Preparing For a "Normalized" Space Domain

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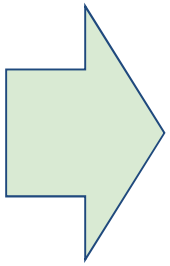
Overview

- Space domain trends
- What do we mean by “normalized”?
- Putting the norm in normalized
- Current norm-building initiatives
- Future issues

Broad space domain trends

Old Space Paradigm

- National
- Secret
- Military-led
- Independent
- Strategic



New Space Paradigm

- International
- Transparent
- Commercial-led
- Interdependent
- All levels of war

Space is becoming "normalized"

Implications of normalization

- Private sector will become main driver of innovation and change
- Will need to modernize/update space governance framework
  - What do all those legal principles really mean?
  - How to involve private sector in governance discussions?
- US will not have same level of dominance as it has in the past
  - Military capabilities still superior, but not untouchable
  - Will have to deal with other voices in governance discussions
- Need massive amount of work to develop norms of behavior for space

What are "norms"?

- **Sociology**: informal understandings that govern the behavior of members of a society
- **International relations:** Standard of appropriate behavior for actors with a given identity

- Norms are useful tools to moderate or influence behavior in the absence of laws and regulations
  - **Example:** Stand on the right, walk on the left on Metro escalators
- Laws are often (but not always) codifications of existing norms
  - **Example:** Drive on the same side of the road
- Norms can often play as big a role in encouraging compliance with laws as actual penalties
  - **Example:** Paying taxes in the US

Norms in space governance

- Much of the existing space governance framework is based on norms
  - **Example:** Freedom of overflight for satellite reconnaissance
    - Launch of Sputnik in 1957 helped set the norm that satellite overflight did not breach territorial sovereignty
    - By mid-1960s, freedom of overflight was a generally accepted norm
    - Was not codified into "hard law" until Outer Space Treaty of 1967

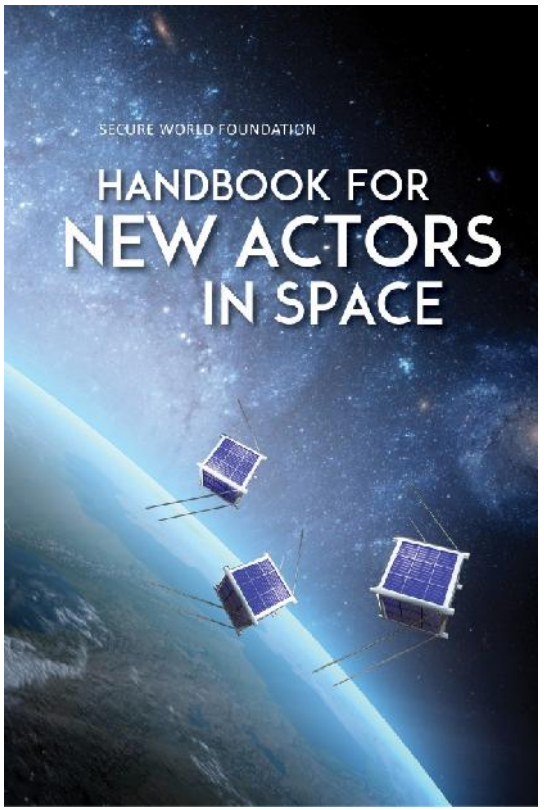
- Norms are likely going to be the main mechanism to address future challenges
  - "Congested, contested, competitive"
  - Far more space actors than ever before, with diverse interests and goals
  - Increasingly challenging to get global consensus on new "hard law"

CURRENT NORMATIVE INITIATIVES

SWF Handbook for New Actors in Space

- **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

Content (1)

- **Chapter 1: The International Framework for Space Activities**
  - Freedom and Responsibility
  - Registration of Space Objects
  - International Frequency Management
  - Remote Sensing
  - International Standards
  - International Export Control
  - International Liability
  - Dispute Settlement
  - Environmental Issues
  - Advanced Issues

Content (2)

- **Chapter 2: National Space Policy and Administration**
  - Public Policy
  - Public Administration and National Oversight
  - Case Study: Remote Sensing Policy and Administration

- **Chapter 3: Responsible Space Operations**
  - Pre-launch
  - Launch
  - On-orbit
  - End-of-life

UN Long-Term Sustainability Guidelines

- Working Group under the Scientific and Technical Subcommittee (STSC) of the United Nations Committee on the Peaceful Uses of Outer Space (UNCOPUOS)

- Build on success of space debris mitigation guidelines and create voluntary "best practices" for space sustainability
  - Space debris and space operations
  - Space weather
  - National regulations and oversight
  - Sustainable use of space for sustainable development on Earth

- First set of 12 guidelines adopted in 2016, hope to reach completion in 2018

MILAMOS

- Manual on International Law Applicable to Military Activities in Space (MILAMOS)
- How does existing international space law, International Humanitarian Law (IHL), and Law of Armed Conflict (LOAC) apply to space?
  - San Remo Manual on Maritime Warfare
  - Harvard Manual on Air and Missile Warfare
  - Tallinn Manual on Cyber Warfare
- Co-lead by McGill University in Canada and University of Adelaide in Australia
- 30+ legal experts from academia and military practitioners, plus technical advisors

Hague Space Resources Working Group

- Consortium (academia, industry, and NGOs) created to discuss governance rules for space mineral resources

- Goal is to build consensus on regulatory concepts
  - To enable, support and co-ordinate the use of space resources
  - Acceptable to developed and developing countries

- Outcome will be identification, formulation, and recommendation, of "building blocks" for national/international governance activities

UN High Level Forum

- Multi-stakeholder discussion on the future of UN space fora and agenda items (governments, industry, NGOs)
  - Funded by United Nations Office of Outer Space Affairs (UNOOSA), the United Arab Emirates, and SWF

- Thematic pillars:
  - Space economy
  - Space society
  - Space accessibility
  - Space diplomacy

- Set agenda for UNISPACE+50 meeting in June 2018

FUTURE ISSUES

SSA and STM

- How do we improve global SSA capabilities to meet growing demands/challenges?
  - Shift civil SSA authority away from DOD
  - Role for the private sector?

- What does the future framework for space traffic management (STM) look like to manage space sustainably?
  - National regulation/oversight
  - International coordination/standardization

- USG has struggled with these issues for 7+ years
  - Obama Admin began interagency debate on STM in 2010
  - Congress skeptical of new money/authority for civil agencies

Rendezvous and Proximity Operations

- Getting "up close and personal" with other space objects
  - 50+ years of experience in doing it with human spaceflight, but increasingly shifting to robotic/autonomous
- Multiple countries/companies developing and testing "dual-use" RPO capabilities
  - US: OrbitalExpress, DART, XSS-11, MiTeX, ANGELS, GSSAP, Phoenix, RSGS, RESTORE-L
  - China: SJ-12, SY-7, SJ-15, SJ-17
  - Russia: Cosmos 2499, Cosmos 2504, Luch
  - Sweden: Mango/Tango
  - OrbitalATK: Mission Extension Vehicle
  - Chandah: Insuresat
- DARPA Consortium For Execution of Rendezvous and Servicing Operations (CONFERS)

Private sector "code of conduct"?

- Over the next decade, the private sector will become the dominant player in space (16,000+ satellites planned for launch)

- Incentives for satellite operators to set norms/behaviors w/out waiting for governments to act
  - Increase the sustainability of their own business models
  - Allay concerns that "darkening the skies" will create havoc for existing users
  - Preempt the need for government regulation (or at least inform it)

- Ties into broader Corporate Social Responsibility movement
  - Businesses value in social good beyond just bottom line
  - Socially responsible practices that reinforce business models

US diplomatic engagement

- Will the US continue its historical leadership role in space governance, or cede it to Russia/China?
  - Existing international treaties & institutions largely created by US and support US national interests
  - Last several years, US has ceded diplomatic initiative to Russia/China
    - Code of Conduct

- Will US have bilateral engagement with China on space?
  - Obama Admin began bilateral discussions on space safety and security
  - But Congressional blocks still in place on civil space

- Current US zeitgeist is towards nationalism and devaluation of global order

Thank you. Questions?

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