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# Space volunteers 'land' on Mars

By Jon Yeomans, [20 February 2011 11:13](#)

## PHOTO

Crewmembers on a virtual flight to Mars have reached the half-way point of their mission, with a simulated landing on the Red Planet.

The men are part of the [Mars500 study](#) into the effects of interplanetary spaceflight on humans. They are spending 520 days in isolation in Moscow, locked inside an elaborate facility designed to resemble a spacecraft.

The mission, which began 3 June, 2010, is intended to last roughly the length of time it would take astronauts to fly to Mars and back.

The team consists of six volunteers — three from Russia, and one each from China, France and Italy.

On 8 February, three members of the team entered the study's lander module. They 'touched down' on Mars four days later, and conducted their first extra-vehicular activity (EVA) on the artificial Martian surface on Valentine's Day, dressed in working spacesuits (above).

*Photo credit: ESA*



Pictured above is a member of the crew training for the 'Marswalk' prior to the beginning of the Mars500 experiment.

According to the [European Space Agency](#) (ESA), the artificial Mars terrain is about 10m long and 6m wide, and is built to resemble the surface at Gusev crater, which was the landing site of the [Spirit Mars Rover](#) in 2004.

The ESA is backing the Mars500 study alongside the Russian Institute for Biomedical Problems (IBMP), which has been conducting human isolation studies since the 1960s.

*Photo credit: ESA*

The diagram above outlines the hermetically sealed facility at IBMP.

The primary habitation module contains individual compartments for the crewmembers, communal spaces and a control room. The utility module includes a greenhouse for fresh food, storage space and a gym.

The lander module and the Martian surface simulator sections will only be used for the middle section of the study.

The total volume of the facility is 550 metres cubed, according to ESA.

*Photo credit: IBMP*

ESA says that Mars500 crewmembers are supposed to live and work in the same manner as astronauts on the [International Space Station](#).

Their psychological, medical and physical wellbeing is constantly monitored for insights into how humans can cope with extended periods of isolation.

During the 520-day project, the team members are expected to conduct experiments, perform maintenance and exercise. The ESA has also programmed emergency drills of the kind astronauts may face on a journey in space.

*Photo credit: ESA*

Above, Italian crew member Diego Urbina undergoes part of his fitness regime. While the Mars500 study can reproduce the close confines of a spacecraft, it obviously can't simulate the effects of zero-gravity in space.

*Photo credit: ESA/Mars500 crew*

Pictured above, the crew celebrates Chinese New Year 2011.

The volunteers come from a range of professions. Three of the crew are engineers, two are physicians and one is an astronaut trainer.

*Photo credit: ESA*

The lander module (above) will be occupied by three crewmembers during the middle part of the study on 'Mars', from 1 to 27 February.

The crew are able to communicate with the study's overseers and their friends and family via radio. Communications include a time delay that increases, the further the simulated flight is from the Earth.

*Photo credit: ESA*

Above, two of the crew pose in spacesuits on the artificial Martian terrain prior to the beginning of the study.

"The crew is highly motivated and performing very well," said Jennifer Ngo-Anh, ESA's Mars500 manager, in a statement. "The science community is very pleased with the quality of the material but, as this is a long experiment, we have to wait for the results until their 'arrival' at Earth."

The Mars500 project leaders point out that the return journey poses its own psychological challenges, not least the fact that the crew no longer has its primary goal — the landing on Mars — to look forward to.

All being well, the six men should be released from isolation on 5 November.

*Photo credit: IBMP/Oleg Voloshin*

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