



Promoting Cooperative Solutions for Space Sustainability

Norms of Behavior in Space

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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



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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”



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INTERNATIONAL INITIATIVES FOR SPACE NORMS



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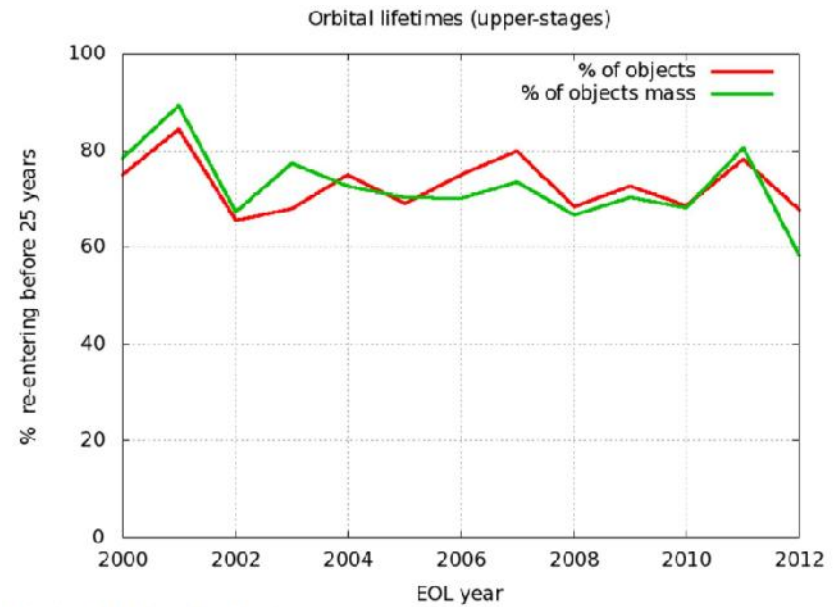
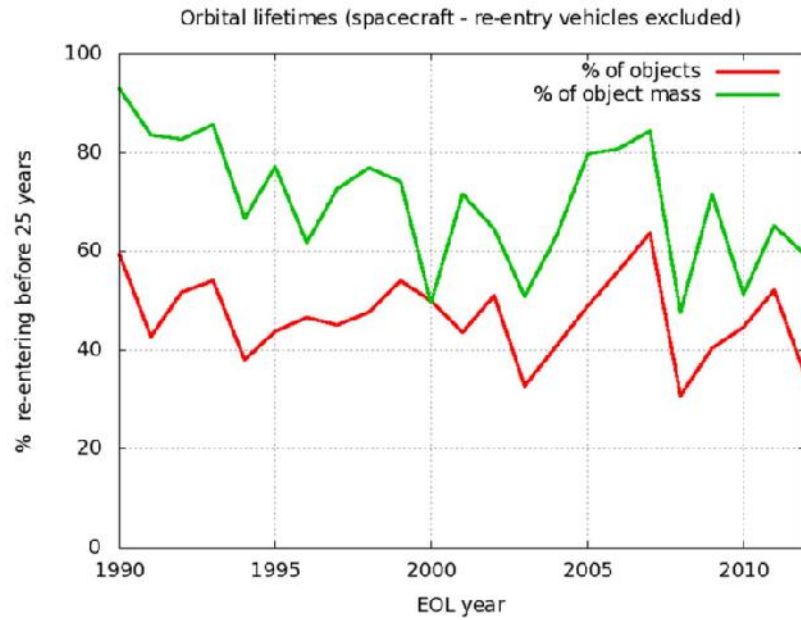
Space Debris Mitigation Guidelines

- Inter-Agency Space Debris Coordination Committee (IADC)
 - Members are national space agencies
 - 2007 published debris mitigation guidelines
 - Established “protected zones” in LEO and GEO, 25 year rule
 - UN endorsement in 2008, urged States to adopt on voluntary basis
- Some progress on national implementation
 - US, France, Germany, Russia, Canada, UK, Japan, and China have implemented or are working on implementation
- ESA research indicates 40-60% compliance with 25-year rule
 - Less compliance in LEO than GEO
 - No significant increase (or decrease) over last 13 years



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Compliance with 25-year rule



Source: Krag, Lemmens, Virgili (2014)



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UN Group of Governmental Experts (GGE)

- UN Group of Governmental Experts (GGE) on Transparency and Confidence Building Measures (TCBMs) for Outer Space Activities
 - 15 experts (P5 + “representative” 10) nominated by countries
 - Asked to make recommendations for improving security & stability
- Delivered their report in October 2013
 - First time US, Russia, and China all agreed on this issue in UN
 - Information exchange and notifications
 - Risk reduction
 - Contact lists and consultative mechanisms
- But what about implementation?



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Space Code of Conduct

- EU Code of Conduct
 - Started with the French presidency of the EU in 2007
 - One of the first few exercises of EU foreign and security policy powers post-Lisbon Treaty
 - Adopted by EU in 2008, and offered up for international participation
- International Code of Conduct
 - Created in 2012, uses EU Code as basis
 - Multiple rounds of formal and informal international negotiations
 - August 2015 meeting ended with deferring entire issue to UNGA
 - Major disagreements
 - Definition of self-defense in space
 - Inside or outside the UN
 - Focus on security space, “peaceful” space, or both?



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UN Long-Term Sustainability Guidelines

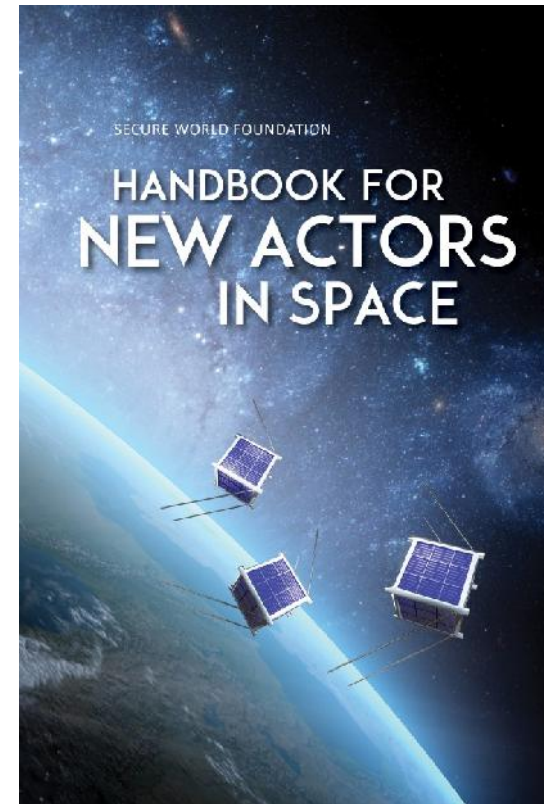
- Working Group under the Scientific and Technical Subcommittee (STSC) of the United Nations Committee on the Peaceful Uses of Outer Space (UNCOPUOS)
- Build on success of space debris mitigation guidelines and create voluntary “best practices” for space sustainability
 - Space debris and space operations
 - 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



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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



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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



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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



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FUTURE ISSUES



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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
 - Russia: Cosmos 2499, Cosmos 2504, Luch
 - Europe: Mango/Tango
 - OrbitalATK: Mission Extension Vehicle
 - Commercial debris removal?
- DARPA Consortium For Execution of Rendezvous and Servicing Operations (CONFERS)



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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



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Thank you. Questions?

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