

IAF SPACE OPERATIONS SYMPOSIUM (B6)
Ground Operations - Systems and Solutions (1)

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FROM SUBSEA TO SPACE: LEVERAGING AUSTRALIAN REMOTE OPERATIONS EXPERTISE
TO DEVELOP SPAARC**Abstract**

Australia is a world leader in remote asset management and remote operations in industries including mining and energy. Australia plans to leverage its expertise in robotics technology and systems for remote operation and exploration in space. An opportunity is clearly stated in the Advancing Space: Australian Civil Space Strategy 2019 – 2028 which has underpinned recent strategic investment decisions.

The Australian Space Agency is co-funding a mission operations centre for missions in Earth orbit, cislunar space, and on the lunar surface. The Australian Space Automation, AI and Robotics Control Complex (SpAARC) in Perth, Western Australia, is being built, managed and operated by Fugro Australia. This complex will open the door for both Australian and international partners, researchers and businesses to control robotic activities in space, including servicing satellites, assembly and manufacturing in orbit, as well as lunar and planetary surface operations. It will leverage Western Australia's world-leading remote operations expertise on Earth for remote operations on the Moon, Mars and beyond. In particular, SpAARC will benefit from Fugro's achievements as the global leader in remote operations deploying robotic systems in remote, harsh, and latency-affected environments, enabled by satellite communications. SpAARC will provide mission operations services that include and bias towards the unique requirements for delivering complex robotic outcomes such as on-orbit servicing, assembly and manufacturing, and surface operations. It will house three integrated facilities: an integrated control facility, to perform and execute remote robotic operations; a development and test facility, to enable clients to build robotic systems and their peripheral soft- and hardware; and a training facility, to train operators on how to use the robotic systems and how to perform missions. SpAARC will offer expertise and support for innovation in mission control, mission operation, remote control, machine learning and robotics from sub-sea to space.

The convergence of technology from industries such as space, defence, mining and oil and gas provides a unique opportunity to leverage both investment and developments in one for the benefit of the others.

Moreover, the space industry is at a juncture: there is greater demand for the private sector to enter the space supply chain and for non-traditional space businesses to support this growing operating domain. The Fugro/ASA collaboration represents a non-traditional space business endeavouring to evolve capability from the Australian resources sector to support the needs of Australian and international partners embarking on a journey to sustainable space economy.