

***Findings and Recommendations from recent
Space Safety Technical Webinars
co-organized by the
IAASS & The Aerospace Corp.***

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International Association for the Advancement of Space Safety

The Aerospace Corp.

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Advancing Space Safety awareness during a pandemic

- Lacking in-person conferences, seminars, symposia
 - Needed some way to further the conversation during the pandemic
 - Experiment with new venues (virtual)
- Aerospace and IAASS joined to produce two virtual events
 - *Current Topics in Space Traffic Management*
 - Half-day event,
 - September 2, 2020
 - 14 speakers
 - Sold out show (>500 participants)
 - *CubeSat Confusion ‘Industry Day’*
 - Two-day event,
 - 13-14 January 2021
 - 33 speakers

Webinar Goals & Objectives:

- During this time of COVID lock-down, work from home, and lack of usual meetings and conferences, find a way for an international group of participants to present their current thinking and experience with STM to an on-line audience

STM Webinar, speakers & titles

- Dr. Regina Peldszus *Space Surveillance & Tracking: A European Perspective*
- Mr. Christophe Bonnal *STM at IAF*
- Dr. Ruth Stilwell *There are no Good Actors without Good Rules*
- Dr. Francesca Letizia *Space Traffic Management through Environment Capacity*
- Mr. Ted J. Muelhaupt *The Special Challenges of PLEOs*
- Mr. Marlon E. Sorge *What is Large? Issues with Defining Good Practices for Everyone*
- Prof. Moriba Jah *Multi-factor Anthropogenic Space Object Recognition, Characterization, and Assessment (MASORCA)*

STM Webinar, speakers & titles, cont.

- Dr. Darren McKnight *STM – But Do Not Forget the Highways*
- Dr. Diane Howard *OADR Development*
- Dr. T.S. Kelso *STM Data Implications for New Space*
- Dr. Islam Hussein *Assuring Trust in Autonomy for Advanced STM*
- Dr. David Murakami *Creating an Ecosystem of Federated Services for Space Traffic Management – Near Term Development and Long Term Vision*
- Dr. Josef S. Koller *Organizational Options for Promoting Space Flight Safety*
- Dr. Peter Martinez *The UN COPUOS Space Sustainability Guidelines*
- Hosted by: Dr. Mark A. Skinner

STM Webinar recorded presentations:

- The 14 presentations are available for viewing on this YouTube site:

<https://www.youtube.com/playlist?list=PLFEXcXJhNDQ74-EiBz80MAKA3Zzv8qODP>

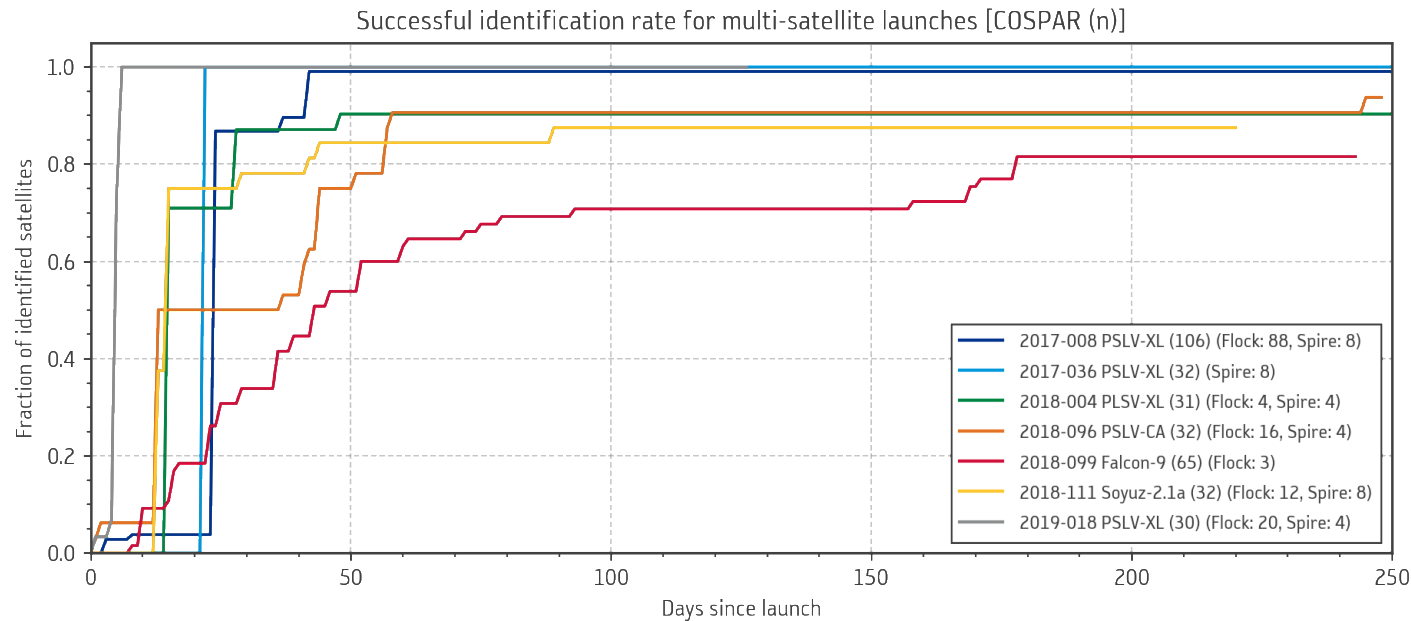
Or search for “Aerospace STM Webinar Videos”

CubeSat Confusion Industry Day

- Brought together relevant stakeholders:
 - CubeSat & nanosat owner/operators
 - US government + International regulators
 - Space situational awareness data providers
 - Launch consolidators
 - ID and tracking technology developers
- Hosted by Dr. Mark A. Skinner & Dr. Andrew Abraham

The problem we were trying to address:

Trackability & identification



ESA UNCLASSIFIED - Releasable to the Public

Francesca Letizia | ESOC | 19/09/2019 | Slide 8



European Space Agency

Source: Letizia, Francesca, *Results from ESA's Annual Space Environment Report, July 2019*, presented as a key-note address at the Advanced Maui Optical and Space Surveillance Technologies Conference, held in Wailea, Maui, Hawaii, September 2019. Used by permission from ESA.
<https://sdup.esoc.esa.int/discosweb/statistics/>, retrieved 12/29/2019.

CubeSat Confusion Industry Day participants

- US Gov't: FAA AST, DOC OSC, FCC, NASA CARA, NASA ARC, 18th SPCS, DARPA, NSDC, US Navy NAVWAR
- Int'l: NZ MBIE, UN OOSA, UK Space, ESA, CNES
- Academia: Univ. of Tokyo, CalPoly SLO, Univ. of Michigan
- Industry: ComSpOC, AXA XL, SpaceFlight Industries, LeoLabs, SpaceDA, Innoflight, Vulcan Wireless, Stellar Exploration, NearSpace Launch
- Non-profit/NGO: Secure World Foundation, SatNOGS, SKA, Space Environment Research Centre, SRI, LANL, Aerospace

Findings of the Industry Day

- The problem is real: solutions are important for space safety & sustainability
- Regulators, SSA Centers are concerned
- Owner/operators want to “do the right thing”
- Industry is developing technologies that can help
 - Technologies exist, but are perhaps low TRL or not available as a commercial product/service
- *Regulators can signal their “intent”, allowing CubeSat/nanosat community to work with technology providers for multiple, useful solutions*

Materials from the Industry Day...

- The recorded videos from the two days:
 - Day 1:
 - <https://www.youtube.com/watch?v=rUmAd9yUrTQ&feature=youtu.be>
 - Day 2:
 - <https://www.youtube.com/watch?v=Zo98GLc047c&feature=youtu.be>
- The individual presentations from the two days:
 - <https://www.dropbox.com/sh/wyke423rvh8gpmr/AAD7vWzfgSjmLOcugq4pMwqva?dl=0>

For more information...

- Aerospace *Space Policy Show* Industry Day summary:
 - [https://aerospace.org/article/whos-who-space-resolving-cubesat-confusion-identification-and-tracking?ct=t\(CROSSLINK MAR 033121\)&mc_cid=8ffc2d24c1&mc_eid=ca4d872641](https://aerospace.org/article/whos-who-space-resolving-cubesat-confusion-identification-and-tracking?ct=t(CROSSLINK%20MAR%20033121)&mc_cid=8ffc2d24c1&mc_eid=ca4d872641)
- Aerospace *Center for Space Policy & Strategy* CubeSat Confusion paper:
 - <https://aerospace.org/paper/cubesat-confusion-technical-and-regulatory-considerations>

Questions? Feedback?

Contact Mark or Tommaso...

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