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# NASA gives green light to Hubble rescue

## After debate, shuttle mission to aging space telescope set for 2008

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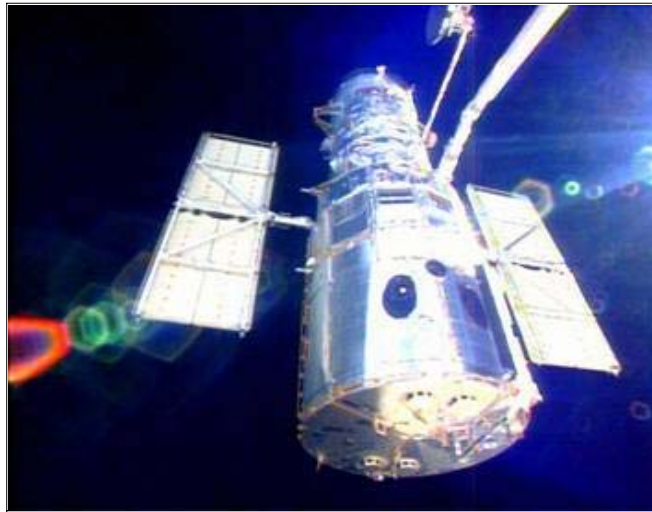
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NASA

In a picture from 2002, the space shuttle Columbia's robot arm moves the Hubble Space Telescope out of the payload bay, at the end of its most recent servicing mission.

**By Alan Boyle**

Science editor

MSNBC

Updated: less than 1 minute ago

GREENBELT, Md. - After years of debate, NASA Administrator Mike Griffin gave the go-ahead on Tuesday for what could be one of the space shuttle program's most dramatic missions: a final repair visit to the Hubble Space Telescope.

"We are going to add a shuttle servicing mission to the Hubble Space Telescope to the shuttle's manifest before it retires," Griffin told agency employees here at NASA's Goddard Space Flight Center. The news was greeted with a loud round of applause.

The service call is tentatively scheduled for launch no earlier than May 2008, with Discovery as the designated shuttle, Griffin said. The

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mission would be aimed at keeping the orbiting ol provided thousands of dazzling pictures of the cos years in orbit, in operation for seven years more.

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During the 11-day flight, astronauts would install fresh batteries and fix the guidance system on the \$1.5 billion, 12-ton telescope. Those are Hubble's most vulnerable components, and without their replacement, Hubble is thought to have only two or three years left before it quits working.

The repair crew will be headed by shuttle commander Scott Altman, with rookie astronaut Gregory Johnson serving as pilot. Other crew members include veteran spacewalkers John Grunsfeld and Michael Massimino as well as first-time space fliers Andrew Feustel, Michael Good and Megan McArthur.

Spacewalkers would install the Wide Field Camera 3 and the Cosmic Origin Spectrograph, which would upgrade Hubble's observing capabilities by at least a factor of 10. They also would try to repair the Space Telescope Imaging Spectrograph, which stopped working two years ago.

### Hubble mission's ups and downs

Originally, the fifth and final Hubble servicing mission had been planned for 2004 — but that plan had to be changed in 2003, when the shuttle Columbia and its crew were lost due to damage done by flying foam insulation shortly after launch.

In the tragedy's aftermath, NASA decided against sending a shuttle to the space telescope because of safety concerns, particularly because crew members could not seek refuge in the international space station if Columbia-style damage ruled out the shuttle's return to Earth.

Mission planners looked into sending an autonomous space robot to do the repairs, [but that idea was nixed](#) last year

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after the National Academy of Sciences said sending a shuttle was the better option.

When Griffin took NASA's top post, he signaled that a shuttle mission might be considered for Hubble's repairs — but only if the shuttle fleet was proven safe, and only if there was a way to rescue the crew in the event of another Columbia scenario.

He met with other NASA managers on Friday for a final debate on the Hubble servicing mission's pros and cons. Griffin was swayed by the fact that the past two shuttle missions were trouble-free, and also took account of the progress being made on methods for inspecting the shuttle for damage and possibly repairing damage while in orbit. For instance, a procedure to put spacewalkers on the end of a shuttle inspection boom was successfully tested during Discovery's flight in July.

"We had now inspection, we had repair, we had the ability to get the astronaut to the repair site ... so we felt that we were in pretty good shape," Griffin said.

The tentative mission plan calls for another shuttle to be placed on standby for launch, to rescue the Hubble crew members in the event that their shuttle couldn't return to Earth. Astronauts would be ferried from the stricken shuttle to the rescue craft during a series of spacewalks.

### **Another dramatic chapter**

Even if the shuttle makes it safely to orbit, four or five spacewalks would be required for a surgical operation in the vacuum of space. The servicing mission would thus stand as another dramatic chapter in Hubble's life.

"We've had so many ups and downs with Hubble — this one isn't the worst," said Max Mutchler, a science instrument analyst at the Baltimore-based Space Telescope Science Institute.

Shortly after Hubble was deployed in 1990, scientists were horrified to find that the telescope produced out-of-focus pictures, due to an incorrectly shaped mirror. It wasn't until after corrective optics were installed during the first shuttle servicing mission in 1993 that Hubble reached its full glory.

Over the years, three other shuttle crews have replaced and upgraded equipment on the orbiting telescope — most recently in 2002, when the Advanced Camera for Surveys was installed.

Griffin noted that the four previous servicing missions have been flawless, and added, "I'm fully confident that this fifth mission will go as flawlessly as we can imagine."

### **Past and future results**

Hubble's past results have helped astronomers figure out the [age of the universe](#) and identify [dusty disks](#) surrounding other stars — places where scientists believe alien worlds might lurk. Adam Riess, an astrophysicist at the Space Telescope Science Institute who uses Hubble data to probe the mysteries of [dark energy](#), said the Wide Field

Camera 3 would be particularly useful for his research.

"Right now, measuring dark energy is one of main things that Hubble does, but we need many more observations," Riess told MSNBC.com.

If the servicing mission is successful, NASA could keep Hubble going until the 2013 time frame, when its scientific heir, the James Webb Space Telescope, is scheduled for launch. When Hubble finally gives up the ghost, the space shuttle's successor — the Orion crew exploration vehicle — would attach a propulsion module to push Hubble safely out of orbit along a predetermined path, Griffin said.

Senators as well as schoolchildren have joined the push to keep Hubble going. One of the telescope's biggest congressional champions, Sen. Barbara Mikulski, D-Md., joined Griffin for Tuesday's announcement. She praised Griffin and his predecessor, Sean O'Keefe for seeking a second opinion "from the engineers, not the accountants."

"It's a great day for science, it's a great day for discovery, it's a great day for inspiration, because that's one of the things that Hubble has meant to so many people," she said.

Mutchler said he was gratified to see how the public has embraced the space telescope as something eminently worth saving.

"It's nice when other people compliment your 'kids,'" Mutchler said.

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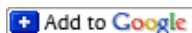
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