

# SPACE SECURITY INDEX



**Mission of Canada to the EU - Secure World Foundation**

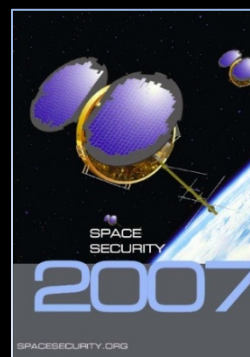
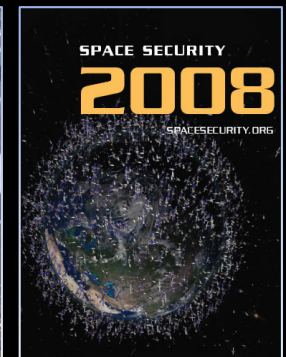
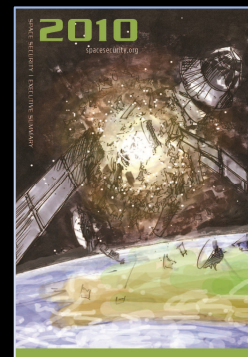
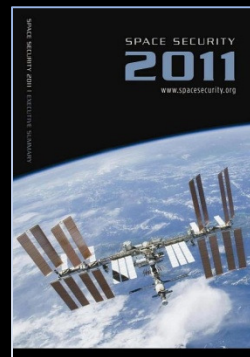
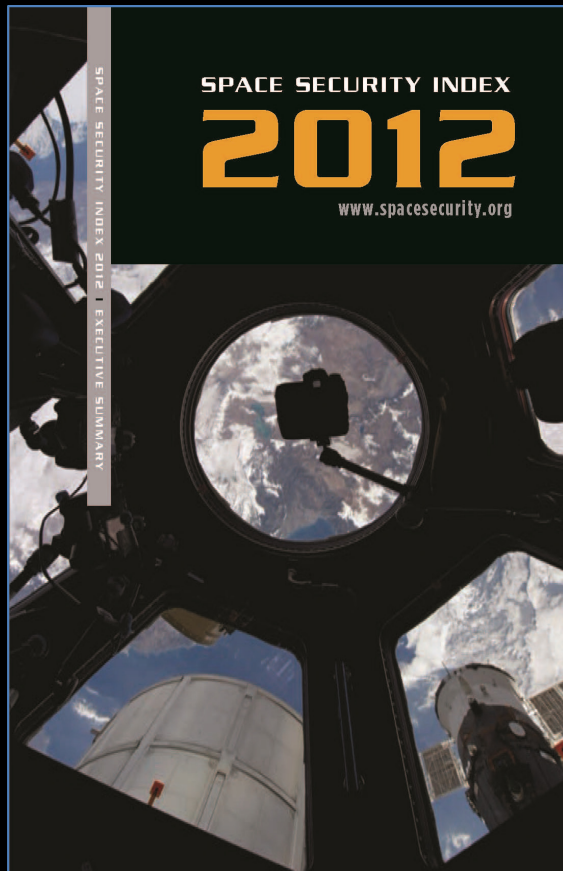
**Brussels, 29 November 2012**

**Cesar Jaramillo - SSI Project Manager**



# The Space Security Index

- 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





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





# Space Security Indicators

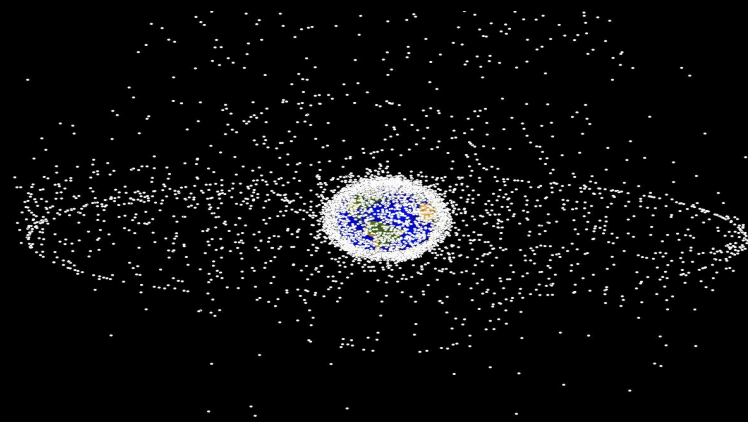


1. The Space Environment
2. Space Situational Awareness
3. Laws, Policies, and Doctrines
4. Civil Space Programs and Global Utilities
5. Commercial Space
6. Space Support for Terrestrial Military Operations
7. Space Systems Resiliency
8. Space Systems Negation



## Themes:

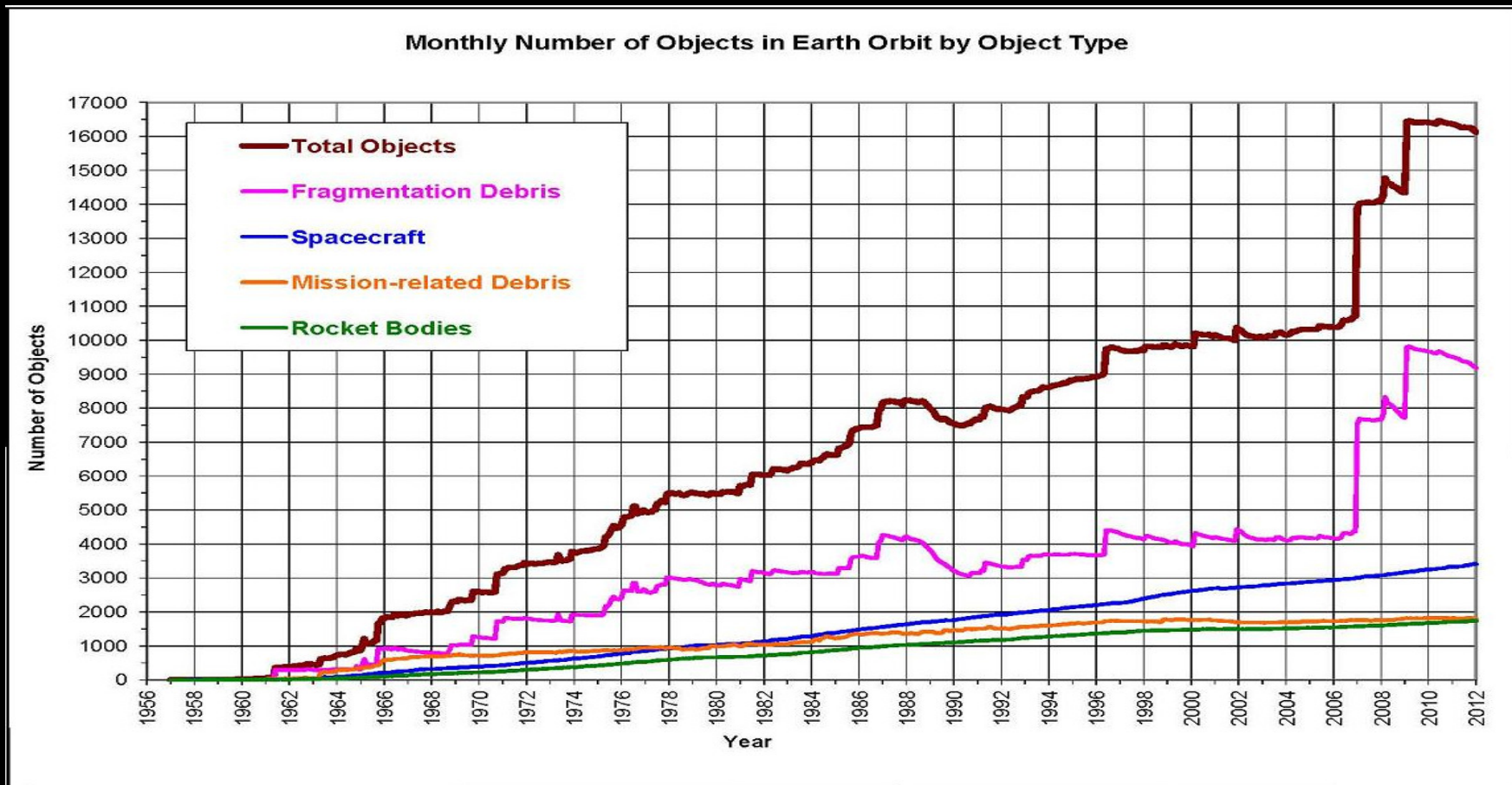
- *Physical space environment*
- *Normative and regulatory framework for space activities*
- *Growing number and diversity of actors*
- *Space-based military applications*

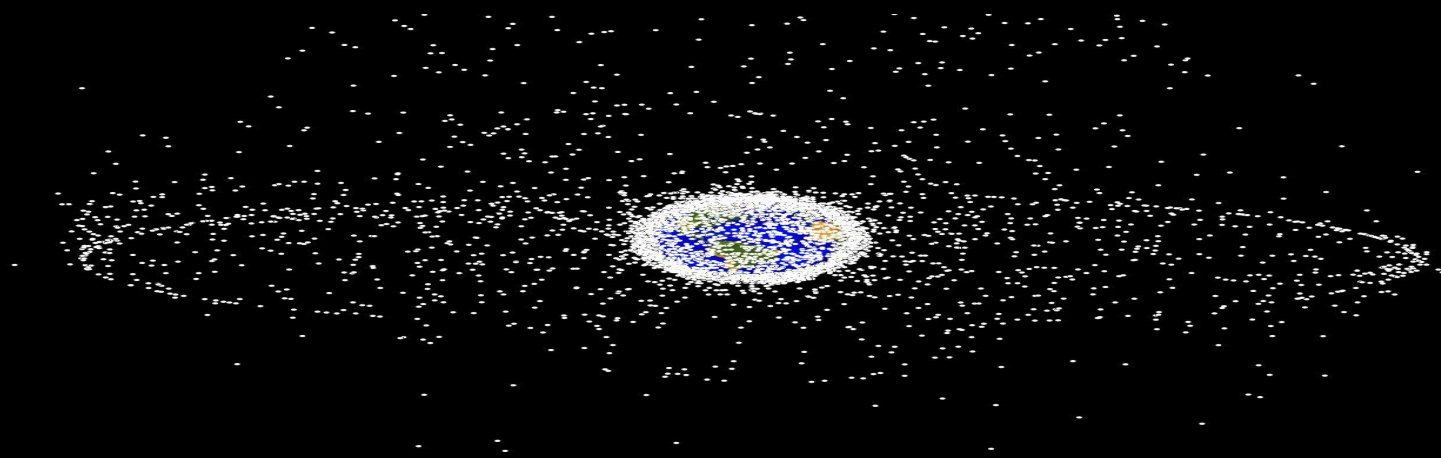




- The Physical Space Environment
- Space Situational Awareness

Image Source: Orbital Debris Quarterly Newsletter, NASA





## **Key Developments in the *Space Security Index 2012*:**

- Catalogued space debris population increases by 7.8 percent
- Orbital debris continues to have a growing impact on operational spacecraft
- The U.S. continues to expand SSA Sharing program
- International effort to track and reestablish contact with Russian Phobos-Grunt spacecraft



# The Normative Environment



## Laws, Policies, and Doctrines

Existing normative architecture for space activities is *insufficient*

### Different Approaches:

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





## Key proposals:

- **Code of Conduct for Outer Space Activities**
  
- **PPWT**
  
- **Canada's proposed pledges 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.



## Key Developments in the *Space Security Index 2012*:

- CD could not agree on a Program of Work
- Terms of reference for COPUOS Working Group on Long Term Sustainability of Outer Space Activities agreed
- International Code of Conduct for Outer Space Activities proposed by the EU continues to receive mixed support
- U.S. confirms engagement with Group of Government Experts for Transparency and Confidence-Building Measures in Space



# 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)





## Key Developments in the *Space Security Index 2012*:

- LightSquared telecommunications plan interferes with GPS signals in the U.S
- Satellite navigation systems around the globe continue to evolve
- Increasing number of cooperation agreements on space activities
- Despite predictions of downturn, satellite industry positioned for continued growth
- Space Data Association reaches full operational capability



# Space-based Military Applications

## ➤ Uses:

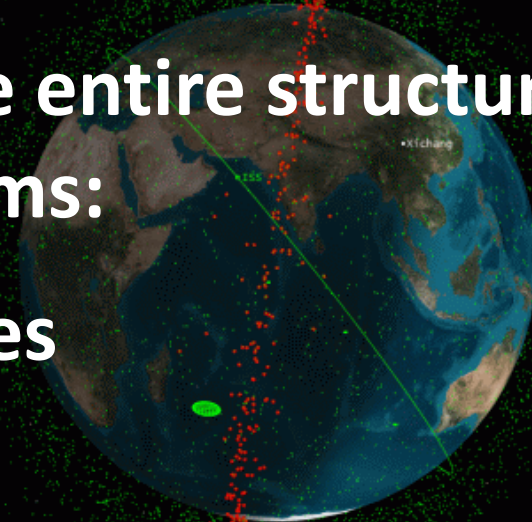
- Reconnaissance
- Surveillance
- Navigation
- Intelligence

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



# Space-based Military Applications

- **Offensive/Defensive space capabilities are NOT ONLY related to systems in orbit**
  
- **They include the entire structure of space and terrestrial systems:**
  - **Orbiting satellites**
  - **Ground stations**
  - **Data and communications links**





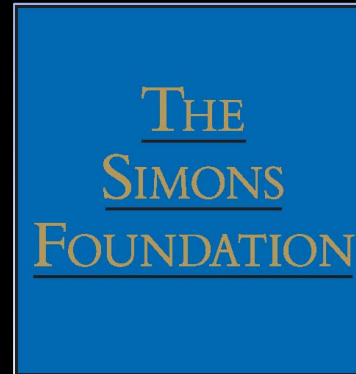
## Key Developments in the *Space Security Index 2012*:

- Canada joins Wideband Global SATCOM (WGS) Project
- Chile's first military intelligence satellite is launched
- Rapid Attack, Identification, Detection, and Reporting System (RAIDRS) Block 10 nears initial operational capability
- Programs under way to mitigate risk of cyber attack
- Jamming incidents and capabilities continue to proliferate



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# SSI Project Partners



[www.spacesecurity.org](http://www.spacesecurity.org)

