

Traffic report: NASA's launchpad schedule for the coming year

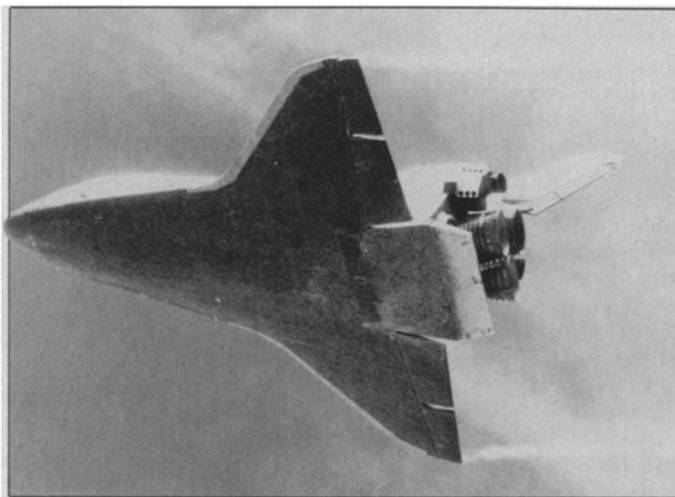
The U.S. space agency may conduct as many as 16 launchings in 1982 (and provide the rocket for a 17th), but, as has been the norm for several years, the vast majority will be for strictly down-to-earth purposes: communications, navigation, earth-resources studies and weather-watching. Only two scientific satellites are on the list, one of which, the U.S.-Dutch-British Infrared Astronomy Satellite (IRAS), is not even officially scheduled until 1983, but which could get an earlier sendoff if the delay of another payload frees a crew and launchpad to do the job.

The other is an atmosphere probe called San Marco D/L, a cooperative project in which Italy built and will launch the satellite, using a U.S.-made Scout rocket. Only three scientific instruments will be aboard, of which the American contributions are a mass spectrometer and an electric-field detector. Italy will send an atmospheric-drag sensor to make density measurements during the low points in the satellite's orbit, which will range from about 260 to 950 kilometers above the earth. Italy has also expressed interest in building a satellite for even lower-altitude studies, hanging the probe from a 97-km tether anchored aboard the space shuttle.

Though the tethered satellite would be several years away, the shuttle is likely to account for most of the National Aeronautics and Space Administration's 1982 headlines. Two more test flights are scheduled before the craft is decreed to be "operational," and the most recent mission was cut short by more than 50 percent due to a malfunctioning fuel cell, a completely unexpected source of trouble. The next flight is targeted for March, and besides further evaluating the shuttle's performance characteristics, it will be carrying a suite of instruments known as OSS-1 (for NASA's now-retitled Office of Space Science) designed to study the craft's potential electrical, electromagnetic, thermal and other effects on scientific instruments that may ride it in missions to follow. In addition, the package will monitor solar ultraviolet and X-ray emissions, and continue studies of plant growth in zero-gravity conditions. There will also be a test capsule for the purpose of evaluating the environment awaiting the low-cost "Getaway Special" payloads, of which NASA has already taken reservations for more than 300.

If all goes as planned, the final shuttle test flight will take place in July, carrying, among other things, a classified Defense Department payload — the first official military use of the shuttle.

The shuttle's first operational mission could then be launched as early as November, signaling the transition from years of costly, delay-plagued development to NASA's primary workhorse. Though the cargo manifest "can change while you're out to lunch," in the words of



The space shuttle Columbia, shown here landing from its second voyage, may complete its two remaining test flights and its first operational mission in 1982.

one official, it so far reports that the shuttle's huge payload bay will be bulging with two communications satellites (the U.S. SBS-C and Canada's Telesat E) and a second earth-resources instrument package for the agency's Office of Space and Terrestrial Applications.

The shuttle's competition, meanwhile, is operational already. On Dec. 20, the European Space Agency launched the fourth and last test version of its Ariane rocket, carrying the MARECS-A maritime communications satellite and an atmospheric electron-density experiment designed by a group of French students. Four operational Ariane launchings are scheduled for 1982, the first two carrying a pair of satellites each, while the latter two each have single customers. One of those customers, significantly, is the International Telecommunications Satellite Consor-

tium, whose Intelsats have heretofore been launched by NASA.

Communications satellites, in fact, comprise most of the launch business these days, with 11 on the NASA schedule for this year alone (including one each for India and Canada). Also part of a long series will be what NASA dubs "Navy 21," latest in the Defense Department's Transit navigational satellite network.

The NOAA-E weather satellite is on the agenda for the National Oceanic and Atmospheric Administration, but this one is for more than just spotting storms. Included will be a relay transponder and processor for a multi-national Search-And-Rescue Satellite-Aided Tracking system (SARSAT), which planners hope will markedly improve the ability to identify and locate downed aircraft and stranded marine vessels. Besides NOAA, NASA, DOD and the Department of Transportation, SARSAT involves Canada, France and Norway, with other countries expected to join. Even the Soviet Union is taking part, providing similar equipment aboard a satellite (COSPAS) to be launched this year. Emergency transmitters already on many U.S. and foreign craft (an estimated 250,000 are in use in the U.S. alone) will be able to signal for help through the SARSAT system, and officials will be testing an improved beacon (at a different frequency) that also reports a stranded vehicle's identification number. The SARSAT system could be expanded to include as many as five satellites (3 U.S. and 2 Soviet) with each addition reducing the time until a satellite is within range of an emergency signal.

The long-awaited Landsat D earth-resources satellite is also due for launching this year, expanding the visible-light and near-infrared imaging of previous Landsats well into the infrared and thermal infrared for better discrimination of vegetation and rock types. Uncertain as yet, however, is when a NASA launch schedule will again include a probe to another world.

— J. Eberhart

1982 NASA Schedule

DATE	MISSION	DESCRIPTION
Jan.	RCA-C'	communications
Feb.	Westar IV	communications
Feb.	Intelsat V-D	communications
March	space shuttle	third orbital test flight
April	INSAT-1A	communications (India)
May	Intelsat V-E	communications
June	NOAA-E	weather, search-and-rescue
June	Navy 21	navigation
July	Landsat D	earth resources
July	space shuttle	fourth orbital test flight
Aug.	Telesat G	communications (Canada)
Sept.	Westar V	communications
Oct.	RCA-E	communications
Oct.?	IRAS	IR astronomy (US/Netherlands/UK)
Nov.	space shuttle	first operational flight
Nov.	San Marco D/L	atmospheric research (US/Italy)
Dec.	Intelsat VA-A	communications