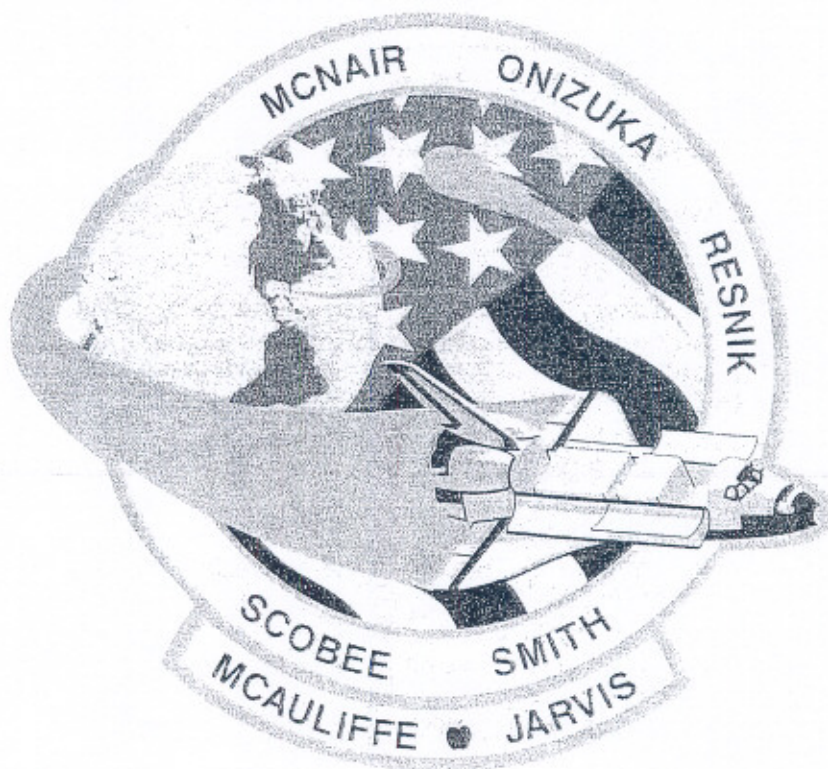


Space Shuttle Mission 51-L



Press Kit

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TEACHER IN SPACE AND COMET HALLEY STUDY HIGHLIGHT 51-L FLIGHT

The launch of a high school teacher as America's first private citizen to fly aboard the Shuttle in NASA's Space Flight Participant Program will open a new chapter in space travel when Challenger lifts off on the 25th Space Shuttle mission.

A science payload programmed for 40 hours of comet Halley observations and the second of NASA's Tracking and Data Relay Satellites (TDRS-B) will be aboard for Challenger's 10th flight, targeted for launch at 3:43 p.m. EST on Jan. 24.

Challenger's liftoff will mark the first use of Pad 39-B for a Shuttle launch. Pad B was last used for the Apollo Soyuz Test Project in July 1975 and has since been modified to support the Shuttle program.

Four Shuttle veterans will be joined by rookie astronaut Michael Smith, teacher observer Christa McAuliffe and Hughes payload specialist Gregory Jarvis for a mission that will extend just beyond 6 days.

Commanding the seven-member crew will be Francis R. Scobee, who served as pilot aboard Challenger on mission 41-C. Michael Smith will be 51-L Pilot.

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Produced at the Ronald Reagan Library



Mission specialists Judith Resnik, Ellison Onizuka and Ronald McNair each will be making their second trip into space.

Challenger will be launched into a 177-statute-mile circular orbit inclined 28.45 degrees to the equator for the 6-day, 34-minute mission. The orbiter is scheduled to make its end-of-mission landing on the 3-mile-long Shuttle Landing Facility at Kennedy Space Center.

Deployed on the first day of the flight, TDRS-B will join TDRS-1 in geosynchronous orbit to provide high-capacity communications and data links between Earth and the Shuttle, as well as other spacecraft and launch vehicles.

After deployment from the Shuttle cargo bay, TDRS-B will be boosted to geosynchronous transfer orbit by the Inertial Upper Stage (IUS). Its orbit will be circularized and it will be positioned over the Pacific Ocean at 171 degrees west longitude.

TDRS-1, launched from Challenger in April 1983 on the sixth Space Shuttle flight, is located over the Atlantic Ocean at 41 degrees west longitude.

With the addition of the second satellite, realtime coverage through the single ground station at White Sands, N.M., is expected to be available for about 85 percent of each orbit of a user spacecraft.

The TDRS satellites, built by TRW Space Systems, are owned by Space Communications Company (SPACECOM) and leased by NASA for a period of 10 years. A third TDRS satellite will be launched on a later mission to serve as an in-orbit spare.

Spartan-Halley is the second payload in the NASA-sponsored Spartan program for flying low-cost experiment packages aboard the Shuttle.

The scientific objective of Spartan-Halley is to measure the ultraviolet spectrum of comet Halley as the comet approaches the point of its orbit that will be closest to the sun.

The Spartan mission peculiar support structure will be deployed from the Shuttle cargo bay and retrieved later in the mission for return to Earth.

Ultraviolet measurements and photographs of comet Halley will be made by instruments on the Spartan support structure during 40 hours of free flying in formation with the Shuttle.

Several middeck experiments, including those associated with the Teacher in Space Project, and three student experiments complete Challenger's payload manifest.

Teacher observer Christa McAuliffe will perform experiments that will demonstrate the effects of microgravity on hydroponics, magnetism, Newton's laws, effervescence, chromatography and the operation of simple machines.

The Teacher in Space experiments will be filmed for use after the flight in educating students.

McAuliffe also will assist in operating three student experiments being carried aboard Challenger. These experiments include a study of chicken embryo development in space, research on how microgravity affects a titanium alloy and an experiment in crystal growth.

The Fluid Dynamics Experiment, a package of six experiments, will be flown on the middeck. They involve simulating the behavior of liquid propellants in low gravity. The fluid dynamics experiments will be conducted by Hughes payload specialist Gregory Jarvis.

Among the fluid investigations will be simulations to understand the motion of propellants during Shuttle frisbee deployments, which have been employed for the Hughes Leasat satellites.



Another middeck experiment will be the Radiation Monitoring Experiment consisting of handheld and pocket monitors to measure radiation levels at various times in orbit. This is the seventh flight for the RME.

Challenger will perform its deorbit maneuver and burn over the Indian Ocean on orbit 96 with landing at Kennedy occurring on orbit 97 at a mission elapsed time of 6 days, 34 minutes.

Touchdown on the Florida runway should come at 4:17 p.m. EST on Jan. 30.

(END OF GENERAL RELEASE; BACKGROUND INFORMATION FOLLOWS.)

GENERAL INFORMATION

NASA Select Television Transmission

NASA-Select television coverage of Shuttle mission 51-L will be carried on a full satellite transponder:

Satcom F-2R, Transponder 13, C-Band
Orbital Position: 72 degrees west longitude
Frequency: 3954.5 MHz vertical polarization
Audio Monaural: 6.8 MHz

NASA-Select video also is available at the AT&T Switching Center, Television Operation Control in Washington, D.C., and at the following NASA locations:

NASA Headquarters, Washington, D.C.
Langley Research Center, Hampton, Va.
John F. Kennedy Space Center, Fla.
Marshall Space Flight Center, Huntsville, Ala.
Johnson Space Center, Houston, Texas
Dryden Flight Research Facility, Edwards, Calif.
Ames Research Center, Mountain View, Calif.
Jet Propulsion Laboratory, Pasadena, Calif.

The schedule for television transmissions from the orbiter and for the change-of-shift briefings from Johnson Space Center will be available during the mission at Kennedy Space Center, Marshall Space Flight Center, Johnson Space Center and NASA Headquarters.

The television schedule will be updated daily to reflect changes dictated by mission operations. Television schedules also may be obtained by calling COMSTOR (713/280-8711). COMSTOR is a computer data-base service requiring the use of a telephone modem.

Special Note to Broadcasters

Beginning Jan. 22 and continuing throughout the mission, approximately 7 minutes of audio interview material with the crew of 51-L will be available to broadcasters by calling 202/269-6572.

Briefings

Flight control personnel will be on 8-hour shifts. Change-of-shift briefings by the off-going flight director will occur at approximately 8-hour intervals.

National STS Program STS 51-L Cargo Configuration

