

## **MARS-OZ: DESIGNING FOR MARS**

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Mars Society Australia has developed the design of a simulated Mars base, MARS-OZ, for deployment in outback Australia. MARS-OZ will provide a platform for a diverse range of Mars analogue research in Australia. The prime site for the MARS-OZ simulated base is located in the northern Flinders Ranges near Arkaroola in South Australia. This region has been chosen as it provides useful scientific analogues to known or possible past and present conditions on Mars from both a geological and biological perspective. The simulated base consists of two mobile modules whose dimensions and shape approximate those of 60 tonne horizontally landed bent biconic spacecraft. The modules are designed to support field engineering, robotics, architectural, geological, biological and human factors research at varying levels of simulation fidelity. The simulated base design has led to developing concept designs for a MARS-OZ mission architecture and concept vehicles for actual deployment to Mars. This paper explores the experience and knowledge gained for designing Mars bases through the process of finding a location for MARS-OZ, designing the simulated base and finally designing concept MARS-OZ vehicles for use on Mars. Design issues such as mission architecture, assembling bases on Mars, base design life, vehicle shape, vehicle size, vehicle mass, power generators, recycling systems, dust management, design for mobility and methods of interfacing with rovers for a long-term evolving integrated Mars base is discussed and evaluated. We conclude that the MARS-OZ concept configuration for Mars bases is overall superior to others with reference to both Mars landing and surface utilisation.

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