



IAA-IISL-IAF Working Group on Space Traffic Management

- Draft preliminary ideas
- For discussions only
- Please comment
- Please indicate if you wish to contribute to the reflection
- Typical outcome: Synthesis report with recommendations by IAC 2021

Draft for comments only

1. Improvement of the knowledge of orbital population

- New means
 - Radars, telescopes
 - Including private, for instance private optical networks
 - ↳ Recommendation: study and promote new systems, such as orbited sensors, laser detection from ground or orbit, others...
- Data fusion process
 - Merging of the information coming from various sensors
 - ↳ Recommendation: share methodologies at international level
- Improvement of the orbital data precision
 - Improved computation means and filters
 - Use of star background
 - Laser ranging from ground or orbit
- Improvement of the UN registration
 - Currently rather poor despite regulation
 - ↳ Recommendation: could there be a systematic pre-registration prior to any launch?
- Shared catalog
 - Question of protection of the data: legal solutions?
 - Question of military systems
 - Question of who serves as base for such catalog (or multiple bases?)

2. Use of such information

- Improvement of the collision avoidance process
 - Probability evaluation
 - ↳ Recommendation: sharing at ISO level through dedicated technical standards
 - Thresholds
 - ↳ Recommendation: harmonization at international level (IADC, ISO)
- Use for Future operations
 - Spacetugs, IOS
 - Sub-orbital activities?
 - Ground support activities such as spaceports?
- Preparation of Future activities
 - ADR: Removal of the largest debris from crowded orbits to avoid statistical collisions
 - JCA: Nudging of a large debris to avoid a predicted collision
 - LDTM: Cataloging of large orbital debris and light nudging to avoid further critical situations
 - ↳ Recommendation: identify a shared position at international level (IAA studies, IADC tasks, National studies, ...)

3. Technical regulation

↳ Recommendations:

- Can be based on ISO
 - Converged at international level since more than 10 years
 - Coherent with IADC and National Standards established 20+ years ago
 - Already applied by ESA and China (?!); very close to FSOA
- Improvable
 - ISO standard for collision probability calculation
 - Inclusion of a threshold in the standard
 - ISO standard for the casualty risk calculation
 - Inclusion of a threshold in the standard
- Improvable
 - Shall include elements related to Space Tugs, IOS, ADR, JCA, LDTM
 - Shall include sub-orbital
 - May include Spaceports
- Major question:
 - Why is it so badly complied to? Action to understand...
- Proposal:
 - Education: Systematic inclusion of ISO in any contract
 - Naming & Shaming
 - Compliance file prepared before any space operation

4. Legal grounds

- Historical basis from UNCOPUOS
 - Debris guidelines (2007):
 - Less constraining than IADC guidelines (2002)
 - Never applied so far
 - LTS guidelines:
 - Questionable success
 - No agreed consensus over these guidelines
 - Proposals
 - New organism
 - Could be ICSO
 - but C means Civil: how do we deal with “non civilian” operations?
 - Could be an extension of ToR of IADC (which includes militaries)
 - Would be in charge of:
 - Checking the proper inclusion of ISO in any contract and operation
 - New UN treaty
 - But question of the timeline: need to react in less than 5 years
 - But question of applicability: why is current compliance so low?
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- **General recommendation: Space Traffic Coordination, instead of Management or Control**