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SENATE ARMED SERVICES COMMITTEE

STATEMENT OF
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BEFORE THE SUBCOMMITTEE ON STRATEGIC FORCES
SENATE ARMED SERVICES COMMITTEE
ON SPACE POSTURE

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Mister Chairman, Senator Sessions, and distinguished Members of the Subcommittee, I am honored to be here today for my second opportunity to appear before you as United States Strategic Command's (USSTRATCOM) Commander of the Joint Functional Component Command for Space (CDR JFCC SPACE).

It's a distinct privilege to address you on our space posture, and to represent the men and women of JFCC SPACE who employ space capabilities around the globe every day. These Soldiers, Sailors, Airmen, and Marines are a dedicated and innovative joint force, working hard to conduct efficient and effective space operations. Their professionalism ensures our joint forces can exploit space-based capabilities to the maximum extent.

I know this subcommittee is fully aware of the growing importance of space capabilities to our National security, as well as to our National economic element of power. So rather than belabor those points, today I will focus on our efforts to improve employment of our vital space capabilities, and identify some of the challenges we face as we work to meet National and Combatant Commander objectives.

EMPLOYMENT OF SPACE CAPABILITIES

CDR JFCC SPACE is designated by CDRUSSTRATCOM as the single point of contact for military space operations. As such, I am tasked to provide tailored, responsive, local and global space effects to the various Combatant Commanders. My USSTRATCOM-delegated authorities include Global Space Coordinating Authority, which makes me the primary interface with supported joint commanders for operational-level planning and execution to provide space effects in support of those Combatant Commanders' objectives. CDR JFCC SPACE also is assigned Operational Control (OPCON) and Tactical Control (TACON) authorities for designated worldwide space forces. These authorities provide USSTRATCOM a single, globally focused component commander to enhance

functional integration of space capabilities for the joint warfighter and for the Nation.

Over the last year, JFCC SPACE made huge strides in operational space employment by consolidating previously separated elements of the Joint Space Operations Center (JSpOC). The centerpiece was the move of the 1st Space Control Squadron (1 SPCS) and Unified Space Vault (USV) from Cheyenne Mountain to Vandenberg AFB. 1 SPCS, in particular, plays a key role in Space Situational Awareness (SSA) by planning, tasking, and directing the Space Surveillance Network as part of the JSpOC. This transition, coupled with the JSpOC's relocation to a new facility, created opportunities to integrate the total package of space command and control functions and lays the foundation for future modernization. The payoff from these moves was clearly demonstrated during the recent NRO satellite intercept as planning and direction of ground radars and space assets resulted in seamless integration to provide target vectors for the shooter, and enabled quick characterization and reporting of the success of the event. We continue to vigilantly track the debris generated by the intercept, which will allow us to predict its reentry and ensure safe launch and on-orbit operations.

CHALLENGES

Our number one operational need is for improved SSA capabilities. SSA is the understanding of the space medium to include tracking all manmade objects in space, discerning the intent of others who operate in space, knowing the status of our own forces in real-time, and understanding the natural environment and its effect upon space operations – simply stated, SSA is foundational for all space operations. By fusing intelligence on potential adversaries, space surveillance information on all space systems in orbit, status of friendly systems, and space weather, we will be able to not only know what objects are in space and where, but we will also understand

the purpose of these objects, their capabilities, and their owners' intent. This comprehensive knowledge enables decision makers to rapidly and effectively select courses of action to ensure our sustained freedom of action in space.

The January 2007 Chinese test of an anti-satellite (ASAT) capability continues to shape our future planning by tangibly demonstrating the potential vulnerability of our space assets. This irresponsible space operation by the Chinese left over 2,300 pieces of orbital debris that we're still tracking, and tens of thousands of likely smaller pieces our sensors can't track. Only 25 items have reentered so far, with the remainder expected to be in orbit for decades. This debris will slowly decay due to natural forces and will remain a hazard to manned and unmanned spaceflight in low earth orbit, or transiting low earth orbit on the way to higher orbits. In contrast, over 99% of the debris from the recent intercept of the NRO satellite will reenter the atmosphere within approximately three months.

We've derived many lessons from the Chinese ASAT event, chief among them being the tremendous wealth of SSA data available, albeit in many disparate systems and security channels. It took the heroic efforts of many to manually assemble this information ad hoc, then pass it to senior decision makers. While we were very successful in this case due to the outstanding cooperation between the intelligence and operations communities, we clearly need improved processing and analytic systems that continually compile and automatically fuse SSA information in real-time to keep us abreast of space events. Our lessons learned from the Chinese test will continue to guide our future improvements and developmental efforts for the JSpOC.

Every significant military operation uses space capabilities in some way – these ubiquitous capabilities are truly integral to military operations in the 21st century. Also, there is a tremendous National economic impact from commercial space systems that provide many crucial services to the

American public - services the public relies on and has come to expect. However, it is clear our operating environment is changing.

Access to space and space products becomes cheaper and more widely available every year. The commercialization of space has allowed many developing nations and non-state actors to acquire space-based capabilities such as imagery and satellite communications that were previously the exclusive purview of superpowers. With more space players, space is more crowded than ever - we currently track over 18,000 man-made objects, to include everything from active satellites to debris. The potential for a catastrophic collision in space increases as the number of objects increase. Finally, the kinetic ASAT threat is not the only threat to our space assets. The capacity to jam satellite communications links is within the capability of many nations, as well as non-state actors. Space-related ground sites can be damaged by direct attack. Several nations are working on high-energy lasers that could damage or destroy our satellites. The potential proliferation of nuclear weapons is also a threat to space systems. Such a device could cripple our space assets with the persistent effects of an exo-atmospheric electromagnetic pulse. With the exception of the high-energy laser, all of these threats to our satellites exist today. Clearly, we can no longer view space as a sanctuary.

Our Nation's growing dependence on space-based capabilities, coupled with the increasing risks we face, creates corresponding potential economic and military vulnerabilities. Therefore, we must protect our space assets against intentional and unintentional acts in order to preserve our essential space capabilities. Solid protection also requires us to have the ability for rapid recognition and attribution of space events - the prerequisite that enables full consideration of response options. Thus, the basis for an adequate protection capability is robust SSA. In the future a decision maker's ability to quickly answer the "who, what, when, where, how, and why"

questions will not only help determine the proper course of action, but is the necessary foundation for deterring potential adversaries from hostile acts against our space assets.

Other needed improvements to our SSA capabilities include networked sensors and information systems that seamlessly share information to more effectively use our current resources, and allow future sensors to "plug and play." Our array of radar and optical space surveillance sensors around the world provide acceptable coverage in the northern hemisphere, but we have an exploitable lack of coverage in the southern hemisphere. This gap greatly increases the time required to characterize new payloads and maintain awareness, or "custody," of maneuvering spacecraft. Finally, we need the ability to track and assess smaller objects if we are to keep pace with the potential threats that stem from the emergence of small satellite technologies, and to gain better awareness of the hazards posed by small space debris. For the reasons cited above, SSA improvements are a top priority within Air Force Space Command.

The increasingly threatened, highly dynamic environment of space requires us to build more automated, net-centric capabilities to command and control space forces. Along with essential SSA, we will need the ability to act rapidly. Events in the space domain unfold quickly, often at the speed of light. Our playbook must be ready to go, with modeling and simulation tools, decision aids, and operator alerts forming the automated solutions. Rather than the labor-intensive command and control processes we currently use, machine-to-machine interfaces must enable decision makers to quickly and accurately assess the situation, and promptly direct actions.

CONCLUSION

The nature of space operations is rapidly evolving. The United States' absolute dependence on space across our military, civil, and commercial

sectors, coupled with the increased and diverse threats to our space assets, requires improved SSA and command and control capabilities to ensure our ability to effectively operate in an increasingly dynamic environment. This is an exciting time in the evolution of Joint Space Operations and I am truly honored to be leading such a talented group of men and women as they expertly tackle the challenges we face every day. I thank the subcommittee for your continued strong support as we work to preserve our vital space capabilities for the Nation.