

UNITED STATES SPACE COMMAND

PRESENTATION TO THE SUBCOMMITTEE ON STRATEGIC FORCES
HOUSE ARMED SERVICES COMMITTEE
U.S. HOUSE OF REPRESENTATIVES

SUBJECT: United States Space Command's Role as the Global Sensor Manager

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Introduction

Chairman Cooper, Ranking Member Lamborn, and distinguished members of the House Armed Services Committee's Subcommittee on Strategic Forces, thank you for the opportunity to represent United States Space Command (USSPACECOM) on the topic of our Unified Command Plan assigned task as global sensor manager, and the relationship between our efforts in that task and our broader operational efforts on space domain awareness, missile warning, and missile defense of the United States and our allies.

The President has assigned USSPACECOM the specific responsibility to serve as the global sensor manager. As the global sensor manager, USSPACECOM leads the planning and coordination efforts of sensors across combatant commands, U.S. Government Agencies, and our partner nations. USSPACECOM is uniquely suited to maximize the employment of multi-role capable sensors, both terrestrially and on orbit, contributing to our understanding and awareness of threats in space, while also supporting missile warning and missile defense missions. Although United States Strategic Command (USSTRATCOM) retains the responsibility for global missile defense, global sensor management is a critical enabling function for responding to today's increasingly complex and pervasive threat environment. Global sensor management plays an integral role in deterrence by denial, which helps achieve the National Defense Strategy's priorities of defending the homeland, deterring strategic attacks, and deterring aggression.

USSPACECOM's Role as Global Sensor Manager

In USSPACECOM's role as the global sensor manager, the command is tasked with the responsibility to plan, manage, and oversee the operations of all assigned space domain awareness, missile defense, and missile warning sensors in order to provide the necessary data

that enables Department of Defense and Inter-Agency decision superiority. Moreover, the global sensor manager is tasked to coordinate with all Combatant Commands (CCMDs), U.S. government agencies, and with our international partners to integrate the fullest range of sensors capable of contributing to space domain awareness. The unified integration of these systems across CCMDs provides consistent awareness of both terrestrial and space-based threats, 24 hours a day, 365 days a year.

Environment

The 2022 Missile Defense Review emphasizes—the evolving air and missile threat environment is one of the main challenges to U.S. national interests. A critical component in countering these threats is first understanding our adversaries. Consequently, one of the key tasks for the Commander of USSPACECOM (GEN James Dickinson), and U.S. Space Command’s top requirement, is to understand our competition. This includes expanding our space domain awareness—which allows the Command to identify, characterize, and attribute threats—through an array of traditional and non-traditional sensors capable of enhancing vital space domain awareness, missile warning and missile defense functions.

Our adversaries are evolving, diversifying, and proliferating their inventories of advanced missiles and technologies that can threaten both the U.S. homeland and our interests around the globe. Hypersonic glide vehicles, fractional orbital platforms, and hypersonic cruise missiles pose diverse threats complicating targeting and tracking. China is the pacing challenge, and it is rapidly expanding its missile capabilities with an emphasis on hypersonic platforms, as well as orbital and maneuverable reentry vehicles (like the one they tested on July 27, 2021) complicate the sensor tracking function. Russia’s large strategic arsenal and continued upgrades to its ballistic and cruise missile arsenals, alongside their nuclear weapons, pose a significant strategic

threat designed to stress our sensors and our defensive postures. In light of Russia's recent actions in the Space and Terrestrial Domains, and aggressive posturing, the threats they present take on increased significance. Finally, rogue actors like North Korea and Iran continue to expand their offensive strategic capabilities, developing hypersonic, ballistic, and cruise missiles to threaten the U.S. homeland, our deployed forces, allies, and partners.

This environment demands integrated missile warning, space domain awareness, and missile defense solutions to enable globally persistent space and missile threat tracking. The complexity of the threats we face means we can no longer think in terms of "a linear kill chain" where one sensor identifies a threat and relays it for prosecution to a single weapon system. Rather, we must face our challenges with "kill webs" where a multitude of sensors around the globe and on-orbit identify targets, retain custody, and pass data through integrated command and control systems to enable in time engagement by the best-suited weapon system. These sensors may be theater or strategic level sensors and their seamless integration is where USSPACECOM's role as global sensor manager enables flexibility and rapid decision making for missile warning, missile defense, and space defense functions.

USSPACECOM's Technical Sensor Contributions

USSPACECOM's assigned sensors are a critical enabler to all CCMDs and national-level military command centers reliant on space domain awareness, missile warning, and missile defense capabilities. The preponderance of these assigned sensors perform missile warning, missile defense, and space domain awareness missions simultaneously; however, the same is not typically said for the majority of purpose built, missile defense sensors that are also capable of contributing to USSPACECOM's space domain awareness mission; often referred to as non-traditional sensors. For example, in our role as the global sensor manager, and in partnership

with other CCMDs, the Space Development Agency, and the Missile Defense Agency (MDA), we demonstrated how regional missile defense sensors can and should be used for more than one function in order to maximize their technical potential. Traditional missile defense sensors are capable of augmenting missile warning sensor coverage and have proven their value in support of detecting and tracking space threats entering, transiting, and reentering from the space domain. While we leverage both terrestrial and space-based systems to provide missile warning, missile defense, and space domain awareness, we do not require tactical control of another CCMD's assigned assets to execute these missions.

USSPACECOM's sensors like the Space-Based Infrared System (SBIRS) and Defense Support Program satellites provide the first alert of a missile launch from anywhere on the planet to all CCMDs, the National Military Command System, national leaders, and select international partners. This initial alert tips and cues USSPACECOM's and other CCMDs' sensors through theater and homeland defense communications architectures. Those communication architectures connect USSPACECOM's space-based warning segment to the USSPACECOM and Department's terrestrial warning and defense sensors for the purposes of theater and homeland missile defense. Near term proliferation of these architectures and capabilities by the Department is critical in our future approach. Proliferation in times of war adds resilience to essential capabilities; in times of peace, resiliency is cost imposing on our competitors' attack strategies and critical to integrated deterrence.

USSPACECOM is actively working with other CCMDs and Agencies to leverage existing sensors to contribute to the space domain awareness mission. Operators of the AN/TPY-2 Sea-Based X-Band Radar and Aegis Combat System demonstrated the capability to support our collective understanding of events and activities in the space domain in both exercise and

real-world operations. In coordination with other CCMDs and Agency partners, we are actively testing technical solutions so that both the supported CCMDs' mission(s) and USSPACECOM's space domain awareness mission are enhanced. Additional fusion of other intelligence disciplines through our close cooperation with the Intelligence Community helps further improve our understanding of the space domain and our competition.

Additionally, USSPACECOM is working to leverage commercial space domain awareness partnerships. American commercial innovation is an asymmetric advantage that our competitors do not possess, and commercial companies are providing unprecedented capability in support of our response to the ongoing Russian invasion of Ukraine. The USSPACECOM Commander recently released a commercial integration strategy outlining how the command will work with commercial partners to improve space domain awareness and other capabilities.

Coordination with Other CCMDs and Agencies

USSPACECOM is in close partnership with U.S. Northern Command (USNORTHCOM), USSTRATCOM, and other agencies as we provide exquisite global sensor management capabilities. In the past year, our team broke down barriers in support of our nation's collective warning and defense interests. Admiral Charles Richard, Commander of USSTRATCOM, explained in his 20 April 2021 testimony before the Senate Armed Services Committee that after USSPACECOM's assumption of global sensor manager responsibilities, he receives better missile warning and missile defense data and more efficient utilization of existing assets. Moreover, our integration with USNORTHCOM on missile warning and missile defense provides seamless sensor coverage in support of the homeland defense mission. In addition to our CCMD's support functions, the global sensor management role continues to expand our relationship and integration with allied nations and organizations such as NATO who are reliant

on us more today than they ever have been before.

Additionally, USSPACECOM and U.S. Cyber Command (USCYBERCOM) integrate daily to protect against growing cyber threats to our operations. USSPACECOM established a Joint Cyber Center at the headquarters to help prioritize digital superiority and embedded a Joint Integrated Space Team at USCYBERCOM to synchronize planning efforts. The command is harnessing current and emerging technologies, leveraging commercial innovations, and applying interoperable and secure data to achieve digital superiority. Through these efforts, we help increase the cost calculus of our competitors and contribute to our integrated deterrence goals.

Beyond our daily coordination in response to real world operational demands, USSPACECOM also regularly participates in advanced, coalition-integrated global and regional exercises and war-games to build and test our sensor management processes. Exercises like GLOBAL LIGHTNING, GLOBAL THUNDER, AUSTERE CHALLENGE, and PACIFIC FURY provide opportunities to exercise our sensors and management capabilities, and train our crews in this complex environment, while also preparing the Joint Force, allies, and partners to better leverage the global sensor management capabilities USSPACECOM can provide. USSPACECOM demonstrated our sensor management and other operational concepts by executing Exercise SPACE LIGHTNING, our own tier one, multi-combatant command exercise in Fiscal Year 2022.

Today's Sensor Architecture and Building Future Capabilities

The confluence of global sensor manager responsibilities with missile warning and missile defense will also help us advocate for an integrated and efficient solution that modernizes and recapitalizes our aging sensor architecture. We face a continuing challenge of keeping pace with evolving threats and technologies while ensuring our sensor architecture components - such

as ground-based radars and SBIRS - remain optimized and modernized with key technical software and hardware upgrades. The challenge of sustaining and upgrading 20th Century sensors that are increasingly obsolete and hard to maintain remains a difficult one. The existing portfolio of aging terrestrial and space-based sensors which are the workhorses of our architecture is both driving us to pursue the fielding of new capabilities in the future and requiring us to leverage and integrate legacy sensors in support of critical warning and active defense functions right now. This is consistent with the Secretary of Defense's 2020 Defense Space Strategy approach which requires we enhance existing capabilities in order to gain and maintain strategic and operational advantages.

Research and development efforts such as continued funding of next-generation, space based and terrestrial sensor systems are key to ensuring we keep pace with evolving adversary threats across all domains. Moreover, these capabilities must be resilient, and we must be able to defend and reconstitute them to achieve the space and cross-domain mission assurance required by the future Joint Force. Space systems provide valuable solutions to layered tracking and discrimination capability for terrestrial threats while terrestrial systems provide valuable solutions to tracking and characterization of friendly or nefarious activities in space. A space tracking and characterization constellation combined with next-generation, Overhead Persistent Infrared systems would provide the significant improvements necessary to detect advanced threats. Future space-based sensors must be able to detect, track, characterize and target hypersonic glide vehicles and ballistic missile threats globally. We cannot fully achieve these abilities solely with terrestrial-based radars due to the constraints of geography and the characteristics of future missile threats, so a space sensor layer integrated with a web of terrestrial sensors is critical to defeating these advanced and evolving threats.

Whether future systems exist in the orbital regime, air, land, or sea, they must possess multiple mission or mission area capabilities and be interoperable in a joint environment. Space-based and terrestrial sensor architectures must be capable of supporting the space domain awareness, missile defense, and missile warning missions simultaneously. Their disparate data must be fusible and displayable to allow decision makers to act on the best available and relevant information. Only through achieving this goal can we expect to maintain our edge throughout the spectrum of competition to conflict.

USSPACECOM strongly endorses continuing work with the developing agencies on systems such as the MDA's Long-Range Discrimination Radar, the Space Development Agency's Tracking Layer Satellites, and the MDA's Hypersonic and Ballistic Missile Tracking Space Sensor. We continue to work across the Department to integrate into the Joint Warfighting Concept and leverage systems like Joint All-Domain Command and Control, and the Command and Control, Battle Management and Communications (C2BMC) system in support of the space domain awareness mission. We are also working to integrate Space Surveillance Network sensors into C2BMC to greatly enhance our battlespace awareness. This multi-mission system provides USSPACECOM greater flexibility as the global sensor manager and is critical in integrating the missile warning, missile defense, and space domain awareness missions.

Conclusion

USSPACECOM's team of outstanding service members, civilians, and contractors work every day to integrate within the Department of Defense as the global sensor manager. We provide unmatched support to missile warning and missile defense through the optimization of existing sensors and we appreciate Congress's support as we develop the next generation of advanced terrestrial and on-orbit capabilities. USSPACECOM also advances the use of

traditional missile warning and missile defense sensors for space domain awareness facilitating the Command's protect and defend mission in space, while providing additional capability in countering advanced missile threats. Under the direction of the President and Secretary of Defense, and with the support of Congress, USSPACECOM is prepared to provide global sensor management in support of missile warning, missile defense, and space domain awareness to ensure there is never a day without space.