



**International  
Academy of  
Astronautics**

**IAA Study - to be published in 2016**

**Space Traffic Management:  
Towards a Roadmap for Implementation**

**Status Report**

**for the meeting of IAA Commission 5**

**Paris, March 2015**



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## **Background of the study**

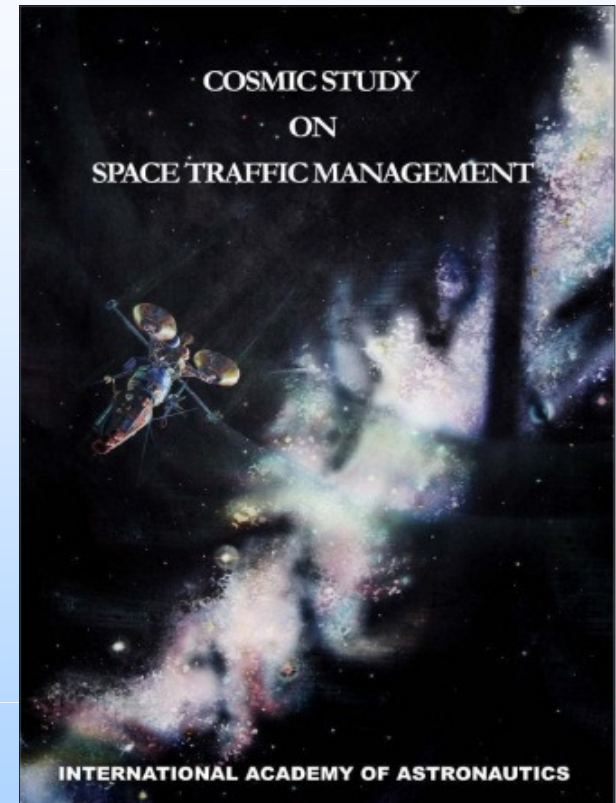
- First ideas i.a. by Lubos Perek (IISL paper of 1982 using the term)
- AIAA Workshops in 1999 and 2001
- IISL/ECSL Symposium 2002 at the UNCOPUOS Legal Subcommittee
- 2001-2006 IAA Study Group with 20 contributors of 8 countries resulting in the IAA Cosmic Study on STM published in 2006
- Following this publication numerous other academic products as well as a slowly emerging policy debate
- The present study will be prepared by another international team (joint text without personal attribution); it shall take one step forward regarding the 2006 study primarily with respect to proposals for implementation of STM; it shall be published in 2016 (ten years after the first study)



Space Traffic Management (STM) means...

„...the set of technical and regulatory provisions for promoting safe access into outer space, operations in outer space and return from outer space to Earth free from physical or radio-frequency interference.”

(following the study by the International Academy of Astronautics, IAA Paris 2006, eds. Contant-Jorgenson/Lala/Schrogl)





## Academic research update since the first study

More and more public and private institutions work on the concept of Space Traffic Management following the AIAA Workshops in 1999 and 2001 and the IAA Cosmic Study in 2006, i.a.:

- One particularly thorough initiative is the International Association for the Advancement of Space Safety (IAASS) with the publication of its comprehensive report in May 2007...
- ... followed by a book publication „The Need for an Integrated Regulatory Regime for Aviation and Space – ICAO for Space?“ in 2011.
- The International Space University has conducted a team project on STM in summer 2007.
- Dedicated session on STM at the European CEAS Conference 2007.
- Workshop on “The Fair and Responsible Use of Space: An International Perspective” (Co-organized by ESPI with IAA and SWF on 20/21 November 2008 at ESPI in Vienna: Result: “10 Steps to Achieve Fair and Responsible Use of Outer Space” and book publication).
- U.S. House of Representatives Hearing: Space Subcommittee hearing - Space Traffic Management: How to Prevent a Real Life “Gravity”, | 2318 Rayburn HOB Washington, D.C. 20515 | May 9, 2014 10:00am
- Conference on STM at Embry-Riddle Aeronautical University, November 2014.
- STM as the topic of the IISL/ECSL Symposium at the UNCOPUOS Legal Subcommittee 2015 (again after 2002).
- Dedicated session on STM at the IISL Colloquium at IAC 2015.





## **Further activities/initiatives related to STM**

- ICAO has also shown, through the President of its Council in 2005, its interest but has not taken further steps in the following. Only in 2015, ICAO set up a „learning group“ on civil space. ICAO/UNOOSA AeroSPACE Symposium „Making civil space travel a reality“ March 2015 at ICAO.
- STM has been mentioned in various NASA Authorization Acts (for 2010: PUBLIC LAW 111–267—OCT. 11, 2010 124 STAT. 2805) even using the STM definition of the 2006 IAA Study (in 2008: PUBLIC LAW 110-422-OCT. 15, 2008 STAT. 4779; SEC.1102 (a)).
- Commercial operators do now coordinate in the Space Data Association since 2009.
- Further development of Space Situational Awareness programmes (in Europe by ESA and EC; in the US through bilateral agreements with partners).
- Space Debris Mitigation Guidelines of UNCOPUOS of 2008; ISO 24113: Space Systems - Space Debris Mitigation.
- Regulations on suborbital flights by FAA and EASA.
- Numerous programmes on Space Weather (national and international, i.a. UNCOPUOS-STSC working group).
- ESA’s Clean Space Initiative.



## **Recent diplomatic initiatives, which could be precursors, or which contain elements of STM**

- Three initiatives on the governmental level relevant for STM:
    - The Long-Term Sustainability of Outer Space Activities Working Group in the Scientific and Technical Subcommittee of the United Nations Committee on the Peaceful Uses of Outer Space (UNCOPUOS-STSC) set up in 2010, which presents its results in 2015.
    - The Governmental Group of Experts (GGE) on Outer Space Transparency and Confidence Building Measures (TCBM) established by the Secretary general of the UN in 2010, which already presented its results in 2013.
    - The Draft International Code of Conduct for Outer Space Activities tabled by the EU in 2007, which is expected to be adopted by a conference of interested States (maybe in 2015).
- ⇒ **How to deal with/possibly merge these outputs?**
- ⇒ **STM can provide a perspective**



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## Distribution of work inside the drafting team

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| 1) Introduction and scope of the study                          | Schrogl   |
| 2) Academic research update since the 2006 STM IAA Cosmic Study | Schrogl   |
| 3) The space environment 2015-2030                              | Jorgenson, Alary, Giannopapa, Murthy, Shouping      |
| 4) Status of regulation   | Soucek, Hedman, Shouping, Volynskaya                |
| 5) Refined elements of a STM regime                             | Robinson, Alary, Hodgkins, Murthy, Wang             |
| 6) A roadmap for implementation of a STM regime                 | Schrogl, Hedman, Hodgkins, Soucek, Volynskaya, Wang |
| 7) An action plan for implementation                            | Schrogl, Jorgenson, Robinson, Soucek                |

Responsible (= member of the study management team)

*Contributor*

The “responsible” prepares a first draft for comments and further contributions by the “contributors” and then elaborates a final version in dialogue with the contributors.

The study management team provides for the overall coherence of the different sections.



## **Timeline for the study**

The study proposal has been accepted by IAA during IAC 2014

The timeline foreseen:

- **Drafts for the seven sections July 2015**
- Full draft September 2015
- Discussion in IAA Commission 5 from IAC 2015 until end of 2015
- Final Draft for IAA Peer Review: IAA Spring Meeting 2016
- Adoption by IAA: IAC October 2016
- Publication: November 2016