Europe, Russia in Mars mission rehearsal

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This NASA Hubble Space Telescope image shows Mars in 2005. Six volunteers from Europe and Russia will on Tuesday allow themselves to be locked up in a capsule in Moscow for over three months to simulate the conditions for an eventual manned mission to Mars.

Six volunteers from Europe and Russia will on Tuesday allow themselves to be locked up in a capsule in Moscow for over three months to simulate the conditions for an eventual manned mission to Mars.

The two Europeans and four Russians will not be allowed to leave the facility until their mission ends 105 days later, allowing scientists to assess the psychological effects of long duration space flight.

Far from being a version of TV reality show "Big Brother" without the cameras, the project is seen as a serious scientific experiment that will

show the impact of prolonged isolation on stress, hormones, sleep and mood.

The six, all men, will be allowed to take personal effects like books, laptops and DVDs into the facility at Russia's Institute of Biomedical Problems (IBMP) in Moscow and but will otherwise be sealed away from the world.

According to the strict rules for the experiment set out by the IBMP, the volunteers can only quit the capsule if they have decided to pull out of the experiment for good.

"The evacuation of individual members of the crew due to illness or personal wish is comparable to the 'death' of the cosmonaut," it said in a stern mission statement.

The institute said the main problem for a manned mission to Mars is ensuring the full autonomy of the crew for the year-and-a-half round trip.

As with a real mission, the supplies for the expedition have been painstakingly worked out in advance and no additional goods will be allowed to enter the capsule once the experiment starts.

"The crew will themselves resolve all problems and uncomfortable situations which do not require the evacuation of crew members," the IBMP said.

In a bid to exactly simulate possible scenarios of a manned mission, communications with a mission control centre and loved ones outside will be subjected to a time delay of 20 minutes.

The 550 cubic metre (19,500 cubic feet) facility is made out of three

modules -- one for storage of food, one "medical module" that can be used to isolate a sick participant if necessary and a unit where the participants will live.

There, each participant will have tiny individual bedrooms a maximum of 3.2 square metres (34 square feet) in area which have been minimally furnished with a desk, chair and small bed. The facility also has a small gym, complete with exercise bike.

Underlining the declared aim to simulate the exact conditions of a Mars mission, there is also a "landing module simulator" which the crew will occupy for the 30 day "orbit" around Mars.

The experiment is a joint project between the IBMP and the European Space Agency (ESA) and will lay the path for an even tougher Mars mission simulation later in 2009.

The partners are planning at the end of the year to send six more crew into the isolation facility for 520 days -- the estimated duration of a return trip to Mars.

European participants Oliver Knickel, 28, an engineer in the German army and Frenchman Cyrille Fournier, 40, a commerical airline pilot for Air France, were chosen from 5,600 applicants.

"During the study, I look forward to observing how communications develop and how relationships are established between crewmembers," said Fournier in comments published on the ESA website.

"I expect that each of us will feel both highs and lows, mentally, physically and socially."

Scientists have already collated to complete set of medical data on the

participants which they will use to compare with their state of mental and physical health throughout the experiment.

The Russian participants are professional cosmonauts Oleg Artemyez and Sergei Ryazansky, doctor Alexei Baranov and sports physio Alexei Shpakov.

ESA and US space agency NASA have separately sketched dates around three decades from now for a manned flight to Mars.

The Red Planet's distance from Earth varies between 55 million kilometres (34 million miles) and more than 400 million kilometres (250 million miles).

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