SPACE THREAT FACT SHEET

HEADQUARTERS SPACE FORCE INTELLIGENCE

The access to and use of space is of vital national interest. Intensifying strategic competition presents a serious threat to U.S. national security interests in, from, and to space. China and Russia seek to position themselves as leading space powers while undermining U.S. global leadership. Both countries are developing new space systems to enhance military effectiveness and end any reliance on U.S. space systems. China and Russia are also testing and fielding sophisticated counterspace capabilities with the intent to disrupt and degrade the U.S. space-enabled advantage.

CHINA's rapidly growing space program – second only to the U.S. in number of operational satellites – is a source of national pride and key to President Xi's "China Dream" to establish a powerful and prosperous nation. Beijing expects space to play an important role in future conflicts by enabling long-range precision strikes and by denying other militaries the use of space-based information systems.

- In 2015, China officially designated **space as a new domain of warfare** and established the PLA Strategic Support Force (SSF) to integrate space, cyberspace, and electronic warfare capabilities into joint military operations.
  - In 2023, China conducted 66 successful space launches, placing 217 payloads into orbit. For the second straight year, more than half of these payloads (114) were intelligence, surveillance, and reconnaissance (ISR) capable satellites. It also continued work on multiple new rockets and commercial lift systems.
  - Since the end of 2015, China's on-orbit presence has grown by approximately 550% (+800 satellites). As of March 2024, China had more than 950 satellites in orbit.
  - The PLA benefits from 470+ ISR-capable satellites with optical, multispectral, radar, and radio frequency sensors, increasing its ability to detect U.S. aircraft carriers, expeditionary forces, and air wings.
  - In December 2023, China launched the Yaogan-41 remote sensing satellite into geosynchronous Earth orbit (GEO). The satellite could allow China to persistently monitor U.S. and allied forces in the region.
  - China's improving space-based capabilities combine with the PLA's growing arsenal of long-range precision weapons to enable long-range precision strikes against U.S. and allied forces.
  - China has launched three **reusable spaceplanes**. The 1st was in orbit 2 days, the 2nd over 9 months. Both released unidentified objects. The 3rd was launched in December 2023 and remains in orbit.
- Intelligence suggests the PLA likely sees counterspace operations as a means to deter and counter U.S. military intervention in a regional conflict. Moreover, PLA academics stress the necessity of "destroying, damaging, and interfering with the enemy's reconnaissance…and communications satellites" to "blind and deafen the enemy."
  - In 2007, China destroyed one of its defunct weather satellites in low Earth orbit (LEO) with a **direct-ascent antisatellite (DA-ASAT) missile,** creating more than 2,700 pieces of trackable debris that remain in orbit. Most of this debris will continue orbiting the Earth for decades. That missile evolved into an operational ground-based system intended to target LEO satellites. The PLA actively trains on this system today.
  - Intelligence suggests China also likely intends to field ASAT weapons capable of destroying satellites up to GEO at 36,000 km. In 2013, China launched a ballistic object which peaked at 30,000 km, suggesting it may already have a basic ASAT capability against higher orbits.
  - China is developing satellite "inspection and repair" systems which could also function as weapons and has already launched multiple satellites to experiment with orbital maintenance and space debris clean-up. In January 2022, the Shijian-21 satellite moved a derelict BeiDou navigation satellite to a graveyard orbit above GEO. This technology could be used in future systems to grapple other satellites.
  - Multiple Chinese SJ-series and TJS-series experimental satellites have been observed conducting unusual, large, and rapid maneuvers in GEO; tactics which could have a number of different military applications
  - The PLA has multiple ground-based **laser weapons** able to disrupt, degrade, or damage satellite sensors.

By the mid-to-late 2020s, they could have higher-power systems able to damage satellite structures.

- ▷ PLA military exercises regularly incorporate **jammers** against space-based communications, radars, and navigation systems like GPS. Intelligence suggests the PLA may be developing jammers to target SATCOM over a range of frequencies, including U.S. military protected extremely-high-frequency (EHF) systems.
- ▷ In July 2021, China conducted the world's first **fractional orbital launch of an ICBM with a hypersonic glide vehicle**. This marked the greatest distance flown (~40,000 km) and longest flight time (100+ minutes) of any PLA-developed land attack weapon system to date.

RUSSIA has one of the world's largest space programs and is among the world's most capable space actors. Its experience and pedigree are unmatched outside the U.S. and are enduring sources of pride for Russia's people.

- ▶ Russia views space as a warfighting domain and believes space supremacy will be a decisive factor in future conflicts. To that end, the Russian military's space troops were integrated into the Aerospace Forces in 2015, in part to better integrate space-based capabilities into larger operations. However, Russian space technology has declined amid funding shortfalls, growing international isolation, and broader societal problems, though Moscow still hopes to maintain its constellations and develop select next-generation capabilities.
  - ▷ Russia conducted only 19 launches in 2023 and remained largely absent from the international market, placing only three foreign payloads in orbit. All were small sats on a single rideshare launch.
  - ▷ Russia retains expertise in **rocket engines** and **space launch**; however, its launch activity increasingly lags the U.S. and China. New rockets and a new cosmodrome aim to carry this expertise forward.
  - ▷ Russia operates some of the world's most capable **ISR satellites** for optical imagery, SIGINT, and missile warning, but Russia is increasingly relying on civil and commercial satellites due to technological and financial setbacks. For example, Russia's Wagner Group is known to have purchased imagery from Chinese company Spacety to support combat operations in Ukraine.
- ▶ Even as Moscow backs space arms control negotiations, Russia is researching, developing, testing, and deploying counterspace systems to take advantage of a perceived vulnerability of U.S. military dependence on space.
  - ▷ In November 2021, Russia tested its **Nudol DA-ASAT missile** against a defunct Soviet satellite in LEO, creating 1,500 pieces of trackable debris and an assessed tens-of-thousands of non-trackable objects. This act endangered spacecraft of all nations in LEO, including astronauts and cosmonauts on the International Space Station and taikonauts on China's Tiangong Space Station.
  - ▷ A large missile first observed on a MiG-31 aircraft at a test site in 2018 may be related to an **air-launched ASAT missile named Burevestnik** which will be "capable of destroying targets in near-space."
  - ▷ Russia has deployed several **orbital ASAT** prototypes in LEO. In 2019, one followed a U.S. national security satellite. Another ejected an object near a Russian satellite while testing a space-based ASAT weapon.
  - ▷ Moscow may also be developing ASAT systems for use in other orbits under the guise of orbital servicing assets. Moreover, the U.S. assesses Russia is developing a new satellite carrying a nuclear device.
  - ▷ Russia deployed **Peresvet laser weapons** to five strategic missile divisions starting in 2018. The system is intended to mask missile deployments by blinding satellite sensors. Intelligence suggests Russia may deploy more powerful lasers by 2030.
  - ▷ Russia views **electronic warfare** as essential to gaining and maintaining information superiority and has fielded a wide range of ground-based EW systems to counter U.S. GPS, communications, and radars.
  - ▷ At the onset of the Ukraine invasion in February 2022, Russia launched a **cyber-attack** against a commercial SATCOM provider, targeting Ukrainian military users but spilling over to tens of thousands of users across Europe. Later that year, a Russian official at the United Nations twice said "quasi-civilian" commercial satellites used for military purposes "may become a legitimate target for retaliation."

China is the PACING CHALLENGE and is rapidly improving its space capabilities to TRACK & TARGET U.S. military forces. China & Russia are pursuing a wide range of counterspace capabilities to DISRUPT & DEGRADE U.S. space capabilities.