

## NASA Planning Moon Launch for 2018

By *MARCIA DUNN*

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CAPE CANAVERAL, Fla. — It will cost \$104 billion over the next decade to send astronauts back to the moon, NASA's chief said Monday, defending the price tag as an investment the nation can afford despite the expense of Hurricane Katrina.

Described as "Apollo on steroids," the new moon exploration plan unveiled by the space agency will use beefed-up shuttle and Apollo parts and aims to put people on the moon by 2018.

"There will be a lot more hurricanes and a lot more other natural disasters to befall the United States and the world in that time, I hope none worse than Katrina," NASA Administrator Michael Griffin said at a news conference.

"But the space program is a long-term investment in our future. We must deal with our short-term problems while not sacrificing our long-term investments in our future. When we have a hurricane, we don't cancel the Air Force. We don't cancel the Navy. And we're not going to cancel NASA."

Griffin said he is not seeking extra money and stressed that NASA will live within its future annual budgets of \$16 billion. Funding within the human spaceflight program will be redirected to achieve this goal, and not "one thin dime" will be taken from science projects, he said.

The \$104 billion price tag, leading up to an initial four-person lunar landing and spread over 13 years, represents 55 percent of what the Apollo program would cost in today's dollars, Griffin said. Apollo development spanned eight years, from 1961 to the first manned moon landing in 1969.

House Majority Leader Tom DeLay, R-Texas, said the nation can fight the war on terror and deal with a disaster like Katrina while developing space technology for the future. "It is expensive, but at the same time it's incredibly important because the return to the people of the United States and the world is also very important," DeLay said.

The new space vehicle design uses shuttle rocket parts, an Apollo-style capsule and a lander capable of carrying four people to the moon. The rockets—there would be two, a small version for people and a heftier one for cargo—would eclipse the 18-story space shuttle. The larger one, in fact, would come close to the 36-story Saturn 5 moon rocket.

They would be built from shuttle booster rockets, fuel tanks and main engines, as well as moon rocket engines. The so-called crew exploration vehicle perched on top would look

very much like an Apollo capsule, albeit larger.

The crew exploration vehicle would replace the space shuttle, due to be retired in 2010, but not before 2012 and possibly as late as 2014 depending on the money available, Griffin said. It could carry as many as six astronauts back and forth to the international space station.

If all goes well, the first crew would set off for the moon by 2018—or 2020 at the latest, the year targeted by President Bush who proposed such an initiative last year. The same type of vessel could be used, one day, to transport astronauts to Mars.

House Science Committee Chairman Sherwood Boehlert, R-N.Y., praised NASA for coming up with what appears to be "the safest, least expensive and most efficient way" of moving forward in space exploration. The only way to accelerate all this would be to spend more money, he said.

The new exploration plan would allow four astronauts to stay on the moon for a week—twice as long as Apollo missions. It also would haul considerably more cargo, much of which would be left on the moon for future crews. In time, lunar stays of up to six months would be possible.

The capsule would return to Earth by parachute either on land or water—land being preferable, most likely at Edwards Air Force Base in California. And the capsule would be reusable, flying as many as five to 10 times. Apollo capsules were limited to one flight each.

Griffin said NASA did not set out to mimic Apollo with the new spacecraft and that many options were considered.

"By and large, the Apollo folks got it right," Griffin said, noting that other than electronics and computers, the technology hasn't changed significantly.

Northrop Grumman Corp. and Boeing Co., which have teamed up to compete for the crew exploration vehicle contract, favored the capsule design from the start.

"There's been a phrase around the program called 'safe, simple, soon,'" said Doug Young, vice president of space systems for Northrop Grumman. "Going with a proven type of shape, going with something that's easier to develop that doesn't require more complex analysis and development, is going to allow you to get to your destination, your goal sooner at a lower risk."

NASA believes the crew exploration vehicle would be 10 times safer than the space shuttle, in part because of an old-style escape tower that could jettison the capsule away from the rocket in the event of an explosion or fire. The space agency puts the existing failure rate for shuttles at 1-in-220, versus 1-in-2,000 for the new vehicle.