

Seeking Mars in Perth and the Pilbara

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2011 is notable for a number of significant events relating to the exploration of Mars - three new robotic Mars missions and a major human Mars mission simulation. The robotic missions are NASA's giant *Curiosity* rover, which is being sent to a crater named after the Australian astronomer Walter Gale, the Russian *Phobos Grunt*, which will return samples from a martian moon, and *Yinghou-1*, China's first mission to the red planet. Russia, in conjunction with the European and Chinese space agencies, is also carrying out the Mars 500 experiment, the first end to end simulation of a Mars mission ever undertaken.

In this eventful year Mars Society Australia (MSA) announces two Mars-related events to the Australian media, the **Spaceward Bound Australia 2011 Pilbara Expedition** (SBA 2011, July 10-21), and the 2011 **Australian Mars Exploration Conference** (AMEC) in Perth (July 23-24). The SBA 2011 Expedition is a joint initiative of the NASA Ames Research Center (ARC) and MSA. The researchers taking part include:

Dr Chris McKay, astrobiologist, NASA (ARC) whose expedition research interests are comparing the recently discovered large conical stromatolites in Lake Untersee, Antarctica with the conical stromatolites in Shark Bay and the 3 billion year fossils in the Pilbara, and applying this knowledge to the search for life on Mars and elsewhere.

Dr Carol Stoker, planetary scientist (NASA ARC) has been mission scientist on the Mars Pathfinder and Mars Phoenix lander missions and has worked extensively in Mars analogue environments in Antarctica, Spain, and Utah designing and testing technology to look for life on Mars. Her main interest on the expedition is testing interests that could be used on the surface of Mars to look for evidence for past and present life.

Dr Rosalba Bonaccorsi, astrobiologist (NASA ARC) will be comparing clays from various location in the Pilbara with the goal of determining how they may preserve signs of ancient life and the implication for biosignatures in similar clays known to occur on Mars

Dr Jon Rask, astrobiologist (NASA ARC), will be studying soil chemical reactivity and gases emitted by microbial communities to constrain the design of life detection instruments for Mars and elsewhere.

Dr Simon George, is a geologist from Macquarie University, Sydney, his research interest include organic geochemistry and how best to sample rocks for traces of organic material and recognition of biosignatures.

In addition of range of instruments similar to those that have flown or will fly on Mars landers and rovers, the expedition will also have the **NDX-1 space suit** that will be used for field trials (see photograph below) and a small robotic rover. The suit will be operated by Dr Jon Rask and **Mr David Willson**, a Mars Society Australian Engineer from Hobart. Mr Willson, with **Ms Lucinda Land**, executive director of the Mars Society in the United States, will be operating of the robotic rover.

The scientists will be accompanied by Australian and US science teachers and educators who will receive first hand experience and training in astrobiology, field geology, and planetary science, and have the opportunity to interact with some of the world's leading experts in these fields.

As well as the science and education being done on the expedition, a survey of the "Dawn of Life" trail near Marble Bar is being conducted to provide access to this Geo-Heritage area for the tourist industry. The MSA,

a not-for-profit research organisation, thanks the sponsors of this expedition, CSIRO, the Royalties for Regions scheme through the Pilbara Development Commission and NASA for their support in the exciting project.

MSA welcomes opportunities to interview participants and film expedition activities, subject to logistic and program constraints. The most convenient time to catch up with these and other SBA participants will be before they leave Perth on the 9th, while based in Nullagine (12-14th) and after we return to Perth (21-22nd), or at AMEC itself.

Following the expedition **Dr Vadim Gushin** of the Institute for Bio-Medical Problems in Moscow will be addressing AMEC. Dr. Gushin is a world expert in the human factors (medical, psychological and social) involved in long duration spaceflight and is a lead investigator in the Mars 500 experiment. Dr Gushin is an excellent speaker will be available for interview during the conference.

AMEC itself will be opened by the United States Consul General **Aleisha Woodward**.

For further details please contact Dr Jonathan Clarke, Vice President Mars Society Australia on 0418401612 or at jon.clarke@bigpond.com



TopLeft photograph: the NDX-1 spacesuit being trialed in Antarctica (image from <http://spacesuitlab.blogspot.com/>). Top Right photograph: The Mars 500 crew posing after their first year in the experimental chamber (image from http://www.esa.int/SPECIALS/Mars500/SEM6KY58BOG_0.html). Bottom, Left to right: Dr Chris McKay, NASA ARC; Dr Vadim Gushin, IBMP Moscow; and Dr Carol Stoker NASA ARC.