

SPACE LIFE SCIENCES SYMPOSIUM (A1)  
Medical Care for Humans in Space (3)

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SPACE ANALOGUE MEDICAL CARE AND RESEARCH- THE AUSTRALIAN ANTARCTIC  
EXPERIENCE.**Abstract**

Antarctica is an isolated, confined and extreme environment. Antarctica has been described and utilised as a Space Analogue. Australia has conducted expeditions to Antarctica for more than a century and the Australian Antarctic Division(AAD) has maintained a permanent presence in Australia's Antarctic Territory since 1948 with three continental stations and one subantarctic station. Since the early 1990s, the AAD Polar Medicine Unit has had an operational and research agreement with NASA Headquarters, Washington DC, and have conducted significant scientific studies and bilateral collaboration informing the space communities on human risks to space travel, and in particular, long term exploratory missions and the medical support that may be required. Australia's Antarctic stations have total isolation periods for up to 9 months, and are comprised of small groups of highly screened support and scientific personnel, who are reliant on hi-fidelity technical systems to ensure safety survival overwinter in the extreme environment without option of winter evacuation. Studies have been undertaken across a wide range of fields including immunology, psychology and behavioural health, photobiology, virology, bone metabolism and epidemiology. These studies have provided a sound evidence base for operational medicine care and medical policy development and response including medical, dental and psychological screening, telemedicine support and the development of a scope of practice and training that could be required for medical support personnel in the extremes of space. This presentation will highlight Australia's involvement in Australian Space Life Sciences Research through the space analogue Antarctic medical support environment and highlight a significant collaboration with NASA –Antarctic Human Biology and Medicine research. Past and current work will be described highlighting opportunity for future collaborations.