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SENATE ARMED SERVICES COMMITTEE
STRATEGIC FORCES SUBCOMMITTEE

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BEFORE THE
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OF THE
SENATE ARMED SERVICES COMMITTEE
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 your Navy's space activities. Navy Leadership expects to be prominent in the fields of intelligence, cyber warfare, command and control, knowledge management and space. By fusing these capabilities, he expects to attain command and control overmatch against any adversary. To achieve this important goal, Chief of Naval Operations (CNO) has restructured the Navy staff to bring all Navy information-related capabilities and systems under a single resource sponsor – Deputy Chief of Naval Operations (Information Dominance). In the information and cyberspace domain, the CNO has also established Fleet Cyber Command/U.S. Tenth Fleet as the global operator for many of Navy's critical mission areas, including space operations.

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. and coalition forces. Our satellite communications capabilities confer to our deployed forces a decisive advantage across the spectrum of military operations from peacetime engagements to humanitarian relief efforts to major combat. The Mobile User Objective System (MUOS), which is the next generation Ultra High Frequency (UHF) Satellite Communication system, is a critical element of our space architecture and will provide more capable tactical communications to meet the growing demands of our joint, mobile warfighters.

Navy Space Requirements

The Navy's interests in space, however, are not limited solely to communications. Intelligence, reconnaissance, surveillance, position, navigation, timing, missile warning,

meteorology and oceanography each have significant space components. We must ensure that all of the Navy's space equities and interests are well understood throughout DoD and by our interagency partners so that our combatant commanders and Navy's operating forces have the space capabilities they need to succeed in their missions.

The Navy is *critically dependent* on space to conduct not only our wartime mission but also our core capabilities of forward presence, deterrence, sea control, power projection, maritime security, humanitarian assistance, and disaster response. A wide array of national, joint, and commercial satellites currently provides Navy commanders with essential worldwide support. Space capabilities are vital to our nation's maritime operations and are foundational to our ability to operate in a networked and dispersed manner. These seminal space capabilities support tactical strike, expeditionary warfare, anti-submarine warfare, anti-surface warfare, mine warfare, special operations, undersea warfare, ballistic missile defense, maritime domain awareness, and information dominance missions.

The Navy's mission of ensuring the security of our citizens at home and abroad requires a global reach and persistent presence. We must constantly be ready to deliver on a mission of mercy or rapidly deploy decisive combat power, while supporting a myriad of complex maritime operations that fall between these extremes. Our ability to respond, in concert with the other Services and coalition partners, depends on assured space capabilities with inherent flexibility and responsiveness to support our worldwide responsibilities.

The Navy is one of the largest 'users' of space in DoD, yet we rely on our partnership with the Air Force and the Intelligence Community (IC) to develop and field

the majority of our space systems. Future U.S. satellite programs are now being developed that promise additional benefit and capabilities to Navy warfighters. Due to the long lead times involved in complex space programs, it is essential that naval requirements and maritime missions are factored into the pre-launch design and planned on-orbit operation of future satellite acquisitions. Your 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. Venues for this engagement include the DoD Space Posture Review, the Quadrennial Defense Review, the National Security Space Program plans and assessments, and the Operationally Responsive Space Executive Committee.

Navy Space Investments

Of Navy's current fiscal contributions to space, nearly 50% is dedicated to the acquisition, development and management of the UHF Follow-On and 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. All these acquisitions are consistent with DoD's High Priority Performance Goals in the President's FY 2011 Budget's Analytic Perspectives volume (page 77-8).

Navy's investment in space-related Science and Technology Research and Development has been modest – roughly 4 percent of our total space-related funding. In this fiscally-constrained environment, investment in projects and studies that address maritime-related capability gaps is critical to the successful execution of our nation's maritime strategy. The innovations produced by the Office of Naval Research, Naval

Research Laboratory, and the OPNAV N2/N6 Technology Insertion Branch (Navy's Tactical Exploitation of National Capabilities (TENCAP) entity) are vital to this effort. Our active involvement and influence with non-Navy space-related research activities, centers and agencies are necessary to leverage on-going efforts that complement and support our unique maritime challenges and requirements.

The Navy depends on space capabilities now and expects the demand for space capabilities to grow in the future, especially for 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 UHF Follow-On 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 2011. Based on evolving warfighting concepts, UHF satellite communications requirements are expected to grow, and MUOS, as designed, will be able to support those requirements.

Mobile User Objective System (MUOS)

MUOS, the next generation UHF satellite constellation, will consist of four operational satellites with one on-orbit spare. MUOS will support Unified Commands and Joint Task Force Components, DoD and non-DoD agencies, and our allies 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 UHF Follow-On satellite, while a new UHF waveform payload will significantly increase the number of

accesses while also increasing available throughput to the Warfighter. The dual-payload design will allow backward compatibility with legacy UHF terminals while providing a next generation waveform to support “communications on the move” capabilities and provide disadvantaged platforms (hand held terminals, aircraft, missiles, UAVs, remote sensors) higher data rates per access (up to 64 kbps/access).

MUOS will be the common denominator for future command and control, by 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 and IC 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. The program has been reviewed by an ASN (RDA) directed National Review Team, and the program has subsequently been re-baselined following the team’s recommendations.

If gaps in UHF satellite availability occur, a series of mitigation options have been developed and can be incrementally implemented to minimize the operational impact. One mitigation initiative that has already been employed is a payload reconfiguration to UFO satellite Flight 11, which increased the number of available channels. This action

was completed at no cost and with very low risk to the spacecraft. The Navy continues to lease supplemental UHF resources from two commercial satellites, LEASAT and SKYNET. If necessary, we are also positioned to lease an additional channel on an Italian space-based communications system (SICRAL).

We are also pursuing options to make more efficient use of available satellite resources. The Integrated Waveform (IW), a software upgrade to UHF SATCOM tactical terminals and Control System, is in development and will optimize UHF satellite channels by doubling the number of accesses that can be supported by a single 25 kHz channel. DoD is also coordinating a Memorandum of Understanding with the Australian Ministry of Defense to procure/use channels on an Australian-hosted payload covering the Indian Ocean region, in exchange for future use (commencing 2018) of equivalent UHF SATCOM accesses in the Pacific Ocean Region. Finally, we are exploring the use of TACSAT-4, an Office of Naval Research and Naval Research Laboratory 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 year.

Environmental Remote Sensing

The Navy continues to address vital interests in environmental remote sensing. In support of Undersea Warfare, we are procuring the Geosat Follow-On (GFO) II satellite altimeter to maintain continuity in mapping global ocean temperature profiles which provides critical input to our global and regional ocean models. The Navy relies upon partnerships with the Air Force and the National Oceanic and Atmospheric Administration for its general meteorological and oceanographic remote sensing

capabilities and is involved in defining the requirements for the DoD portion of the restructure of the National Polar Orbiting Environmental Satellite System. The imagery and data collected by these satellites are essential to our ability both to characterize the environment and assemble vital maritime information that provides an asymmetric advantage over our adversaries. In support of the Navy's unique responsibility to provide precise positioning and navigation data, we are embarking on a new program, the Joint Milli-Arcsecond Pathfinder Survey (JMAPS), which will enable necessary upgrades to the master star position catalogs to meet the DoD positioning accuracy requirements into the next decade.

Intelligence, Surveillance, and Reconnaissance

The Navy applauds the National Geospatial Intelligence Agency and the National Security Agency's exploitation and dissemination of both geospatial and signals intelligence data, as well as the National Reconnaissance Office's (NRO) operation of the space-based sensors. A robust architecture of SIGINT and GEOINT systems to meet current and emerging requirements remains crucial to successful maritime operations. While much progress has been made in improving the planning and programming of space-based sensors, it is imperative that replacements for older systems be funded and fielded in sufficient quantity and capacity to sustain continuity of space-based intelligence data throughout the maritime domain. Accordingly, we fully support the Office of the Director of National Intelligence collaboration with Combatant Commands and Services to ensure emerging requirements are adequately supported by IC-funded future collection systems.

Commercial Space Systems

For Navy, commercially provided systems have the ability to augment, but not replace, national systems. These commercial capabilities have become increasingly useful in bridging the gap between requirements and capabilities. The Navy has utilized commercial communication satellites since the early 1990's to augment bandwidth requirements not satisfied by military communication satellites. Technical advances in the commercial sector can provide opportunities for rapid capability implementation, and are potential "game-changers" in the National Security Space Strategy. 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.

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 active duty, Reserve and civil 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 consequential 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 are committed to providing active career management and continued

opportunities for Navy Space Cadre professionals to ensure that Navy and Joint space-related assignments complement and enhance career progression paths and promotion opportunities while infusing naval operational expertise back into the space community.

Approximately one third of active duty space billets and a number of our civil service personnel are acquisition billets located throughout the Space and Naval Warfare Systems Enterprise and at the NRO. The Navy is fortunate to hold a key Flag-level billet within the NRO. Rear Admiral Liz Young, who is “triple-hatted” as PEO Space Systems and Commander, SPAWAR Space Field Activity, oversees the largest concentration of Navy Space Cadre members, and provides space systems engineering and acquisition expertise to OPNAV N2/N6 as well as to all Navy systems commands and research centers. It is essential that we continue to assign talented personnel to represent unique Navy requirements for space systems in the joint acquisition processes at the NRO and at the Air Force Space and Missile Center. And, as the newly established Fleet Cyber Command and U.S. 10th Fleet reaches full organizational maturity, they will assume a leading role in Navy’s space planning and operations.

Conclusion

In closing, we would like to reiterate that Space capabilities have and will continue to be critical to our Nation’s success in the maritime domain. We now operate in a dynamic and challenging global environment that demands increased capability and capacity to operate in a networked but geographically dispersed fashion. Space capabilities are no longer nice to have; they are essential.

Thank you for the opportunity to share our efforts with you today. The continued support from the Congress in general, and this subcommittee in particular, is deeply appreciated.