

June 2, 2010 – news advisory re Mars-500

1. Russian scientists today are locking up six men for a 520-day ground-based simulation of a mission to Mars and back.
2. It's a serious scientific experiment but it starts out with several serious strikes against it.
3. First, the team was supposed to be bi-lingual, with all participants speaking both Russian and English. This would be crucial to communications both social and emergency.
4. It wasn't done -- the requirement was dropped. The project organizers couldn't find such skills among the volunteer pool: the Russians speak English poorly and the Europeans and Chinese guy speak almost no Russian.
5. Despite intensive 'post-departure' Russian language study, this communications barrier may create interpersonal problems that won't get better no matter how fluent the crewmembers become.
6. An earlier isolation test at the very same facility, not involving a Mars goal, ended badly in 2000 with complaints of inter-crew violence and sexual harassment. I interviewed Canadian doctor Judith Lapierre about her experiences and reported here: [http://www.jamesoberg.com/04142000assault\\_rus.html](http://www.jamesoberg.com/04142000assault_rus.html)
7. Russian doctors responded to these problems by banning women from future long-duration isolation tests.  
<http://www.msnbc.msn.com/id/6955149/>
8. I am still friends with Lapierre and she is willing to be interviewed. She lives in Quebec.
9. To stay under budget, the project also accepted sponsorship from various food companies which provided samples for 'product placement' visibility. It was the cheapness (or free-ness) of the food, not the crew's personal choices, that most influenced the contents of the pantry module (see photo listed below of the shelf-full of Cocoa-Puffs).
10. Quality cuisine is a major factor of morale in isolated duties. The worst horror story from the visits of NASA astronauts to Mir in the mid-1970s was one astronaut's tale of living off surplus packets of date-expired fish aspic for two of his three daily meals, for months.
11. Another major isolation-inducing feature is introducing a time lag in communications. This will be a feature of flights to distant Mars -- the speed of light isn't fast enough for prompt responses in conversations. As they get 'farther' from Earth this lag will increase to as much as 40 minutes for a round-trip conversation.
12. An example of a another ground exercise, in the US, that simulated this effect on a Mars medical emergency is here:

<http://www.jamesoberg.com/2004marsconquest.html>

13. Three years ago I was given a tour of the simulator modules during a Moscow visit. and reported on it here, with a photo album that I shot:

<http://www.spectrum.ieee.org/aerospace/robotic-exploration/russians-prepare-to-go-to-mars-without-leaving-the-ground>

14. Another intriguing and unreported aspect is that the 520-day timeline is NOT simply imaginary or arbitrary. Some observers suspect that, since most 'standard' Mars missions are expected to last more than 1000 days. This is only half as long.

15. The Russian 'trick' is to not use 'coasting flight' based on liquid-propellant engines. Instead, the simulated spaceship will have a low-thrust ion drive propulsion system, probably powered by a (simulated) nuclear reactor.

16. This engine will allow them to 'spiral up' from low Earth orbit for several weeks, then push across the interplanetary leg to Mars, where they will spend several weeks 'spiraling down' into a low orbit.

17. From there they will send a few men to the 'surface', a very handsome 'Mars room' equipped with rock-studded sand, old-model 'moon suits', and a chance to plant a flag commemorating the 50th anniversary of the first-ever human spaceflight (Yuri Gagarin, 1961) next March.

18. I have written about many angles of human flight to Mars, listed here: <http://www.jamesoberg.com/flighttomars.html>

19. One big myth I try to puncture is the idea the crew will be bored silly with nothing to do on the long journey. Far from it -- they will be overworked immensely with training, with repairs, with physical exercise, and with studies for the skills they must use when they get to Mars. Here's an unpublished chapter from a work in progress:

<http://www.jamesoberg.com/2004marsconquest2.html>

20 You gotta give the Russian space psychologists credit for a well-designed and potentially very useful experiment, even if human voyages to Mars are still twenty years away, or more. Identifying potential crew dynamics and individual mental health issues early is the key to developing countermeasures, and the Russians have ALWAYS taken crew psychology a lot more seriously than NASA ever did.

21. Expect surprises -- and maybe even a few social explosions.