

National Center for Remote Sensing, Air and Space Law
Informational resources on the legal aspects of human activities using aerospace technologies

Orbital Debris and the Law: A Beginner's Guide

Orbital Debris Mitigation Workshop

Prof. Joanne Irene Gabrynowicz, Director
Editor-in-Chief, Journal of Space Law



BUAA
Beijing, China
19 October 2010





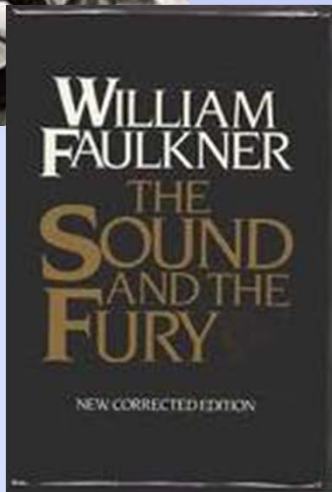
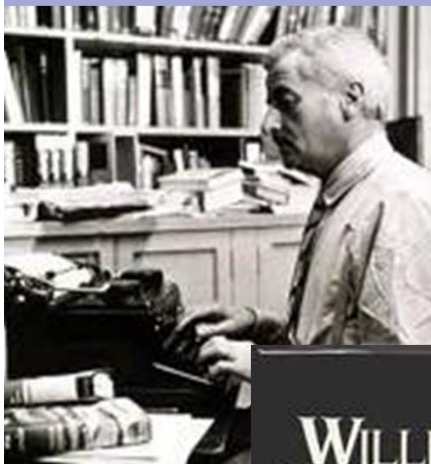
Where we are...



National Center for Remote Sensing, Air and Space Law



We are the home of...



**Nobel Laureate
William Faulkner**

**Obama-McCain Presidential
Debate**



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



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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.**





Legal Landscape: International Space Law

- **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**  National Center for Remote Sensing, Air and Space 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**





Legal Landscape: U.S. Policy and International Law

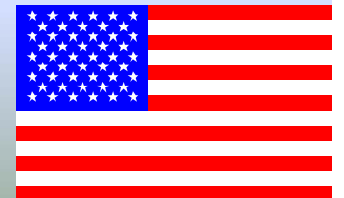
- **“All nations have the right to use and explore space, but with this right also comes responsibility.”**
 - National Space Policy of the U.S., June 28, 2010
- **Balances OST Art. I with Art. IX**
 - Right to use and explore = Art. I
 - Responsibility = Art. IX





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





Trend: National Law France

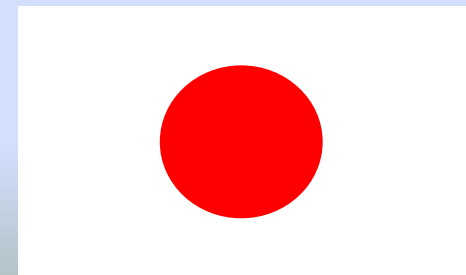
- **Authorized space operations must limit space debris risks**
- **Insurance must cover:**
 - **Government and public bodies**
 - **ESA and its Member States**
 - **Operator and persons participating in production or operation of space object**
- **Regulations in process**





Trend: National Law Japan

- **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



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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



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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.



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Questions, Comments?

Thank you.

