2007 National Security Space Policy
and
Architecture Symposium
"Commitment to Space Partnerships"

Panel on "Managing the Space Enterprise"

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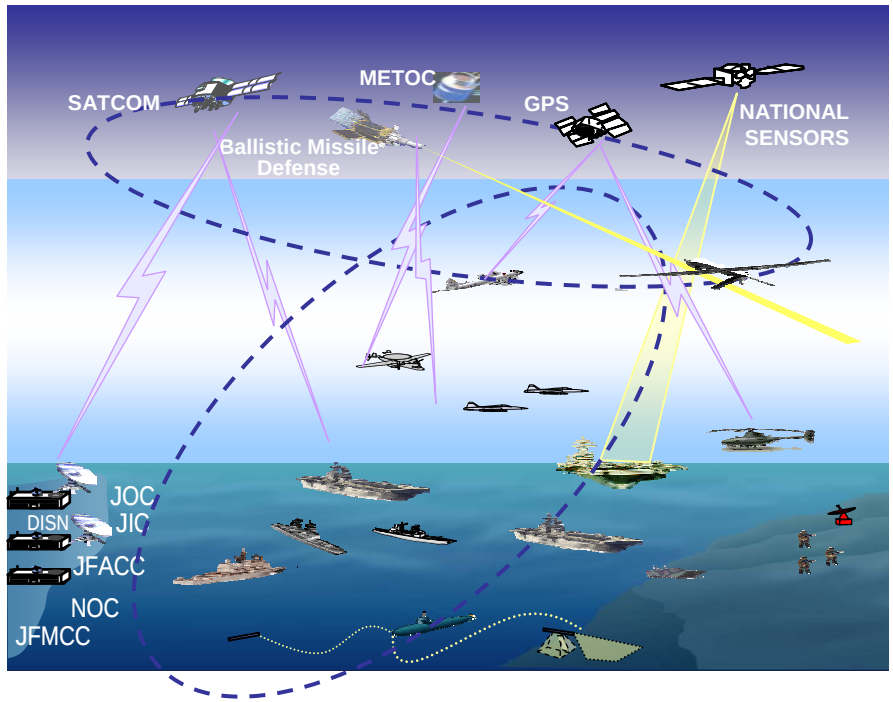
Navy Space Vision

…Integrating space capabilities throughout the naval forces
…Shaping joint deliberations to assure combat effectiveness

Strategic Objectives

- **Drive system design**
- **Tailor processing and distribution architectures**
- **Integrate into platforms and operations**
- **Train and educate**



Achieving the Vision

Assessment	Requirements	S&T/R&D	Acquisition	Operations
Evaluate capability needs & priorities	Determine, articulate & defend DoN rqmts	Develop / transition technology	Acquire / translate & defend rqmts	Integrate space into fleet / operate systems

Navy Space Team

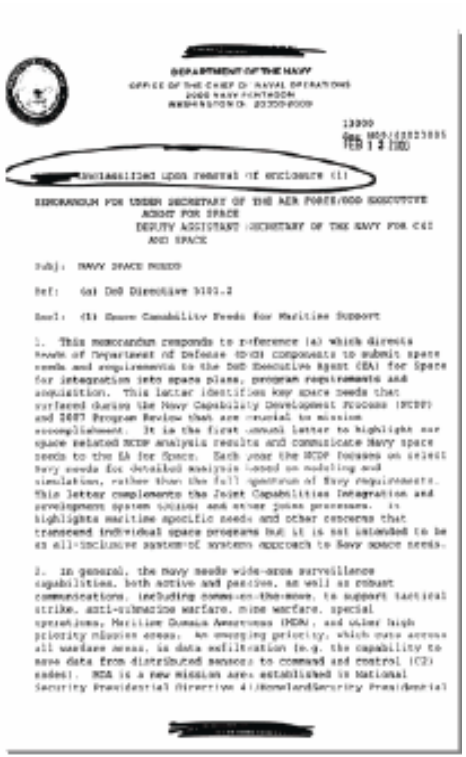
Assessment | **Requirements** | **S&T/R&D** | **Acquisition** | **Operations**

N2	NCDP & IC	**N2**	Intel Process	**ONR**: Space INP **NRL**: ORS/TacSat Base S&T **N6**: TENCAP **CG, MCWL**	**PEO SS**: MUOS **PEO C4I:** User Equip **SSFA**: Navy NRO reps **Dir, C4** (User Equip)	**NNWC**: •Space Campaign •NIOSC •Fleet Needs •NAVSOC **Operating Forces** – users of space based capabilities
N6	NCDP	**N6**	JCIDS			
N8	NCDP	**N8**	JCIDS			
DC, PP&O **DC, P&R** **Dir, Int** **Dir, C4**		**DC, PP&O** **DC, P&R** **Dir, Int** **Dir, C4**				

User Feedback

N6 is CNO's Space Lead ***DC, PP&O is CMC Space Lead***

Navy Needs Memo



DEPARTMENT OF THE NAVY

OFFICE OF THE CHIEF OF NAVAL OPERATIONS

2000 NAVY PENTAGON

WASHINGTON, D. 20350-2000

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MEMORANDUM FOR UNDER SECRETARY OF THE AIR FORCE/DOD EXECUTIVE AGENT FOR SPACE
DEPUTY ASSISTANT SECRETARY OF THE NAVY FOR C4I AND SPACE

Subj: NAVY SPACE NEEDS

Ref: (a) DoD Directive 5101.2

Encl: (1) Space Capability Needs for Maritime Support

1. This memorandum responds to reference (a) which directs heads of Department of Defense (DOD) components to submit space needs and requirements to the DoD Executive Agent (EA) for Space for integration into space plans, program requirements and acquisition. This letter identifies key space needs that surfaced during the Navy Capability Development Process (NCDP) and 2007 Program Review that are crucial to mission accomplishment. It is the first annual letter to highlight our space related NCDP analysis results and communicate Navy space needs to the EA for Space. Each year the NCDP focuses on select Navy needs for detailed analysis -based on modeling and simulation, rather than the full spectrum of Navy requirements. This letter complements the Joint Capabilities Integration and development system (JCIDS) and other joint processes. It highlights maritime specific needs and other concerns that transcend individual space programs but it is not intended to be an all-inclusive assessment nor a system approach to Navy space needs.

2. In general, the Navy needs wide-area surveillance capabilities, both active and passive, as well as robust communications, including beyond-the-horizon, to support tactical strike, anti-submarine warfare, mine warfare, special operations, Maritime Domain Awareness (MDA), and other high priority mission areas. An emerging priority, which cuts across all warfare areas, is data exfiltration (e.g. the capability to move data from distributed sensors to command and control (C2) nodes). MDA is a new mission area established in National Security Presidential Directive 41/Homeland Security Presidential

[redacted]

Prioritized List

1. SATCOM – robust architecture
2. PNT – sync space/terrestrial segments
3. Space Control – balanced architecture for assured access
4. ISR – SIBRS for missile warning
5. Data Exfiltration
6. ISR – sensors to detect & classify contacts
7. ISR – SR for MDA
8. ORS – launch, s/c & range/C2
9. Space Situational Awareness
10. Environmental Monitoring
11. Training & Education

VCNO Memo, *Navy Space Needs*, Feb 13 2006 – update in work

TacSat Experiments

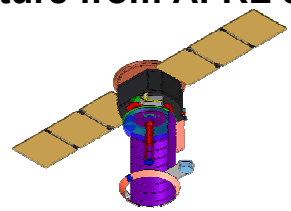
- **TacSat-1- Navy led**
  - Tactical RF Payloads & UHF Cross-Platform Link
  - Low Res Visible (70m) & IR (850m) Cameras
  - Direct Access via SIPRNET & VMOC Web Site
  - Spacecraft Completed May 04, within 1 Year
  - Launch: Falcon-1 TBD

TacSat-1 at NRL

- **TacSat-2 – AF led**
  - Tactical Imaging & RF Payloads
  - Tactical CDL & UHF Links
  - Navy Target Indicator Experiment secondary payload
  - Multiple Science Payloads
  - Spiral Development. Launched Dec 06.

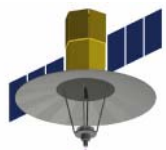
TacSat-2 / Roadrunner
Picture from AFRL & MSI

- **TacSat-3 – AF led**
  - AF/Army Hyperspectral Primary Payload
  - Navy Small Data-X Payload for IP-Based Buoy Comms



TacSat-3 Concept from AFRL
Received Go on 10/04

- **TacSat-4 – Navy led**
  - Comms-on-the-move primary payload (HEO)
  - Secondary Data-X/BFSA payloads
  - Mission Jointly Selected on Oct 13, 2005



TacSat-4 Concept from NRL
Received Go on 10/05

Navy TENCAP: Tactical Exploitation of National Capabilities

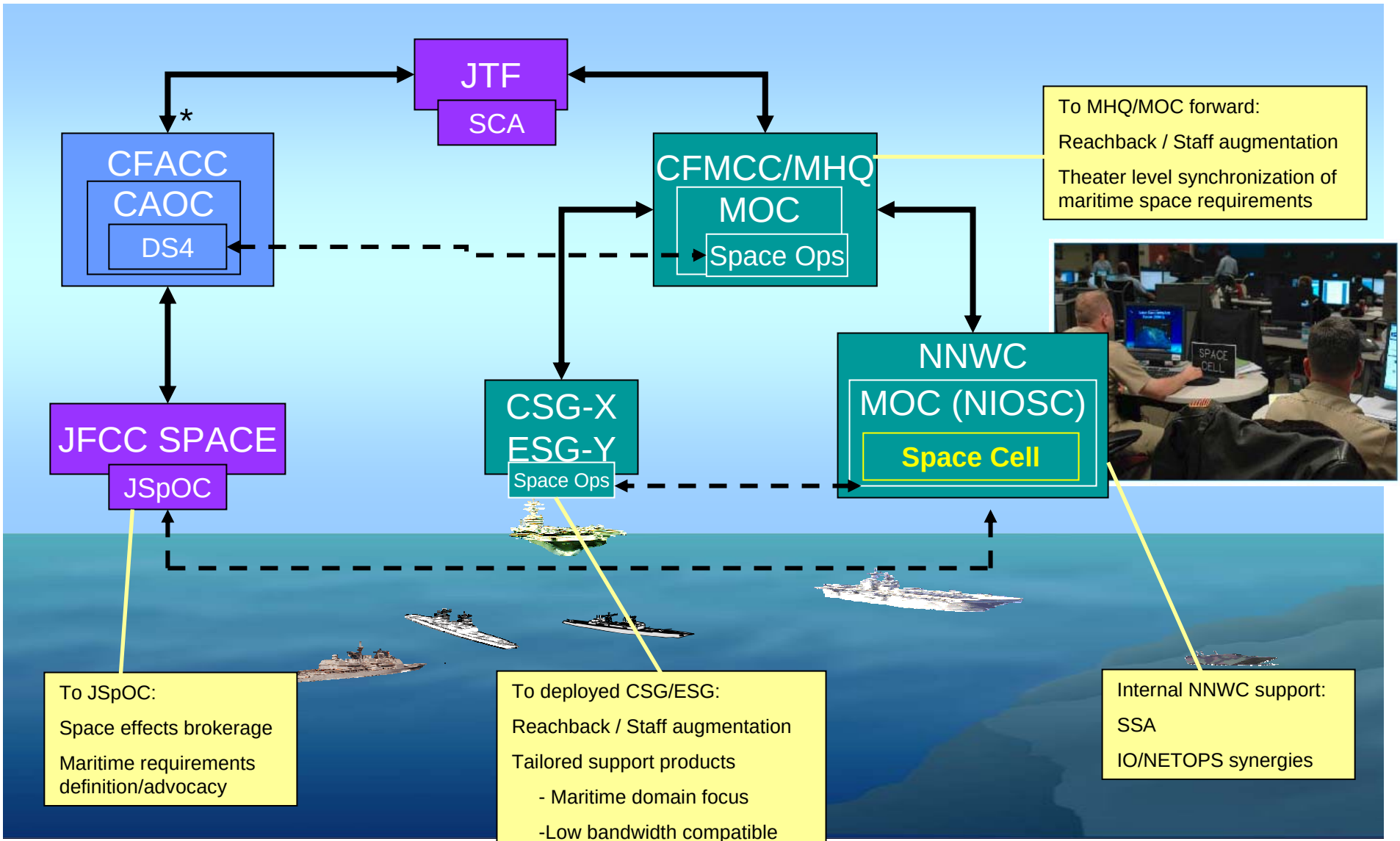
- Chartered by Congress in 1977
- MIP (Military Intelligence Program) funded/ oversight
- Navy R&D for exploiting current and future space-based ISR sensors:
  - ➢rapid prototyping (12-24 months)
  - ➢testing under field conditions
  - ➢rigorous, independent assessment of results
- Executed over 110 R&D projects and transitioned over 54% into operational ISR capabilities supporting Fleet and joint forces.

Focus on solving <u>tactical</u> Fleet problems

Mobile User Objective System (MUOS)

- **Four UHF GEOs, plus on-orbit spare**
  - **“Bent-pipe” payload**
  - **16 spot beams and one earth coverage beam**
  - **Legacy payload compatible with UHF terminals**
- **Integrated ground network**
  - **Manages the information network**
  - **Controls the satellites**
  - **Provides access to DISN services**
- **New 3G CAI SA-WCDMA waveform**
  - **New UHF uplink & downlink filings to get contiguous 5 MHz channels**
  - **Provides “Comms on the Move” for 21st century mobile forces**
- **Three pillars for success**
  - **Realistic/stable requirements**
  - **Realistic/stable funding**
  - **Mature technology**

NETOPS, IO & Space Center (NIOSC) - Tailored Space Products with a Maritime Focus



***Depicts current structure in CENTCOM. JTF CDR can delegate SCA lead to any component.**

DoN Space Cadre

- **WHO**

  - SECDEF directed Heads of DoD Components, "…to develop and maintain a cadre of space-qualified personnel to support their Component in space planning, programming, acquisition, and operations…"

  - Navy Space Cadre Officers come from multiple URL and RL designators and are identified by AQD, Subspecialty Code, or NOBC based on space-related education and/or experience.

  - Marine Corps believes in taking MAGTF officers and making them "Space-smart"

- **MANAGEMENT**

  - **Navy Space Cadre Advisor:** Actively manages the Total Force. Coordinates with commands, placement officers, and detailers to place qualified personnel in high-vis, technically demanding space billets. Interfaces with the NSSO, NAVPERSCOM, OPNAV N6 (Resource Sponsor), and NNWC (Space TYCOM).

  – **Deputy Commandant, Plans Policies and Operations:** responsible for development and management of the USMC space cadre

- **CURRENT DATA**

700+ Active Duty Officers	315 space-coded billets
100+ Reserve Officers	17 space-coded billets
100+ Civil Service	From multiple job series and commands
17 Space Operations Officers	8 Space Operations Officer billets
68 Space Operations Staff Officers	46 Space Operations Staff Officer billets

Summary

- Navy perspective
  - Partnerships are key – U.S. and international
  - Pragmatic focus - make space tactically relevant
- Challenges
  - Managing complexity in a fiscally constrained environment
    - Block approach good step but still need to prioritize
  - More experimentation will help reduce technical risk