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Operations in Space Debris Environment, Situational Awareness (7)

Author: Mr. Luke Heffernan
University of Adelaide, Australia, luke.heffernan@student.adelaide.edu.au

Mr. Jack Kelly
Australia, jackwkelly94@gmail.com

SOVEREIGN AUSTRALIAN SPACE SITUATIONAL AWARENESS

Abstract

With the establishment of the permanent location of the Australian Space Agency in late 2018, the Australian space industry is full of energy and surging ahead with their efforts to increase the country's space capability. In order to do so in a safe and calculated method, however, it is essential to build an indigenous space situational awareness (SSA) capability to protect and maintain our orbital assets. In the past Australia has relied on other countries to provide SSA intelligence as an enabling function to our fledgling space activities. As those activities grow in scale and complexity, the ability to rely completely on a foreign agency, allied or otherwise, becomes increasingly more difficult, especially when the data is often strictly limited in what can be shared.

Due to the combination of indigenous sensors and data-sharing agreements with SSA providers, Australia will have an abundance of data relating to the location and classification of space-based assets. This data will be sourced from a spectrum of different sensors and computer systems, requiring the need for expert data handling to draw out the contained information.

Leveraging existing strengths in this area from local big data organisations, such as the CSIRO Data61 and the Australian Institute of Machine Learning, would expedite this process, reducing need for foreign dependence and improving future prospects for collaboration within the Australian technological industry. This will also allow for an advantage over other international bodies who are more highly encumbered by legacy systems and the need to update and replace them before installing more modern systems.

In order to facilitate this leap-frogging of technology streams in regards to more established SSA operators, it would be expected that a central coordinating body would need to play a role in facilitating the logistics of these collaborations. The mission statement of the Australian Space Agency directly lists SSA and space debris monitoring as a high priority, and suggests that their operational capabilities may allow them to take on a role such as this. By having the Australian Space Agency, along with representatives from the Australian Federal Government, coordinate cooperation between Australian SSA operators and big data experts, the Australian SSA capability may be fast tracked to compete with the likes of the US, Europe, Russia, and China.