



AUSSIES HELPING TO SOLVE THE GLOBAL SPACE TRAFFIC MANAGEMENT PROBLEM

The space environment is becoming an increasingly contested and congested domain. Over the next decade as many as 54,000 new satellites are expected to be launched into an orbit littered with space junk (debris) starting to resemble Saturn with rings of defunct human-made objects.

Keeping operational satellites free from collision and interference hazards will be a major challenge. In the field of space domain awareness (SDA), information 'is king'. Knowing exactly what is in orbit, where it is at a given time, where it will be, and who (if anyone) controls it, are key pieces of information for the protection of space assets.

SDA data underpins space traffic management (STM) defined by the US as "the planning, coordination and on-orbit synchronization of activities to enhance the safety, stability and sustainability of operations in the space environment."

STM activities include tracking active satellites as well as the tens

of thousands of pieces of debris, providing data for satellite operators, and preventing collisions that could damage or destroy satellites and further contaminate orbital space.

Currently each country is free to develop their own strategy and tracking system to monitor the active and inactive space objects. Australia has an opportunity to become a world leader in space environment management and be the first to market with a much-needed, comprehensive STM system. Australia's geographic location in the Southern Hemisphere and strategic longitudes as well as large land mass allowing a distributed network are ideal for SDA, plus many of the components that are integral to a STM system already exist, developed by Canberra-based, Australian company, Electro Optic Systems (EOS).

SDA has been part of EOS' DNA for over 35 years. They provide space debris and satellite management solutions with design, manufacture and installation of specialised observatories for optical and laser tracking.

Their tracking and characterisation of space objects is unsurpassed. EOS can determine a space object's position with an absolute accuracy selectable from

a few millimetres to 1m, depending on application. No other operational space technology offers this accuracy. Their laser trackers have been externally validated for tracking objects as small as 6mm in size at a 350km range, 5cm at a 1,000km range, and 30cm at a 35,000km range. This level of sensitivity addresses over 90% of all collision risk to operational spacecraft and provides reliable and actionable information about collision risk.

EOS sensors are able to readily track all orbit heights and regimes from LEO through to GEO and beyond, something very few companies are able to do. The company is also currently fielding a new type of laser system that can deliver sufficient laser power to move certain types of space debris to new orbits to avoid collisions. The system will not damage or fragment the debris, it will apply harmless radiation pressure to move the debris over many seconds of engagement.

The EOS sensor network is in operation now, tested and validated to international standards and ready to support Australia's contribution to solving the global space traffic management problem.





SECURING SPACE

SPACE TRAFFIC MANAGEMENT
SPACE DOMAIN AWARENESS | SPACE CONTROL



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