

# Obama's asteroid goal: tougher, riskier than moon

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This Feb. 14, 2000 photo provided by NASA shows the north pole of the asteroid Eros. The crater seen on the surface of Eros measures 4 miles across. President Barack Obama on Thursday, April 15, 2010 said he expected astronauts to land on an asteroid in the next 15 years. (AP Photo/NASA)

(AP) -- Landing a man on the moon was a towering achievement. Now the president has given NASA an even harder job, one with a certain Hollywood quality: sending astronauts to an asteroid, a giant speeding rock, just 15 years from now.

Space experts say such a voyage could take several months longer than a journey to the moon and entail far greater dangers.

"It is really the hardest thing we can do," [NASA Administrator](#) Charles Bolden said.

Going to an asteroid could provide vital training for an eventual mission to Mars. It might help unlock the secrets of how our solar system formed. And it could give mankind the know-how to do something that has been accomplished only in the movies by a few square-jawed, squinty-eyed heroes: saving the Earth from a collision with a killer asteroid.

"You could be saving humankind. That's worthy, isn't it?" said Bill Nye, TV's Science Guy and vice president of the Planetary Society.

President [Barack Obama](#) outlined NASA's new path during a visit to the Kennedy Space Center on Thursday.

"By 2025, we expect new [spacecraft](#) designed for long journeys to allow us to begin the first-ever crewed missions beyond the moon into deep space," he said. "We'll start by sending astronauts to an asteroid for the first time in history."

On the day the president announced the goal, a [NASA](#) task force of scientists, engineers and ex-astronauts was meeting in Boston to work on a plan to protect Earth from a cataclysmic collision with an asteroid or a comet.

NASA has tracked nearly 7,000 near-Earth objects that are bigger than several feet across. Of those, 1,111 are "potentially hazardous asteroids." Objects bigger than two-thirds of a mile are major killers and hit Earth every several hundred thousand years. Scientists believe it was a 6-mile-wide asteroid that wiped out the dinosaurs 65 million years ago.

Landing on an asteroid and giving it a well-timed nudge "would demonstrate once and for all that we're smarter than the dinosaurs and can avoid what they didn't," said White House science adviser John Holdren.

Experts don't have a particular asteroid in mind for the deep-space voyage, but there are a few dozen top candidates, most of which pass within about 5 million miles of Earth. That is 20 times more distant than the moon, which is about 239,000 miles from Earth on average.

Most of the top asteroid candidates are less than a quarter-mile across. The moon is about 2,160 miles in diameter.

Going to an asteroid could provide clues about the solar system's formation, because asteroids are essentially fossils from 4.6 billion years ago, when planets first formed, said Don Yeomans, manager of NASA's [Near Earth Object](#) program at the Jet Propulsion Lab.

And an asteroid mission would be a Mars training ground, given the distance and alien locale.

"If humans can't make it to near-Earth objects, they can't make it to Mars," said MIT astronautics professor Ed Crawley.

Also, asteroids contain such substances as hydrogen, carbon, iron and platinum, which could be used by astronauts to make fuel and equipment - skills that would also be necessary on a visit to Mars.

While Apollo 11 took eight days to go to the moon and back in 1969, a typical round-trip mission to a near-Earth asteroid would last about 200 days, Crawley said. That would demand new propulsion and life-support technology. And it would be riskier. Aborting a mission in an emergency would still leave people stuck in space for several weeks.

The space agency may need to develop special living quarters, radiation shields or other new technology to allow astronauts to live in deep space so long, said NASA chief technology officer Bobby Braun.

Even though an asteroid would be farther than the moon, the voyage would use less fuel and be cheaper because an asteroid has no gravity. The rocket that carries the astronauts home would not have to expend fuel to escape the asteroid's pull.

On the other hand, because of the lack of gravity, a spaceship could not safely land on an asteroid; it would bounce off the surface. Instead, it would have to hover next to the asteroid, and the astronauts would have to spacewalk down to the ground, Yeomans said.

Once there, they would need some combination of jet packs, spikes or nets to enable them to walk without skittering off the asteroid and floating away, he said.

"You would need some way to hold yourself down," Yeomans said.  
"You'd launch yourself into space every time you took a step."

Just being there could be extremely disorienting, said planetary scientist Tom Jones, co-chairman of the NASA task force on protecting Earth from dangerous objects. The rock would be so small that the sun would spin across the sky and the horizon would only be a few yards long. At 5 million miles away, the Earth would look like a mere BB in the sky.

"It's going to be a strange alien environment being on an [asteroid](#)," Jones said.

But Jones, a former astronaut, said that wouldn't stop astronauts from angling to be a part of such a mission: "You'll have plenty of people excited about exploring an ancient and alien world."

### **More information:**

NASA's Near Earth Object program: <http://neo.jpl.nasa.gov/index.html>  
Association of Space Explorers' report on threat of asteroids:

<http://tinyurl.com/asterthreat>

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