
Orbital Debris Mitigation Workshop

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BUAA
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We are the home of...

Obama-McCain Presidential Debate

The U.S.’ Oldest Space Law Tradition: Myers McDougal’s Law School, Stephan Gorove, the Journal of Space Law

Nobel Laureate William Faulkner

National Center for Remote Sensing, Air and Space Law
Overview

• Legal landscape: international law
• Negligence issues
• Debris removal and negligence
• Debris removal and liability
• Some on-orbit collision issues
• Unresolved issues
• “Soft law”
• Trend: national law
• Conclusion
Warning!

The questions are many....
....the answers are few.
• Treaties
  — Liability Convention
    – In space: negligence
    – On Earth or aircraft in flight: absolute liability
    – Piece of debris is “space object”
  — Outer Space Treaty
    – Obligation to avoid harm
    – State obliged to share what it knows about space environment?
Legal Landscape: International Space Law

• Registration Agreement
  — States - Parties ultimately liable for damage caused by an object on its registry
    – Can recover from commercial and/or private entity
  — Registered?
    – US: Kosmos 2251 not registered in UN; “mentioned” in a Soviet document
    – UN Doc: no mention of individual Iridium satellite numbers; multiple launch

• IADC Guidelines

• PCA developing Optional Rules for Arbitration for Disputes Relating to Outer Space

• Case law
Negligence Issues

- Legal and engineering/scientific standards are different
- Law
  - what is reasonable under the circumstances?
- Engineering/Science
  - what is degree of probability?
- Consensus that there is a problem but lack of consensus on which engineering and scientific best practices are available to implement at law
Negligence Issues

• Is tracking failure negligence or contributory negligence?

• Which operator has last chance under a last, clear chance doctrine?

• Does operator assume risk with “controlled reentry”?
  —“control” implies responsibility

• Is “higher maneuverability” “control”?

• Technical terms with possible legal implications
  —“Fault monitoring”
  —“Avoidance of intentional destruction”
Debris Removal and Negligence

• Removal implies additional standards
• If danger invites rescue, does debris invite removal?
  —Could shift liability scheme

• Challenges
  —Asking law to prevent rather than react
  —Experimental technology
  —Needs political will
Debris Removal and Negligence

- Space faring nations with mitigation ability will likely need to be held harmless and to implement cross-waivers
  - Early launches
  - ISS
- Inapplicable to 3rd party non-space faring nations that rely on space
Debris Removal and Liability

- Is debris removal a public service, utility, or commercial opportunity?
  - Liability differs

- What is focus of debris removal?
  - Location?
    - If space, then global commons and environmental approach
  - Space object?
    - Individual property rights, individual national security impact
Some On-Orbit Collision Issues

• Difficult to determine cause and proof of liability

• First party insurance can cover damaged satellite, subject to policy terms

• Loss of revenue, consequential loss, incidental damages, loss of market may be recoverable under other party’s 3rd party liability insurance

• To date, no litigation, no precedent
Unresolved Issues

• No salvage
  — Perpetual jurisdiction and responsibility

• No legal definitions
  — Functional operational spacecraft
  — Non-functional debris

• No international agreement on which objects should be removed
  — GEO, LEO

• State responsibility for on-orbit transfers that later become debris
“Soft Law”

• When do attempts to avoid or supplement treaties become binding?
  — Codes of conduct, principles, guidelines, MOUs, etc.
  — Practice and *opinio juris* is needed

• Steady, increasing trend since end of WWII
  — Approximately 72 space resolutions since 1958

• Schacter: “twilight existence”
An Interesting Option: Equity

- Applied to maritime law, an analogy for space law
- Article IX
  - “avoid harm”
  - “due regard”
- Requires Sovereign consent at international law
• “All nations have the right to use and explore space, but with this right also comes responsibility.”
  – National Space Policy of the U.S., June 28, 2010

• Balances OST Art. I with Art. IX
  — Right to use and explore = Art. I
  — Responsibility = Art. IX
Trend: National Law
U.S.

• No specific law, applications-specific elements
  — Remote sensing
    – Satellite disposal in manner satisfactory to President
  — Telecommunications
    – Satellite end-of-life debris mitigation/prevention plan part of license application
      – Trade-off: revenue vs. liability mitigation
      – FCC likely to adopt new rules; still evolving

• USG Orbital Debris Mitigation Standard Practices
• Expect increased
  — USG-operator contracts to access debris data
  — USAF and private sector tracking
• Authorized space operations must limit space debris risks
• Insurance must cover:
  — Government and public bodies
  — ESA and its Member States
  — Operator and persons participating in production or operation of space object
• Regulations in process
• Authorization is needed for “Station keeping”
  —includes de-orbit and re-orbit to mitigate space debris
• Debris mitigation guidelines is short term target
• JAXA Space Debris Mitigation Guidelines
Conclusion:
One kind won’t fit all

• Mix of legal mechanisms are needed
  — Contracts, MOUs, IGAs, etc.

• Different legal personalities
  — Sovereigns
  — Commercial entities, both public and private

• Treaty unlikely
  — National self-interest more prospective than immediate
  – Lack of political will
Shameless Plug:

The 5th Eilene M. Galloway Symposium on Critical Issues in Space Law

Art. IX of the Outer Space Treaty and Peaceful Purposes: Issues and Implementation

December 2, 2010
8:30 AM - 4:00 PM
Cosmos Club, Washington D.C.
Agenda
Shameless Plug:

Res Communis
A resource blog on the legal aspects of human activities using aerospace technologies.
http://rescommunis.wordpress.com/

The Journal of Space Law
Since 1973, a journal devoted to space law and the legal problems arising out of human activities in outer space.
Questions, Comments?

Thank you.