

Naval Space Command

SPACE TRACKS

A BULLETIN ON NAVAL SPACE ISSUES AND INITIATIVES

September/October 1999

Navy Takes Control of UHF Follow-On

Hear ye, denizens of the Deep
And lubbers of land ashore,
UFO is hereby controlled
By NAVSOC now and forever more.

Orbiting in space in a geosync place,
She watches the seas below,
And NAVSOC commands at a blistering pace
To provide comm to those on the go.

With his trident Neptune blesses
This constellation in space,
And wishes well to those who serve
To keep liberty and freedom in place.

Cover Story on Page 11

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IN THIS ISSUE

- The REAL Star Wars ● Page 3
- Enabling Information Technology ● Page 6
- Sailors on the 'Space Watch' ● Page 10
- Space Courses ● Page 14
- Rocky Mountain Navy Grows ● Page 15
- Navy's War on Drugs ● Page 18

NAVSPACECOM DIRECTORY

Naval Space Command provides direct space support to Fleet and Fleet Marine Force operational units around the world, whether for routine deployments, exercises, or actions in response to a crisis situation. We take very seriously our duty of ensuring that our Sailors and Marines understand what products are available from space, how to access them, and how to exploit those products in the waging of war and peace.

○ Operational Status/Exercise Support Summaries

Naval Space Command maintains a home page on the Global Command and Control System (GCCS) accessible to operational U.S. military forces worldwide at <http://navspac1.navspace.navy.smil.mil> or <http://206.36.197.10>.

○ Naval Space Operations Center (540) 653-6500

Call Toll-Free at 1-888-404-6557. Source of space-related operational intelligence. Space reports and analyses are activated on request and are tailored to a deploying unit's operations and geographic area of movement. Tactical assessments of space system capabilities and vulnerabilities to potentially hostile space sensors are also available.

○ Naval Space Support (540) 653-6160

Naval Space Support Teams provide tailored information and training at all operational levels to include on-site training, exercise support, and staff augmentation.

○ Remote Earth Sensing Information Center (540) 653-6520

Naval Space Command employs imagery from remote Earth sensing satellites to support intelligence, planning, and operations. Our Remote Earth Sensing Information Center (RESIC) — formerly known as the MSI Cell — processes Landsat, SPOT, and Controlled Image Base (CIB) data in support of Fleet and Fleet Marine Force units. Hardcopy and softcopy products, specifically tailored to users' needs, are produced by RESIC and distributed to support forces participating in real-world crisis, operations, and exercises. RESIC products can be produced to support any of the following applications:

Planning	Intelligence Prep of the Battlefield
Target Area Analysis	Mission Rehearsal
Bathymetry	Amphibious Support
Order of Battle Disposition	Supplement MC&G Products
Change Detection	Trafficability
Broad Area Coverage	

Product requests can be submitted via GENADMIN message to: COMNAVSPACECOM DAHLGREN VA//N313//, via facsimile to DSN 249-6167 or (540) 653-6167, via email to MSI@manta.nosc.mil, or via Naval Space Command's SIPRNET web page.

○ Internet On-Line Access

Naval Space Command maintains a home page on the World Wide Web at URL <http://www.navspace.navy.mil>. Comments or requests for information may be forwarded to the Public Affairs Office via email to gwagner@nsc.navy.mil.



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PERSPECTIVE

The REAL Star Wars Getting Into Space

As a nation, we spend more to entertain ourselves with space-themed illusions than we invest toward actually achieving a meaningful human presence in space.

A six-foot cutout of Jar Jar Binks greets me at the supermarket these days, exhorting me to buy licensed Star Wars® merchandise of every kind. For just \$6.99 I can buy a nickel's worth of candy wrapped in a few more cents' worth of plastic shaped as a Star Wars® action figure.

The \$400 to \$600 million "Phantom Menace" will make at the box office is peanuts compared to merchandise sales — which will likely total in the scores of billions. PepsiCo reportedly paid \$2.5 billion for Star Wars® rights for its brands and no doubt expects a healthy return on investment. The deal is but a fraction of the Star Wars® marketing juggernaut.

I don't begrudge George Lucas' cashing in. I have long been a devotee of the

Elliot G. Pulham is senior vice president of the U.S. Space Foundation, a national non-profit organization working to advance space endeavors and educational excellence through public information, teacher training and other programs.

original Star Wars trilogy. I'm also a Star Trek fan.

What concerns me is that as a nation, we spend far more to entertain ourselves with space-themed illusions than we invest toward actually achieving a meaningful human presence in space.

"Phantom Menace" earned about \$160 million its first week in theaters — enough to build a section of the International Space Station. In one year the revenues churning through the "Phantom" marketing machine will likely exceed the budget to actually build the ISS and operate it for a decade.

But it's not that we're spending too much on space entertainment.

Rather, we're investing far too little in the real thing.

As Hollywood budgets for sci-fi thrillers have mushroomed over the past decade, the budget for our chief space agency, NASA, has steadily declined. NASA has done some remarkable things in this time. But it has simply not received the money it takes to tackle the most fundamental problems confronting would-be space explorers and entrepreneurs.

Chief among these is the high price of getting into space. It costs about \$10,000 per pound to put something in space using the Space Shuttle, and about \$3,000 to \$5,000 per pound using a cheaper "expendable" rocket. Small wonder there are no resorts in orbit yet — even though there is a huge market of customers willing to pay up to \$1 million each for such an "adventure vacation."

Why this horrific cost? Simple. What we are flying to space was never intended to fly for cheap. And we have not provided NASA, or the Air Force, with adequate funding to invent something better.

The Space Shuttle design, for example, is 30 years old. The U.S. hasn't developed a major new space flying machine, or even an engine for one, in more than three decades. With expendable launchers — which burn up and fall into the ocean as they loft their payloads — its worse. These space workhorses have been endlessly tinkered with and incrementally improved (with billions of private, shareholder dollars), but their fundamental designs and technology are nearly a half-century old.

To paraphrase the emperor in Episode VI "Return of the Jedi," we are paying the price for our lack of vision.

There is much more at stake than the price of an E ticket to Earth orbit.

(Please see Star Wars on page 5)

SPACE BILLETS

OFFICERS The following is a partial listing of officer billets with space missions, whose incumbents are scheduled to transfer between January-October 2000. For specific billet information and actual availability dates, contact your detailee.

Billets With Subspecialty Code XX75 (Space Systems - General)

ACTIVITY	TITLE	BDES	BGRD	BSUB1	BSUB2	AVAIL
OPNAV	DIR NAVY SPACE SYS DIV	1050	CAPT	0075Q		0005
OPNAV	HD SPACE INFO TRANSFER	1050	CAPT	0075P		0006
USSPACECOM	CH READINESS	1050	CAPT	0075S		0007
NAVSOC	EXEC OFF	1000	CDR	0075S		0008

Billets With Subspecialty Code XX76 (Space Systems - Operations)

ACTIVITY	TITLE	BDES	BGRD	BSUB1	BSUB2	AVAIL
CNSC DET VB	AF EXCHANGE OFF	1000	LCDR	0076P		AVAIL
CNSC DET VB	AF EXCHANGE OFF	1000	LCDR	0076P		AVAIL
JNTSTF JCS WASH	ACTION OFF	1000	CDR	0076S		0004
USSPACECOM	V/DIR INTEL	1630	CAPT	0076S		0004
OSD	DEP DIR TECH COORD	1610	CDR	0076P		0005
USSPACECOM	MILSATCOM	1050	CDR	0076P		0005
USSPAC CB OPSTAF	MSL INT OFF	1700	LT	0076S		0005
USSPACE CB OPSTAF	SPACE CONTROL	1700	LT	0076S		0005
USSPACECOM	SPACE SYS OFFICER	1700	CDR	0076P		0005
USSPACE CB OPSTAF	SPACE CONTROL	1050	CDR	0076S		0006
USSPACECOM	BMD PLNS OFF	1000	LCDR	0076S		0006
OPNAV	OPINTENL MGT/N632 HD TENCAP	1610	CDR	0076P		0007
OPNAV	SPACE ACQ/N633D ASST IMAGERY	1630	LCDR	0076P		0007
CNSG FT MEADE	CLASSIC WIZ OPS	1610	LCDR	0076P		0007
USSPACECOM	MC&G OFFICER	1800	LCDR	0047P	0076S	0007
NAVSPACECOM	OPS/INTEL	1000	LCDR	0076S		0007
JNTSTF JCS WASH	ACTION OFFICER	1000	CDR	0076R		0007
NAVSPACECOM	DIR SPACE PLANS	1050	CAPT	0076P		0007
NSGCD DET POT DC	CLASSIC WIZ OPS	1610	LT	0076P		0008
NAVSPACECOM	PLANS & POLICY	1700	LCDR	0076P		0010
NAVSPACECOM	OPS/INTEL/NSST	1630	LT	0076S		0010
NAVSPACECOM	INTEL BRANCH HD	1630	LCDR	0076S		0010
USSPACECOM	CMD DIR	1050	CAPT	0076Q		0010
NAVSPACECOM	OPS/INTEL	1610	LCDR	0076P		0011
NAVSPACECOM	OPS/INTEL/NSST	1700	LCDR	0076P		0012

Billets With Subspecialty Code XX77 (Space Systems - Engineering)

ACTIVITY	TITLE	BDES	BGRD	BSUB1	BSUB2	AVAIL
SPAWAR SPTECH PG	DPJ ENGCOOR/HD ADV PROG DIV	1510	CAPT	0077P		0005
NAVSOC PT MUGU	ELX ENG/SAT MGR	1000	LT	0077S		0005
SPAWARSYSCOM	MAJ PJ MGR SEL/PM GLOBAL NAV	1510	CAPT	0077P		0006
NAVSPACECOM	SPACE PLANS DIV	1000	LCDR	0077P		0007
SPAWAR	SPACE PJ TECH	1510	CDR	0077P		0008
USNELMT DODPROJ	DIR OPS OSO	1050	CAPT	0077P		0008
USSPACECOM	ELEC ENG	1050	LT	0077S		0009

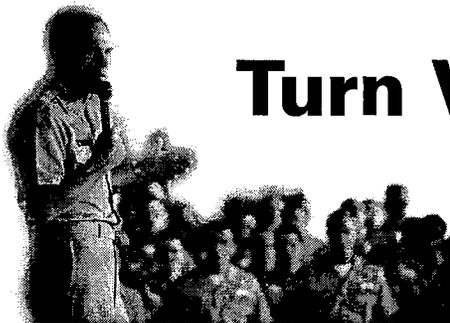
ENLISTED BILLETS

AT NAVAL SPACE COMMAND
DAHLGREN, VIRGINIA

Following is the allowance for enlisted personnel at Naval Space Command, Naval Surface Warfare Center Dahlgren Division, Dahlgren, Va. Dahlgren is located approximately 50 minutes from Washington, D.C., and three hours from Norfolk, Va. The base is also home to the Aegis Training & Readiness Center and the Navy's only active gun testing range. You will also find a small Navy Exchange, commissary, gymnasium, auto and wood hobby shops, year-round pool, library, chapel, theater, and numerous outdoor recreation facilities. If you would like more information about one of the Navy's "best kept secret" duty stations, or would like a welcome aboard package, feel free to contact Lt.Cmdr. Jane E. Hoffman at DSN 249-5152 or commercial (540) 653-5152 (email address: jhoffman@nsc.navy.mil) or the Command Master Chief, ETCM Alan Kinder. Master Chief Kinder can be reached at DSN 249-6115 or commercial (540) 653-6115 (email address: akinder@nsc.navy.mil). If you are interested in receiving orders to Naval Space Command, contact your detailee.

CTA:	E7:1	E6:2	E5:2	E4:1
CTR:		E6:1	E5:2	
EA:	E7:1			
ET:	E7:2		E5:4	E4:2
EW:	E8:1		E5:2	E4:2
FC:		E6:1		
IS:	E7:1	E6:2	E5:4	E4:3
NC:	E7:1			
OS:	E7:3	E6:5	E5:3	E4:13
RM:	E7:2	E6:3	E5:9	E4:1
SK:			E5:1	
YN:		E6:1	E5:2*	

*One YN2 billet is TAR.



Turn Vision Into Strategy

Assured Access to Borderless Domains of Sea, Space and Cyberspace Critical for Effectiveness of 'Navy After Next,' says CNO

By JO1 Brigette Barnes, CNO Public Affairs

In an address to the Current Strategy Forum at the Naval War College in Newport, R.I., earlier this summer, Chief of Naval Operations Admiral Jay L. Johnson spoke about shaping the Navy for a changing world.

"In an earlier age, when deciding how to size and shape a Navy, it was adequate to consider the nature of warfare, the anticipated threats and a few new technologies," said the CNO. "Today, global trends converge in such a way that decision making has acquired a degree of complexity greater than at any other time in our history."

The Current Strategy Forum is comprised of a number of prominent civilian and military thinkers who discuss future U.S. strategy with senior officers attending the Naval War College. Each forum focuses on one issue of strategic national importance. This year's topic was "Discerning the Future: Implications of Global Change for Military Force."

The CNO discussed the "Navy after Next" — the Navy of the future, beyond the ships and aircraft currently being planned and budgeted for. The "Navy After Next" will operate in an environment dominated by speed and access, Adm. Johnson told the audience.

"In today's world, the effects of regional instability are felt globally, and the cost of delayed action is becoming unbearable, and this demands a Navy capable of responding on tight timelines," said Adm. Johnson. "If speed is of increasing value, then those things and processes that slow us down must be eliminated."

A second important trend is the increasing value of access to information, people, ideas and to the key domains of operations. "To us in the Navy, that means assured battle space access, access to the domains in which, and from which, the Navy will maneuver directly and decisively against enemies at sea and ashore," said the CNO. "These borderless domains are the sea, space and cyber-space."

"Our current fleet has awesome striking power, but it must be mixed with combat power derived from maneuver forces and increased sensor capabilities," the CNO said.

The Navy must also plan to respond to "asymmetric threats" — inexpensive, low-technology threats — that avoid head-on confrontation with our forces. In order to keep ahead of these threats in the "Navy After Next," the CNO said two

changes need to be made. First, future capabilities for the Information Age need to be rebalanced. This will include a range of capabilities from increased detection capability to increased combat staying power.

Second, the current downsizing trend must be reversed. The "relative target value" of each individual ship increases, and the threat of the asymmetric competitor is increased as the Navy's numbers are decreased.

"I've said and believed that a force of 305 ships, fully manned, properly trained and adequately resourced, would be sufficient for today's requirements, within acceptable levels of risk," said Adm. Johnson. "But ... the mounting evidence leads me to believe that 305 ships is not likely to be enough in the future."

CNO said the "Navy After Next" must blend the best capabilities of the current force with the capabilities of one specifically designed for assured access in the contested close littoral — speed, maneuver, sensing and robustness.

The CNO challenged the audience to "turn vision into strategy."

"Visionary thinking is what advances societies, civilizations and organizations, even navies," said Adm. Johnson.

Star Wars *(Continued from page 3)*

The cost of getting into space affects the cost of everything from global telecommunications, to micro-gravity research, to national security space systems. More than half the cost of orbiting a commercial communication satellite goes to buying and insuring the launch vehicle — costs that show up in your phone bill, your cable TV bill, your direct-to-home satellite service.

Imagine you are NASA, trying to perform your core mission of exploring the unknown. Or that you are the Air Force, performing space-based national security missions. More than half of your budget is gone for "transportation" before you've designed or built the first satellite, robotic probe or space telescope.

Luke Skywalker would never have gotten off Tatooine like this.

The "Phantom Menace" that threatens our real-life future in space is, in the end, our own complacency — our nation-of-couch-potatoes satisfaction with being spectators rather than doers.

If we invest half as much on real space activities as we do on the made-for-Nintendo variety, missions to Mars, Lunar vacations and thousands of practical new technologies from space are possible within a decade. The immediate need is for an aggressive, intense and focused national effort to revolutionize space transportation.

May the Force be with us.

Satellite Communications

Enabling Information Technology for the Navy of the 21st Century

By Thomas B. Sanford

Over the years, many satellite communications (SATCOM) systems have been used to support the naval warfighter. These systems have all provided various capabilities, but they have traditionally been “stove-piped” — not requiring or allowing direct connection with other systems.

A new Navy initiative called “Information Technology for the 21st Century” (IT-21) will increase the usefulness and accessibility of many satellite-based and shore-based communications systems to Sailors and Marines, and allow Navy to fulfill the tenets of DoD’s Joint Vision 2010 strategy.

One way of viewing IT-21 on a large scale is to consider it as having three major components: information processing, information assurance and information transport. The processing portion includes computers networked in local-area networks and wide-area networks ashore and afloat, with many software applications, databases and data servers.

The assurance component includes the SIPRNET, software firewalls, and security policies and procedures to protect, detect and react to the needs of information security.

The transport segment, for the deployed naval warfighter, is by and large comprised of space-based communications.

Fleet-Driven Strategy

IT-21 is not an established program, with resources planned and identified in the Program Objective Memorandum (POM) process. It is, instead, a reprioritization of existing C4I programs, designed to accelerate the transition to a personal computer-based tactical/support warfighting network.

IT-21 is a Fleet-driven information technology strategy to provide end-to-end

network connectivity for afloat, ashore and mobile naval forces, using a robust SATCOM architecture and a Global Command and Control System (GCCS) backbone to provide the Fleet with a significantly improved warfighting capability.

This strategy leverages existing programs to provide global access to DoD’s classified and unclassified wide-area networks, and to provide joint and combined forces with information superiority and multi-level security. This is achieved by rerouting current, stovepiped communications systems into a linked network of C4 systems in order to provide a common tactical picture to all warfare commanders for better situational awareness.

In any military engagement throughout history, communication between forces has always played a role in deciding the outcome. But in today’s environment of long-range weapons, and with

battles and wars being waged in small, littoral areas all around the world, timely communication is absolutely essential.

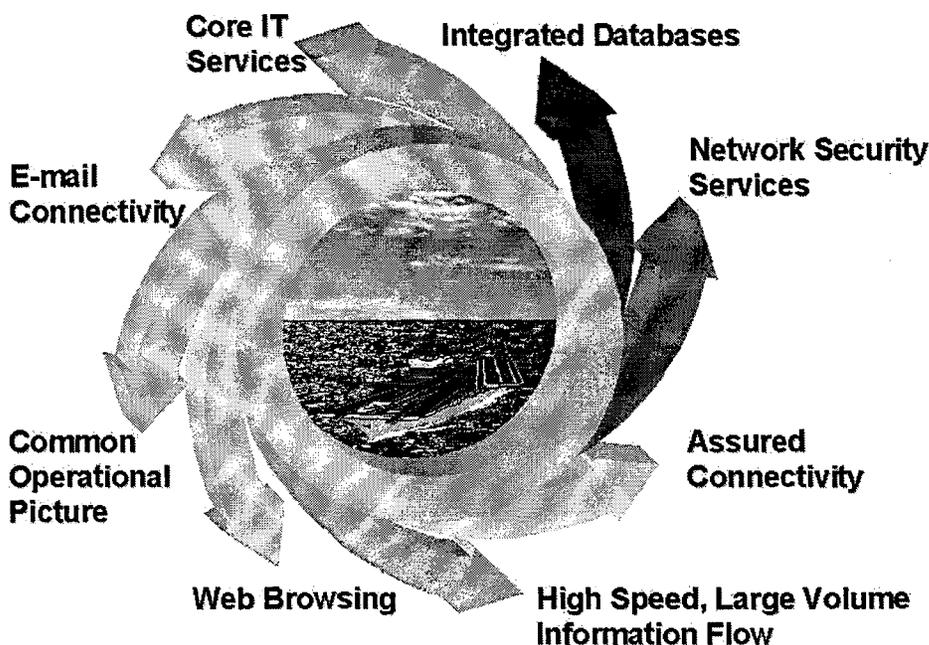
During World War II, the U.S. and its allies amassed the largest fleet of ships ever assembled to assault the enemy stronghold on the Normandy coast of northwest France. This was a good example of “platform centric warfare,” where the combat effectiveness of a military force is increased with the number of platforms in the force.

Empowered by SATCOM

In this type of force structure, messages were primarily passed between ships by Morse code or semaphore flags, both of which were slow, cumbersome means of communication, with a high risk of passing incorrect information.

In the Navy’s current force structure model, referred to as “network centric warfare,” the combat power of a military

IT21 KEY OPERATIONAL CAPABILITIES



force increases with its ability to generate and maintain battlespace awareness, and with improved speed of command. Network centric warfare overlays sensor and engagement information to create a single tactical picture for better situational awareness.

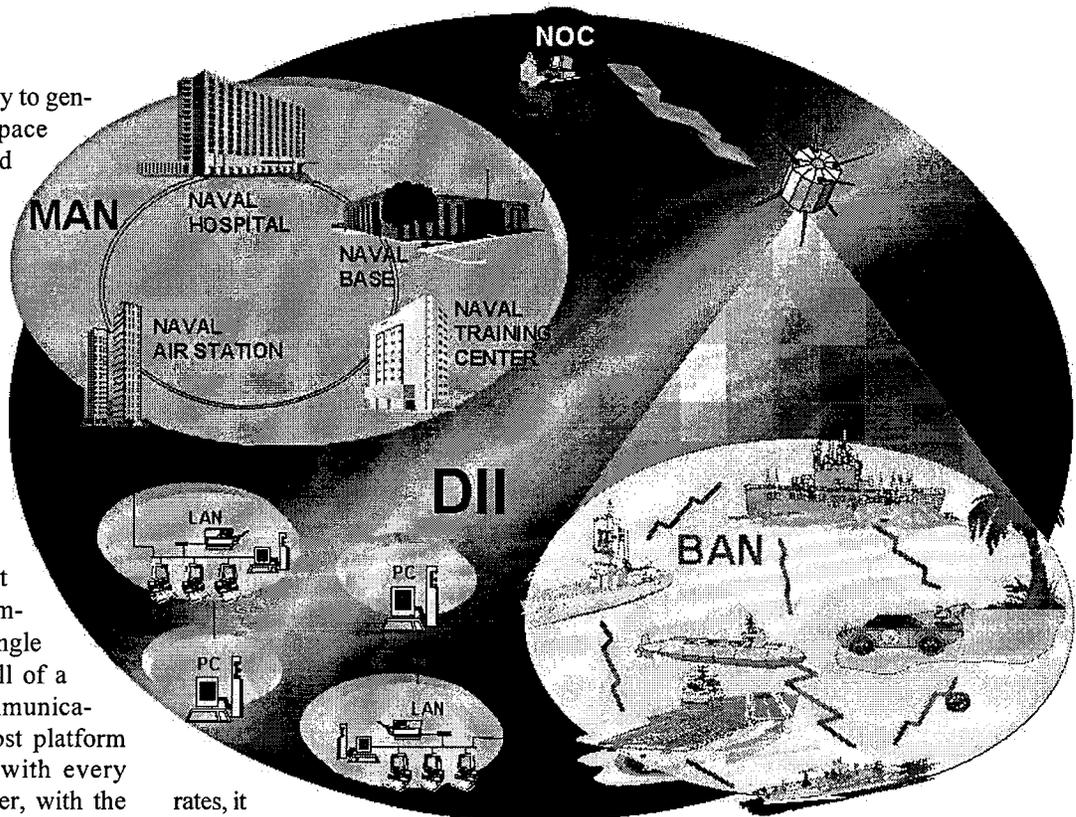
Satellite communications (SATCOM) play a critical role in efficiently connecting all available communications media and systems, to allow an afloat commander access to the complete tactical picture. No single SATCOM system fulfills all of a warfare commander's communications requirements, and most platform classes are not equipped with every SATCOM system. However, with the synergism provided by IT-21, all available SATCOM systems can be used more effectively.

Also, with all communication nodes networked in a web of multiple SATCOM links, there will be no single point of failure; that is, the loss of a single node will not cause a disruption of vital communications. The IT-21 model, empowered by SATCOM, enables the commander, either on shore or at sea, to communicate with his forces with great confidence and speed.

Weighing the Advantages

While all U.S. military services have validated requirements for communications services, none are as critically dependent on reliable SATCOM as the Navy. Once a Navy ship has slipped her moorings and sailed over the horizon, she is out of touch with the rest of the world except for SATCOM services.

Each SATCOM medium, including ultra-high-frequency (UHF), super-high-frequency (SHF), extremely-high-frequency (EHF), Global Broadcast Services (GBS) and commercial services, has its own set of advantages and disadvantages in the IT-21 paradigm. For example, while UHF is easily jammed and is usually capable of providing only low-data-



rates, it nevertheless provides interoperability between joint forces and multi-national coalitions and it has long been the workhorse for providing communications capabilities for ships at sea and other U.S. forces. UHF also provides broad-area connectivity in all tactical environments, and allows the user to communicate while on the move.

The Officer-in-Tactical-Command Information Exchange System (OTCIXS), Common User Digital Information Exchange System (CUDIXS), Fleet broadcast and narrow-band secure voice comms are all supported through UHF satellite communications. Because of the huge demand for UHF SATCOM by all of the military services, and due to the finite capacity available, Navy has subscribed to commercial communication satellites to augment the narrowband capacity.

SHF SATCOM provides high-rate voice, data and video services and supports some interoperability between the services, the National Command Authority (NCA) and three-letter agencies. SHF is also interoperable with NATO users. Navy's largest surface combatants carry SHF terminals that operate through the Defense Satellite Communication System (DSCS). This system provides the de-

Illustration depicts end-to-end connectivity provided for operational forces through the IT-21 initiative.

ployed naval user with access to the Defense Information System Network (DISN), supporting medium to high data rates.

EHF SATCOM systems, such as MILSTAR, are designed to protect data and imagery at low and medium data-rates. The value of EHF, besides its anti-jam and low-probability-of-intercept capabilities, comes from its ability to guarantee survivable communications under conditions that other satellite systems cannot withstand, such as a nuclear environment.

Global Broadcast Service (GBS) will provide high-data-rate capabilities to the Fleet. With this system, the user can receive imagery and data in near-real-time, including national imagery, UAV targeting information, TV-receive-only, CNN and other broadcast services.

Modeled after the commercial Direct-TV and Direct-PC services, this broadcast system will become a powerful tool for delivering high volumes of informa-

(Please see IT-21 on page 8)

IT-21

(Continued from page 7)

tion to deployed forces. But it also brings a difficult new challenge — managing the flow of high volumes of information through spot beams that must be shared by many users.

There are currently two UHF Follow-On satellites with GBS payloads on orbit, and a third (and last) satellite is scheduled for launch this year. However, funding constraints for terminal acquisition are slowing the fielding and evolution of this exciting new capability.

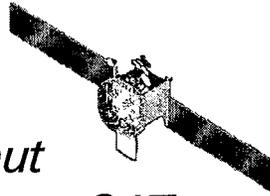
Commercial SATCOM is a common and critical element shared among virtually all Navy platforms to enable IT-21 connectivity.

For IT-21, commercial SATCOM includes the International Mobile Satellite (INMARSAT) system and the Commercial Wideband Satellite Program (CWSP), commonly known as Challenge Athena. Within the next few years, IRIDIUM and other mobile satellite services may provide important capabilities to naval users, and our Sailors and Marines will no doubt find unexpected uses for them.

Since 1991, naval use of the INMARSAT system has increased steadily due to its oceanic coverage and decreasing purchase costs, even though the per-minute charges for use of the system still remain relatively high. INMARSAT terminals can provide voice, fax and data services, and most are STU-III compatible.

With the advent of the new INMARSAT B, M and Mini-M terminals, the costs for use have been drastically reduced, making this system even more attractive as an augmentation to military communications systems, when other systems are not available.

Challenge Athena was originally a demonstration project, designed to provide high-data-rate capabilities to the Fleet to include video teleconferencing, telemedicine and data imagery, using INTELSAT commercial satellites. This concept has been thoroughly tested and is now operational on 14 aircraft carriers and large-deck amphibious warfare ships, with more installations planned over the next several years.



Without adequate SATCOM capabilities, shipboard users at sea will not see the benefits of IT-21

Commercial SATCOM services are unprotected from interference and interception, and they have other challenges, such as the need to negotiate landing rights with various countries. Also, in the case of international consortia (such as INMARSAT), the consortium has the right to impose conditions and restrictions on the use of the system.

IT-21 will help alleviate the need to rely on any one SATCOM system, either military or commercial, and will further help to shorten decision cycles by synthesizing data from different systems into a common tactical picture.

The successful implementation of IT-21 hinges on proper use of the Automated Digital Network System (ADNS), which is a dynamic bandwidth management system, allowing information to be sent by whichever SATCOM medium is most efficient and available. This system will increase information transfer efficiency through network management, and will assist in reducing manning and operations costs, as well as maintaining interoperability with joint forces.

A Virtual Intranet

Without adequate SATCOM capabilities, shipboard users at sea will not see the benefits of IT-21, as there is no other way to pass information to and from ashore locations. SATCOM will allow IT-21 systems to operate in a more efficient manner, and will provide many benefits to the warfighter.

One benefit will be to reduce the strike planning cycle, allowing all appropriate commanders and staffs to participate fully in the process. Further, the commander will be able to exercise positive control of his forces up to the time of attack, and he will receive strike updates much faster than by ground-based communications assets. Also, with SATCOM it will be possible to control and monitor over-the-horizon weapons, such as cruise missiles and unmanned aerial vehicles, as well as receiving more timely battle-damage assessments.

SATCOM will link together all of the IT-21 systems used by our forces afloat, as well as many shore-based systems, into a Navy virtual intranet, providing the user with access into the NIPRNET, SIPRNET and JWICS, and other systems. This will allow the deployed naval users to plug into a global information grid, no matter where they are deployed.

Naval Space Command, as the operational naval component of the United States Space Command, has been designated as the SATCOM Systems Expert (SSE) for six military SATCOM systems. In this role, NAVSPACECOM is helping to implement IT-21 as it assists the Fleet in resolving problems with SATCOM systems and other problems related to the efficient use of space-based assets by naval forces.

With the advent of IT-21 and its coupling with SATCOM, the warfighter will no longer have to manually manage the various communications systems bandwidth before sending or requesting data. Instead, incoming and outgoing communications traffic will be routed automatically, using the most advantageous SATCOM system available. This will result in increased interoperability and speed of command. The resulting enhancements to situational awareness will enable commanders to get the right forces to the right place at the right time, and take full tactical advantage.

Author Thomas B. Sanford is a commercial SATCOM action officer in Naval Space Command's Plans Division at Dahlgren, Va.

NAVSPACECOM Designated Commercial SATCOM Manager

CNO decision brings 'operator's perspective' to key space support role

By Michael G. Brady

The burgeoning use of commercial satellite communications by the Navy — and particularly within the Fleet — prompted the Chief of Naval Operations to designate Naval Space Command as the system operational manager (SOM) for this critical resource.

The decision by CNO to place Naval Space Command in charge of all the service's commercial SATCOM (COMMERSAT) programs came in January, concurrent with the start-up of the Navy's Commercial Wideband Satellite Program (CWSP), formerly known as "Challenge Athena."

Until January, when the Challenge Athena demonstration project was still in the "proof of concept" stage, the Space and Naval Warfare Systems Command (SPAWAR) was responsible for all facets of COMMERSAT. But, according to Daniel R. Martin, head of Naval Space Command's SATCOM Operations Branch at Dahlgren, Va., "SPAWAR's role as an acquisition command and the need for an operator's perspective of this new program were factors in CNO's decision to transition the function to Naval Space Command."

Martin's branch has the responsibility of overseeing both the CWSP program and the Navy's use of INMARSAT communications satellites. He points out, "As the Navy's system operational manager for COMMERSAT, our emphasis is on service to the Fleet."

The SATCOM Operations Branch, supported by four contractor personnel from SEMCOR, Inc., manages the CWSP and INMARSAT programs through close coordination with supported Fleet units and Naval Computer and Telecommunications Area Master Stations (NCTAMS/NCTS) around the world.

Two SEMCOR personnel on the team are Jake Ennis located in Norfolk, Va., and Bret Shuman in San Diego, Calif. They perform the role of commercial SATCOM regional representatives

(CSRRs). According to Michael G. Brady, a retired Navy chief radioman now with SEMCOR, the CSRRs, in particular, "represent an important direct link to the Fleet for Naval Space Command."

The Naval Space Command and contractor team at Dahlgren split the



SATCOM Branch head Dan Martin, Lt. Cmdr. James Wickline and Lonnie Armington (left to right) discuss a bandwidth allocation issue.

COMMERSAT duties between themselves while backing each other up in their respective areas. Lt. Cmdr. James Wickline from the command serves as the commercial SATCOM action officer. Currently, Brady works primarily on INMARSAT while SEMCOR employee Lonnie Armington is the principal action officer for CWSP.

Armington works closely with CSRR personnel and the Bandwidth Management Center (BMC) in Clarksburg, Md., to ensure Navy ships are able to access satellites at the desired bandwidth. The BMC verifies a unit's operating parameters and, with data provided by Naval Space Command, checks the current satellite loading to ensure the unit requesting access will "fit" into the channel of the satellite at the data rate requested.

Once the Bandwidth Management Center has verified a unit will not interfere with other units on the satellite, the center passes the information back to Naval Space Command who forwards the information to the CSRR. The CSRR then works with the servicing NCTAMS/NCTS who assigns the access.

Brady tracks all casualty reports and outages on Navy ships equipped with Challenge Athena, and is responsible for collecting and compiling data used to perform trend analysis on the satellite, ship and Earth terminal systems. This report is completed once a quarter and is sent to every Fleet commander in chief and numbered Fleet commander to serve as a tool for monitoring ship performance and reliability.

As the INMARSAT action officer, Brady tracks installations of INMARSAT systems and is responsible for performing commissionings on every terminal owned by the U.S. Navy. "The commissioning process is what enables the user to actually use the INMARSAT terminal. Without the commissioning the systems

could not be used," he explains.

Brady is also responsible for obtaining and documenting trend analysis data related to the Navy's INMARSAT program.

The CSRRs work very closely with their local NCTAMS/NCTS as well as their respective commercial Earth terminals. "The CSRRs are the Fleet's best friends when it comes to COMMERSAT issues and problems," asserts Brady. "They work directly with the ships, command centers and commercial Earth terminals to make sure that any activation, deactivation or change in service goes off smoothly."

The CSRRs also have proven invaluable through their efforts to troubleshoot and correct many equipment configuration and hardware problems. They are on call 24 hours a day, seven days a week and are frequently called upon to help ship or shore units correct problems as they occur.

"Naval Space Command is playing an active and vital role to help ensure that the fleet receives reliable C4I support," stresses Martin.



Sailors on the 'Space Watch'

By Lt. Marie Gordon

Sailors assigned to the Naval Space Operations Center (NAVSPOC) within Naval Space Command's headquarters at Dahlgren, Va., step into a unique duty assignment that is not likely to be replicated anywhere else in the naval service.

After completing a rigorous training program, they qualify as Space Warning Petty Officers (SWPOs) and are incorporated into operations teams composed of officers, enlisted members and civilians that staff the NAVSPOC around the clock. They work in a real-time environment, serving as Naval Space Command's primary link to the Fleet to provide space force enhancement and space support to naval operations worldwide.

Because Naval Space Command is the naval component to the United States Space Command, NAVSPOC personnel work closely with the other services to coordinate space support and activities in a joint warfighting environment.

NAVSPACECOM initiated specialized training to formally qualify enlisted personnel as SWPOs in 1990. As the command has worked to enhance and streamline the operational capabilities of the NAVSPOC, the role of SWPOs in support of naval space operations has become increasingly important.

From the time Sailors report for duty in the NAVSPOC, they are given six to eight weeks to qualify as SWPO. For most, space operations is a field they've never worked in. The Sailors' learning

OS2 Willie Mitchell, EW2 Eric Laursen and OS3 Benne Clark (clockwise from top left) review a training scenario during a NAVSPOC watch.

areas include the fundamentals of security (physical security, operations security, communications security material system), Fleet support, force enhancement, geolocation of radio frequency interference, space control, orbital mechanics, satellite communications, space systems and communications.

"This job is definitely more challenging (than other watches) because you're working with all the other services, and this job is out of rate for me," comments Petty Officer 2nd Class Jeremy Crow, a Surface Warfare qualified electronics warfare technician.

"We haven't seen any of the things we are doing here at Naval Space Command in the Fleet," he adds.

After weeks of studying, training and standing watches under the instruction of a qualified watchstander, trainees must successfully pass an open-book exam, a closed-book exam, and an on-watch scenario that tests their knowledge base and reasoning process.

"My training at Naval Space Command was well-structured and was just as good if not better than any Navy training I've had," asserts Crow.

Officers assigned to the NAVSPOC also complete a tailored training program that qualifies them as NAVSPOC Watch

Officers (NWOs). The NWOs have wide-ranging responsibilities to include providing proactive Fleet support, maintaining ties to the national and naval command and information infrastructure, supporting NAVSPACECOM's Naval Space Control Center (NSCC) function, and evaluating the performance of consolidated functions, test case scenarios and future concepts. They also conduct and facilitate their own training and assist in the training and professional development of the enlisted watchstanders.

The NWOs are on a 24-hour duty schedule, while the SWPOs work eight-hour shifts. The teams rotate separately using eight "full-time" NWOs and five "full-time" SWPOs, with other qualified officers and enlisted members standing by to augment a watch as needed.

The new watch team structure has improved coordination of functions and activities between civilian and military watchstanders. Although civilian watchstanders are on a different rotation, they now work with a handful of NWOs, instead of the almost 40 officers who used to serve as command duty officers.

Reservists from Naval Reserve NAVSPACECOM 0766 have also completed qualifications for standing watch in the NAVSPOC. They augment NWOs and SWPOs in providing real-time operational support during Reserve drill weekends.

Qualified NWOs:	Qualified SWPOs:
LCDR Sonya Smith	EW1(SW) Eric Laursen
LCDR Martin Beaulieu	CTR2 Lisa Munro
LCDR Michael Larios	EW2 Bob Baker
LCDR Jeffrey Debolt	OS2 Brian Groat
LT Jeffrey Goerges	OS2 Christopher Apple
LT Marie Gordon	OS2 Willie Mitchell
LT Stacy Murch	OS2 Yvonne Ferrell
LT John Prohaska	EW2(SW) Jeremy Crow
LT Steve Davis	OS2 Tarris Randolph
LT Paula Labbe	OS2 William Bradshaw
LT Martin Riley*	OS2 Calvin Revelle
* Reservist	OS2 Jason Rappe
Qualified FEPO	
(Force Enhancement Petty Officer)	
OS1 Anthony Savoy*	All SWPOs
OS2 Nathan Williams	must qualify
OS2 Benne Clark	FEPO before
OS2 Jeri Bloch	they can
OS3 Jenna Anthony	qualify
* Reservist	SWPO

Author Lt. Marie Gordon is a NAVSPOC Watch Officer at Naval Space Command.

Navy Takes Control of Communications Satellites, Further Consolidates Military Space Operations

By Gary R. Wagner

The United States Navy accepted control of one of the Department of Defense's primary satellite communications systems from the U.S. Air Force earlier this month in the latest initiative by the two services to consolidate their space operations.

Naval Space Command assumed control of the Ultra-High-Frequency Follow-On (UHF F/O) spacecraft on July 2. The satellites are being flown by the Naval Satellite Operations Center (NAVSOC), a component of NAVSPACECOM based at Point Mugu, Calif., via new connections to the Air Force's satellite control network.

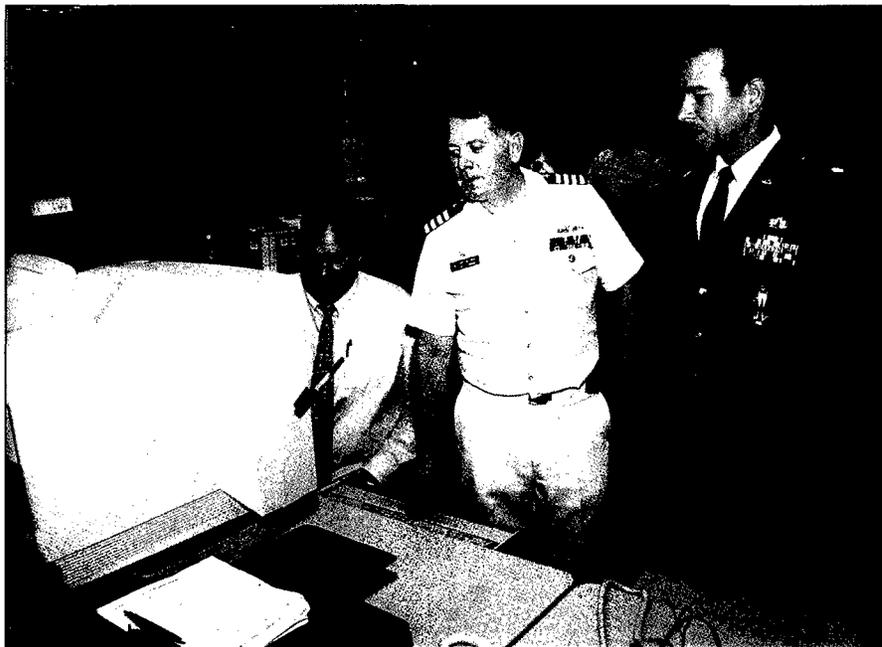
The transfer of satellite control authority (SCA) for the UHF F/O spacecraft is only the second time this responsibility has moved from one branch of the military to another. The first transfer of SCA took place in June 1996 when Navy accepted control of four Fleet Satellite (FLTSAT) communications spacecraft from the Air Force.

The transfer of SCA for UHF F/O marks the single largest exchange of satellites in U.S. military history. Currently, eight UHF Follow-On spacecraft, in geosynchronous orbits around the Earth's equator, provide worldwide communications at ultra-high and extremely-high frequencies, in addition to hosting the Global Broadcast System payload.

A ninth spacecraft — the first launched — never reached its intended orbit and is controlled by the Space and Naval Warfare Systems Command for test and evaluation purposes.

A tenth UHF Follow-On satellite is scheduled for launch this fall to complete the operational constellation.

This transfer of satellite control is a direct result of a study sponsored by U.S. Space Command that recommended the Air Force and Navy consolidate their satellite control systems into one common "plug and use" network. The first part of this consolidation resulted in the Navy



Capt. James Lyons, commanding officer for NAVSOC, directs transmission of the first official Navy operational command to a UHF Follow-On spacecraft following the order by Lt.Col. Thomas Billick, commander for 3rd Space Operations Squadron (right), to send the last Air Force operational command.

assuming control of the FLTSAT spacecraft in 1996.

A joint-service team from NAVSOC and 3rd SOPS at Schriever Air Force Base near Colorado Springs, Colo., began working in 1996 to arrange for the transfer of the UHF Follow-On satellites following the transfer of the FLTSAT spacecraft.

An agreement between Air Force Space Command and Naval Space Command specified that 3rd SOPS would retain responsibility for launch and early-orbit (LEO) operations for UHF F/O. NAVSOC was to assume responsibility for conducting day-to-day operations of the UHF F/O constellation following LEO of the last UHF Follow-On satellite scheduled to be launched in late September.

However, a reduction in the number of UHF F/O personnel in 3rd SOPS prompted a modification to the inter-service agreement to allow for an early turnover of UHF F/O satellites 2-9 to the Navy prior to the launch of the last spacecraft.

NAVSOC began preparing for the

UHF F/O mission in early 1996 with a study of system upgrades required to complete commanding operations on the spacecraft. A four-phase transition plan was drafted in the fall of that year.

The first phase began in January 1997 with the study of engineering and anomaly resolution requirements. NAVSOC and 3rd SOPS personnel began working together on the technical aspects of operating the constellation. NAVSOC's Detachment Delta operators and engineers at Schriever AFB worked closely on day to day operations issues with 3rd SOPS personnel during the transition, and 3rd SOPS temporarily assigned an officer to NAVSOC at Point Mugu to review pass plans.

The second phase incorporated the orbit analysis and mission planning aspects of operations. Mission planners and orbit analysts from NAVSOC and 3rd SOPS traveled between both commands to study, verify and approve the transi-

(Please see Transfer on page 12)

Transfer

(Continued from page 11)

tion of planning and operations functions from the Air Force to the Navy.

During the third phase, which began in June 1998, NAVSOC shadowed 3rd SOPS support operations for UHF F/O. This portion of the transition lasted throughout the rest of the calendar year when the roles were reversed.

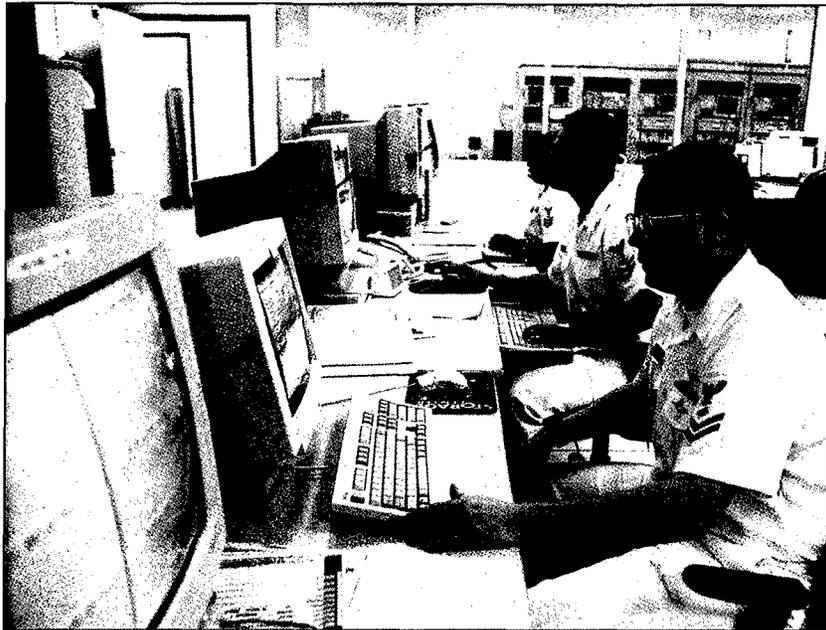
During the final phase at the beginning of 1999, NAVSOC worked to perfect its commanding capability under the watchful guidance of 3rd SOPS. Satellite engineers from 3rd SOPS stayed on hand at Point Mugu to oversee and assist in NAVSOC commanding and Y2K testing.

Through this cooperative effort between NAVSOC and the 3rd Space Operations Squadron (3rd SOPS), the UHF F/O mission transfer was accomplished on schedule and will result in significant savings for the Department of Defense.

According to Tobias Nassif, director of operations for NAVSOC, the Department of Defense will realize an estimated savings of \$500,000 a year as a result of this latest initiative to consolidate satellite control operations.

The first operational Navy command was sent to a UHF Follow-On spacecraft on Jan. 11 of this year, and the Navy accepted control authority for UHF F/O satellites 2 through 9 on July 2.

Satellite control authority for UHF F/O



Sailors stand watches as duty satellite controllers in NAVSOC's operations center at the command's headquarters in Point Mugu, Calif.

Flight 10 will also transfer to the Navy once 3rd SOPS completes LEO.

Since its inception in 1994, the "plug and use" concept has expanded to other government and commercial space operations and has allowed even more overall cost savings.

A ceremony to mark the turnover of SCA to the Navy was conducted at the Naval Satellite Operations Center in Point Mugu on Aug. 3. Air Force Lt. Col. Thomas W. Billick, commander for 3rd SOPS, directed his squadron at Schriever AFB to send the last Air Force operational command to UHF F/O Flight 2.

He then handed over symbolic "keys" to the satellites to Navy Capt. James E. Lyons, commanding officer for NAVSOC, who in turn instructed his crew to send the first official Navy operational command to Flight 9.

The ceremony also observed a long-standing tradition of the U.S. Navy in which a special note is entered in a ship's log to commemorate its commissioning. A verse celebrating the event was written by Kris Ashby, Bill Larkin and Jim Guerette from NAVSOC's Detachment Delta at Schriever AFB, and read into NAVSOC's operations center log.

Capt. James Lyons Takes Command at NAVSOC

Navy Capt. James E. Lyons assumed command of the Naval Satellite Operations Center (NAVSOC) on May 25. He relieved Cmdr. Monica Mathern who took charge of the command on April 27 from the previous commanding officer, Capt. M. M. Herbert, upon his transfer to the Military Satellite Communications Joint Program Office at the Space and Missile Center in Los Angeles.

On his departure from NAVSOC, Capt. Herbert received the Legion of Merit in a presentation by Rear Admiral Thomas E. Zelibor, commander for Naval Space Command. The award recognized Capt. Herbert's leadership which

proved instrumental in keeping the Navy in the forefront of space operations. During his command, he led NAVSOC through a transition period from supporting one constellation of six satellites to a mission of operating six constellations with 23 satellites.

Capt. Lyons reports to NAVSOC from the Pentagon where he was assigned as a military assistant to the Undersecretary



Capt. Lyons

of Defense for Acquisition and Technology at the Defense Science Board.

Capt. Lyons is a 1974 graduate of the Naval Academy and holds a master's degree from Central Michigan University. He commanded USS *James K. Polk* (SSN 645) from 1992 to 1994 and also served in USS *Henry Clay* (SSN 625), USS *Jacksonville* (SSN 699), USS *Lewis and Clark* (SSN 644) and USS *Sturgeon* (SSN 637).

His decorations include the Legion of Merit, Meritorious Service Medal (two awards), Navy Commendation Medal (two awards), Battle Efficiency ribbons and various deployment and campaign ribbons.

NEWS BRIEFS

Supporting Joint Task Force Southwest Asia

SPACE LIAISON OFFICER REPORT

Naval Space Command's Lt. Danny K. Busch recently completed a 120-day assignment in Saudi Arabia as the U.S. Space Command Liaison Officer (LNO) to the Commander, Joint Task Force-Southwest Asia (JTF-SWA), conducting Operation Southern Watch.

The LNO position is filled by assigned personnel from USSPACECOM, Air Force Space Command, Army Space Command and NAVSPACECOM on a rotational basis. The Space Liaison Officer supports the JTF-SWA commander in his mission of enforcing United Na-

tions Security Council resolutions establishing the southern "no-fly" and "no-drive" zones in Iraq.

Additionally, the LNO works jointly with the Space Weapons and Tactics Officer in the JTF-SWA space cell and reports to the director of the Combined Air Operations Center.

The expertise of the space LNO is focused on coordinating space force enhancement, space force application and space control measures in support of the task force's mission.

Space force enhancement refers to those space systems contributing to the

mission of theater missile defense, navigation, meteorology, communications and intelligence. Specific duties include ensuring end-to-end connectivity of the missile warning voice and data networks, providing navigation accuracy assessments to strike planners, and assisting the weather, communications and intelligence officers in obtaining space products and services.

Space force application applies to measures taken to enhance passive theater missile defense along with ballistic missiles intercept systems and procedures.

Space control is the application of all measures to ensure friendly forces' access to space and space products and services, while denying the adversary the same. The space LNO advises the task force and obtains assistance from U.S. Space Command for conducting space surveillance, protection and negation operations to ensure space superiority. Specific duties include apprising the joint task force of capabilities of friendly space forces as well as the capability of the adversary to exploit space services and products.

While Lt. Busch was serving as USSPACECOM's Liaison Officer to JTF-SWA, the United States and its allies conducted Operation Desert Fox in response to increasing "no-fly" zone violations by Iraqi forces. As a consequence, much of his work was related to theater missile defense.

Serving as the Theater Missile Defense/Space Cell coordinator for the Combined Air Operations Center, Lt. Busch supported over 9,000 combat and combat support sorties, including over 600 sorties flown during Operation Desert Fox.

He also led a team to every forward-deployed command center in the area of operations to improve theater missile defense capabilities and ensure situational awareness throughout the area on all matters related to missile defense and space operations.



Surveillance Station Managers Visit NAVSPACECOM

Supervisors from Naval Space Command's surveillance field stations met at Dahlgren, Va., on July 22-24. The station managers' conference covered a wide range of topics to include reviews of Naval Space Command's mission, functions and operations. Also addressed were several issues specific to the space surveillance tracking sites, including system diagnostics, environmental concerns, and Y2K software issues. The schedule also featured tours of the command's operations center and ADP facility. Pictured are (front row left to right) Dale Rubel from Gila River, Ariz.; Ardie Wood from Lake Kickapoo, Texas; Ron Hood from Red River, Ark.; Jessie Driggers from Tattnall, Ga.; and Russ Donalson, technical supervisor from San Diego, Calif.; (back row left to right) Rear Adm. Thomas E. Zelibor, commander for Naval Space Command; Mike Cardinell from Silver Lake, Miss.; Tina Chrismon from Chugach Telecommunications and Computers, Inc. Dahlgren office; Eddie Vasquez from Elephant Butte, N.M.; Harry Witherite, program manager from Chugach's Dahlgren office; Sam Estill, Space Surveillance System program manager for NAVSPACECOM; Andy Shurley, technical supervisor from Hawkinsville, Ga.; Earle Spears from Jordan Lake, Ala.; and Capt. Sheila McCoy, director of NAVSPACECOM's Information Systems Division.

Colonel John Hill New Deputy Commander

Colonel John T. Hill became Naval Space Command's eighth Marine deputy commander in June. He succeeds Col. Michael M. Henderson, who retired in May.

Col. Hill reports from his previous duty as chief of the C4 Systems Operations Division (J6) for the United States Space Command/North American Aerospace Defense Command (NORAD) in Colorado Springs, Colo.

Originally from Beaver Falls, Pa., he was commissioned in March 1972 through the Officer Candidate School program and was designated a Naval Aviator in April 1974.

He reported to Marine Heavy Helicopter Squadron (HMH) 361, Marine Aircraft Group (MAG) 16, at Marine Corps Air Station (MCAS) Santa Ana, Calif., where he flew the CH-53A "Sea Stallion" and

became the squadron's first director of safety and standardization.

In April 1979, Colonel Hill returned to Pensacola and reported to Training Squadron VT-3 for duty as flight instruc-



Colonel Hill

tor in the T34C. In early 1981, he was assigned to Headquarters Training Wing 5 as the phase standardization officer for formation, navigation and night training.

After his promotion to major in July 1982, he reported to HMH-463, 1st Marine Brigade, at MCAS Kaneohe, Hawaii, to fly the CH-53D. During this tour, he served as the squadron administrative officer and director of safety and standardization, and as the MAG-24 operations officer. He also made two WESTPAC deployments with Marine Medium Helicopter Squadron (HMM) 262 aboard USS *Peleliu* and USS *Tarawa* as the squadron logistics officer and operations officer.

In July 1985, Colonel Hill reported to the Naval Safety Center in Norfolk, Va., for duty as an assault helicopter analyst responsible for identifying and resolving fleet safety issues affecting CH-53, AH-1 and UH-1 helicopters and night vision systems. In August 1988, he attended the Marine Corps Command and Staff College at Quantico, Va., and was promoted to lieutenant colonel in July 1989.

Colonel Hill joined HMH-362, MAG-26 at MCAS New River, N.C., as the squadron executive officer. In June 1990, he became the MAG-26 operations officer and deployed with the group to southwest Asia in support of I Marine Expeditionary Force for Operations Desert Shield and Desert Storm.

He returned to the United States in late April 1991 and assumed command of HMH-362 in June. The squadron deployed to the Central Command area of operations aboard USS *Saipan* in September 1991 as the air combat element for the 22nd Marine Expeditionary Unit. In February 1993, Colonel Hill became the executive officer for MAG-26.

Upon his selection to colonel, Colonel Hill was reassigned to Headquarters, U.S. Marine Corps as the director of the Marine Corps Safety Division, a position he held until his transfer in August 1996 to U.S. Space Command.

SPACE COURSES

Interservice Space Intelligence Operations Course (ISIOC)

The ISIOC is offered to military and civilian personnel (O-4 and below) at the SI/TK level, in all the armed services who work as space systems operators.

18 OCT - 29 OCT 99	01 MAY - 12 MAY 00
06 DEC - 17 DEC 99	05 JUN - 16 JUN 00
24 JAN - 04 FEB 00	10 JUL - 21 JUL 00
29 FEB - 09 MAR 00 (MTT DAHLGREN)	07 AUG - 18 AUG 00
20 MAR - 31 MAR 00	11 SEP - 22 SEP 00
10 APR - 21 APR 00	

Interservice Space Intelligence Operations Senior Course (ISIOSC)

A condensed version of ISIOC, the ISIOSC is offered for senior officers, O-5 and above, also at the SI/TK level.

16 NOV - 19 NOV 99	23 MAY - 26 MAY 00
15 FEB - 18 FEB 00	29 AUG - 01 SEP 00

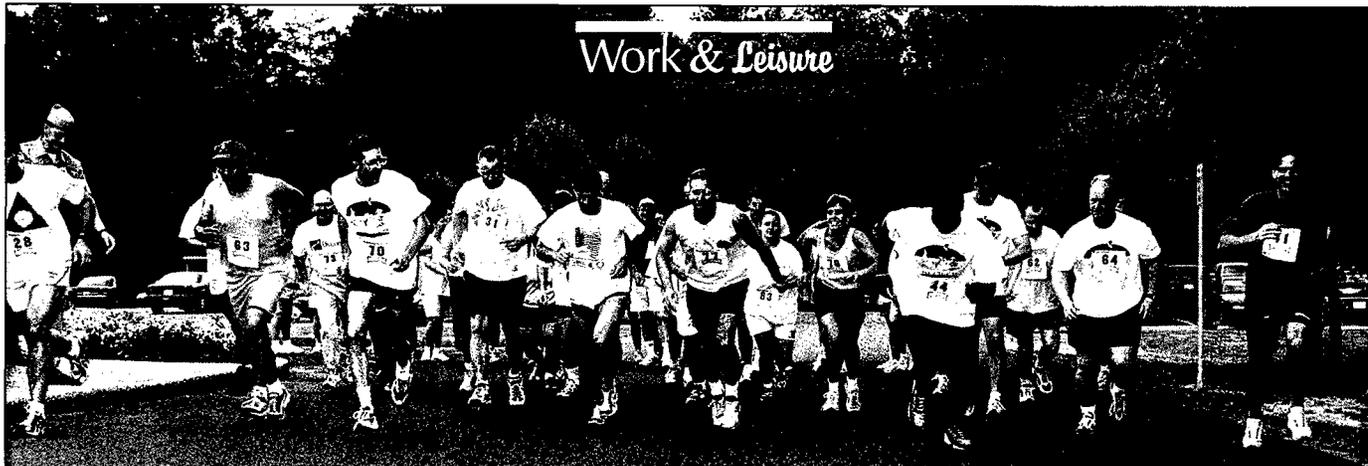
Interservice Space Fundamentals Course (ISFC)

The ISFC is offered to Army, Air Force, Navy and Marine Corps officers, enlisted personnel, and civilian employees entering nonoperator staff positions who need to be knowledgeable of space operations, activities and environment. This course covers a fundamental presentation of the physical environments of space and the potential effects on manned and unmanned space systems. ISFC is offered at the Secret clearance level.

18 OCT - 29 OCT 99	15 MAY - 26 MAY 00
06 DEC - 17 DEC 99	12 JUN - 23 JUN 00
24 JAN - 04 FEB 00	17 JUL - 28 JUL 00
13 MAR - 24 MAR 00	14 AUG - 25 AUG 00
17 APR - 28 APR 00	

All courses are conducted at the Air Education and Training Center, Colorado Springs, Colo., unless otherwise indicated. To obtain a quota, or for further information, contact Bonnie Watson at (540) 653-5151, DSN 249-5151, or email bdwatso@nsc.navy.mil. The following information is needed to obtain a quota: name, rank/rate, Social Security number, UIC, billet title, and phone/FAX.

Work & Leisure



Space Race '99 Draws A Crowd

Nearly 70 runners, walkers and skaters participated in "Space Race '99" sponsored by Naval Space Command at Danegren on May 19. Prizes included trophies for male and female first place and runner-up for all three competitions — run, walk and skate. Trophies were also presented for best predicted time in each event. Every participant in the 5-kilometer race received a T-shirt decorated with a Space Race '99 logo. The fastest overall time for the event was 12:40 by Brad Seybold, a skater from the Joint Warfare Analysis Center (JWAG) at Danegren. Female skater 1st Diane Pickle from NAVSPACECOM was a close second at 18:24. The fastest runner was 12:40 by Brad Seybold from JWAG. The fastest walker was 34:00 by the team of Capt. James Lyons and Lt. John Watkins from NAVSPACECOM. The fastest skater was 12:40 by Brad Seybold from JWAG.

'Rocky Mountain Navy' Staff Grows in Support of U.S. Space Command

Gangway and clear the decks! A bolstered cadre for Naval Space Command Detachment Colorado Springs has relocated to a new facility to help pave the way for an increased naval space presence in "the land of blue."

Marine Col. John Hill (deputy commander for NAVSPACECOM), Navy Capt. John Horsman (detachment officer in charge) and Pieter Traas (technical director) head a staff of five additional military and civilian personnel. The detachment has been enlarged to enable Naval Space Command to better support the expanding missions of U.S. Space Command.

NAVSPACECOM mission areas supported by the detachment include space surveillance, space control, space operations, joint doctrine, naval warfighting requirements, and CINC-

SPACE's long-range planning and Integrated Priority List. In addition, detachment staff represent the command in U.S. Space Command working groups and meetings at Colorado Springs.

"Our goal is to build closer ties in working space-related issues between Naval Space Command headquarters and the various organizations and directorates in Colorado Springs," explains detachment officer Cmdr. Teresia Robinson.

She points out that Naval Space Command's detachment staff represents over 100 years of experience associated with space. "Their blend of knowledge and familiarity with Naval Space Command headquarters, CINCSPACE operations, and warfighting requirements lend positively both to current operations and the future," adds Robinson.

NAVSPACECOM's "Rocky Mountain Navy" staff is located in Bldg. 504 on Peterson Air Force Base in Colorado Springs.



The staff of Naval Space Command's Detachment Colorado Springs pictured are (left to right) Kathleen Peterson, Cmdr. William Woodfin, Capt. John Horsman, Pieter Traas, Cmdr. Teresia Robinson, Col. John Hill, Capt. James Lyons (visiting from NAVSOC), and Lt. John Watkins.

Work & Leisure



RM1 Rivera



OS2 Randolph



Jean Rowe



Terri Smith



Mitchell Gallahan



Fred Firth

NAVSPACECOM Salutes People of the Quarter

Military and civilian personnel at Naval Space Command selected for quarterly performance awards for January through March 1999 were as follows.

January * March

Petty Officer 1st Class Yolanda Rivera was Sailor of the Quarter. Her award recognized her work as Fleet Satellite (FLTSAT) communications scheduler in the command's SATCOM Operations Branch. A Surface Warfare-qualified radioman, her troubleshooting efforts were directly responsible for enabling enhanced communications between deployed ships and the fleet commander during vital operations.

In addition, her expertise with EHF satellite communications contributed to timely resolution of a number of critical circuit outages.

Petty Officer 2nd Class Tarris C. Randolph was Junior Sailor of the Quarter. An operations specialist, he stood over 500 hours as Space Warning Petty Officer in the command's Naval Space Operations Center, in addition to 60 hours during NAVSPOC activation watches. He also spearheaded an effort to organize SWPO reference notebooks used by watch teams around the clock.

Jean Q. Rowe, systems testing and integration supervisor, was Senior Civilian of the Quarter. Her award recognized her planning and preparations that enabled the command to successfully participate in several key Y2K-related exercises and events.

Specifically, her role in the planning and execution of an information technol-

ogy warfare/attack assessment operational demonstration and U.S. Space Command's operational evaluation was critical to their successes. These efforts, coupled with her active role in acquiring

external validation of command information systems, led to Naval Space Command's successful achievement of Y2K compliance.

Terri E. Smith was Civilian of the Quarter. Her award recognized her performance as customer product analyst in the command's Naval Space Operations Center. She was commended for a consistent effort to set a high standard of excellence for customer support.

Mitchell W. Gallahan was named ADP Watchstander of the Quarter. He was cited for his work to quickly diagnose various malfunctions within components of the command's mission processing computer system and Internet connections to the command. His corrective actions restored systems with minimal downtime.

Fred W. Firth, a space event analyst in the NAVSPOC, was Operations Watchstander of the Quarter. His timely response in recognizing an error in the application of the January leap second and his efforts to resolve the error and verify the database correction enabled the NAVSPOC to continue to provide accurate data.

Firth retired on May 21 after 33 years of government service. In recognition of his longstanding contributions to the Navy's space surveillance mission, he received the Meritorious Civilian Service Award.

Quarterly performance awards for April through June were presented to the following command members.

Petty Officer 1st Class Diane L. Tucker, an intelligence specialist, was selected as Sailor of the Quarter. She was cited for her contributions as the leading petty officer in the Intelligence Branch, in particular her efforts to manage administrative and personnel issues for two recent deployment requirements to ensure the fleet received optimum intelligence support.

Petty Officer 2nd Class Kevin D. Rawlings was named Junior Sailor of the Quarter in recognition of his role in installing and configuring the command's classified and unclassified information networks.

An electronics technician in the Information Systems Division, Rawlings identified and corrected over 200 trouble calls, installed and configured over 150 network user accounts, and trained other staff members in computer repair and software troubleshooting in conjunction with this effort.

Seaman Keith R. Kappel was selected as Bluejacket of the Quarter for his work as assistant systems administrator for the command's Intelligence Branch. He managed critical intelligence systems in support of deployed personnel and assisted with graphic production in the development of the Space Tactics Manual.

In addition, Kappel volunteered many hours in support of command morale and welfare events and served as a member of the command's Color Guard.

Jonathan P. Boers was selected as the command's Senior Civilian of the Quar-

Work & Leisure



IS1 Tucker



ET2 Rawlings



ISSN Kappel



Jonathan Boers



Bonnie Watson



Herbert Reynolds



Richard Mason

ter. He was cited for his accomplishments as mission support officer and operational test and evaluation officer in the command's Intelligence/Operations Division.

He has played a leading role in support of space surveillance and space control activities conducted through the Naval Space Operations Center in support of manned space flight missions.

Boers has been employed at Naval Space Command, and previously at the Naval Space Surveillance Center, since 1987. In earlier positions within the command, he has served as Naval Space Operations Center training officer and fleet support technical advisor.

Bonnie D. Watson, a training and education technician, was selected as Civilian of the Quarter in recognition of her contributions to a number of programs. She has managed quotas for several Navy-sponsored training programs, including the Interservice Space Fundamentals Course and the Interservice Space Intelligence Operations Course.

Watson has also supported recent initiatives to update the Naval Space Correspondence Course, and she has been re-

April * June

sponsible for executing the command's drug-free workplace program.

Herbert V. Reynolds was named Operations Watchstander of the Quarter for his efforts as a space control analyst supervisor in the Naval Space Operations Center. His timely processing of space events has ensured prompt dissemination of critical data to support the Fleet and Naval Space Control Center operations.

Though he works as a full-time watchstander in the NAVSPOC, Reynolds continues to be a key player in the on-going development of a special perturbations catalog to enhance the nation's space surveillance and space control capabilities.

Richard K. Mason was named ADP Watchstander of the Quarter. A computer operator, Mason was cited for his quick action and technical skill in correcting a malfunction in a secure mail guard that could not be reset using standard corrective procedures. He initiated measures that restored the system in less than five minutes and eliminated the need to recall senior technical personnel.

Colonel M. M. Henderson Ends 'Unprecedented' Tour as Deputy

Marine Col. Michael M. Henderson, deputy commander for Naval Space Command since July 1997, was presented with a second award of the Legion of Merit during an informal retirement ceremony on May 28.

Col. Henderson, the seventh Marine to serve as NAVSPACECOM's deputy commander, retired with 30 years of military service. His award, presented by Rear Admiral Thomas E. Zelibor, commander for Naval Space Command, recognized Col. Henderson's unprecedented tour during which he served for five months as acting commander and provided "critical leadership and vision through periods filled with numerous operational commitments and high personnel turnover."

During Col. Henderson's tenure, the command developed and implemented a new watch officer program to greatly improve the effectiveness of the Naval Space Operations Center. Col. Henderson also spearheaded a reorganization within the command to upgrade and increase the Navy's presence at U.S. Space Command headquarters in Colorado Springs, Colo.



Rear Admiral Thomas Zelibor presents the Legion of Merit to NAVSPACECOM deputy commander Col. Michael Henderson during his retirement ceremony.

DEFY Students Learn About Navy's Hand in War on Drugs

By JO2 Kaye Trammell

One unique Navy command in Chesapeake, Va., is concerned with a very different type of war. Fleet Surveillance Support Command (FSSC) spends each day fighting the war on drugs.

At FSSC, the command mission to wage the war on drugs is taken quite seriously. Whether standing watches in the Operational Control Center of the Relocatable Over-the-Horizon Radar (ROTHR), providing administrative support, or supporting youth drug education programs, the command is determined to make a difference.

This summer, the Sailors of FSSC hosted children participating in the Drug Education for Youth (DEFY) program sponsored by Naval Security Group Activity, Northwest (NSGA). The DEFY program, which has been a part of summers at NSGA Northwest since 1997, is a program that aims to educate pre-teens about the dangers of using drugs.

By using a "hands on" approach, the children spend two weeks raising their drug awareness, working on self-esteem issues and visiting area organizations, such as the city prison. DEFY organizers believe that by showing the children the complete picture of the effect of drugs and alcohol, they can reduce the likelihood of that child becoming a user.

Fleet Surveillance Support Command, which operates the only Relocatable Over-the-Horizon radar in the nation, works through the Joint Interagency Task Force East in supporting the National Drug Control Strategy. ROTHR, the 24-hour "eye in the sky," is feared by drug smugglers throughout the Caribbean for its quick targeting capabilities and accuracy. With the current ROTHR technology and three decades of experience, two strategically placed radar systems are able to track small evasive aircraft transiting the Caribbean.



Children attending the Drug Education for Youth (DEFY) leadership camp pause during their tour at Fleet Surveillance Support Command with commanding officer Cmdr. Kevin Uhrich (back row center). FSSC Photo

The goals of FSSC and DEFY seem a natural pair. During the visit, the children learned how the radar works and how difficult it is for drug smugglers to hide from the radar. In an exciting brief tailored to the pre-teen audience, Cmdr. Kevin Uhrich, FSSC's commanding officer, explained the success of ROTHR. Last year alone, ROTHR aided in the confiscation of 3,931 kilograms of cocaine, 19 aircraft and five surface vessels and the arrest of 22 drug traffickers.

According to Uhrich, illegal drugs burden our society with approximately \$67 billion in social, health and criminal costs each year.

During the visit, Uhrich displayed a

"recipe" of average ingredients in the illicit drug cocaine. After reading such elements as gasoline, sulfuric and hydrochloric acid, Uhrich asked if "anyone in their right mind would put that (into) their body." The DEFY group quickly responded with a negative reply, then erupted in laughter when hearing a clip from the film "Forrest Gump" stating "stupid is as stupid does."

"If we educate our youth," began Uhrich as he addressed DEFY, "then you will know that [using] drugs does nasty things to (their) bodies. Hopefully, you will teach other kids and by the time you are teenagers, we can help rid our country of this problem."

Civilian Length of Service Awards



Catherine Hannick



John Wallace

30 Years

Catherine Hannick

25 Years

John Wallace

20 Years

Kathleen Peterson
Carol Villari

10 Years

Anthony Brown

Decorated Service

Legion of Merit

Col. Michael M. Henderson ... for service as deputy commander for Naval Space Command from July 1997 to May 1999.

Meritorious Service Medal

Cmdr. Jane E. Hoffman ... for service as chief of staff and head of Naval Space Command's Military Personnel and Administration Branch from August 1996 to August 1999.

Navy & Marine Corps Commendation Medals

Lt.Cmdr. Jeffrey E. DeBolt ... as air warfare officer in USS *John F. Kennedy* (CV 67) from May 1997 to March 1999.

Lt. David A. Birmingham ... as operations training officer, command center watch officer and standardization and evaluation officer at Naval Space Command from January 1996 to July 1999.

Lt. Mark G. Fickel ... as detachment officer in charge of Fleet Aviation Specialized Operational Training Group, Pacific Fleet, Detachment Atsugi, Japan, from January 1996 to January 1999.

IS1(SW) Charles J. Taylor, Jr. ... as acting branch chief and leading petty officer at Naval Space Command from June 1996 to May 1999.

OS1 Ricky E. Fortner ... as Training, Standards and Evaluation leading petty officer at Naval Space Command from January 1995 to July 1999.

EWC James D. Harrison, Jr. ... as Naval Space Operations Center leading chief petty officer and operations directorate senior enlisted advisor at Naval Space Command from June 1996 to February 1999.

Joint Service Achievement Medal

Lt. Danny K. Busch ... as U.S. Space Command liaison officer to Joint Task Force-Southwest Asia in support of Operation Southern Watch from November 1998 to April 1999.

Navy & Marine Corps Achievement Medals

Lt. Patrick C. Corcoran ... as Naval Space Operations Center watch officer and systems officer at Naval Space Command from September 1998 to June 1999.

Lt. Jeffrey L. Goerges ... as assistant configurations officer, electronic warfare mission commander, electronic warfare division officer and NATOPS navigator instructor at Fleet Air Reconnaissance Squadron One from February 1996 to February 1999.

BUC Rodney A. Gardner ... as quality control inspector for U.S. Mobile Construction Battalion 74 from April 1996 to December 1998.

CTO1 Brian W. Cattleberry ... as Joint Information Processing Center leading petty officer at Naval Space Command from September 1996 to July 1999.

RM1(SW) James B. Allred ... as communications operator and Navy EHF Communications Controller System administrator in USS *Cole* (DDG 67) from October 1995 to January 1999.

RM2 Tanji R. Johnson ... as UHF satellite communications support petty officer at Naval Space Command from January 1996 to July 1999.

RM1 Marie M. Norman ... as Joint Information Processing Center leading petty officer at Naval Space Command from August 1996 to May 1999.

ET2 Gregory M. Combs ... as a telecommunications maintenance technician at Naval Space Command from March 1996 to July 1999.

IS3 Brian P. Shepos ... as indications and warning watchstander on the staff of Commander Sixth Fleet from May 1996 to April 1999.

Good Conduct Medals

- OS2 Jesse Woods (2nd)
- OS3 Benne Clark (2nd)
- DS2 Kevin Rawlings (2nd)
- OS2 Christopher Apple (2nd)
- EW2 Jeremy Crow (2nd)
- OS2 Brian Groat (2nd)
- ET2 William Grace (3rd)
- CTO3 Michael Heissenbuttle (3rd)
- CTA1 Elizabeth Foster (3rd)

- CTM1 Cassandra McDaniel (3rd)
- RM2 Dean Haworth (3rd)
- RM2 William Watson (3rd)
- OSC David Litten (4th)
- ET1 Clayton Frayser (4th)
- CTACS Denise Collins (5th)
- DS1 Michael Werner (5th)
- RM1 Marie Norman (5th)

U.S. Navy Expert Pistol Medals

- Cmdr. David C. Lyon
- Cmdr. Gerald N. Smith

U.S. Navy Marksman Rifle Ribbons

- EW2 Bob E. Baker
- OS2 Rockell R. Powell

U.S. Navy Sharpshooter Rifle Ribbons

- LT Roger J. Lucas
- OS2 Jessie V. Woods

Advancements

- EW1(SW) Eric Laursen
- OS2 Jeri D. Bloch
- OS2 Benne J. Clark

Letters of Commendation

- IS1(SW) Charles J. Taylor, Jr.
- IS1 Diane L. Tucker
- RM1(SW) Yolanda Rivera
- OS2 Tarris C. Randolph
- ET2 Kevin Rawlings
- CTO2 Keith Dickinson
- ET2 Gregory M. Combs
- ET2 William J. Grace
- ET2 Brian W. Malone
- ISSN Keith R. Kappel
- Jonathan P. Boers
- Jean Q. Rowe
- Terri E. Smith
- Bonnie D. Watson
- Mitchell W. Gallahan
- Herbert V. Reynolds
- Fred W. Firth
- Richard K. Mason
- Francis S. Cage
- Robert E. Taylor

Letters of Appreciation

- Lt. Bryan L. Jung

CALENDAR

Meetings & Symposia

Naval Warfare Exposition & Symposium, Sept. 29-30, Virginia Beach, Va. Sponsored by the United States Naval Institute. Call (410) 295-1067 or (410) 268-6110 or www.usni.org.

Information Systems Security Exposition, Oct. 19-20, Crystal City, Va. Sponsored by AFCEA and National Institute of Standards and Technology. Call (703) 631-6200.

Infotech 1999 Conference & Exposition, Oct. 19-21, Dayton, Ohio. Sponsored by AFCEA Dayton-Wright Chapter. Call (703) 631-6200.

Fall Intelligence Symposium, Oct. 27-28, Washington, D.C. Sponsored by AFCEA. (Classified meeting.) Call (703) 631-6238.

MILCOM '99, Oct. 31-Nov. 3, Atlantic City, N.J. Sponsored by AFCEA and IEEE. Call (703) 631-6170.

Precise Time and Time Interval (PTTI) Systems and Applications Meeting, Dec. 7-9, Dana Point, Calif. Sponsored by U.S. Naval Observatory, Naval Research Laboratory, NASA Jet Propulsion Laboratory and others. Call (202) 762-1837 or (707)528-1230 ext. 118 or <http://tycho.usno.navy.mil/ptti.html>.

West 2000, Feb. 10-11, San Diego, Calif. Sponsored by AFCEA and U.S. Naval Institute. Call (703) 631-6126.

Courses & Seminars

Following courses sponsored by the AFCEA Professional Development Center. Call (800) 336-4583, ext. 6135 or (703) 631-6135 or visit Web page <http://www.afcea.org>.

○ The U.S. Intelligence Community: Who Does What, With What, For What?, Feb. 9-10, San Diego, Calif. (classified).

○ Principles of Communications With Applications in Military Systems, Feb. 8-11, San Diego, Calif.

○ C4ISR Architecture Framework Implementation, Feb. 8-11, San Diego, Calif.

○ Digital Data Communications & Emerging Technologies, Feb. 29-March 2, Fairfax, Va.

Following courses sponsored by the Applied Technology Institute. Call (888) 501-2100 or (410) 531-6034 or visit Web page <http://catalog.com/hitekweb/>.

○ Satellite Industry Status & Trends, Dec. 6, Bethesda, Md.

○ Launch Vehicle Selection, Performance & Use, Dec. 7-9, Huntsville, Ala., and Feb. 1-3, Cape Canaveral, Fla.

○ Fundamentals of Orbital & Launch Mechanics, Dec. 14-16, Beltsville, Md., and Feb. 8-10, Albuquerque, N.M.

○ Hyperspectral Imaging, Jan. 18-20, College Park, Md.

○ Satellite Design & Technology, Jan. 24-27, Beltsville, Md.

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