



Promoting Cooperative Solutions for Space Sustainability

Current Issues for Space Traffic Management

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Who We Are

- Secure World Foundation (SWF) *is a private operating foundation* that promotes cooperative solutions for space sustainability
- **Our vision:** The secure, sustainable, and peaceful uses of outer space that contribute to global stability on Earth
- **Our mission:** Secure World Foundation works with governments, industry, international organizations, and civil society to develop and promote ideas and actions to achieve the secure, sustainable, and peaceful uses of outer space benefiting Earth and all its people

- The Air Force maintains a catalog of about 24,000 objects 10 cm or greater
 - When the Space Fence comes on-line later this year, that number is expected to go to 100,000
- Active satellites: 2062, as of March 2019
 - Megaconstellations, which started launching this year, could add 20,000 *more* satellites
- Space situational awareness (SSA) v. space traffic management (STM)
- Commercial SSA is increasing in strength and capabilities; international SSA programs are growing as well
- Who's in charge?

- After publication of the National Space Policy in June 2010, the Obama Administration initiated an interagency process on STM
 - First meeting July 2010
- Key points of discussion
 - Definition of STM?
 - What SSA data and services should the govt provide and how to utilize private sector capabilities?
 - Which civil agency should provide these data/services?
 - How does the US engage internationally on STM?
- Leaned towards the Dept of Transportation being the lead (FAA/AST) but no formal decision was made

- Trump Administration National Space Council continued the interagency discussions
- Issued Space Policy Directive 3 in June 2018
 - Improve orbital debris mitigation with updated guidelines, practices, and international standards
 - Encourage commercial sector growth & innovation through reducing regulatory burdens
 - US govt will provide basic data and services for SSA and STM free of direct user fees, while enabling commercial enhanced data and services
 - Develop national STM standards and best practices and encourage international adoption
 - Develop policies and regulations for future US orbital operations
- Declared the Dept of Commerce would be the lead for civil SSA and STM

- Elevate the Office of Space Commerce to the Bureau of Space Commerce
 - “Store front” for promotion & oversight of US private sector entities
 - Authority to license and approve non-traditional space activities
 - Coordinate with other entities (FCC, FAA)
- Develop civil SSA capability
 - Baseline of unclassified DOD data
 - Develop an Open Architecture Data Repository
 - Combine in commercial, scientific, and international data sources
- Develop national STM regime based on industry-led best practices and standards and encourage international adoption

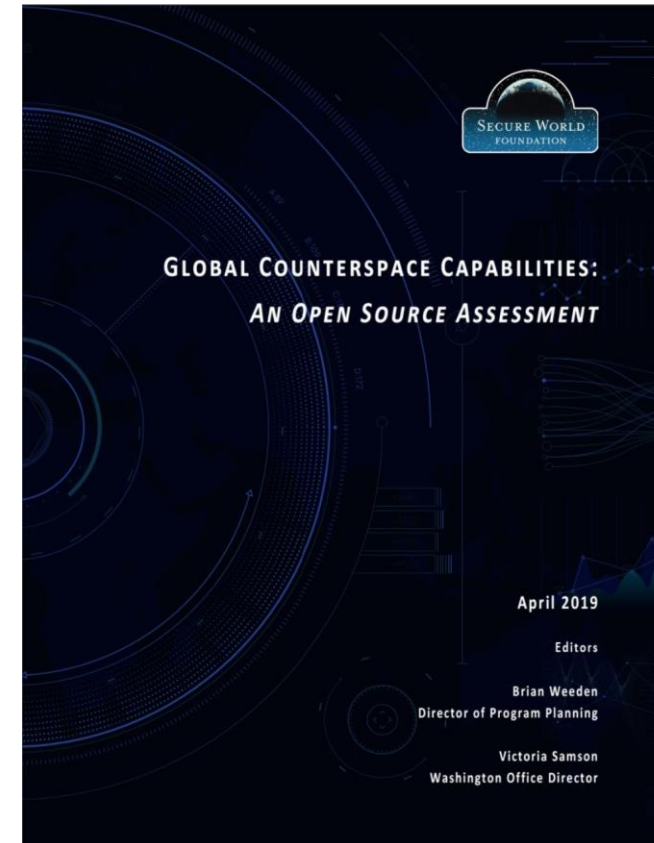
- White House and DOC have moved ahead on some of the implementation items
 - DOC issued Request for Information on Commercial Capabilities for Civil SSA and STM
 - DOC international outreach at UNCOPUOS STSC and bilateral discussions
- U.S. Congress has not given DOC the additional authorities and budget to implement the full scope of SPD-3
 - Senate introduced Space Frontier Act of 2019, which suggested DOT should be the lead agency for mission authorization (silent on STM)
 - House FY20 authorization and appropriations bills generally keep the status quo
- Uncertain whether this will be resolved before the 2020 elections

STM Considerations in General (1)

- Should it be civilian in nature or military?
 - What is its end goal?
- Should STM be undertaken from a top-down approach or a bottom-up?
 - Top-down: more political capital and leadership means better chance of being implemented...eventually, but also requires strong domestic capacity
 - Bottom-up: allows for a more organic development of STM capabilities but might have replication/gaps in capabilities
- Requires some sort of global governance mechanism to set rules and establish ways to trust STM guidance
 - UN Committee on Peaceful Uses of Outer Space passed Long Term Sustainability guidelines in 2018, including guidelines on safety of space operations

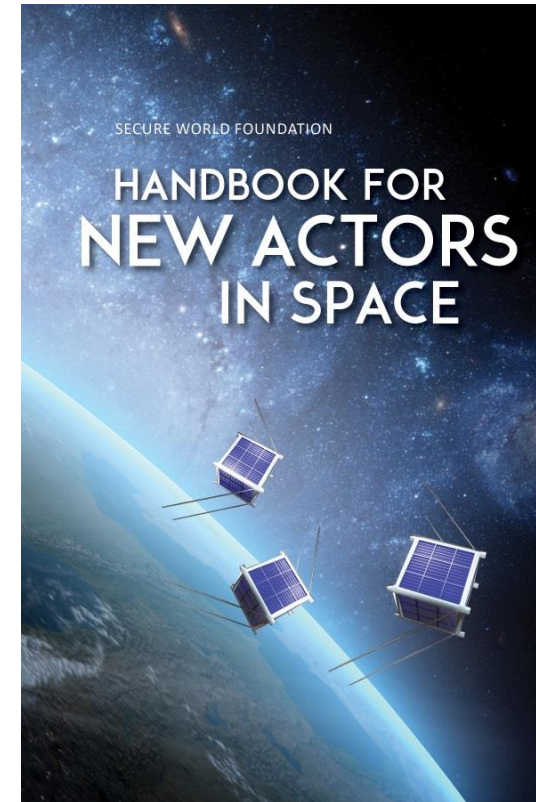
- Smallsats and new space actors provide different STM challenges
- Anti-satellite tests that create debris stress current SSA capabilities
- Existing end of life norms for satellites are outdated and complicate STM
- The launch state is not always clear – who's liable?
- Active debris removal raises serious policy and legal concerns
- How do we achieve transparency in STM?
 - What role can norms play in establishing a stable and predictable environment?

- Annual public report on global counterspace capabilities
 - Direct ascent/Co-orbital
 - Directed energy weapons
 - Electronic warfare
 - Cyber
- Includes US, Russia, China, India, Iran, and North Korea
- Promote transparency and public discussion of the threats and solutions



<https://swfound.org/counterspace>

- **Goal:** Create a publication that provides an overview fundamental principles, laws, norms, and best practices for safe, predictable, and responsible activities in space
- **Two specific audiences:**
 - Countries developing space programs and/or having to oversee and regulate their first satellites
 - Universities and start-up companies that are developing/operating satellites



www.swfound.org/handbook



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Questions?

Thanks.

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