



*Promoting Cooperative Solutions for Space Sustainability*

# Space Security and Deterrence Challenges

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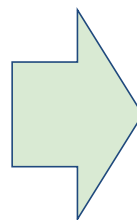
CASPSS Air University Symposium  
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## Major trends in the space domain

### Old Space Paradigm

- National
- Secret
- Military-led
- Independent
- Strategic



### New Space Paradigm

- International
- Transparent
- Commercial-led
- Interdependent
- All levels of war

Space is becoming “normalized”

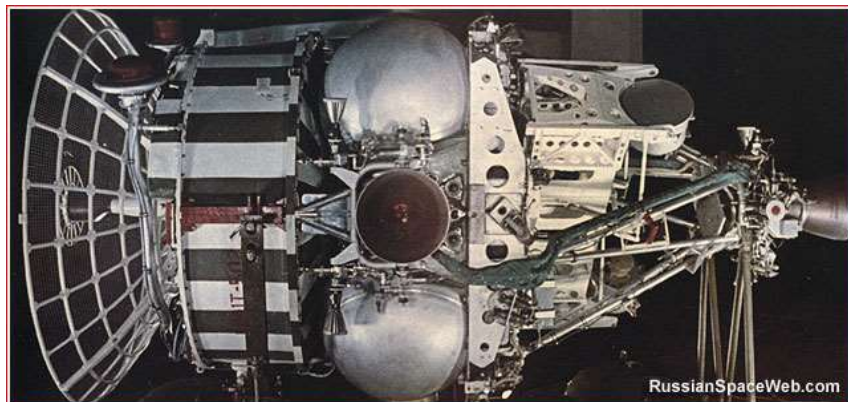


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## Space Security Challenges

- Growing number of countries are developing national security space capabilities (military and intelligence)
- Space capabilities are increasingly integrated into conventional military operations and warfighting at operational and tactical levels
- Increasing incentives for countries to develop offensive counterspace capabilities to deny/degrade/destroy adversary space in a conflict
- Growing likelihood that future terrestrial conflicts will involve attacks on space capabilities

# Many Ways to Attack Satellites



*Soviet IS killer satellite (1960-1987)*



*Commercially-available GPS jammer (2014)*



*U.S. Air Force F-15 launching an ASM-135 ASAT missile (1978-1988)*

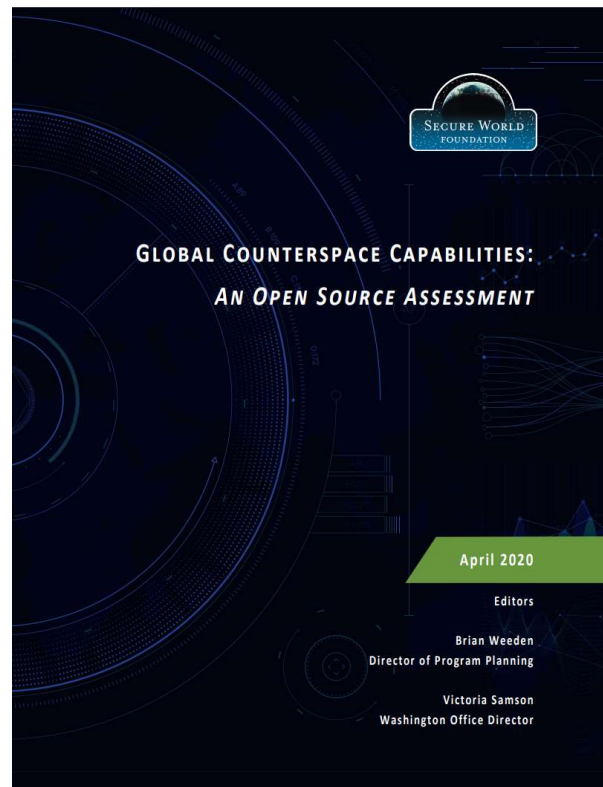


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# Proliferation of counterspace threats



[2020 CSIS Space Threat Assessment Report](#)



[2020 Secure World Foundation Counterspace Report](#)

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## Policy questions

- How should *military space be organized* to meet the changing space domain and threat environment?
- What can be done to *protect current space capabilities and deter attacks*?
- How can the *accelerate the development of new capabilities and architectures* to meet future threats?
- How does the *globalizing/commercializing space domain* impact response to space threats?



## Deterrence Concepts

- **Deterrence** is trying to persuade an opponent from taking unwanted actions
  - **Deterrence by Denial:** deter an action by making it infeasible or unlikely to succeed, thus denying a potential aggressor confidence in attaining its objectives
  - **Deterrence by Punishment:** threatens severe penalties, such as nuclear escalation or severe economic sanctions, if an attack occurs
- **Compellence** is trying to persuade an opponent to change their behavior
- Both deterrence and compellence require ***capability, credibility, and communication*** to be successful

[Slantchev – U.S. Foreign Policy: Deterrence and Compellence \(2014\)](#)

[CSIS – Escalation and Deterrence in the Second Space Age \(2017\)](#)

[Schaub – Deterrence, Compellence and Prospect Theory \(2004\)](#)



## Space Deterrence?

- Most scholars argue that the same concepts apply in space (i.e. there is no “space deterrence” only deterrence)
- But the way deterrence is applied in space is likely different from how it is applied in other domains (e.g. nuclear weapons)
  - Different domain characteristics
  - Different escalation dynamics
- Space-specific challenges
  - No direct loss of life beyond a few astronauts
  - U.S. far more reliant on space capabilities than its Great Power competitors (has more to lose)
  - Difficult to attribute attacks or hostile actions in space





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## U.S. Policy on Space Deterrence

- 1950-1975
  - Space deterrence essentially extension of nuclear deterrence (attacks on space capabilities would likely precipitate a nuclear attack)
- 1975-2010
  - Growing use of space for conventional warfighting creates increased incentives for attacks on satellites
  - Need to increase protection of U.S. capabilities
  - Develop offensive capabilities to attack adversary space systems during conflict (not deterrence)
- 2010-2020
  - Denial deterrence by increasing the resilience of national security space architectures



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# Russian satellite close approaches



## Russian Satellite Maneuvers, Silence Worry Intelsat

by Mike Gruss — October 9, 2015



## Russian Luch Satellite Relocates – Next to Another Intelsat Craft

by Mike Gruss — October 16, 2015



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## Russia 'tried to spy on France in space' - French minister

7 September 2018



## 2020 National Space Policy

Strength and security in space contribute to United States and international security and stability. It is imperative that the United States adapt its national security organizations, policies, strategies, doctrine, security classification frameworks, and capabilities to deter hostilities, demonstrate responsible behaviors, and, if necessary, defeat aggression and protect United States interests in space through:

- Robust space domain awareness of all activities in space with the ability to characterize and attribute potentially threatening behavior;
- Communicating to competitors which space activities the United States considers undesirable or irresponsible, while promoting, demonstrating, and communicating responsible norms of behavior;
- Assured, credible, and demonstrable responses to defend vital national interests in space;
- Resilient space-enabled missions that reduce the impact or deny the effectiveness of adversaries' actions; and
- Synchronized diplomatic, information, military, and economic strategies that:
  - Deter adversaries and other actors from conducting activities that may threaten the peaceful use of space by the United States, its allies, and partners; and
  - Compel and impose costs on adversaries to cease behaviors that threaten the peaceful use of space by the United States, its allies, and partners.

### [2020 National Space Policy](#)



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**Thank you!**  
**Questions?**

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