Astronauts dive deep in practice for asteroid visit

September 19 2011

The NASA logo is shown at Kennedy Space Center in April 2011. A team of international astronauts from the US, Japan and Canada is set launch the first 13-day undersea practice expedition in the Atlantic Ocean on October 17, NASA said Monday.

When human space explorers reach an asteroid for the first time, NASA figures the experience will be more like swimming in space than walking on the Moon.

So the US space agency is taking a deep-sea approach to practicing for the first deep-space mission, which President Barack Obama has said could become a reality by 2025.

A team of international astronauts from the US, Japan and Canada is set launch the first 13-day undersea practice expedition in the Atlantic

Ocean on October 17, NASA said Monday.

"Gravity on an asteroid is negligible, so walking around on one isn't really an option," the US space agency said in a statement describing its aims with NASA's Extreme Environment Mission Operations (NEEMO).

The project will help astronauts practice their techniques in an environment mimicking that on an asteroid, using a submarine as a "spacecraft" and an underwater lab off the coast of Florida as the "asteroid."

The notion of visiting an asteroid presents a heap of logistical challenges, which NEEMO is the first to tackle.

Due to the lack of gravity, astronauts would have to toss down a series of anchors to stay attached, NASA said.

The surface of an asteroid is likely to vary significantly, from hard rock to dust, so where those anchors touch down makes a big difference. And the explorers will need to link up a network of anchors in order to move around.

"NEEMO 15 will require complex choreography between the submarines and aquanauts living and working in their undersea home," said Bill Todd, NEEMO project manager.

The NEEMO 15 mission commander is Shannon Walker, a NASA astronaut who has worked aboard the International Space Station.

US astronaut Shannon Walker rests after landing near the town of Arkalyk in northern Kazakhstan, in 2010. Walker, a NASA astronaut who has worked aboard the International Space Station, will serve as the NEEMO 15 mission commander.

Astronaut crew members include Japan Aerospace Exploration Agency astronaut Takuya Onishi and Canadian Space Agency astronaut David Saint-Jacques.

Steven Squyres, the scientific principal investigator for the Mars Exploration Rover Project, is also part of the team.

Experts from the Aquarius Underwater Laboratory, also called "America's 'Inner Space' Station," include aquanauts James Talacek and Nate Bender of the University of North Carolina, Wilmington.

The university runs the undersea lab, the only one of its kind in the world, in cooperation with the National Oceanic and Atmospheric Administration which owns it.

The ocean-floor outpost is located three miles (4.5 kilometers) off the coast of Key Largo, Florida, where it has provided lodging and life support systems for underwater scientists since 1993.

Veteran spacewalkers Stan Love, Richard Arnold and Mike Gernhardt, all from NASA, will take part aboard a submarine, DeepWorker, which is being used as an underwater stand-in for the deep space vehicle.

The entire team has been working since May to set the stage for the start of NEEMO 15, the first near-Earth asteroid practice mission.

NASA has been sending astronauts to the undersea lab 62 feet (19 meters) below the surface for weeks-long space training missions since 2001.