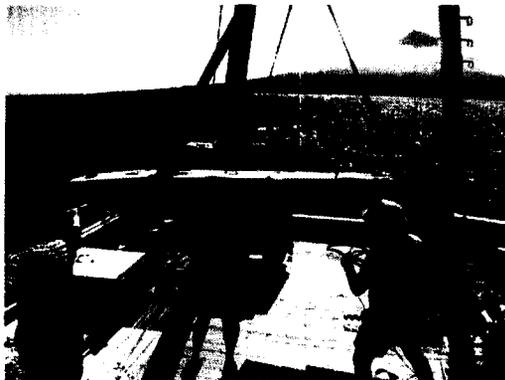




NAVAL POSTGRADUATE SCHOOL
SUPPORT FOR COMBATANT COMMANDERS
and the
OFFICE OF THE SECRETARY OF DEFENSE

The Naval Postgraduate School's unique combination of operationally experienced students and defense-oriented faculty provide a superb setting to conduct interdisciplinary research on complex issues related to national and homeland defense. As such, many of the research and academic programs at NPS relate to the operational level of war. A number of projects at NPS are performed directly for or in support of the various U. S. Combatant Commands, or are conducted side by side the Commands as part of larger integrated field experiments. Other NPS projects support or are supported by the Office of the Secretary of Defense (OSD). While many of these projects are classified, below are some unclassified examples of NPS support to the Commands, Fleets & OSD.



USPACOM
Pacific Command

Campus-Wide Integrated Project to Study Undersea Warfare in the Littoral. Thirteen System Engineering and Analysis students will lead a campus-wide integrated study on the challenges of Undersea Warfare in the Littoral. This work will focus on most challenging threats and will involve coordination with COMPACFLT, ASW Command, and TF ASW.

Campus-Wide Integrated Project to Study Maritime Counter-Terrorism in Southeast Asian waters. Twenty System Engineering and Analysis students are leading a campus-wide integrated study on defeating maritime terrorism and pirate-supported terror in the Southeast Asia waterways. NPS Singapore students will be integrated into this study. PACOM Science Advisor is aware of this project in consonance with PACOM's maritime domain ACTD proposal.

Coalition Operating Area Surveillance & Targeting System (COASTS). Develop and implement low cost, state-of-the-art, unclassified testbeds in partnership with coalition allies to reduce or mitigate border and port security vulnerabilities, and leverage & expand research through other NPS programs. COASTS uses sensors on manned and unmanned platforms, in combination with 802.11 and 802.16 wireless technologies to provide situational awareness overlay. Participants include USPACOM, NSA, US Border Patrol, US Coast Guard, Coalition Partners, Thailand (current), Singapore, Korea & others (proposed).

Southeast Asia Tsunami Relief: Hastily Formed Networks—Phuket & Khao Lok, Thailand. Taking advantage of a pre-arranged visit to Thailand by NPS faculty, NPS was able to support tsunami relief operations “on the fly”, providing broadband internet to victims, families, NGOs, local government, media, and volunteers. NPS organized a team of participants from COASTS (a NPS integrated research project), and in-country agencies to set up a hastily formed network ISO tsunami relief. Many lessons were learned and reported. NPS faculty returned in mid-February and mid-March to enhance the network and build in redundant, remote monitoring/imaging capability.

Joint Defender TBMD Modeling. A PC-based operational planning tool for use by area air defense planners is being developed by Operations Research faculty and students. This model was tested in an unclassified Korean scenario and used to aid Naval War College in PACOM CONOPS (Concept of Operations) evaluation. It is being evaluated by NWDC staff for further development.

Unmanned Vehicle TACMEMO Development and Field Experimentation. In addition to TACMEMO (Tactical Memorandum) development for utilizing UAVs in Maritime Missions, NPS faculty and students are designing a field experimentation program with Singapore and Thailand for use of UAVs for ISR.

Regional Security Education Program (RSEP). NPS faculty teach on Carrier Strike Groups and Expeditionary Strike Groups in-transit, delivering graduate level education to forward-deploying forces, to enhance their strategic situational awareness and enable them to understand the regional threat environments in which they operate. Using in-person lectures, direct interaction with regional experts, and a supporting website, RSEP provides strike group Commanders critical and timely regional security knowledge, strategic level perspective, knowledge in support of forward engagement, theater security operations, bilateral/coalition cooperation, improved mission planning and current cultural and societal issues. Past presentations have focused on Middle East, Iraq, NE and SE Asia, DPR Korea, Horn of Africa, and China.

Maritime ISR and Detection (MISRAD). NPS hosted an inter-agency workshop on MISRAD under the auspices of PACOM. The workshop looked at the end-to-end supply chain that moves containers from the overseas manufacturer through the maritime traffic system to ports in the US. The particular focus of MISRAD is on WMD, particularly nuclear devices and special nuclear materials. The MISRAD group brings operators, sensor producers, intelligence professionals, port operators and shippers together to attack this problem from all sides.

Maritime Domain Protection. NPS drafted a proposed National Maritime Domain Protection Architecture with Concept of Operations and Command Structure. NPS also tested the proposal in an interagency/joint war game, developed a MDP Library Base for classified interagency reference, and extended current data mining and fusion techniques and systems based on

requirements generation. We are now examining port infrastructures in support of force protection.

Center for Executive Education (CEE): Development program for transition in USPACOM intelligence. Application of NPS' CEE program to J2/JICPAC leadership and unique theater intelligence management needs. This CEE education program provides frameworks/tools for the leadership team to input to intelligence strategy, implement change, and shape organizational structure and processes.

Center for Civil-Military Relations (CCMR). CCMR supports the PACOM Theater Security Cooperation Plan and the Global War on Terrorism by helping improve U.S. influence in the Asia-Pacific Region in Southeast Asia, the South Pacific, South Asia and Indian Ocean, and Indonesia, Taiwan and Bangladesh in particular. CCMR programs focus on improving access, training and readiness in these regions and developing competent coalition partners. CCMR provides in-residence courses and Mobile Education Teams (MET's) to participating countries, to instruct in Planning Peace Operations; Civil-Military Relations; Democracy: Methods, Techniques & Application; Developing Simulations/Scenario Development Training; Strategic Planning; and Response to Global Terrorism. CCMR contribution to PACOM planning helps establish strategic communications for creating regional dialogue on U.S. security policy in PACOM's area of responsibility.

Concept of Operations (CONOPS)/Tactics/Techniques/Procedures (TTPS) for foreign language/speech translation technologies in a coalition military environment. Research in foreign language and speech translation machine technologies for the Advanced Concept Technology Demonstration (ACTD) titled "Language and Speech Exploitation Resources": (LASER), currently in its fourth year. This research utilizes the LASER ACTD process to study how various foreign language machine translation technologies can be used in a DOD environment, & focuses on the creation of CONOPS and TTPS for the employment of these technology devices in military exercises& ops.

COMTHIRDFLT Science Advisor tour. Richard Kimmel (NPS/IS department) was selected for the Office of Naval Research Science & Technology advisor program, is detailed to COMMANDER THIRD FLEET (C3F), San Diego, CA.

NPS USPACOM Liaison Desk: Provides research support as requested by USPACOM Science Advisor and J39 in support of experimentation. Examples include web based influence operations for exercise COBRA GOLD 04 in conjunction with NPS liaison desk for USPACOM: support, construct and operate a cyber-based capability to support the planning and execution of full-spectrum information operations. NPS developed and provided a fully functional prototype website for implementation during the COBRA GOLD 2004 command post exercise.

Support to USARPAC (US Army Pacific) for Homeland Defense. Provides education, applied research, training, exercise and planning program support to strengthen DoD's capabilities for terrorism prevention and all-hazards response in the Pacific area of responsibility.

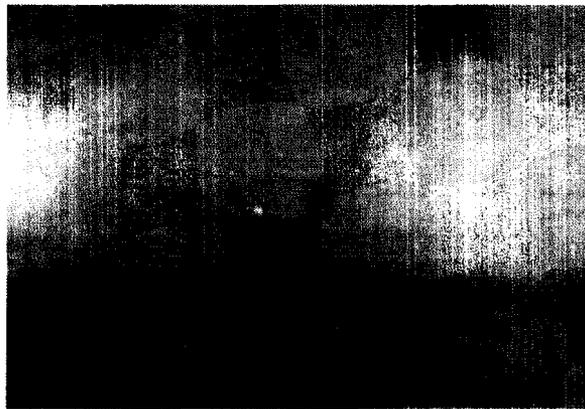
Direct Support to CTF-73 to evaluate HSV in PACOM. An Ops Research student is conducting research on the use of HSVs in a logistic role for CTF-73 and how to modify contingency support plans.



USCENTCOM Central Command

Direct NPS Educational Support to CENTCOM. CENTCOM Area of Responsibility (AOR) countries send their officers and defense civilians to NPS for master's degrees and to attend in-residence short courses ranging from one to eleven weeks. NPS also sends mobile education teams to countries in CENTCOM AOR to assist in the development of democratic policies and programs. Most recently a team of educators went to Afghanistan, and will do the same in Iraq. NPS also conducts region and country specific education programs for active Army, National Guard and Reserve Forces deploying to CENTCOM AOR, to include Iraq and Afghanistan. In addition, NPS conducts regional security education of sailors and marines deploying to CENTCOM AOR.

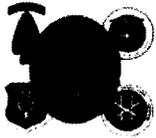
Helicopter Brownout. Helicopter Brownout is a \$100 million per year problem, leading to significant hardware loss, injuries, and fatalities. The NPS project objective is to find ways to define landing zones which will have reduced probability of producing brownout. The challenge is to remotely sense soil and surface characteristics in denied territory. Both civilian remote sensing systems and national technical means were and are being studied. NPS identified a system that meets the requirements and is testing it for suitability. The payoff for this work will be to dramatically reduce the loss rate for men and hardware, particularly in the SOCOM and CENTCOM AORs.



Defense Resource Management Institute at NPS: 1,710 participants representing 25 of the 27 CENTCOM countries have participated in DRMI programs since 1965, including the current King of Jordan, his brother and his sister. In the last 10 years, NPS conducted mobile courses in Ethiopia (2), Jordan, Kenya (5), Tajikistan and Uzbekistan. Prince Feisel of Jordan commented on the value of networks from his time at NPS, noting that he was amazed that he had to come all the way to Monterey to meet other people in his region of the world. He said he now felt that he could just pick up the phone and call them when there is a problem.

Coalition Intelligence Architecture Development. NPS faculty member traveled to MacDill AFB in Florida, As Saliyah in Qatar, and Baghdad and Basra in Iraq in Jan/Feb 2004 to write a study recommending improvements to the Coalition and Iraqi intelligence architecture, for General John Abizaid, Commander CENTCOM. He worked as a member of General John Abizaid's personal staff, in the Commander's Advisory Group.

He then traveled to Kuwait City in Kuwait, and Baghdad in Iraq in Oct/Nov 2004 to work as a member of the Strategy Division of the office of the Deputy Chief of Staff for Strategy, Plans, and Assessment (DCS-SPA) in the headquarters of the Multinational Force-Iraq, in the US Embassy in Baghdad. The DCS-SPA, headed by a US Air Force major general, worked directly for General George Casey, Commander MNF-I, who is directly subordinate to General Abizaid.

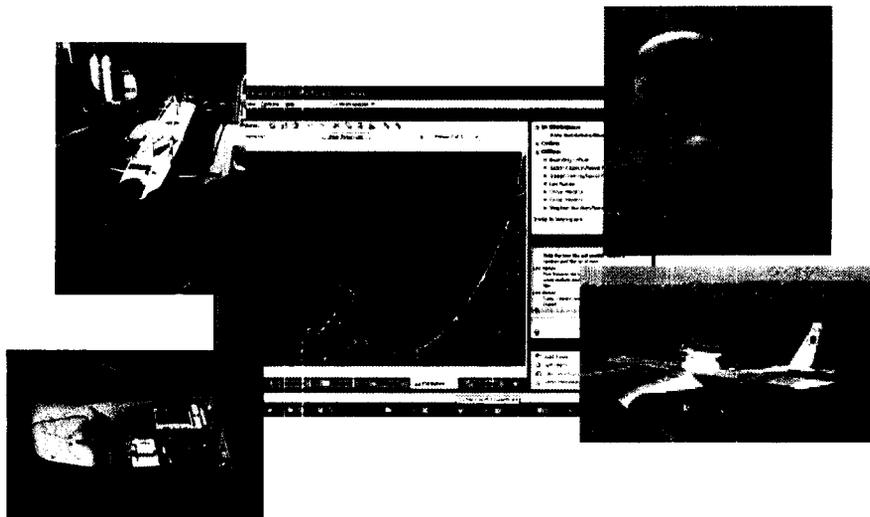


USSOCOM ***Special Operations Command***

Man Hunting Workshop in support of U. S. Special Operation Forces (SOF). The traditional scope of military operations has never developed a doctrinal framework or process to capture fugitives, consequently military planners and intelligence analyst are not educated or trained in the investigative processes necessary to find fugitives. NPS conducted a research seminar to develop an investigative framework to understand the nature of man hunting in order to locate and apprehend fugitive insurgents and propose developmental courses of action.

Tactical Network Topology (TNT) (previously STAN). TNT is an integrated program of quarterly field experiments that develop and demonstrate new technologies to support near term needs of the warfighter. Major emphasis is on wireless networks, autonomous vehicles, sensor networks, situational awareness and target tracking and identification. Measures of performance of the technologies and operators using the technologies are also addressed. TNT is a faculty-student program working in parallel with partners that include various branches of the military, Combatant Commands, industry, and national labs. In particular, USSOCOM's Futures Directorate (J9) will be conducting experiments at NPS in conjunction with the USSOCOM Advanced Technology Directorate. These experiments will focus on identifying key gaps and deficiencies resulting from applications of advanced technology, particularly network communications, unmanned systems, and net-centric applications.

TNT includes a wide range of projects including the light reconnaissance vehicle (LRV) and special operations force (SOF) systems engineering and integration. The latter is an umbrella project to provide systems engineering applications to USSOCOM in support of all NPS work on LRVs, to integrate NPS experimental efforts and develop case studies.

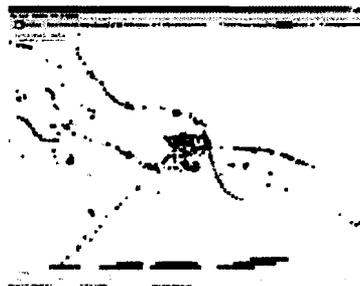


Special Operations Forces SIGINT Maritime Support to Joint Threat Warning System, (JTWS) Research, Development, Test, and Evaluation. This proposal describes Research, Development, Test, and Evaluation (RDT&E) actions, to support the Joint Threat Warning System (JTWS) Program. This will include investigating integration of smart dust technology into the JTWS Component Architecture Framework (JCAF), investigations into integrating SOF SIGINT maritime capabilities into the Tactical Network Topology effort, and classified signals analysis.

Applied warfighter Ergonomics (AWE) Research Center. This research incorporates the Human Systems Integration (HSI) research efforts to support the Tactical Network Topology (TNT) project. There are two major areas: HSI assessments of field portable devices and a research center with lab and field based research capability to assess human systems integration efforts for warfighters. The thrust of the effort will be on assessment of field portable devices to be used by warfighters.

Skytrack: Broadband switched-beam UAV-to-land vehicle communications subsystem. This is a project to develop, implement and validate a mobile UAV tracking antenna subsystem to operate with multiple UAV signal sources, in the 2.4 and 5.8 GHz ISM frequency bands.

Dynamic Mapping of IED Incidents over Space and Time. Innovative thesis work uses software from a faculty research project to display, animate, and statistically analyze the SIGACT (significant activity) data from Operation Iraqi Freedom (OIF). Identifying change points in insurgency behavior is critical to effective counterinsurgency. Due to the continuous nature of the conflict and the volume of apparently random incidents, statistical process control techniques are used to signal changes in insurgent tactics and movement. This research by faculty and students at NPS continues to improve the programming components of the project. The NPS IED mapping program is also currently being used in-theater in Afghanistan in Operation Enduring Freedom.



Case Studies for the Future. To assist in the development of operational concepts for Special Operations Forces that can be tested in exercises in theatre. Tools such as case studies, statistical analyses & mathematical modeling are used. A series of briefings and research papers are being developed, delivered, with supporting documentation, including proposed exercises plans to incorporate research results into SOF training.

Special Operations/Low Intensity Conflict (SOLIC) Academic Curriculum. Unique curriculum designed to provide students with the ability and background to think analytically and originally about the broad fields of political violence, unconventional warfare, and the role of SOLIC in U.S. foreign policy and defense planning.



USJFCOM **Joint Forces Command**

Support for Extended Awareness Experimentation program. NPS provides experimentation and other analytic support to the Extended Awareness series of experiments, conducted by the Joint Operational Test Bed System (JOTBS) under USJFCOM. This includes involvement in the planning and conduct of the events leading up to two limited objective experiments.

NPS/CIRPAS UAV Predator flight support. This project supports JFCOM's UAV test objectives with Pelican and Predator air vehicles and one GCS/GDT.

Joint Intelligence Interoperability Board (JIIB) Systems Baseline Assessment (JSBA 04). This project supports the assessment of the Joint Intelligence Interoperability Board Systems Baseline Assessment. The study examines requirements and methodologies; organizes and maintains JSBA analytical models and tools and the associated data; executes model run activities, and analyzes results. NPS also provides analytical support, including scenario development and verification, execution of model runs, and direct analyses for a variety of intelligence, surveillance, and reconnaissance (ISR) assessments.

Extensible Modeling and Simulation Framework (XMSF) viewer for the Distributed Continuous Experimentation Environment (DCEE). The distributive continuous experimentation environment (DCEE), managed by the J9, U.S. JOINT FORCES COMMAND, has established a framework of common terminology for information to be exchanged between components using an enhancement of the real-time platform reference federation object model. This project will prepare for and conduct a demonstration of the benefits of XMSF concepts in the DCEE with the XMSF DCEE viewer.

Standing Joint Force Headquarters Process Modeling. The Standing Joint Force Headquarters (SJFHQ) processes will be analyzed and modeled to capture new processes that emerge with an emphasis on inter-agency, and service/functional component interactions. Information on SJFHQ will be obtained from available J9 sources, from observing planned events at PACOM, EUCOM and SOUTHCOM, interviews, and the development of use cases and user stories. Paper process models will be developed to show information flow timelines. Outputs of executable simulations developed from paper models are provided as inputs to discussion of requirements and end states.

Joint Task Force requirements determinations. This research will document the rationale, establishment and operation of recent JTFs, conduct a literature review of JTFs from military and academic sources to provide lesson learned for future JTF development and operation, develop a research protocol to be used in identifying and evaluating the decision processes, and procedures and mechanisms through which JTF are formed.

Design and analysis of simulation for advanced joint C4ISR node. This project designs, implements and analyzes the results of simulations to examine the costs and benefits of AJCN payloads following the statement of work from JSJFCOM. The intent of the simulation, for example, develops a cost-benefit analysis to determine the advantages of multiple AJCNs on single platforms, and helps develop TTPs for employing AJCNs.



USNORTHCOM ***Northern Command***

Homeland security leadership development. Under a MOU with USNORTHCOM, NPS develops and provides graduate education and research programs for USNORTHCOM in the area of homeland defense and security, and other MS programs in fields of direct value to HD/S. In addition, NPS takes HD/S mobile education teams (METs) to governors, and state and local leaders for short courses in first response and HD/S issues.

Center of Excellence in learning technology support for Homeland Defense and defense support to civil authorities. This project determines how Advanced Distributed Learning can best be used to reduce costs and constraints, and improves effectiveness of pre-exercise education, training and coordination. Determines how ADL can be used to individualize and tailor training and education for individuals performing the entire spectrum of homeland defense and military support to civil authorities operations.



OFFICE of the SECRETARY OF DEFENSE (OSD)

Armoring Vehicles against Improvised Explosive Devices IEDs. Supporting a request from the Office of the Deputy Secretary of Defense, NPS faculty and students are working on a short term project exploring protection schemes that have the potential of decreasing the vulnerability of lightly armored vehicles, such as Bradley APCs. Initial concepts will be assessed for increasing absolute protection and weight efficiency of armor, using lightweight assembly of discrete elements, arrayed in a manner that increases the number of angled contact surfaces that a projectile will have to encounter. This serves to deflect the flow of bomb fragment streams out of harm's way. The initial work on this project simulates an IED class bomb, and assesses the baseline effectiveness of steel armor against the threat. The project uses technical surveys and supporting data from SPAWAR and LLNL, with NPS faculty/student expertise in explosive ordnance and testing, shaped charge development, effectiveness analyses, hydrodynamic code development and simulation.

Voice Authentication "Iraqi Enrollment" Project. The Voice Authentication "Iraqi Enrollment" Project is an initiative that explores the use of voice authentication and verification technologies for implementation in Iraq and potential uses in other stabilization and reconstruction efforts, such as Afghanistan. This faculty/student project is examining a proof of concept for a voice authentication and verification system that can improve visitation screening for detainees at the Baghdad Detention Facility Abu Ghraib, and security screening for access to the International "Green Zone."

World Wide Consortium on the Grid (W2COG). OSD sponsors the World Wide Consortium for the Grid (W2COG) initiative to accelerate fielding of network centric operations capability by matching *top down* governance for Global Information Grid (GIG) policy with *bottom up* meritocracy for technical detail. W2COG uses operational mission thread analysis, field

experimentation, and demonstration to identify the imperatives of GIG architectural detail and follows the "open" model of the World Wide Web consortium wherein technical experts from global industry, academia, and government join in a distributed, efficient, repeatable process to consider ideas and artifacts on their merits and achieve rapid consensus. OSD offices supporting W2COG include Office of Force Transformation, Advanced Systems and Concepts, Networks and Information and Integration, DARPA, DISA, and JS J6.

Human Intelligence in the War on Terrorism: Defining the Problem. The goal of this project is to comprehensively describe and analyze the gaps in US human intelligence capabilities when operating in the non-Western world; to identify non-western means of securing support; to assess current capability for taking action against these methods; to apply organizational theory to intelligence organizations in terms of potential to operate effectively in the non western world; and to examine how other great powers penetrated the non-western world for intelligence collecting purposes.

Improving and Incorporating Cost Estimating and Analysis into Advanced Concept Technology Demonstrations (ACTD). This project examines how to provide OSD decision makers with improved, consistent, credible and reliable cost estimates for use in the ACTD program, to include enhancing understanding of the unique characteristics of ACTDs and the relevance of incorporating cost estimating and analysis into the ACTD selection and transition processes.

Office of Force Transformation. NPS supports the Office of Force Transformation (OFT) in several areas. *Large Scale Change and Defense Transformation* applies interdisciplinary expertise to large-scale change issues associated with Defense Transformation, integrating research from various disciplines related to people, process, organizations and technology. The approaches use systems dynamics/systems thinking models, emphasizing cultural awareness, knowledge management, innovation, trust, energy/sustainability. *Capabilities Based Planning* applies Knowledge Value-Added framework (measuring the value of corporate knowledge assets) to Capabilities Based Planning in DoD. The program uses OFT's Network Centric Operations Case Study on SOF actions in Operation Iraqi Freedom as an initial proof-of-concept reference point, to study ROI in DoD. *Case Study on SARS Containment in Singapore* employs Hastily Formed Network technologies to mitigate a national security medical threat. Sponsor partners are OFT, Centers for Disease Control, Office of the Assistant SECDEF/Homeland Defense, & Singapore Ministry of Defense.

Unconventional Weapons of Mass Destruction (UWMD): detailed investigation of novel nuclear physics and its implications. Continue measurements and analyses of novel methods and nuclear effects begun in 2003. This task includes experimental verification and research tracking (isotopic abundance measurements) and documentation of work to date.

Center for Stabilization and Reconstruction Studies. This Center conducts studies to enhance post-conflict recovery for states that have failed or endured calamity and require stabilization and reconstruction. The curriculum is multi-disciplinary and interactive, and incorporates members of humanitarian organizations, civilian government officials, U.S. & foreign military officers, and recovering states. Curriculum includes governance and participation; security; economic and social well being; and justice and reconciliation. The program combines the best of contemporary social science with organizational theory, with practical and applied tools.

Civil-Military Relations in China and Chinese strategy. Research conducted for OSD/NET ASSESSMENT on civilian control of China's military during wartime and on Chinese strategy.

The specific areas are: command and control of the Chinese people's liberation army during wartime by civilian leadership, the future evolution of Chinese strategy, and review of materials related to Chinese strategy.

Center for Edge Power. Initiation and management of a new Center for Edge Power. The center conducts research pertaining to Edge organizations in the context of network-centric warfare. Research conducted in the areas of hypothesis testing of Edge organizations, near-optimizing knowledge and power flows, VDT infrastructure enhancement, and exploring and exploiting intercultural knowledge flows and organizational forms.

Operations Research Support to Personnel and Readiness Office/OSD. This project analyzes the cost and readiness effects from using of alternative types of personnel to operate UAVs, and expanding analysis of alternatives to meeting the missions of operational support aircraft for the U. S. Navy, and USA.

Lessons from Afghanistan -The strategic utility of Special Operations Forces (SOFs). This project examines the institutional and organizational realities that impacted the planning and execution of the war in Afghanistan. The study conducts an in-depth assessment of U.S. unconventional warfare (UW) policy and the development of SOF capabilities for executing UW operations, as well as whether & to what extent UW operations were considered as a policy option.

Distinguished Fellows Program. A program to form partnerships to invest in the intellectual capital of the nation to fight the GWOT. The initial phase (04-05) will fund cooperative research with the University of California at Santa Barbara. Topics: Single Event Stable Finite-State Controllers, Integrated Optical Accumulators Architecture for Use in Sigma Delta ADC, Signal Processing Algorithms for High-Precision Navigation for Underwater Autonomous Sensing, Human Activity Analysis in Video Surveillance.

Technical support to the OSD. This project promotes and supports the development, demonstration and rapid transition of special technologies in response to critical DoD requirements. Also establishes a key interface among DoD, the unified commands and other specific customers.



CFFC *Fleet Forces Command*

FORCEnet Engagement Packs. Sea Trial experimentation with NNWC/CFFC sponsorship: integrate a small set of joint sensors, platforms, weapons, warriors, networks and command and control systems for the purpose of performing cross-mission enabled Combat Reach Capabilities.

Updated 4-19-05



NAVAL POSTGRADUATE SCHOOL SIX MOST FREQUENTLY ASKED QUESTIONS

1. How is the Naval Postgraduate School unique?

Unique mission:

To provide relevant and unique advanced education and research programs that increase the combat effectiveness of the United States and Allied Forces...

Unique vision:

"Growing a new generation of leaders for tomorrow's military"

Unique Approach:

- To educate joint and coalition officers as multi-disciplinary military 'change agents'
- To equip future leaders to transform the military into a force that capitalizes on the advances and advantages of information management, network centric operations, and other emerging technologies

Unique Capabilities:

Rapid responsiveness to DoD issues: NPS aligns with rapidly changing needs of military within DoD and Combatant

Commands, percolating DoD themes, requirements and priorities down to NPS curriculum and research programs. Examples: NPS Center for Homeland Defense & Security- post 9/11 requirement for fast-track education to federal, state & city first responders. NPS Maritime Domain Protection Task Force quick response to DoD needs; C4I, ASW, Space Operations, Total Ship Systems Engineering, Seabasing, Combat Systems, Modeling Virtual Environments.

Joint Military and International Cross Fertilization: Fertile intellectual environment for lifelong

networking/interaction between within same service, other U.S. military organizations, and other countries.

Interdisciplinary Research and Education: NPS Courses and research are inherently interdisciplinary in nature,

curricula optimizes existing in-house expertise. Example: the Special Operations/Low Intensity Conflict (SOLIC) program combines experts in National Security, Operations Analysis (C4I), Systems Management to create an analytically rigorous warfare-oriented program.

Classified Research: NPS has large SCIF capabilities for conducting classified teaching and research, VTCs with the Combatant Commands and the Pentagon, and offers the largest classified library collections in the nation.

2. How is the Naval Postgraduate School relevant?

Transformation

- The Secretary of Defense's highest priority is Force Transformation.
- Office of Force Transformation (OFT/SECDEF) sponsors a new program at NPS, consisting of a Transformation Chair, Transformation Education and Transformation Research
 - Goals - to gain insights into current transformation in DoD, foster greater awareness of defense transformation internally with NPS faculty and students, and to a broad external audience of combatant commands & military stakeholders, equipping and influencing a new generation of DoD leaders.
 - NPS will be a broker for transformation research, whereby faculty and students world-wide can seek and share information on defense transformation and network centric operations.
 - Offered both on campus and as short courses offsite

Jointness

- Joint network centric operations, joint warfighting and joint peacekeeping campaigns demand that officers know and work seamlessly with all branches of service and coalition forces. NPS supports rapidly changing military requirements through advanced graduate education for the Navy, Marine Corps, Army and Air Force, with jointness as a keystone.
- The NPS student body is comprised of 42% Navy, 13% Marine Corps, 11% Air Force, 7% Army, and 24% international students.

3. A. Why not use civilian universities for graduate education for its officers?

- Special curricula that combines basic research with direct military applications that respond directly to current military needs is not found in civilian universities.
- Defense focus not duplicated by civilian universities

- The highest priority at NPS is relevant education to military officers, an educational focus that cannot be replaced by Stanford or MIT. Combining basic and applied skills contributes to decision making about future forces and warfighting capabilities. Example: NPS applied research recently supported a brief to Congress on Expeditionary Warfare Force Protection, which is now used widely in the military.

3. B. Why not use the War Colleges or National Defense University?

The War Colleges and NDU are not suited for the mission of educating junior and mid-grade officers in the scientific, engineering and technical areas essential to maintaining the combat effectiveness of the Navy. The military academies focus on the development of leaders, the war colleges on the strategy and policies of war. But it is NPS, along with the Air Force Institute of Technology, that provide education across a broad spectrum of areas that are critical to combat effectiveness as they provide officers with education that allows the conceptualization, development and use of weapons systems by our military forces. NPS provides JPME coursework on campus from dedicated War College faculty, so that officers can satisfy both their masters and military requirements from one location during a single tour.

4. Why not educate officers at the Air Force Institute of Technology (AFIT)?

Different mission than Air Force Institute of Technology (AFIT).

NPS as joint university is used extensively by the other U.S. military services.

NPS has 1500 student officers in residence with a capacity for 2000, while AFIT accommodates 400 students with an Air Force focus. NPS responds directly to the specific needs of the Combatant Commanders and military through education, targeted research projects and theses. Students contribute to efforts in three NPS Institutes via multi-year integrated theme projects that generate real time solutions to real time problems. Examples are the Sea Basing study from the Meyer Institute of Systems Engineering and Analysis, whose technologies and approach are being employed throughout the military.

5. What is the value of NPS being located in Monterey?

- UAV facilities: CIRPAS airport, airspace and landing field in Marina and UAV port at Camp Roberts near Paso Robles, allow 24/7 operation of UAVs at altitudes up to and in excess of 15000 feet in uncontrolled unrestricted airspace for joint integrated field experiments with faculty and students, including airborne sensors as part of large field tests and trials.
- Land Facilities: The MOUT at Fort Ord and Camp Roberts used for full time use for field experiments.
- Coastal access and NPS property both in Monterey, and at Pt. Sur (SOSUS submarine sonar array).
- Proximity or co-location to institutions for collaborative research partnerships, education, and unique laboratory and computing facilities. Military institutions: Defense Language Institute (Army), Fleet Numerical Meteorology and Oceanography Center (Navy), Naval Research Laboratory West. NPS partners with researchers and facilities at nearby NASA Ames Research Center at Moffat Field (wind tunnels, advanced modeling for homeland defense applications, etc.) and Lawrence Livermore National Labs. Private institutions: Monterey Bay Aquarium Research Institute (MBARI), California State University/Monterey Bay, University of California at Santa Cruz.

6. What is the added value to the Fleet of an NPS officer when they return to their next command?

Operations experience combined with and education: Officers apply their operational experiences gained in previous commands with applied military coursework and basic research on a masters thesis. A NPS graduate returns to duty with the “Why” (theory, computer modeling and simulation, problem solving, etc) in addition to the “How.”

Broader world view:

- Greater perspective than 4-year degree provides, gains the value of education
- Perspective on how the military works, the “business” of national security and defense
- Equipped with understanding of the new face of war and peace in the net-centric age
- Relationships/networks within 60 other countries and coalition forces

Approach to problem solving: NPS provides a process-oriented education, with experience in integrated interdisciplinary

research. A NPS graduate has a knowledge of diverse and innovative ways to attack a problem. Every graduate is required to write a masters thesis based on a real problem, finding real solutions with current and emerging technologies. This experience is invested back into the fleets and offices of DoD.

July 2005



Growing a New Generation of Leaders for Tomorrow's Military

Mission : "To provide relevant and unique advanced education and research programs that increase the combat effectiveness of United States and Allied armed forces and enhance the security of the United States."

The Naval Postgraduate School (NPS) as the Navy's corporate university is:

1. Essential to Navy and DoD for ensuring combat effectiveness
2. Integral to joint and combined professional military education
3. Linked to the Unified Combatant Commanders and their requirements
4. Vital to other national security organizations, agencies & nations for national security
5. The nation's national security research university

Essential to the Navy and DoD for ensuring combat effectiveness

- NPS offers education in Monterey and around the world with Masters and PhD degrees, and a full array of short courses, certificates, executive education, and mobile education.
- NPS provides engineering, technical, analytical, managerial, and national security education and research programs not available at civilian institutions to the Department of the Navy, DoD, or the national security organizations.
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- The DoD Office of Force Transformation sponsors a NPS chair and course development in one of the first programs in Transformation Education and Research,, through the NPS Cebrowski Institute of Information Innovation & Superiority.

Integral to joint and combined professional military education

- The student body of NPS reflects the operating environment. By 2006, 1800 military officers, defense civilians, enlisted, defense contractors, and other agency representatives from the United States and other nations will be studying in resident programs at NPS. Half will be naval officers.
- Another 8000 or more students will benefit from short courses, continuing education courses, and degree or certificate programs around the world.
- NPS is connected with many defense and civilian university partnerships allowing NPS to deliver tailored defense-related education when and where it is needed. Notable examples:
 - The Air Force Institute of Technology and NPS provide education that allows the conceptualization, development and use of weapons systems by our military forces.
 - Naval War College for Joint Professional Military Education.
 - Johns Hopkins University for Systems Engineering.
 - University of Maryland, Smith School of Business for a defense-related MBA.
 - Stanford for homeland defense, bioterrorism research, and teaching
 - UC Santa Barbara for education and research

Linked to the Unified Combatant Commanders and their requirements

- NPS works closely with the Unified Combatant Commanders providing relevant education and research critical to their combat missions. NPS faculty works with the UCC's on real world problems, on-site and with students back on the main campus. NPS faculty provides about \$75 million of research to the Navy, Unified Combatant Commanders and the Services.
- Examples of NPS support include:
 - USNORTHCOM (Northern Command) -Homeland Defense and Security
 - USPACOM desk, linking research and operational efforts to the Pacific Command activities
 - USCENTCOM Counter-terrorism programs in support of PACOM and CENTCOM initiatives
 - USJFCOM- NPS faculty and students provided direct support to Millennium Challenge 02 for Joint Forces Command
 - USSOCOM (Special Ops) curriculum and related research on UAV's, tactical decision aids, wireless technologies, netcentric warfighting advances
 - USSTRATCOM (Strategic Command) Joint Information Operations Center of Excellence
 - USEUCOM- Graduate ed for National Guard division staffs deploying to Europe Command countries
 - USCOMPACFLT desk, antisubmarine warfare research addresses highest priority issues of C3F.
- NPS houses three institutes in:
 1. Modeling and Simulation,
 2. Information Innovation and Superiority, and
 3. Systems Engineering.

Each conducts an annual integrated multi-disciplinary study with faculty and students to address real military issues and problems, most often under the sponsorship of military commands. The results are supplied back to the fleets and commands and are often used in subsequent operations or recommended for continuing study.

Vital to DoD's interactions with other agencies and nations for national security

- NPS supports the continuing global war against terrorism and both homeland and international security efforts through education and research.
 - NPS designated by Deputy Secretary of Defense as the Joint Center of Excellence for Information Operations education and research, sponsored by U.S. Strategic Command.
 - NPS is designated DoD coordination point for Maritime Domain Protection research, and member, Senior Steering Group.
 - NPS is the Center of Education Excellence for the Information Professional community, named by commander of NETWARCOM, coordinating efforts in advanced technologies, knowledge management, advanced communications, intelligence, and cryptology.
- NPS programs strengthen democratic civil-military relationships in 85 countries throughout the world:
 - National Security Decision-making in Indonesia
 - National Security Strategy Development in Colombia
 - MoD reorganization in Taiwan
 - Security Building in Afghanistan
 - Defense restructuring in Dominican Republic and other countries
- NPS teaches a classified graduate education program for National Security Agency
- A university of choice for National Reconnaissance Office
- Homeland Defense and Security graduate program and mobile short courses for the Department of Homeland Security, NORTHCOM, the National Guard, state governors, other state and federal officials



Uniqueness & Excellence of the Naval Postgraduate School

NPS' accredited degree programs are structured to help win the War against Terrorism, from Afghanistan and Iraq to Hometown, USA

- SOCOM-Sponsored curriculum in Defense Analysis (including specialized Counterterrorism (CT)-oriented coursework)
- Stability Operations and Post-Conflict Reconstruction
- Homeland Defense and Security (the Nation's largest and most successful)
- Computer Security, Information Assurance, and other Critical Infrastructure Protection programs
- Blend of defense-oriented programs in technology, engineering, policy and management reflects agility and uniqueness of NPS

NPS student mix builds Joint, Combined, and Interagency effectiveness

- Navy comprises only 45 percent of NPS enrollment; growing flow of students from USAF, Army, and USMC
- Unparalleled International enrollment: 303 students from 61 nations, many of them critical defense partners (US and international students are co-mingled in the classroom and in student housing)
- Additional 160 senior defense officials from around the world attend leadership education in defense management
- NPS designated as the US' only NATO Partnership for Peace Education Center
- Strong Interagency input (FBI, DHS, NSA, NSF Cyber corps, NRO and others)

NPS student-faculty research directly focused on US security requirements

- UAV and network research (using NPS-controlled runways and airspace) has produced systems currently deployed by Special Forces in Afghanistan
- Classified research in Maritime Domain Awareness, Intelligence, many other war-on-terrorism topics (heavy use of Special Compartmented Information Facility)
- Work in TBMD, Directed Energy, Counterinsurgency operations, Undersea Warfare, Combat Systems advance combat effectiveness now and for the future
- Dep Sec Def has designated NPS as the Information Operations Center of Excellence

Outreach to support deployed forces, US policymakers

- Regional Security Education Program (deploys NPS professors to conduct graduate seminars for Carrier Battle Groups sailing to operating areas)
- Leadership Development for Sustained Peace (provides seminars for leadership of all Divisions deploying to Iraq and Afghanistan on security-building challenges)
- Homeland Security for Governors (seminars assist Governors in strengthening HS in their States – 22 programs already conducted)
- NPS offers 15 degree and certificate programs to over 600 off campus deployed forces, defense civilians and others working full-time in areas such as ASW, Information Systems, Systems Engineering, and Space Operations.
- Mobile Education Team programs to over 50 countries per year to assist them in strengthening their CT and coalition warfare capabilities.
- Provide operationally-relevant cultural knowledge and a real time grasp of the indigenous environment to Marine personnel deploying for OIF III, including tactical scenario-driven knowledge of the Iraq dialect of the Arabic language.

NPS costs reflect requirements imposed by Navy and others to meet operational demands and provide agile, adaptive and relevant programs

- Year round operations with 4 inputs per year (gets officers back to operational positions ASAP)
- Refresher courses, other special support programs to enable success by students who would not gain admission to equivalent civilian institutions
- Program content and length driven by defense-relevant Educational Skill Requirements, outcomes, and objectives (as specified by DON/other Sponsors)

NPS meets military requirements while maintaining national academic reputation

- NPS faculty includes PhD's from the nation's best universities including Harvard (9), Princeton (6), Yale (5), University of California (69), Stanford (25), MIT (14), Cornell (4), Columbia (3)
- The Dudley Knox Library at NPS has just been named by the Librarian of Congress as the best large Federal Library; it also serves as the Virtual Library for the Department of Homeland Security
- NSF-designated Center of Excellence for Information Assurance
- NPS programs accredited by regional (WASC) and specialized bodies including ABET, NASPAA and AACSB

NPS leverages the unique advantages of the Monterey region

- Undersea Warfare, Oceanography, and other education and research programs leverage co-location with other ocean research facilities including Monterey Bay Aquarium Research Institute, Stanford's Hopkins Lab, and the Fleet Numerical and Oceanographic Center
- NPS has priority claim (24-7) on use of 100 square KM of closed airspace at Camp Roberts in Monterey County, for UAV, network, other research.
- Joint programs with Defense Language Institute (mutually supportive)
- Close linkages with Silicon Valley, NASA AMES, and Lawrence Livermore National Laboratory.



Meeting Defense Review Challenges

Possible concerns to be addressed by the 2005 Quadrennial Defense Review:

1. Countering Islamic Extremism
2. Dealing with a failed nuclear-armed state
3. Redefining the military's role in Homeland Security
4. Readiness to deal with the conventional military of an emerging power

The Naval Postgraduate School's contributions to these challenges

Countering Islamic Extremism, which includes ensuring the demise of terrorist networks

For years, NPS provided military leaders access to a vast knowledge base through teaching a wide variety of courses dealing with the history, politics, and government of the Middle East and the faculty who teach them. More recently, we have offered courses on terrorism which provide an in-depth examination of the origins, nature, and political/military roles of contemporary international terrorism. They examine the early history of terrorism, the contending theories that purport to explain the sources of terrorist behavior, the different types of terrorism and terrorist actions, and the challenge international terrorism poses for American interests and foreign policy. Functional topics, such as the special problems posed by state-sponsored terror are also covered.

NPS faculty also go the extra mile to deliver this knowledge to the war fighter. The Regional Security Education Program (RSEP) sends teams of NPS faculty to all Navy and Expeditionary Strike Groups to enhance their understanding of the history, culture and politics of the regions in which they operate. Faculty also work with deploying National Guard Units (Leader Development and Education for Sustained Peace) (LDESP) and Marine Units (Tactical Culture for Marine Expeditionary Forces) (TCMEF) deploying to OIF to improve their situational and cultural awareness.

In addition to teaching courses covering Islamic Extremism, NPS has been performing research that has proven critical to defeating the threat of terrorism. Research sponsored by SOCOM and DOD has fielded new technologies for self-forming/self-healing mesh networks as well as new capabilities for persistent surveillance, reconnaissance, and targeting.

We have developed significant partnerships to meet this goal, as well. For example, the Center for Intelligence research has been collaborating with the intelligence community in support of our national security objectives which include support for classified research initiatives.

We have already received accolades for our work in this area. Since information operations are so vital in a low-intensity conflict, the Deputy Secretary of Defense has designated NPS as the Informational Operations Center of Excellence to support DOD initiatives to better integrate information operations, including psychological operations and computer-network attacks, into battle plans.

Dealing with a failed nuclear-armed state

NPS faculty are recognized as experts when it comes to the threat posed by the proliferation of weapons of mass destruction to state and non-state actors. They are currently undertaking a major research initiative for DoE on Strategic Stability in South Asia, and are undertaking a study of the interaction of WMD proliferation and Globalization for the Threat Reduction Agency. They are also completing studies of regional differences among terrorist financing networks, the nexus of terrorist organizations and clandestine WMD networks. In the Fall, they will host several major conferences that place these threats in a larger strategic context.

The military's role in Homeland Security

The U.S. Department of Homeland Security Office for Domestic Preparedness and the Naval Postgraduate School Center for Homeland defense and Security have partnered to offer the first Homeland Security Masters Degree in the United States. This degree is fully accredited and provides leaders with the knowledge and skills to:

- Develop strategies, plans and programs to prevent terrorist attacks within the United States and reduce America's vulnerability to terrorism;
- Build the organizational arrangements needed to strengthen Homeland Security, including local/state/federal, civil-military and interagency cooperation; and
- Help mayors and governors make improvements in Homeland Security preparedness, by conducting "real world," actionable policy development work.

Recently, we have welcomed the fourth consecutive Homeland Security program class which included over 30 federal, state, and local officials from a wide variety of critical disciplines. In addition, we have helped sponsor both an Executive Education Seminar on intelligence and fusion centers as well as the joint interagency training exercise entitled "Pacific Cloud."

The conventional military of an emerging power

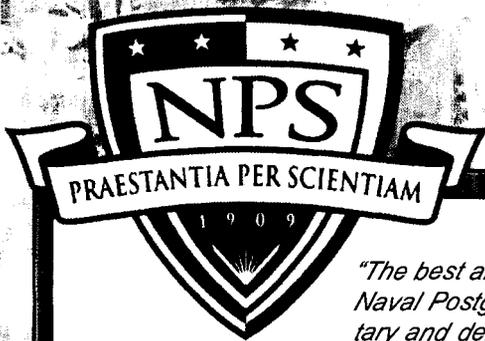
The key to dealing with a failed state is through successful civil-military relations. In this regard, the Naval Postgraduate School has led the way. The Center for Civil-Military relations at NPS performs 20-30 events each quarter in over 20 nations, thereby reaching over 8000 civilian and military personnel each year.

The Leader Development and Education for Sustained Peace program has aided in this effort by serving to educate professionals from a variety of fields as they prepare to deploy and perform stability operations in Central Europe, Central Asia, the Middle East, and Africa. More recently, the program has been preparing senior leaders and U.S. units for their deployment missions in Iraq, Afghanistan, and Kosovo.

We have also developed unrivalled partnerships to meet this challenge. For example, since failed nuclear-armed states are an emerging threat to our national security, NPS and the Lawrence Livermore National Laboratory have developed a relationship which provides the strength of a premier applied-science institution with core capabilities in nuclear weapons stewardship and non-proliferation.

Finally, new methods of instruction have been developed to educate leaders about the art and science of nation building. The new master's program called "Security Building in Post Conflict Environments" is designed to provide post-conflict countries with the necessary "tools" to assist in defense restructuring efforts. In many cases, officers from different countries have the opportunity to share their experiences with civil-military relations in an open forum.

On October 26, 2004 NPS was formally recognized by NATO as the U.S. NATO Partnership for Peace (PFP) Education and Training Center.



NAVAL POSTGRADUATE SCHOOL FACT SHEET - SUMMER 2005

"The best and brightest military officers from the United States and around the world come to the Naval Postgraduate School in Monterey, California to work with world-class faculty on real military and defense problems. At NPS, they gain both the intellectual know-how and the practical skill for improving defense technologies, systems and programs."

- Former President of the United States George H.W. Bush

Mission

To provide relevant and unique advanced education and research programs in order to increase the combat effectiveness of United States and allied armed forces and enhance the security of the United States.

Academic Organization

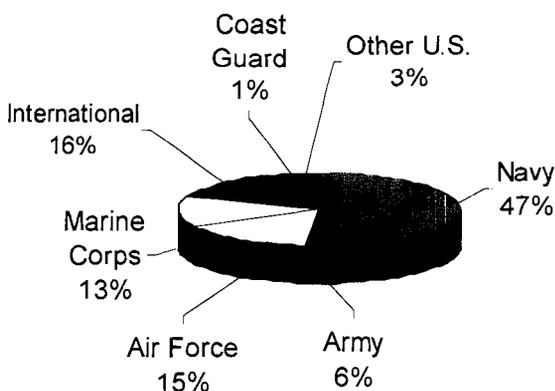
Fourteen academic departments within four degree-granting graduate schools:

- School of International Graduate Studies
- Graduate School of Business and Public Policy
- Graduate School of Engineering and Applied Sciences
- Graduate School of Operations and Information Sciences

Accredited by the Western Association of Schools and Colleges. Mechanical, Electrical and Astronautical Engineering programs accredited by the Accreditation Board for Engineering and Technology. MBA and management programs accredited by the National Association of Schools of Public Affairs and Administration and the American Association of Colleges and Schools of Business.

Resident Enrollment

1,697 graduate students, including 275 international students.



Distributed Learning Programs

There are 523 students participating in degree or certificate programs. NPS also provides education to thousands of other students in short courses in other nations and at NPS.

"I look forward to the promise of transformational initiatives that would better integrate education into the demanding careers of our expeditionary war fighters. I intend to maintain NPS as the centerpiece of our graduate education program."

- Admiral V.E. Clark, Former Chief of Naval Operations

Degrees Offered

Master of Arts, Master of Science, Engineering, Master of Business Administration, Doctor of Philosophy and Doctor of Engineering degrees.

Alumni

More than 45,000 alumni from all 50 states, the District of Columbia and more than 70 different nations.

Financial

The operating budget of NPS is approximately \$65 million. Combined with the salaries of military officers and civilian students and research, the impact on the Monterey Peninsula area is more than \$300 million.

Research

Research at NPS is an integral part of graduate education, advancing national security and challenging students with creative problem solving experiences on relevant issues. Reimbursable research funds totaled approximately \$84 million in fiscal year 2004.

Faculty

571 faculty members, including 241 tenured / tenure track and 49 military officers. Nearly all hold a doctorate.

Sources of faculty doctorates include:

- Stanford University
- University of California at Berkeley
- University of California at Los Angeles
- Massachusetts Institute of Technology
- Harvard University
- Yale University
- Pennsylvania State University

Board of Advisors

Walter Anderson, Adm. Stanley Arthur, USN (Ret.), Dr. Jack Borsting, Rear Adm. Jay Cohen, Lt. Gen. Michael Dunn, Brig. Gen. George Flynn, Maj. Gen. Donald Gardner, Honorable Sean O'Keefe, Vice Adm. Al Harms, Maj. Gen. David Huntoon Jr., Lt. Gen. Donald Lamontagne, Adm. T. Joseph Lopez, Dr. Elizabeth Pate-Cornell, Mr. G. Kim Wincup

QUARTERLY REPORT

Naval Postgraduate School

Spring Quarter 2005

CNO Speaks at NPS Spring Quarter Commencement Ceremony

On June 17, 2005, 283 students received their diplomas in NPS' King Hall auditorium. In addition to graduates from four armed services, 65 Department of Defense civilians and 51 international students from 26 countries including the first graduate from Papua New Guinea marked the completion of their courses.

The ceremony's special guest speaker was Chief of Naval Operations, Adm. Vern Clark.

Of the 275 master's degree students, eight received dual degrees. Sixty graduates completed the Joint Professional Military Education course -- 54 Navy, four Air Force and two Marine Corps officers. There were also two PhDs and five bachelor's degrees awarded.

International students represented 26 countries spanning the globe, including students from Botswana, Canada, Ecuador, France, Germany, Greece, Hungary, Jamaica, Moldova, India, El Salvador, Japan, Lithuania, Mexico, Mongolia, Morocco, Norway, Pakistan, Singapore, Taiwan, Turkey, the Dominican Republic, the Republic of Georgia, Indonesia, Ukraine and Papua New Guinea.



(U.S. Navy photo by Photographer's Mate 2nd Class Mike DiFranco)

Highlighting Naval Postgraduate School Students / Faculty

Maritime Domain Protection

The Meyer Institute of System Engineering & Analysis 7th cohort (SEA-7) consisted of 21 NPS students from a variety of backgrounds, including 13 US Navy, 1 US Army, 2 US civilian (Northrop-Grumman), 2 Turkish Air Force, 1 Singapore Defense Science & Technology Agency, 1 Argentinean Army, and 1 Mexican Navy.

The study focused on large ship and port security in the Port of Singapore and the nearby Straits of Malacca. The SEA team also designed and assessed ship inspection architecture alternatives for detecting explosive and dangerous materials in order to prevent a large cargo ship from being used as a terrorist vehicle.

The SEA-7 cohort began work on the cross-campus Integrated Project in October 2004 and gave their final presentation on June 1, 2005. SEA-7 was joined by 26 students from Singapore's Temasek Defense System Institute (TDSI) in January 2005. These students arrived at NPS following a six-month course of study in Singapore, and will continue work on individual theses following their participation in the SEA-7 Integrated Study, in order to graduate in December 2005.

Significant Navy Student Theses

Lt. John Rios, former Chief Engineer of USS CHIEF, one of two tactical action officers, completed his thesis 'Naval Mines in the 21st Century: Can NATO Navies Meet the Challenge?' Lt. Rios' thesis analyzes the mine threat (particularly the proliferation of advanced mine technologies and the potential of these technologies to be utilized by both state and non-state actors to disrupt shipping/naval operations) in relation to the capabilities currently being utilized and under development by NATO to meet the threat.

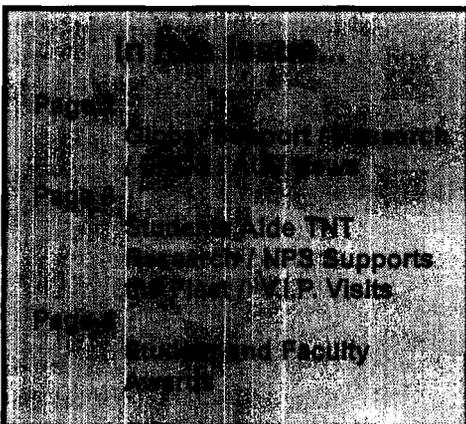
Lt. Cmdr. Glenn Walt, former Squadron pilot/Department Head of VAW-113 onboard USS ABRAHAM LINCOLN, completed his thesis 'Commander Naval Air Forces Flight Hour Program: Budgeting and Execution Response to the

Implementation of the Fleet Response Plan and OP-20 Pricing Model Changes.' Lt. Cmdr. Walt's thesis will assist OPNAV in attempting to better match flight hour funding requirements with a more dynamic and uncertain level of global operations. i.e. OEF and OIF.

Cmdr. Jerry Stokes, former Squadron Operations Officer of VAW-115 onboard USS KITTY HAWK deployed to Arabian Gulf, completed his thesis 'An Ultracapacitor Based Energy Storage System for an Electromagnetic Aircraft Launch System (EMALS).' Cmdr. Stokes' thesis discusses EMALS installed in CVN-21 Class carriers; enabling shipboard catapult launch of MQ-1 Predator UAV (other UAVs are also candidates); benefit is strong probability of 30% reduced catapult manning.

Conrad Scholars

On 9 June, three Conrad Scholars from NPS presented their theses to ASN(FM&C), acting FMB and staff, and Dir. Navy Staff (Vice Adm. Tom Church). The three theses were presented by Lt. Jason Miller - *Analysis of Sea Enterprise Program*; Lt. Cmdr. Pam Theorgood - *Model Process Validation: An Analysis of Performance-based Pricing Models*; and Cmdr. Ron Arnold - *Useful Performance Metrics for PEO for Integrated Warfare Systems 1.0 and 2.0*.



NPS Provides Global Support

Worldwide Education Outreach (Short Courses)

The Center for Civil Military Relations (CCMR) held 52 events during this quarter, both in Monterey and in other countries, reaching over 2,800 civilians and military officers from 46 nations.

Civil-Military Relations (CMR) Programs

In May, CCMR conducted two extremely successful METs in Ulaanbaatar, Mongolia and Bucharest, Romania.

In addition, CCMR conducted a civil-military relations seminar in Ouagadougou, Burkina Faso from 25-29 April, for 32 military and 25 civilians, focusing on civil-military relations in transitional societies.

Combating Terrorism Program

The Civil-Military Responses to Terrorism Resident Course (23 May-4 June) brought together 28 military officers and civilian officials from Colombia, Romania, Azerbaijan, Turkey, Brazil, Ecuador, Mongolia, Sri Lanka, Nepal, Bulgaria, Malaysia, Guatemala, Kenya, Indonesia, Jordan, Bosnia, Malta, El Salvador, Yemen, Tanzania, Pakistan to consider how governments can more effectively prevent terrorism and respond to it when they cannot.

Enhanced International Peacekeeping Capabilities (EIPC)

From 25-29 April, CCMR educated 30 participants of Ukraine's 95th Brigade or subordinate units, in Zhytomyr, Ukraine. The participants developed a first draft of a Brigade Mission Essential Task List (BDE METL).

International Defense Acquisition Resource Management (IDARM) Program

From 11-15 April, IDARM participated in a DSCA-led project on Force Modernization Priorities for Bulgaria's Ministry of Defense. From 20-24 June, IDARM conducted a conference on NATO's Black Sea Region Security.

Leader Development and Education for Sustained Peace Program (LDESP) Support

Iraq — The LDESP team conducted nine intensive seminars with more than 1,200 senior leaders prior to their deployments to Iraq. Training was conducted in Colorado, Mississippi, Texas, California and Indiana.

Afghanistan — From 17-22 April and 25-27 June, the LDESP team traveled to Camp Shelby, Mississippi to prepare 250 senior leaders from the 53rd BCT, Florida Army National Guard for Afghanistan.

KFOR — From 12-16 June, 100 senior leader from the Texas 36th.



Executive Director of Defense Resources Management Institute, Prof. C.J. Lacivita (far right) and a group of Turkish Army Officers. (U.S. Navy Photo by Javier Chagoya)

Center for Homeland Defense and Security

The CHDS Executive Advisory Council (EAC) met April 24-26 at NPS with representatives from the private sector to review homeland security vulnerabilities and discuss mitigation and prevention.

The National Homeland Security Consortium Meeting was held May 24-25 at the Monterey Convention Center. Leaders from various agencies and national associations gathered to discuss topics such as HSPD-3, Bioterrorism Preparedness, and Cities Read-

iness Programs. The CHDS Executive Education team, led by Ellen Gordon, conducted a MET as part of the meeting.

The CHDS Homeland Security master's degree program class of students earned in May.

On April 25, CHDS conducted its first Major Urban Area MET seminar. The event was held in Seattle, Wash. for senior Homeland Security officials in the greater Seattle area region. In addition, there were ten METs conducted throughout the nation this quarter.

NPS Research

A research initiative focusing on future network-centric architectures took place for a start forward with a workshop in May. The workshop focused on the construction of a network-centric architecture on the Grid (WCCOG) — which was the major technical and organizational challenges facing developers of the WCCOG, the future global working system that will support network-centric operations.

Marine Corps Captains, Steve Gila and Adrian Adams, participated in the Network Centric Operations (NCO) 2004 seminar. The students were involved in the hands-on field experience that they had of current information system interoperability strengths and weaknesses.

In the Defense and the Department of Air Force May 2004 seminar, students on a night original focus based on the military customer's perspective on the new WCCOG network.

Marine Corps Capt. David L. Latour, an NPS Civilian, participated in working with the 53rd BCT and the 36th.

Undersea Warfare News

The NPS Center for AUV Research participated in the 2005 AUV FEST 6-16 June at the Underwater Test Range at NUWC Keyport, Wash. This year's exercise demonstrated a new technology for small AUVs that are used for mine field reconnaissance and neutralization. The new technology uses a low power and cost "Blazed Array" forward look sonar to both detect and classify objects in the water column in front of these vehicles. Using the detection capability of this sonar, dynamic image processing is used to provide the autonomous vehicle with avoidance decisions leading the vehicle to change its path and avoid collision. NPS faculty showed that dynamic image processing and closed loop detection and avoidance is both feasible and desirable. The exercise and the technology development were funded by ONR.

Five Naval students graduated with thesis topics related to this effort: Lt. Jason Grabelle, Ens. Daniel Hemminger, Ens. Alan R. Van Reet, Ens. Joel Gow and Ens. Kevin Michael Goering.

NPS Recognizes Outstanding Students and Faculty

Student Awards



Monterey Council Navy League Award for Highest Academic Achievement; The Louis D. Liskin Award for Excellence in Business and Public Policy; Rear Admiral Thomas R. McClellan Award for Academic Excellence in the Graduate School of Business and Public Policy; Department of the Navy Award for Academic Excellence in Financial Management – Cmdr. Ronald Arnold, USN (*above, with Rear Adm. Patrick Dunne*)

Naval Postgraduate School Outstanding Academic Achievement Award for Department of Defense Students; Rear Admiral Grace Murray Hopper Computer Science Award - Mr. Ryan J. Noonan, Federal Cyber Corps

NPS Outstanding Academic Achievement Award for International Students – Lt. j.g. Dessalermos, Spyridon, Hellenic Navy

Naval Postgraduate School Superior Service Award – Cmdr. James A. Imanian, USN

Marine Corps Association Superior Service Award for Outstanding U.S. Marine Student – Capt. William Donnelly III, USMC

Air Force Association Award for Outstanding U.S. Air Force Student – Capt. Thomas Meer, USAF

Armed Forces Communications and Electronics Association Award - Mr. Tay, Yeong Kiang Winston, Singapore Ministry of Defense
Ens. Collier Crouch, USN

Army Chief of Staff Award for Excellence in Operations Research - Maj. Jeffrey B. House, USA

Military Operations Research Society Stephen A. Tisdale Graduate Research Award - Capt. Gary R. Kramlich, USA

Space and Naval Warfare Systems Command Award in Electronic Systems Engineering - Capt. Brian E. Souhan, USA

Naval Sea Systems Command Award for Excellence in Combat Systems - Lt. Christopher Lindberg, USNR

Conrad Scholar Award for Distinguished Academic Achievement in Financial Management - Cmdr. Ronald Arnold, USN, Lt. Cmdr. Pamela Theogood, USN, and Lt. Jason Miller, USN

Joint Chiefs of Staff Command, Control and Communications Award for Academic Achievement - Capt. David D. Lancaster, USMC

Army Acquisition Corps Award for Scholastic Achievement - Maj. Steven R. Ansley, USN

The Surface Navy Association's Award for Excellence in Surface Warfare Research - Lt. Sean Niles, USN

2005 Warren Randolph Church Award for Excellence in Mathematics – Capt. Anthony Johnson, USA

Assistant Secretary of the Navy (Research, Development, and Acquisition) Acquisition Excellence Award - Lt. Cmdr. Brett M. Schwartz, USN

Graduate School of Business and Public Policy Faculty Outstanding International Student Award - Lt. j.g. Aykut Guducu, Turkish Navy

The Northrop Grumman Student Award for Excellence in Systems Engineering and Analysis - Maj. Russ Wylie, USA, Lt. Cmdr. Chris McCarthy, USN and, Lt. Col. Guillermo Ferraris, Argentinean Army

Meyer Award for Outstanding Student in Systems Engineering (Integrated Projects) - Hsu, Yu Chih and Chang, Kok Meng

Liskin Award for Excellence in Regional Security Studies – Maj. Douglas L. DeWitt, USMC

The Jim and Tina Heldman Award for Excellence in Regional or Security Studies - Lt. Col. Ekkehard Stemmer, German Air Force

The Outstanding United States Air Force Graduate Award, Department of National Security Affairs - Maj. Barry W. Cook, USAF and Maj. James D. McCune, USAF

Oceanographer of the Navy Award for Outstanding Academic Performance in Meteorology and Oceanography - Lt. Cmdr. Jacob C. Hinz, USN

The Graduate School of Business and Public Policy Award for Outstanding Leadership, Education, and Development - Capt. Joseph Groah, USMC and Lt. Francisco Alsina, USN

Meyer Award for Outstanding Student in Systems Engineering (Distance Learning) - Ms. Jennifer Escarez, Mr. Noel S. Camanag and Mr. Michael E. Edwards

Naval Supply Systems Command Award for Academic Excellence in Management; American Society of Military Comptrollers Award for Excellence in Research - Lt. Cmdr. Pamela Theogood, USN (*below, with Dean Douglas Brook and Rear Adm. Patrick Dunne*)



Faculty Awards

Rear Admiral John Jay Schieffelin Award for Excellence in Teaching – Associate Professor Carlos Borges, Department of Mathematics

The Northrop Grumman Faculty Award for Excellence in Systems Engineering and Analysis - Professor Eugene Paulo and Capt. Thomas Hoivik, USN (Ret)

First Command Military Leadership Award – Cmdr. Mark Rhoades, USN

Meyer Award for Teaching Excellence in Systems Engineering (Integrated Projects) – Professor Ken Davidson, Department of Meteorology

The Lt. Cmdr. David L. Williams Outstanding Professor Award – Assistant Professor Aurel Croissant, NSA Department

The Louis D. Liskin Award for Teaching Excellence in the Graduate School of Business and Public Policy (GSBPP) - Associate Professor David Henderson