

Hubble Mission Opens Shuttle's Last Act

Aging, flawed space vehicle still has its fans

—By Joel Achenbach



Hubble repairs

started on the telescope in 1976, said, "The dream was that Hubble would be similar to mountaintop telescopes." The greatest mountaintop telescopes last for decades. The Hubble made that concept come true in space.

The successor to the Hubble will be an infrared telescope a million miles from Earth, and although it has a docking ring, it is much more likely to be serviced robotically than by human beings traveling all that way in a spaceship.

NASA's next-generation launcher, the Ares I, could not possibly duplicate the feats of the aging shuttle,

Almost overlooked in the hoopla over the May 11th launch of the final servicing mission to the Hubble Space Telescope has been another piece of gee-whiz space technology that will soon be only a museum exhibit: the space shuttle.

There are only nine shuttle missions left, including the one that started when Atlantis blasted off through a thin layer of clouds drifting high above the Kennedy Space Center to the Hubble, to begin a series of space walks in which they replaced, and in some cases repaired on the spot, many of the telescope's scientific instruments.

The remainder of the shuttle flights will be to the international space station, with the final mission scheduled for late 2010. The Hubble mission was thus one of the shuttle's last hurrahs, and nothing quite like it will happen again any time soon.

The Hubble was dreamed up in the 1970s, at the same time as the space shuttle program, and the telescope and the space truck have always been symbiotic. No other space telescope gets serviced by astronauts. NASA currently has a dozen of them in orbit, many of them in orbits far from where the shuttle can fly. They were not designed with the thought that anyone would ever show up to fix them.

"Hubble was lucky," said Edward Weiler, NASA's head of space science, who has worked on the Hubble project since 1978. The shuttle, he said, "gave you an infrastructure that was there and was frankly free to the science side."

The senior project scientist for Hubble, David Leckrone, who



Hubble release

NASA Associate Administrator Bill Gerstenmeier noted at a post-launch briefing. "The space shuttle is really uniquely set for this servicing task," he said. Atlantis carried not only seven astronauts but also, on this mission, 22,000 pounds of instruments, batteries and other cargo, vastly more than could be hauled by the skinny Ares 1. The shuttle's payload bay acts like a garage in space. And with its robotic arm, the shuttle

can reach out and grab the huge telescope as surely as a frog nabbing a fly.

NASA's current plans call for separating astronauts from most of the cargo going into space. Astronauts will ride the Ares I, but cargo will go up on a larger, unmanned rocket, the Ares V.

The architecture of the next generation of spacecraft may yet change. The Obama administration ordered up in mid-May a soup-to-nuts review of the entire human-spaceflight program. The review panel, headed by former aerospace executive Norman Augustine, will have 90 days to report back.

Whatever the findings of the review, there will likely not be anything like the shuttle built again. NASA is returning to architecture that resembles that used in the Apollo program, with a capsule on top of a rocket, which engineers view as safer than the shuttle design, which has the orbiter riding into

space nestled next to its solid-fuel booster rockets. Two shuttles—Challenger and Columbia—disintegrated in catastrophic accidents directly or indirectly related to the launch.

Flaws and age notwithstanding, the shuttle has its admirers—there are many self-professed shuttle huggers at Boeing, the shuttle's builder, and, of course at NASA.

Astronaut Dottie Metcalf-Lindenburger, who is scheduled to go into space for the first time on the fourth-to-last shuttle mission, said: "It's hard to see that engineering go away." But Ares I could go all the way to the moon, and this opens up new possibilities for the future. "I would love to go stand on the moon. That would be amazing," she said. [Joel Achenbach is *Washington Post* staff writer]

