U.S. Assessments and Evolving Perceptions of Space Threats and Capabilities

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U.S.-Russia Dialogue on Full-Scope Strategic Stability

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ODNI Worldwide Threat Assessment

- Dan Coats, U.S. Director of National Intelligence, Feb. 13, 2018
- "Both Russia and China continue to pursue antisatellite (ASAT) weapons as a means to reduce US and allied military effectiveness. Russia and China aim to have nondestructive and destructive counterspace weapons available for use during a potential future conflict."
- "We assess that, if a future conflict were to occur involving Russia or China, either country would justify attacks against US and allied satellites as necessary to offset any perceived US military advantage derived from military, civil, or commercial space systems."
- "Russian and Chinese destructive ASAT weapons probably will reach initial operational capability in the next few years."
- "Russia and China continue to launch 'experimental' satellites that conduct sophisticated on-orbit activities, at least some of which are intended to advance counterspace capabilities. Some technologies with peaceful applications —such as satellite inspection, refueling, and repair - can also be used against adversary spacecraft."

SWF Assessment

- Space domain undergoing significant changes
- Existence of counterspace capabilities is not new, but the circumstances surrounding them are
- SWF's *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
  - **Only non-kinetic capabilities are actively being used in current military operations**

Resurgent Russian counterspace capabilities

- Once a space superpower, Russia appears to be recapitalizing some of its Cold War-era counterspace capabilities
  - Multiple flight tests of "Nudol" BMD/ASAT missile
  - Multiple tech demos of on-orbit rendezvous and proximity operations (RPO), which have links to Naryad-V co-orbital ASAT program
  - Tests of the tracking component of air-launched ASAT missile (Kontact)
  - Test of an airborne laser dazzler (Sokol Eshelon, aka A-60) against satellite
- Also indications of operational electronic warfare/cyber capabilities
  - Multiple reports of GPS and mobile communications jamming impacting UAV ops

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Promoting Cooperative Solutions for Space Sustainability

Rising Chinese space capabilities

- China is on a path to develop a "full spectrum" of space capabilities over next two decades
  - National prestige (human spaceflight, exploration)
  - Support to military ops on Earth (PNT, ISR, satcom)
  - Economic development/industrial base
  - Counterspace/missile defense
- China has been more forceful in asserting its regional power, but has (so far) refrained from outright military aggression

Date of Test	Target Object	Interceptor Object	Interceptor Type	Amount of Trackable Debris Created	Notes
7/5/2005	None known	SC-19	direct ascent	0	Likely rocket test
2/6/2006	None known	SC-19	direct ascent	0	Likely flyby of an unknown orbital target
1/11/2007	FengYun 1C	SC-19	direct ascent	3,280	Successful intercept and destruction of an orbital target
1/11/2010	CSS-X-11 (ballistic)	SC-19	direct ascent	0	Successful intercept and destruction of a suborbital target
1/27/2013	Unknown (ballistic)	SC-19	direct ascent	0	Successful intercept and destruction of a suborbital target
5/13/2013	None known	DN-2	direct ascent	0	Likely rocket test of a new system capable of reaching GEO
7/23/2014	None known	SC-19	direct ascent	0	Non-destructive test
10/30/2015	None known	Possible upgraded SC-19	direct ascent	0	Non-destructive test
Total Amount of Trackable Debris				3,280	

Source: "ASAT testing in space: The Case of China", SWF Fact Sheet

Demonstrated U.S. Counterspace Capabilities

- Conducted multiple tests of technologies for close approach and rendezvous in both LEO and GEO, along with tracking, targeting, and hit-to-kill intercept technologies that could lead to a co-orbital ASAT capability
  - No acknowledged program to develop co-orbital weapon system
- Demonstrated a basic direct-ascent ASAT capability
  - No active programs specifically to develop this sort of weapon system
- Has an operational EW counterspace system, the Counter Communications System (CCS)
- Discussion among policymakers on space as a warfighting domain

India, Iran, North Korea

- India
  - Latent Indian ASAT capabilities via its ICBM/missile defense programs
  - Growing SSA capabilities
  - Unlikely to create an official counterspace program
- Iran
  - Very limited space program
  - Unlikely to have the capacity to build on-orbit or direct-ascent ASAT weapons
  - Demonstrated ability to interfere with commercial satellite signals
- North Korea
  - May have some limited direct-ascent ASAT capability, but not threatening yet
  - Counterspace not mentioned by DPRK officials
  - Multiple public reports of GPS interference and jamming

Cyber as a Counterspace Option

- Space capabilities become an attractive target for counterspace efforts
  - Kinetic attacks less likely option
  - Electronic warfare/cyber attack seen as more usable
- Already seeing interference with satellites
- New entrants to space means new entry points for attacks
- Many satellites are old and based on even older technology
- Increased use of commercial-off-the-shelf allows for possible entry
- Destabilizing because laws of armed conflict for space are unclear
  - International law and military rules of engagement still being worked out

Changing Space Domain

- Stability rests upon reliable and predictable access to space
- Fundamental nature of space changing to be largely commercial
- New use of space outpacing policies – will reach a tipping point in the next year or so
- Regulation of space activities an international legal obligation (if signed the OST) and important to ensure a predictable, stable domain
- Not helpful to keep pushing for solutions that are no longer relevant to current status of space domain

Questions?

Thanks.

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