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Utah Is Practice Site for Mars Mission



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HANKSVILLE, Utah - While robots have been scurrying around Mars for months, researchers here on Earth have been trying to make a little bit of Utah seem more like the Red Planet.



AP Photo

Six-member teams have spent weeks in a silo-shaped module here trying to simulate what astronauts might endure should they ever wander Mars. Researchers even strap on air packs and 30-pound boots when they step outside.

The Mars Desert Research Station is one of two living laboratories operated by the Mars Society, an organization dedicated to Mars exploration. The society's other operating habitat is in an equally remote section of Canada. Another is planned for Iceland, and more could be in the works.

The society locates the habitats in areas similar to Mars — both in climate and geography. The Hanksville station stands in a vivid red landscape of cracked dirt, loose soil, rolling hills and jutting cliffs — bearing a striking resemblance to the Mars photographs retrieved from NASA ([news](#) - [web sites](#))'s rovers.

"It looks alien, and it's in a desert with infrequent rain," said Tony Muscatello, project manager of the desert habitat. "Some of the land forms there are remarkably similar in a lot of ways."

The goal of the habitats, participants say, is to stimulate public interest in manned Mars missions by replicating the potential experience on Earth.

NASA doesn't directly sponsor or fund the habitats, but often sends its researchers to participate. Habitat findings are offered to the space agency and other professionals to support exploration research.

During the roughly six-month testing season, the habitat is staffed by revolving six-member crews that spend two weeks apiece in "space." It hosts working geologists, physicists, biologists and engineers from companies and colleges all over the world.

Crew members make outside contact with colleagues and family only through e-mail and online chat. Cell phones don't work on Mars, and the crew's satellite telephone hasn't lately, either. A delivery man from Hanksville, roughly four miles away, is the crew's sole link to packages and parts.

That remoteness, Muscatello said, helps make the simulation feel more authentic. It's part of the reason NASA is using the center to test communication systems for a Mars simulation.

Parts of the \$1.5 million facility appear to be deteriorating — and crew No. 27 is spending most of its time trying to fix and diagnose problems.

Many of the problems deal with communication. The cable connecting a satellite dish to the habitat module is frayed somewhere and routinely malfunctions. Plenty of dead spots exist in field communication when crew members are out exploring.

Crew members sleep in roughly 5-by-12-foot quarters, and spend most of their time in the habitat in one room which functions as a kitchen, computer lab and living room. There is a healthy collection of books and DVDs, including two copies of "Red

Planet" — a 2000 science fiction thriller about Mars exploration.

Great lengths are taken to ensure that the simulation feels realistic. Crew members rarely leave the habitat module without full space gear. They spend 20 minutes before entering and exiting the module in a mock decompression chamber to simulate the routine they'd have to perform in space.

Besides upkeep, the current crew is working on new variations of space gloves and reducing algae in the water system.

Alex Diaz, a Boeing employee, was charged with developing the gloves to help astronauts better use his company's parts in space. The gloves have to be thick and stiff enough for protection, but nimble enough to allow workers to perform delicate tasks.

"I came to get an understanding of how humans live in this type of habitat," Diaz said.

Jim Russell, who is pursuing a doctorate in aerospace engineering sciences at the University of Colorado, has been overhauling the water system.

The problem: Water used in showers should be available for reuse in flushing toilets, but it always grew too much algae when placed in storage. So Russell is trying to develop bacteria in the water that will dissolve the soap and out-compete the algae for oxygen.

Researchers at the desert habitat keep a close watch on information retrieved by NASA's Mars rovers, and use it to compare the Red Planet's landscape with the barren desert surrounding them.

The fact that manned missions to Mars might not be feasible within the lifetimes of the habitat's workers doesn't seem to dim their ambition.

"Maybe 50 years from now, people will want to go and they'll just go," Diaz says. "It will be that easy."

On the Net: <http://www.marssociety.org>

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