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Mitigation - Tools, Techniques and Challenges (4)

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SERC RESEARCH PROGRAM 3 - A NEW CONJUNCTION AND THREAT WARNING CAPABILITY

Abstract

This paper gives an overview of core methods and capabilities that have been developed and established within Research Program 3 (RP3) "Space Asset Management" of the Space Environment Research Centre (SERC) Ltd.. RP3 is one of four research programs that is developing space debris mitigation technologies for collision avoidance, delivered by conjunction warnings and ground-based lasers. SERC Ltd. was established to lead the consortium through a five and a half year program titled "Cooperative Research Centre (CRC) for Space Environment Management." It is co-funded by the participants and the Australian Government's Cooperative Research Centre Programme and started in mid 2014.

Central to RP3's work has been the utilisation of passive and active optical observations of space objects for the purpose of performing high-quality orbit determination and conjunction likelihood assessments. The observations of objects in all near-Earth orbits are supplied by Electro Optic Systems Pty Ltd., who operate a network of sensors across Australia. A major aim of the CRC was to develop a service that could help to reduce the number of collision avoidance manoeuvres spacecraft operators perform. This paper highlights methods, tools and processes that have been developed in the frame of

this endeavour within RP3. Results from the conjunction and threat warning service are presented and the paper concludes with the next steps in the development of space situational awareness services.