BEES IN SPACE: AN OPPORTUNITY FOR MARS SOCIETY AUSTRALIA

L.A. Thompson, N. M. Mathers
Wackett Aerospace Centre, Aerospace Engineering SAMME, RMIT University, GPO Box 2476V Melbourne, VIC, 3001, AUSTRALIA

P. Honan
Melbourne Zoo, Elliott Avenue, Parkville, VIC 3052 AUSTRALIA.

Corresponding author Lachlan@rmit.edu.au

The Australian "S*T*A*R*S STS-107 "Spiders in Space" was the first space education project where the students were required to discover findings new to science. Most hands-on space education programs have concentrated on demonstrating known science within a restricted framework. Feedback from students involved in the Spider project clearly indicated that they were unanimously excited and motivated beyond the normal academic level by the challenge of new discovery. Throughout the three year project students published papers at leading space conferences including the 54th IAC. Their experience has now been used to expand the engagement of schools in space research on a scale never before attempted.

The Spider project inspired the students to continue studies in science, technology and mathematics. This success prompted RMIT University, the Melbourne Zoo and the Victorian Space Science Education Centre (VSSEC) to develop a similar space research project that would engage a large number of schools. The announcement by President G.W. Bush of "A New Vision for Space Exploration" provided the focus for this project. The call for humans to return to the moon by 2015 and eventually explore Mars provides many research opportunities for new science that are within the capabilities of secondary students and schools.

The long duration Mars mission places enormous demands to supply the crew with sufficient supplies. To provide for the Mars crew's needs, a space greenhouse has become the subject of international research. Tomatoes have flown and grown in space on STS-87 but not produced fruit, which raises the question. How do you pollinate plants in space?

The research task of the experiment is to find a suitable plant pollinator for fruit bearing plants that is effective in a Mars based greenhouse. Bees are one of the most effective pollinators of earth plants and the social nature of some bees make them likely candidates for a space biosphere. Australia is host to a large number of stingless bee species, which make them suitable for school children (and astronauts) to work with. The Bees in Space program is designed to engage the students' families and the broader community to support their "local space scientists", with the result of ensuring that everyone experiences first hand the benefits of space science to our earth community.

The emphasis at this stage is to build and prove the infrastructure and educational integration components of the project to allow up to 500 schools to participate and contribute to the project. Over the following three years the project will expand to total 500 schools in Australia, with additional schools from Japan, USA and Europe. The Bees in Space program offers a focus for many space related organizations such as the Mars Society to collaborate and share resources and expertise to make the experience diverse and rich for all involved.