Statement before the House Foreign Affairs Subcommittee on Europe

"Orbits of Influence: Emerging Threats to U.S. Space Security and Foreign Policy Implications"

A Testimony by:

Kari A. Bingen

Director, Aerospace Security Project, CSIS

April 29, 2026

2172 Rayburn House Office Building

WWW.CSIS.ORG

1616 RHODE ISLAND AVENUE NW
WASHINGTON, DC 20036

TEL. (202) 887.0200
FAX (202) 775.3199

Chairman Self, Ranking Member Keating, and distinguished Members of the Subcommittee, thank you for the invitation to appear before you today to discuss "Orbits of Influence: Emerging Threats to U.S. Space Security and Foreign Policy Implications."[1] I was privileged to work with this Committee while a staffer on the Armed Services Committee and saw firsthand the impact of your work.

As successive administrations have stated, our ability to access and use the space domain is a vital national interest.[2] We have long benefited—technologically, economically, societally, militarily, and diplomatically—from our dominance in space. But that advantage is eroding. The United States must take steps now—with urgency and purpose—to maintain that leadership before we are outmatched in space. Today, I will highlight three key developments shaping the space security landscape, discuss their strategic implications, and offer a few recommendations to sustain U.S. leadership, including how to more effectively wield the diplomatic tool of national power to strengthen our global position in the space domain.

Space as a foundation of military advantage, but under growing threat

First, space capabilities are indispensable to modern warfare, deterrence, and defense. They underpin how the United States military fights and projects power: providing connectivity across dispersed forces, intelligence in denied areas, and critical inputs such as missile warning, precision targeting, battle damage assessment, and weather. They expand decision space for commanders and diplomats—delivering earlier warning, greater clarity, and more time to deter aggression or posture defenses. As former Vice Chairman of the Joint Chiefs of Staff, Admiral Christopher Grady, emphasized, space is "the critical domain because it enables all terrestrial advantage."[3]

In Ukraine, we have seen how a militarily outmatched nation—with little indigenous space infrastructure—can use space assets to level the playing field. From the onset of the war, Ukraine has marshaled a range of space-based tools for communications, surveillance, targeting, and information sharing: Starlink became a lifeline for connectivity and satellite imagery has created a level of battlespace awareness previously out of reach.[4] In 2024, Ukraine's ambassador to the

[1] The Center for Strategic and International Studies does not take policy positions, so the views represented in this testimony are my own and not those of my employer.

[2] *See, e.g.*, The White House, *National Space Policy of the United States of America* (Washington, DC: The White House, December 9, 2020), https://trumpwhitehouse.archives.gov/wp-content/uploads/2020/12/National-Space-Policy.pdf; The White House, *United States Space Priorities Framework* (Washington, DC: The White House, December 1, 2021), https://csps.aerospace.org/sites/default/files/2021-12/United-States-Space-Priorities-Framework-_-December-1-2021.pdf.

[3] Christopher W. Grady, remarks at "DoD's Warfighting Concept with the Vice Chairman of the Joint Chiefs of Staff," Maritime Security Dialogue, Center for Strategic and International Studies, Washington, DC, May 1, 2024, transcript, https://www.csis.org/analysis/dods-warfighting-concept-vice-chairman-joint-chiefs-staff.

[4] "Space and Data Domain Lessons from Russia-Ukraine," Conflict in Focus series, Center for Strategic and International Studies, Washington, DC, April 10, 2025, transcript, https://www.csis.org/analysis/space-and-data-domain-lessons-russia-ukraine-conflict-focus; David Ignatius, "How the Algorithm Tipped the Balance in Ukraine," *Washington Post*, December 19, 2022, https://www.washingtonpost.com/opinions/2022/12/19/palantir-algorithm-data-ukraine-war/; U.S. Geospatial Intelligence Foundation, "GEOINT Lessons Being Learned from the Russian-Ukrainian War," Thought Leadership paper, February 22, 2024, https://usgif.org/geoint-lessons-being-learned-from-the-russian-ukrainian-war/.

United States remarked how space systems are also connecting hospitals and civil society and helping document evidence of war crimes.[5]

With space capabilities playing such a significant operational and tactical role on the battlefield, it should come as no surprise that adversaries will seek to deny them. As the Center for Strategic and International Studies (CSIS) has reported on for the past eight years in its annual *Space Threat Assessment*, our adversaries are developing and fielding an array of counterspace weapons to threaten U.S. and allied space capabilities, whether targeting satellites in orbit, their signals to/from the ground, or terrestrial equipment. These counterspace weapons are being developed across attack modalities, including cyber operations, jamming and spoofing of electronic transmissions, lasers, direct ascent anti-satellite (ASAT) missiles, and co-orbital ASATs.[6]

These threats are not theoretical. In fact, the first target in Russia's invasion of Ukraine was a commercial satellite communications (SATCOM) system, a cyber-attack intended to disrupt Ukraine's command, control, and communications.[7] In the years since, the Ukrainian battlefield has seen the prolific jamming of the Global Positioning System (GPS) and SATCOM, and widespread GPS interference has been detected across Eastern Europe, Scandinavia, the South China Sea, and elsewhere.

China and Russia possess a range of counterspace weapons capable of both kinetic and non-kinetic effects. No orbit is out of reach. Recent years have seen Chinese satellites conducting what one U.S. Space Force general described as "dogfighting" maneuvers in low Earth orbit (LEO), along with unusual movements in geosynchronous Earth orbit (GEO), including a reported first-ever orbital refueling demonstration in GEO.[8] Meanwhile, Russian satellites have shadowed U.S. government satellites in LEO, and Moscow is reportedly developing a nuclear ASAT weapon

---

[5] Oksana Markarova, ambassador of Ukraine to the United States, keynote address, NSSA Defense and Intelligence Space Conference 2024 (DISC24), Hyatt Regency Reston, Reston, VA, February 27, 2024, agenda, https://nssaspace.org/event/disc24/; "Ukraine Conflict Observatory," Humanitarian Research Lab, Yale School of Public Health, accessed July 22, 2025, https://medicine.yale.edu/lab/khoshnood/conflict-observatory/ukraine/.

[6] Clayton Swope, Kari A. Bingen, Makena Young, and Kendra LaFave, *Space Threat Assessment 2025* (Washington, DC: Center for Strategic and International Studies, April 25, 2025), https://www.csis.org/analysis/space-threat-assessment-2025.

[7] Specifically, the target was Viasat's KA-SAT satellite communications network. See "KA-SAT Network Cyber Attack Overview," Viasat, March 30, 2022, https://www.viasat.com/perspectives/corporate/2022/ka-sat-network-cyber-attack-overview/; Antony J. Blinken, "Attribution of Russia's Malicious Cyber Activity Against Ukraine," U.S. Department of State, press statement, May 10, 2022, https://2021-2025.state.gov/attribution-of-russias-malicious-cyber-activity-against-ukraine/; and Patrick Howell O'Neill, "Russia Hacked an American Satellite Company One Hour Before the Ukraine Invasion," *MIT Technology Review*, May 10, 2022, https://www.technologyreview.com/2022/05/10/1051973/russia-hack-viasat-satellite-ukraine-invasion/.

[8] Swope et al., *Space Threat Assessment 2025*; Madeleine Chang and Kari A. Bingen, *New Rhythms in GEO: A Quantitative Analysis of Unusual Behavior in Geosynchronous Orbit by Chinese Satellites, 2016–2025* (Washington, DC: Center for Strategic and International Studies, April 6, 2026), https://www.csis.org/analysis/new-rhythms-geo-quantitative-analysis-unusual-behavior-geosynchronous-orbit-chinese; Stephen N. Whiting, fireside chat at "Space Strategic Dialogue: Space and the Future of Warfare," Center for Strategic and International Studies, Washington, DC, April 21, 2026, https://www.csis.org/events/space-strategic-dialogue-space-and-future-warfare-gen-stephen-whiting-commander-us-space.

that, if deployed and detonated, could degrade or destroy any satellites in its path and within the same orbital region—a highly destabilizing development.[9]

All of this points to a new reality: the normalization of space as a military warfighting domain, alongside air, land, and sea. Counterspace threats should be viewed within the broader context of efforts by adversaries to degrade the ability of the United States and its allies to fight and win a war and disrupt the economy and day-to-day life on Earth, not merely as efforts to degrade a space capability.[10] That imperative is a key reason for the creation of the U.S. Space Force and U.S. Space Command, who today are focused on building more resilient space architectures, developing operational tactics and procedures, and integrating with allies and industrial partners.

Commercialization and technology diffusion: increasing global competition

A second defining trend in the space security environment is the rise of commercial space, driven largely by the private sector, and the resulting increase in global competition. More than 80 percent of satellites currently on orbit are commercial and over 100 countries now operate in space. We're seeing the commercialization of missions that we long thought only governments would do, from satellite imaging and in-orbit servicing to human spaceflight and exploration.

Speed, scale, and proliferation are defining features of this new environment. SpaceX has set the pace, with thousands of Starlink satellites on orbit and production measured in satellites per day—far removed from the national security space environment I grew up in where satellites took 5 to 10 years to build and cost billions. It is now launching rockets at a tempo of 130 to 180 missions per year, while launch costs have fallen from roughly $150 million per launch to tens of millions—or less—depending on the system.

With more actors in space, broader access to technology, and greater economic stakes, global competition is intensifying. One clear example is commercial space-based remote sensing. A 2024 CSIS report, "Gold Rush: The 2024 Commercial Remote Sensing Global Rankings," found that China is rapidly advancing its "commercial" capabilities, challenging the long-standing lead of the United States and its allies.[11]

One consequence of this new dynamic is a far more transparent battlefield. Persistent surveillance from worldwide remote sensing satellites means movements and signatures are increasingly visible to a wide range of actors, not just governments. This is playing out in real time in the Middle East, where U.S. firms have withheld satellite imagery to protect U.S. forces

[9] John F. Plumb, statement before the Subcommittee on Strategic Forces, House Committee on Armed Services, *Hearing on FY25 Budget Request for National Security Space Programs*, 118th Cong., 2d sess., May 1, 2024, https://docs.house.gov/meetings/AS/AS29/20240501/117236/HHRG-118-AS29-Wstate-PlumbJ-20240501.pdf; *see also* Audrey Decker, "Russian Space Nuke Could Render Low-Earth Orbit Unusable for a Year, US Official Says," *Defense One*, May 1, 2024, https://www.defenseone.com/threats/2024/05/russian-space-nuke-could-render-low-earth-orbit-unusable-year-us-official-says/396245/.

[10] Swope et al., *Space Threat Assessment 2025.*

[11] Kari A. Bingen, David Gauthier, and Madeleine Chang, *Gold Rush: The 2024 Commercial Remote Sensing Global Rankings* (Washington, DC: Center for Strategic and International Studies, October 1, 2024), https://www.csis.org/analysis/gold-rush-2024-commercial-remote-sensing-global-rankings.

in the region and avoid aiding adversaries, while foreign providers—including Chinese companies—continue to supply similar data. A Chinese artificial intelligence (AI) company, MizarVision, has publicly showcased its ability to track U.S. military assets and movements using satellite imagery, Iran has acquired a Chinese imagery satellite, and Russia has supported Iranian operations with its own imagery.[12] As Chief of Space Operations General B. Chance Saltzman noted, "the transparency that exists in the world, whether through cyber, digital means or commercial imagery, we just have to recognize and adapt to the changing battle space."[13]

Another corollary of the growth in large satellite constellations and expanding counterspace threats is the sharp increase in space objects and debris, creating new risks in orbit. The United States currently tracks roughly 50,000 objects—including more than 15,000 satellites—and that number is rapidly rising. Without stronger space domain awareness and clearer norms for responsible behavior, congestion, collision risk, and debris growth will only increase, threatening both commercial and national security space operations.

China is the most consequential threat and competitor in space

China is the most consequential threat and competitor in space. Beijing is leveraging its state-led space program and growing commercial sector to extend its global influence, expand markets, and reshape international norms.[14]

China's "space dream," articulated by President Xi Jinping, envisions the country as a global space power by 2049.[15] Marking one of the swiftest climbs in the history of any modern space program, China has amassed hundreds of satellites in orbit, set record launch rates, built satellite manufacturing "gigafactories," and advanced flagship projects such as the Tiangong space station and planned International Lunar Research Station.[16]

In addition to its counterspace developments discussed earlier, China is mobilizing both government and commercial resources to build LEO broadband satellite constellations (numbering in the tens of thousands) and persistent surveillance networks, having already deployed more than

[12] Chinese Intelligence Company Tracking US Military Assets During Iran Operations," *FlightGlobal*, March 11, 2026, https://www.flightglobal.com/fixed-wing/2026/03/chinese-intelligence-company-tracking-us-military-assets-during-iran-operations/; Thomas Grove, Milàn Czerny, and Benoit Faucon, "Russia Is Sharing Satellite Imagery and Drone Technology With Iran," *Wall Street Journal*, March 17, 2026.
[13] B. Chance Saltzman, Chief of Space Operations, U.S. Space Force, remarks at the Mitchell Institute for Aerospace Studies, 4th Annual Spacepower Security Forum, Arlington, VA, April 1, 2026, quoted in Theresa Hitchens, "Nowhere to Hide: Iran War Spotlights Military Challenges Posed by Space-Based Remote Sensing," *Breaking Defense*, April 13, 2026, https://breakingdefense.com/2026/04/nowhere-to-hide-iran-war-spotlights-military-challenges-posed-by-space-based-remote-sensing/.
[14] Office of the Director of National Intelligence, *Annual Threat Assessment of the US Intelligence Community* (Washington, DC: Office of the Director of National Intelligence, April 2021), https://www.dni.gov/files/ODNI/documents/assessments/ATA-2021-Unclassified-Report.pdf.
[15] Kevin Pollpeter, Eric Anderson, Jordan Wilson, and Fan Yang, China Dream, Space Dream: China's Progress in Space Technologies and Implications for the United States (Washington, DC: U.S.-China Economic and Security Review Commission, March 2, 2015), https://www.uscc.gov/sites/default/files/Research/China%20Dream%20Space%20Dream_Report.pdf.
[16] Swope et al., *Space Threat Assessment 2025*.

500 intelligence, surveillance, and reconnaissance (ISR) satellites in orbit.[17] China is integrating these capabilities into its own military operations, closing its "kill chains," and practicing its targeting of U.S. naval vessels, airfields, and ports.[18]

China is using space as a tool of diplomacy and influence, expanding partnerships across the Global South. It has built out space infrastructure in places like Argentina, Egypt, and Namibia—well documented by the CSIS *Hidden Reach* series—and positioned itself as the partner of choice for many of these countries.[19] Through Belt and Road–linked offerings, China exports bundled packages—SATCOM, Earth observation data, navigation services, and ground infrastructure, Marketed as development tools, these systems extend Chinese influence, shape standards, and can embed Beijing's data practices and governance models. Since 2016, it has signed over 100 space cooperation agreements, extending its reach from Latin America to Africa.[20]

On the diplomatic front, Chinese delegates are becoming increasingly skilled at navigating international forums, engaging strategically in standards organizations like the International Organization for Standardization (ISO) and the International Telecommunication Union (ITU), where China submits the highest number of technical contributions and sends large delegations to assert its influence and promote its standards. China held the ITU secretary-general position from 2015 to 2023, which is now held by an American (who defeated a Russian candidate and former Huawei executive).[21] Its delegates are also active in the United Nations, often aligning with the Group of 77 developing nations, i.e., "G-77 + China," to amplify its positions.

It is also advancing other multilateral efforts like the International Lunar Research Station, offering countries' access to its Tiangong space station, and expanding cooperation through initiatives like the Asia-Pacific Space Cooperation Organization (APSCO) and Brazil, Russia, India, China, and South Africa (BRICS).

---

[17] "Space Threat Fact Sheet," U.S. Space Force, December 2025, https://www.spaceforce.mil/About-Us/Fact-Sheets/Fact-Sheet-Display/Article/4297159/space-threat-fact-sheet/#:~:text=As%20of%20November%202025%2C%20China%20had%20more,sensors%2C%20increasing%20its%20ability%20to%20detect%20U.S; and Simone McCarthy, "China launches satellites to rival SpaceX's Starlink in boost for its space ambitions," CNN, August 9, 2024, https://www.cnn.com/2024/08/09/china/china-satellite-qianfan-g60-starlink-intl-hnk/index.html.

[18] Thomas Shugart, "Has China Been Practicing Preemptive Missile Strikes Against U.S. Bases?" War on the Rocks, February 6, 2017, https://warontherocks.com/has-china-been-practicing-preemptive-missile-strikes-against-u-s-bases/#:~:text=to%20do%20so.-,Fig.,Yokosuka%20(see%20Figure%2011).; and H I Sutton, "China Builds Missile Targets Shaped Like U.S. Aircraft Carrier, Destroyers in Remote Desert," USNI News, November 7, 2021, https://news.usni.org/2021/11/07/china-builds-missile-targets-shaped-like-u-s-aircraft-carrier-destroyers-in-remote-desert.

[19] See Matthew P. Funaiole, Brian Hart, and Aidan Powers-Riggs, *In China's Orbit: Beijing's Space Diplomacy in the Global South*, Hidden Reach (Washington, DC: Center for Strategic and International Studies, January 15, 2026), https://features.csis.org/hiddenreach/china-space-diplomacy-global-south/ (documenting Chinese-built or expanded facilities in Ethiopia, Egypt, and Namibia, among others); see also Matthew P. Funaiole, Dana Kim, Brian Hart, and Joseph S. Bermudez Jr., *Eyes on the Skies: China's Growing Space Footprint in South America*, Hidden Reach Issue No. 1 (Washington, DC: Center for Strategic and International Studies, October 4, 2022), https://features.csis.org/hiddenreach/china-ground-stations-space/ (analyzing the dual-use China-operated ground station network across South America).

[20] Young and Thadani, *Low Orbit, High Stakes*.

[21] Konstantinos Komaitis and Justin Sherman, "The ITU election pitted the United States and Russia against each other for the future of the internet," Atlantic Council, September 29, 2022, https://www.atlanticcouncil.org/content-series/tech-at-the-leading-edge/the-itu-election-and-the-future-of-the-internet/.

The implications are significant. What happens when nations are forced to choose between Chinese and U.S. standards? When Chinese internet protocols and data policies dictate the global flow of information and govern the world's communication networks? What happens when Chinese remote sensing systems top the market, positioning Beijing to influence how the planet is seen and understood, from environment change to human conflict? And consider February 23, 2022: if the world had relied on Chinese imagery of Russia's troop buildup, would the response have been the same?

Strengthening the State Department toolkit for space security

Below are a few recommendations that I believe can help address each of the challenges outlined above:

- **Continue investing in national security space.** The United States needs to continue investing in national security space to deter adversary aggression in space, strengthen resilience, and ensure we have adequate defenses and necessary offensive capabilities. This should include greater investment in space domain awareness and sharable intelligence so both operators and diplomats can detect threats and call out irresponsible behavior.

- **Leverage space for U.S. soft power.** The United States possesses a unique competitive asset: its commercial space sector. Powered by private capital, entrepreneurial innovation, and a deep industrial base, U.S. space companies remain global leaders in SATCOM, Earth observation, navigation, and launch services. These offerings are not only commercially viable; they directly address the needs of allies and partners. For many Global South countries, U.S. firms provide practical solutions: satellite imagery for agricultural monitoring, maritime surveillance to combat illegal fishing, communications services that connect underserved regions, and geospatial data that supports disaster response and infrastructure development. The State Department should expand this advantage, especially through its embassies, by partnering with the commercial space sector to deliver capabilities that support foreign partners' security and development needs, integrate space-enabled data and services into its security cooperation toolkit, and use financing tools like the Export-Import Bank to support U.S. space exports and keep American space industry the partner of choice.

- **Shape allies and partners space investments.** Allies—from Europe to Japan and the Republic of Korea—are committing to record defense budgets, including major increases for space. Even civilian agencies, like the European Space Agency, now have mandates to support defense and resilience.[22] The State Department, working with their defense and commerce colleagues, should engage early and often to help shape these investments so they produce capabilities that complement ours and strengthen collective security. This also creates opportunities for industrial cooperation and expands markets for U.S. space industry.

- **Revisit U.S. export control policy.** Outdated export restrictions, particularly International Traffic in Arms Regulations (ITAR), still treat many space technologies as though they were weapons, limiting U.S. companies' ability to cooperate with allies and partners who might

[22] "Europe's €22bn space reset: from peaceful science to dual-use constellations," SpaceTech IE Research, November 28, 2025, https://spacetech.industryexaminer.com/europe-esa-22bn-space-reset-dual-use-constellations/.

otherwise turn to foreign providers. In my experience at HawkEye 360, we sought to provide unclassified geolocation data on Chinese fishing vessels to help South Pacific nations counter illegal fishing, yet that data was subject to ITAR restrictions.[23] Other companies operating synthetic aperture radar (SAR) satellites face similar barriers.[24] We must find a better balance between protecting sensitive technologies and enabling firms to compete and partner globally. Modernizing these policies and processes will strengthen U.S. soft power, support a healthier commercial space sector, and improve our industry's global competitiveness.

- **Lead global space governance and standards.** The United States should sustain leadership in key forums like the ITU to support U.S. companies in managing scarce spectrum and to shape global standards, norms, and best practices for space operations. With the 2027 World Radiocommunication Conference in Shanghai, Beijing will have a prime opportunity to advance its agenda—making continued U.S. leadership and engagement critical.

- **Establish communication channels with China.** The United States needs a reliable, direct line of communication with China on space safety and crisis management. Today's "send an email" and hope it gets read approach is not sustainable in an increasingly congested domain. As both nations deploy large constellations, the risk of miscalculation or collision grows, making basic coordination essential to avoid unintended escalation and preserve the space environment. I do not believe in talking for talking's sake. This engagement should be pursued with clear-eyed realism and is not a substitute for continued U.S. investments and policies that prepare the United States to protect and defend its space-related interests.

- **Revisit limitations on U.S. commercial remote sensing firms.** Revisit restrictions on U.S. commercial remote sensing firms to ensure policies protect national security without disadvantaging U.S. companies relative to foreign competitors. A more nuanced framework should balance the need to deny adversaries sensitive data with maintaining U.S. industry competitiveness. At the same time, U.S. forces must adapt to a more transparent battlefield by strengthening operational security, training under persistent surveillance, and investing in protection, deception, and disruption capabilities.

- **Support the Bureau of Emerging Threats.** We are in a strategic technology competition with China, which has prioritized aerospace alongside artificial intelligence, quantum, and biotech. These technologies will reshape warfare and confer significant economic and geopolitical advantages. We need a holistic approach that advances U.S. technological leadership while checking China's progress, including efforts to acquire U.S. technology and intellectual property. This will require deepening State's technical expertise and better integrating it with diplomacy and international engagement.

The United States leads in space today—but that lead is not assured. Sustaining it will require urgent action at home, strong partnerships abroad, and continued leadership in shaping the future of the domain. Thank you for your time today and I look forward to your questions.

---

[23] I currently serve on HawkEye 360's Board of Advisors.

[24] Theresa Hitchens, "US SAR satellite imagery firms say draft ITAR changes still too restrictive," Breaking Defense, October 28, 2024, https://breakingdefense.com/2024/10/us-sar-satellite-imagery-firms-say-draft-itar-changes-still-too-restrictive/.