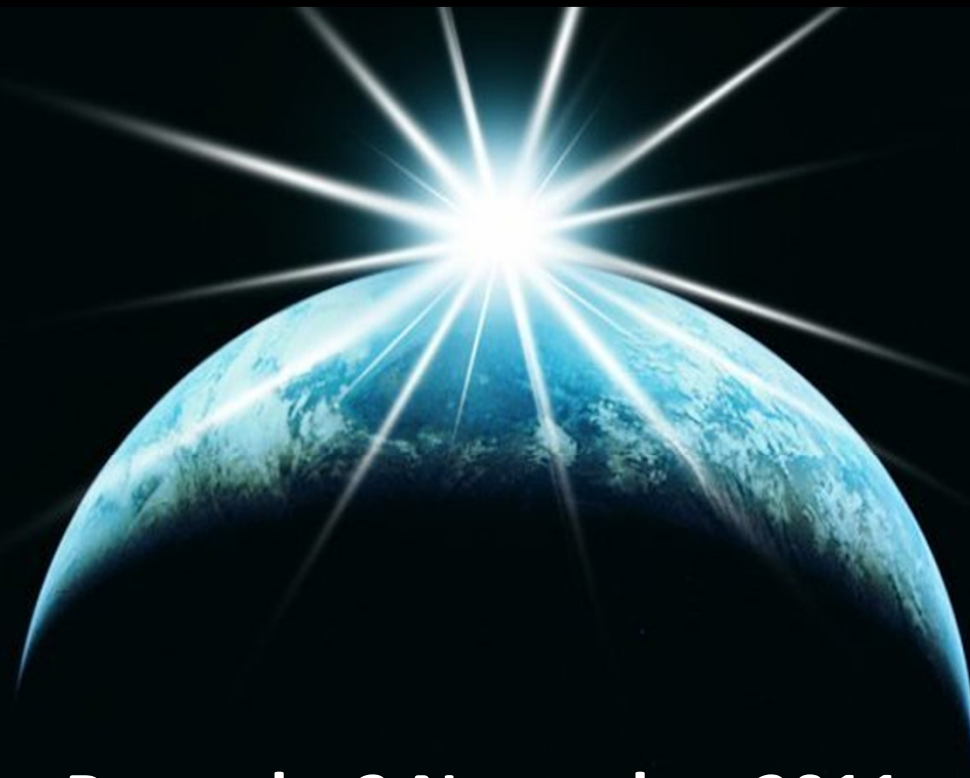


SPACE SECURITY INDEX

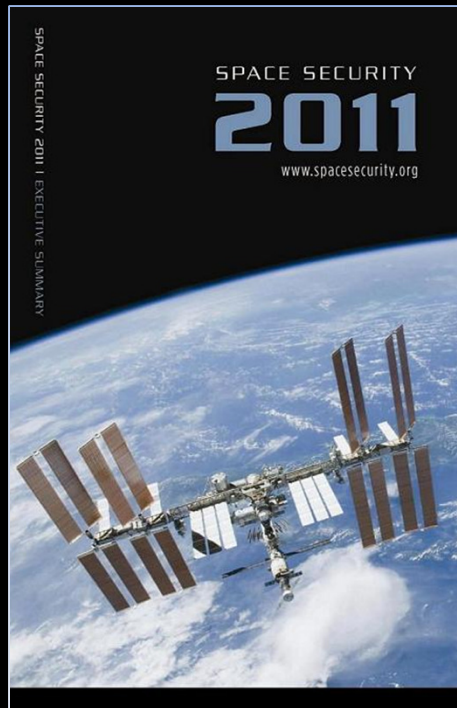


Brussels, 3 November 2011

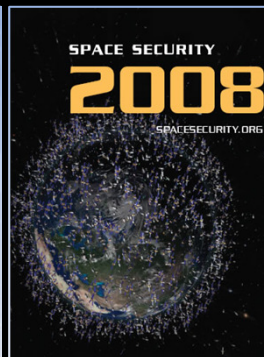
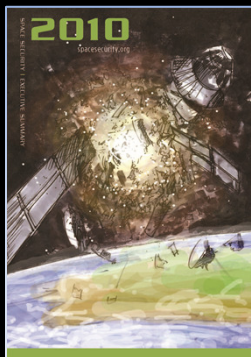
Cesar Jaramillo - SSI Project Manager



The Space Security Index



- *Annual assessment* of trends and developments that affect space security
- Provides objective and fact-based research to promote *transparency and confidence* in space activities
- Supports the development of *policy* to ensure secure access to space for all





Defining Space Security

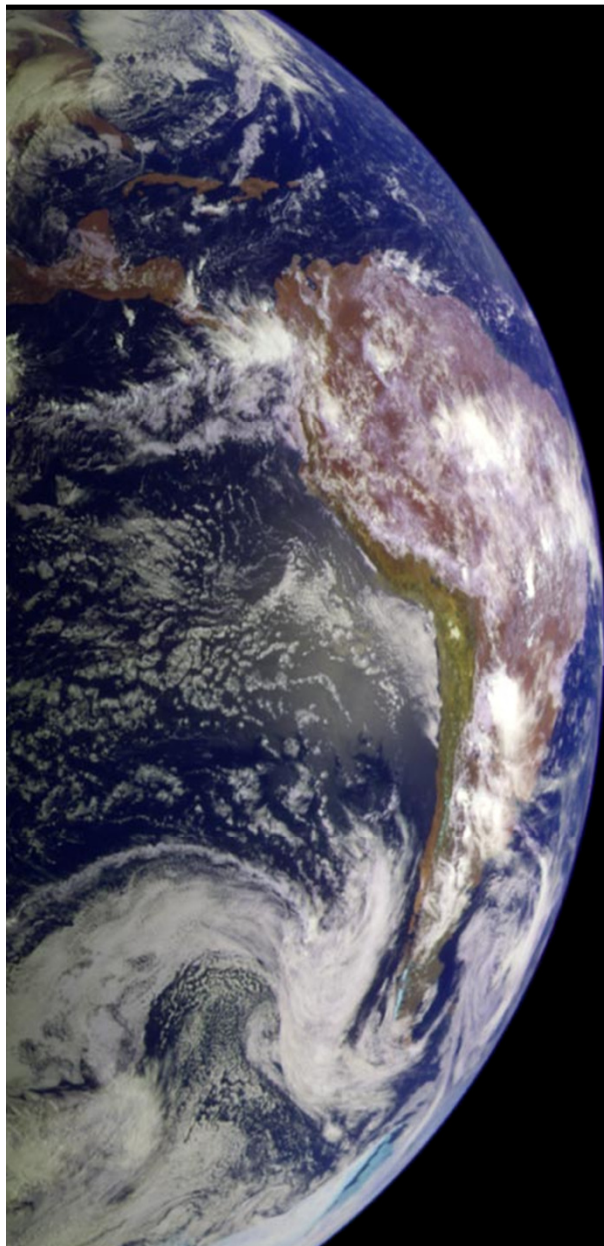
“The secure and sustainable access to and use of space, and freedom from space-based threats”

➤ **Tension:**

Space as a *global commons*

vs.

Space as a strategic environment for *individual states*





Space Security Indicators

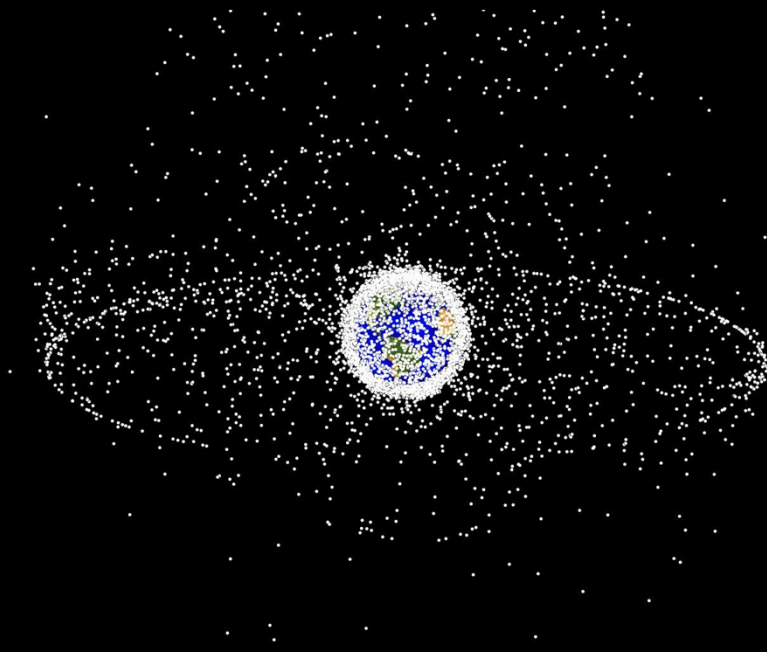


1. The Space Environment
2. Space Situational Awareness
3. Laws, Policies, and Doctrines
4. Civil Space Programs and Global Utilities
5. Commercial Space
6. Space Support for Terrestrial Military Operations
7. Space Systems Resiliency
8. Space Systems Negation



Areas of concern:

- *Operating environment*
- *Growing number and diversity of actors*
- *Militarization/ Potential Weaponization of space*

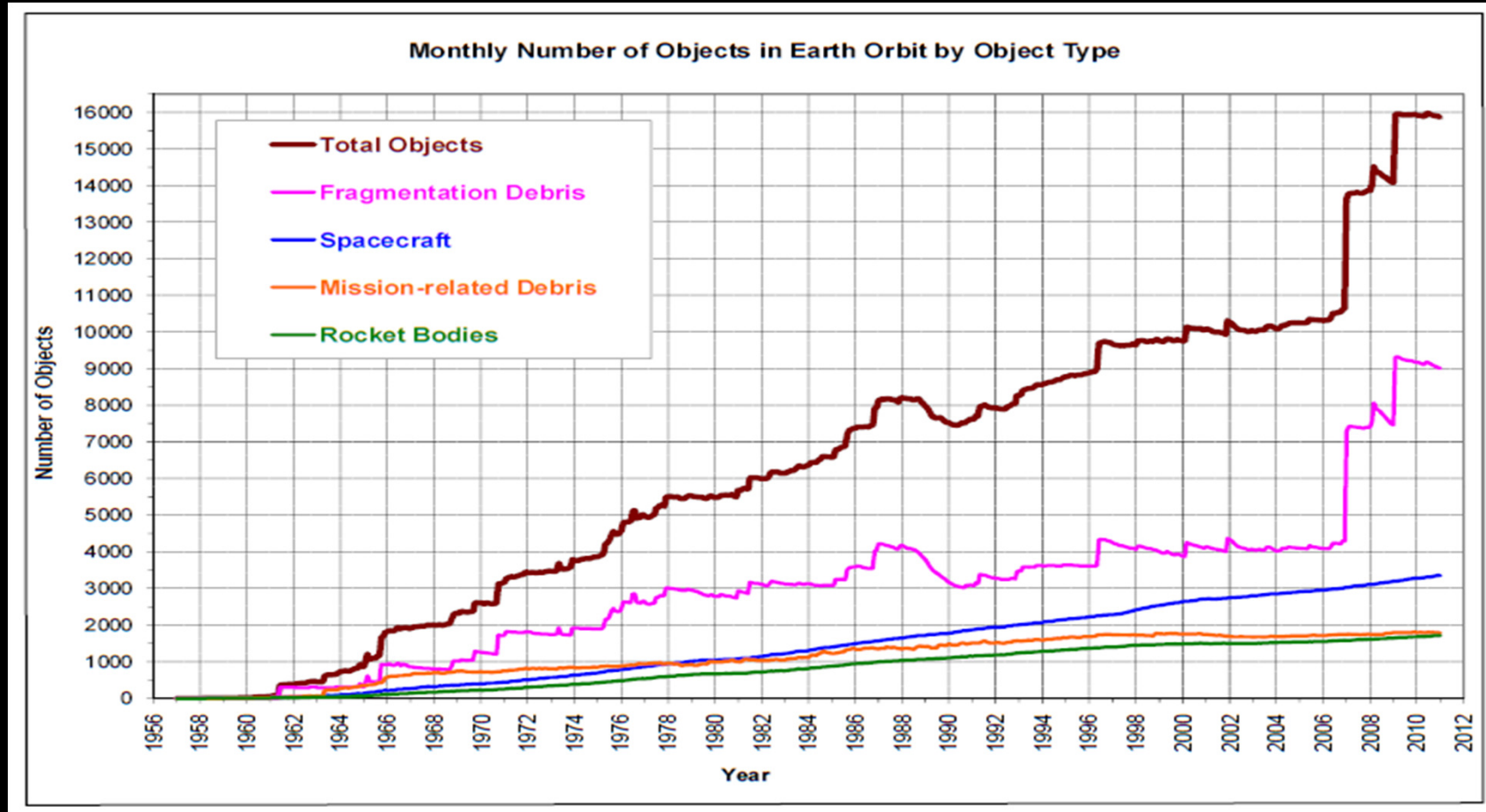


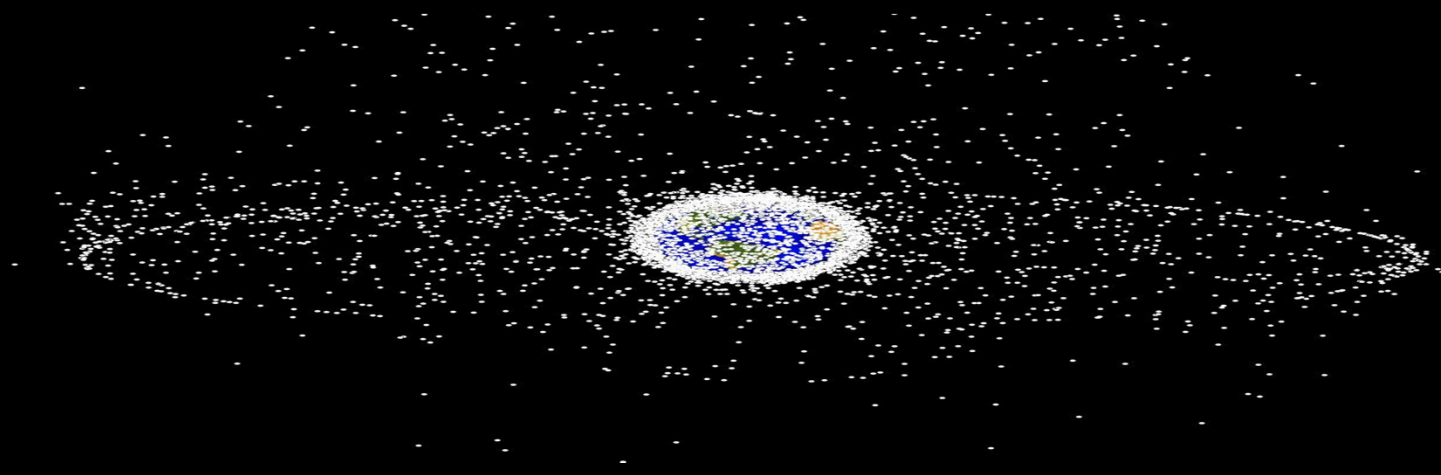


The Space Environment

- The Physical Space Environment
- Space Situational Awareness

Image Source: Orbital Debris Quarterly Newsletter, NASA





Key Developments in *Space Security 2011*:

- Trackable space object population increases by more than 5%.
- Compliance with debris mitigating guidelines still inconsistent
- US to expand SSA Sharing program
- Malfunction of Galaxy 15 satellite prompts complex physical and RFI mitigation plans.



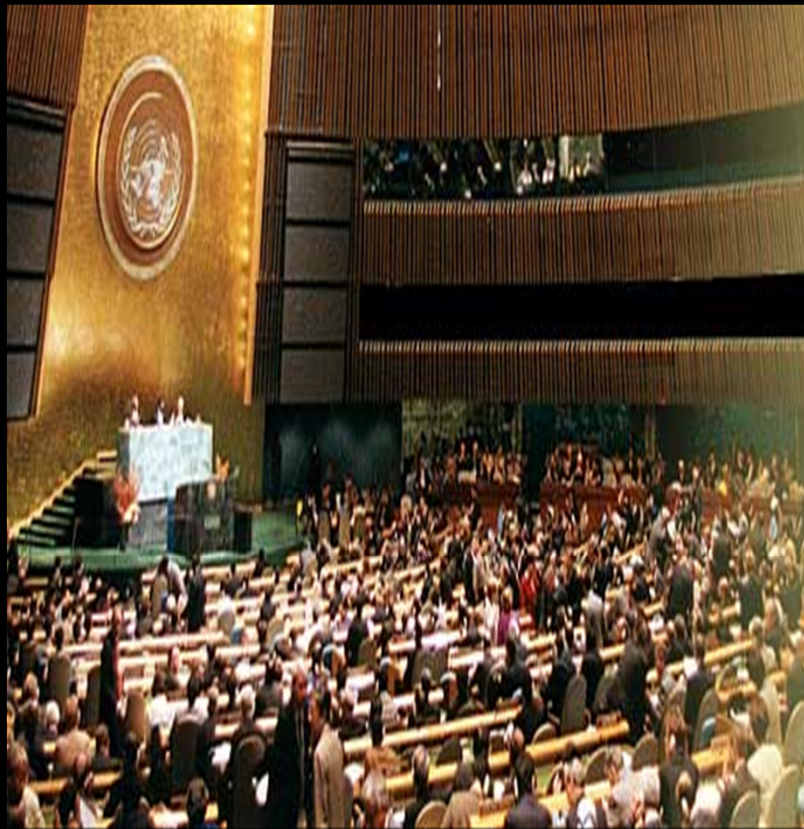
The Normative Environment

Laws, Policies, and Doctrines

Existing normative architecture for space activities is *outdated* and *insufficient*

Competing Approaches:

- National vs. Multilateral
 - Legally binding vs. non-binding
- Not necessarily mutually exclusive

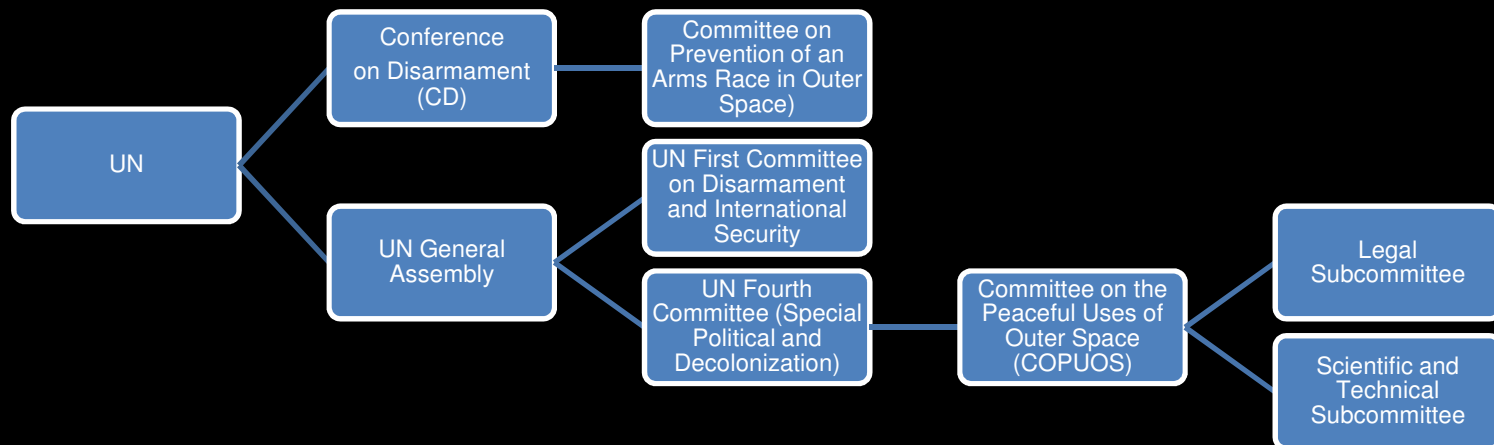




➤ Status quo **OR** immediate prohibition?

TCBMs as middle ground:

- Voluntary moratoriums
- Data sharing





What is the appropriate forum?

From the draft final document of the 2011 COPUOS Plenary Session:

24. The view was expressed that the conclusion of PPWT, which had been presented by China and the Russian Federation to the Conference on Disarmament in 2008, would prevent an arms race in outer space.

25. The view was expressed that the Committee had been created exclusively to promote international cooperation with respect to the peaceful uses of outer space and that disarmament issues were more appropriately dealt with in other forums, such as 1st Committee and the CD.



Key proposals:

- **Code of Conduct for Outer Space Activities**
- **PPWT**
- **Canada's proposed pledge to:**
 - a. Ban the placement of weapons in space,
 - b. Prohibit the test or use of weapons on satellites so as to damage or destroy them, and
 - c. Prohibit the use of satellites themselves as weapons.
- **Space security regime = 1 single instrument?**



Key Developments in *Space Security 2011*:

- Despite initial delay, US Space Posture Review is completed
- Group of Governmental Experts to study TCBMs in space
- Deadlock persists at the CD
- EU Code of Conduct revised and ready for further consultation





Number and diversity of space actors

- **Access** to outer space is growing
 - ***New space actors*** emerging
 - Barriers to entry are sharply **decreasing**
-
- **But:** Limited resources (e.g. orbital slots, RF spectrum)

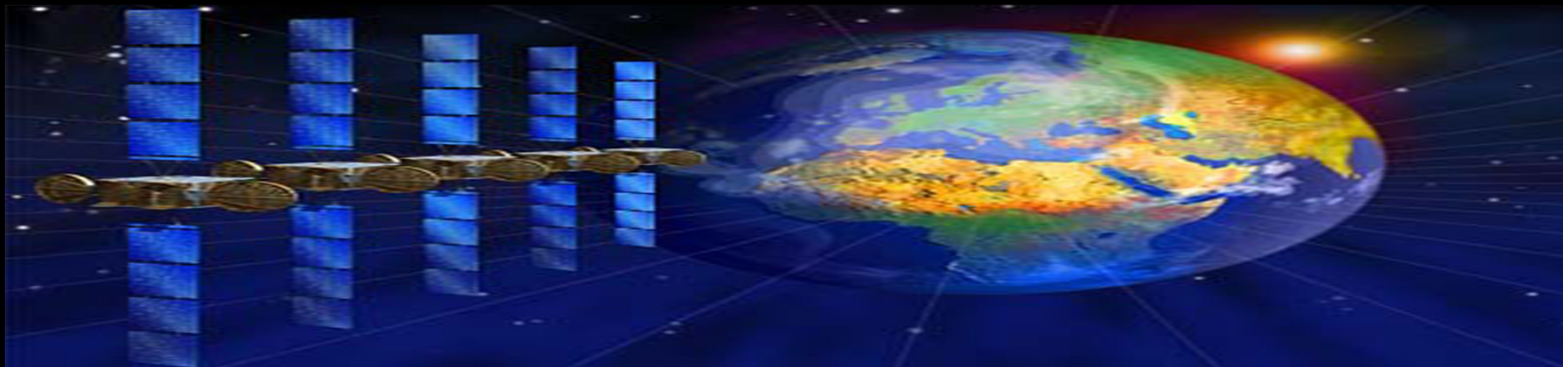




Number and diversity of space actors

Key Developments in *Space Security 2011*:

- Several countries prepare to launch first satellites
- Space Shuttle retirement
- ISS marks 10 years of continued operations and uninterrupted inhabitancy
- Africa considers creation of African Space Agency





Militarization vs. Weaponization

Military uses:

- Reconnaissance
- Surveillance
- Navigation
- Intelligence



➤ But: NO Space-based Space Weapons used to date



- **Offensive/Defensive space capabilities are NOT ONLY related to systems in orbit**

- **They include the entire structure of space and terrestrial systems:**
 - **Orbiting satellites**
 - **Space-related terrestrial facilities**
 - **Data and communications links**



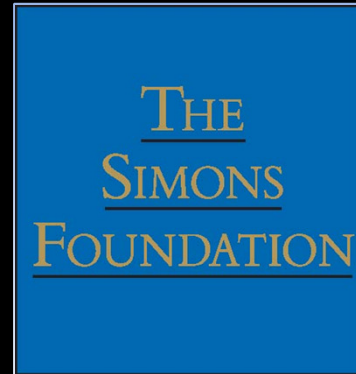
Key Developments in *Space Security 2011*:

- Jamming incidents continue to proliferate
- USCYBERCOM reaches full operational capabilities
- Complex rendezvous capabilities continue to be advanced
- Development of ASAT capabilities considered by some countries



Space
Security
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