

Update on US Efforts on Space Traffic Management

Brian Weeden

Director of Program Planning, SWF



SECURE
WORLD
FOUNDATION

January 12, 2023

ISRO SSA/STM Workshop
Bengaluru, India



Debate over definitions

Space
Surveillance?

Space Traffic

SSA: knowledge about the space environment

STM: making decisions based on SSA to improve safety of space operations

S
Situ
Awa

Space Domain
Awareness?

Coordination and
Management?



Components of STM

• Air-space interface

- Minimize the impact of space operations on aircraft operations during launch and re-entry
- Co-operating spacecraft and aircraft (sub-orbital tourism, air-launch spacelift)

• Orbital congestion

- Prevent collisions between space objects
- Manage highly congested orbital altitudes
- Active control of RPO with crewed space objects

• Oversight of private sector space activities

- Article VI “authorization and continuing supervision” of private sector space activities
- Link between regulation/licensing and monitoring of actual activities/verification



Historical US approach

- **Tracking** of space objects primarily led by the Department of Defense (DoD)
 - Maintains a global network of ground/space-based sensors (Space Surveillance Network)
 - Runs 24/7/365 military ops center that processes data and maintains multiple space object catalogs and creates analytical products
 - Provided some data publicly on Space Track website
 - Screened relatively small daily for close approaches
- All **regulation** of space activities done by civil agencies
 - Department of Transportation -> launch/re-entry
 - Department of Commerce -> remote sensing
 - Federal Communications Commission -> radio frequency spectrum use



End of “Big Sky” theory

- Iridium-Cosmos collision in 2009 changed everything
- DoD increased the amount of support they were providing to non-USG entities
 - Started screening all active satellites daily for close approaches
 - Provided email warnings to all satellite operators
 - Created SSA Data Sharing Program to provide additional data/services to partners

But should the military be the lead for this new mission?



U.S. National Policy on STM

• Obama Administration

- Started interagency discussions on STM in 2010
- Debate over Dept of Commerce (DoC) vs Dept of Transportation (DoT)
- Established baseline definitions & outline, but did not come to a decision (but leaned towards DoT)

• Trump Administration

- Halted DoT pilot program, restarted interagency discussion
- Came to consensus on Space Policy Directive 3 (Jun 2018)
- Components largely same as under Obama, but implemented by DoC instead of DoT



Space Policy Directive 3 Goals

- Advance science and technology research to support SSA and STM
- 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



Commerce as Lead Org for Civil SSA and STM

- Department of Commerce given authority to develop a civil SSA capability
 - DoD will retain control of the “authoritative satellite catalog”
- Office of Space Commerce (OSC) will develop an **Open Architecture SSA Data Repository**
 - Leverage commercial, scientific, and international data sources
- OSC will be the “store front” for promotion & oversight of US private sector entities
 - Will have authority to license and approve non-traditional activities
 - Coordinate with other entities (FCC, FAA)
- OSC will develop national STM regime based on industry-led best practices and standards and encourage international adoption



Implementation Challenges

- In Dec 2020, Congress approved parts of SPD-3
 - Authorized DoC to begin a civil SSA pilot program, appropriated \$10M in FY21
 - Transition to operational DoC civil SSA program in FY24 (with funding ramping up to \$40M)
 - Did **not** approve elevating OSC to a Bureau of Space Commerce
 - Did **not** expand authorities of OSC or other agencies to cover new/emerging commercial activities
- Transition disruption
 - Abnormal presidential transition created more challenges
 - Many of the staff from the Trump OSC were moved to other agencies or left government



Recent Progress

• Biden Administration

- So far as kept the elements of SPD-3 in place
- Continued to support Office of Space Commerce as the lead entity
- Requested major budget increase (\$16M -> \$88M) for FY23
- Installed Richard Dalbello as new Director of OSC in June 2022
- National Space Council review of “mission authorization”
- Announced “pilot program” for commercial services (GEO only)

• Congress

- Appropriated \$70M to OSC for for FY23
- Introduced draft bill on a transition plan for civil SSA from DoD to DoC, but it did not get a vote before end of term
- Has not assigned new regulatory authorities to DoC



Open Questions

- How much will DoC be able to leverage commercial capabilities for the OADR vs DoD?
- What kinds of data/products will DoC make publicly available vs available only to satellite operators?
- How will DoC interact with other national/regional STM providers?
 - Recently announced discussions with EU SST Programme
- Which set of “industry best practices” will DoC use as baseline for STM “rules”?

Secure World Foundation logo and name in multiple languages: English, Hindi, Bengali, Arabic, Korean, Chinese, and Russian.

Thank you!

bweeden@swfound.org

