

# NASA News

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## NASA SCHEDULES 25 LAUNCHES IN 1978

Twenty-five launches, including 11 Delta launch vehicles and eight Atlas Centaurs, have been scheduled by NASA in 1978.

NASA personnel will provide support in connection with three Atlas-F space launches from Vandenberg Air Force Base, Calif.

Most of the launches in 1977 emphasized the use of space for the direct benefit of people on Earth -- such as communications, geodetic, environmental, navigation, meteorological and Earth resources.

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In 1978, plans call for missions virtually equally divided between emphasis on these applications and launches of spacecraft for primarily scientific and exploratory research.

Fifteen launches will be for paying customers other than NASA. They include the European Space Agency (ESA), Comsat Corp., the U.S. Navy, Japan, the National Oceanic and Atmospheric Administration (NOAA), the United Kingdom and Canada.

During 1977 the agency logged 16 launches -- 12 of them "reimbursables," for paying customers.

With 25 launches scheduled in 1978, the expendable vehicles workload will be heavy throughout the year. The tentative schedule provides for three January launches and three or more in some other months.

Ten of the Deltas will be launched by Kennedy Space Center, Fla., from Cape Canaveral Air Force Station, and one from a Western Test Range (WTR) launch pad at Vandenberg AFB. All of the Atlas Centaurs will be launched from Complex 36 at the Cape.

First launch of the year will be Intelsat IV-A (F-3), one of a series of International Telecommunications Satellite Organization spacecraft. It is scheduled for launch Jan. 6 on an Atlas Centaur. A second, Intelsat IV-A (F-6), could be launched in February.

A second Atlas Centaur with FLTSATCOM-A, the first of a series of geosynchronous orbiting spacecraft in a new Navy worldwide communications system, is scheduled Jan. 19.

An International Ultraviolet Explorer (IUE) is scheduled for launch on a Delta from Cape Canaveral, Jan. 25. In geostationary orbit above the equator, IUE will obtain data on ultraviolet emissions from stars and other stellar sources.

The IUE spacecraft was built at NASA's Goddard Space Flight Center, Greenbelt, Md. The European Space Agency and Great Britain's Science Research Council will participate in IUE experiments.

Landsat-C is scheduled for launch on a Delta from Vandenberg March 5. The picture-taking satellite will join Landsat-1 and Landsat-2 in polar orbit to expand NASA's program for cataloging the Earth's resources and monitoring changing environmental conditions.

Launch of an experimental broadcasting satellite, Japan-BSE, for research leading to the orbiting of future large-scale broadcasting satellites by the island nation, is scheduled on a Delta from Cape Canaveral March 23.

The launches of Intelsat IV-A (F-6) on an Atlas Centaur and a backup ESA Orbital Test Satellite (OTS) on a Delta from Cape Canaveral are scheduled in April. An earlier attempt to orbit an OTS failed when Delta-134 exploded shortly after liftoff Sept. 13, 1977.

Pioneer Venus-A, the first of two missions to examine the Venusian atmosphere and the planet's weather, is scheduled for launch on an Atlas Centaur in May. Pioneer Venus-A's mission is to place its spacecraft in orbit to examine the upper atmosphere.

Pioneer Venus-B will be launched on an Atlas Centaur in August. A multi-probe, it is scheduled to enter the Venusian atmosphere six days after arrival of the orbiter. The spin-stabilized multi-probe spacecraft consists of a bus, a large probe and three identical small probes, each with scientific instruments.

The probes will be released from the bus 20 days prior to arrival at Venus. The large probe will conduct sounding of Venus' lower atmosphere, measuring clouds as well as atmospheric structure and composition. The smaller probes, entering at widely separated points, will provide information on the general circulation patterns of the lower atmosphere.

A Japanese spacecraft that would be launched on a Delta from Cape Canaveral if an earlier Japanese mission is not successful, is on the schedule for June. If the Japanese spacecraft is not required, ESA GEOS-2, a scientific satellite, will be launched on a Delta in June. GEOS-1, launched from the Cape April 20, 1977, did not reach its intended orbit, although the spacecraft is transmitting data back to Earth and the mission is listed as partially successful.

COMSTAR-C, a domestic communications satellite, will be launched for COMSAT General Corp. on an Atlas Centaur in April.

Also scheduled for July launch is International Sun Earth Explorer-C (ISEE-C) on a Delta from the Cape. ISEE-C will be orbited at the libration point between the Earth and the Sun, a point in space where the force of gravity and dynamic force exert an equal pull.

From there it will obtain data on solar wind similar to, but from a different location than, that obtained by ISEE-1 and ISEE-2. ISEE-1, developed by NASA, and ISEE-2, developed by ESA, were launched in tandem on a Delta, Oct. 22, 1977.

NATO-III-C, a North Atlantic Treaty Organization communications satellite, is on the launch schedule for September. Launch will be on a Delta from Cape Canaveral.

Telesat-D, a domestic communications satellite that will be renamed Anik-4 in orbit, will be launched for Telesat Canada in November. Launch will be on a Delta from Cape Canaveral.

High Energy Astronomy Observatory-B (HEAO-B) is scheduled for launch on an Atlas Centaur during October. HEAO-B will maneuver and point for long periods of time at selected celestial X-ray sources mapped earlier by HEAO-A and other X-ray spacecraft. HEAO-1 was launched Aug. 12, 1977. Another FLTSATCOM spacecraft is scheduled for launch during November, also on an Atlas Centaur.

Scheduled for launch on Atlas-F launch vehicles from Vandenberg are Seasat-1, a NASA polar orbiting spacecraft for global monitoring of the oceans and ocean phenomena, in May; TIROS-N, a NASA polar-orbiting experimental weather satellite, also in May; and NOAA-A, a polar-orbiting weather satellite for NOAA later in the year.

A possible Delta call-up launch is on the 1978 schedule. If required to replace a presently operational spacecraft, Geostationary Operational Environmental Satellite-C (GOES-C) would be launched from Cape Canaveral. In addition, Nimbus-G, a NASA research satellite for testing sensors for oceanographic and meteorological monitoring, is planned for launch from Vandenberg in August.

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1978 PLANNED LAUNCH SCHEDULE

Date	Payload	Launch Vehicle	Launch Site	Reimbursable	Remarks
Jan. 6	Intelsat IV-A(F3)	Atlas Centaur	KSC	Yes	Communications satellite for Comsat Corp.
Jan. 19	FLTSATCOM-A	Atlas Centaur	KSC	Yes	Fleet Satellite Communications for Navy.
Jan. 25	IUE-A	Delta	KSC	No	International Ultraviolet Explorer, space science.
February	Intelsat IV-A(F6)	Atlas Centaur	KSC	Yes	Communications satellite for Comsat Corp.
March 5	Landsat-C	Delta	WTR	No	Polar-orbital ecological data satellite.
March 23	Japan/BSE	Delta	KSC	Yes	Experimental broadcasting satellite for Japan.
April	HCMM	Scout	WTR	No	Heat Capacity Mapping Mission to produce thermal maps of atmosphere.
April	Comstar-C	Atlas Centaur	KSC	Yes	Third in a series of domestic communications satellites.
April	OTS-BU	Delta	KSC	Yes	European Space Agency Orbital Test Satellite.
May	GOES-C	Delta	KSC	Yes	Geostationary Environmental Satellite for Earth imaging.
May	TIROS-N	Atlas-F	WTR	No	Polar orbiting weather spacecraft, operational.
May	Pioneer Venus-A	Atlas Centaur	KSC	No	Planetary mission to Venus, studies of solar wind.



1978 PLANNED LAUNCH SCHEDULE (Con't.)

Date	Payload	Launch Vehicle	Launch Site	Reimbursement	Remarks
May	Seasat-A	Atlas-F	WTR	No	Sea satellite for global ocean monitoring.
June	ESA/GEOS-B	Delta	KSC	Yes	ESA spacecraft to study atmospheric radiation, particles.
June	Japan-BU	Delta	KSC	Yes	Backup satellite for Japan.
July	UK-6	Scout	Wallops	Yes	United Kingdom satellite to measure radiation particles.
July	ISEE-C	Delta	KSC	No	International Sun Earth Explorer to work with A and B missions.
August	Nimbus-G	Delta	WTR	No	Weather and oceanographic satellite.
August	Pioneer Venus-B	Atlas Centaur	KSC	No	Venus multiprobe mission to study planet's atmosphere.
September	Navy-20	Scout	WTR	Yes	Navy navigation satellite, call-up.
September	NATO-III-C	Delta	KSC	Yes	NATO communications satellite, second in series.
September	NOAA-A	Atlas-F	WTR	Yes	Advanced operational prototype weather satellite.
October	HEAO-B	Atlas Centaur	KSC	No	Second High Energy Astrophysical Observatory to study space radiation.
November	Telesat-D	Delta	KSC	Yes	Canadian domestic communications satellite.
November	FLTSATCOM-B	Atlas Centaur	KSC	Yes	Fleet Satellite Communications for Navy (second).