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LESSONS LEARNED FROM MARITIME DOMAIN AWARENESS FOR INTERNATIONAL SSA DATA SHARING

Abstract

The current limitations of space situational awareness (SSA) systems are well documented. At the heart of many of these limitations are issues of data sharing. Assets that can contribute to SSA efforts exist around the world, however, data sharing between these systems is minimal.

The United States has taken steps toward increased SSA data sharing, but their capability is limited and the burden on one country to provide an SSA data sharing service is great. The European Union is working to make their SSA system compatible with the US system, but is in the early stages of doing so.

Given these systems around the world and the work being done toward increased international collaboration, and in acknowledgement of the growing space debris problems that enhanced SSA could help mitigate, the idea of an internationally-based SSA system is growing in popularity. Many questions remain about such a system, including whether operation would lie in the military, civil or commercial realm; what types of data would be shared; how systems would achieve interoperability; who would be allowed access to data; and how security of data would be ensured.

Many of these questions have already been addressed in international data sharing realms outside of SSA. One such realm is Maritime Domain Awareness (MDA). Ship positional data is shared internationally through several mechanisms, including the Maritime Safety and Security Information System and Long Range Identification and Tracking of ships. Many lessons for a future international SSA system are held within the challenges and successes of these data sharing mechanisms.

Results of an analysis of these systems show that:

1. A standard international format for data sharing and distribution is key to broad participation in the system.

2. A system that deals only in non-sensitive data also allows for the broadest participation in the system.

3. Global distribution of sensors can be a challenge but greatly increases the value of the system

4. While one system may not be able to provide all of the information necessary for complete situational awareness, an increase in data sharing in one realm can greatly enhance overall awareness capability.

This paper expands upon these lessons learned for a future international SSA system, along with examining where the parallels between SSA and MDA are helpful and where SSA poses challenges beyond those addressed in MDA where new procedures will be needed.