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Space Sustainability: The Basis for Responsible Use of Space

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Presentation Overview

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- Analyses for mid-term visions
- Platforms for exchange
- Sources of information

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XI th European Interparliamentary Space Conference (EISC)
United Kingdom
London 2009

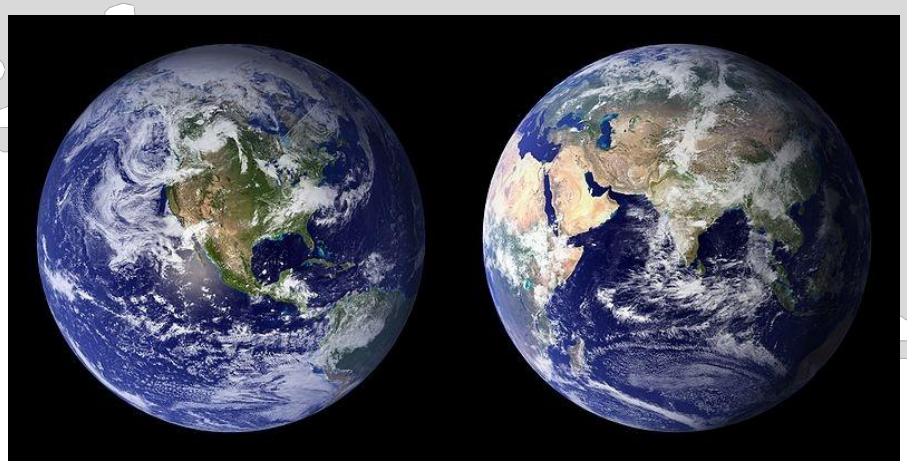
Support for EISC (European Interparliamentary Space Conference)

APCEE IAP Ambassador Platform for Central & Eastern European Region esa

Ambassadorship for IAP (Integrated Applications Promotion)

1. Introduction

- Space is an important multiplier for Earth-based activities
- There are various challenges to long-term sustainability of space
  -- growing attention to both natural and man-induced threats
- Sustainability is defined as = ability to maintain or support an activity over the long term
- Space sustainability also contingent on space safety and security
- A number of top-down and bottom-up efforts underway
- Building of an overarching space security framework is incremental



Source: MIT

2. Efforts to Advance Safety and Security in Space

UN Committee on Peaceful Uses of Outer Space (UNCOPUOS)
UN Conference on Disarmament (UN CD)
- PAROS
International Draft Code of Conduct proposed by the EU
Transparency and Confidence-Building Measures (TCBM)

Governance Proposals -Top Down:

- Draft Code of Conduct for Outer Space Activities proposed by the EU
- Improved SSA
- Long-Term Sustainability
- PPWT
- Canada‘s 2009 Working Paper

Governance Proposals - Bottom-Up:

- Space Debris Mitigation Guidelines
- Codes of Conduct/Rules of the
- Road/Best Practices Guidelines
- Advancing the Safety of Space Activities
- Space Traffic Management (STM)
- Commercial initiatives

3. Space Situational Awareness (SSA) in Support of Sustainable Use of Space

- SSA is defined as = knowledge, understanding and maintained awareness of population of space objects; space environment; and existing threats
- United States
  - Key player in SSA field with unmatched capabilities
  - Upgrading of SSA capabilities
  - Emphasis on cooperation through partnerships (SSA Sharing Program)
- Europe
  - Efforts to develop a Europe-wide SSA System
  - Focus on Space Surveillance and Tracking; Space Weather Monitoring and Forecasting; and Near-Earth Objects (NEO) Surveillance, Tracking and Risk Assessment
  - Coordination of actors involved in SSA Policy (MS; ESA; relevant EU Institutions)
- Surveillance Capabilities in Other Countries (Russia, Japan, China, India, etc.)
- Commercial Satellite Operators (Space Data Association)

3. Space Situational Awareness (SSA) in Support of Sustainable Use of Space

- SSA as a lynchpin for safe and secure operations in space as it enables:
  - the tracking of objects,
  - timely warnings of potential collisions
  - avoidance of radiofrequency interference
  - real-time information about “situations” in space.
  - detecting irresponsible space behaviour
  - monitoring the actions of potential adversaries
- Achieving comprehensive SSA is a difficult task due to:
  - space debris
  - increasing number of spacefaring nations and space aspirants
  - new and emerging space technologies
- Connectivity between SSA and the adoption of space governance (e.g. code of conduct) , supported by Transparency and Confidence-Building Measures (TCBMs)

4. International Code of Conduct for Outer Space Activities

- First proposed by the European Union in December 2008
- Revised version introduced in September 2010
- The Code is voluntary and designed to serve as alternative to legally-binding proposals for prevention of arms race in outer space or bans on space weapons
- Includes transparency and confidence-building measures (TCBM) as basis for consultations with key third countries involved, or interested, in outer space activities
- Currently structured outside of traditional multilateral institutions like UN and the CD
- The Code seeks to gain widespread support among international space actors by setting relatively modest commitments

5. Role of Transparency and Confidence-Building Measures (TCBM) for Space

- TCBM s are receiving priority attention in global space community

- TCBM can help blend complementary elements of existing proposals on management of space activities

- TCBMs can act as connective tissue or link between SSA and codes of conduct or other behaviour modifiers

- TCBMs already established in treaties and/or proposed norms, including:
  - Outer Space Treaty (OST)
  - Registration Convention
  - ITU Constitution
  - UNGA Resolutions (e.g. UNGA Res. 47/68, UNGA Res. 55/122, UNGA Res. 59/115, UNGA Res. 62/101, UNGA Res 62/217, UNGA Res.63/90)
  - IADC Space Debris Mitigation Guidelines
  - UNCOPUOS “Long-term sustainability of outer space activities“ initiative
  - International Code of Conduct initiated by the EU

5. Role of Transparency and Confidence-Building Measures (TCBM) for Space

TCBM Strengths:

- Can help reverse present deterioration of overall space security environment
- Can provide policy framework to advance specific behavioural objectives
- Can reinforce a space culture of cooperation and peer review
- Can preempt or deter irresponsible behaviour

TCBM Limitations:

- An uneven track record of past success
- Have been used for suspect national purposes (e.g. a signatory with hidden agenda, a delaying tactic, etc.)
- Are difficult to negotiate multilaterally on select space security topics (e.g. prohibiting weapons in space, required notification and disclosure of security-sensitive developments, etc.)
- Can be unresponsive to breaking developments in space because of longer negotiation and implementation time periods

5. Role of Transparency and Confidence-Building Measures (TCBM) for Space

- Information Sharing
  - space policies, strategies, research, major programs, etc.
- Expert exchanges
  - regular exchanges among senior space commanders, launch and satellite operation officers, etc.
  - consultations (e.g. research programs underway or planned, issues of concern, etc.)
  - data exchanges (e.g. SSA)
- Notifications
  - launches
  - special operations (e.g. satellite relocation, transfer orbit operations, etc.)
- Other
  - establishment of “hot lines“
  - workshops, roundtables, and conferences on TCBMs and their implementation

6. Conclusion

- Space-related cooperation has become an essential component of overall foreign policy
- Although formal treaties governing space exist, countries are struggling to find a comprehensive approach to space sustainability
- A number of global initiatives are underway (e.g. space debris; collision and radiofrequency itnereference avoidance; SSA; TCBMs, code of conduct, etc.)
- Sharing of SSA data constitutes one of the most powerful globally-available space transparency measures
- TCBMs cannot resolve overall political tensions, but can support the global sustainability quest by advancing a common embrace of a collaborative approach to space security
- Need to formulate international agreements, built on SSA and TCBMs, to achieve greater transparency, accountability, enforceability and space governance
- Absence of these modalities puts at risk future peaceful, safe, predictable and reliable use of space