

Astronauts get shuttle ready to come home Saturday

March 27 2009, By MARCIA DUNN , AP Aerospace Writer



In this image from NASA Television, space shuttle Discovery is seen from the international space station with the earth in the background after undocking from the space station, Wednesday, March 25, 2009. (AP Photo/NASA TV)

(AP) -- Their mission almost complete, space shuttle Discovery's astronauts checked out their ship's flight systems Friday to ensure a safe return to NASA's spaceport.

Discovery and its crew of seven were due back Saturday afternoon, ending a nearly two-week mission that left the [international space station](#) fully powered with a new set of solar wings.

"Enjoy your last full day in space," Mission Control said in a wake-up

message.

The [shuttle](#) pilots went through their pre-landing checklist, testing the ship's [thrusters](#) and other flight systems. They encountered only one thing out of the ordinary, a display that switched to an incorrect number. Mission Control said it seemed to be a timing issue and was looking into it.

Discovery left the space station Wednesday; it had to be gone by then to make room for a Russian Soyuz spacecraft that's due to arrive Saturday with a fresh crew.

During Discovery's eight days there, the shuttle [astronauts](#) installed the final set of solar wings that boosted electrical power at the orbiting outpost. The extra juice is needed for all the science experiments that are planned once the station population doubles, to six, in late spring.

The shuttle also delivered a new urine processor that got the space station's water-recycling system working, and an iodine flush that got rid of the bacteria that had tainted the lines.

The space station also got a new crew member, a Japanese astronaut who took the place of Sandra Magnus. She is finally headed home after 4 1/2 months in orbit.

During re-entry, Discovery will test out a thermal tile that is deliberately flawed: It has a "speed bump" molded into it. [NASA](#) wants to gauge the amount of disturbance in the flow of hypersonic air over the quarter-inch-high bump, and determine the amount of downstream heating.

The experimental tile, under the left wing, will be exposed to nearly 3,000 degrees Fahrenheit during descent. NASA officials say the tiles in this area are 3 inches thick and they have no concern damaging the wing.

A gash in the left wing led to Columbia's destruction in 2003 and the deaths of all seven astronauts.

A Navy plane will fly below Discovery as the shuttle heads over the Gulf of Mexico toward Florida, and monitor heating on the bottom of the shuttle with an infrared camera.

This new type of tile was developed as a potential improvement for the space shuttles, scheduled to retire by the end of next year. It's also being considered for NASA's shuttle replacement, a craft called Orion that is intended to carry crews to the space station and eventually the moon and Mars.

On the Net:

NASA: <http://spaceflight.nasa.gov>

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