

has fielded the USQ-86 (V), consisting primarily of an UYQ-70 EPS housing four VME chassis. Three of these are populated with VME card sets for the following: C2P(R), CSDTS, and the Link Management/Monitoring Component. This hardware configuration supports the transformation to Next Generation Command and Control Processor (NGC2P), which will introduce the Beyond Line of Sight Capabilities Joint Range Extension (JRE) and Link 22.

Status

CDLMS has successfully completed Aegis and SSDS Combat System Integration and Test (CSIT) and is currently being installed. CSDTS implementation is ongoing, enabled by, but separate from, CDLMS/C2P(R). NGC2P achieved IOC in FY 2005. It is currently scheduled to complete testing and be approved for full-rate production in early FY 2008.

Developers

GSA/Anteon; Fairfax, Virginia
DRS Inc.; Wyndmoor, Pennsylvania

Common Link Integration Processing (CLIP)

Description

The U.S. Navy and Air Force are collaborating on the CLIP initiative. CLIP is envisioned as an open architecture software-based common tactical message processing and integration capability with applications across various military platforms and installations, including air, surface, C2 shore sites, and ground-based tactical units. A chief objective is to provide greater interoperability and reduce implementation cost. CLIP will be an evolutionary spiral development process with functionality specified at each delivery point to match platform TDL requirements. It will provide the interface to all the various communication systems including current terminals and radios as well as those under development such as JTRS. It will act as a gateway providing translations and data forwarding to legacy systems and be the primary interface to any host system (i.e., combat). CLIP is envisioned to be primarily software that can reside on any operating system or hardware.

Status

A CLIP MOA between PEO-C4I and Space and Air Force Electronic Systems Center was signed in August 2003. All acquisition program documentation for Milestone B is complete and the program received Milestone B approval by ASN RD&A in May 2005. DDG 1000 is being targeted as Navy lead platform. Contract was awarded to Northrop Grumman in June 2005. A successful critical design review was completed October 2006.

Developers

Northrop Grumman; Reston, Virginia



Commercial Satellite Communications

Description

The Commercial Wideband Satellite Program (CWSP) formerly known as Challenge Athena includes a full duplex, high data-rate satellite terminal (AN/WSC-8) and architecture that operates in the C-band spectrum up to 2.048 Mbps. CWSP is a FORCENet enabler which provides for voice, video, data, and imagery circuit requirements. It supports Command Ships (LCC), Aircraft Carriers (CV/CVN), Amphibious Ships (LHA/LHD/LPD) and other selected ships, including hospital ships (T-AH) and submarine tenders (AS). Terminals are also installed at schoolhouse locations in San Diego and Norfolk. Examples of specific communications circuits that are provided include: Distributed Common Ground Surface System-Navy (DCGS-N), Video Tele-Conferencing (VTC), Video Information Exchange system (VIXS), Video Tele-Medicine (VTM), Video Tele-Training (VTT), Afloat Personal Telephone Service (APTS), Integrated Digital Switching Network (IDSN) for voice/telephone, Secret/Unclassified Internet Protocol Router Networks (SIPRNET/NIPRNET), and Joint Worldwide Intelligence Communications System (JWICS). The CWSP terminal uses commercial satellite connectivity and COTS/NDI Equipment. It has transitioned from augmentation to surge, and in recent years has become an integral part of Navy's SATCOM architecture because of the existing and extremely overburdened military satellite communications systems.

Status

The majority of CWSP terminals procured (40 total) are currently installed on 28 ships. Two additional terminals are to be installed on a new construction CVN 77 and LPD 18 and LPD 19. Currently there is no funding for CWSP after FY 2009 at which time the AN/WSC-8 terminals will be placed in inactive equipment maintenance (IEM) status. The Commercial Broadband Satellite Program (CBSP) is scheduled to replace CWSP.

Developers

Harris Corporation

Commercial Broadband Satellite Program (CBSP)

Description

CBSP is scheduled to replace both CWSP and INMARSAT B HSD in the fleet to augment bandwidth not otherwise available from MILSATCOM.

Status

The competitive acquisition process (PEO C4I PMW170) has begun with award date expected in the June 2007 timeframe. The Rapid Development Capability (RDC) process is being used to accelerate procurement and installation on 44 ships by the end of FY 2009. Current funding supports 104 ships across the FYDP (FY 2008-FY 2013). The ultimate objective requires a POM-10 decision for 195 ships (total) across the FYDP FY 2008-FY 2013.

Developer

To be determined.

Deployable Joint Command and Control Capability (DJC2)
Description

The DJC2 is an ACAT-1, joint DoD transformation initiative, with Navy as the lead component designed to provide a standardized deployable Command and Control (C2) capability for Combatant Commanders (COCOMs) and Joint Force Commanders. Fielding of DJC2 will greatly reduce the ad hoc nature of deploying Joint Task Force C2. Real world events such as the such as the Tsunami, Pakistan earthquake, Hurricane Katrina, and the Lebanon evacuation make apparent the need for a robust rapidly deployable Joint Task Force capability. DJC2 supports the Navy Strategic Plan by extending the Joint Sea Base ashore, and supporting rapid, dynamic joint operations. DJC2 will provide the deployable Joint Force Commanders with a level of C4I application integration that is not currently available, and provides the Joint Task Force Commander scalable configurations of Comms, C2, generators, shelter, HVAC, and collaboration tools across up to five security enclaves. DJC2 is built upon the Joint Global Command and Control System (GCCS-J), the Joint Forces Command developed Collaborative Information Environment (CIE) toolkit and existing joint and service C2 programs (especially the GCCS family of systems), and lessons learned from Operation Enduring Freedom and Operation Iraqi Freedom, to equip the Combatant Commanders and Joint Force Commanders with a tested C2 system that is:

- Horizontally and vertically integrated across all levels of command
- Interoperable across joint, coalition, interagency, Non-Governmental Organization/Private Volunteer Organization (NGO/PVO) realms
- Robust, scalable, and rapidly deployable, including an en-route capability
- Spiral development and fielding of evolving technology will help to meet Combatant Commanders and Joint Task Force requirements.

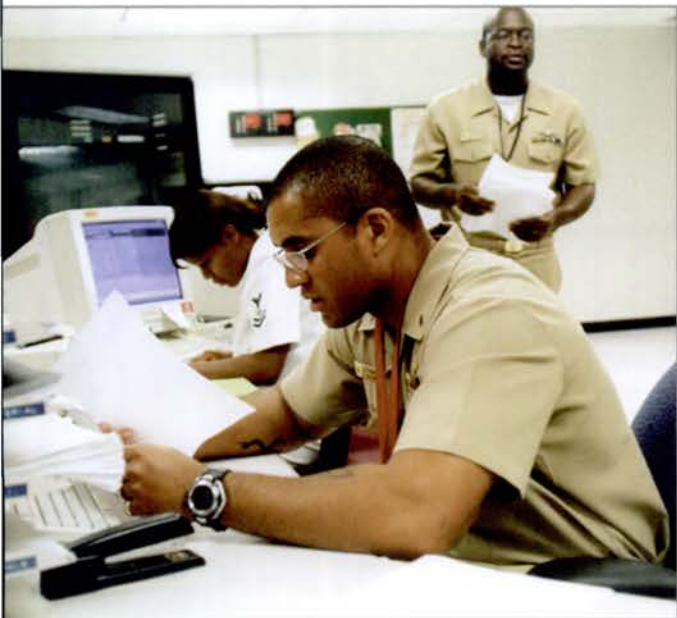


Status

The Capability Production Document was approved by the JROC in November 2004. The Navy acquired the developmental experimentation suite for Joint Forces Command in FY 2004. The initial DJC2 operational test unit was delivered to the U.S. Southern Command in September 2005. The second DJC2 operational test unit was used to support Hurricane Katrina disaster relief operations in New Orleans, Louisiana. The Multi-Service Operational Test and Evaluation (MOT&E) was completed in June 2006. Expect DJC2 to be approved to field a total of six operational DJC2 systems to Southern Command, European Command, Pacific Command and Joint Forces Command in CY 2007. DJC2 has been funded to procure and field Rapid Response Kits and everything over internet protocol in CY 2007-2008 as part of the DJC2 system which will insert new commercial technologies that will shrink the equipment footprint and make for a much more flexible system. The 2005 QDR changed the direction of the Deployable Joint Task Force HQ concept by assigning responsibility to man/train/equip deployable Joint Task Force HQs to Service 2-star/3-star Headquarters (vice Combatant Commanders Standing Joint Task Force HQs). DoD is working on details of how to implement this change. In 2006, based on the QDR, OSD decided to limit the DJC2 program to the fielding and sustainment of the six Incr 1 Systems.

Developers

L3; Panama City, Florida
 Lockheed Martin; Panama City, Florida
 Northrup Grumman; Arlington, Virginia
 BMP COE; College Park, Virginia

**Defense Messaging System (DMS)****Description**

The DMS initiative is an OSD-mandated program designed to eliminate the multitude of expensive “stovepipe” legacy record messaging systems that provide organizational and individual message traffic between operational units. The DMS architecture has been derived using the Multi-command Required Operational Capability (MROC) requirements and has been targeted to provide the armed services and agencies with a high assurance messaging capability. The DMS provides messaging, directory, and management services.

Status

Current DoD implementation of DMS closed the DMS Transitional Hubs (DTHs) for GENSER on 30 September 2003 and for Emergency Action Message (EAM) messaging on 22 February 2004. Navy is transitioning to a Web-based interface known as the DMS Expanded Boundry Solution (DEBS). This transition

eliminates costly client/server architecture and consolidates the DMS service providers from 21 sites down to two. The transition to DEBS will be completed in 2008 for DMS Ashore and 2011 for DMS Afloat. Funding is provided from the Tactical Messaging Program.

Developers

Lockheed Martin; Manassas, Virginia

Distributed Common Ground System-Navy (DCGS-N)

Description

DCGS-N is the Navy's Intelligence, Surveillance, Reconnaissance, and Targeting (ISR&T) processing and exploitation program that will support all levels of the command and control decision process. It will merge ISR&T, mission planning, and situational awareness functions into a Web-enabled, network-centric, joint-interoperable architecture. DCGS-N will support the Navy's command and control tiers of numbered fleet command ships and ashore command centers (Tier 1); carrier strike groups/expeditionary strike groups (Tier 2); and unit level strike platforms (Tier 3). Each tier will have a scalable set of DCGS-N capabilities to support its assigned roles and missions. DCGS-N will utilize network-centric, multi-intelligence processing and exploitation to support the Task, Post, Process, Use (TPPU) process for the Commander Joint Task Force and the maritime warfighter. Leveraging existing GCCS-M, JSIPS-N, and TES-N programs, DCGS-N includes timely interfaces to national, joint, theater, and organic sensors. The aim points generated by DCGS-N will be provided to a variety of air, surface, and sub-surface launched precision guided weapons systems. DCGS-N will be interoperable with the DCGS elements of the other services through the use of the DCGS Integration Backbone (DIB) as the foundation of the DCGS-N architecture.

Status

Between FY 2008 and FY 2012, DCGS-N will be installed on aircraft carriers, large-deck amphibious ships, fleet command ships, and at designated shore-based reach-back support sites. U.S. Fleet Forces Command and OPNAV are working together to determine the appropriate afloat/shore-based architecture and fielding plan that will meet fleet ISR exploitation and targeting requirements.

Developers

Northrop Grumman; Linthicum, Maryland
Raytheon; Garland, Texas
SAIC; Maryland
BAE Systems; Rancho Bernardo, California



Dynamic Network Management (DNM)

Description

DNM will effectively increase Link 16 Network throughput and provide the warfighter greater flexibility in the use of Link-16. DNM will facilitate automated net entry/exit of additional platforms in the future, including smart weapons with a weapons data link, and will provide a real-time capability to modify Link-16 network parameters with existing messages to meet evolving changes in the theater. DNM will also enable capabilities such as IP over Link-16, variable update and throughput rates, monitoring and analyzing of real-time network loading, and executing stacked and multi-net operations. DNM is essential to reducing Link-16 network saturation and is an enabler for the JICO Support System (JSS). It also provides essential support for time critical targeting and time critical strike. DNM includes the following capabilities:

- Time Slot Reallocation (TSR)
- Dynamic Multi-netting
- Network Control Technology (NCT) used by the JICO
- SHUMA — a new contention access capability.

Status

The DNM program enables a fully tested and interoperable version of the platform's host system, known as the Joint Host Demand Algorithm (JHDA) to support the Time Slot Reallocation (TSR) protocol, implemented and fielded in the shipboard Command and Control Processor (C2P) in early FY 2006 and will be fielded in E-2Cs in May 2007. TSR is also being expanded to enable further use of it on the Link 16 network (TSR RC) for other users and applications. A random access mode that provides a nodeless, flexible, and scalable means of adapting the network to rapid changes in topology and message traffic conditions, known as SHUMA, is being lab tested. Both SHUMA and TSR RC will enable fully ad-hoc, dynamic network operations on Link 16.

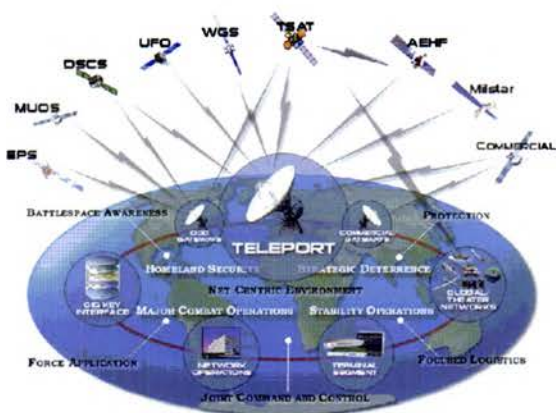
Developers

SPAWARSYSCEN; San Diego, California
Northrop Grumman; San Diego, California

DoD Teleport

Description

The DoD Teleport links the space segment with the shore infrastructure and provides tactical users a worldwide communications interface to the Global Information Grid. Through multiple radio frequency media (military and commercial bands), Teleport provides inter-theater reach back into the Defense Information Systems Network (DISN) and service C4I systems, as well as in-



tra-theater communications support for tactical users. Teleport consists of six primary sites and one secondary site. The Navy operates and maintains Teleports at Wahiawa, Hawaii; Northwest, Virginia; Lago Patria, Italy; and Bahrain. Non-Navy Teleports sites are located at Fort Buckner, Okinawa, Japan; Camp Roberts, California; and Landstuhl/Ramstein, Germany.

Status

DoD Teleport is an Acquisition Category (ACAT) 1AM program with OSD (NII) as the Milestone Decision Authority (MDA). Acquisition Decision Memorandum (ADM) 5 May 2000 established DISA as the Executive Agent and Joint Requirements Oversight Council Memorandum (JROCM) 044-01 of March 2001 established Service Teleport site responsibility as well as Navy as the Teleport Requirements Sponsor. Teleport entered Milestone C for Generation One in July 2002 and reached IOC 1 with X, C, and Ku-bands in April 2004. In July 2004, the JROC approved the DoD Teleport Operational Requirements Document (ORD) Generation Two update, which supported a Milestone B decision in 2006. Teleport Generation Two will provide military Ka-band and initial network-centric IP capability. The Capabilities Development Document (CDD) for Teleport Generation Three (FY 2008-FY 2012) which adds Advanced EHF (AEHF), Wideband Global Satellite (WGS) System, interface to the Mobile User Objective System (MUOS), and Internet Protocol (IP)/Net-Centric capability, has been approved through the Net Centric Functional Capabilities Board (NC FCB).

Developers

Arrowhead; Alexandria, Virginia
ViaSat; Carlsbad, California
Raytheon; St. Petersburg, Florida
ITT; Colorado Springs, Colorado



Global Broadcast Service (GBS)

Description

The GBS can augment and interface with other communications systems to provide a virtual two-way network to deliver a high-speed, one-way flow of high-volume information disseminated quickly by broadcast to proliferated, low-echelon, geographically dispersed users supporting situational awareness, weapons targeting, intelligence, and homeland defensive operations. GBS can support military operations with U.S. allies or coalition forces and non-DoD governmental organizations. GBS will revolutionize communications with increased capacity, faster delivery of data, near-real-time receipt of imagery and data to the warfighter, and reduced over-subscription of current MILSATCOM systems.



Status

The Navy is fielding receive-suites on carriers, large-deck amphibious ships, command ships, guided missile submarines (SSGN), and half of the nuclear-powered attack submarines (SSN). Guided missile cruisers, destroyers, and strategic missile submarines are required, but not funded. Transition to an IP-based enhanced architecture should be completed in FY 2007. The enhanced architecture nearly doubles worldwide capacity with potentially eight times more coverage. Afloat-platform capability will have up to six multiple-receive channels (each up to 24 Mbps) and support additional security enclaves (each of 70 Mbps). Compartmented enclaves such as a top secret or allied broadcast are not funded. Within bandwidth there are no constraints on the number of concurrent video stream products received for viewing on computer workstations across attached networks. The enhanced architecture permits improved sharing and reallocation of broadcast coverage and bandwidth between, users, information product, media types, and security levels. The system is more queue driven, priority based rather than scheduled based. On the large, more capable ships or fixed shore platforms, the enhanced architecture will also permit multiple satellite receive capability, including UFO and WGS or commercial satellites, concurrently.

In January 2005, DoD approved new and maturing operational requirements defining spiral development, including automated satellite spot beam sharing (important naval requirement), two-way transmit receive suites, better management of new space segment resources, enhanced GIG integration, suitcase and rucksack portable receive suites, communications-on-the-move ground mobile receive suites, terrestrial wireless rebroadcast receive suites, global system-wide management and content sharing, flexible system restoration, and bandwidth efficiency metric reporting for better planning and system allocation planning.

Developers

U.S. Air Force, Space and Missile Systems Center/Raytheon; El Segundo, California



Global Command and Control System—Maritime (GCCS-M)
Description

As the naval implementation of the GCCS, GCCS-M is the OSD-designated Command and Control (C2) migration system for the Navy. GCCS-M supports multiple warfighting and intelligence missions for commanders at every echelon, in all afloat, ashore, and tactical naval environments, and for joint, coalition, and allied forces. GCCS-M meets the joint and service requirements for a single, integrated, scalable C2 system that receives, displays, cor-

relates, fuses, and maintains geo-locational track information on friendly, hostile, and neutral land, sea, and air forces and integrates it with available intelligence and environmental information. Key capabilities include: multi-source information management, display, and dissemination through extensive communications interfaces; multi-source data fusion and analysis/decision-making tools; and force coordination. More than 56 joint and naval systems interface with GCCS-M to exchange data.

The GCCS-M program was designated an ACAT-1AC program in March 2001. GCCS-M Version 3.1.2.1 was released to the fleet in FY 2001, and included major enhancements to GCCS-M's intelligence and warfighting software applications. Version 3.1.2.1 reduces time-latency problems with Common Operational Picture (COP) track data, and enables high-data-rate communication-configured ships and shore headquarters to exchange COP track information via a faster IP transmission method. GCCS-M 4.0 completed Operational Test on USS *Nimitz* (CVN 68), COM-PACFLT HQ, and COMSUBPAC HQ and was approved for full-rate production in FY 2005. GCCS-M 4.0 is a significant hardware, software and capability upgrade to the circa-1998 3.X product and is synchronized with roll-out of similar GCCS products by Joint commands and other Services. GCCS-M 4.X will deliver to all designated warships and ashore installations by the end of FY 2010. GCCS-M 4.1 software capability upgrade was approved for Milestone B in FY 2005. GCCS-M 4.1 will deliver software-only capability improvements in late 2008 in response to emerging warfighter C4I requirements and evolving security and technology standards. GCCS-M will transition to the Net-Enabled Command Capability (NECC) based on Net-Centric Enterprise Services (NCES) over the FYDP as these joint programs deliver capability that can be implemented to naval afloat and ashore sites.

Status

GCCS-M Afloat is installed on 260 ships and submarines throughout the Navy. GCCS-M Ashore has been installed at 36 sites including the Chief of Naval Operations Navy Command Center; five fleet commander headquarters; and various allied/NATO sites.

Developers

Various COTS/GOTS

Information Assurance (IA)

Description

IA is defined as information operations that protect and defend information and Information Systems (IS) by ensuring their authenticity, availability, confidentiality, data integrity, and non-repudiation. The Navy's primary IA program is Information Systems Security Program (ISSP). FORCENet is the Navy's component to





the DoD Global Information Grid. The Navy has embraced a Defense-in-Depth strategy to protect FORCENet by employing multiple layers of protection starting at the desktops. The IA Technical Framework (IATF) has been adopted and divides ISSP resources into three fundamental categories: technology, operations, and people. The IATF provides a documented source of technical solutions and guidance mapped to the Defense-in-Depth goals. Selection, training, and retention of network security specialists are vital elements in our ISSP arsenal. ISSP focuses on development, acquisition, implementation, upgrade of the CND products and services such as firewalls, guards, Virtual Private Networks (VPN), intrusion detection systems, electronic key management systems, Public Key Infrastructure (PKI), and Common Access Cards (CAC). ISSP also focuses on the development of new cryptographic technology that can support a wide variety of applications and algorithms.

Status

Acquisition vehicles are in place for TYPE I Communications Security (COMSEC) and TYPE II COTS technologies to support the Navy's bandwidth requirements for secure voice and data, and PKI under the expanding umbrella of Key Management Infrastructure highlighted by the Navy's contributions to the DoD's Crypto Modernization (CM) program.

Developers

Space and Naval Warfare Systems Command (SPAWAR)

INMARSAT B

Description

The INMARSAT B High Speed Data (HSD) terminal includes a full duplex, medium data rate satellite terminal (INMARSAT B) and architecture that operates in the L-Band spectrum up to 128Kbps. INMARSAT B HSD is a FORCENet enabler which provides voice and data to small surface combatants (FFGs and MCMs). It also is installed on Command Ships, Air craft Carriers and large Amphibious platforms.

Status

The INMARSAT B HSD terminals are currently installed on 220 platforms. The CNO N6 Program of Record for INMARSAT B HSD satellite leases has been gradually reduced since PR05. The end date for INMARSAT B HSD continues to be evaluated and will be replaced by the Commercial Broadband Satellite Program (CBSP).

Developers

McKay
STRATOS

Integrated Broadcast Service/Joint Tactical Terminal (IBS/JTT)

Description

The IBS is a system-of-systems that will migrate the Tactical Receive Equipment and Related Applications Data Dissemination System (TDDS), Tactical Information Broadcast Service (TIBS), Tactical Reconnaissance Intelligence Exchange System (TRIXS), and Near Real-Time Dissemination (NRTD) system into an integrated service with a common format. The IBS will send data via communications paths, such as UHF, SHF, EHF, GBS, and via networks. This program supports Indications and Warning (I&W), surveillance, and targeting data requirements of tactical and operational commanders and targeting staffs across all warfare areas. It comprises broadcast-generation and transceiver equipment that provides intelligence data to tactical users. JTT receives, decrypts, processes, formats, distributes, and transmits tactical data according to preset user-defined criteria across open-architecture equipment. JTT is modular and has the capability to receive all current tactical intelligence broadcasts (TDDS, TADIXS-B, TIBS, and TRIXS). JTT is also interoperable with the follow-on IBS UHF broadcasts. However, the current JTT form factor does not meet space and weight constraints for a majority of the U.S. Navy and Air Force airborne platforms. Therefore, to ensure joint interoperability, the Navy and Air Force will continue to support the current Multi-mission Airborne Tactical Terminal (MATT) through a low cost Pre-Planned Product Improvement (P3I) program until the transition to an IBS capable JTRS airborne variant.

Status

A receive-only JTT was delivered to the Navy for early integration efforts in third quarter FY 2000. The Navy received the first four fully capable JTTs (with transmit capability) in third quarter FY 2001. The Navy commenced shipboard installations in fourth quarter FY 2001 for developmental testing. OT&E was completed in fourth quarter FY 2005. JTT fielding occurred from 2001 to 2004. Additional installations are scheduled for 2007 but remain unfunded. JTTs will continue to receive the legacy broadcasts (e.g., TDDS, TIBS, TRIXS) until next-generation broadcast services are developed and fielded.

Developers

IBS: TITAN/BTG; Fairfax, Virginia

JTT: Raytheon Systems; St. Petersburg, Florida





Integrated Shipboard Network System (ISNS)

Description

The ISNS program is a derivative of the common elements from various other programs of record with the purpose of providing robust LANs on all Navy ships. ISNS provides integration and support for all requisite classifications (i.e., SCI, TS, secret, non-U.S., and unclassified). It enables real-time information exchange within the ship and between afloat units, Component Commanders, and Fleet Commanders. It is also a key factor in the implementation of the Navy's portion of Joint Vision 2020. The ISNS program implements networks using a combination of network switches, hubs, routers, servers, PCs and commercial network software application technologies. It provides the capability to establish connectivity to the Defense Information Systems Network (DISN) WAN for global information distribution. In addition, it provides internal information dissemination capabilities for individual fleet units. By providing the infrastructure for shipboard C4I programs, ISNS facilitates implementation of the Navy's IT-21 strategy and is an enabler for network-centric warfare. It provides the transport medium for Web-enabling all IT-21 related programs (i.e., GCCS-M, Voice-Video-Data (VVD)). ISNS networks support the robust information flow requirements necessary to achieve *Sea Power 21* capabilities, and provides the backbone for information interoperability with coalition forces (CENTRIXS-M).

Status

ISNS installations have transitioned from ATM networks to the Gigabit Ethernet Architecture. Under current procurement and installation funding, IOC for ISNS Inc 1 is fourth quarter FY 2011; Inc 2 first quarter FY 2013; Inc 3 to be determined. ISNS was designated an ACAT II Major Weapons Systems on 16 August 2004.

Developers

Hardware for procurement and development of ISNS is under the cognizance of PEO C4I/Space PMW 160 as well as OPNAV (N6). These organizations work together to identify and implement the latest technologies to ensure proper implementation into the program. Engineering, development, integration, installation, training, and life cycle support will be accomplished through Navy and DoD activities.

Joint Interface Control Officer (JICO) Support System (JSS)

Description

The JSS is a "tool set" enabling the JICO to plan, monitor, and manage the Multi-Tactical Data Link (TDL) network in support of the Joint Force Commander. Using the Dynamic Network Man-

agement tool Network Control Technology (NCT), the JICO can accommodate required changes to the operating Network including unplanned entry and egress of Link -16 platforms. In his role as the manager of the multi-TDL network, the JICO contributes to maintaining the near real time Common Tactical Picture and responds to the requirements of the Joint Data Network manager.

Status

Milestone C for JSS is scheduled for FY 2007 with full-rate production to follow in FY 2008.

Developers

Northrop Grumman; Reston, Virginia

Joint Precision Approach and Landing System (JPALS)**Description**

JPALS is a joint DoD effort with the U.S. Air Force and Army. The Air Force is currently designated the lead service. Navy will assume lead service during FY 2007. JPALS fulfills the need for a rapidly deployable, adverse weather, adverse terrain, day-night, survivable, interoperable and mobile precision approach and landing capability that can support the principles of forward presence, crisis response, and mobility. Sea-based JPALS consists of a GPS-INS based precision landing system component (Shipboard Relative GPS) with a low probability of intercept two way data link and an independent backup system. JPALS provides critical enabling technology for emerging Naval programs such as CVN 21, JSF, N-UCAS, and DDG 1000. Sea-based JPALS will also be installed on all air-capable surface ships and all CVN air wing aircraft (F/A-18E/F/G, E-2C/D, C-2A, and MH-60 R/S). Except for the system designated as the SRGPS backup, JPALS will replace the Automatic Carrier Landing System (ACLS) on CVNs, SPN-35 on LH-class Amphibious ships, and various approach systems including Instrument Landing Systems (ILS), TACAN, and Precision Approach Radar (PAR) ashore. JPALS will be civil interoperable and FAA certifiable.

Status

JPALS is in the Technology Development acquisition phase with Milestone B and SDD contract award scheduled in FY 2008. Sea-based JPALS IOC is 2014 and is on schedule to be installed on CVN 78, the lead ship of the CVN 21 program new design aircraft carrier.

Developers

The JPALS System Development and Demonstration (SDD) contract will be awarded in FY 2008 in open competition.



Joint Tactical Information Distribution System (JTIDS)

Description

The JTIDS Link-16 terminal provides rapid, secure, jam-resistant (frequency-hopping) communications, navigation, and identification capabilities appropriate for military use up to and including secret information. A joint program directed by OSD, JTIDS provides crypto-secure, jam-resistant, and low-probability-of-exploitation tactical data and voice communication at a high data rate to Navy tactical aircraft and ships and Marine Corps units. JTIDS also provides capabilities for common-grid navigation and automatic communications relay. It has been integrated into numerous platforms and systems, including Navy aircraft carriers, surface ships, and E-2C Hawkeye aircraft; Air Force Airborne Warning and Command System (AWACS) aircraft; and Marine Corps Tactical Air Operations Centers (TAOCs) and Tactical Air Command Centers (TACCs). Other service and foreign country participants include the Army, Great Britain, and Canada. Additionally, JTIDS has been identified as the preferred communications link for Theater Ballistic Missile Defense programs. JTIDS is the first implementation of the Link-16 Joint Message Standard (J-series) and provides the single, near real-time, joint data link network for information exchange among joint and combined forces for command and control of tactical operations.

Status

The Air Force is the lead service for JTIDS. The program successfully completed OPEVAL in August 1994 and was authorized to enter full-rate production in March 1995. Production is now complete. The Multifunctional Information Distribution System (MIDS) Low Volume Terminal (LVT) is the Pre-Planned Product Improvement (P3I) to the JTIDS terminal. The MIDS Joint Tactical Radio System (JTRS) terminal is the follow-on to MIDS LVT.

Developers

GEC-Marconi Electronics Systems; Wayne, New Jersey
 Rockwell-Collins Avionics; Cedar Rapids, Iowa
 Northrop Grumman; Bethpage, New York



Joint Tactical Radio System (JTRS)

Description

The JTRS is a software-programmable multi-band, multi-mode family of networked radios capable of simultaneous voice, data, and video communications. The program will effect the migration of more than 25 radio families, encompassing thousands of radio systems, to the JTRS family of radio systems. All radios will

be compliant with Software Communications Architecture (SCA), a single, open-system architecture. SCA provides the standards for all JTRS software in the future. In addition, JTRS will be developed with a focus toward integrated Global Information Grid (GIG) transformational capabilities. At the same time the JTRS will be backwards compatible with selected legacy radio systems. At present there are five designated product lines that make up the JTRS family across DoD: Multifunctional Information Distribution System (MIDS), Airborne/Maritime/Fixed Station (AMF), Ground Mobile Radio (GMR), Handheld/Manpack/Small Form Fit (HMS) and JTRS Network Enterprise Domain (JNED). The JTRS requirements are derived from the Joint Tactical Radio System (JTRS) Operational Requirements Document (ORD) Version 3.2.1 dated 28 August 2006 to accommodate the Increment I requirements. A Capabilities Development Document (CDD) is currently being written to provide the capabilities needed for Increment II; it is expected to go to the JROC in May 2007. JTRS will enable FORCENet by implementing current tactical communications standards in addition to future higher data rate networking waveforms.

Status

In February 2005, USD (AT&L) established a Joint Program Executive Office (JPEO) for the JTRS program. In August 2005, the JPEO determined that the JTRS program required restructuring to reduce program risk. In August 2006 DEPSECDEF signed a memo on the new JTRS Management Structure and named SECNAV as the Lead DoD Component for JTRS. As such, all execution year funding will go through Navy to the JPEO.

Developers

Manufacturers to be determined in open competition.

Lightweight Super High Frequency Satellite Communications

Description

The Super High Frequency (SHF) Satellite Communications (SATCOM) terminal AN/WSC-6(V) and parabolic antenna enables Navy ships to access the Defense Satellite Communications System (DSCS) for reliable, secure, beyond line-of-sight information exchange at medium-to-high data rates. This capability is provided by upgraded and new WSC-6 terminal variants and enhancements to the submarine High Data Rate Antenna, which provides an SHF capability for the Navy's attack submarines. Key services available via SHF SATCOM are: Defense Information Systems Network (DISN), Global Command and Control System (GCCS and GCCS-M), broadcast record message traffic, Tomahawk Mission Planning packages and updates, imagery support, DSN telephone/ISDN access, Joint Deployable Intelligence Sup-



port System (JDISS), Joint Worldwide Intelligence Communications System (JWICS), Unclassified-but-Sensitive Internet Protocol Router Network (NIPRNET), Secret Internet Protocol Router Network (SIPRNET), and Video Information Exchange System (VIXS)/Video Teleconferencing (VTC).

Status

SHF SATCOM capability is being provided to Navy surface ships by several WSC-6 variants according to the requirements of those platforms. Surveillance Towed Array Sensor (SURTASS) platforms are configured with the WSC-6(V)7. One aircraft carrier has the WSC-6 (V)4 variant. Numbered fleet commander flagships (LCC), the other aircraft carriers, and flag-capable amphibious ships (LHA/LHD) are configured with the WSC-6(V)5. This variant provides a dual-termination capability, enabling the ships to establish and simultaneously maintain their C4I links with Naval Computer and Telecommunications Area Master Stations (NCTAMS) and additional links with an Army, Marine Corps, or Air Force Ground Mobile Force (GMF) SHF terminal ashore in the AOR. The WSC-6(V)7 is a single-termination variant being fielded on Aegis cruisers and amphibious ships (LPD and LSD). The WSC-6(V)9 is a single-termination, dual (C/X) band terminal developed to provide wideband, high data rate capability to guided missile destroyers (DDGs) and amphibious ships (LPDs and LSDs). The WSC-6(V)9 terminal is in the process of being fielded on all DDGs (to be completed in FY 2009). Future terminal plans include the Navy Multi-Band Terminal (NMT). All WSC-6(V) variants will be equipped with the Enhanced Bandwidth Efficient Modem (EBEM) (tactical variant) in the FY 2007 to FY 2009 timeframe.

Developers

Electro-Space Inc.; Dallas, Texas
Raytheon; Marlborough, Massachusetts
Various COTS/NDI

Mark XIIA Mode 5 Identification Friend or Foe (IFF)

Description

The Mark XXIIA Mode 5 IFF is a secure, real-time, cooperative blue force combat identification system. Combat identification is a prerequisite in FORCENet, thereby becoming a precondition for each of the other pillars as well. IFF Mode 5 uses technology advances in modulation, coding and cryptographic techniques to provide reliability, security, and performance improvements over Mode 4. It is implemented through evolutionary upgrades to Mark XIIA interrogators, transponders, and processors. Mode 5 can be fielded on all DoD platforms, whether Link-capable or not. It is NATO and JROC-approved and meets U.S. and international civil IFF requirements.

Status

The Navy's ACAT II program of record is based on the improved Mark XII Cooperative IFF Operational Requirements Document, dated 27 April 2001. It will be installed on over 3,000 ships and Navy and Marine Corps aircraft. The program does not include fielding of the shipboard control and display unit, F/A-18 platform integration, or Mode S shipborne interrogation capability. Milestone C was achieved in July 2006. IOC is first quarter FY 2009; FOC is 2015. Navy is the lead service for Mode 5 cryptographic modernization and Mode 5 synchronization across the services. Army and Air Force plan leveraging off Navy development.

Developers

BAE Systems; Greenlawn, New York
General Dynamics Decision Systems; Scottsdale, Arizona

Military Flight Operations Quality Assurance (MFOQA)
Description

MFOQA is a process using data collected during flight to conduct post-flight analysis of aircrew and aircraft systems performance after every flight. No additional equipment is mounted on the aircraft platform and no additional tasking is added to the aircrew during flight. The aircrew can remove the data collection card and take it to the squadron ready room and load in the data to squadron computers. Applying MFOQA software already loaded in the computer, the aircrew can replay the flight in animation, noting geographic position, instrument readings and aircraft performance parameters. Through this analysis and recording, maintenance personnel can perform diagnostic analysis of the aircraft systems, aircrews can self-evaluate their performance, and squadron leadership can review and counsel on flight procedures, safety issues and training issues. The ultimate payoff will be increased readiness. Data from the flight is aggregated, after removal of aircrew and aircraft identification, for trend analysis at upper tiers of command at the group, wing and type command level. Flight operations quality assurance has been used in the commercial aviation industry for several years. Surveys of the airlines have yielded high praise for this process and for its benefits to maintenance, operations, safety, and training.

Status

The Navy has developed a plan to implement MFOQA across Naval Aviation. The lead aircraft is the F/A-18C/D/E/F, followed by the MH-60R/S helicopters, the CH-53E heavy lift helicopter, the MV-22B tilt-rotor aircraft and the T-45 trainer. Initiated with funding beginning in FY 2006, the current schedule is to achieve IOC in first quarter FY 2010

Developers

To be determined.



Multi-functional Information Distribution System Joint Tactical Radio System (MIDS-JTRS)

Description

The MIDS-JTRS is an engineering change proposal migrating the MIDS Low Volume Terminal (LVT) to Joint Tactical Radio System Software Communication Architecture (SCA) compliance. MIDS JTRS will be a four channel software programmable radio capable of processing Link-16 on one dedicated channel and other JTRS waveforms on the remaining three channels.

Status

MIDS-JTRS is in early development with IOC in the F/A-18 expected in FY 2009.

Developers

ViaSat; Carlsbad, California

Data Link Solutions; Cedar Rapids, Iowa

Multi-functional Information Distribution System (MIDS-LVT)

Description

MIDS-LVT is a multi-national cooperative development program to design, develop, and produce a tactical information distribution system equivalent to Joint Tactical Information Distribution System (JTIDS), but in a low-volume, lightweight, compact terminal designed for fighter aircraft with applications in helicopters, ships, and ground sites. Navy procurement, limited by available resources, is targeted for F/A-18 Hornet aircraft as the lead aviation platform and surface craft. MIDS-LVT is a pre-programmed product improvement and replacement for JTIDS, providing identical capabilities at reduced size, weight, and cost. As a P3I of the JTIDS Class 2 Terminal, the MIDS-LVT will employ the Link-16 (TADIL-J) message standard of Navy/NATO publications. MIDS-LVT is fully interoperable with JTIDS and was designed in response to current aircraft, surface ship, submarine, and ground host volume and weight constraints. The solution variants, MIDS-LVT (1), MIDS-LVT (2), and MIDS-LVT (3), support Navy, Marine Corps, and Air Force aircraft; Navy ships; Army Patriot, THAAD, MEADS and ground-based defense systems; Air Force and Marine Corps ground-based command and control platforms; and potentially other tactical aircraft and ground-based systems. MIDS-LVT is an international project partnering the U.S. with Germany, Spain, Italy, and France. The MIDS-LVT (1) variant will be used in the MIDS on ship program providing the Link 16 capability to new Construction Surface Combatants.



Status

The program entered the engineering, management and development (EMD) phase in December 1993. MIDS was approved for LRIP in FY 2000. It reached IOC on the F/A-18C/D Hornet in FY 2003. MIDS is being procured for F/A-18 C/D/E/F/G aircraft. The U.S. is the MIDS-LVT program leader with Germany, Spain, Italy, and France entering into a European partnership, called EUROMIDS. The Air Force F-15 fighter variant, MIDS-LVT (3), is currently in full-rate production and has reached IOC. The Army variant, LVT-2 entered full-rate production in September 2003. The Navy/Air Force variant, LVT-1, passed OPEVAL and was authorized to enter full-rate production on 9 September 2003. MIDS on ship is scheduled for IOC in late FY 2006. Additionally, in order to maintain continuity with the MIDS-JTRS initiative, Program Management and Acquisition Authority for the MIDS-LVT has transitioned to the JTRS JPEO with resource sponsorship under the oversight of CJCS (J6). However, contract management and procurement responsibilities remain with COMNAVSPAWAR (PMW-780).

Developers

ViaSat; Carlsbad, California

Rockwell-Collins; Cedar Rapids, Iowa

Data Link Solutions; Cedar Rapids, Iowa

An International consortium, MIDSCO, developed MIDS-LVT. EUROMIDS will be the European producer of MIDS terminals

Mobile User Objective System (MUOS)**Description**

The MUOS will provide a replacement tactical narrowband satellite communications (SATCOM) capability to the UHF Follow-On (UFO) satellite program. MUOS has been designated a DoD Space Major Defense Acquisition Program (MDAP) and will leverage commercial technology to the greatest degree possible. It will provide tactical narrowband netted, point-to-point, and broadcast services of voice, video, and data worldwide. It will consist of four geo-synchronous satellites plus a spare and provide a four-fold increase in network accesses. The target users are unified commands and joint task force components, DoD and non-DoD agencies, and allied and coalition mobile users who need to communicate while on the move.

Status

Concept exploration studies, AoA, the component advanced development phase, and preliminary design review have been completed. PEO Space, PMW 146 awarded the RR&DD contract to Lockheed Martin on 24 September 2004. MUOS has now entered the critical design review phase and is expected to reach On Orbit Capability (OOC) in 2010. The program successfully completed



Key Decision Point (KDP) C on 1 August 2006 and gained Milestone Decision Authority (MDA) to continue with the final design. Build Decision for the first two satellites is scheduled for October 2007. The MUOS Capability Production Document (CPD) is in formal Navy review.

Developers

Lockheed Martin; Sunnyvale, California

Boeing; El Segundo, California

General Dynamics; Scottsdale, Arizona

Link-22

Description

Link-22 is the next-generation NATO Tactical Data Link also referred to as the NATO Improved Link Eleven (NILE). It is a co-development program with seven NATO countries and is in the latter half of its research and development phase. As an evolutionary new Link design, Link-22 is based on modern, media-independent networking technology that will be applied in the exchange and forwarding of tactical data at extended ranges and between multiple networks over a variety of RF media. A member of the J-series family, Link-22 will complement Link-16 by providing Beyond Line of Sight (BLOS) connectivity among C2 platforms and modern, robust, relay/routing techniques. The Link-22 design includes a growth feature to accommodate the addition of SATCOM media for BLOS J-series data exchange. Link-22 will support interoperability with critical allied/coalition partners that have transitioned from Link-11 to Link-22 but do not possess a Link-16 capability. Implementation of Link-22 will ensure allied/coalition forces maintain the level of situational awareness required to plan and execute coordinated combat operations across the allied/coalition Area of Responsibility. Since Link-22 is an evolutionary Tactical Data Link (TDL), the Next Generation Command and Control Processor (NGC2P) will implement hardware and software changes that will provide a full Link-22 capability with little, if any change, to host combat systems.

Status

Link-22 was introduced in an adjunct processor to Common Data Link Monitoring System (CDLMS) in FY 2006. Full Link-22 functionality will be introduced as part of the Next Generation Command and Control Processor (NGC2P) in FY 2007.

Developers

Northrop Grumman; San Diego, California

VIASAT; San Diego, California

SPAWARSYSCEN; San Diego, California

NAVSTAR Global Positioning System (GPS)

Description

The NAVSTAR GPS is a space-based, satellite, radio navigation system that provides users with worldwide, all-weather, three-dimensional positioning, velocity, and precise time data. Navy requirements include the integration of GPS in more than 300 surface ships and submarines, 5,100 aircraft, as well as integration of shipboard combat systems with the Navigation Sensor System Interface (NAVSSI), and anti-jam protection for high-priority combat platforms through the Navigation Warfare (NavWar) Program. GPS plays an important role not only in navigation, but also in precision strike weapons, naval surface fire support systems, and ship C4I systems. NAVSSI is a system that collects, processes, and disseminates position, velocity, and timing data to weapons systems, and C4I and combat support systems onboard surface warships. This system hosts embedded, next-generation, card-based GPS receivers. NavWar will provide anti-jam antennas for the protection of select naval platforms to ensure a continued high level of mission effectiveness in a GPS-jamming environment. NavWar also incorporates the capabilities of GPS modernization into Navy user equipment to receive future military satellite signals.

Status

All ships and submarines have completed their initial GPS installations. Aircraft integrations are ongoing. The FY 2007 budget supports equipping the remaining planned aircraft with initial GPS capability, providing surface combatants with modernized NAVSSIs through the FYDP, and ensuring that the GPS signal is protected on naval platforms.

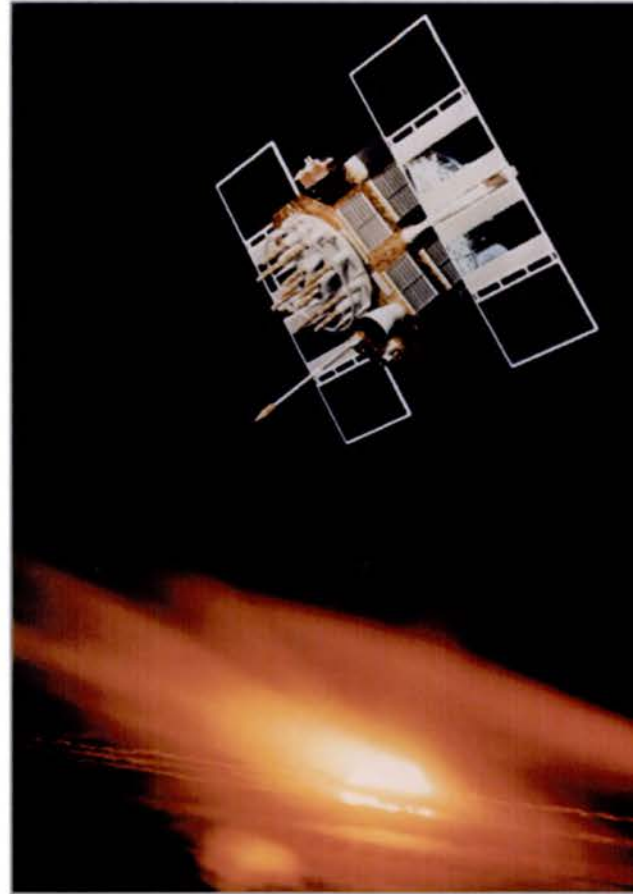
Developers

Rockwell-Collins; Cedar Rapids, Iowa
Raytheon; Los Angeles, California
Trimble Navigation; Sunnyvale, California
Litton Data Systems; San Diego, California

Navy EHF/AEHF Navy Extremely High Frequency Satellite Communications

Description

The Navy Multi-band Terminal (NMT) is the future satellite communications (SATCOM) terminal that will provide protected and wideband SATCOM services for Navy ships, submarines, and shore stations. NMT replaces the AN/USC-38/Follow-on Terminal (FOT). NMT will provide a family of anti-jam, low-probability-of-intercept, and low probability of detection EHF SATCOM terminals. NMT supports a variety of protected command-and-



control and communications applications (i.e., secure voice, imagery, data, and fleet broadcast systems). The NMT replaces the WSC-6 terminal series, which provides key wideband SATCOM services via SHF. NMT services include Defense Information Systems Network, Global Command and Control System, broadcast record message traffic, Tomahawk Mission Planning, imagery support, DSN telephone/ISDN access, Joint Deployable Intelligence Support System, Joint Worldwide Intelligence Communications System, Unclassified-but-Sensitive Internet Protocol Router Network, Secret Internet Protocol Router Network, and Video Information Exchange System/Video Teleconferencing. The NMT will also enable the Global Broadcast Service (GBS) suite to access the GBS broadcast. The NMT will be interoperable with Army and Air Force terminals. The NMT will allow access to: protected EHF SATCOM services available on Milstar; EHF payloads onboard Ultra High Frequency Follow-On satellites, and three planned (one operational in 2003) Polar EHF payloads. NMT will also allow wideband (X band) access to the Defense Satellite Communications System (DSCS) satellites and to the follow on Wideband Gapfiller Satellites (WGS). Additionally, NMT will expand protected SATCOM services to include those provided by the Advanced EHF (AEHF) satellites. The terminal will operate in the EHF and SHF radio frequency spectra (X, Ka, Ku, and Q bands). The terminal will support the current EHF waveforms: EHF Low Data Rate (LDR) - 75 bps to 2400 bps, and EHF Medium Data Rate (MDR) - 4.8 Kbps to 1.544 Mbps. The NMT will also support the AEHF waveform, which will extend data-rates up to 8.129 Mbps (XDR).

Status

The NMT received Milestone B approval in October 2003. FY 2007 focuses on NMT prototype development by two competing contractors, leading to the award of an engineering development model contract in July 2007. Initial fielding is planned for FY 2012. The Follow-on Terminal (FOT) version of the AN/USC-38 (V) will reach FOC in 2007 for ships and 2009 for submarines.

Developers

NESP and FOT: Raytheon; Marlborough, Massachusetts
NMT Developers: Raytheon; Marlborough, Massachusetts
Harris; Melbourne, Florida

Navy Meteorological/Oceanographic Sensors (METOC) Sensors (Space)

Description

The Navy METOC Sensors (Space) program supports Navy interests in meteorological and oceanographic (METOC) space-based remote sensors. These interests include commitments to satellite, sensor, and operational development activities associated with



the Defense Meteorology Satellite Program (DMSP) and the National Polar-orbiting Operational Environmental Satellite System (NPOESS). The sensors carried on DMSP and future NPOESS satellites provide global oceanic and atmospheric data of direct operational relevance, including sea surface temperature, wind speed and direction, sea ice conditions, precipitation rates, and storm intensity. The program provides for Navy participation in Navy/Air Force cooperative efforts leading to current and future METOC sensor development, including calibration and validation of instruments and delivery of satellite products to the Fleet.

Status

In October 1997, the program commenced development of Coriolis/Windsat, the world's first space-based sensor that passively measures ocean surface wind speed and direction, launched in December 2002. Development of the Airborne Polarimetric Microwave Imaging Radiometer (APMIR) for calibration and validation (cal/val) of the Air Force Special Sensor Microwave Imager/Sounder (SSMIS) and Coriolis/Windsat, began in early FY 1998. APMIR is in service to support the first SSMIS mission on DMSP-F16, launched in October 2003. APMIR will continue as an ongoing cal/val program for DMSP, Coriolis/Windsat, and NPOESS microwave radiometer sensors. In addition to these projects, discussions are underway with NASA, NOAA, and other agencies to fulfill the long-standing requirement for geostationary environmental imagery of the Indian Ocean.

Developers

WINDSAT Sensor: Naval Research Laboratory(NRL); Washington, District of Columbia

CORIOLIS Spacecraft: Spectrum Astro; Gilbert, Arizona

Navy Marine Corps Intranet (NMCI)

Description

NMCI is a long-term initiative between the DoN and the private sector to deliver a single, integrated department-wide network for Navy and Marine Corps shore commands. The NMCI contract, awarded in October 2000, as a seven-year contract with a three-year option, has been extended through 30 September 2010. The contract allows DoN to procure service-wide IT services and provides the shore network infrastructure within the CONUS for the Navy's FORCENet architecture. NMCI provides comprehensive end-to-end information services for data, video, and voice communications for DoN military and civilian personnel and connects to the GIG, making the DoN workforce more efficient, more productive, and better able to support the critical DoD warfighting missions.



Status

NMCI is operational and continues to provide commercial IT services for nearly half a million DoN employees and one Combatant Commander. To date, the DoN has ordered 348,000 of the expected FY 2007 seats and deployed 306,751 end-state seats. Implementing NMCI has enabled the DoN to increase the security posture of its networks and has provided unprecedented visibility into IT costs.

Developers

The NMCI contract was awarded to a team of contractors led by Electronic Data Systems (EDS). The remainder of the contractor team comprises Verizon Business (communications circuits), Microsoft (operating systems and desktop software), Dell (desktop hardware and servers), WAMNET (network architecture), Cisco (switching and network devices), Raytheon (information assurance).

**Naval Tactical Command Support System (NTCSS)****Description**

NTCSS is the combat logistics support information system used by Navy and Marine Corps Commanders to manage and assess unit and group material and personnel readiness. As the logistics management cornerstone of the Sea Base pillar of *Sea Power 21*, NTCSS provides intermediate and organizational maintenance, supply, and personnel administration management capabilities to surface, sub-surface, and aviation operational commanders in peacetime and during war. NTCSS also supports network-centric warfare by integrating logistics information to complement the tactical readiness picture for operational commanders. Through an evolutionary acquisition strategy, NTCSS replaced, merged, and optimized legacy Shipboard Non-tactical ADP Program (SNAP), Naval Aviation Logistics Command Management Information System (NALCOMIS), Maintenance Resource Management System (MRMS), and several smaller logistics applications into an integrated and modernized capability. The first stage of the strategy included hardware modernization and network installations using open system architectures and operating environments common with shipboard tactical programs. The second stage optimized the functional applications using modern software development tools, relational databases, and data replication. Going forward, Business Process Improvements will be developed and implemented under sponsorship of functional and fleet managers. Such planned initiatives include: transfer of shipboard logistics data ashore as part of a broader initiative to Move Workload Ashore and reduce shipboard manpower; making NTCSS data accessible via the Common Operational Picture to enable operational decisions based on near-real time readiness data; and merging systems such as NTCSS, GCSS-MC, and GCSS-M into a unified capability that exchanges data with Naval Enterprise Resource Planning (ERP). As a result, the Navy and Marine Corps will realize increased efficiencies and reduced total ownership costs.

Status

NTCSS is a mature program in full-rate production and continues to be the warfighter's production system to maintain Fleet readiness. FOC at Naval Air Stations and Marine Air Logistics Squadrons has been achieved. FOC for ships and submarines will be achieved by FY 2010. An optimized NTCSS capability, targeted for aircraft squadrons, is undergoing Follow-On Test and Evaluation and pursuant to a fielding decision in FY 2007 will achieve FOC by FY 2011. Upon FOC, a Tech Refresh Phase will replace antiquated NTCSS Hardware/Software and maintain compliance with DoD/DoN Information Assurance and Baseline Reduction mandates.

Developers

The COTS hardware is being procured through indefinite delivery/indefinite quantity government contracts. Engineering, development, integration, installation, training, and life cycle support will be accomplished through Navy and Defense Department activities, with additional support from industry partners.

Open Architecture (OA)**Description**

OA is a core Sea Enterprise component transforming Navy acquisition processes and a critical FORCENet enabler. A broad, operationally focused open architecture definition means having the business and technical environment that encourages collaborative competition for third party developers to replace or add a module anywhere, anytime in a system. The objective is rapid, affordable translation of Fleet requirements into Fleet capabilities. Open business practices are a cost-effective means to that end.

Status

Surface Navy programmed funding for OA beginning in 2003. The CG and DDG Modernization plan started with a technical undertaking to open architecture with de-couple hardware from software for cost-effective sustainment by 2008. All the surface combat systems (AEGIS, SSDS, LCS, DDG 1000 and ACDS through CNI) are under review to ensure development of scalable, modular software application components and to provide greater business opportunities for competitive alternatives. The acquisition-led OA Enterprise Team (OAET) is adopting broader business aspects of "open architecture" for more collaborative competition within and across programs; including small business involvement through the ONR-led Small Business Innovative Research (SBIR) program. By expanding third party Developers' involvement using the SBIR program, the rapid capability insertion program (RCIP) will deliver cost-effective, common capability quickly and more efficiently to the fleet.



Developers

More than 80 companies nationwide, including:

Lockheed Martin; Moorestown, New Jersey; Syracuse, New York; Eagan, Minnesota
 Sippican; Marion, Massachusetts
 Advanced Acoustic Concepts; Hauppauge, New York
 BAE Systems
 General Dynamics Advanced Information Systems; Fairfax, Virginia
 General Dynamics Information Systems; Arlington, Virginia
 General Dynamics Bath Iron Works; Bath, Maine
 Northrop Grumman Ship Systems; Pascagoula, Mississippi
 Northrop Grumman PRB Systems; Goleta, California
 Raytheon; St. Petersburg, Florida; Sudbury, Massachusetts; San Diego, California
 Raytheon Missile Systems; Tucson, Arizona
 Space and Naval Warfare Systems Center; San Diego, California
 Johns Hopkins University Applied Physics Laboratory; Laurel, Maryland
 SECHAN Electronics; Lititz, Pennsylvania
 Integrated Combat Systems Test Facility (ICSTF); Dam Neck, Virginia
 Space and Naval Warfare Systems Center; San Diego, California
 Naval Surface Warfare Center; Dahlgren, Virginia; Port Hueneme, California
 Naval Undersea Warfare Center; Keyport, Washington; Newport, Rhode Island

Tactical Switching
Description

Tactical Switching and its implementation, formerly known as the Shore Infrastructure Master Plan (SIMP), is focused on the automation and conversion of the existing circa-1970 Serial Switched point-to-point shore infrastructure connecting three Navy Computer and Telecommunications Area Master Stations (NCTAMS), ten Navy Computer and Telecommunications Stations (NCTS), 27 NCTS Detachments, 23+ Network Operation Centers (NOC), and 5,270 personnel. The plan currently underway will invoke multiple spirals to implement new technology and automation and infrastructure necessary to evolve the shore infrastructure to two Regional Network Operations and Security Centers (Atlantic/Pacific) and one Global Network Operations and Security Center providing interoperable joint global network-centric services and connectivity to tactical and strategic naval assets. Through this technology and remote management capabilities, this architecture will be managed, monitored, operated, maintained, and defended with fewer than 50 percent of today's manpower resources and eliminate more than 70 percent of today's fixed sites further re-

ducing infrastructure costs.

Status

During FY 2005, the Tactical Switching program provided High Speed Global Ring (HSGR) connectivity between the five critical regions, which enabled accelerated consolidation of services into the Atlantic and Pacific regions. Significant progress has been made to convert the existing Tactical Video Teleconferencing (VTC) to IP reducing reliance on the serial infrastructure and installation of Element Management Systems that will enable remote management and operations of existing equipment. During FY 2006, Enterprise Management and Monitoring systems were evaluated and purchased to further consolidate services and personnel as well as provide tactical and strategic visualization of the Navy enterprise to service and Combatant Command/Commander (COCOM) agencies NetOps in support of GIG operations. Initial Network Management System implementation will be delivered to RNOSC East and West in early FY 2007.

Developers

PEO C41 and Space; San Diego, California

Trusted Information Systems (TIS)

Description

TIS provides a complete cross-domain capability for the automatic exchange of critical intelligence and operational information between U.S., Allied, and Coalition forces. TIS includes both the Radiant Mercury (RM) and Joint Cross Domain Exchange (JCDX) systems. Both systems are Director of Intelligence Directive 6/3 Protection Level 4 (PL-4), Multi-level Secure (MLS) certified providing unique cross-domain information sharing capabilities from top secret Sensitive Compartmented Information (SCI) to General Services (GENSER) and GENSER to unclassified.

RM is certified and accredited by both the SCI (top secret and below interoperability) and GENSER (secret and below interoperability) communities. RM provides a fully-automated, bi-directional, multiple input/output channel capability, that can be serial or network connected, to sanitize, transliterate, downgrade, and guard classified, formatted information to users at lower classification levels. RM also processes unformatted message types and imagery utilizing reliable human review (semi-automated). RM is deployed to more than 200 sites worldwide including all Combatant Commands, aircraft carriers and large-deck amphibious warships, Shared Early Warning, Blue Force Tracking and numerous Air Force and Army sites as well as national agencies.

JCDX is DoD's only comprehensive multi-level C4I system certified to connect to multiple networks at multiple security levels. JCDX serves as the backbone automated information system pro-



viding accredited manual and automatic exchange of multilevel Common Operational Picture (COP), e-mail, imagery, and event-by-event data dissemination. The system provides MLS C4I and cross-domain services to U.S. Joint Intelligence Centers and is the national level defense intelligence system for the United Kingdom and Australia, and is the service-level operational intelligence system for the Japanese Maritime Defense Forces and the Republic of Korea.

Status

JCDX is currently being phased-out of the U.S. inventory in FY 2007 and will be replaced by the Global Command and Control System (GCCS) Integrated Imagery and Intelligence (I3). JCDX Foreign Military Sales customers and Maritime Surveillance System (MSS) sites are currently assessing the impact of this decision. Other developments within TIS are focused on migrating RM's certified MLS capabilities into a Services Oriented Architecture and integrating with additional afloat, joint, and coalition-network architectures. As the Executive Agent of the multi-service RM program, the Navy will continue to oversee RM and RMIG support to more than 200 locations worldwide.

Developers

Maxim Systems; San Diego, California
 Northrop Grumman Mission Systems; Arlington, Virginia
 Lockheed Martin; Denver, Colorado
 Booz-Allen-Hamilton; Chantilly, Virginia



Ultra High Frequency (UHF) Follow-On (UFO)

Description

The Ultra High Frequency (UHF) Follow-On (UFO) satellite program comprises eight satellites and it replaced the Fleet Satellite (FLTSAT), Gapfiller, and Leased Satellite (LEASAT) UHF constellations. UHF SATCOM services, provided by UFO, include worldwide, narrowband, unprotected netted, point-to-point, and broadcast service of voice, video, and data using 5 and 25 KHz UHF channels. UFO also provides a protected Fleet Broadcast using an Extremely High Frequency (EHF) uplink and UHF downlink to provide an anti-jam capability on the uplink. UFOs 4-11 carry an EHF payload that provides anti-jam capability on the uplink and downlink. Protected services include netted, point-to-point, and broadcast service of voice and data. The EHF payload also provides an anti-jam telemetry tracking and control uplink capability. UFOs 8-10 also include a Global Broadcast Service (GBS) payload. GBS uses direct broadcast technology at an extremely high data rate to many users via very small terminals.

Status

Eleven satellites have been launched and eight are operational. The launch of UFO 1 was a failure and UFO 10 was launched

in November 1999 as a replacement. A Gapfiller (UFO-11) was launched in December 2003 to maintain constellation availability at minimum acceptable 70 percent through 2010 to coincide with the launch of MUOS. UFO 3 failed in orbit in June 2005 and UFO 9 failed in orbit in August 2006. This moved the UFO 70 percent availability from 2010 to 2007. Mobile User Objective System (MUOS) is still on track to begin replacing UFO in 2010 leaving a potential 28 month gap.

Developers

Boeing Satellite Systems (BSS); Los Angeles, California
SPAWAR Systems Command; San Diego, California

Undersea Warfare-Decision Support System (USW-DSS)

Description

The USW-DSS program provides an integrated, near-real time, network-centric Undersea Warfare (USW) Command and Control (C2) capability across multiple platforms, even with low bandwidth or intermittent inter-platform communications. USW-DSS leverages existing communication links, networks, contact pictures, and sensor data from air, surface, submarine, theater, and surveillance platforms and integrates them to produce a common USW near-real time decision support tool. It provides a critical capability, not only for the Sea Combat Commander (SCC), but also for the Theater USW Commander (TUSWC), Antisubmarine Warfare Commander (ASWC), and Mine Warfare Commander (MIWC), for an integrated capability to plan, conduct, and coordinate USW operations with multiple ASW and MIW platforms. USW-DSS will provide common and improved visualization, integrated USW platform sensor data sharing, reduced data entry, improved performance prediction, data fusion and reduce redundancy across USW Tactical Decision Aids (TDA). USW-DSS will provide greater understanding of the undersea battle space by allowing the entire force (CSG/ESG, theater, or other) to have a common, thorough understanding of the battle space with characterized uncertainties. USW-DSS uses the spiral development process. A peer review group will select current and developmental technologies to be incorporated into a build-test-build process to develop a network-centric USW capability. Current plans are for USW-DSS to transition into a GCCS-M application with a subsequent migration as part of a maritime application in Net Enabled Command Capability (NECC).

Status

USW-DSS currently uses a Top Level Requirements (TLR) document signed by the Warfare Sponsor, Task Force ASW (formerly N74) on 2 October 2003, and was documented based on high-level guidance from a Net-Centric USW (NCUSW) Mission Needs



Statement (MNS). The TLR was further updated to incorporate new requirements resulting from the 2005 C2 in ASW Study. A Capability Production Document (CPD) reflecting the requirements in the TLR is in draft form. In FY 2007, USW-DSS will be installed on two carrier strike groups as well as theater USW assets.

Developers

Multiple Navy and university labs and industry participants will perform the various developer and manufacturer roles. The software integration role for Build 2 and follow will be a full and open competition.

Airborne

Aerial Common Sensor (ACS)

Description

The transformation of Naval Airborne Information Warfare is driven by the need for a capability supporting a variety of ISR, target acquisition and Information Warfare/Operations (IW/IO) missions during peacetime and through all levels of war. The aging EP-3E aircraft will be replaced once a suitable replacement platform is identified. This replacement platform will align with all *Sea Power 21* pillars, but will primarily support FORCENet by providing fused Multi-INT derived time critical, actionable information to the warfighter. Accomplishing this requires a combination of sensors, including Signals Intelligence (Communication Intelligence/Electronic Intelligence), Imagery Intelligence (IMINT) Electro-Optical (EO)/Infrared (IR), Synthetic Aperture Radar (SAR), Multi-Spectral and Hyper-Spectral Imaging (MS/HSI), Ground/Maritime Moving Target Indicator (G/M MTI), and Measurement and Signatures Intelligence (MASINT) systems. The follow-on EP-3E will be capable of multiple operational configurations, using a combination of onboard and off-board collection, processing and reporting operations. The new platform will be a primary ISR node within FORCENet and will use joint standards and architectures to achieve interoperability across the Global Information Grid. This transformational process will allow for optimum use of external processing while maintaining exploitation, fusion, and dissemination capabilities within the battlespace. The aforementioned capabilities will allow for better use of Low Density/High Demand (LD/HD) personnel assets, deploy with a smaller footprint, and garner a significant manpower reduction. Supporting the Navy objective to provide immediately employable forward-deployed naval forces, the new platform will deploy anywhere in the world within 72 hours. Operating initially without support and with a minimum footprint, it will be capable of conducting operations en route and immediately upon arrival in theater.

Status

Initial Army ACS contract (addressing JROC approved Army and Navy ISR requirements) was awarded to Lockheed Martin in July 2004 and terminated in January 2006. ACS program development preceeded a 2006 Joint service study of ISR requirements which identified the requirements to develop this capability. The EP-3E will be modernized to a common configuration and sustained until a replacement platform is fielded.

Developers

To be determined.

**E-2 Hawkeye Airborne Early Warning
Aircraft Upgrade****Description**

The E-2 Hawkeye is the Navy's airborne surveillance and command-and-control platform, providing battle management and support of decisive power projection at sea and over land in a joint operational architecture. In addition to current capabilities, the E-2 has an extensive upgrade and development program to prepare it as a critical element in an overall joint theater air and missile defense program.

Two upgrades that will ensure that Hawkeyes keep pace with changing tactical environments are the E-2C Hawkeye 2000 and the E-2D Advanced Hawkeye (AHE), including the Radar Modernization Program (RMP). The E-2C Hawkeye 2000, the most advanced Hawkeye variant in production, features Mission Computer Upgrade (MCU), Cooperative Engagement Capability (CEC), Improved Electronic Support Measures (ESM), Joint Tactical Information Distribution System (JTIDS), Global Positioning System (GPS), and data and voice satellite communications. The MCU greatly improves weapons systems processing power enabling incorporation of CEC. In turn, CEC-equipped Hawkeyes will significantly extend the engagement capability of surface forces. It is key to early cueing of the Aegis Weapon System, dramatically extending the lethal range of the Standard Missile (SM-2). Advanced Hawkeye's RMP is developing a radar that will bring over-the-horizon, overland detection, and tracking to the strike group. This and CEC will fully integrate Advanced Hawkeye into the Joint Integrated Air and Missile Defense (JIAMD) role. This advanced detection and tracking capability, in conjunction with Aegis and upgraded Standard Missiles, will allow strike groups to deploy an organic, theater-wide air and cruise missile Sea Shield umbrella to protect high-priority areas and U.S. and coalition forces. The E-2's systems are fully interoperable with the Airborne Warning and Control System (AWACS) and ground-based systems for a seamless joint architecture. The Hawkeye will continue as the airborne "eyes and ears" of the fleet as it applies its capabili-

ties in the integrated joint, overland, theater-wide air and cruise missile-defense environment. Many technological upgrades being incorporated in the Hawkeye represent leading-edge improvements for U.S. forces, not just in the Navy's theater air and missile defense programs.

Status

Two E-2D Advanced Hawkeye System Development and Demonstration aircraft had a "Keel Start" ceremony in April and July 2005. First flight is scheduled for fourth quarter FY 2007, with IOC in FY 2011.

Developers

Northrop Grumman; Bethpage, New York
Northrop Grumman; St. Augustine, Florida



EP-3E Modification and Sustainment

Description

The EP-3E is the Navy's airborne Information Warfare (IW) and tactical Signals Intelligence (SIGINT) platform supporting naval and joint commanders. EP-3Es provide long-range, high-endurance support to aircraft carrier strike groups and expeditionary strike groups in addition to performing independent maritime operations. The current force consists of two active squadrons. The original EP-3E Joint Airborne SIGINT Architecture Modification (JMOD) program has been restructured to bring all EP-3E platforms into a common configuration and will be sustained until Aerial Common Sensor (ACS), a joint development program with the Army, can be fielded with an FOC of approximately 2017. EP-3E modernization/sustainment strategy includes three elements: P-3 to EP-3E conversions; EP-3E JMOD common configuration; and airframe inspections/repairs.

- **P-3 to EP-3E conversions:** The P-3 to EP-3 conversion program converts five P-3C Orion aircraft to EP-3E platforms. Two were completed in FY 2006 and three are scheduled for completion in FY 2007.

- **EP-3E JMOD Common Configuration (JCC):** The EP-3E JMOD Program has been restructured to align all EP-3E mission systems to a common baseline that meets the challenge of rapidly emerging threat technology, identified as the JCC. JCC will address mission system obsolescence and incorporate "quick reaction" capabilities specifically developed for Operations Enduring Freedom and Iraqi Freedom. JCC will also accelerate capabilities, developed under the JMOD program, to the fleet five years ahead of schedule. The JCC includes expanded ELINT exploitation capability and COMINT signals coverage, new multi-platform COMINT Direction-Finding Capability, and advanced Special Signals-Collection capability.

• **Inspections/repairs:** EP-3Es will be sustained through a series of Special Structural Inspections (SSIs) and Special Structural Inspection-Kits (SSI-Ks). SSIs will be completed on all aircraft. SSI-Ks will be completed on select aircraft meeting criteria as required and will include preemptive replacement of fatigue critical structures.

Status

The EP-3E JCC ORD was approved on 10 June 2005. The JCC Development/Production Contract was awarded on 29 June 2005. The EP-3E will be modernized to a common configuration and sustained until Navy Aerial Common Sensor (ACS) reaches IOC.

Developers

L3 Communications; Waco, Texas
 Northrop Grumman; Baltimore, Maryland
 Titan; Vienna, Virginia
 Aeronix; Melbourne, Florida
 General Dynamics; San Jose, California
 Allied Signal; Sunnyvale, California
 TRW; Sunnyvale, California
 EDO Corporation; San Jose, California
 Lockheed Martin; Fort Worth, Texas and Denver, Colorado
 Naval Surface Warfare Center (NSWC); Crane, Indiana
 NSWC; Dahlgren, Virginia
 Naval Aviation Depot; Jacksonville, Florida
 AT&T Solutions; Vienna, Virginia
 Raytheon; Indianapolis, Indiana

Naval Mission Planning Systems (NavMPS)

Description

NavMPS is a suite of applications that allow aircrew to perform tactical mission planning at the secret level for a wide variety of aviation platforms and air launched weapons. NavMPS consists of the Joint Mission Planning System (JMPS), Tactical Automated Mission Planning System (TAMPS), and the Navy Portable Flight Planning Software (N-PFPS). JMPS is the next generation mission planning system and a collaborative development effort by the Navy, Air Force, Army, and SOCOM that will bring all "stove-pipe" legacy DoD mission-planning systems under one program with a common framework. JMPS is a single source for preflight planning including aircraft performance data, fuel planning, route planning, threat assessment, precision and conventional weapons planning, and provides the interface to load mission data onto the aircraft. TAMPS is the legacy Navy/Marine Corps standard unit-level aircraft mission planning system for tactical aircraft. N-PFPS is the Navy/Marine Corps standard flight-planning system that covers non-TAMPS aircraft, primarily the helicopter community.





Status

JMPS began replacing TAMPS in FY 2005. TAMPS is being removed from the Fleet. JMPS will replace PFPS in FY 2008. JMPS Core Architecture commenced development in 1998 and reached IOC in FY 2004. JMPS was incorporated into the expeditionary warfare planning capability in FY 2006

Developers

British Aerospace; Camarillo, California
 USAF 46TS/TYBRIN; Fort Walton, Florida
 Northrop Grumman; San Pedro, California

Submarine Systems

Common Submarine Radio Room (CSRR)

Description

The CSRR modernizes the radio rooms on *Seawolf* (SSN 21), *Ohio* (SSBN 726, SSGN 726), and *Los Angeles* (SSN 688)-class submarines based on the Exterior Communications System (ECS) architecture in development for *Virginia* (SSN 774)-class submarines. The system includes up to two High Data Rate (HDR) and/or up to two OE-538 Multi-function Masts (total of two masts per ship) for enhanced wideband connectivity. A common approach to submarine radio room modernization provides the submarine force with the added benefit of common training, common logistics, and common technical insertion.

Status

There are currently seven submarines, spanning three classes, installed with the CSRR design. All class submarines are to be back-fitted by FY 2019.

Developers

Lockheed Martin; Eagan, Minnesota
 Naval Undersea Warfare Center; Newport, Rhode Island
 Space and Naval Warfare Systems Center; San Diego, California

Submarine High Data-Rate Antenna (HDR)

Description

The submarine HDR antenna program is a top-priority submarine C4I initiative and is the Navy's first multi-band dish antenna. The HDR antenna provides the submarine force with worldwide high data-rate satellite communications capability. It enables the submarine to access the secure, survivable Joint MILSTAR Satellite Program in the Extremely High Frequency (EHF) band. It also

provides the capability to receive time critical tactical information from the Global Broadcast Service (GBS). Additionally, the HDR antenna will provide access to the Defense Satellite Communications System (DSCS) in the Super High Frequency (SHF) band.

Status

The HDR Antenna is currently installed on fast attack submarines, with all submarines being outfitted by FY 2009. SHF FOT&E is scheduled for FY 2009 with the implementation of SHF FOT.

Developers

Raytheon; Marlboro, Massachusetts

Submarine Local Area Network (SubLAN)**Description**

SubLAN provides separate secret, top secret, SCI, and unclassified LANs with full network services and connectivity. It integrates non-tactical subsystems and applications, including Task Force Web's Navy Enterprise Portal and back-fit versions of *Virginia* (SSN 774)-class Web-enabled "paperless ship" applications. It accommodates hardware/software upgrade and technology insertion for the life of the ship. SubLAN provides end-to-end connectivity for all tactical and non-tactical subsystems, enabling battle force/JTF interoperability and enables ship-wide access to the common operating picture, JWICS/SIPRNET/NIPRNET e-mail and Web browsing, battle force chat, and other collaborative tools.

Status

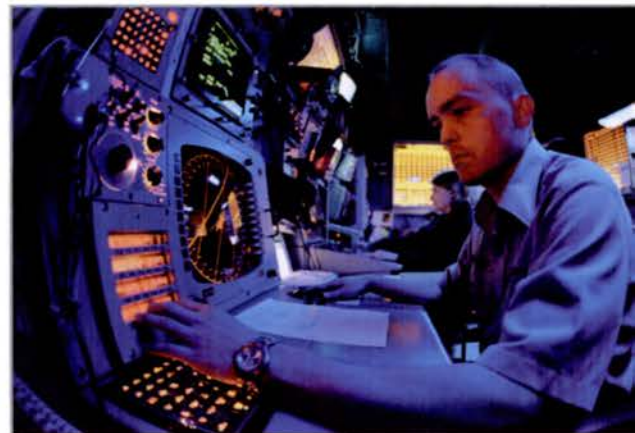
SubLAN 1 installations commenced in FY 2004 and will complete in FY 2011. SubLAN 2 installations will commence in FY 2009 and are planned to complete in FY 2015.

Developers

Naval Undersea Warfare Center; Newport, Rhode Island
Space and Naval Warfare Systems Command Systems Center; San Diego, California
Science Applications International Corporation; Sterling, Virginia

Surface and Expeditionary Systems**Advanced Combat Direction System (ACDS)****Description**

ACDS is a centralized, automated command-and-control system. An upgrade from the Naval Tactical Data System (NTDS) for aircraft carriers and large-deck amphibious ships, it provides the



capability to identify and classify targets, prioritize and conduct engagements, and exchange targeting information and engagement orders within the battle group and among different service components in the joint theater of operations via tactical data links. ACDS is a core Sea Shield component of non-Aegis/non-SSDS combat systems.

Status

Development is complete. Most legacy ACDS ships will transition to Ship Self Defense System but several ACDS Block 0/1 ships will remain in that configuration until they are decommissioned. Navy will improve and sustain FORCENet interoperability through the Common Network Interface (CNI). CNI is being installed in the remaining ACDS Block 0 LHA/LHDs to augment the expeditionary strike group command staff with operational situational awareness by improved networking and consolidation of disparate applications. One of the most important applications CNI enable in ACDS ships is the Single Integrated Air Picture (SIAP) Integrated Architecture Behavior Model (IABM). This joint application will provide for common distributed processing of air tracks with all CEC and IABM-equipped units in the joint force.

Developers

Raytheon; San Diego, California

Raytheon Space and Naval Warfare Systems Center; San Diego, California

General Dynamics Advance Information Systems; Fairfax, Virginia

Naval Surface Warfare Center; Dahlgren, Virginia

Combat Direction System Center; Dam Neck, Virginia

Naval Surface Warfare Center; Port Hueneme, California

Cooperative Engagement Capability (CEC)

Description

CEC has demonstrated significantly improved battle force air defense capabilities by integrating sensor data of each cooperating ship and aircraft into a single, real-time, fire-control-quality, composite track picture. CEC is a critical pillar of Naval Integrated Fire Control-Counter Air (NIFC-CA) capability and will provide a significant contribution to the Joint Integrated Fire Control operational architecture. CEC interfaces the weapons capabilities of each CEC-equipped ship in the strike group to support integrated engagement capability. By simultaneously distributing sensor data on airborne threats to each ship within a strike group, CEC extends the range at which a ship can engage hostile tracks to beyond the radar horizon, significantly improving area, local, and self-defense capabilities. Already today, CEC enables a strike group or joint task force to act as a single, geographically distributed combat system. CEC provides the fleet with greater defense in-depth and the

mutual support required to confront evolving threats of anti-ship cruise missiles and theater ballistic missiles.

Status

IOC for the shipboard CEC system (USG-2) was declared in FY 1996. TECHEVAL and OPEVAL were successfully completed between 1998-2001 following extensive development and testing of shipboard combat systems with which CEC interfaces. In his report, Commander, Operational Test and Evaluation Force declared shipboard CEC ready for fleet use. In April 2002, the Defense Acquisition Board (DAB) approved production for USG-2 shipboard and USG-3 airborne equipment sets. In September 2003, USD (AT&L) approved FY 2004/FY 2005 follow on production for the USG-3. CEC systems are at sea in 41 ships (Aegis CGs and DDGs, carriers, and amphibious) and 24 E-2C Hawkeye 2000 aircraft. Total future CEC installation is planned in approximately 250 ships, aircraft and land units including E-2D Advanced Hawkeye aircraft, CVN 21, and DDG 1000 ships. Navy revised the CEC acquisition strategy in August 2004 to achieve overall system cost, size, weight, power and cooling reductions and open architecture initiatives promoting Single Integrated Air Picture (SIAP) common track management capability and sensor fusion initiatives. Navy is also coordinating with Joint Staff and OSD to explore potential multi-Service avenues for CEC capability implementation that will expand sensor netting track data availability to meet a variety of warfighter requirements across various platforms including ground mobile systems such as the Army's Joint Land Attack Cruise Missile Defense Elevated Netted Sensor (JLENS).

Developers

Johns Hopkins University, Applied Physics Laboratory; Laurel, Maryland
Raytheon Systems Company; St. Petersburg, Florida

SCI Networks

Description

SCI Networks (previously known as TACINTEL II/SCI ADNS) is an IP-capable, network-centric, automated, communication system for real-time receipt and transmission of Special Intelligence (SI) and Sensitive Compartmented Information (SCI) data while satisfying established Information Assurance (IA) Computer Security criteria. SCI Networks provides secure and reliable IP communications for Cryptologic, Intelligence, and Information Operations (IO) systems supporting strike group commanders including Direction Finding (DF) Data Transfer, Record Messaging, E-Mail, Chat, File Transfer and Web Browsing. SCI Networks uses open-architecture standards and is thus a critical element in the Navy's evolving concept of network-centric warfare. The full capability will include voice, video and data transfer among SCI-

capable ships and submarines, with gateways to shore nodes. Under the submarine phase of the program, SCI Networks brings the top secret enclave to submarines in addition to the SCI enclave. SCI Networks is the lead program for implementing the SI/SCI portion of the Joint Maritime Communications Strategy (JM-COMS) under the C4I Networks initiative.

Status

Installation of the Shore Network Operations Center Facilities is complete and the Defense in Depth DCID 3/6 security upgrades was completed in FY 2005. Installation of Build 2 ship hardware began in FY 1999 and was completed early in FY 2003. Software Release 2.2 began fielding in second quarter FY 2003 and reached FOC in FY 2005. A Milestone III full-rate production decision was approved on 4 October 2001. Incremental hardware and software upgrades scheduled through FY 2005 and beyond will provide the following capabilities: Defense in Depth security, Submarine Version (includes the TS Enclave), Packet Prioritization, Direct Ship-to-Ship Network Services, Quality of Service, Interface to Defense Messaging System (DMS), an Interface Afloat to DMS, VoIP and an Airborne EDM version. A Maintenance Modification to address the WINDOWS NT End of Life security issue will be executed between FY 2006 and FY 2009. To realize the FORCENet architecture, FY 2008 through FY 2012 program funds will procure and incorporate Increment 1 capabilities necessary to implement the emerging DoD/Joint architecture enabling SCI Networks to continue providing rapid, reliable, and secure SI communications to the Fleet well into the future.

Developers

Science Applications International Corporation; Arlington, Virginia

Ship Signal Exploitation Equipment (SSEE) Increment E

Description

The SSQ-137 SSEE Increment E is a Shipboard Information Warfare program that provides commanders with threat search and identification information and electronic attack options. SSEE provides deployed forces with an afloat IW sensor. SSEE is a COTS/NDI program that is easily reconfigured and therefore able to respond rapidly to tasking. The system design permits the rapid insertion of new and emerging technologies that will integrate capabilities from existing systems and advanced technologies into a single, scalable, spirally developed, interoperable system.

Status

SSEE Increment E is in full-rate production.

Developers

Argon-ST; Fairfax, Virginia

Single Integrated Air Picture (SIAP)/Integrated Architecture Behavior Model (IABM)

Description

The SIAP (the air track portion of the common operational picture) consists of common, continuous, and unambiguous tracks of airborne objects. The SIAP is achieved by real-time and near real-time data processed identically throughout the force in systems behaving consistent with the IABM and consists of correlated air tracks (one object = one track) and associated track attribute information. IABM is being developed in conjunction with the Joint Program Office–SIAP. This deployable SIAP capability satisfies requirements mandated by the Global Information Grid (GIG), Theater Air and Missile Defense (TAMD) and Combat Identification (CID) Capstone Requirements Documents (CRDs).

Status

The SIAP effort facilitates Aegis, SSDS, and E-2 engineering communities in determining engineering impacts based on the planned scope of IABM integration. To date, the IABM has successfully conducted a System Requirements Review (SRR) and System Functional Review (SFR). The designated Navy pathfinder programs for IABM integration are Aegis, E-2 Hawkeye, and SSDS. The Navy will continue systems engineering efforts with planned fielding in the 2012-2014 time-frame.

Developers

Lockheed Martin; Moorestown, New Jersey

Raytheon; San Diego, California

Northrop Grumman; Bethpage, New York

Boeing; Lexington Park, Maryland

Galaxy Scientific; San Diego, California

General Dynamics Advance Information Systems; Fairfax, Virginia

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CHAPTER 4

FISCAL OUTLOOK

SEA POWER FOR A NEW ERA

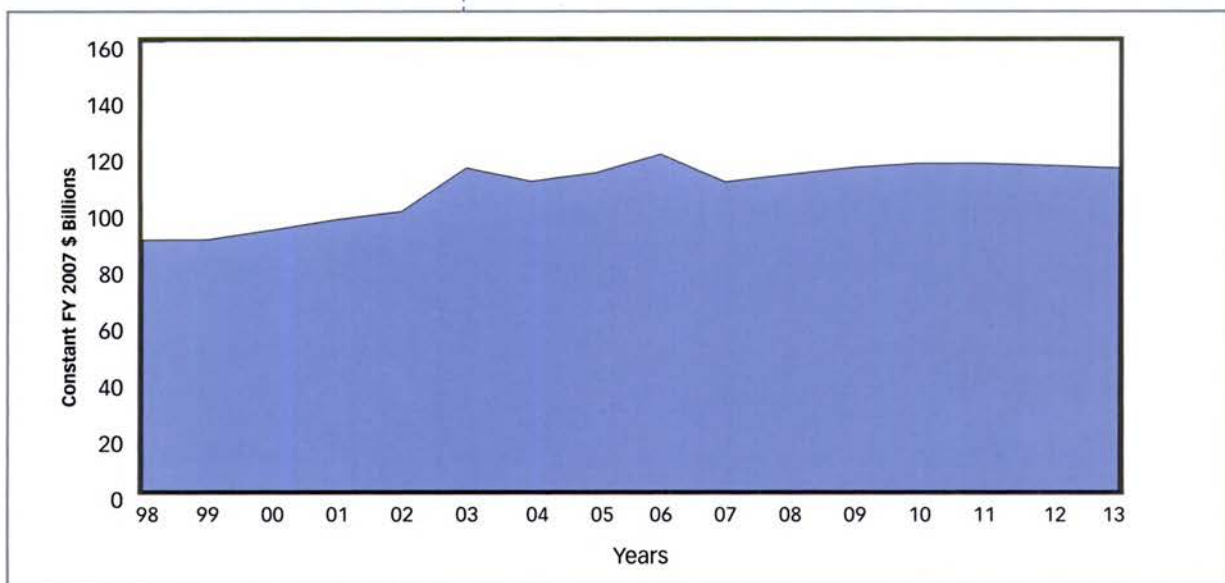
With the Navy's commitment and Congress investment, our forces can now deploy faster, and longer, and can sustain our operational availability better than before. Our force Readiness, advanced technology, dominance of the maritime domain, and the genius of our people are—and will remain—the U.S. Navy's asymmetric advantages over America's adversaries. By maintaining the course set by *Sea Power 21* the Navy ensures a future of superior combat power.

Department of Defense (DoD) enhancements to the FY 2006 and 2007 annual budgets provided increases in Total Obligation Authority (TOA) and allowed the Navy to address additional program needs related to the security and defense of our homeland. The positive trend will continue in the President's FY 2008 DoD budget requests for \$481.4 Billion, an increase of 9.6 percent compared to FY 2007.

NAVY RESOURCES

We have been transforming the business of running the world's greatest Navy. The Sea Enterprise initiative—which facilitates reinvestment of savings to buy platforms and systems needed to transform our Navy—is helping ensure maximum effectiveness of every dollar we spend. In the coming year, we will continue to invest in our readiness, our people, and the transformation laid out in our *Sea Power 21* vision. The Navy's TOA request for FY 2008 is \$115.1 billion and represents an increase of 7.3 percent from FY 2007. Figure 9 illustrates projections of 3.5 percent real growth through FY 2010, but also illustrates a forecasted real reduction of 1.2 percent from FY 2010 through FY 2013.

Figure 9 - Total Obligational Authority, FY 1993-2011



TRANSFORMING FOR THE RIGHT READINESS AT THE RIGHT COST

Readiness is the catalyst that brings combat power to bear whenever it is needed. The key to our readiness today and in the future is the ability to “surge” forces. The Navy is transforming its platforms, processes, and manpower to support a force that can surge to meet America's interests—whether in combat, stabilization, or homeland security. Our FY 2008 budget request reflects the Navy's readiness needs and provides resources necessary for leadership to deliver operational capabilities. Those capabilities depend upon ship operations and aircraft flying hours, maintenance, training, and modernization of shore installations. Fully funded, the Navy budget will deliver a force more ready to surge, sustain operations, and rapidly reconstitute itself to meet the challenges of the 21st Century.

SHAPING THE NAVY'S WORKFORCE

We will be a better-educated, better-trained, better compensated, and smaller workforce. We will improve diversity; encourage and reward continuing education and training; institutionalize executive development; assign our best and brightest to critical joint, interagency, and foreign exchange tours; increase cultural awareness; and better recognize the important role families play in our readiness and quality of life. The goals of our efforts are to develop a capability-centric force that is both effective and efficient and maximizes the value of service for all Sailors and civilians. We are on course to achieve these goals by using technology to take over work that is professionally unfulfilling by changing policies and structures that inhibit professional growth and development, and by changing the work before we change the work force.

BRIDGING TO THE FUTURE THROUGH INVESTMENT IN SEA POWER 21

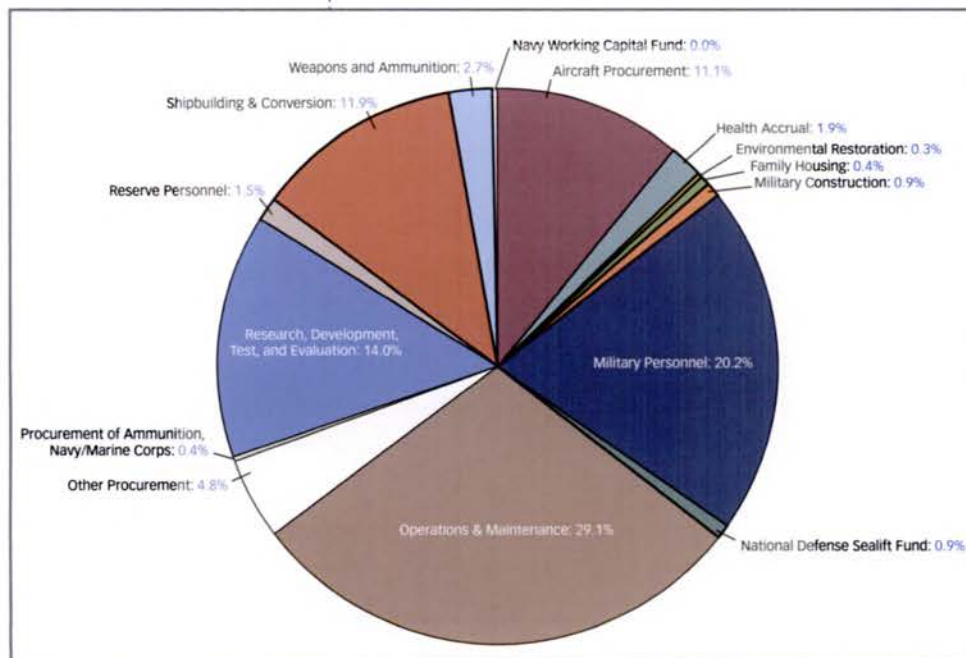
Sea Power 21 defines the capabilities and processes the 21st Century Navy will deliver. Bridging to the future vision requires innovation, experimentation, and rapid technology insertion resulting in mid- and long-term warfighting improvements. Our future investments will exploit the largest maneuver area on the face of the earth, the sea. Congress and the American people have invested hard-earned funds to accelerate the Navy's progress toward our joint, networked, sea-based force. We must upgrade and modernize our combat platforms and systems, adding new capabilities to meet future warfighting needs. In FY 2008, we will further maximize our investment in *Sea Power 21* as a projection of power, pursuing distributed and networked solutions, focusing on the power of Sea Basing that will be enabled by expeditionary warfare ships and connectors, heavy lift and transport aircraft, maritime prepositioning forces, and by combat logistic forces. Further, the Fleet Response Plan and basing options will provide a rheostat to meet foreseeable forward-presence requirements.

The Navy will also continue to transform itself to meet the broader range of missions in the new strategic environment. This transformation includes alignment of organizations and processes and streamlining our infrastructure. New platforms and technology will make us a more efficient and effective force. Figure 10 shows the realities in force structure size and mix

Figure 10 - Force Structure Trends

Ship Types	FY 93	FY 00	FY 13
Aircraft Carriers	13	12	10
Cruisers	52	27	22
Destroyers	39	54	64
Frigates	59	27	12
Littoral Combat Ships	0	0	27
Ballistic Missile Subs	24	18	14
Attack Subs	88	56	54
Guided Missile Subs	0	0	4
Amphibious	54	39	32
Mine Warfare	12	11	14
Support Ships	51	25	17
Logistics Ships	50	34	33
Mobilization Forces (NRF)	18	16	8
Total	460	319	311

Figure 11 - FY 2008 Navy Budget Request by Appropriation





proposed through FY 2013, with more modern and more capable ships and aircraft available, though in reduced numbers.

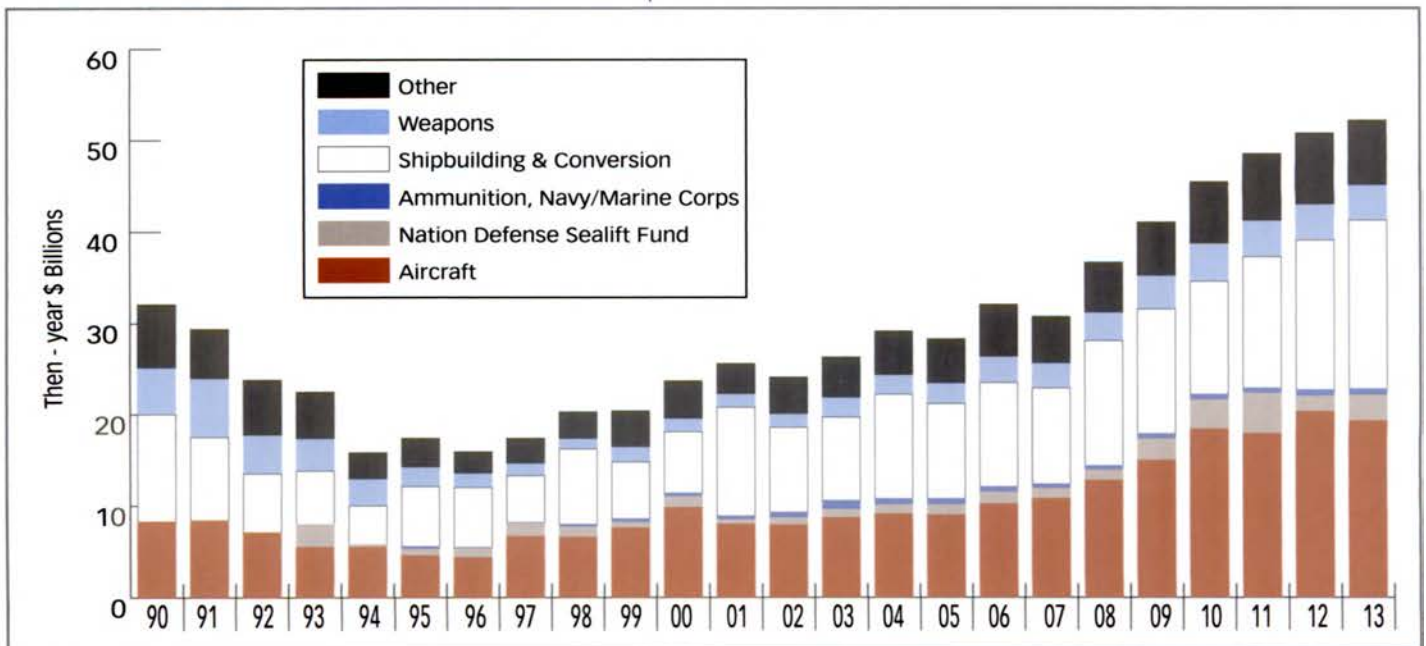
NAVY APPROPRIATIONS

The allocation of requested FY 2008 Navy resources to appropriations is shown in Figure 11. These appropriations are grouped to simplify the display (e.g., personnel, shipbuilding, aircraft procurement, research and development, operations). Figure 12 illustrates the major trend in Navy procurement since 1990 and projected to FY 2013.

SEA POWER FOR A NEW ERA

Our Navy faces entirely new challenges in the 21st Century. How we deal with those challenges will affect not only Americans' freedoms, but also the freedom of millions of others around the world. We have a ready fleet and joint-capable operating forces, the best technology, and the most professional Sailors. We are also capitalizing on the positive technological advances as a strength to our fighting forces while combating harmful aspects of technology to our national security. *Sea Power 21* is providing the Navy superior war-fighting capabilities through new operational concepts, advanced technologies, innovative organizational initiatives, and improved acquisition processes. It is aligning our efforts, accelerating our progress, and realizing the potential of our people. With continued investment in building a balanced force that is resilient and adaptable, we can meet any future challenge with speed, agility, persistence, precision, and reach. We are a sea power for a new era.

Figure 12 - Navy Procurement Trend, FY 1990-2013



APPENDIX A

NAVY-MARINE CORPS CRISIS RESPONSE AND COMBAT ACTIONS

Dates	Location/Operation/Mission	U.S. Naval Forces
Jan 1991	Somalia Operation Eastern Exit Non-combatant evacuation	USS Guam (LPH 9) Amphibious Ready Group USS Trenton (LPD 14) Amphibious Ready Group Marine Corps Force Recon, NSW/SEAL forces*
Nov 1991 - May 1993	Haiti/Guantanamo Bay Operation Able Manner/Safe Harbor Humanitarian Assistance to Haitian refugees	USS Tortuga (LSD 46) USMC 2nd Force Service Support Group Navy Seabees
Jan 1992 - Mar 2003	Iraq/Arabian Gulf Operation Northern Watch Operation Southern Watch Maritime Intercept Operations Continuing enforcement of no-fly zone in response to Iraqi provocations and support for UN sanctions	USS Carl Vinson (CVN 70) Battle Group USS Belleau Wood (LHA 3) Amphibious Ready Group USS Enterprise (CVN 65) Battle Group USS Roosevelt (CVN 71) Battle Group USS Constellation (CV 64) Battle Group USS Carl Vinson (CVN 70) Battle Group USS Kitty Hawk (CV 63) Battle Group USS John F. Kennedy (CV 67) Battle Group USS Abraham Lincoln (CVN 72) Battle Group USS Shreveport (LPD 12) 31st MEU (SOC) Nuclear attack submarines Coast Guard law enforcement detachments Maritime patrol aircraft
Aug 1992 - Feb 1993	Kenya/Somalia Operation Provide Relief Humanitarian Assistance	11th Marine Expeditionary Unit (SOC)* USS Tarawa (LHA 1)
Dec 1992 - May 1993	Somalia Operation Restore Hope Humanitarian support	USS Ranger (CV 61) Battle Group USS Tripoli (LPH 10) Amphibious Ready Group 15th Marine Expeditionary Unit (SOC)* Military Sealift Command ships, Seabees*
July 1993 - Dec 2004	Adriatic Sea/Balkans Operation Deny Flight Operation Sharp Guard Operation Provide Promise Operation Joint Guard Operation Deliberate Guard No-fly zone enforcement and Maritime Intercept Operations	Carrier Battle Groups/Surface Action Groups Amphibious Ready Groups Marine Expeditionary Units (SOC) Marine aircraft detachments (Aviano) Maritime patrol aircraft (Sigonella) Nuclear attack submarines Coast Guard law enforcement detachments
Jan 1993 - Mar 1994	Somalia Operation Sustain Hope Humanitarian support	Carrier Battle Groups Amphibious Ready Groups I MEF* elements Military Sealift Command ships
June 1993	Iraq/Red Sea TLAM missile strikes	USS Peterson (DD 969) USS Chancellorsville (CG 62) USS Theodore Roosevelt (CVN 71) Battle Group

Dates	Location/Operation/Mission	U.S. Naval Forces
Oct 1993	Somalia Humanitarian support	USS America (CV 66) Battle Group USS Guadalcanal (LPH 7) Amphibious Ready Group
Nov 1993 - Aug 1994	Haiti Operation Support Democracy UN blockade operations	Surface action groups/Amphibious Ready Groups NSW/SEAL forces Maritime patrol aircraft Coast Guard cutters, patrol boats
Apr - Aug 1994	Rwanda/Mombasa-relief effort/ Operation Distant Runner Operation Support Hope Non-combatant evacuation	USS Peleliu (LHA 5) Amphibious Ready Group 11th Marine Expeditionary Unit (SOC) USS Tripoli (LPH 10) Amphibious Ready Group 15th Marine Expeditionary Unit (SOC)
Apr 1994 - Ongoing	Caribbean, Eastern and South Pacific Support for JIATF East and West and JTF-6 Drug Interdiction	USS Rentz (FFG 46) USS Stump (DD 978) USS Crommelin (FFG 37) USS Estocin (FFG 15) USS McCampbell (DDG 85) USS Hayler (DD 997) USS John L. Hall (FFG 32) USS McNerney (FFG 8) USS McCluskey (FFG 41) USS Stephen W. Groves (FFG 29) USS Samuel B. Roberts (FFG 58) USS George Philip (FFG 12) USS Doyle (FFG 39) USS Gettysburg (CG 64) USS Underwood (FFG 36) USS DeWert (FFG 45) USS Curts (FFG 38) USS Thach (FFG 43) USS Robert G. Bradley (FFG 49) USS Rodney M. Davis (FFG 60) USS Momsen (DDG 42) USS Halsey (DDG 97)
Sep 1994	Haiti intervention Operation Restore Democracy	USS Dwight D. Eisenhower (CVN 69) USS America (CV 66) USS Wasp (LHD 1) Amphibious Ready Group Military Sealift Command ships Seabees*
Oct 1994	Iraq/Arabian Gulf/Red Sea Operation Vigilant Warrior Deterrence/support to Kuwait	USS George Washington (CVN 73) Battle Group USS Tripoli (LPH 10) Amphibious Ready Group 15th Marine Expeditionary Unit (SOC) Military Sealift Command ships
Oct 1994 - Mar 1995	Haiti Operation Uphold Democracy Nation-building	Military Sealift Command ships Patrol craft Seabees*
Feb - Mar 1995	Somalia Operation United Shield Withdrawal of UN Forces	USS Belleau Wood (LHA 3) Amphibious Ready Group USS Essex (LHD 2) Amphibious Ready Group I MEF elements

Dates	Location/Operation/Mission	U.S. Naval Forces
June 1995	Adriatic Sea/Bosnia Rescue of "Basher 52" Captain Scott O'Grady, USAF	USS Theodore Roosevelt (CVN 71) Battle Group USS Kearsarge (LHD 3) Amphibious Ready Group 24th Marine Expeditionary Unit (SOC) TRAP* Shore-based Navy/Marine Corps aircraft (Aviano)
Aug - Sep 1995	Adriatic Sea-Bosnia strikes Operation Deliberate Force	USS Theodore Roosevelt (CVN 71) Battle Group USS America (CV 66) Battle Group USS Kearsarge (LHD 3) Amphibious Ready Group Shore-based Navy/Marine Corps aircraft (Aviano)
Aug 1995	Iraq/Arabian Gulf Operation Vigilant Sentinel Deterrence/support to Kuwait	USS Abraham Lincoln (CVN 72) Battle Group USS New Orleans (LPH 11) Amphibious Ready Group I MEF elements
Nov 1995 - Dec 1996	Adriatic/Balkans Operation Joint Endeavor Dayton peace accord enforcement	Carrier Battle Groups/Amphibious Ready Groups Military Sealift Command ships Nuclear attack submarines Shore-based Navy/Marine Corps aircraft (Aviano)
Mar 1996	China/Taiwan-Freedom of Navigation, Regional Stability	USS Independence (CV 62) Battle Group USS Nimitz (CVN 68) Battle Group
Apr - Aug 1996	Liberia/ Central African Republic Non-combatant evacuation	USS Guam (LPH 9) ARG 22nd MEU (SOC) USS Ponce (LPD 15) Special Purpose Marine Air Ground Task Force
Sep 1996	Iraq Operation Desert Strike Suppression of Air Defenses	USS Carl Vinson (CVN 70) Battle Group Surface warships Nuclear attack submarines
Mar - June 1997	Adriatic/Adriatic Operation Silver Wake Non-combatant evacuation Embassy security	USS Nassau (LHA 4) Amphibious Ready Group Surface warships, and other amphibious ships 26th MEU (SOC) and other FMF LANT elements
Apr - May 1997	Iran/Iraq/Arabian Gulf Deterrence/support of UN disarmament inspections	Middle East Task Force USS Nimitz (CVN 68) Battle Group USS George Washington (CVN 73) Battle Group USS Independence (CV 62) Battle Group USS Peleliu (LHA 5) Amphibious Ready Group 13th MEU (SOC) USS Guam (LPH 9) 24th MEU (SOC) Coast Guard Cutters
Aug 1997	Guam Korean Air Lines Flt. 801 Disaster Recovery Operations	NMCB 133
Nov 1997	Doha, Qatar Operation Silent Assurance Enhance security for U.S. citizens and facilities during Middle East/ North Africa Conference	13th MEU (SOC)

Dates	Location/Operation/Mission	U.S. Naval Forces
Feb 1998	Iraq/Arabian Gulf Deterrence/support of UN disarmament inspections	USS George Washington (CVN 73) Battle Group USS Independence (CV 62) Battle Group USS Guam (LPH 9) Amphibious Ready Group
June 1998	Adriatic Sea/Albania/Macedonia Exercise Determined Falcon NATO demonstration exercise to support Kosovo cease fire	USS Wasp (LHD 1) Amphibious Ready Group 26th MEU (SOC) aviation elements
Aug 1998	Nairobi, Kenya and Dar Es Salaam, Tanzania, response to terrorist bombings of U.S. embassies	Marine Corps Fleet Anti-terrorist Security Team (FAST) platoons Navy Seabees
Aug 1998	Khartoum, Sudan/Red Sea and Afghanistan/Indian Ocean Anti-terrorist strikes	Unspecified U.S. naval vessels
Nov 1998	Honduras/Central America Joint Task Forces Bravo and Aguila Disaster relief following Hurricane Mitch	I MEF assets Seabees*
Dec 16 - 22, 1998	Iraq Operation Desert Fox Strikes against Iraqi sites suspected of WMD production	USS Enterprise (CVN 65) Battle Group USS Carl Vinson (CVN 70) Battle Group USS Belleau Wood (LHA 3) 31st MEF USS Ardent (MCM 12) USS Dextrous (MCM 13)
Mar - June 1999	Kosovo/Former Republic of Yugoslavia Operation Allied Force Ensure Yugoslav withdrawal from Kosovo, safe return of displaced people	USS Enterprise (CVN 65) Battle Group USS Theodore Roosevelt (CVN 71) Battle Group USS Kearsarge (LHD 3) Amphibious Ready Group 26th MEU
Apr - Aug 1999	Albania Operation Shining Hope Humanitarian relief to refugees from Former Republic of Yugoslavia	USS Inchon (MCS 12) Task Group Navy Seabees
June 1999 - Ongoing	Kosovo/Federal Republic of Yugoslavia Operation Joint Guardian Peace-keeping mission to establish and maintain a secure environment in Kosovo, ensure demilitarization treaty compliance	USS Kearsarge (LHD 3) Amphibious Ready Group 26th MEU 24th MEU VP-8
Aug 1999	Turkey/Sea of Marmara Operation Avid Response Provide humanitarian relief to earthquake victims	USS Kearsarge (LHD 3) Amphibious Ready Group

Dates	Location/Operation/Mission	U.S. Naval Forces
Sep - Nov 1999	East Timor/Philippine Sea Operation Stabilize Peacekeeping mission/provided communication and logistical support	USS Mobile Bay (CG 53) USNS Kilauea (T-AE 26) USS Belleau Wood (LHA 3) USS Peleliu (LHA 5) 11th MEU 31st MEU
Sep 1999	Atlantic Coast Assistance to victims of Hurricane Floyd	USS John F. Kennedy (CV 67)
Oct 1999	Atlantic Coast Search and Recovery Mission for Egypt Air Flight 990	USS Grapple (ARS 53) USS Austin (LPD 4) USS Oriole (MHC 55) USNS Mohawk (T-ATF 170) MH-14 Det 2
Jan - Mar 2000	Venezuela Search and rescue and humanitarian assistance after intense storms	II MEF detachment
Feb 2000	California Coast Search and Recovery Mission for Alaska Air Flight 261	USS Fife (DD 991) USS Jarrett (FFG 33) USS Cleveland (LPD 7) M/V Kellie Chouest MSC units Maritime patrol aircraft EODGRU One UCT-2 MDSU SDGO
Feb 2000 - May 2002	East Timor Support of US Support Group East Timor (USGET) and UN Transition Administration - East Timor (UNTAET) Humanitarian Assistance	Medical Support Teams Amphibious Ready Groups Marine Expeditionary Units Helicopter Support Squadron 5 Detachment 1
July 2000	Wildfires in U.S. West Assistance to firefighters	3d Battalion, 11th Marines, I MEF
Aug 2000	Bahrain Gulf Air Airbus 320 Crash Search and Recovery Mission	USNS Catawba (T-ATF 168) USS Oldendorf (DD 972) USS George Washington (CVN 73) HCSS 2, Det 2
Oct 2000	Yemen Operation Determined Response Support of USS Cole damaged in terrorist attack	USS Tarawa (LHA 1) USS Donald Cook (DDG 75) USS Hawes (FFG 53) USS Duluth (LPD 6) USS Anchorage (LSD 36) USNS Catawba (T-ATF 168) 13th MEU (SOC) Platoons from 1st and 2nd FASTs*

Dates	Location/Operation/Mission	U.S. Naval Forces
Feb 2001	India Disaster relief to earthquake victims	USS Cowpens (CG 63)
Aug 2001	Wildfires in U.S. West Assistance to firefighters	II MEF personnel
Aug - Nov 2001	Hawaii Recovery of Japanese fishing/ training vessel Ehime Maru	Mobile Diving and Salvage Unit 1 Remotely Operated Vehicles
Sep 2001 - Ongoing	Operation Noble Eagle Response to terrorist attacks on World Trade Center and Pentagon Homeland Defense	USNS Comfort (T-AH 20) USNS Denebola (T-AKR 289) USS John F. Kennedy (CV 67) CVBG USS George Washington (CVN 73) CVBG USCG Units USS John C. Stennis (CVN 74) CVBG 6 Cyclone-class PCs Aegis cruisers and destroyers
Oct 2001 - Ongoing	Afghanistan and other counterterrorism operation sites around the globe Operation Enduring Freedom Strike and combat operations against terrorist forces Coastal patrol and maritime homeland security	USS Enterprise (CVN 65) Battle Group USS Carl Vinson (CVN 70) Battle Group USS Theodore Roosevelt (CVN 71) Battle Group USS Kitty Hawk (CV 66) Battle Group USS John C. Stennis (CVN 74) Battle Group USS John F. Kennedy (CV 67) Battle Group USS Peleliu (LHA 5) ARG USS Bataan (LHD 5) ARG USS Bonhomme Richard (LHD 6) ARG USS Constellation (CV 64) Battle Group USS Abraham Lincoln (CVN 72) Battle Group USS Harry S. Truman (CVN 75) Battle Group USS Nimitz (CVN 68) USS Mount Whitney (LCC 20) USS George Washington (CVN 78) Battle Group USS Dwight D. Eisenhower (CVN 69) Carrier Strike Group USS Nassau (LHA 4) ARG USS Essex (LHD 2) ARG USS O'Kane (DDG 77) USS Chafee (DDG 90) USS Mount Whitney (LCC 20) USS Theodore Roosevelt (CVN 71) Carrier Strike Group USS Chosin (CG 65) USS Ingraham (FFG 61) USS Boxer (LHD 4) Expeditionary Strike Group 15th Marine Expeditionary Unit USS Oak Hill (LSD 51) USS Roosevelt (DDG 80) USS Vicksburg (CG 69) USS Trenton (LPD 14) USS Hue City (CG 66) USS James E. Williams (DDG 95) USS Saipan (LHA 2) USS Taylor (FFG 50) USS Ashland (LSD 48) USS Nassau (LHA 4) Expeditionary Strike Group

Dates	Location/Operation/Mission	U.S. Naval Forces
		22nd Marine Expeditionary Unit (MEU) USS Ronald Reagan (CVN 76) Carrier Strike Group USS Gonzalez (DDG 66) USS Peleliu (LHA 5) Expeditionary Strike Group 11th Marine Expeditionary Unit USS Iwo Jima (LHD 7) Expeditionary Strike Group 24th Marine Expeditionary Unit (MEU) USS Wasp (LHD 1) USS Ardent (MCM 12) USS Dextrous (MCM 13) USS Cardinal (MHC 60) USS Chinook (PC 9) USS Typhoon (PC 5) USS Whirlwind (PC 11) USS Raven (MHC 61) USS Sirocco (PC 6) USS Firebolt (PC 10)
Oct 2001 - Ongoing	Mediterranean Operation Active Endeavour NATO response to 9/11 Monitoring Shipping / Intelligence Exchange	USS Elrod (FFG 55) USS Hawes (FFG 53) USS Underwood (FFG 36) USS Mahan (DDG 72) USS Doyle (FFG 39) USS Dewert (FFG 45) USS Boone (FFG 28) USS Arleigh Burke (DDG 51) USS Simpson (FFG 56) Elements of U.S. 6th Fleet USS Ross (DDG 71) USS Monterey (CG 61) USS Carr (FFG 52) USS Porter (DDG 78)
Jan - Apr 2002	Strait of Malacca Ship protection	USS Ford (FFG 54) USS Cowpens (CG 63)
Feb - May 2002	El Salvador	NMCB-7
Feb - July 2002	Philippines Joint Task Force 510 Training and support in pursuit of terrorists. Transitioned to Joint Special Ops Task Force - Philippines Conducts humanitarian/ civic action programs	USS Germantown (LSD 42) III MEF Naval Construction Task Group
Mar 2002	Eastern Afghanistan Operation Anaconda Ground operation against Al Qaida, Taliban strongholds	Navy SEALs Marine Helicopters
June 2002	Rescue of merchant ship crew off coast of Oman	USS Vicksburg (CG 69)
Dec 2002	Assistance to Guam following Super Typhoon Pongsona	Naval Military Construction Battalion 74 USS Frank Cable (AS 40)

Dates	Location/Operation/Mission	U.S. Naval Forces
Dec 2002 - Ongoing	Horn of Africa/Djibouti Joint Task Force Horn of Africa CTFs 150, 152, 158 Detect, disrupt, defeat transnational terrorist groups Maritime Security Operations Horn of Africa to Arabian Sea	USS Mount Whitney (LCC 20) 24th MEU (SOC) USS Iwo Jima (LHD 7) ARG USS Peleliu (LHA 5) ESG USS Belleau Wood (LHA 3) ARG USS Nassau (LHA 4) ARG USS Boxer (LHD 4) ESG USS Germantown (LSD 42) NMCB 7 USS Cape St. George (CG-71) USS Austin (LPD 4) USS Ogden (LPD 5) USS Carter Hall (LSD 50) USS Oak Hill (LSD 51) USS Winston Churchill (DDG 81) USS Norfolk (SSN 714) USS Mason (DDG 87) USS Laboon (DDG 58) USS Gonzalez (DDG 66) USS Oscar Austin (DDG 79) USS Donald Cook (DDG 75) USS James E. Williams (DDG 95) USS San Jacinto (CG 56) USS Anzio (CG 68) USS Port Royal (CG 73) USS Ingraham (FFG 61) USS Reuben James (FFG 57) 22nd MEU (SOC) USS Raven (MHC 61) USS Typhoon (PC 5) USCG Cutter Wrangell (WPB 1332)
Feb - Mar 2003	Texas Shuttle Columbia Disaster Recovery	Navy Mobile Diving and Salvage Team 2 Mobile Diving and Salvage Unit 2, Det. 409
Mar 2003 - Ongoing	Persian Gulf, Mediterranean Sea Operation Iraqi Freedom	USS Enterprise (CVN 65) Carrier Strike Group USS Theodore Roosevelt (CVN 71) Carrier Strike Group USS Harry S. Truman (CVN 75) Carrier Strike Group USS George Washington (CVN 73) Carrier Strike Group USS Nimitz (CVN 68) Carrier Strike Group USS John F. Kennedy (CV 67) Carrier Strike Group USS Constellation (CV 64) Carrier Strike Group USS Kitty Hawk (CV 63) Carrier Strike Group USS Abraham Lincoln (CVN 72) Carrier Strike Group USS Dwight D. Eisenhower (CVN 69) Carrier Strike Group USS Ronald Reagan (CVN 76) Carrier Strike Group USS Tarawa (LHA 1) Expeditionary Strike Group USS Wasp (LHD 1) Expeditionary Strike Group USS Essex (LHD 2) Expeditionary Strike Group USS Iwo Jima (LHD 7) Expeditionary Strike Group USS Belleau Wood (LHA 3) Expeditionary Strike Group USS Nassau (LHA 4) Expeditionary Strike Group USS Bataan (LHD 5) USS Bonhomme Richard (LHD 6) USS Boxer (LHD 4) Expeditionary Strike Group USS Kearsarge (LHD 3) USS Saipan (LHA 2)

USS Cleveland (LPD 7)
USS Carter Hall (LSD 50)
USS Anchorage (LSD 36)
USS Ashland (LSD 48)
USS Comstock (LSD 45)
USS Pearl Harbor (LSD 52)
USS Rushmore (LSD 47)
USS Tortuga (LSD 46)
USS Gunston Hall (LSD 44)
USS Higgins (DDG 76) (w/Task Force 150)
USS Fletcher (DD 992) (w/ Task Force 150)
USS Rodney Davis (FFG 60) (w/Task Force 150)
HSVX-1 Joint Venture
USNS Comfort (T-AH 20)
Mine Sweeper Ships
PC-class ships
Nuclear Attack Submarines
EA-6B Expeditionary Aircraft Squadrons
P-3C Maritime Patrol Aircraft Squadrons
EP-3 Surveillance Aircraft Squadrons
Navy Unique Fleet Essential Airlift aircraft
Cargo Handling Battalions
Naval Coastal Warfare (NCW) units
Naval Mobile Construction Battalions (NMCB)
Navy Special Warfare (NSW) units
Navy Medical Forces
1st Marine Expeditionary Force (MEF)
2nd Marine Expeditionary Brigade (MEB)
11th Marine Expeditionary Unit
15th Marine Expeditionary Unit (MEU)
22nd Marine Expeditionary Unit
31st Marine Expeditionary Unit (MEU)
USS Mount Whitney (LCC 20)
USCG Cutters
Fleet Hospital (FH) Dallas
USS Boxer (LHD 4) Expeditionary Strike Group
USS Ardent (MCM 12)
USS Dextrous (MCM 13)
USS Cardinal (MHC 60)
USS Chinook (PC 9)
USS Typhoon (PC 5)
USS Whirlwind (PC 11)
USS Raven (MHC 61)
USS Sirocco (PC 6)
USS Firebolt (PC 10)
USS Oak Hill (LSD 51)
USS Roosevelt (DDG 80)
USS Vicksburg (CG 69)
USS Trenton (LPD 14)
USS Hue City (CG 66)
USS James E. Williams (DDG 95)
USS Taylor (FFG 50)
13th Marine Expeditionary Unit (MEU)
USS Gonzalez (DDG 66)
USS Peleliu (LHA 5) Expeditionary Strike Group

Dates	Location/Operation/Mission	U.S. Naval Forces
July 2003	Liberia Security of American, Allied Citizens	Fleet Anti-Terrorism Security Team (FAST)
2004 - Ongoing	Gulf of Guinea Guard Security and Stability in East Africa	USS Emory S. Land (AS 39) USNS Apache (T-ATF 172)
Dec 2004	Humanitarian Assistance and Disaster Relief to Philippines	JTF-535
Dec 2004 - Mar 2005	Operation Unified Assistance Tsunami Response	USS Abraham Lincoln Carrier Strike Group USS Ft McHenry (LSD 43) USS Essex (LHD 2) USS Bonhomme Richard (LHD 6) Expeditionary Strike Group USS Hue City (CG 66) Combined Support Force 536 USNS Mercy (T-AH 19) USNS Tippecanoe (T-AO 199) 15th Marine Expeditionary Unit USMC 9th Engineer Support Battalion NMCB-7 Environmental/Preventive Medicine Unit 6 USCG personnel Joint POW/MIA forensic team
Aug - Oct 2005	U.S. Gulf Coast Hurricane Relief Effort	USS Harry S. Truman (CVN 75) USS Bataan (LHD 5) USS Iwo Jima (LHD 7) USS Shreveport (LPD 17) USS Tortuga (LSD 46) USS Whidbey Island (LSD 41) USS Grapple (ARS 53) USNS Comfort (T-AH 20) USNS Arctic (T-AOE 8) NMCB-40 2nd MEF HSC-28 22nd Seabee Readiness Group Beach Master Unit 2 Assault Craft Unit 2 MDSU-2 HSL-43
Oct 2005 - Mar 2006	Pakistan Earthquake Relief Effort	USS Tarawa (LHA 1) USS Pearl Harbor (LSD 52) USS Cleveland (LPD 7) USS Chosin (CG 65) CJTF-76 CTF-53 HSC-26 NMCB-3 NMCB-4 NMCB-74 HM-15 Fleet Logistics Support Sqn (VR) 56

Dates	Location/Operation/Mission	U.S. Naval Forces
Feb 2006	Humanitarian Assistance/ Disaster Relief Philippine Mudslides	USS Essex (LHD 2) USS Juneau (LPD 10) USS Harpers Ferry (LSD 49) USS Curtis Wilbur (DDG 54) 31st MEU Marine Medium Helicopter Sqdn 262 Assault Craft Units 1 & 5
May – Aug 2006	Aid to Indonesian Earthquake	USNS Mercy (T-AH 19) 3rd MEF
Jul – Sep 2006	JTF Lebanon/Task Force 59 Operation Strengthen Hope Military Support to Citizens Departing Lebanon/ Humanitarian Aid	USS Iwo Jima (LHD 7) Expeditionary Strike Group 24th Marine Expeditionary Unit (MEUSOC) USS Whidbey Island (LSD 41) USS Nashville (LPHD 13) USS Bulkeley (DDG 84) USS Philippine Sea (CG 58) USS Cole (DDG 67) USS Albuquerque (SSN 706) Assault Craft Units 2 & 4 Helicopter Sea Combat Sqdn (HSC) 26 USS Mount Whitney (LCC 20) USS Wasp (LHD 1) HSV Swift (HSV2) USNS Big Horn (T-AO 198) USS Barry (DDG 52) USS Trenton (LPD 14) USS Hue City (CG 66) USNS Kanawha (T-AO 196)
Jan 2006 – Ongoing	Extended Maritime Interdiction Operations	USS Pinckney (DDG 91) USS Chung-Hoon (DDG 93) USS Momsen (DDG 92) USS Halsey (DDG 97) USS Rentz (FFG 46)
Jan 2006 – Ongoing	Maritime Counter Terrorism Support to Operation Enduring Freedom – Philippines Support to Joint Special Operations Task Force – Philippines	CJTF 515 CTF 75 USNS GySgt Fred W. Stockham (T-AK 3017) HSV 2 Swift USS Rentz (FFG 46) USS Chung Hoon (DDG 93) USS Halsey (DDG 97) USS Pinckney (DDG 91) USS Momsen (DDG 92) USS Lassen (DDG 82) USS Juneau (LPD 10) HS-10 HSL-37 HSL-43 MSS-7
Feb – Mar 2006	Leyte Island Mudslide Relief Effort	CTF 76 USS Essex (LHD 2) USS Harpers Ferry (LSD 49) USS Curtis Wilbur (DDG 54) 31st Marine Expeditionary Unit

Dates	Location/Operation/Mission	U.S. Naval Forces
Feb – Aug 2006	PACOM Presence/RIMPAC	USS Abraham Lincoln (CVN 72) USS Mobile Bay (CG 53) USS Russell (DDG 59) USS Shoup (DDG 86) CCSG-9 CDS-9 HSL-47 EODMU-11 Det 1
Apr – May 2006	Partnership of the Americas	USS George Washington (CVN 73) CVW 17 USS Monterey (CG 61) USS Stout (DDG 55) USS Underwood (FFG 36)
May – Jul 2006	Limited Defense Operations Taepo Dong 2	COMSEVENTHFLT USS Curtis Wilbur (DDG 54) USS Fitzgerald (DDG 62) USS John S McCain (DDG 56) USS Russell (DDG 59)
May – Sep 2006	USNS Mercy Medical Civil Action Program	CTF 10 CTG 10.1 CTG 10.2 CTU 10.1.1 CTU 10.2.1 COMPHIBRON 7 USNS Mercy (T-AH 19) USNS Niagra Falls (T-AFS 3) Medical Treatment Facility MERCY HSC-25 NMCB-40 MSS-7 VR-51
Jul – Sep 2006	Joint Task Force Lebanon Operation Strengthen Hope	USS Iwo Jima (LHD 7) USS Wasp (LHD 1) USS Nashville (LPD 13) USS Trenton (LPD 14) USS Whidbey Island (LSD 41) USS Hue City (CG 66) USS Barry (DDG 52) USS Gonzalez (DDG 66) USS Mount Whitney (LCC/JCC 20) HSV Swift (HSV 2) 24 Marine Expeditionary Unit (MEU)

* CJTF-Combined Joint Task Force; CTF-Commander, Task Force; HSC-Helicopter Sea Combat Squadron; HM-Helicopter Mine Countermeasures Squadron; HSL-Helicopter Anti-Submarine Warfare Squadron (Light) SEAL-Sea Air Land Teams; MDSU- Mobile Diving and Salvage Unit; MEU-Marine Expeditionary Unit; MEF-Marine Expeditionary Force; SOC-Special Operations Capable; NSW-Naval Special Warfare; TRAP-Tactical Recovery of Aircraft and Personnel; Seabees-Naval Construction Battalions; FAST-Fleet Antiterrorism Support Team

APPENDIX B GLOSSARY

AADC	Area Air Defense Commander
AARGM	Advanced Anti-Radiation Guided Missile
AAW	Anti-Air Warfare
ABNCP	Airborne Command Post
ACAT	Acquisition Category
ACAT IAM	Major automated information system acquisition category
ACCES	Advanced Cryptologic Carry-on Exploitation System
ACDS	Advanced Combat Direction System
ACS	Aerial Common Sensor
ACTD	Advanced Concept Technology Demonstration
AD	Air Defense
ADCAP	Advanced Capability
ADM	Acquisition Decision Memorandum
ADNS	Automated Digital Network System
ADP	Automated Data Processing
ADS	Advanced Deployable System
AE	Assault Echelons
AEA	Airborne Electronic Attack
AEHF	Advanced Extremely High Frequency
AEM/S	Advanced Enclosed Mast/Sensor
AoA	Analysis of Alternatives
AESA	Active Electronically Scanned Array
AFATDS	Advanced Field Artillery Tactical Data System
AFB	Airforce Base
AFG	Airfoil Group
AFFF	Aqueous Film Forming Foam
AFOE	Assault Follow-On Echelon
AFQT	Armed Forces Qualification Test
AG	Aerographer's Mate (enlisted classification)
AGF/LCC	Amphibious Command Ship
AGS	Advanced Gun System
AIEWS	Advanced Integrated Electronic Warfare System
AIP	Anti-Submarine Warfare Improvement Program
ALCS	Airborne Launch Control System
AHE	Advanced Hawkeye
ALFS	Airborne Low-Frequency Active Sonar
ALMDS	Airborne Laser Mine Detection System
AMCM	Airborne Mine Countermeasures
AMF	Airborne Maritime Fixed
AMNS	Airborne Mine Neutralization System
AMPIR	Airborne Polarmetric Microwave Imaging Radiometer
AMRAAM	Advanced Medium Range Air-to-Air Missile
ANDVT	Advanced Narrow-Band Digital Voice Terminal
AOA	Analysis of Alternatives, also, Amphibious Objective Area
AOE	Fast Combat Support Ship
AOR	Area of Responsibility

APB	Advanced Processor Build, or, Acquisition Program Baseline
APMIR	Airborne Polarmetric Microwave Imaging Radiometer
APS	Air Force Prepositioning Ships
APTS	Afloat Personal Telephone Service
ARCI	Acoustic Rapid COTS Insertion
ARG	Amphibious Ready Group
ARI	Active Reserve Integration
ARM	Anti-Radiation Missile
AS	Submarine Tender, or, Acquisition Strategy
ASDS	Advanced Seal Delivery System
ASCM	Anti-Ship Cruise Missile
ASUW	Anti-Surface Warfare
ASW	Anti-Submarine Warfare
ASWC	Anti-Submarine Warfare Commander
AT	Advanced Targeting
ATA	Automatic Target Acquisition
ATC	Air Traffic Control
ATD	Advanced Technology Demonstration, or, Aircrew Training Device
ATDLS	Advanced Tactical Data Link System
AT- FLIR	Advanced Targeting Forward-Looking Infrared
ATM	Asynchronous Transfer Mode
ATT	Anti-Torpedo Torpedo
ATWCS	Advanced Tomahawk Weapon Control
AWACS	Airborne Warning and Control System
AWS	Advanced Wideband System
BAH	Basic Allowance for Housing
BAMS	Broad Area Maritime Surveillance
BDI	Battle Damage Indication
BDII	Battle Damage Indication Imagery
BFCAPP	Battle Force Capability Assessment and Programming Process
BLII	Base-Level Information Infrastructure
BLOS	Basic Line of Sight
BMC4I	Battle Management/ Command, Control, Communications, Computers, and Intelligence
BMD	Ballistic Missile Defense
BMDS	Ballistic Missile Defense System
BMUP	Block Modification Upgrade Program
BPI	Business Process Improvement
BRAC	Base Realignment and Closure
C2(P)	Command and Control Processor
C2(R)	Command and Control Processor (Re-Host)
C3	Command, Control, and Communications
C3I	Command, Control, Communications, and Intelligence
C4I	Command, Control, Communications, Computers, and Intelligence
C4ISR	Command, Control, Communication, Computers, Intelligence, Surveillance, and Reconnaissance

C4N	Command, Control, Communications, Computers, and Navigation
C5F	Commander, Fifth Fleet
CAC	Common-Access Cards
CAD	Component Advanced Development
CADRT	Computer-Aided Dead-Reckoning Table
CAL/VAL	Calibration and Validation
CAS	Close Air Support
CB	Chemical, Biological
CBASS	Common Broadband Advanced Sonar System
CBR	Chemical, Biological, and Radiological
CBRND	Chemical, Biological, Radiological, Nuclear Defense
CCD	Center for Career Development
CCG	Computer Control Group
CCP	Common Configuration Program
CCS	Combat Control System
CDA	Commercially-Derived Aircraft
CDD	Capabilities Development Document
CDHQ	Central Command Deployable Headquarters
CDL-N	Common Data Link, Navy
CDLMS	Common Data Link Management System
CDLS	Common Data Link System
CDR	Critical Design Review
CDS	Combat Direction System
CEB	CNO Executive Board
CEC	Cooperative Engagement Capability
CENTRIXS	Combined Enterprise Regional Information Exchange System
CFFC	Commander, Fleet Forces Command
CG	Guided Missile Cruiser
CG(X)	Next Generation Cruiser
CIE	Collaborative Information Environment
CIO	Chief Information Officer
CIWS	Close-In Weapon System
CJF	Commander, Joint Forces
CLF	Combat Logistics Force
CLIP	Common Link Integration Processing
CM	Cryptographic Modernization
CMCO	Counter Mine Counter Obstacle
CND	Computer Network Defense
CNI	Commander, Naval Installations Command
CNO	Chief of Naval Operations
CNRC	Commander, Naval Recruiting Command
CNRRR	Commander, Naval Reserve Recruiting Region
CNS	Communication/Navigation System
CNVA	Computer Network Vulnerability Assessment
COE	Common Operating Environment
COLDS	Cargo Offload and Discharge System
COMINT	Communications Intelligence
COMSEC	Communications Security
COMSUBGRU	Commander, Submarine Group
CONOPS	Concept of Operations
CONUS	Continental United States
COP	Common Operational Picture
COS	Class of Service

COTS	Commercial-Off-The-Shelf, also Cargo Offload and Transfer System
CPD	Capabilities Production Document
CSAR	Combat Search and Rescue
CSDTS	Common Shipboard Data Terminal Set
CSG	Carrier Strike Group
CSIT	Combat System Integration and Test
CSRB	Critical Skills Retention Bonus
CSRR	Common Submarine Radio Room
CSWP	Commercial Satellite Wideband Program
CTAPS	Contingency Tactical Automated Planning System (for TACS)
CTF	Component Task Force, or, Commander Task Force
CTOL	Conventional Takeoff and Landing
CTP	Common Tactical Picture
CUP	Common Undersea Program
CV	Conventionally Powered Aircraft Carrier, or, Carrier Variant aircraft
CVBG	Aircraft Carrier Battle Group
CVIC	Carrier Intelligence Center
CVN	Nuclear-Powered Aircraft Carrier
CVN(X)	Next-Generation Nuclear-Powered Aircraft Carrier
D5E	Destruction, degradation, denial, disruption, deceit, and Exploitation
DAB	Defense Acquisition Board
DARPA	Defense Advanced Research Projects Agency
DBRS	Dual-Band Radar Suite
DCA	Defensive Counter-Air
DCGS	Distributed Common Ground System
DCID	Director, Central Intelligence Directive
DCL	Detection, Classification, and Localization
DCMS	Director, Communications Security Material Systems
DCNO	Deputy Chief of Naval Operations
DD	Destroyer
DD 21	21st Land-Attack Destroyer
DD(X)	Next Generation Destroyer
DEM/VAL	Demonstration/Validation
DF	Direction Finding
DDG	Guided Missile Destroyer
DIB	DCGS Integration Backbone
DIF	Database Integration Framework
DII COE	Defense Information Infrastructure Common Operating Environment
DIMHRS	Defense Integrated Military Human Resource System
DIMUS	Digital Multi-beam Steering
DIO	Defensive Information Operations
DISA	Defense Information Systems Agency
DISN	Defense Information Systems Network
DJC2	Deployable Joint Command and Control (program)
DLS	Decoy Launching System
DMR	Digital Modular Radio
DMS	Defense Message System
DMSP	Defense Meteorology Satellite Program

DNM	Dynamic Network Management
DNS	Director, Navy Staff
DiD	Defense-in-Depth
DoD	Department of Defense
DoN	Department of the Navy
DOTMLPF	Doctrine, Organization, Training, Materiel, Leadership, Personnel, and Facilities
DPRIS/ EMPRS	Defense Personnel Record Imaging System/ Electronic Military Personnel Record System
DSCS	Defense Satellite Communications System
DRPM	Direct-Reporting Program Manager
DSMAC	Digital Scene-Matching Area Correlation
DSN	Defense Switching Network
DSRV	Deep-Submergence Rescue Vehicle
DT	Developmental Testing
DTH	DMS Transitional Hubs
EA	Electronic Attack
EAM	Emergency Action Message
EB	Electric Boat
ECM	Electronic Countermeasures
ECCM	Electronic Counter-Countermeasures
ECP	Engineering Change Proposal
ECS	Exterior Communication System
EDS	Electronic Data Systems
EFV	Expeditionary Fighting Vehicle
EHF	Extremely High Frequency
EIS	Environmental Impact Statement
EKMS	Electronic Key Management System
ELINT	Electronic Intelligence
ELC	Enhanced Lethality Cartridge
EMD	Engineering and Manufacturing Development
EMPRS	Electronic Military Personnel Record System
EMW	Expeditionary Maneuver Warfare
EOC	Early Operational Capability
EOD	Explosive Ordnance Disposal
EOID	Electro-Optic Identification
ER	Extended Range
ER AAW	Extended Range Anti-Air Warfare
ERAM	Extended Range Active Missile
ERGM	Extended-Range Guided Munition
ERM	Extended Range Munition
ERNT	CNO Executive Review of Navy Training
ESE	Electronic Surveillance Enhancement
ESG	Expeditionary Strike Group
ESM	Electronic Support Measures
ESSI	Enhanced Special Structural Inspection
ESSM	Evolved Sea Sparrow Missile
ETC	Echo Tracker Classifier
EUCOM	U.S. European Command
EURCENT	European Central (NCTAMS)
EW	Electronic Warfare
EXCEL	Excellence through Commitment to Education and Learning
FARP	Forward Arming and Refueling Point
FBE	Fleet Battle Experiment
FBM	Fleet Ballistic Missile
FDS	Fixed Distributed System

FDS-C	FDS - COTS
FFG	Guided Missile Frigate
FFSP	Fleet and Family Support Program
FHLT	Fleet High-Level Terminal
FIE	Fly-In Echelon
FITC	Fleet Intelligence Training Center
FLIR	Forward-Looking Infrared
FLTSAT	Fleet Satellite
FOC	Full Operational Capability
FORCenet	Navy web of secure communications and information links
FOT	Follow-On Terminal
FOT&E	Full Operational Test and Evaluation
FP	Full Production
FRP	Full-Rate Production, or, Fleet Response Plan
FTS	Full-Time Support
FUE	First Unit Equipped
FY	Fiscal Year
FYDP	Future Years Defense Plan
GBS	Global Broadcast Service
GBTs	Ground-Based Training System
GCCS	Global Command and Control System
GCS	Ground Control Station
GCSS	Global Command Support System
GDAIS	General Dynamics Advanced Information Systems
GDIS	General Dynamics Information Systems
GENDET	General Detail (personnel)
GENSER	General Service
GFE	Government-Furnished Equipment
GHMD	Global Hawk Maritime Demonstration system
GIG	Global Information Grid
GIG-BE	Global Information Grid - Bandwidth Expansion
GMF	Ground Mobile Force (Air Force)
GOTS	Government-Off-The-Shelf
GPS	Global Positioning System
GT	Gas Turbine
GWOT	Global War on Terror
HARM	High-Speed Anti-Radiation Missile
HD/LD	High-Demand/Low-Density
HDR	High Data-Rate
HF	High Frequency
HGHS	High Gain High Sensitivity
HLCAC	Heavy Lift Landing Craft, Air Cushion
HM&E	Human, Mechanical, and Electrical (systems)
HMI	Human-Machine Interface
HMMWV	High-Mobility Multi-purpose Wheeled Vehicle
HOLC	High Order Language Computer
HPC	Human Performance Center
HSDG	High School Diploma Graduate
HSI	Human Systems Integration
IA	Information Assurance
IATF	IA Technical Framework
IBS	Integrated Broadcast Service

I&W	Indications & Warning
IBS/JTT	Integrated Broadcast Service/ Joint Tactical Terminal
ICAO	International Civil Aviation Organization
ICAP	Improved Capability
ICD	Initial Capabilities Document
ICP	Integrated Common Processor
ICSTF	Integrated Combat Systems Test Facility
IDSN	Integrated Digital Switching Network
IDTC	Inter-Deployment Training Cycle
IETM	Interactive Electronic Technical Manual
IFF	Identification, Friend or Foe
IMINT	Imagery Intelligence
INLS	Improved Navy Lighterage
INS	Inertial Navigation System
IO	Information Operations
IOC	Initial Operational Capability Development
IP	Internet Protocol
IPDS	Improved Point Detector System
IPPD	Integrated Product and Process Development
IPS	Integrated Power System
IPT	Integrated Process Team
IPR	Interim Program Review
IR	Infrared
IRST	Infrared Search and Track
IS	Information Systems
ISDN	Integrated Services Digital Network
ISNS	Integrated Shipboard Network System
ISO	Investment Strategy Options
ISPP	Integrated Sponsor's Program Proposal
ISR	Intelligence, Surveillance, Reconnaissance
ISRT	Intelligence, Surveillance, Reconnaissance, and Targeting
ISS	Installation Subsystem
ISS	Information Superiority/Sensors
ISSP	Information Systems Security Program
IT	Information Technology
IT-21	Information Technology for the 21st Century
ITAB	Information Technology Acquisition Board
IU	Interface Unit
IUSS	Integrated Undersea Surveillance System
IW	Indications and Warning
IWS	Integrated Warfare Systems
J&A	Justification and Approval
JASA	Joint Airborne SIGINT Architecture
JASSM	Joint Air-to-Surface Standoff Missile
JCIDS	Joint Capabilities Integration and Development System
JCM	Joint Common Missile
JCS	Joint Chiefs of Staff
JC2-MA	Joint Command and Control - Maritime Applications
JDAM	Joint Direct Attack Munition
JDISS	Joint Deployable Intelligence Support Service
JDN	Joint Data Network
JFC	Joint Force Commander

JFCOM	Joint Forces Command
JFCOM JPO	Joint Forces Command Joint Program Office
JFMCC	Joint Forces Maritime Component Commander
JHMCS	Joint Helmet Mounted Cueing System
JFN	Joint Fires Network
JFNU	Joint Fires Network Unit
JIC	Joint Intelligence Center
JICO/JSS	Joint Interface Control Officer Support System
JMCIS	Joint Maritime Command Information System
JHDA	Joint Host Demand Algorithm
JMAST	Joint Mobile Ashore Support Terminal
JMCOMS	Joint Maritime Communications Strategy
JMLS	Joint Modular Lighterage System
JMOD	Joint Airborne SIGINT Architecture Modification
JMPS	Joint Mission Planning System
JNIC	Joint National Integration Center
JNMS	Joint Network Management System
JOA	Joint Operations Area
JOTBS	Joint Operational Test Bed System
JPACE	Joint Protective Aircrew Ensemble
JPATS	Joint Primary Aircraft Training System
JROC	Joint Requirements Oversight Council
JSF	Joint Strike Fighter
JSIPS	Joint Service Imagery Processing System
JSMO	Joint Systems Management Office
JSOW	Joint Standoff Weapon
JSPO	Joint System Program Office
JTA	Joint Tactical Architecture
JTAMDO	Joint Theater Air and Missile Defense Organization
JTDLMP	Joint Tactical Data Link Management Plan
JTIDS	Joint Tactical Information Distribution System
JWICS	Joint Worldwide Intelligence Communications System
JTRS	Joint Tactical Radio System
JTT	Joint Tactical Terminal
J-UCAS	Joint Unmanned Combat Air System
KDP	Key Decision Point
KPP	Key Performance Parameter
LAMPS	Light Airborne Multipurpose System
LAN	Local Area Network
LANT	Atlantic
LANTIRN	Low-Altitude Navigation and Targeting Infrared At Night
LCAC	Landing Craft, Air Cushion
LCB	Lateral Conversion Bonus
LCC	Amphibious Command Ship
LCGR	Launch Control Group Replacement
LCS	Littoral Combat Ship
LCU(R)	Landing Craft Utility ship (replacement)
LD/HD	Low-Density/High Demand
LIDAR	Light Detection and Ranging System
LDR	Low Data Rate

LDUUV	Large-Diameter Unmanned Undersea Vehicle
LEAD	Launched Expendable Acoustic Decoy
LEAP	Lightweight Exo-Atmospheric Projectile
LEASAT	Leased Satellite
LFA	Low Frequency Active
LHA-R	Amphibious Assault Ship-Replacement
LGB	Laser-Guided Bomb
LHD	Amphibious Assault Ship
LHT	Lightweight Hybrid Torpedo
LIDAR	Light Detection and Ranging
LMRS	Long-Term Mine Reconnaissance System
LMS	Local Monitor Station
LOS	Line of Sight, or, Length of Service
LOTS	Logistics-Over-The-Shore
LPD	Amphibious Transport Dock [Ship]
LPI	Low-Probability-of-Intercept
LPMP	Launch Platform Mission Planning
LRIP	Low Rate Initial Production
LRLAP	Long-Range Land-Attack Projectile
LSD	Dock Landing Ship
LSS	Littoral Surveillance System
LST	Task Landing Ship
LVT	Low-Volume Terminal
MA	Maritime Applications
MAGTF	Marine Air-Ground Task Force
MARCEMP	Manual Relay Center Modernization Program
MAST	Mobile Ashore Support Terminal
MATT	Multi-mission Airborne Tactical Terminal
MAWS	Missile Approach Warning System
M/BVR	Medium/Beyond Visual Range missile
MCEN	Marine Corps Enterprise Network
MCM	Mine Countermeasures
MCAS	Marine Corps Air Station
MCM	Mine Countermeasures
MCP	Mission Capability Package
MCPON	Master Chief Petty Officer of the Navy
MCS	Mine Countermeasures Command, Control, and Support Ship, or, Mission Computer System
MCS-21	Maritime Cryptologic System for the 21st Century
MCU	Mission Computer Upgrade
MDA	Missile Defense Agency
MDR	Medium Data Rate
MDS	Multi-function Display System
MEB	Marine Expeditionary Brigade
MEDAL	Mine Warfare and Environmental Decision Aids Library
MEF	Marine Expeditionary Force
METOC	Meteorological and Oceanographic Sensors
MEU	Marine Expeditionary Unit
MEU(SOC)	Marine Expeditionary Unit (Special Operations Capable)
MF/HF/	Medium/High/
VHF/UHF	very High/ Ultra High Frequency
MFL	Multi-Frequency Link

MFR	Multi-Function Radar
MFTA	Multi-Function Towed Array
MHC	Coastal Mine Hunter
MHIP	Missile Homing Improvement Program
MICFAC	Mobile Integrated Command Facility
MID	Management Initiative Decision
MIDS	Multi-Function Information Distribution System
MIDS-LVT	Multi-Function Information Distribution System-Low -Volume Terminal
MILSTAR	Military Strategic and Tactical Relay Satellite
MIRV	Multiple Independently Targeted Reentry Vehicle
MIUW	Mobile Inshore Undersea Warfare
MIW	Mine Warfare
MWIC	Mine Warfare Commander
MK	Mark
MLS	Multi-Level Security
MMA	Multi-mission Maritime Aircraft
MMRT	Modified Miniature Receiver Terminal
MNS	Mission Need Statement, also Mine Neutralization System
MOA	Memorandum of Agreement
MOCC	Mobile Operational Command Control Center
MOD	Modification
MOU	Memorandum of Understanding
MPA	Maritime Patrol Aircraft
MPF(F)	Maritime Prepositioning Force(Future)
MPG	Maritime Prepositioning Group
MPS	Maritime Prepositioning Ship, or, Mission Planning System
MRMS	Maintenance Resource Management System
MRUUV	Mission-Reconfigurable Unmanned Undersea Vehicle
MS	Mess Management Specialist (enlisted classification)
MSC	Military Sealift Command
MTI	Moving Target Indicator
MUOS	Mobile User Objective System
MWR	Morale, Welfare, and Recreation
NADEP	Naval Aviation Depot
NAF	Naval Air Facility
NALCOMIS	Naval Aviation Logistics Command Management Information System
NAS	Naval Air Station
NASA	National Aeronautics and Space Administration
NATOPS	Naval Aviation and Training Operating Procedures Standardization
NAVAIRSYSCOM	Naval Air Systems Command
NAVCENT	U.S. Naval Forces, Central Command
NAVFLIR	Navigation, Forward-Looking Infrared [sensor]
NavMPS	Naval Mission Planning System
NAVSSI	Navigation Sensor System Interface
NAVSEA	Naval Sea Systems Command

NAVSECGRU	Naval Security Group	NRF	Naval Reserve Force
NAVSUP	Naval Supply Systems Command	NRL	Naval Research Laboratory
NAVWAR	Navigation Warfare	NROC	Navy Requirements Oversight Council
NCDP	Naval Capabilities Development Process	NRTD	Near Real-Time Dissemination
NCES	Net-Centric Enterprise Services	NRSA	National Security Agency
NCFS	Naval Fires Control System	NSAWC	Naval Strike Air Warfare Center
NCO	Network-Centric Operations	NSCT	Naval Special Clearance Team
NCP	Naval Capability Pillar, or, Naval Capability Plan	NSFS	Naval Surface Fire Support
NCTAMS	Naval Computer and Telecommunications Area Master Stations	NSIPS	Navy Standard Integrated Personnel System
NCTF	Naval Component Task Force	NSPG	Navy Strategic Planning Guidance
NCTS	Naval Computer and Telecommunications Station	NSSMS	NATO Sea Sparrow Missile System
NCUSW	Net Centric Undersea Warfare	NSSN	New Attack Submarine (Virginia SSN 774 Class)
NCW	Network-Centric Warfare, or, Navy Coastal Warfare	NSTC	Naval Service Training Command
NCWES	Network-Centric Warfare Electronic Support	NSW	Naval Special Warfare
NDI	Non-Developmental Item	NSWC/DD	Naval Surface Warfare Center/ Dahlgren Division
NEC	Naval Enlistment Classification	NSWC/PH	Naval Surface Warfare Center/ Port Hueneme
NEO	Non-Combatant Evacuation	NTCS-A	Naval Tactical Command System - Afloat
NEP	Navy Enterprise Portal	NTCSS	Naval Tactical Command Support System
NESP	Navy Extremely High Frequency (EHF) Satellite Program	NTDS	Naval Tactical Data System
NETC	Naval Education and Training Command	NUFEA-RA	Navy Unique Fleet Essential Airlift- Replacement Aircraft
NETWARCOM	Network Warfare Command	NUWC	Naval Underwater Warfare Center
NFCS	Naval Fires Control System	NWDC	Navy Warfare Development Command
NFN	Naval Fires Network, and/or Joint Fires Network	OAG	Operational Advisory Group
NFO	Naval Flight Officer	OAS	Offensive Air Support (USMC)
NFS	Naval Fire Support	OASD	Office of the Assistant Secretary of Defense
NGC2P	Next Generation Command and Control Processor	OASIS	Organic Airborne and Surface Influence Sweep
NGNN	Northrup Grumman Newport News	OBT	On-Board Trainer
NGO	Non-Governmental Organization	OCA	Offensive Counter-Air
NGSS	Northrup Grumman Ship Systems	OCONUS	Outside Continental United States
NIFC-CA	Navy Integrated Fire Control - Counter Air	OED	OSIS Evolutionary Development
NII	Network Information Integration	OEF	Operation Enduring Freedom
NILE	NATO Improved Link Eleven	OEO	Other Expeditionary Operations
NIMA	National Imagery and Mapping Agency	OGB	Optimized Gun Barrel
NIPRNET	Unclassified-but-Sensitive Internet Protocol Router Network	OIF	Operation Iraqi Freedom
NITF	National Imagery Transportation Format	OIPT	Overarching Integrated Product Team
N/JCA	Navy/Joint Concentrator Architecture	OMFTS	Operational Maneuver From The Sea
NMCB	Naval Mobile Constuction Battalion	ONR	Office of Naval Research
NMCI	Navy Marine Corps Intranet	OPAREA	Operational Exercise Area
NMCP	Navy Marine Corps Portal	OPEVAL	Operational Evaluation
NMITC	Navy Maritime Intelligence Training Center	OPNAV	Office of the Chief of Naval Operations
NMT	Navy Advanced Extremely High Frequency Multiband Terminal	OPTEMPO	Operating Tempo
NNSOC	Naval Network and Space Command	OPTEVFOR	Operational Test and Evaluation Force
NOAA	National Oceanographic and Atmospheric Administration	OR	Operational Requirement
NOC	Network Operation Center	ORD	Operational Requirements Document
NPDC	Naval Personnel Development Command	OSA	Open System Architecture
NPOESS	National Polar-Orbiting Operational Environmental Satellite System	OSCAR	Open Systems-Core Avionics Requirements
		OSD	Office of the Secretary of Defense
		OSIS	Ocean Surveillance Information System
		OSS	Operational Support System
		OT	Operational Testing
		OT&E	Operational Testing and Evaluation
		P3I	Pre-Planned Product Improvement
		PAC	Pacific

PACE	Program for Afloat College Education
PAS	Processing and Analysis Segment
PEO	Program Executive Office (and Officer)
PERSTEMPO	Personnel Tempo
PDM	Program Decision Memorandum
PDR	Preliminary Design Review
PFPS	Portable Flight-Planning Software
PGM	Precision-Guided Munition
PHIBGRU	Amphibious Group
PIP	Product Improvement Program, or, Pioneer (UAV) Improvement Program
PKI	Public Key Infrastructure
POM	Program Objective Memorandum
POR	Program of Record
PPBE	Planning, Programming, Budgeting, and Execution process
PPBS	Planning, Programming, and Budgeting System
PTAN	Precision Terrain Aided Navigation
PUMA	Precision Underwater Mapping and Navigation
PVO	Private Volunteer Organization
QDR	Quadrennial Defense Review
QOL	Quality of Life
QOS	Quality of Service
R&D	Research and Development
RAM	Rolling Airframe Missile
RAMICS	Rapid Airborne Mine Clearance System
RC	Reserve Component
RCC	Regional Combatant Commander
RCOH	Nuclear Refueling/Complex Overhaul
RD&A	Research, Development, and Acquisition
RDC	Rapid Deployment Capability
RDT&E	Research, Development, Test and Evaluation
RF	Radio Frequency
RFP	Request for Proposals
RL	Restricted Line
RM	Radiant Mercury (classified information sanitization program)
RMAST	Reserve Mobile Ashore Support Terminal
RMIG	Radiant Mercury Imagery Guard
RMS	Remote Minehunting System
RNSSMS	Rearchitected NATO Seasparrow Missile System
RO	Reverse Osmosis
ROS	Reduced Operating Status
RRDD	Risk Reduction and Design Development
RSOC	Regional SIGINT Operations Center
RTC	Remote Terminal Component, or, Recruit Training Command
RWR	Radar Warning Receiver
S&T	Science and Technology
SA	Situational Awareness
SAG	Surface Action Group
SAHRV	Semiautonomous Hydrographic Reconnaissance Vehicle
SAIC	Science Applications International Corporation

SALTS	Streamlined Alternative Logistic Transmission System
SAM	Surface-to-Air Missile
SAML	Security Assertion Markup Language
SATCOM	Satellite Communications
SCA	Software Communications Architecture
SCC	Sea Combat Commander
SCI	Sensitive Compartmented Information
SCN	Shipbuilding and Conversion (Navy) [funding]
SDAP	Special Duty Assignment Pay
SDD	System Development and Demonstration (phase)
SDTS	Self-Defense Test Ship
SDV	Swimmer (or SEAL) Delivery Vehicle
SDVT	Swimmer (or SEAL) Delivery Vehicle Team
SEAD	Suppression of Enemy Air Defense
Seabee	Naval Construction Battalion
SEAL	Sea-Air-Land Naval Special Warfare Forces
SEAPRINT	Systems Engineering, Acquisition, and Personnel Integration
SEI	Specific Emitter Identification
SEIE	Submarine Escape Immersion Equipment
SELRES	Selected Reserve
SEWIP	Surface Electronic Warfare Improvement Program
SHARP	Shared Reconnaissance Pod
SHF	Super High Frequency
SHUMA	Stochastic Unified Multiple Access
SI	Special Intelligence
SIAP	Single Integrated Air Picture
SIGINT	Signals Intelligence
SIMAS	Sonar In-situ Mode Assessment System
SINCGARS	Single Channel Ground and Air Radio System
SIPRNET	Secret Internet Protocol Router Network
SLAD	Slewing-Arm Davit
SLAM	Standoff Land-Attack Missile
SLAM-ER	Standoff Land-Attack Missile-Expanded Response
SLAP	Service Life Assessment Program
SLBM	Submarine-Launched Ballistic Missile
SLEP	Service Life Extension Program
SLR	Side-Looking Radar
SM	Standard Missile
SMCM	Surface Mine Countermeasure
SNAP	Shipboard Non-tactical ADP Program
SOA	Sustained Operations Ashore
SOAD	Standoff Outside Area Defense
SOAP	Simple Object Access Protocol
SOC	Special Operations Cable, also Special Operations Craft
SOF	Special Operations Forces
SOPD	Standoff Outside Point Defense
SOSUS	Sound Surveillance System
SPAWAR	Space and Naval Warfare Systems Command
SPECAT	Special Category
SRB	Selective Reenlistment Bonus

SRC	Submarine Rescue Chamber
SRDRS	Submarine Rescue Diving Recompression System
SS	Sensor Subsystem
SSEE	Ship's Signals Exploitation Equipment
SSI	Special Structural Inspection
SSI-K	Special Structural Inspection-Kit
SSIPS	Shore Signal and Information Processing Segment
SSBN	Nuclear-Powered Ballistic Missile Submarine
SSG	Strategic Studies Group
SSGN	Guided Missile Submarine
SSDS	Ship Self-Defense System
SSK	Diesel-electric/ Advanced Air Independent Submarine
SSMIS	Special Sensor Microwave Imager/Sounder (Air Force)
SSN	Nuclear-Powered Submarine
SSO	Special Security Office
SS-SPY	Solid State- SPY (radar)
SSST	Supersonic Sea-Skimming Target
START	Strategic Arms Reduction Treaty
STEP	Standardized Tactical Entry Point
STOM	Ship-To-Objective Maneuver
STOVL	Short Take-Off and Vertical Landing
STT	Submarine Tactical Terminal
STU-III/R	Secure Telephone Unit, Third Generation, Remote Control Interface
SURTASS	Surveillance Towed Array Sensor System
S-VSR	S-Band Volume Search Radar
SWAN	Shipboard Wide-Area Network
SWATH	Small Waterplane Area, Twin Hull [Ship]
SYSCEN	Systems Center
T-AGOS	Ocean Surveillance Ship (MSC-operated)
T-AGS	Oceanographic Survey Ships (MSC/Civilian Agency-operated)
T-AH	Hospital Ship
T-AKE	Stores/Ammunition Ship
T-AO	Oiler (MSC-operated)
TACAIR	Tactical Aircraft
TACAMO	Take-Charge-and-Move-Out
TACC	Tactical Air Command Centers
TacLAN	Tactical Local Area Network
TACS	Tactical Air Control System
TACTAS	Tactical Towed Array System
TACTOM	Tactical Tomahawk
TADIL-J	Tactical Digital Information Link - Joint Service
TADIRCM	Tactical Aircraft Directed Infra-Red Countermeasure
TADIXS	Tactical Data Information Exchange Systems
TAMD	Theater Air and Missile Defense
TAMPS	Tactical Automated Mission Planning System
TAOC	Tactical Air Operations Center (Marine Corps)
TAP	Tactical Training Theater Assessment Planning

TARPS	Tactical Airborne Reconnaissance Pod System
TCDL	Tactical Common Data Link
TCGR	Track Control Group Replacement
TCP	Transmission Control Protocol
TCS	Tactical Control System, or, Time-Critical Strike
TCT	Time-Critical Targeting
TDA	Tactical Decision Aid
TDD	Target Detection Device
TDLS	Tactical Data Link System
TDMA	Time Division Multiple Access
TDSS	Tactical Display Support System
TECHEVAL	Technical (Developmental) Evaluation
TEMPALT	Temporary Alteration
TERCOM	Terrain Contour Mapping
TES-N	Tactical Exploitation System - Navy
TESS/NITES	Tactical Environmental Support System/Navy Integrated Tactical Environmental Subsystem
TFW	Task Force Web
TI	Tach Insertion
TIBS	Tactical Information Broadcast Service
TIDS	Tactical Integrated Digital System
TIMS	Training Integrated Management System
TIS	Trusted Information System
TIS	Tactical Interface Subsystem
TLAM	Tomahawk Land-Attack Cruise Missile
TLR	Top Level Requirements
TOA	Total Obligational Authority, or, Tables of Allowance (Seabee)
TOC	Total Ownership Costs
TOW	Tube-launched, Optically-tracked, Wire-guided (missile)
TPPU	Task, Post, Process, Use
TRAFS	Torpedo Recognition and Alertment Functional Segment
T-RDF	Transportable - Radio Direction Finding
TRIXS	Tactical Reconnaissance Intelligence Exchange System
TS	Top Secret
TSC	Tactical Support Center
TTWCS	Tactical Tomahawk Weapon Control System
TUSWC	Theater Undersea Warfare Commander
UAV	Unmanned Aerial Vehicle
UCAV	Unmanned Combat Air Vehicle
UDDI	Universal Description, Discovery, and Integration
UFO	Ultra High Frequency Follow-On
UHF	Ultra High Frequency
UOES	User Operational Evaluation System
UNITAS	Annual US - South American Allied Exercise
UNREP	Underway Replenishment
USD/AT&L	Under Secretary of Defense for Acquisition, Technology, and Logistics
USPACOM	United States. Pacific Command
URL	Unrestricted Line

USS	Undersea Surveillance System, and, United States Ship
USSOCOM	U.S. Special Operations Command
USW	Undersea Warfare
USW-DSS	Undersea Warfare-Decision Support System
UUV	Unmanned Undersea Vehicle
UWS	Underwater Segment
UXO	Unexploded Ordnance
VCNO	Vice Chief of Naval Operations
VERTREP	Vertical (underway) Replenishment
VHA	Variable Housing Allowance
VIXS	Video Information Exchange System
VLF/LF	Very Low Frequency/Low Frequency
VLS	Vertical Launching System
VME	Versa Module Eurocard
VPN	Virtual Private Network
VSR	Volume Search Radar
VSW	Very Shallow Water
V/STOL	Vertical/Short Take-Off and Landing
VTOL	Vertical Take-Off and Landing
VTC	Video Teleconferencing
VTM	Video Tele-Medicine
VTT	Video Tele-Training
VTUAV	Vertical Takeoff and Landing Tactical Unmanned Aerial Vehicle
VVD	Voice-Video-Data
WAA	Wide Aperture Array
WAN	Wide Area Network
WDL	Weapons Data Link
WEN	Web-Enabled Navy
WGS	Wideband Gapfiller Satellite
WMD	Weapons of Mass Destruction (nuclear, biological, chemical)
WMP	Wideband Modernization Plan
WPN	Navy Weapons Procurement (appropriation)
WSC	Wideband Satellite Communications
XML	Extensible Markup Language
ZBR	Zero-Based Review

APPENDIX C

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