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Improving Our Vision II: Building Transparency and Cooperation

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Workshop on Space Situational Awareness Data Sharing

Eisenhower Center for Space and Defense Studies
World Security Institute's Center for Defense Information
Secure World Foundation

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This was the second workshop to bring together a range of stakeholders to discuss global needs and capabilities for Space Situational Awareness (SSA). The first workshop was held in September 2006 in Colorado Springs, Colorado. This 2006 workshop was sponsored by the Eisenhower Center for Space and Defense Studies and the World Security Institute's Center for Defense Information. The 2006 workshop report can be found at the following internet site: http://www.cdi.org/PDFs/SSAConference_screen.pdf.

The goal of the SSA workshops are to bring together the full range of stakeholders interested in SSA– from practitioners to users of data, representatives of industry, the military, the scientific community, international organizations, and the satellite-tracking community– to discuss how needs are changing, what improvements in capabilities can be achieved in the near- to mid-term future, and how various stakeholder communities might better interact to draw on each other's strengths.

The specific goal of the 2007 SSA workshop was to explore, and potentially forward, areas of possible transatlantic cooperation and partnership to improve SSA data sharing. Space surveillance, estimating orbits of satellites in near Earth space for varied purposes, including collaborative operations, debris management, and more effective communication, environmental monitoring, and data gathering operations were emphasized. In addition, the workshop looked at how informal or formal international regimes might help underpin or forward improved SSA data sharing. More than sixty technical experts, management principals from industry and government, and respected policy, law, and international relations luminaries participated.

Participation included, among others, policy makers and technologists from many countries and international organizations, including: Germany, Norway, Sweden, United Kingdom, France, Canada, the United States, the European Space Agency, and the UN Committee for the Peaceful Uses of Outer Space. While many of the presentations were primarily informational, areas of consensus during discussions appear to have emerged around the potential for building informal processes for international data exchange that could improve SSA. In addition, all participants expressed their dedication to ensuring robust SSA to safeguard current and future space operations. A full conference report is expected to be published in 2008, and there is interest in a follow-on workshop in 2008.

The conference was conducted under a modified Chatham House Rule, in which prepared statements and presentations are attributable to their authors, but comments and opinions thereafter are not. Presentations are available by request at a Google group site http://groups.google.com/group/ssa-workshop-series?hl=en.

A summary of the discussions that took place at the workshop is provided below.

- Phase II of the Commercial and Foreign Entities (CFE) program was stressed that will include SSA data sharing on maneuver notification, debris mitigation, end of life management, and respect of protected regions.
- French space policy was discussed that emphasizes freedom of access and security of

satellites, while accounting for legitimate defense interests. This emphasis serves as the strategic guidelines for European space collaboration that have been applied for Galileo and the Global Monitoring for Environment and Security (GMES). The GRAVES space surveillance radar was also described. It is operated by the French Air Force.

- It was stated that Germany still relies on the United States Air Force (USAF) SSA TLE data. At the same time, Germany's FGAN and TIRA space surveillance sensors were described, and it was suggested that the European Space Operations Center (ESOC) located in Germany, which provides satellite control for the European Space Agency (ESA), serve as a European SSA center.
- The Globus II space surveillance radar, controlled by the Norwegian Defense Research Establishment, was offered for SSA collaboration and sensor calibration.
- A number of European workshop participants declared that Europe must have independent SSA. It was recognized that SSA data provided by the U.S. is not exhaustive enough or responsive enough, yet concomitantly Europe could not do the job alone. Many European participants were also adamant of the European need to validate U.S. information (i.e., Europe must independently characterize sources of data), questioning the credibility of orbit information provided by the U.S.
- The resulting actions to date aimed at an independent SSA capability in Europe include: ESA forming a civil-military space forum and an SSA user group; and European Cooperation for Space Standardization (ECSS) conducting SSA technology development studies. Europe aims to develop SSA architecture for tracking, imaging, and space weather. The ESA Management Council will undertake a data sharing policy. It was noted that European SSA is an essential element of European commerce and society and does not require a business case.
- Participants stated that there are clear and present dangers to space activities that necessitate more robust and enhanced SSA data sharing. The principal issue is how to make space activities safer and more secure, given that weaponization of space was viewed as a potential obstacle to SSA data sharing.
- Analogies were drawn with rules of the road (codes of conduct) at sea and open skies, and how such rules fail to apply in space. The key insight was that rules or codes must be technically based and that the debate should not be conducted only from a legal point of view as is the tendency today.
- It was stressed that international standards serve as one of the best ways for more robust and enhanced SSA international collaboration. Of note, is that there is no world wide forum to distill top-level SSA data requirements. Although there is uniform agreement on the need for SSA data sharing, requirements have not been consolidated.
- It was suggested that NATO serve as a vehicle for combined space capability on SSA.
- Ways in which to better integrate orbital debris and space weather data into SSA data sharing were discussed. Some ideas included: real time space weather feeds; and debris observation campaigns (e.g., each observer provides his data to the other observers, who could independently combine the information).
- Space surveillance capability, a range of sensors, a space catalog, world wide coverage, ownership of a class of data, services like collision avoidance, and operational capability and experience were all viewed as essential elements of a nation's space presence.
- The USAF TLE process was criticized with the requisite need of better collaborative collision avoidance to be put in place.
- A number of potential models for SSA data sharing were discussed. This includes: broad data exchange approaches; maritime data sharing in NATO; advancing USAF approaches; "neighborhood watch" for space threats as part of a voluntary code of conduct; space traffic management; and a space safety organization.
- UNCOPUOS was seen as NOT the right place for SSA initiatives.

- Insurance of space activities were viewed as potentially driving greater diligence with collision avoidance, since insurance underwriters recognize the difference between good and bad space operators.

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