



*Promoting Cooperative Solutions for Space Sustainability*

# Counterspace Risks and Threats

Victoria Samson

Washington Office Director, Secure World Foundation

“Operating in Space: Current Multilateral Policy Issues and Challenges”





















Oct. 22, 2020

Note: This briefing is compiled entirely from public, unclassified sources

# *SWF's Counterspace Threat Assessment*

- Space domain undergoing significant changes
- Existence of counterspace capabilities is not new, but the circumstances surrounding them are
- *Global Counterspace Capabilities: An Open Source Assessment*
  - Significant research and development of a broad range of kinetic (i.e. destructive) and non-kinetic counterspace capabilities in multiple countries: direct ascent, co-orbital, electronic warfare, directed energy, cyber
  - US, Russia, China, Iran, North Korea, India, France, and Japan; added space situational awareness
  - ***Only non-kinetic capabilities are actively being used in current military operations***
- <https://swfound.org/counterspace>; French- and Spanish-language versions of the executive summary available

## Russia Overall 2020 Assessment

	R&D	Testing	Operational	Use in Conflict
LEO Direct Ascent			-	
MEO/GEO Direct Ascent		-	-	
LEO Co-Orbital			-	
MEO/GEO Co-Orbital		-	-	
Directed Energy			?	
Electronic Warfare				
Space Situational Awareness				?

Legend: none  some  significant  uncertain "?" no data "-"

## China Overall 2020 Assessment

	R&D	Testing	Operational	Use in Conflict
LEO Direct Ascent	●	●	●	●
MEO/GEO Direct Ascent	●	●	-	●
LEO Co-Orbital	●	?	-	●
MEO/GEO Co-Orbital	●	-	-	●
Directed Energy	●	●	-	●
Electronic Warfare	●	●	●	?
Space Situational Awareness	●	●	●	?

Legend: none ● some ● significant ● uncertain “?” no data “-”

## U.S. Overall 2020 Assessment

	R&D	Testing	Operational	Use in Conflict
LEO Direct Ascent	●	●	-	●
MEO/GEO Direct Ascent	-	-	-	●
LEO Co-Orbital	●	?	-	●
MEO/GEO Co-Orbital	●	?	-	●
Directed Energy	●	●	?	●
Electronic Warfare	●	●	●	●
Space Situational Awareness	●	●	●	●

Legend: none ● some ● significant ● uncertain “?” no data “-”



Promoting Cooperative Solutions for Space Sustainability

# New Entrant to the ASAT Club: India

- Historically, Indian space program focused on civil applications
- Changes in recent years have given its military a larger role
- March 2019 held a DA-ASAT test – Mission Shakti
- Started its Defence Space Agency in April 2019
- Established its Defence Space Resource Organisation in June 2019
- ISRO began Project NETRA (Network for space object Tracking and Analysis) in September 2019, which is intended to give India its own SSA network by bringing together radars, telescopes, data processing, and a control center



*Promoting Cooperative Solutions for Space Sustainability*

# Very Limited Iranian Space Program

- Space program in early stages
- Unlikely to have the capacity to build on-orbit or direct-ascent ASAT weapons
- Minimal SSA capabilities
- Demonstrated ability to interfere with commercial satellite signals



Promoting Cooperative Solutions for Space Sustainability

# Extremely Limited DPRK Counterspace Capabilities

- May have some limited direct-ascent ASAT capability, but not threatening yet
- Minimal space launch vehicle and satellite capabilities
- Counterspace not mentioned by DPRK officials
- C2, SSA capabilities minimal
- Multiple public reports of GPS interference and jamming
- EMP unlikely



# France's Counterspace Beginnings

- July 2019 release of Space Defense Strategy
  - Seeks to improve SSA around French space assets, provide the assets with some sort of active defense
  - Would do so via ground-based lasers (to dazzle) and space-based inspection satellites
- Macron announced July 2019 that the Joint Space Command within the French Air Force will become a full Space Command
- French Ministry of Defence allowed to conduct activities in space
- Parly discussed lasers on nanosatellites, which would be technologically challenging
- No plans for a DA/ASAT capability at this time
- GRAVES radar, some other assets that have SSA as their secondary mission

# Japan's Counterspace Considerations

- August 2019 announced would be investigating whether to develop a satellite that could intercept foreign threat satellites
  - If decided it did, wanted the ability to field it by mid-2020's
  - Could include cyber, RFI, and robotic arms
- No DA-ASAT capability officially, but does have the SM-3 system that the US has tested in an ASAT capacity
- Is considering jamming capabilities that could interfere with both airborne warning and control system (AWACS) planes (possibly by the mid-2020's) and then foreign satellites
- JAXA has SSA capabilities to monitor LEO and GEO; Japanese MoD working to develop its own SSA capabilities
- Established its Space Domain Mission Unit (SDMU) in April 2020

# Cyber as a Counterspace Option

- Many countries likely have cyber capabilities that could target space systems
  - US, Russia, China, North Korea, Iran have all demonstrated ability, interest in offensive cyber attacks against non-space targets
- Growing number of non-state actors interested
- Cyber attacks against space systems similar to those against non-space systems
- Integration and blending of counterspace capabilities, including blending electronic warfare and cyberattack, likely to occur
- State of cybersecurity for satellite infrastructure is dismal



*Promoting Cooperative Solutions for Space Sustainability*

**Questions?**

**Thanks.**

**[vsamson@swfound.org](mailto:vsamson@swfound.org)**

**@Vsamson\_DC**