

# Finding NEEMO

July 17 2014

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Neemo aquanauts descending to their base 20 m under the sea. During a 12-day mission in 2012, ESA astronaut Tim Peake and six crewmates lived in cramped conditions, performed ‘waterwalks’ and solved problems as a team. The mission tested equipment and techniques for future space exploration. Credit: ESA–H. Stevenin

NEEMO – NASA Extreme Environment Mission Operations – trains astronauts for life in space. Living and working in an underwater base is similar to being on a space station. This year, NASA has two NEEMO

missions planned with three ESA astronauts and a trainer taking part.

NEEMO's [underwater habitat](#) off Florida acts as makeshift a space base for [astronauts](#) to make regular 'waterwalks' in full scuba gear. Both underwater missions plan sorties for the astronauts to simulate spacewalks. Different gravity levels will test tools that could be used when humans land on the Moon, Mars or even asteroids.

The waterwalks will also test ways of communicating between [mission](#) control and the astronauts during the excursions.

The 18th underwater mission will see ESA astronaut Thomas Pesquet take part in a nine-day mission, starting his underwater session on 21 July under the command of Japanese astronaut Akihiko Hoshide, along with NASA astronauts Jeanette Epps and Mark Vande Hei. ESA astronaut Paolo Nespoli is also onsite for crew communications, functioning as capsule communicator for 'ground control'. Training started on 14 July.



The Aquarius underwater base where equipment and techniques are tested for future space exploration. Credit: ESA–H. Stevenin

The 19th mission starts its seven-day underwater adventure on 8 September. ESA astronaut Andreas Mogensen will be joined by Canadian astronaut Jeremy Hansen and ESA astronaut trainer and spacewalk instructor Hervé Stevenin under the leadership of NASA astronaut Randy Bresnik.

This mission will focus on wearable computers and remotely monitoring the crew, and will test an ESA voice-command 'mobiPV' prototype using smartphones, tablets and screen glasses. This approach will be used on Andreas' [space](#) mission next year.



ESA astronaut trainer Hervé Stevenin at NEEMO base. Credit: ESA–Jason Poffenberger



NEEMO 18 astronaut crew from left to right: Japanese commander Aki Hoshide NASA astronauts, Mark Vande Hei, Jeanette Epps, ESA astronauts Thomas Pesquet and Paolo Nespoli. Credit: ESA

Provided by European Space Agency

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