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SENATE ARMED SERVICES COMMITTEE
STRATEGIC FORCES SUBCOMMITTEE

STATEMENT OF
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MILITARY SPACE PROGRAMS HEARING

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Introduction

Mr. Chairman, distinguished members of the Subcommittee, we are honored to appear before you today to address the Navy's space activities. Successful Naval operations in the 21st Century demand increased global situational awareness and proficiency in the areas of intelligence, cyber defense, ballistic missile defense, information management, and space. To achieve this primacy, the Chief of Naval Operations (CNO) directed the realignment of his staff a year ago to bring all Navy information-related capabilities and systems under a single resource sponsor – the Deputy Chief of Naval Operations for Information Dominance. In the area of space, the OPNAV N2/N6 Information Dominance Directorate has established a single focal point to oversee Navy's space related policies, programs, requirements, investments, and resourcing. Fleet Cyber Command/U.S. Tenth Fleet, established over a year ago to be the Navy's operational lead for information and cyberspace, continues to execute Navy's space operations today.

Our maritime strategy demands a flexible, interoperable and secure global communications capability to support the command and control requirements of highly mobile, geographically dispersed U.S., joint and coalition forces. Our satellite systems provide a decisive advantage to our deployed forces across the broad spectrum of military operations, from peacetime engagements to humanitarian relief efforts to major combat operations. The Navy relies upon space-based capabilities to achieve information dominance over potential adversaries and enable commanders to exercise effective command and control at all warfare levels and across multiple information enclaves in all domains.

Navy Space Requirements

The Navy's interests in space include communications, intelligence, surveillance, reconnaissance, positioning, navigation, timing, missile warning, meteorology, and oceanography capabilities. The Navy continues to engage with the other services and our interagency partners to ensure that all of our space equities, interests, and requirements are well understood so that the combatant commanders and Navy's operating forces have the space capabilities they need to succeed in their missions.

The Navy remains *critically dependent* on space to conduct not only its wartime mission, but also its core capabilities of forward presence, deterrence, sea control, power projection, maritime security, humanitarian assistance, and disaster response. Space capabilities are vital to our nation's maritime operations and are foundational to our ability to operate in a networked and dispersed manner. As the recently signed Navy Space Strategy states, space provides the ultimate crow's nest for maritime operations.

The Navy's mission of ensuring the security of our citizens at home and abroad requires a global reach and persistent presence. Our ability to conduct missions of mercy or rapidly deploy decisive combat power, in concert with the other Services and our coalition partners, depends on assured space capabilities with inherent flexibility and responsiveness to support our worldwide responsibilities. In accordance with the National Space Policy and National Security Space Strategy, commercial and foreign partner capabilities have become increasingly useful in bridging the gap between requirements and capabilities. The Navy will continue to work with the commercial sector and foreign partners to explore options that address multiple maritime mission requirements. Decisions to exploit these partnerships, though, must include consideration

of the information assurance risks inherent in the capabilities being employed. Further, these decisions must be based on feasibility and affordability assessments and cost, benefit, and risk analysis.

Due to the long lead times involved in fielding complex space programs, it is essential that Navy requirements and maritime missions are factored into the pre-launch design and planned on-orbit operation of future satellite acquisitions. The Navy is actively engaged with key national and joint space-related organizations to ensure current and future Navy needs in space are identified and incorporated. Further, we welcome the opportunity to participate in the recently chartered Defense Space Council as a senior-level forum to discuss Navy space equities with the Office of the Secretary of Defense, the Intelligence Community, and the Services who are represented at the Secretary and Under Secretary level.

Navy Space Investments

Nearly 50% of Navy's current fiscal contributions to space remains dedicated to the acquisition, development and management of the Ultra High Frequency (UHF) Follow-On (UFO) and Mobile User Objective System (MUOS) communications satellite systems. The remainder is predominantly apportioned to acquisition of the various satellite receiver terminals and equipment for Navy units, and space-based navigation, oceanography, and meteorology.

Additionally, the Navy invests in space-related Science and Technology / Research and Development efforts that address maritime-related capability gaps critical

to the successful execution of our nation's maritime strategy. In this fiscally-constrained environment, investments have been modest.

The Navy depends on space capabilities now, and expects the demand for space capabilities to grow in the future, especially in the area of satellite communications (SATCOM). The Navy's major space segment responsibility to the joint community is the UHF narrowband satellite communications constellation. Today this constellation consists of eight UFO satellites, two residual Fleet Satellites (FLTSAT), one Leased Satellite (LEASAT-5), and leased capacity on SKYNET-5C. MUOS will begin to replace these systems in May 2012. Based on evolving warfighting concepts, UHF satellite communications requirements are expected to grow, and MUOS, as designed, will support those requirements.

Mobile User Objective System (MUOS)

The increasing joint demand for SATCOM access at ever-higher data rates requires moving beyond current legacy UHF satellite capabilities. MUOS will help satisfy those demands when initial operational capability is reached in FY2012. The first satellite in the planned constellation of four operational satellites, with one on-orbit spare, is now scheduled for on-orbit capability in May 2012. Previously, Navy planned for the first MUOS satellite to achieve on-orbit capability in December 2011; however, the launches of several higher priority spacecraft have dictated a primary launch date in February 2012. Over the past year, the MUOS program made significant progress completing electromagnetic interference testing of spacecraft #1, propulsion and satellite bus mating of spacecraft #2, and development of the ground infrastructure required to

support MUOS launch. MUOS program performance continues to support a Fall 2011 launch should a date become available. Navy's FY 12 budget submission continues our investment in MUOS to replace the aging UFO constellation.

MUOS will support Unified Commands and Joint Task Force Components, DoD and non-DoD agencies, and our coalition partners by providing worldwide tactical narrowband netted, point-to-point, and broadcast voice and data services in challenging environments, including double-canopy foliage, urban environments, high sea states, and all weather conditions. MUOS will carry two distinct payloads. The legacy UHF payload will provide the capability of a UFO satellite, while a new UHF waveform payload will significantly increase the number of accesses while also increasing available throughput to the warfighter.

MUOS will be the common denominator for future command and control, enhancing the capability to communicate from the tactical edge to theater headquarters. MUOS will allow more comprehensive and coordinated support to regional engagement efforts, providing the capability to synchronize actions with other Services and agencies. This capability will be realized through the fielding of MUOS capable Joint Tactical Radio System (JTRS) terminals and by upgrading existing legacy UHF software programmable terminals.

Delivering MUOS

The timely delivery of MUOS is a high priority for Navy, and we recognize both our responsibility and commitment to providing this vital warfighting capability to all our DoD, Intelligence Community and Interagency partners. The delay in delivery of the

MUOS system, coupled with the age and fragility of the current UHF satellite constellation, has our full attention and focus.

Navy has taken several proactive steps to minimize the operational impact if a gap in UHF satellite availability occurs. We have completed a payload reconfiguration on UFO satellite Flight 11 that significantly increased the number of available channels. We completed this action at no cost and with very low risk to the spacecraft. A recent modification to the frequency plan on FLTSAT 8 allowed us to optimize the UFO satellite Flight 7 and provide two additional channels at no cost. Additionally, the Navy continues to lease supplemental UHF resources from two commercial satellite systems, LEASAT and SKYNET. Our total mitigation efforts to date are providing the equivalent capacity of an additional UFO satellite. Navy has also explored options using commercially hosted payloads, but all possible material solutions would not address potential near term gaps. We will keep these options in reserve if their use becomes necessary.

We are also continuing efforts to make more efficient use of our currently available satellite resources. The Integrated Waveform (IW), a software upgrade to UHF SATCOM tactical terminals and control system, completed operational testing and is currently being deployed. IW will optimize our use of UHF satellite channels by doubling the number of accesses that can be supported by a single 25 kHz channel. DoD has also signed a Memorandum of Understanding with the Australian Ministry of Defense (MOD) for use of channels on an Australian-hosted payload covering the Indian Ocean region. In exchange, the U.S. will provide the Australian MOD use of equivalent UHF SATCOM accesses in the Pacific Ocean region commencing in 2018. Finally, we

are exploring the use of TACSAT-4, an ONR and NRL co-led development that supports Operationally Responsive Space Office efforts. TACSAT-4 may provide a very limited operational capability when it reaches on-orbit capability later this summer.

Environmental Remote Sensing

The Navy provides DoD with global atmospheric modeling, and global and regional ocean modeling. We rely on partnerships with the Air Force, and civil and international agencies to meet our space-based environmental sensing requirements. Meeting these requirements is critical to the execution of missions that enhance safe, effective military operations. For our future, the Navy is engaged in defining the requirements for the DoD Defense Weather Satellite System (DWSS) and the National Oceanic and Atmospheric Administration's (NOAA) Joint Polar Satellite System (JPSS), which will together satisfy a large portion of the Navy's environmental sensing requirements over the next 15 years.

In support of the new National Space Policy, the Navy is adopting a new strategy to meet its unique space-based ocean altimetry requirements. We have deferred procurement of the Navy Altimeter satellite (GFO-2) until FY16 with full operational capability achieved in FY21. In the interim, the Navy is seeking to enter partnerships with civil and international agencies to satisfy our altimetry requirements.

Positioning, Navigation, and Timing (PNT)

The Navy continues to rely upon the Air Force's Global Positioning System (GPS) to meet the vast majority of our PNT requirements. The Navy intends to award a

contract this year for the GPS-based PNT Service (GPNTS) which will modernize our aging shipboard PNT systems and provide enhanced PNT assurance by implementing jam-resistant antennas, a Selective Availability Anti-Spoofing Module (SAASM), and a foundation for future M-code implementation. The Navy is also investigating the impact of a GPS-challenged environment on maintaining synchronized timing across our full suite of combat and communications systems.

The Navy is continuing the technology development phase of the Joint Milli-Arcsecond Pathfinder Survey (JMAPS) satellite, transitioning from Science & Technology to a major acquisition category (ACAT) program, which will update the DoD star catalog to meet positioning and orientation accuracy requirements for the next several decades.

Intelligence, Surveillance, and Reconnaissance

A robust architecture of signals and geospatial intelligence systems to meet current and emerging requirements remains crucial to successful maritime operations. It is imperative that Intelligence, Surveillance, and Reconnaissance capabilities be funded and fielded in sufficient quantity and capacity to sustain continuity of essential space-based intelligence data throughout the maritime domain. Accordingly, we fully support Office of the Director of National Intelligence collaboration with combatant commands and Services to ensure emerging requirements are adequately supported by future Intelligence Community collection systems.

These intelligence, surveillance, and reconnaissance capabilities are indispensable contributors to maritime domain awareness. As the nation continues to develop and field

these and future capabilities, persistent coverage in the maritime domain remains a key requirement. A constrained fiscal environment will no doubt make this challenging, but, in accordance with the National Space Policy and National Security Space Strategy, emerging capabilities are being explored with our coalition and commercial partners in an effort to reduce costs while increasing capability.

Commercial Space Systems

Commercially provided systems provide the ability to augment, but not replace, existing national and military systems. These commercial capabilities have become increasingly useful in bridging the gap between requirements and capabilities. The Navy has used commercial communications satellites since the early 1990's to augment bandwidth requirements not fully satisfied by military communications satellites. Technical advances in the commercial sector provide opportunities for rapid capability implementation not only for communications, but in other mission areas as well, such as safety of navigation and intelligence, surveillance, and reconnaissance. The Navy continues to work with the commercial sector to explore options to address multiple maritime mission requirements, and we continue to field systems, such as Commercial Broadband Satellite Program terminals, to fully leverage available commercial capability. Potential cost savings and capability supplementation should continue to be evaluated for all commercially-provided space-based capabilities at every opportunity.

Space Cadre

Our Navy equities, requirements, operations, and management of space resources are the responsibility of a small but agile corps of space professionals that make the Navy's use of space possible. The Navy's Space Cadre is comprised of approximately 1,350 reserve, civil, and active duty service personnel from all warfighter designators and communities, and is a key component of the DoD's 15,000 military and civilian space professionals. Part of our Total Workforce strategy is to ensure that fully qualified Navy Space Cadre personnel are consistently assigned to our most critical and influential space billets. This strategy requires the Navy to continue to recruit and retain a talented and highly skilled workforce to fill vital space leadership positions now and into the future. We continue to assign personnel with a proven capacity to represent unique Navy requirements for space systems in the joint acquisition processes at the National Reconnaissance Office. To enable us to do this more efficiently, we are developing specific career progression plans to actively manage space experts' individual career paths to ensure that Navy and joint space-related assignments complement and enhance career progression and promotion opportunities while infusing naval operational expertise back into the space community.

Conclusion

In closing, we would like to reiterate that space capabilities will continue to be critical to our nation's success in the maritime domain. We operate in an increasingly dynamic and challenging global environment, demanding additional capability and more capacity to operate in a networked but geographically dispersed fashion. A robust space layer is essential to providing the nation's Soldiers, Sailors, Airmen, and Marines with

the situational awareness and force capacity to operate, fight, and succeed in a myriad of missions.

Navy is leaning forward in the use, advocacy, and development of space capabilities. We are building and fielding the necessary space-based systems across multiple mission areas and the plan we have submitted will deliver the future space-based capabilities within the fiscal constraints of the budget.

Thank you for the opportunity to share our efforts with you today. Continued support from this subcommittee and the Congress is deeply appreciated.