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## Mars Society Boldly Goes to Oz

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SYDNEY, Australia -- Rock-strewn craters, dry river beds, pancake-flat deserts -- in many ways the Australian Outback looks more like Mars than Earth.

With this in mind, a convoy of Mars Society researchers is crisscrossing the Outback, looking for a place to establish a research base to prepare for manned space missions to the Red Planet.

"Nowhere on Earth is perfectly analogous to Mars," said James Waldie, an aerospace engineering PhD from the Royal Melbourne Institute of Technology.

"But Australia is -- in many ways -- pretty close."

Among other things, Mars researchers plan to study more deeply the Outback's geology and its hot-spring bacterial life, as well as use its scorching, inhospitable vastness to test space suits, communications systems and extraterrestrial four-wheelers.

When it's up and running by late 2002, the six-person Australian research site will join similar efforts underway in Canada, Utah and Iceland funded by the Colorado-based Mars Society. The society has as its objective the exploration and eventual human colonization of Mars.

For years, the vast and empty central Australian Outback has been used to film Hollywood movies such as *Red Planet*, post-apocalyptic blockbusters such as *Mad Max* and locally made road movies beyond number. In 1997, photos sent back by the unmanned Mars Pathfinder probe looked just like the ethereal surface barrenness around the subterranean opal-mining town of Coober Pedy.

These visual similarities will be a huge help as Mars researchers study such things as Martian navigation, while the Outback's ancient geology will offer scientists opportunities to dream up interesting new ways of searching for life on Mars.

Much of Australia's Outback landscape is virtually the same now as it was billions of years ago due to low rainfall and little geologic activity. By contrast, most of the landforms in North America and Europe were created in much more recent geologic time, with lots of subsequent erosion. Given that Earth and Mars were believed to have a number of climactic similarities billions of years ago, learning why Mars became a barren rock while Earth retained much of its water is a major quest of planetary science.

The Outback's own transition, from ancient rainforest as part of the one-time prehistoric super-continent Gondwanaland to current desiccated lifelessness, offers vast and promising avenues for study.

For instance, techniques for detecting ancient rainforest fossils in Outback rocks could help Mars researchers find similar fossils in rocks on Mars. The Outback's isolated hot springs could help scientists dream up better tests for detecting life in similar environments on the Red Planet.

In the 1970s, NASA's unmanned Viking Missions tested for life signs on Mars, but the results sparked a scientific holy war as experts disagreed whether the tests showed that life did or didn't exist on Mars. Hopefully, future tests will return less ambiguous answers. Developing such tests will be one objective of the work done here, Waldie said.

Australia's vast, rock-strewn Outback plains and eroded meteor craters also will provide ideal testing grounds for Mars vehicles. While NASA's moon-visiting Apollo astronauts had a rover vehicle, it traversed mostly dusty plains and flat surfaces, with only light gravity bearing down on it. By contrast, Mars has a thicker atmosphere, more gravity and more rocks and boulders to get around or go over.

Therefore, roving the surface of Mars will probably be much harder than cruising around the moon's surface. The Mars Society already has chosen a cluster of research teams to develop such rovers, which must be able to house two astronauts for up to two weeks, travel at more than 50 kilometers per hour, operate over rough terrain, have a range of over 500 kilometers and weigh less than 1.5 metric tons.

In addition, researchers in Australia's Outback will test new communications systems for sending data back to Earth that will overcome the isolation of Mars. As such, they'll work with existing short-messaging satellites in Earth's orbit, as well as develop space suits for use in toxic gaseous atmospheres like Mars'. Waldie's own specialty lies in building these suits.

Daniel Goldin, who recently announced his retirement from heading NASA, says he can foresee a human mission to Mars around the year 2020. However, much depends on money. At present, a good deal of NASA's current funding is being consumed by what many deem a financial black hole -- the \$30 billion International Space Station that now houses three thumb-twiddling astronauts.

Quasi-private organizations such as the Mars Society are trying to pick up the slack by continuing preliminary work into the needs of and technical solutions for a Mars Mission. The [Mars Society](#) has chapters all over the world, with the Australian group being the third largest, after the United States and the United Kingdom.