



## **Arkaroola: A Prime Australian Site for Mars Analogue Field Research**

J D A Clarke (1), D Willson (2)

(1) Australian Centre for Astrobiology, NSW, Australia, Macquarie University  
([Jon.clarke@ga.gov.au](mailto:Jon.clarke@ga.gov.au)),

(2) Mars Society Australia, ([david.willson@semf.com.au](mailto:david.willson@semf.com.au))

Mars Society Australia has selected the Arkaroola region in South Australia as its prime area for Mars analogue research. The centrepiece of the program is a proposed simulated Mars base called MARS-OZ. The proposed facility consists of two 20-tonne road-transportable modules designed round a concept mission using a “Mars-Semi-Direct” architecture and horizontally landed bent-biconic spacecraft. The facility is designed to house up to 8 people at a time, and can undergo progressive expansion with additional modules, as required.

The Arkaroola region is accessible by road and air from Adelaide, the capital of South Australia. Much of the central part of the region held under private leasehold as a wilderness sanctuary. The lessees are highly supportive of scientific and technological research. The region and its hinterland have a diversity of geological and astrobiological features of interest for Mars research and Mars exploration. This includes ancient marine shoreline deposits, evaporate sediments, modern and ancient hydrothermal systems, artesian springs together with the salt lakes, dune field, and gravel outwash plains of the present desert environment. The diversity of rock types and regolith materials provides an ideal test bed for remote sensing systems and ground instruments. The range of terrain provide excellent opportunities for testing Mars related exploration systems in particular the proposed Australian simulated Mars base.

The aim of the simulated base is to explore the issues of living and working on another planet. This includes facilitating research into social-psychological factors and related engineering design of crewed missions to Mars or the moon. In addition, the proposed base located within the Arkaroola region can provide planetary scientists and engi-

neers opportunities to evaluate different exploration methodologies, technologies and associated risks by undertaking field trials and simulations for both individual components and integrated systems. In particular field trials of unmanned rovers, manned rovers and EVAs on foot can be conducted over a wide range of terrain.

This paper examines the Mars like sites of scientific interest at Arkaroola and compares them with Gusev Crater and Meridiani Planum on Mars. It discusses the proposed base design features and the opportunities a simulated base and associated field work in this area can provide to support robot and human exploration to the planets.

Mars Society Australia will facilitate parties interested in using the Arkaroola region for Mars-related research.