years and billions of dollars behind its original estimates. A major milestone was passed on Dec. 29, when the craft was finally rolled to its oceanside launch pad from the huge Vehicle Assembly Building at Kennedy Space Center in Florida. Less than two weeks before that, astronauts John W. Young and Robert L. Crippen — long in training as the crew for the first flight — had "flown" the first simulated profile of their mission to be conducted with all of the shuttle's major components assembled and in the vertical position from which they will be launched. Engineers and technicians have been working at an accelerated pace for months, many in round-the-clock shifts, to resolve difficulties with the craft's engines and thermal insulation tiles.



NASA

The space shuttle, in assembly building.

1981 NASA Schedule

Date	Mission	Description
Feb.	Comstar D	communications (Comsat)
Mar.	Intelsat V-B	communications (Intelsat)
Mar.	GOES-E	weather and environment (NOAA)
Mar.	space shuttle	first orbital flight
Apr.	Navy 20	navigation (DOD)
Apr.	SBS-B	communications (Satellite Business Systems)
May	NOAA-C	weather (NOAA)
June	Intelsat V-C	communications (Intelsat)
June	RCA-D	communications (RCA)
June	FLTSATCOM-E	communications (DOD)
July	Dynamics Explorers A, B	ionospheric studies (NASA)
Aug.	Voyager 2	Saturn encounter
Aug.	space shuttle	second orbital flight
Sept.	Navy 21	navigation
Sept.	Intelsat V-D	communications (Intelsat)
Sept.	Solar Mesospheric Explorer	ozone studies (NASA)
Oct.	RCA-CI	communications (RCA)
Dec.	Intelsat V-E	communications (Intelsat)
Dec.	space shuttle	third orbital flight

The oft-postponed date is still an iffy one ("I would not rule out May," says one official), but NASA by now is almost past quibbling about a public deadline. The shuttle's mounting expenses have grown to gobble up nearly half of the agency's entire annual budget, and the delays have prompted many potential customers to consider taking their business elsewhere, such as the European Space Agency's Ariane rocket. The shuttle is intended to replace virtually the whole NASA arsenal of "expendable" launchers (satellites on this year's schedule are being lofted by Scouts, Deltas, Atlas F's and Atlas-Centaurs), and agency officials simply want to get their new transportation system off the ground and working. If the March 14 date is met, a second test flight could take place as early as Aug. 30, with possibly a third by Dec. 31.

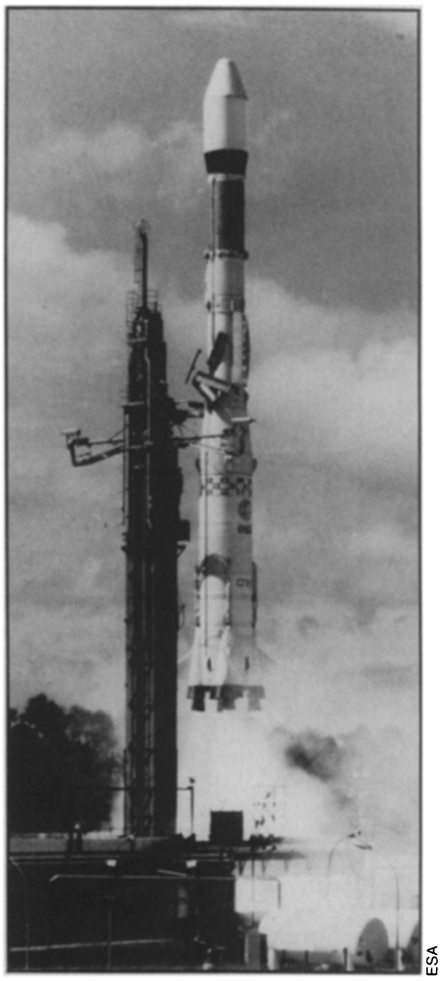
Keeping the competitive pressure on is ESA's Ariane, now set for its third flight in June. This flight would have taken place last September, but the second flight, four months before that, ended in an explosion that has since been traced to vibration problems. ESA officials maintain that the difficulties are responding to treatment, and that Ariane will become an "operational" rocket by next year.

Most of the satellites NASA is planning to launch this year — nine, in fact — are for communications. Two more are navigational beacons in the U.S. Navy's "Transit" series, and another pair are meteorological/environmental monitors for the National Oceanic and Atmospheric Administration. Even if the tapering-off of the shuttle's high development costs results in NASA having more funds available for its own scientific investigations, such applications-oriented satellites will represent a significant part of the shuttle's business.

Of the scientific satellites due to fly this year, two will be launched aboard the same Delta rocket, and for the same mission. Dynamics Explorers A and B (they will become 1 and 2 when they've made it to orbit) are designed to study the relationships between the earth's magnetic field and ionosphere. Following the same highly elliptical orbit, they will be able to observe the same phenomena at different times and from different locations, such as near the planet's subsolar point and well downstream in its magnetic tail.

Later in the year, the Solar Mesospheric Explorer will be sent up to monitor changes in the sun's ultraviolet output, together with corresponding changes in ozone levels and chemical processes in earth's upper atmosphere.

The other major event on NASA's 1981 calendar will not be a launching at all. That part was accomplished on Aug. 20, 1977, when the Voyager 2 spacecraft was sent off to its rendezvous with Jupiter, after which it headed toward its upcoming Aug. 25 rendezvous with the spectacular system of Saturn. □



ESA

ESA's Ariane, during 1979 maiden flight.