



Counterspace Risks and Threats

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“Wilton Park Dialogue WP1875V:
Responsible behaviours in space,
national submissions to the UN”

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
- Discussions of space capabilities often veer quickly into classified territory
- *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
 - ***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

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 “-”

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 “-”

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 Research Organisation in June 2019
- Held a tabletop exercise – IndSpaceEx – in July 2019 to game out space warfare possibilities and identify gaps/weaknesses in its space security
- 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



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

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



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



- 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
- Perceived as a more usable option



Questions?

Thanks.

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