UNITED STATES SPACE COMMAND

PRESENTATION TO THE
SENATE ARMED SERVICES COMMITTEE
U.S. SENATE

Subject: Fiscal Year 2025 Priorities and Posture of United States Space Command

STATEMENT OF: General Stephen N. Whiting
Commander, United States Space Command

February 29, 2024

INTRODUCTION

For millennia space has been a mystery that inspired dreamers to imagine what lay beyond our terrestrial environment and how it would one day impact our pursuits and prosperity upon Earth. Bold visionaries still have sufficient room to dream, but enough mysteries have been solved so that virtually every human being on Earth now relies upon and benefits from capabilities and resources obtained in or generated from space. U.S. Space Command (USSPACECOM) and our network of national and international teammates protect vital American interests in space against our strategic competitors with malign intent to hold our critical space-based capabilities at risk. Additionally, freedom of action in space is fundamental to all Joint military operations as outlined in the National Security Strategy, National Defense Strategy, and National Military Strategy. The space domain's tremendous scientific and commercial promise demands the United States continued global leadership. To ensure we fulfill our role in these national security imperatives, USSPACECOM is focused on four main lines of effort: posturing and preparing to prevail; understanding and offsetting threats; expanding and strengthening key relationships; and expanding a competitive warfighting advantage.

In terms of the space domain, we are standing in a period of history that is marked by challenges and opportunities much like the Interwar Period between World Wars in the Twentieth Century. Just one hundred years ago, technology advancements made the air domain essential for overarching strategic advantage. Human's ability to conquer the skies created entirely new security challenges that demanded air superiority relative to strategic competitors. Today, this Command faces strategic competitors who aim to deny space's inherent benefits from us, our Allies, and Partners. Space, unlike the skies over land and sea, has no physical limit and presents an expanding security challenge that is now central to all-domain security activities.

Although Earth's orbits remain the primary focus of today's space security concerns, we are expanding space domain awareness capabilities to monitor for potential threats beyond the geosynchronous orbit.

There is an urgency for our Command to advocate for delivery of new space capabilities and capacity to retain an enduring competitive advantage. To ensure the United States – and by extension, our Allies, Partners, and the rest of humanity – continues to derive prosperity and security from space, the Command postures and prepares to maximize combat readiness, offset competitor threats to the space domain, strengthen our relationships with Allies, Partners, international organizations, and industry to deliver on new space capabilities.

There is also a vulnerability window communicated by our competitors and highlighted as we watch conflict unfold in Ukraine and Israel where missile defense and space capabilities have been tested by the quantity and quality of missile and counterspace systems. To be postured to meet this threat, USSPACECOM must sustain enduring advantage over any determined adversary threatening our national security in space. Insufficient focus and a lack of imagination to appreciate how devastating a future conflict involving space will be is a significant risk to all.

POSTURING AND PREPARING TO PREVAIL

USSPACECOM remains focused on all our USC Title 10 and Unified Command Plan (UCP) missions, in keeping with a clear legal basis for this military organization to defend and secure the space domain against continuing and immediate threats to this nation, our Allies and Partners. This Command upholds a moral obligation to support the rest of the Joint Force by executing our specific mission responsibilities, whether in, from, or to space, reflecting the complex realities of modern conflict. We validate our readiness to conduct our UCP missions through deliberate certifications and mission assessments. To accomplish this, USSPACECOM

will continue Joint training exercises, further enable integration of our multi-mission sensors with commercial and non-traditional sensors, educate Joint Warfighters in the application of comprehensive spacepower, and facilitate diversity of thought by leveraging our Joint workforce to increase our lethality as Joint-minded space professionals.

A highly trained and cohesive workforce of dedicated uniformed and civilian warfighters enables all that we do, and thus it is essential to begin with acknowledging the incredible group of professionals composing this organization. It is an honor to lead the 1,700 Joint Force professionals assigned to the USSPACECOM headquarters and the nearly 18,000 Joint Force warfighters postured worldwide to support our efforts. This team, in partnership with the rest of the broader national security space enterprise, is responsible for conducting dynamic, responsible, and integrated space operations and provides missile defense support to deter, and if necessary, prevail in conflict.

While USSPACECOM has a unique and vital relationship with the United States Space Force, given that both of our organizations are focused on the space domain, we also enjoy tremendous support from the Army, Air Force, Navy, and Marine Corps, as well as the other Combatant Commands and Defense Support Agencies. The synergy of Joint Force solutions is key to developing and employing combat-ready forces and presenting integrated deterrence options to national leadership. This synergy also underpins development of space warfighting requirements that inform holistic and critical capabilities.

Similarly, strategic deterrence depends on Combatant Commands and components communication and synchronization to achieve Joint Force unified action across multi-domains. The Nexus of U.S. Special Operations Command, U.S. Cyber Command, U.S. Strategic Command, and USSPACECOM supports mutually supported/supporting relationships between

combatant commanders required for Joint, all-domain dominance. The space and cyber domains, now more than ever before, are increasingly central to any multi-domain national security approach and require new thinking and collaboration beyond precedent.

USSPACECOM is focused on employing our combat-ready forces and capabilities to accomplish our missions and responsibilities as assigned in the Unified Command Plan: space operations, global sensor management, global satellite communications management, operational planning and support to trans-regional missile defense, and our role as the space Joint Force provider. Excellence in these core areas will deter aggression, ensure continued access to space, deny adversary freedom of action in space, and protect the Joint Force from adversary space-enabled attacks. To increase resiliency, redundancy, and interoperability, we are building a coalition of Allies and Partners to maintain collective advantage over strategic competitors.

UNDERSTANDING AND OFFSETING THE THREAT

The People's Republic of China (PRC) and the Russian Federation continue to field systems and engage in behavior that threaten U.S., Allied, and Partner access to space and space-based capabilities. The Islamic Republic of Iran and the Democratic People's Republic of Korea have demonstrated terrestrial-based, electronic warfare capabilities that threaten friendly space-based communications and navigation capabilities. These states' persistent actions demonstrate they are committed to denying American and Allied forces the benefits of our space assets. This is why USSPACECOM must ensure that we can protect and defend our space architectures and protect the Joint Force from space-enabled attacks.

People's Republic of China: Pacing Strategic Competitor

The PRC poses the most comprehensive and considerable challenge to U.S. national security. Beijing has made clear it seeks to become the preeminent power in East Asia and a

major power on the world stage, armed with a world-class military to be able to secure its sovereign interests and decide regional affairs to the PRC's advantage. By 2030, the PRC will, by many estimates, achieve world-class status in all but a few space technology areas. The PRC seeks to match or surpass the United States by 2045. The PRC is growing its military space and counterspace capabilities at breathtaking pace to deny American and Allied space capabilities when they so choose, while extending its ability to conduct long-range fires improving the precision and reach, thus the lethality, of its terrestrial forces. The modernized People's Liberation Army (PLA) monitors military forces world-wide, including U.S. forces. The PLA is focused on offsetting U.S. military advantages and rapidly advancing and integrating its forces across all domains to support its comprehensive approach to joint warfare. The PRC is using its growing military strength to undermine U.S. alliances and security partnerships while seeking to coerce their neighbors in the Indo-Pacific region.

PRC Space Capabilities: Challenge to Space Superiority

The PRC are making advances in areas such as satellite meteorology, human spaceflight, and robotic space exploration, some of which have dual-use capability. The PRC is also aggressively pursuing advances in military areas that are concerning. As of January 2024, the PRC's Intelligence, Surveillance, and Reconnaissance (ISR) satellite fleet contained more than 359 systems, more than tripling its on-orbit collection presence since 2018. The PRC has also dramatically increased its ability to monitor, track, and target US and Allied forces, both terrestrially and on orbit. Substantial improvement in PRC domestic space launch capabilities, including nascent progress on reusable rockets and mass production of sophisticated space systems, will lower its cost of entry to space. PRC has a continued pattern of uncontrolled

reentries of space systems, despite their contributions to international guidelines regarding responsible satellite disposal.

People's Liberation Army Counterspace Capabilities: Threats to Space Architecture

The PLA understands counterspace operations to nullify U.S., Allied, and Partner satellites and systems must be part of their broader strategy. The PRC openly acknowledges applying commercial and civilian aerospace technology for military purposes. For example, the corporate mandate of the China Aerospace Science and Technology Center declares the intent to ensure "military-civilian integration development" to strengthen the PRC military and "secure peace with aerospace technology" in accordance with PRC's stated strategic ambitions. The PRC prioritizes space and building international partnerships that advance PRC goals, including through their Belt and Road Initiative, to develop its space intelligence and military capabilities.

The PRC's counterspace weapons programs seek to provide options for destructive and nondestructive disruption of our systems in all orbits through proliferation of jammers and the PRC's rapid fielding of new ground- and space-based antisatellite weapons. Beijing has deployed several satellites, at least some of which could function as a weapon, that could pose significant risk to our own in geosynchronous orbit. The PRC is further developing and testing hypersonic glide vehicles along with advanced space weaponry. These capabilities are intended to overcome U.S. traditional missile warning and ballistic missile defense systems.

PRC International Influence: Building Spacepower

The PRC seeks to expand its influence over nascent space nations beyond East Asia. Beijing is currently expanding its engagements with national space programs in Algeria, Venezuela, and South Africa through signing data sharing agreements, providing satellite manufacturing services, installing satellite ground stations, and seeking cooperation on the

International Lunar Research Station. The PRC's space intentions and capabilities are often obscured through its focus on dual-use technologies, academic programs that use ambiguous research tracks and efforts, and overlapping space activities in exploration and commerce that can also enable the PLA's military programs and effectiveness.

Russian Federation: Acute Threat

Russia's struggles following their invasion of Ukraine should not create a false sense of confidence that Moscow is fading in the space domain. Russia will remain a formidable and less predictable challenge to the United States in key areas over the next decade, while still facing many challenges. Their losses in the Ukraine conflict will take years to rebuild in terms of terrestrial offensive capabilities which will likely encourage Russia to become more reliant on nuclear, cyber, and space capabilities, including disruptive technologies and actions they believe hold the promise to provide asymmetric pathways to achieve their strategic goals.

Russian Space Capabilities: Challenge to Space Superiority

International sanctions and export controls have impacted Russian space aspirations. As a result, Moscow will likely prioritize integrating space services they deem critical to their national security. They will continue to maintain their ISR fleet of over 87 satellites providing electro-optical imagery, missile warning, and signals intelligence to provide warning of threats to the Russian homeland. Their recent launches of Arctic satellites able to monitor the Northern Sea Route provide robust all-weather and round-the-clock, weather radar remote sensing, essential for command and control (C2) of military and paramilitary activities, a clear national security requirement for Russia. These capabilities can also support worldwide military and paramilitary deployments. They are updating and improving space launch capabilities to enhance reliability and otherwise find ways to offset the burdens imposed by sanctions and export controls levied by

the international community. Despite impacting limited supply chain and partnerships, Russia is finding ways to circumvent sanctions to maintain their capacity to be aggressive and disruptive in space.

Russian Counterspace Capabilities: Threats to Space Architecture

Russia's counterspace capabilities represent real threats to the space domain, our national security, and this Command's ability to respond decisively to protect and defend our interests and those of our Allies and Partners. Despite their struggles in Ukraine and economic sanctions, Russia continues to pursue a suite of counterspace weaponry, from electromagnetic warfare systems, including directed energy weapons and satellite communications jammers, offensive cyberspace capabilities, and on-orbit and ground-based anti-satellite systems that exist for one clear purpose. These weapons are intended to disrupt, threaten, and destroy space targets or otherwise deny freedom of action in space. Russia views its counterspace capabilities as a means to deter aggression from adversaries reliant on space.

Russian International Influence: Building Spacepower

Russia is collaborating with Iran and various African nations and establishing ties to Belarus' nascent space program. Russia and the PRC are moving forward in their work on Beijing's International Lunar Research Station and have reiterated their plans for Lunar exploration and research. Russia attempted and failed in their Luna-25 automated interplanetary station mission which crashed into the Lunar South Pole in August 2023. Russia will continue collaborating with the PRC, Iran, and other strategic competitors in space and that collaboration might provide effective means to compete, challenge, or threaten the United States and its Allies and Partners.

Islamic Republic of Iran: Threatening International Order

Iran threatens U.S. interests in the space domain. Possessing the largest ballistic missile inventory in the Middle East, Iran's strategy of improving the accuracy, lethality, and reliability of these missiles provides a dual purpose that includes potentially extending threats into space itself. Their strategy includes the longstanding desire to erode U.S. influence in the Middle East and threaten regional stability and order. Without monitoring and appropriate action, future Iranian space capabilities present emerging security concerns if they continue to develop space systems that possess capabilities that expand their offensive capabilities or otherwise challenge the safety and access to space.

Democratic People's Republic of Korea: Challenge to Space Superiority

North Korea continues to develop space and ballistic missile programs. In November 2023, they successfully launched a satellite into orbit. Although all nations have a right to peaceful operations in space, the launch involved ballistic missile technology, which is a clear violation of multiple United Nations Security Council resolutions. Pyongyang's continued intercontinental ballistic missile launches point to a dual-use capability. Long-range missile development threatens the United States and our Allies, and space system developments utilizing ballistic missile technology violate United Nations resolutions on such practices. Despite their frequent missile and satellite program failures, North Korea has demonstrated the ability to sustain a high number of missile launches, and has fielded capable cyber and electronic warfare weapons that present disruptive potential to the space domain.

Given the accelerating pace of threats to the space domain, it is critical that USSPACECOM be an intelligence-led organization to fully understand our changing operating environment. Our intelligence personnel and capabilities are integrated across our headquarters and our subordinate units, at echelon, and they ensure we are fully integrated with all facets of

the broader Intelligence Community to avoid operational surprise and improve all our strategies, plans, and operations. Space intelligence enables this Command to take the initiative when necessary and exploit potential adversary vulnerabilities. Yet USSPACECOM's military capability and capacity alone are challenged to counter growing threats to the space domain.

To counter this increased security threat and enable integrated deterrence so that we can continue to support all-domain operations in, from, and through space, we also need to continue strengthening our relationships with existing Allies and attract new Partners to defend our freedom of action in space and for the advancement of all humanity as we continue to be an increasingly space-dependent civilization.

EXPANDING AND STRENGTHENING KEY RELATIONSHIPS

Space is rapidly becoming more contested and congested due to the overlap of the threats described above, a quickly expanding commercial space sector, and growing governmental and civil use of space, all made possible by the decreasing cost to build satellites and access space. Given these complexities, our nation cannot secure the space domain in isolation. Space is a team sport, and no one nation, Command, Service, or Department can do alone all that is required to meet our objectives there. Rather, collaboration with like-minded Allies, interagency Partners, and commercial stakeholders is not only necessary but one of our key asymmetric advantages.

USSPACECOM will prioritize our operations, activities, and investments to deter and, if necessary, defeat threats against our nation and Allies today, while outpacing growing threats that challenge the space domain tomorrow. Our recent work with U.S. Indo-Pacific Command on the draft Regional Partnerships Strategy is one example of cooperation among the Joint Force and with Allies and Partners to link cooperation in space with regional and strategic national

objectives. USSPACECOM also continues to take advantage of National Guard relationships through the State Partnership Program (SSP), leveraging relationships with nearly 100 nations. Future SPP space security cooperation plans include a multinational space exercise with the North Atlantic Treaty Organization Space Center and other European Allies and Partners.

USSPACECOM has expanded the number of our formal Allies and Partner Space Situational Awareness (SSA) agreements to 31 nations, two intergovernmental organizations, seven academic institutions, and over 130 commercial satellite owner-operators and service providers. The Command also signed governmental SSA data sharing agreements with Poland, Peru, and Qatar in fiscal year 2023. USSPACECOM signed 10 sharing agreements with commercial aerospace companies registered in the United States, Brazil, France, India, and Poland in the same time period. This key work will ensure we remain the partner of choice for conveying vital space information, leading to greater domain awareness and transparency, and furthering spaceflight safety. By providing advanced information and services to space-faring Partners, we display U.S. leadership in the space domain, promote transparency in the responsible and peaceful use of space, and support the eventual transition of civil and commercial spaceflight safety services to the Department of Commerce (DOC).

The collaboration highlighted above enables more effective integrated deterrence through all-domain operations. Our Combined Space Operations enterprise currently includes Australia, Canada, France, Germany, Italy, Japan, New Zealand, Norway, the United Kingdom, and the United States. Combined Space Operations improve coordination of space defenses and enhance individual and collective space capabilities. Through Operation OLYMPIC DEFENDER, our standing named operation in which we operate in space alongside our Australian, British, and Canadian Allies, we improve mission assurance and enhance our collective resilience. We are

continually honing this cooperative and collaborative edge through training, exercises, simulations, and modeling to increase our collective security goals.

USSPACECOM's Exercise GLOBAL SENTINEL (GS) campaign series continues to be the gold standard to exercise and expand key partnerships. GS24 included representatives from 25 nations collaborating in one central location for two weeks in February 2024. The GS24 capstone modeling and simulation event employed a multinational concept of operations focused on space domain awareness, supporting the protection of capabilities, and promoting shared multinational operational space security interests. Since its inception in 2014, GS has evolved from a small-scale table-top exercise with seven nations into an ongoing annual series. This year's series included multiple live events during the year, wargames focused on current operations, and the modeling and simulation capstone exercise. USSPACECOM continues to increase interoperability with our Allies and Partners through security cooperation, information sharing, exercises, and knowledge curation on space security activities.

Integrating Commercial, Inter-Agency, and Academic Partners

To remain on the cutting edge of capability development, application, and shared understanding of space as they relate to national security interests, USSPACECOM partners with a growing team of commercial, interagency, and academic partners. And while we have accomplished much with these partnerships, we see untapped opportunities to continue developing and delivering with these partners more robust and varied options to national leadership to deter aggression and ensure stability.

USSPACECOM's Commercial Integration Center (CIC) includes ten commercial mission partners who provide our Combined Space Operations Center information to improve our ability to collectively defend satellite constellations in collaborative partnerships.

Information sharing is not only a security requirement across the Department of Defense (DOD), Allies, and Partners, but also so that all enterprises from national to commercial can safely operate in the increasingly congested space domain. The way forward for USSPACECOM's CIC includes growing the number of commercial mission partners to participate in the mutual exchange of information on threats to the space domain and shared insights into the operations of member constellations, leading to enhanced safety and security as we conduct space operations.

USSPACECOM's Joint Commercial Operations (JCO) effort now includes eight commercial mission Partners in the Americas, Europe, and the Pacific. Altogether, they provide Space Domain Awareness information to the Joint Force, Allies, and Partner nations' warfighters. In October 2023, JCO provided early unclassified reporting on the separation of additional objects from the newly launched, Russian COSMOS 2570 satellite. JCO coordinated with commercial sensors ahead of this launch to track the orbital insertion. On October 30, 2023, JCO's Public Satellite Research and Analysis team was the first to alert the rest of the JCO to a possible separation event from COSMOS 2570. Afterward, the separating object appeared in the public satellite catalog as OBJECT C. In November 2023, JCO detected an object in the very early stages of separating from OBJECT C. They were able to track and analyze this newly separating object from commercial observations and publish it in a notice to space operators, which later was cataloged as OBJECT D. We must continue to build upon this fusion of commercial and military information to increase our understanding of actions in space.

USSPACECOM is also working closely with the DOC, whose personnel are now observing the U.S. Space Force's Space Delta 2 to learn how we perform Space Situational Awareness operations. This is a vital partnership as the DOC prepares to assume from the DOD the Space Situational Awareness and Space Traffic Management missions in support of

commercial and civil customers. USSPACECOM is committed to facilitating the seamless transfer of these missions to the DOC in the near future because it will allow us to focus on the military-unique aspects of Space Domain Awareness, and progress has been made toward finalizing necessary memorandums of agreement for the transfer of data, roles, and responsibilities between the organizations.

Tri-Seal Strategic Framework

On July 12, 2023, USSPACECOM co-signed a Commercial Space Protection Tri-Seal Strategic Framework with the National Geospatial-Intelligence Agency (NGA) and the National Reconnaissance Office (NRO) to better protect commercial remote space sensing assets and information vital to national intelligence. This key partnership will offset the efforts of our principal strategic competitors seeking to disrupt and challenge our ability to leverage space using commercial capabilities.

To mitigate such aggression and disruption in space, this Command leads the coordinated effort to share threat information with NRO-contracted commercial imagery providers and the NRO Operations Center for space events, counterspace threats, and indications and warning. The Tri-Seal Strategic Framework presents this organization and the DOD with superior information sharing and collective defensive capability with commercial space companies that have existing relationships with this Command, the NRO and NGA. With increased space activities, new and emergent space-faring nations, and space having become a contested, warfighting domain, our hybrid enterprise of governmental and commercial space systems and stakeholders represents the correct strategy of sharing information and improving our ability to defend commercial space for collective national security, scientific, and commercial interests.

NASA and Human Space Flight Support Improvements: Partners in Space

USSPACECOM is the lead military support agency to the National Aeronautics and Space Administration (NASA). In this capacity, we provide human space flight support and global airlift coordination. Our terrestrial rescue and recovery forces, provided by our Air Force Service Component, 1st Air Force, have supported every NASA crewed space flight since the Command's reestablishment.

Leveraging the collective strength of commercial, interagency, and academic enterprises has been critical to USSPACECOM since its establishment four and a half years ago. It will remain foundational to our success moving forward and its continued growth and development remains a key focus area for our command.

BUILDING AND MAINTAINING COMPETITIVE ADVANTAGE

Our principal space competitors – the PRC and Russia, along with other aggressive nation states and proxies – seek to hold at risk free access to space for the United States, our Allies, and our Partners. Therefore, we must develop and field capabilities to mitigate threats posed by space-enabled attack and by counterspace capabilities, and we must do so in a way that promotes integrated deterrence in accordance with the National Defense Strategy.

USSPACECOM has identified five priority requirements that are key to delivering our Unified Command Plan responsibilities: (1) resilient and timely operational C2; (2) integrated space fires and protection; (3) modernized agile electronic warfare architectures; (4) enhanced battlespace awareness for space warfare; and (5) cyber defense of space systems. Additional important objectives include investment in persistent and resilient intelligence, surveillance, and reconnaissance capabilities; communications and data transport capacity; enhanced global sensor management tools to include integrated tasking and data retrieval; resilient satellite C2 architecture at the tactical edge; and, improved operational intelligence. Absent commitment to

long-term investment in these integrated requirements, we risk ceding advantage to our principal strategic competitors in the space domain.

These five priority requirements address how this Command continues to build and maintain a competitive advantage. These new capabilities must deliver in a timely manner that encompasses all testing and training requirements so that USSPACECOM possesses improved capabilities. The prioritization of increased funding for the Space Force and other Services to deliver the space capabilities we need to support the Joint Force from space in the face of the growing threats now arrayed against us, and to protect the Joint Force from space-enabled attack, is paramount to USSPACECOM's 2027 delivery deadline. This will enable the Command to be ready for anticipated space security challenges and place new, critical systems into operations to provide policy makers and national leadership the necessary options for challenges and crises that may threaten long-term peace and prosperity.

Resilient, Timely Space Command & Control

Resilient, timely operational C2 is key to deterring and defeating hostile action in the space and the terrestrial domains. Space C2 enables us to protect our space capabilities from the threats we now face and protect the Joint Force from space-enabled attacks by an adversary. Rapid and robust communication between space activities, space assets, and partner Combatant Commands enables decisive action. The increasingly dynamic space environment requires a resilient C2 architecture to synchronize space forces and effects for space domain operations as well as in support of traditional terrestrial areas of operations. Congress's continued investment in this Command, the Services' space C2 programs, as well as the Consolidated Space Operations Facility, addresses that need and will remain critical moving forward.

Integrated Space Fires and Protection Capabilities

The services provided by space-based assets have become foundational to modern life and the way the Joint Force operates. These capabilities face rapidly increasing risk from our principal competitors. Although conflict is not inevitable and while we remain staunchly committed to peaceful competition and deterring conflict, it is prudent and necessary to expand our ability to protect and defend critical space assets. Integrated fires, across all domains, synchronized in timing represent an increasingly foundational capability for USSPACECOM's pivotal role in national security. Investment in this area must be wide reaching and interweave both defensive systems and the capability of commercial partners to achieve mass and scale, and we must deliver and present these capabilities on a meaningful timeline – by 2027.

Modernized, Agile Electronic Warfare Architectures

A modern and agile electronic warfare architecture is vital to protect U.S., Allied, and commercial assets from interference or outright attack while preventing an adversary's hostile use of space. Investments in space electromagnetic warfare will enable the Joint Force to protect space-based critical communications and intelligence capabilities while presenting Joint Force commanders a wide array of deterrence options within the space domain. Congress's continued support of a modern suite of electromagnetic spectrum capabilities is vital to the protection of key U.S., Allied, and Partner interests.

Enhanced Battlespace Awareness for Space Warfare

USSPACECOM increasingly relies on a near-real time, comprehensive understanding of the congested and complex space operational environment. Space Domain Awareness data, operational C2 automation, and incorporation of artificial intelligence/machine learning capabilities will allow us to better understand and outpace the threat in our unique area of responsibility. This critical task requires more accurate, robust, resilient, and timely Space

Domain Awareness and operational intelligence data from all interoperable sensors. This will produce highly accurate, rapidly available detection, tracking, and characterization of space objects, regardless of their origin. Legacy Space Domain Awareness systems are disaggregated and lack the agility to meet the need for increasingly dynamic tasking. Congressional funding of programs to enhance battlespace awareness for contested space operations is crucial to ensuring the Command can best protect and defend our vital space assets.

Space Systems Cyber Defense

Digital superiority is key to building and maintaining our competitive advantage for the space domain. The PRC, Russia, and other cyber actors work tirelessly to infiltrate our defense industrial base, academic research, mission equipment, and military networks. These strategic competitors and actors seek to monitor and exfiltrate data, and reduce, degrade, and deny our ability to command, control, and communicate with on-orbit space assets and supporting ground systems. The compromise or loss of U.S., Allied, or Partner space systems would degrade our ability to conduct operations in space and support operations in the terrestrial domain. Much of the digital infrastructure for these space mission systems requires modernization. Given the dynamic and constantly evolving nature of our adversaries' offensive cyber capabilities, we must rapidly develop, deploy, and maintain proactive cyber defense capabilities to effectively respond to and deter adversarial malicious cyber actions while also outpacing them in the cyber domain. We will continue to collaborate with the U.S. Space Force on their plans to strengthen cyber requirements and cyber defenses of our vital space systems, as well as working with the other Services, U.S. Cyber Command, Combat Support Agencies, and other government partners to deploy and integrate defensive cyber systems and tactics to maintain safe, secure, and reliable

network operations. Increased funding for cyber experts, cybersecurity systems, and persistent defensive cyber capabilities is critical to maintaining dominance in the space and cyber domains.

Planning and Operational Support to Trans-Regional Missile Defense

USSPACECOM was tasked with trans-regional missile defense planning and operational support in April 2023 via the updated Unified Command Plan. The transfer was the culmination of a comprehensive study on the roles, responsibilities, and authorities associated with the missile defense enterprise and represents an alignment to the 2022 Missile Defense Review. The Joint Functional Component Command for Integrated Missile Defense is well integrated into USSPACECOM's formation and will help ensure the nation approaches trans-regional missile defense in the most effective, collaborative manner. Moving forward, development and inclusion of multi-use or expanded sensors will increase resiliency of this critical network, and USSPACECOM is working with the Missile Defense Agency and the Services to bring this to fruition.

Rapid Reconstitution and Resilient Space Architecture

The trajectory of our strategic competitors' actions necessitate we build capacity and resiliency to defend our critical space systems to preserve freedom of action in space. A key portion of this resiliency will be the ability to rapidly reconstitute key components when necessary. We continue to examine the resiliency of the space enterprise. We will identify and articulate strengths and weaknesses of our current architecture, challenges to interoperability, and limitations of current policy. We are examining end-user interfaces, terrestrial systems, and communications links to orbital assets. In collaboration with the Services, other Combatant Commands, and our Allies and Partners, USSPACECOM is developing the requirements for a

modern, integrated space architecture capable of operating in an increasingly contested space environment.

USSPACECOM's exercises and wargames challenge participants to develop new ways of thinking about space operations and addressing future crises. Our space exercise GLOBAL SENTINEL-24 involved 25 national participants, plus three observer nations and one multi-national organization. Another USSPACECOM exercise, NIMBLE TITAN, enhances trans-regional missile defense and stimulates international cooperation while strengthening integrated deterrence. Twenty-five member states and three international organizations will participate in the capstone NIMBLE TITAN exercise for 2024.

Our operational C2 requirements begin with our ground segment, ensuring critical operational nodes have reliable and adequate redundant capabilities, including back-up facilities or contingency operations sites and a mobile augmentation capability. New space systems and programs should pursue spiral software upgrade methodology to better protect our link segment and ensure new capabilities and vulnerability mitigation can be implemented in a rapid and continuous fashion. Finally, satellite development must continue including autonomous defensive capabilities, such as auto-maneuver, system load shed protections, and on-board electromagnetic pulse detection and protection capabilities.

Dynamic Space Operations

On-orbit refueling, in-space assembly, modular hardware change-out, and urgent orbital resupply would enable dynamic space operations and change how this Command achieves and maintains space superiority. Legacy space systems, constrained by the technological limitations of their time, were launched to space with only the fuel and payloads they would have for their lifetimes; thus, they have minimal operational maneuverability, flexibility, or inherent defensive

capability. Modern systems, beginning today, must provide greater flexibility through maneuver, upgradability, or re-supply. Dynamic space platforms purpose-built to support space maneuver will provide far greater capability and capacity to deter, surprise, maintain initiative, and conduct other operations required today and in the near future. The PRC is moving forward in this area. The urgency with which we must approach, and appropriately fund, this critical endeavor cannot be overstated.

SHAPING THE FUTURE FOR VICTORY

Through our assigned professionals and network of key stakeholders, USSPACECOM will continue to fulfill our vital role to protect and defend an essential domain for maintaining national and global security, while continuing to support the Joint Force, the Nation, and our Allies and Partners with space capabilities. All humankind benefits from space-enabled capabilities and resources. As we receive the new capabilities funded by Congress, USSPACECOM will continue to ensure integrated deterrence alongside our teammates in the Joint Force and our expanding team of Allies and Partners, and, when directed, decisively defeat any aggression that threatens our national security interests in space. A keystone of our national security strategy now rests 100 kilometers above Earth, underpinned by the assumption that we will maintain free access to and freedom of action in a secure and stable space domain. Our national security and our way of life depend on our continued leadership and enduring advantage in this critical area of responsibility. But to be clear, given the threats now arrayed against us in space, we will not sustain the freedom of access and action we require in space unless we are prepared to defend those freedoms.

The delivery of essential space capabilities and capacities will provide this Command with the ability to attain an enduring advantage over any otherwise determined adversary

aggressive enough to threaten the stability, safety, sustainability, and security of space. We cannot attain an enduring advantage without the rest of the Joint Force, interagency stakeholders, our Allies and Partners, along with commercial and academic development and collaboration. We cannot attain an enduring advantage without recognizing the threatening aspirations our principal strategic competitors have to hold at risk our space interests, to include denying us the freedom to access and operate in the space domain. Finally, we cannot attain an enduring advantage without continued dedication, support, and initiative from our brave military and civilian workforce, their families, and the policymakers representing our nation along with those of our Allies and Partners. USSPACECOM deeply appreciates Congress's continued support to our vital national security mission.