

Department of Defense
Executive Agent for Space

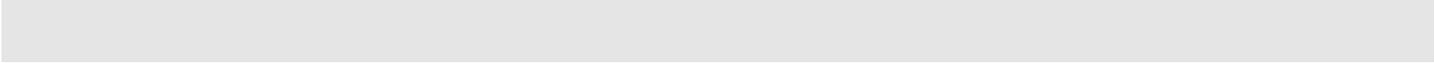
Primary Office for Coordination:
NSSI Directorate (SAF/USI)
1670 Air Force Pentagon
Washington DC 20330-1670

Phone: 703-614-3995 x1207
Toll Free: 1-888-273-1456 x 1207
Fax: 703-614.1050

Space Human Capital Resources Strategy

A report to the
Congressional Defense Committees

FEBRUARY 2004



(This page left intentionally blank)

Introduction

Space power represents a decisive asymmetric advantage for the United States. We rely on space for many critical capabilities and this reliance is growing. Much like air power in the last century, this century promises to see the emergence of space power as a key element of national power. In order to preserve our advantage as the leading space faring nation, the United States must ensure it has put into place a strategy to guarantee availability of the most crucial element of space power—space professionals.

People are central to our success in space. To meet the serious challenges of the future in space will require a Total Force approach composed of well-educated, motivated, and competent people who are skilled in the operational demands of the space medium, the tactical environment they support, the technical requirements of the vehicles that operate in it, the acquisition of space systems, space-related research and development, space-unique tactics, techniques, and procedures, the needs of the many and varied end-users of space capabilities, and who are skilled in the ability to formulate and articulate new space doctrine to fully control and exploit the medium of space in support of our nation's security objectives. These people must be able to develop new technologies, systems, training methods, concepts of operations and organizations that will continue to sustain the US as a space world leader. New systems must be able to achieve effects at all levels of conflict. Furthermore, these systems must be interoperable with and integrated into architectures that support creation of lethal and non-lethal effects. The backbone of our joint and interagency space operations capabilities will continue to be individuals of exceptional dedication and ability.

Any strategy for developing space professionals must recognize that the Services and Intelligence Community have a wide variety of needs. Therefore, each of the Services and their components will continue to develop and manage a Service unique cadre of space professionals to support their unique mission requirements. Beyond that, the Department of Defense will establish a strategic direction that will ensure the individual Service cadre efforts are synchronized and integrated to the maximum extent practicable so that future war fighting and intelligence space professional requirements can be satisfied. It is also important to recognize and accommodate the unique needs of the DoD and other government agencies regarding space, specifically the National Reconnaissance Office (NRO). The National Reconnaissance Office (NRO), including the Central Intelligence Agency Directorate of Science and Technology's Office of Development and Engineering (OD&E), is developing a comprehensive workforce management strategy which is consistent with the goals and objectives of this strategy, but tailored to the unique needs of the NRO. In the final analysis, the objective is to meet the national security space needs of the 21st century and sustain the United States' position as the world's leading space faring nation.

Purpose

The purpose of this strategy is to establish the way ahead to synchronize the space cadre activities of the Department of Defense (DoD) and to integrate the space personnel career fields developed by the military departments and the intelligence community to the maximum extent practicable.

Goals

DoD Personnel and Readiness

This strategy directly supports these selected goals contained in **The DoD Personnel and Readiness Strategic Plan, 2001-2006**,

- Integrate the active and reserve component military, civilian employees, and support contractors into a cohesive total force.
- Provide appropriate education, training, and development of the total force to meet mission requirements.
- Support the readiness of the total force.
- Provide effective management of personnel to meet mission needs.

Space Professional Management

Specific space professional management goals flow from the DoD Personnel and Readiness goals listed above. These goals seek to blend the unique needs of the Services and Agencies with the broader DoD need.

- Ensure the services and agencies (as necessary) develop space professionals to fulfill their unique mission needs.
- Synchronize the space cadre activities of the space community to increase efficiency and reduce unnecessary redundancies.
- Continue to improve the integration of space capabilities into joint warfighting and intelligence operations
 - Increase the level of space training in appropriate Service and Joint professional military education courses
 - Ensure sufficient space professionals are assigned to joint and intelligence-related duties
- Consistently assign the best available space professional to critical positions

- Increase the number of skilled, educated and experienced space professionals available to support the increasing amount of NSS planning, programming, and acquisition activities.
 - Identify critical positions and understand what mix of skills, education, experience and leadership traits are necessary for success in those positions.
-

Objectives

The following objectives are necessary to achieve the specific goals listed above

- Provide committed **leadership**
 - Establish and maintain sound **policy**
 - Create a multi-service and interagency **education and training** framework
 - Collect the **data** necessary to manage the space personnel enterprise
 - Determine human capital resource (manpower) **requirements** to meet NSS missions and objectives
 - Create teams and processes to **manage** the space personnel enterprise
 - Apply **best practices**.
-

End State

An established cadre of space professionals with the depth and breadth of training, education, experience and vision required to advance the use of space power and to transform military and intelligence operations.

Roles and Responsibilities

Secretaries of the Military Departments

This strategy does not alter the authorities and responsibilities of the Service Secretaries to organize, train, and equip their personnel. The space professional development roles and responsibilities of the secretaries of the military departments and their reserve components were outlined by the Secretary of Defense (SecDef) in an 18 October 2001 memo, entitled National Security Space Management and Organization. They are:

- Develop and maintain a cadre of space-qualified professionals comprised of military and civilian personnel in sufficient quantities to represent their Military Department's and DoD agency's interests in space requirements, acquisition and operations
- Assure space education is offered at all levels to ensure the cadre of space professionals has a direct understanding of space activities and how space capabilities and applications are integrated into military operations
- Increase the number of advanced technical degree programs offered to space professionals
- Maintain a sufficient cadre of space-qualified professionals within each military department and their reserve component.

Additionally, DoD Directive Number 5101.2 (DoDD 5101.2), subject: DoD Executive Agent for Space, dated 3 Jun 03, directs the heads of DoD components:

- To notify the DoD EA on any key indicators reflecting the status of or changes to their cadre of space professionals
- To develop and maintain a sufficient cadre of space-qualified personnel to support their Component in space planning, programming, acquisition, and operations
- To support the DoD EA for Space with space cadre personnel to represent their Component in DoD-wide planning, programming, and acquisition activities.

DoD Executive Agent (EA) for Space

The DoD EA for Space's professional development responsibilities, derived from DoDD 5101.2, include:

- To represent and advocate DoD-wide space professional development interests in the defense planning and programming processes
- To provide the heads of the DoD components with personnel requirements needed to support NSS efforts, activities and organizations
- To lead efforts to synchronize the space cadre activities of the DoD and to integrate the space personnel career fields developed by the military departments and intelligence community to the maximum extent practicable.

The Strategy

A human capital resource strategy

Strategy Statement

The DoD EA for Space will facilitate the development and maintenance of a cadre of space professionals who will possess the depth and breadth of training, education, and experience required to advance the use of space power and to transform military and intelligence operations by strategically managing and guiding investments in space professional development activities. This strategy represents an ongoing commitment to be implemented immediately.

Objectives

Each DoD component will be responsible for reaching the objectives below and as required will provide information and assistance to the DoD EA for Space in his efforts to accomplish these goals.

Leadership

- Under the leadership of the DoD EA for Space, create a Senior Officer Forum to discuss policy, validate requirements, approve space professional development plans, and guide the synchronization and integration of the department's space cadre efforts
- Promote the development of a cadre of space professionals within each of the military departments
- Provide guidance on professional development efforts and activities

Policy

Develop, implement, and assess space professional development policies and practices where practicable.

Education and Training

- Establish a common baseline of knowledge and expertise
- Enhance space education and training (including Professional Military Education (PME) and joint PME)
- Eliminate unnecessary, redundancies or overlaps in training and education
- Eliminate critical gaps that may exist in training and education
- Establish arrangements for joint use of education and training programs

Data Collection

- Collect data on the following subjects
 - Size of the space cadres
 - Designated space cadre positions
 - Space cadre member skills
 - Space cadre member competencies
 - Retirement eligibility and personnel availability projection
 - Promotion and retention rates
 - Requirements in terms of skills, competencies, education and experience for space cadre positions
 - Vacancies of critical positions
 - Rate of filling positions with unqualified personnel

Management

- Create a human capital resources management team
- Assess
 - DoD, joint, component and agency-wide needs
 - Gaps in skills and competencies
 - Adequacy of available pipeline to fulfill programmed need
- Create management processes to meet future programmatic needs and ensure organizations have the right people, with the right skills, doing the right jobs, in the right place, at the right time
 - Identify and selectively man “critical” billets
 - Establish a baseline certification process

- Direct resources and efforts to solve appropriate space professional development synchronization and integration issues when institutional barriers exist
- Develop and coordinate professional development plans and integrate the plans into NSS planning and programming documentation

Best Practices

- Identify and implement best practices to the maximum extent practicable
- Create and execute demonstration programs to test new approaches

Strategy Implementation

Key Actions and Time Phased Implementation

The DoD EA for Space will communicate directly with the heads of the DoD components to carry out assigned functions, to include the transmission of requests for advice and assistance.

Phase I - February 2004-April 2004

- Charter a Space Human Capital Resource Senior Forum
- Charter a Space Human Capital Resource Working Group
- Develop policy concerning human capital development and use
- Determine the scope, nature, and specialties associated with space personnel certification
- Evaluate space cadre best practices
- Issue a call for demonstration projects
- Hold first Space Cadre data call and report on space cadre status

Phase II - May 2004-September 2004

- Identify and define critical billets
- Create policy on the selection of critical billets and provide guidance on manning of critical billets
- Hold an education and training summit

- Determine which education and training programs are applicable for community-wide use
 - Evaluate current PME and joint PME space awareness training and recommend adjustments as required
 - Identify common curricula, courseware, and classes as appropriate
 - Determine common baseline of space professional competencies
 - Identify education overlaps and gaps
 - Create a space education and training curricula
- Implement appropriate best practices and commence any demonstration projects

Phase III - September 2004 - December 2004

- Establish professional certification process
- Craft and present first "Space Cadre Update Report" to SecDef and Director of Central Intelligence (DCI)
- Update NSS Strategy and Plan as required
- Review fill rates of critical billets

Annual Battle Rhythm

Following the initial implementation there will be an ongoing process based on the calendar year in order to properly manage the space cadre.

- Deliver an annual "Space Cadre Update Report" to SecDef and DCI
- Update the National Security Space Strategy and National Security Space Plan, to reflect the tasks and activities associated with space cadre management
- Call for and implement demonstration projects
- Implement best practices

Path to Success

Measurable Criteria to Judge Success

Ultimately the success of a human capital resource strategy is the improved performance of the entire organization as it executes its primary mission. This strategy is based on a model of organizational behavior and it is therefore possible to identify measurable criterion and milestones that will indicate the community remains on the path it set out upon. The Executive Agent in a "Space Cadre Update Report" should prepare an

assessment of these measures of merit along with an analysis of the data collected on the space cadres from the community annually.

Milestones

- Senior officer forum chartered
- Space cadre education and training framework established
- Policy documents completed
- “Space Cadre Status Report” accomplished
- Certification process established
- Critical billets identified
- Space Education and Training summit held
- Space education and training curricula created

Measures of Merit

- Sufficient funding for space cadre education and training
- Sufficient manpower and funding for space cadre management
- Unnecessary overlaps in training and education identified and actions taken to decrease them
- Gaps in training and education identified and actions taken to decrease them
- Policy documents are implemented
- Demonstration projects attempted following identification and approval
- Best practices implemented following identification and validation
- Space Cadre issues are considered in the
 - National Military Strategy/Joint Vision
 - Chairman Joint Chiefs of Staff Risk Assessment
 - Strategic Planning Guidance/Joint Programming Guidance
 - National Security Space Strategy
 - National Security Space Plan
 - National Security Space Program Assessment

- National Security Space Programming Recommendations Memorandum
- Personnel with validated experience and education are selected to fill critical billets

The implementation of this Space Human Capital Resources Strategy is a strategic approach to the development of integrated service space career fields. Additionally, it will provide a common expertise, eliminate redundancies or overlaps in training and education, improve coordination between the services, and ultimately improve space operations and the ability of all the services to benefit from those operations.

This strategy was developed pursuant to section 547 of H.R. 1588, National Defense Authorization Act for Fiscal Year 2004. Section 547 (within Title V -- Military Personnel Policy). Section 547, along with the accompanying conference report is presented below.

H.R. 1588 National Defense Authorization Act for Fiscal Year 2004

Title V Military Personnel Policy Subtitle E -- Administrative Matters

SEC. 547. SPACE PERSONNEL CAREER FIELDS.

(a) **STRATEGY REQUIRED.**-- The Secretary of Defense shall develop a strategy for the Department of Defense that will --

(1) promote the development of space personnel career fields within each of the military departments; and

(2) ensure that the space personnel career fields developed by the military departments are integrated with each other to the maximum extent practicable.

(b) **REPORT.**-- Not later than February 1, 2004, the Secretary shall submit to the Committees on Armed Services of the Senate and the House of Representatives a report on the strategy developed under subsection (a). The report shall include the following:

(1) A statement of the strategy developed under subsection (a), together with an explanation of that strategy.

(2) An assessment of the measures required for the Department of Defense and the military departments to integrate the space personnel career fields of the military departments.

(3) A comprehensive assessment of the adequacy of the actions of the Secretary of Air Force pursuant to section 8084 of title 10, United States Code, to establish for Air Force officers a career field for space.

(c) **GENERAL ACCOUNTING OFFICE REVIEW AND REPORTS.**--

(1) The Comptroller General shall review the strategy developed under subsection (a) and the status of efforts by the military departments in developing space personnel career fields.

(2) The Comptroller General shall submit to the committees referred to in subsection (b) two reports on the review under paragraph (1), as follows:

(A) Not later than June 15, 2004, the Comptroller General shall submit a report that assesses how effective that Department of Defense strategy and the efforts by the military departments, when implemented, are likely to be for developing the personnel required by each of the military departments who are expert in development of space doctrine and concepts of space operations, the development of space systems, and operation of space systems.

(B) Not later than March 15, 2005, the Comptroller General shall submit a report that assesses, as of the date of the report --

(i) the effectiveness of that Department of Defense strategy and the efforts by the military departments in developing the personnel required by each of the military departments who are expert in development of space doctrine and concepts of space operations, the development of space systems, and in operation of space systems; and

(ii) progress made in integrating the space career fields of the military departments. ----

Conference Report to Accompany H.R. 1588 -- Defense Authorization Conference Report Space personnel career fields (sec. 547)

The Senate amendment [to the bill] contained a provision (sec. 912) that would require the Secretary of Defense to develop a human capital resources strategy for personnel of the Department of Defense with space expertise that would ensure that the space career fields for the military services are integrated to the maximum extent possible. The provision would also require the Secretary to submit a report to the Committees on Armed Services of the Senate and House of Representatives on the strategy, an assessment of the progress in integrating the space career fields of the military services and an assessment of the adequacy of the Air Force space career field. Finally, the provision would require a review and assessment by the Comptroller General.

The House bill contained no similar provision.

The House recedes with a technical amendment.

The conferees note that the space career fields within each of the military departments may include officers, enlisted, and civilian personnel. The conferees believe that an integrated strategic approach to the development of viable space career fields should be assessed based on how those career fields provide a common expertise, eliminate redundancies or overlaps in training and education, improve coordination between the services, and ultimately improve space operations and the ability of all the services to benefit from those operations.

A primer on the space cadres of the military services and the National Reconnaissance Office (NRO)

The Space Cadres of the Military Services and NRO

Each space cadre has different purposes, sizes and approaches to creating and developing their cadres. It is beyond the scope of this strategy to create a “unified” cadre with one human capital and professional development approach. As such, the uniqueness of each of the cadres must be considered within the strategy. Below is a primer on the cadres of the military services and the NRO. The differences in size (Air Force 10,000 - Marine Corps 61) and purpose (Army bring space capabilities to the warfighter - NRO and Air Force cradle to grave satellite operations) make it clear that the strategy must be predicated on the simple premise that **one size does not fit all**.

Air Force

Composition

A “total force” cadre, the Air Force includes officers, enlisted from the active duty, reserves and National Guard as well as civilians representing numerous disciplines and specialties.

Size

The space cadre size is approximately 10,000 officers, enlisted and civilians with the following Air Force Specialty Code (AFSC) breakout: 1300 enlisted space operators (AFSC 1C6), 3100 officer space operators (AFSC 13S), 2300 scientist, engineers and program managers (AFSCs 61/62/63) and approximately 3000 government civilians

Accession

The majority of officer and enlisted space operators (AFSCs 13S and 1C6) are new accessions to the AF. Officer space operators begin their space professional journey and their AF career with space prerequisite training (to be called Space 100 in FY05) followed by Qualification Training (QT) in a specific mission area. Space prerequisite training is folded into QT for enlisted space operators. This group, with the exception of career broadening assignments, will serve in space-related assignments. The scientists, engineers and program managers, or acquisition group may have differing career paths from space operations in order to be successful acquisition professionals. Some will enter as new accessions; others may enter late in their career. However, through proper force

development, this acquisition group can be developed as space professionals. There is an additional group referred to as space support and includes some maintenance, communication, weather and intelligence activities. These officers and enlisted personnel do not primarily serve their entire career in a space-related activity. Most, after completing their space assignment, will revert back to their functional community.

Purpose

The purpose of the members of the Air Force space cadre is to research, develop, acquire, operate, employ and sustain space systems in support of National Security Space objectives.

Way Ahead

The SECAF approved the Air Force Space Professional Strategy, which identified the processes the Air Force will use to improve the overall effectiveness of the Space Cadre through education, experience, and training initiatives. When the SECAF approved the strategy, he took the additional step of designating the AFSPC Commander as the Space Professional Functional Authority responsible for the development of all Air Force Space Professionals. The implementation of the Air Force Space Professional Strategy includes:

Instituting stronger technically oriented space education and training programs throughout the careers of the cadre

Each member of the Cadre should attend Space 100, 200, and 300 as they prepare to enter junior, mid, and senior level positions of responsibility. In addition, focused courses will be developed on each weapon system providing in-depth expertise within each system. Space Advanced Academic Degrees provided through the Air Force Institute of Technology are being enhanced as well as the curriculum for Intermediate and Senior Developmental Education courses.

Determining the unique skills that distinguish the Space Cadre from other career specialties and identifying individuals who are in the Space Cadre

Experience identifiers, known as Space Experience Codes (SPECs), will be used to develop and track the unique expertise possessed by the Space Cadre. These SPECs will be used to identify the set of skills obtained by Space Professionals and the set of skills required to fill space positions. At the top level, SPECs will include the following experience categories: Satellite Command and Control; Satellite Systems, Nuclear/ICBMs, Spacelift, Space Surveillance, Intelligence Surveillance and Reconnaissance, Kinetic Effects, Space Warfare Command and Control, and general space operations/acquisition.

Identifying each Space Cadre member and determining the education, experience, and certification requirements for the position

This will involve a complete review of all Air Force space-related positions to identify proper education, training, experience and certification requirements. This information will be compiled into a career planning guide and used for Force Development. In addition to providing necessary information on specific career tracks for various mission areas, the information will be essential for mentoring the Space Cadre on education, training, and experience opportunities and timing to prepare the individual for growth within the Cadre.

Designing a robust 3-level certification program to measure progress throughout an individual's career

The Space Cadre Certification Program will serve two primary purposes: measure the overall health and status of the Space Cadre and set attainable standards for education, training, and experience at key points in the Space Professional's career. This program must be compatible with acquisition professional development program. This program is currently under development but will be designed to establish attainable, but meaningful standards.

Issuing Career Development Guidance, as required, to AFSC-specific Functional Authorities, as well as to Development Teams and Assignment Teams

As the Space Professional Functional Authority (SPFA), the AFSPC/CC is responsible for the development of Air Force Space Professionals to meet not only Air Force needs, but also the requirements of the NSS community. Space Professional development will be consistent with and under the guidance of the Air Force's Force Development construct. The SPFA can, when required, coordinate strategic-level guidance through the Air Force's Force Development Council. Additionally, the SPFA can coordinate specific space professional guidance through the appropriate Air Force Specialty Code (AFSC) Functional Authorities.

Establishing a permanent Space Professional Management Function

The office will draft guidance for the SPFA, administer the Space Cadre Certification Program, manage Space 100/200/300 and Mission Support Course content and training quotas, implement the communications plan (update the Space Pro Website, draft Vigilant Vectors, conduct Spread the Word briefings, etc.), and cultivate relationships with other DoD space professional development offices.

Current Integration Efforts

The Air Force primarily supports integration through education. The Air Force's Space Operations School (SOPSC) offers these courses to DoD civilians and other services;

- Advanced Space Ops Course (ASOC)
- Space in the Air Operations Center (AOC) Course (SAOCC)
- Various Space Operations Courses (SOCs)
- Senior Space Officer in Theater Course (SSOITC)
- Space 200, Space 300 (when available) and Advanced Space Training

The attendance breakdown for FY03, shows significant interservice activity

- ASOC -- DoD Civilian - 9%, USMC - 2%, USN - 5%, USA - 3%
- SAOCC -- DoD Civilian - 5%, USMC - 1%, USN - 1%
- SOC -- Executive -- DoD Civilian - 22%, USMC - 3%, USN - 16%, USA - 2%
- SOC 3/5 Day -- DoD Civilian - 37%, USMC - 1%, USN - 7%, USA - 2%
- SSOITC -- USN - 7%, USA - 7%

- Space 200 -- DoD Civilian - 20%, USMC - 4%, USN - 12%, USA - 8%

The bottom line is, of those 882 students, 240 were sister service or DoD civilian (about 27%). Specifically attendance reflects the following

- DoD civilian -- 164 (18.5%)
- USMC -- 8 (< 1%)
- USN -- 51 (5%)
- USA -- 17 (2%)

The Air Force also provides instructors to the Army's Functional Area 40 (FA40) school and the Joint Special Operations University.

There are additional courses taught by the Air Education and Training Command (AETC). These courses are planned to transfer to the Space Warfare Center

- Interservice Space Intel Course (FY 03, 150 students, 50% were Army/Navy/DoD Civilians)
- Interservice Space Fundamentals Course (FY 03, 150 students, 50% were Army/Navy/DoD Civilians)

Lastly, here are some examples where other services are represented at Space and Missile Systems Center (SMC)

- Global Positioning System (GPS) Joint Program Office: 3 Army officers, 1 Navy officer
- Military Satellite Communications (MILSATCOM) Joint Program Office: 3 Navy officers

The Navy

Composition

The Navy's space cadre is a distinct body of expertise horizontally integrated within the Navy active duty, reserves, both officer and enlisted, and civilian employee communities organized to operationalize space. The officer space cadre is made up of unrestricted line officers (aviators, surface warfare officers, and submariners), restricted line officers (aviation engineering duty officers, cryptologists, engineering duty officers, intelligence officers, information professionals, and meteorological officers). Navy cadre members have expertise in one or more of these five functional areas: requirements, plans and policy; science and technology/research and development; acquisition; operations; and assessment.

Size

Navy identified 711 active duty space cadre officers (defined as anyone who holds a 6206 space operations or 5500 space engineering subspecialty code earned thru either education (masters or above) or experience) in NAVADMIN 201/03 dated 21 July 03. Additionally, active duty enlisted and government civilians are being identified. The

Reserve Space and Network Warfare Program (Program 18) also consists of approximately 300 officer and enlisted space cadre members.

Accession

Navy does not have a separate career designator for space cadre officers, enlisted, or civilians. Instead, Navy encourages all individuals with experience or education in a space field to request to be identified as part of the space cadre. All Navy individuals who receive a Navy funded space related masters degree will automatically become part of the space cadre and be assigned at least one space tour.

Purpose

SecDef directed each of the Services “to develop and maintain a cadre of space-qualified professionals comprised of military and civilian personnel in sufficient quantities to represent their Services’ interests in space requirements, acquisition, and operations.” Additionally, SecDef directed that each Service maintain a sufficient cadre of space-qualified professionals ...to assure that each Service retains the ability to develop, plan, program, and acquire space systems uniquely required by individual Service missions. The purpose of the Navy Space Cadre is to:

- Represent Navy interests and participate as a full partner in the National Security Space arena to shape future space systems to meet Naval Power 21 objectives.
- Integrate space capabilities into naval platforms and operations
- Increase training and awareness of space capabilities throughout the fleet as well as to develop future space cadre who understand the art of the possible.

Way Ahead

The Navy is finalizing its Space Policy and Space Cadre Management Plan, which will provide guidance and further institutionalize the Navy space strategy. Identification mechanisms for enlisted and civilians are being developed. Additionally, the following Naval Officer Billet Codes (NOBC) identify reserve officers: 2098 Space Projects Technologist, 2192 Space Acquisition. 5930 Space Requirements Analyst, and 9560 Satellite Communications Officer.

Current Integration Efforts

Provides a graduate-level Space Systems curricula at the Naval Postgraduate School available to and attended by all services. Current attendance break down is 57% Navy, 18% Army, 12% Marine, and 13% Air Force.

- Participated in the Air Force Institute of Technology-Naval Postgraduate School Joint Space Oversight Board
- Assigned Space Cadre Advisor as a new position
- Formally identified initial cadre of naval officers with space expertise
- Established Navy Knowledge Online web site

- Sent Navy students to prototype Space 200 course

Participated in the National Security Space arena with Navy reps at Office of the National Security Space Architect, NRO, MILSATCOM Joint Program Office, National Geospatial-Intelligence Agency (NGA), and the National Security Space Integration directorate

The Marine Corps

Composition

A cadre of Marines (active duty, reserve, and civilian) with a diverse set of primary Military Occupational Specialties (including Ground, Aviation, Combat Support, and Command and Control) who are:

- Trained in joint space operations and National Security Space (NSS) activities; and
- Experienced in space requirements generation, concept development, planning, programming, acquisition, and/or operations.

The Marine Corps believes in taking Marine Air-Ground Task Force (MAGTF) officers and making them “space smart”. These MAGTF officers use their operational experience coupled with space knowledge to not only increase the effectiveness of Marine Corps operating forces but to also represent the Marine Corps across a broad range of National Security Space activities.

Enlisted and civilian Marines will also contribute to the success of the Marine Corps through their specific training and experience which can be focused on supporting space operations or NSS activities.

Size

Currently identified 61 (Military Occupational Specialty (MOS) 9933 and 9666) Active and Reserve Officers.

Accession

The Marine Corps Space Cadre currently includes officers who have been designated with the 9666 or 9933 Military Occupational Specialty (MOS), which are described below.

MOS 9666, Space Operations Officer (from Marine Corps Order (MCO) P1200.7X)

Space operations officers will be involved in the management and supervision for the Marine Corps active participation in the development, operation, and use of space systems for the accomplishment of Marine Corps missions, to include support for strategic defense.

MOS 9933, Space Operations Staff Officer (from MCO P1200.7X)

Space operations staff officers are officers who develop requirements for space systems; make recommendations to decision makers in space systems acquisition management;

conduct space application training; and/or participate in space operations planning. This MOS is to be assigned as a skill designator MOS only.

The 9666 MOS is assigned upon completion of the Space Systems Operations curriculum and graduation from the Naval Postgraduate School. The 9933 MOS is assigned upon completion of a 2-week space operations course and 6 months in a space-related billet. Since the Marine Corps wants MAGTF officers to have primary MOS credibility and operational experience prior to being designated a member of the space cadre, it is envisioned that most officers will not be designated until the rank of Major.

The accession of enlisted and civilian Marines into the Space Cadre has yet to be determined. An effort to identify the steps necessary to include enlisted and civilian Marines is included in the way ahead.

Purpose

- To support the vision and goals of *Marine Corps Strategy 21* by creating a cadre of Marines who understand both the capabilities of a Marine Air-Ground Task Force and the unique advantages to be gained by fully exploiting current and future space-based systems.
- To increase the integration of current and future space-based capabilities into Marine Corps systems to support the Corps' *Expeditionary Maneuver Warfare* capstone concept and to enable *FORCEnet* and the transformational naval operational concepts of *Sea Strike*, *Sea Basing* and *Sea Shield*.
- To shape the development of future space systems to meet Marine Corps war fighting needs through increased collaboration with the Air Force and other NSS partners.
- To increase the effectiveness of our operating forces through the more effective planning, integration and coordination of space-based capabilities and forces.
- To increase the distribution of Marines with space training and experience throughout the operating forces to inject space-knowledge at the individual unit level.

Way Ahead

To develop and maintain a sufficient cadre of space-qualified personnel to support the Marine Corps in space planning, programming, acquisition, and operations and to support the DoD EA for Space with space cadre personnel to represent the Marine Corps in DoD-wide planning, programming, and acquisition activities, the Marine Corps is planning to:

- Establish an identifiable cadre of space-qualified enlisted and civilian Marines and encourage those with the adequate training and experience to apply.
- Create and staff additional billets in the operating forces to better integrate space-based capabilities into current and future operations.
- Create and staff additional billets at NSS organizations to support the DoD EA for Space and to represent the Marine Corps in space-related activities.
- Improve space operations Professional Military Education for all Marine Corps officers to ensure future Marine Corps leaders understand the importance and criticality of space capabilities.

- Focus the graduate education of Marine Corps space operations students to support Marine Corps needs.
- Leverage inter-Service space training to ensure the development and proficiency of the space cadre.
- Develop a management process through which interested officers can be assigned to multiple space-related billets in their career and still compete for promotion with their peers.
- Develop a process and structure for space professionals in the Marine Corps Reserves through which they can support operations, training and exercises through augmentation and mobilization.
- Fully participate in the DoD EA for Space's efforts to create a space cadre.
- Incorporate appropriate space professional certification processes into the management of the Marine Corps space cadre.

Current Integration Efforts

- Established a Marine Corps Space Cadre Working Group to address the issues associated with the identification, training and assignment of space cadre officers.
- Full member of the AFIT/NPS Joint Space Oversight Board and the Executive Agent for Space's Human Capital Resources Working Group.
- Participated in the development of National Security Space Strategy and National Security Space Plan.
- Coordinated in the development of the Space 200 course being created at the Air Force Space Command's Space Operations School.
- Discussed with the SOPSC the possibilities of creating a 2-week space-planning course designed for officers assigned to Joint Force or component headquarters staff.
- Sent students to the SOPSC Space 200 course and the Army Strategic Command (ARSTRAT) FA-40 course.
- Coordinated with the Navy in the development of a Naval Space Cadre Management Plan.
- In coordination with the NPS, created Marine Corps specific course matrices for the Space Systems Operations curriculum.
- Participated in the Space and Naval Warfare Systems Command (SPAWAR) Space Field Activity Offsite in which Navy and Marine Corps representatives discussed options for creating a Naval Space Cadre.
- Integrated Army Space Support Team into the headquarters element of the Marine Expeditionary Force during Operation Iraqi Freedom.
- Provided space-qualified officers to joint and national security space organizations.

- Participated in the development of Naval Postgraduate School Educational Skill Requirements for the Space Systems Operations and Space Systems Engineering curricula.
- Taken steps to integrate joint doctrine for space operations into professional military education programs.
- Participated in the development in the National Security Space acquisition policy.
- Participated in the National Security Space Acquisition process through membership on Defense Space Acquisition Boards and Independent Program Analysis Teams.
- Taken an active role in the development and execution of national space war games.

The Army

Composition

In 1999 the Army recognized its need for a core of professional space operations officers and it created the Space Operations Career Field (FA40) a dedicated career field of space experts, trained and managed to function as dedicated Army assets for general space-related operations. The Army continues to mature the process of identifying its space-smart professionals for proper tracking and management. Space professionals are imbedded throughout the Army and work in a wide range of space disciplines and specialties. This Space Cadre is composed of individuals serving in a variety of space related fields and operations supporting Army and Joint space needs

Size

The Army Space Cadre, which has been formally identified, totals 1006. 143 active and 14 reservists are dedicated Space Operations Officers (FA-40) who form the core of the Space Cadre. The Space Cadre also includes 218 functional designated space operations captains and 631 officers with the Skill Identifier (SI) 3Y-Space Activities. Additional space experts are found among those with the SI 3E - (TENCAP).

Additional space professionals will be included in the Army Space Cadre as they are officially identified. An example of other fields under consideration is the Satellite Systems/Network Coordinators (31S1C) space operators, who support wideband satellite communications.

Accession

Designation into one of the specialty groups in the Army is through board selection or upon confirmation of training and job experience. Criteria is in place by which officers are accessed into the functional area 40, Space Operations, and can receive this designation upon approval by a central selection board. Reserve and National Guard officers are accessed into the space operations career field when they meet specified training criteria beginning at the rank of major. Individuals can be accessed into the Army Space Cadre at various times during their careers. For example, officers may receive the space activities identifier 3Y whenever they meet specified criteria for training or experience.

Purpose

The purpose of the Army Space Cadre today is to provide space expertise; capabilities, develop space doctrine, organizations, training, materiel, leader-development, space professionals and space support facilities (DOTMLPF) where they are needed throughout the Army and in joint positions throughout DoD in support of full spectrum operations. As the Army identifies requirements and develops capabilities for its Future Force, Army Space Cadre are integrated into current operations, future planning, research and development, and acquisition positions at all organizational levels within the Army and Department of Defense.

Way Ahead

- Develop Army consensus on the Space Cadre membership and responsibilities
- Establish a Army Space Cadre office for management and oversight
- Develop a comprehensive Army Space Cadre Strategy
- Update authorization documents, the Army Space Master Plan and other publications to reflect Army's Space cadre and space professionals
- Identify and confirm additional billets at NSS organizations
- Actively support initiatives of the DoD Executive Agent for Space
- Establish tracking systems to identify and support the Army's Space cadre development, education, training, retention and assignment
- Develop and maintain training programs to sustain and enhance the Army's Space cadre
- Coordinate with other services and DoD to ensure Army Space Cadre maximizes other service and Joint opportunities for training and provides the caliber of space professional needed to meet Joint and DoD requirements.

Current Integration Efforts

- Full Member of the AFIT/NPS Joint Space Oversight Board and the Executive Agent for Space's Human Capital Resource Working Group.
- FA40 officers are assigned to Joint or Inter Service positions to include NSSA, NRO and the Joint Staff (J3 DDGO).
- Collaborates with AF training institute regarding space education
- Examining applicability of AFIT/NPS curricula to meet FA 40 Training needs
- Establishing dialogue with Air Force Institute of Technology for space education.
- AF provides instructors for portions of the FA40 Space Officers Qualification course (SOOQC)

- SOOQC students familiarize with other services space-related facilities as part of the course curriculum.
- Coordinating for Army space representation on joint, OSD and national agency staffs
- Army space cadre training open to space professionals from other services
- Army Space Support teams (ARSSTs) supported the headquarters element of the Marine Expeditionary Force during Operation IRAQI FREEDOM

The National Reconnaissance Office

Composition

The National Reconnaissance Office is a joint entity at the intersection of the Intelligence, Defense and space communities. It's workforce is drawn from the space cadres of the military services as well as from both the military and civilian technical and nontechnical occupations of a variety of Defense and Intelligence Community (IC) organizations. As the NRO does not possess its own unique personnel system, it does not have a "space cadre" per se. Rather, the NRO integrates its diverse professional population during tours in the NRO and manages them in order to achieve its national security space mission.

Size

The size of the NRO's space professional workforce cannot be accurately identified because the IC agencies represented within the NRO do not possess defined space cadres. In addition, the NRO's unique personnel employment practices, which are often occupational code as well as parent agency blind, blur the lines between functions that are clearly space related and those that might not ordinarily be seen as space activities in more traditional operating environments.

Based on NRO's own internal categorizations, the organization has full time authorized positions in the following occupational groups:

- 1111 in Mission (program management, engineering, science, space operations, intelligence)
- 815 in Infrastructure (information technology, logistics and transportation, security)
- 559 in management and staffs (administration, senior management, policy, plans, liaison)
- 489 in Resource Management (contracting, finance, human resources)

The NRO also receives approximately 15% of its support from part time personnel and full time personnel on loan from various parent agencies for which the NRO does not possess the authorized positions. Finally, the NRO workforce encompasses a significant number of embedded contractors performing direct support related functions. As such, the NRO

takes a keen interest in not only the Defense and IC workforces but also the health of the national space industrial base population.

Accession

The NRO is selectively manned and reserves the right of final selection in its hiring decisions. Generally, candidates are chosen from among pools within a single parent agency to fill requirements designated for that agency among the NRO's authorized positions. The NRO also employs a "best athlete" hiring concept in certain instances wherein candidates are able to compete for positions based solely on their qualifications without regard to parent agency.

The NRO primarily relies on parent agencies to recruit personnel into the federal government to satisfy NRO requirements. The NRO actively partners with the parent agencies in support of targeted recruiting activities aligned with NRO's needs.

Purpose

The NRO's workforce develops and operates unique and innovative space reconnaissance systems and conducts intelligence-related activities essential for US national security.

Way Ahead

The NRO is currently developing a workforce management strategy in response to a recommendation from the Senate Select Committee on Intelligence. The primary driving considerations behind this effort are the new *2003 NRO Strategic plan* with its stronger emphasis on program management and system engineering competencies, the NRO's multi-year technical *Way Ahead* for system deployments that enables more deliberate workforce planning, and the pending implementation of space cadre development programs mentioned in other parts of the *Space Human Capital Resources Strategy*.

Key to the effectiveness of the NRO's workforce management strategy will be improved communication with the parent agencies regarding NRO requirements, the leveraging of space cadre development programs among the Services to meet NRO needs, and the NRO's continued creation of training and development programs tailored to its unique situation. To these ends, the workforce management strategy will address all aspects of the human resources lifecycle including the operating concepts and future direction for:

- Requirements definition in manpower, leadership and competency area
- Workforce acquisition through recruiting and staffing
- Employee and leadership development programs and activities
- Performance management using parent element and NRO programs.

The strategy will also address the efforts needed to assess alternative approaches to providing personnel functions in ways that would better support the NRO's mission. The alternative approaches to be studied would address the relationships between the NRO's internal parent element functions and the NRO's corporate human resources operations, the configuration of embedded and centralized personnel activities and the benefits and

drawbacks of creating an NRO-unique personnel system to replace the current multi-agency workforce paradigm.

