

Earth



Aliens On Earth.com

Resources for those who are stranded here

Earth



Navigation

[UFOs](#)
[Paranormal](#)
[People](#)
[Places](#)
[Area 51](#)
[Random](#)
[Top 100](#)
[Catalog](#)
[What's New](#)

Search...

...for this word in:

Page Titles
 Page Contents
 Book
 Title/Author

[Help](#)

Log-In Here

For Advanced Features

New Catalog Items (Random Selection)

[Silent Spring](#) (used hc) - \$25.00

[Pain: The Gift Nobody Wants](#) (used hc) - \$14.00

*[Elvis Presley: Book Assortment](#) - Assortment

[Beyond Earth: Man's Contact with UFOs](#) (used pb) - \$6.00

[Values of the Game](#) (used hc) - \$14.00

[None but the Braves: A Pitcher, A Team, A Champion](#) (autobiography of Tom Glavine) (used hc) - \$7.00

[Other New Items](#) | [Main Catalog Page](#) | [Subjects](#)

2000+ new & used titles, including hundreds you won't find at Amazon!

[Mothership](#) -> [UFO](#) -> [Updates](#) -> [1997](#) -> [Feb](#) -> Here

[Our Focus](#)

UFO UpDates Mailing List

STS-82 Set for Second Hubble Servicing Mission

From: NASANews@hq.nasa.gov
Date: Tue, 4 Feb 1997 13:52:29 -0500 (EST)
Fwd Date: Tue, 04 Feb 1997 20:23:32 -0500
Subject: STS-82 Set for Second Hubble Servicing Mission

Debbie Rahn/Jennifer McCarter
Headquarters, Washington, DC
(Phone: 202/358-1778)

January 31, 1997

RELEASE: 97-18

STS-82 SET FOR SECOND HUBBLE TELESCOPE SERVICING MISSION

Astronauts on the Space Shuttle Discovery STS-82 mission will significantly upgrade the scientific capabilities of NASA's Hubble Space Telescope (HST) during the ten-day servicing mission by installing two state-of-the-art instruments. They also will perform maintenance to keep HST functioning smoothly until the next scheduled servicing mission in 1999. STS-82, scheduled to launch Feb. 11, 1997, is the second servicing mission to HST since its deployment in April 1990.

The seven-member crew will conduct at least four spacewalks (also called Extravehicular Activities or EVAs) to remove two older instruments and install two new astronomy instruments, as well as other servicing tasks. The two older instruments being replaced are the Goddard High Resolution Spectrometer and the Faint Object Spectrograph. Replacing these instruments are the Space Telescope Imaging Spectrograph (STIS) and the Near Infrared Camera and Multi-Object Spectrometer (NICMOS). HST's current complement of science instruments includes two cameras, two spectrographs, and fine guidance sensors.

In addition to installing the new instruments, astronauts will replace other existing hardware with upgrades and spares. Hubble will get a refurbished Fine Guidance Sensor, an optical device that is used on HST to provide pointing information for the spacecraft and is used as a scientific instrument for astrometric science. The Solid State Recorder (SSR) will replace one of HST's current reel-to-reel tape recorders. The SSR provides much more flexibility than a reel-to-reel recorder and can store ten times more data.

One of Hubble's four Reaction Wheel Assemblies (RWA) will be replaced with a refurbished spare. The RWA is part of Hubble's Pointing Control Subsystem. The RWAs use spin momentum to move

the telescope into position. The wheels also maintain the spacecraft in a stable position. The wheel axes are oriented so that the telescope can provide science with only three wheels operating, if required.

The STS-82 crew will be commanded by Ken Bowersox, who will be making his fourth Shuttle flight. The pilot is Scott Horowitz, who will be making his second flight. There are five mission specialists assigned to this flight. Joe Tanner, Mission Specialist-1, is making his second flight. Mission Specialist-2, Steve Hawley, is making his fourth flight. Greg Harbaugh, Mission Specialist-3, is making his fourth flight. Mark Lee, Mission Specialist-4, is making his fourth flight. Mission Specialist-5, Steve Smith, is making his second flight. The crew members who will conduct the planned EVAs are Mark Lee, Greg Harbaugh, Steve Smith and Joe Tanner.

Training for this mission began nearly two years ago. Extensive training for the EVAs was conducted at the Johnson Space Center in Houston, TX, in the 25-foot deep Weightless Environment Training Facility; at the Marshall Space Flight Center in Huntsville, AL, in the 40-foot deep Neutral Buoyancy Simulator; and at the Goddard Space Flight Center in Greenbelt, MD, in a 12,500 square-foot cleanroom.

During the training, the astronauts practiced every detail of every task they will have to perform during the four spacewalks. They also rehearsed using more than 150 specialized tools and crew aids developed specifically for this mission, ranging from a simple bag for carrying some of the smaller tools to sophisticated, battery-operated power tools. The hand-operated devices allow astronauts to more efficiently perform intricate, labor-intensive tasks. Tools will allow access to equipment bays on both HST and the Shuttle and will help remove and install scientific instruments and other components.

Discovery is targeted for an early morning launch on Feb. 11 from NASA's Kennedy Space Center (KSC) Launch Complex 39-A at 3:56 a.m. EST. The launch window is 61 minutes. With an on-time launch on Feb. 11 and a nominal 10-day mission, Discovery will land back at KSC on Feb. 21 at about 2:43 a.m. EST.

STS-82 will be the 22nd Flight of Discovery and the 82nd mission flown since the start of the Space Shuttle program in April 1981.

New Astronomy Instruments

The HST was designed to allow new instruments to be easily installed as old ones become obsolete. This was demonstrated during the first servicing mission in December 1993, when, during an 11-day mission that included a record five EVAs, astronauts successfully installed a new camera which had its corrective optics built right in, and a special instrument, called the COSTAR (Corrective Optics Space Telescope Axial Replacement) that would properly refocus light from the flawed main mirror to the other instruments.

The new instruments installed during this mission will again dramatically expand Hubble's scientific capabilities. The Space Telescope Imaging Spectrograph (STIS) provides unique and powerful spectroscopic capabilities for the HST. A spectrograph separates the light gathered by the telescope into its spectral components so that the composition, temperature, motion, and other chemical and physical properties of astronomical objects can be analyzed.

STIS's two-dimensional detectors allow the instrument to gather 30 times more spectral data and 500 times more spatial data than existing spectrographs on Hubble which look at one place at a time. One of the greatest advantages to using STIS is in the study of supermassive black holes.

STIS will search for massive black holes by studying the star and gas dynamics around galactic centers. It also will measure the distribution of matter in the universe by studying quasar absorption lines, use its high sensitivity and spatial resolution to study star formation in distant galaxies, and perform spectroscopic mapping of solar system objects.

The Near Infrared Camera and Multi-Object Spectrometer (NICMOS) promises to gain valuable new information on the dusty

centers of galaxies and the formation of stars and planets. NICMOS consists of three cameras. It will provide the capability for infrared imaging and spectroscopic observations of astronomical targets.

NICMOS will give astronomers their first clear view of the universe at near-infrared wavelengths between 0.8 and 2.5 micrometers -- longer wavelengths than the human eye can see. The expansion of the universe shifts the light from very distant objects toward longer red and infrared wavelengths.

NICMOS's near infrared capabilities will provide views of objects too distant for research by current Hubble optical and ultraviolet instruments. NICMOS's detectors perform more efficiently than previous infrared detectors.

Technological Advances

Besides rapidly advancing scientific understanding of the universe, HST is making direct contributions to the health, safety, and quality of people's lives through a variety of technological spinoffs.

For instance, a new, non-surgical breast biopsy technique using a device originally developed for HST's Imaging Spectrograph (STIS) is now saving women pain, scarring, radiation exposure, time and money. This technique, called stereotactic automated large-core needle biopsy, enables a doctor to precisely locate a suspicious lump and use a needle instead of surgery to remove tissue for study. This precise process is possible because of a key improvement in digital imaging technology known as a Charge Coupled Device or CCD.

Looking Toward the Future

The Hubble Space Telescope was designed to operate in space for 15 years. Since its deployment in 1990, HST has revolutionized astronomers' vision of the universe more than any prior telescopes. Many new details about planets, stars and galaxies have been revealed in the short span of six years. Hubble provided dramatic and detailed views of comet fragments smashing into Jupiter; clues about the existence of black holes in the core of galaxies; and has made significant progress in determining the age and size of the universe. With astronauts geared to embark on the second mission to service the telescope, scientists are looking forward to even greater capabilities to look deeper into the universe.

Two more servicing missions are planned for 1999 and 2002 to keep the telescope functioning efficiently and to improve its scientific capability. Among the tasks for the 1999 mission are installation of the Advanced Camera, new solar arrays, and the telescope will be reboosted into a higher orbit. In 2002, plans call for installation of an as-yet undefined advanced scientific instrument as well as maintenance to keep HST functioning until at least 2005.

The HST is a joint project between NASA and the European Space Agency.

- end -

Search for other documents to/from: [nasanews](#)

[[Next Message](#) | [Previous Message](#) | [This Day's Messages](#)]
[[This Month's Index](#) | [UFO UpDates Main Index](#) | [MUFON Ontario](#)]

UFO UpDates - Toronto - updates@globalserve.net

Operated by Errol Bruce-Knapp - ++ 416-696-0304

A Hand-Operated E-Mail Subscription Service for the Study of UFO Related Phenomena.

To subscribe please send your first and last name to updates@globalserve.net

Message submissions should be sent to the same address.

[[UFO Topics](#) | [People](#) | [Ufomind What's New](#) | [Ufomind Top Level](#)]

To find this message again in the future...
Link it to the appropriate [Ufologist](#) or [UFO Topic](#) page.

Archived as a public service by [Area 51 Research Center](#) which is not responsible for content.
Software by Glenn Campbell. Technical contact: webmaster@ufomind.com

Financial support for this web server is provided by the [Research Center Catalog](#).