

Current Space Security Initiatives and Activities

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- **Space Security: An overview**
- **Current Space Security Initiatives**
- **Space Security, PAROS and the CD**

Space Security: A Context

- Orbits are a **limited resource**
 - How best do we secure their maximum use for the long-term?
- From the disarmament perspective:
 - **Prevent weaponisation** of space
 - Prevention of a an arms race in space (**PAROS**)
- From the **sustainability** perspective:
 - Maximize humanity's ability to continue to use space resources

- From a policy perspective Space Security is becoming more and more prominent.
- However key considerations need to be taken into account in the international policy arena in the formulation of cooperative space security initiatives:
 - Organizational proliferation
 - Options of legal and policy models
 - International political climate
- How does one achieve a balance between the interests of those States already heavily invested in the space environment and emerging space States?

- Treaties
 - Legally binding
 - Consent to be bound
- Customary International Law
 - 2 conditions :Opinio Juris (belief that something is a law); Widespread State Practice
- Soft Law
 - Guidelines etc.
 - Evidence for Custom
- Concept of Enforcement in International law
 - Enforcement is not a central part of the international legal regime
 - Not because the law is weak but because the concept doesn't really work given the nature of State sovereignty
 - Less conventional 'sticks'

Current Initiatives

- Overall there is a need to bring the international community together on how space security issues are dealt with in the future.
- Selection of initiatives that attempt to deal with space security questions – some from the civil perspective, some from the disarmament perspective.
- Need for a conjoined approach to many of these issues as, given the unique nature of the space environment, there are many aspects that affect both civil and military activities

**Without security there is no safety
and without safety there is no security**

- What is space junk?
 - Mainly pieces of man-made debris resulting from human activities in space.
 - Objects travel very very fast in space (6.7 km/s in Low Earth Orbit)
 - A 1cm ball bearing at this speed will penetrate through 5 cm of solid steel
 - The key concern is of those pieces of debris hitting operational space objects either causing loss or damage to a space asset or engendering costly maneuvers which at a certain point become prohibitively expensive
- Why is this relevant to sustainability and disarmament?
 - one of the key issues in the production of space debris is the debris resulting from the testing or use of kinetic anti-satellite weapons (Kinetic ASATs).
 - Currently discussions in the community of a ban on the testing and use of debris-causing kinetic ASATS



Photo: European Space Agency

- Inter-Agency Debris Co-ordination Committee Guidelines adopted by UNCOPUOS and the UN General Assembly
 - outline space debris mitigation measures for the mission planning, design, manufacture and operational (launch, mission and disposal) phases of spacecraft and launch vehicle orbital stages.
- Non-binding (i.e. voluntary) but many States have, or are in the process of incorporating into the guidelines into their national legislation

- Key Provisions
 - ICAO-like organisation creating a sub-branch of ICAO or an independent institution to regulate space activities in the international realm.
 - Ensure that citizens of all nations are equally protected from “unreasonable levels” of risk from overflight by missiles, launch vehicles and returning spacecraft.
 - Ensure that any spacecraft (manned or unmanned) is developed, built and operated according to uniform minimum safety standards which reflect the status of knowledge and accumulated experience.
 - Prevent the risk of collision or interference during transit in the airspace and on-orbit operations.
 - Ensure the protection of the ground, air and on-orbit environment from chemical, radioactive and debris contamination.

- Concerns and Benefits
 - Questions as to implementation
 - Timely?
 - Politically, uncertain as regards level of international buy-in
 - Is enforcement really a viable concept?

- Space Sustainability Guidelines
 - Informal working group set up prior to STSC session 2008
 - Extensive document now being formulated
 - ‘Bottom up’ approach based on IADC model
- Parallel COPUOS activity
 - Dual Track
 - Key international actors – government, non-governmental and industry

- Content
 - Space debris, including national implementation of COPUOS mitigation guidelines
 - Increased crowding in GEO, LEO and MEO
 - SSA data sharing issues
 - Spectrum management
 - Space weather

- Concerns and Benefits:
 - Relationship to draft Code of Conduct under development in EU
 - COPUOS integration –different from IADC model – risk of politics overtaking substance
 - Voluntary “best practices” rather than regulatory
 - Now an agenda item at COPUOS

- General Principles
 - Commitment to make progress towards adherence and full implementation of current treaties and norms
 - Commitment to prevent space from becoming an area of conflict
 - Recognition that space is essential to national security and strategic stability
 - Development of conflict resolution processes, recognizing right of self defense

- Content
 - Collision avoidance

 - Avoidance of deliberate explosions

 - Safer traffic management

 - Data exchange and confidence building

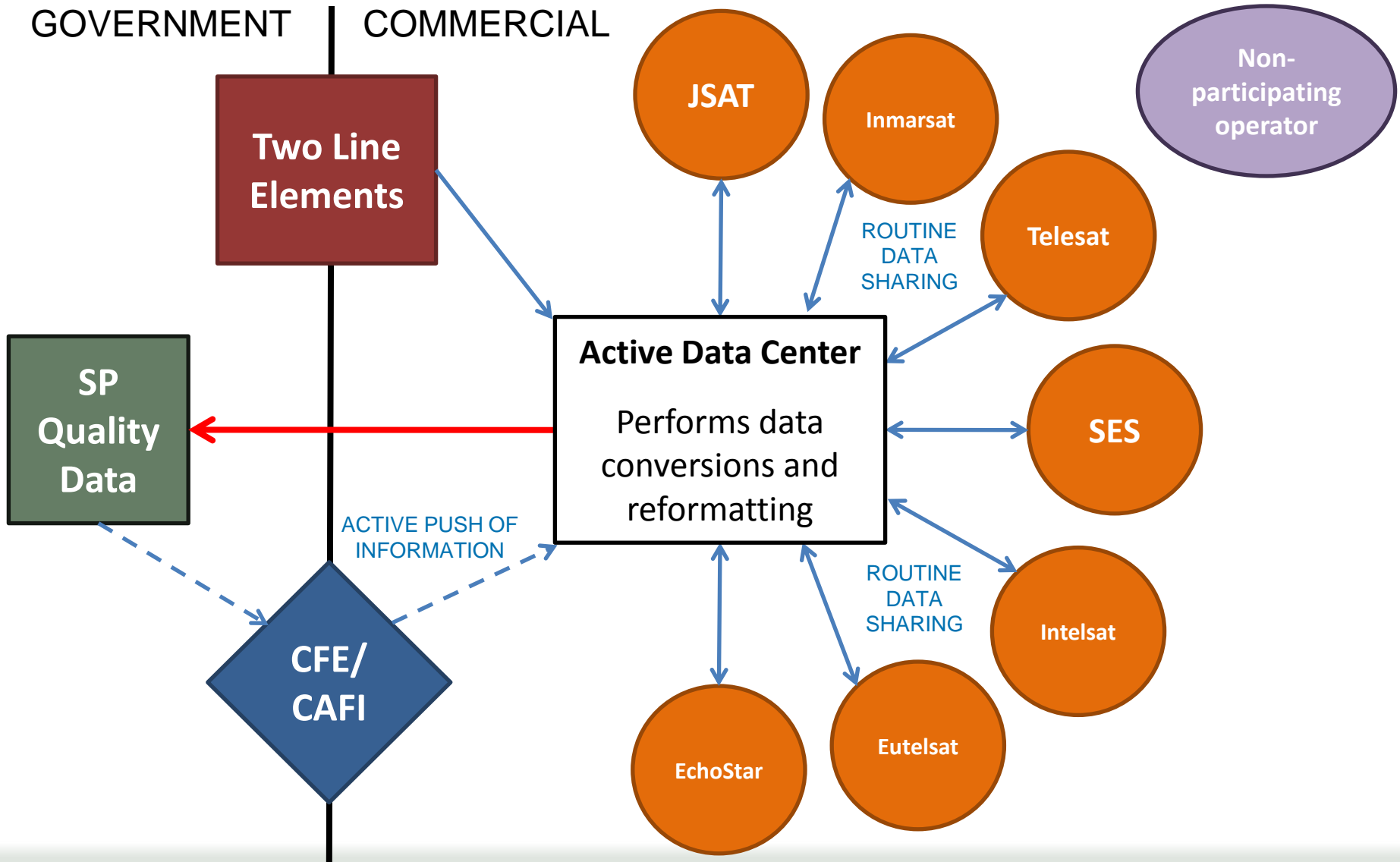
 - Notification

 - More stringent debris mitigation by States

- Concerns and Benefits
 - Interaction with other initiatives
 - HCOC model?
 - Evidence of increased European interest in space security
 - Especially coupled with European SSA integration

- Concerns and Benefits
 - How far can this system be expanded?
 - Coordination questions with other SSA systems
 - E.g., how work with US Air Force SSN?
 - Interim measure, political tool or effective long-term measure?

- Concept
 - Consortium supported by satellite operators
 - Aim to standardize orbital prediction models and reporting requirements to ease data exchange
 - Develop “Bablefish” program for “translating” from one company data model to another, (lowers barriers to cooperation)
 - Has developed a prototype system for reporting data through neutral third party (Center for Space Standards & Innovation)
 - Member data is protected and secured
 - Technical support available for close approach mitigation
 - Working on providing automatic close approach/collision warning including debris (data from US SSN)



Space Security, PAROS and The CD

- Key Provisions:
 - Bans weapons placed in outer space
 - Sets up an international monitoring and enforcement agency
 - Bans threats or use of force in Space

- Concerns with the Treaty
 - Drafting language
 - Definitions – weapons
 - The term ‘weapons in outer space’ means any device placed in outer space, based on any physical principle, specially produced or converted to eliminate, damage or disrupt normal function of objects in outer space, on the Earth or in its air, as well as to eliminate population, components of the biosphere critical to human existence or inflict damage to them.
 - Avoids ASATs
 - Weapon only placed in space if they orbit the earth once
 - Creating new organization with no defined purpose.
 - Overall, repeats existing commitments or lacks clear definition on new concepts.

- PAROS
 - Prevention of an Arms Race in Outer Space
 - Key movement in the CD
 - With the adoption of the programme of work and the hopefully soon-to-be adopted implementation decision, the PAROS working group is a crucial forum for future efforts on education and facilitation.
 - Currently the only document that has been formally submitted to the CD is the Chinese-Russian Draft Treaty on the Prevention of the Placement of Weapons in Outer Space.
 - There is however, a shift in attitude in the CD. In its current mood of renewed energy and action, new ideas and proposals are being discussed and, hopefully, will be put forward formally.

- New wave of initiatives
 - Canadian proposal on confidence and security-building measures
 - Best practices initiatives
 - European Code of Conduct
 - COPUOS Space Sustainability Agenda Item

Food for Thought

- **Key elements to moving forward**
 - INFORMATION!
 - Space and disarmament made simple for the diplomatic community
 - SWF and other organizations
 - Supporting diplomatic community to expand options on the table in terms of space
 - Bring other disparate elements of international relations on space
 - Cross cutting issues
 - Space debris causation

- **KEY CHALLENGE:**
 - Bringing together the new initiatives into a network of effective agreement that regulates human interaction in space without hindering the entry of new players into the space arena.
 - A multilateral process or a regional/bilateral network of commitments?
- Given that space is so globalised, it is imperative that ALL space actors are engaged and invested in space security initiatives
 - The apolitical nature of space safety?
 - The risk associated with a ‘rogue actor’ in orbital activities

Many Thanks

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