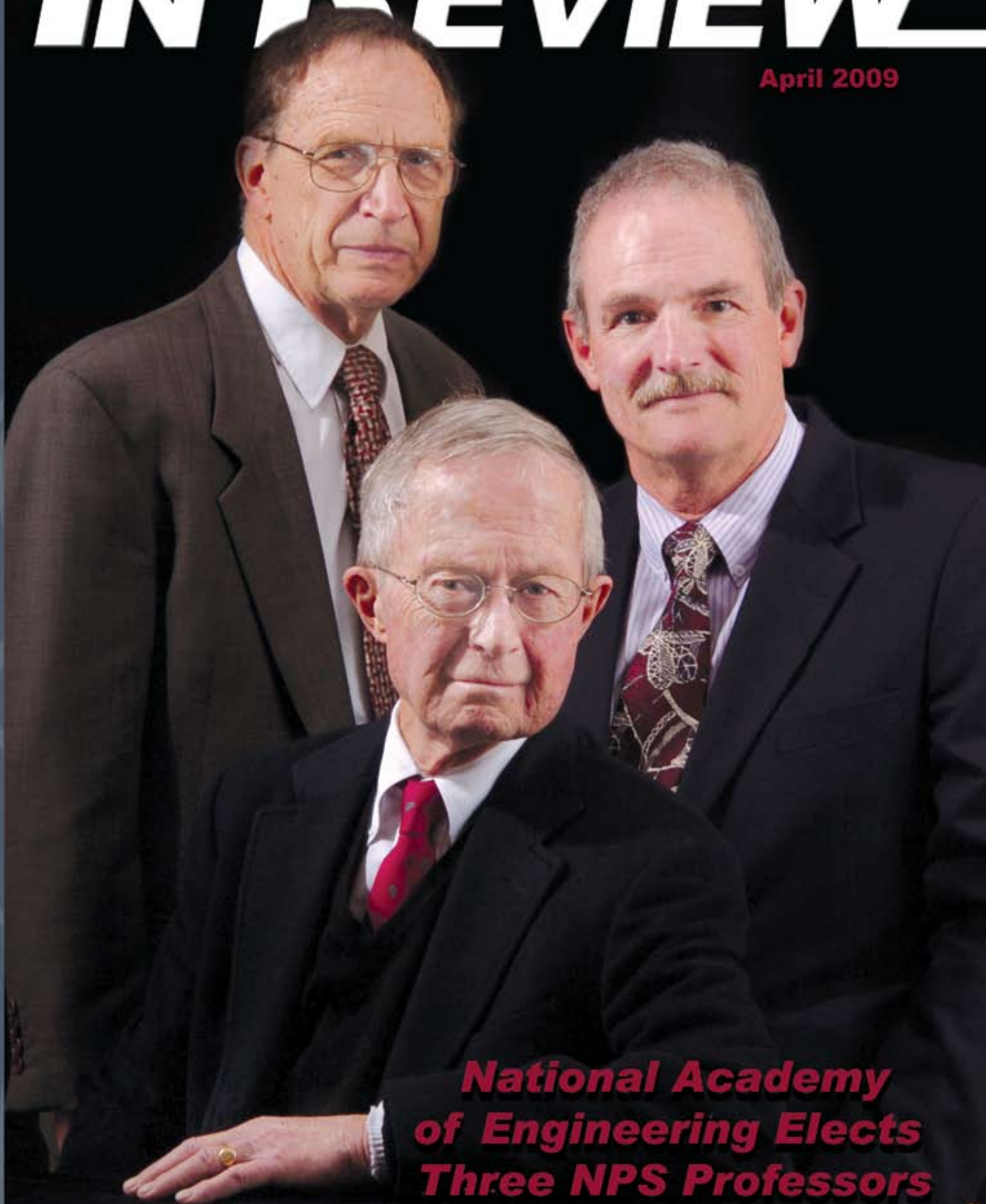


# ***IN REVIEW***

April 2009



***National Academy  
of Engineering Elects  
Three NPS Professors***



# PRESIDENT'S MESSAGE



This past month, NPS was honored to host the visiting team from the Western Association of Schools and Colleges (WASC) for the Capacity and Preparatory Review (CPR). This is the first of two visits which form the process of re-affirming our accreditation. These visits are peer reviews by faculty and administrators from similar institutions. The team spent two days intensively interviewing faculty, staff and students. In the exit interview, the team praised NPS for its CPR report and the supplemental materials provided throughout the visit. The team observed that progress was made in each of the areas

noted in the 1999 review (inclusiveness, program assessment, technology and curriculum planning). Overall, the team found the systems and processes put into place to be sound and urged NPS to continue to move forward with implementation and preparation for the second visit in Fall 2010. The team also commented on the high quality of the NPS faculty and students.

In the area of strategic planning, NPS was complimented on the depth and breadth of our consultative process. The team noted that strategic planning was already going on in many school and department units and that those efforts were leveraged effectively with the institutional planning process. As the team acknowledged, NPS is going through a period of considerable change but our ability to be self-reflective, our strong mission-driven priorities, our commitment to continuous improvement and our interest in involving all aspects of the university community in the change process were seen by the WASC team as strong foundations for the future.

The entire campus is to be praised for the efforts made in preparing for this accreditation visit. Many individuals – faculty, staff and students – were involved in the logistics of the visit or in preparing for the interviews. Sponsor (Vice Adm. Mark Ferguson) and Board of Advisors members came to campus to show support and provide information to the team. A special presentation of the Research Showcase, in which faculty and students present the results of their studies, allowed the team to learn in more depth about work done at NPS and community leaders expressed their support for the School at a dinner later that same evening.

The positive feedback and encouragement given to NPS by members of our peer institutions provide a strong affirmation of our progress toward becoming a more fully-realized research institution. I encourage the entire NPS community to join in celebrating this achievement and moving forward to doing the same with the Educational Effectiveness visit in 2010.

# IN REVIEW

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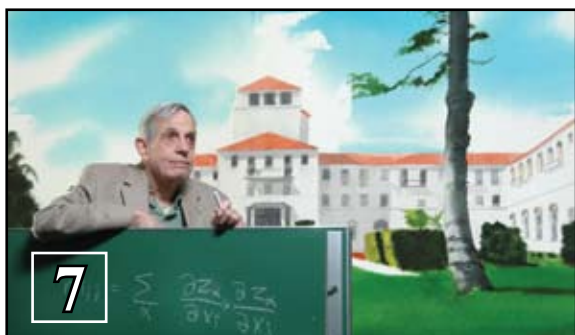
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MCSN John Fischer

ON THE COVER: (Clockwise) Operations Research Prof. Alan Washburn, Operations Research Associate Chairman for Research Gerald Brown and Professor of Operations Research Donald Gaver.

Full versions of all articles are available at  
[www.nps.edu](http://www.nps.edu)

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# University Honors Professor, Alumnus, “Visionary” Thomas Hughes

By MC2 Kellie Arakawa

Students, faculty and staff from the Naval Postgraduate School gathered at the St. Thomas Aquinas Chapel Jan. 16 to remember retired Vice Adm. Thomas Hughes, an NPS Distinguished Alumnus who once served as the Conrad Chair for Financial Management, a Distinguished Visiting Professor, and Acting Dean of the Graduate School of Business and Public Policy.

Hughes, who passed away early this year after a brief illness, began his naval career at the close of World War II and served in the Navy for more than 43 years. While at sea, he commanded destroyers, cargo ships, destroyer squadrons and service squadrons, and was a gunline commander during the Vietnam War.

Ashore, Hughes served in several senior financial management and budgetary capacities, setting the stage for his post-naval career. Retiring from active duty in 1987, Hughes took over as President and CEO of the Navy Federal Credit Union (NFCU), tripling the organization's assets during his time.

Hughes graduated from NPS in 1962 with a master's degree in Operations Analysis and returned in 2002 to join the school's faculty and administration. On Memorial Day 2007, Hughes was given an NPS Dis-

tinguished Alumnus Award for his notable professional achievements and significant contributions to the Navy.

At the memorial service, friends and colleagues shared fond memories of Hughes, describing him as a patriot who was revered by all.

Air Force Col. David Smarsh, the NPS Chief of Staff, remembered Hughes as someone who was truly dedicated to the school and his students. “I would be willing to follow him into battle any day,” Smarsh said.

NPS President Dan Oliver, who first met Hughes while serving at the Pentagon in 1983, said he was a “tremendously wonderful man” who was a figure of dignity, honor and persistence. Hughes treated everyone with the same respect and was a constant for integrity, Oliver added.

After receiving news of Hughes' passing, Oliver said Cutler Dawson, the President and CEO of NFCU, spoke to him about the significant impact Hughes had on the organization. “Tom Hughes' contributions to Navy Federal as a leader and a visionary built the strong foundation that members enjoy today,” Dawson said. “He really valued the overall service to our members and always had the individual Sailor and Marine's best interest at heart.”



*The late Vice Adm. (retired) Thomas Hughes stands at the Quarterdeck in Herrmann Hall prior to his retirement from the university in 2007. An NPS distinguished alumnus, Hughes 60+ year career includes 43 years active duty, longtime President and CEO of the Navy Federal Credit Union – tripling the organization's assets during his tenure – and a professor, chair and acting dean at NPS.*

## NPS Leads Complex Operations Case Series Development *By MCSN John R. Fischer*

The Naval Postgraduate School recently held a complex operations case study writing workshop at the Asilomar Conference Center in support of the Consortium for Complex Operations (CCO).

NPS faculty constructed the workshop under the auspices of the CCO, which was established by the Department of Defense to help U.S. government education and training facilities achieve a more synergistic state, specifically with emphasis on stability operations, counterinsurgency and irregular warfare.

“Several key studies identified a critical need for high quality case studies, particularly in order to generate teaching materials in a variety of disciplines,” remarked Karen Guttieri, the principal investigator for the Complex Case Study Series and a principal in the Security and Globalization Effects Initiative at NPS' Cebrowski Institute.

The engagement of David Sobyra, the CCO Director, and key members of his team, contributed to the success of the Asilomar sessions, said Guttieri.

“The Asilomar workshop was the kickoff

meeting for writers we identified to do the first round of case studies,” said Maj. Glenn Woodson of the Security and Globalization Effects Initiative.

John Arquilla, a Professor of Defense Analysis and Director of the Information Operations Center, gave an introductory discussion about lessons learned from irregular wars, after which the training began.

Each day of the three-day workshop was devoted to a different step in effective case pedagogy, explained Guttieri, who is also an Assistant Professor of Public Policy. Teaching sessions were led by Stephen Wrage, Professor of Political Science at the U.S. Naval Academy, and focused on learning, teaching and writing case studies for educational purposes.

“The idea is to empower the writers up front ... to set them up for writing a case study that would pass a peer review on the model of the Georgetown Institute for the Study of Diplomacy series,” said Guttieri.

“You can tell anybody to write a case study,” said Woodson. “Getting someone to write an effective teaching case study is

much more difficult.”

On the final day of the workshop, future modeling applications for the development of further case studies were introduced by Don Brutzman, an Associate Professor of Applied Science with the Modeling, Virtual Environments and Simulation (MOVES) Institute.

The NPS team was pleased with the results of bringing the writing group together in one place, Woodson said. “Having the writers interact and glean ideas and experience from each other was key,” he added.

The key now is to maintain direct contact with the writers, Woodson explained. The writers have gone back to their homes, their families, their jobs and all of their other daily challenges, he said. “We keep in contact,” Woodson said. “Now we're making sure the writers have the support they need to stay motivated.”

More information is available at <https://www.ccoportal.org/about>.

## NAE Elects Three NPS Professors in One Year *By MC2 Kellie Arakawa*

Within a single year, three professors from the Naval Postgraduate School have been awarded the highest professional distinction an engineer in the U.S. can receive – lifetime membership to the National Academy of Engineering (NAE).

In February 2008, Operations Research (OR) Distinguished Prof. Gerald Brown became the only faculty member in NPS history elected to NAE membership. Just one year later, Distinguished Professors Donald Gaver and Alan Washburn – who are also in the OR Department – were also elected to the NAE for their contributions to defense-related research.

The NAE has the sister agencies National Academy of Sciences and National Institute of Medicine that are all private, non-profit institutions that advise the federal government. NAE conducts independent studies in engineering and technology. According to the academy's membership guidelines, members are recognized for at least one of two categories, which include

“engineering research, practice or education, including, where appropriate, significant contributions to the engineering literature,” and “the pioneering of new and developing fields of technology, making major advancements in traditional fields of engineering or developing/implementing innovative approaches to engineering education.”

Election into the NAE involves an extensive examination of a candidate, who must be nominated by an NAE member with at least three supporting references from other NAE members. After a peer committee reviews each candidate and selects official nominees, the entire academy votes in new members. For 2009, 65 members were elected, bringing the total number of NAE members worldwide to 2,246.

According to the academy, Washburn was elected to the Industrial, Manufacturing and Operational Systems Engineering section for his “analytical contributions to search theory and military operations research and their application to antisubmarine, mine and information warfare.”

Washburn, who has been teaching at NPS for 39 years, said he was “flabbergasted” and honored when he received news of his selection. Washburn holds a Ph.D. in electrical engineering, but said it has been quite some time since he's conducted research in the engineering field. “So it was sort of stunning after all this time to be inducted into the academy,” he explained.

Gaver, who holds a doctoral degree in mathematics, was elected to the Industrial Manufacturing and Operational Systems Engineering section as well, but selected specifically for his “contributions to reliability, maintainability, and queueing concepts, with applications to telecommunications and military systems.” Much like Washburn, Gaver was extremely surprised when he received news of his NAE membership. He said it was a “great and welcome recognition.”

“I am delighted and astonished to have all three of us in the National Academy of Engineering coming from a single department in the same university,” Brown stated. “The three of us are in entirely different fields of OR, so for this department to be recognized by the National Academy of Engineering across such a wide area and after all these years of not having any representation at all is just astonishing.”

Brown said his colleagues can expect to engage in a significant amount of advisory work as a result of their new academy membership, which he described as both challenging and rewarding. In his first year as an NAE member, Brown has testified before Senate, House and White House representatives, and has been asked to serve on several influential panels and committees. He has also worked with Wall Street experts and leaders in industry and technology addressing the current financial crisis.

“I can promise that the two new members are going to enjoy themselves and benefit from a new level of access to people of accomplishment and authority ... it's a delight and it's a lot of work and responsibility,” Brown explained.



*Operations Research faculty (clockwise from left) Alan Washburn, Gerald Brown and Donald Gaver have been awarded the highest professional distinction a U.S. engineer can receive, lifetime membership in the National Academy of Engineering.*

Earlier, Gaver had been on three National Research Council Committees: Statistics in Nuclear Regulatory Research, a National Academy of Science/National Research Council Panel on Electro-Magnetic Pulse Vulnerability, and a NAS/NRC committee on Combining Information.

All three professors agreed that their election to the NAE speaks to the quality of the OR Department, as well as the environment of the school. Gaver said NPS' unique environment helps stimulate cutting-edge technical and operational research, and both Washburn and Brown described the OR Department as one of the best on the planet. Washburn also points out that NPS houses many accomplished engineers who are just as deserving of the honor.

Brown considers the OR Department a “well-kept secret,” because a significant amount of its research is classified. “So it's quite remarkable when researchers who only have a fraction of their work exposed are being elected to the NAE,” he said. “There's a lot of really good work going on here.”

For more information about the NPS OR Department visit [www.nps.edu/academics/GSOIS/OR](http://www.nps.edu/academics/GSOIS/OR).

### Faculty Honors Across Campus

#### GSEAS Faculty Nab Two ONR-DURIP Awards

Two faculty members from the Graduate School of Engineering and Applied Sciences have received Office of Naval Research, Defense University Research Instrumentation Program (ONR-DURIP) awards.

Mechanical and Astronautical Engineering Professor Douglas Horner was awarded \$490k for his proposal, “Non-Linear Surveillance and Docking Station Rendezvous with AUVs.” In addition, Assistant Professor Jamie MacMahan of Oceanography won \$350K for his proposal, “Shallow Water Autonomous Vehicles.” Given the high-level of national competition for these awards, it is rare for dual recipients from a single institution.

#### Professor Earns Prestigious National Physics Award

Physics Professor John Lewellyn has been awarded the 2009 U.S. Particle Accelerator School (USPAS) Prize for Accelerator Physics. The USPAS prize is one of the most prestigious national awards for accelerator physics, ranking alongside the Robert R. Wilson Prize of the American Physical Society, and the IEEE Award.

Lewellyn joined the university about a year ago as chief experimentalist with the Free Electron Laser (FEL) program, and along with co-leader Bill Colson, this growing activity envisions establishing an enduring competency in beam research at NPS, replenishing the pipeline of young talent into the area of accelerator science and directed energy for national security.



# CHDS Holds Third Annual Homeland Security Education Summit *By Grace Castro*



*Keynote Speaker, U.S. Army Lt. Gen Russel L. Honoré (ret.), discusses lessons learned from Hurricane Katrina.*

On March 12-13, the Center for Homeland Defense and Security (CHDS), along with the Homeland Security and Defense Education Consortium Association (HSDECA), the U.S. Department of Homeland Security (DHS), and the George Washington University Homeland Security Policy Institute, held the third Annual Homeland Defense and Security Education Summit in Washington, D.C. More than 200 participants from 100+ colleges, universities and government agencies across the nation attended.

"The conference was another great example of not only the success of this collaboration so far, it also demonstrated how critical it is to continue and expand academia's relationships even further. Homeland Security and Defense is clearly a generational endeavor and summits like this one help advance the academic communities' contributions to the long term challenge," said CHDS Director Glen Woodbury.

This year's summit was particularly significant since it follows the first executive administration change since 9/11. The panel on Homeland Security in the Obama Administration – which featured Paul Stockton of Stanford University, a former Associate Provost at NPS, Frank Cilluffo of George Washington University, and James Carafano from the Heritage Foundation – discussed new policies, challenges to academia and the need to engage the public in a more coherent national effort. The panel on Terrorism – Bruce Hoffman of Georgetown University and CHDS faculty Seth Jones and Dave Brannan – discussed the Al Qaeda threat, the potential for domestic terrorism, and the status of various threat groups in Afghanistan and the Federally Administered Tribal Areas in Pakistan.

Perhaps most significantly, the Summit facilitated the rollout of the Homeland Security/Defense Education Consortium Association (HSDECA), the newly designated association for homeland security and homeland defense educational program accreditation. Dr. L. Staiano-Henry, Executive Director of HSDECA, addressed the audience on the accreditation process and status, the establishment of the Scholars of Homeland Security, the new Web site and community discussion forum, and future related initiatives. Her presentation generated substantial enthusiasm in establishing Homeland Security and Defense as an academic discipline.

"HSDECA is very different. We want to be inclusive and make accreditation affordable for all qualified institutions," Staiano-Henry noted. "We are providing a new approach to the traditional process of accreditation. One of the most important takeaways from the Summit by far was the discussions on accreditation. It was very clear that HSDECA

is open to including anyone willing to meet the standards of excellence in homeland security/homeland defense education. Our critical long-term partnership with CHDS allows HSDECA the infrastructure and platform to make accreditation available the nation. The annual summit is a tremendous venue to communicate with and fortify the national homeland security/homeland defense education community," she added.

"This year's summit, in my humble opinion, is the best we've ever put on, and the survey data we've received thus far clearly supports this statement," said Dr. Stan Supinski, CHDS Director of Partnership Programs and lead organizer for the event. "We were able to get the most respected names in our field to participate on our panels, the breadth and quality of the breakouts were superb, and there was a clear sense of community among the participants. There's little doubt this has become the premier event in our community, and we've certainly set a high standard for the future."

Michael Collier, Homeland Security Program Coordinator for Eastern Kentucky University, echoed these sentiments. "A measure of any academic discipline is the quality of the professional organizations that serve the discipline. From the start, the CHDS Web site and the annual Homeland Security Education Summits have provided the quality professional core around which the Homeland Security academic discipline has organized and been recognized. Without them, we would still be a loose accumulation of interdisciplinary programs with little centralized coordination and no identifiable knowledge base. In other words, CHDS and the Homeland Security Education Summits now define the Homeland Security discipline." 🇺🇸



*Conference lead organizer, Dr. Stan Supinski, CHDS Director of Partnership Programs, moderates the panel on Terrorism.*

## NPS Unveils New Supercomputer

By MC2 Kellie Arakawa

Leaders and faculty from the Naval Postgraduate School celebrated the arrival of a new supercomputer that will enable researchers and students to carry out advanced levels of computing never before seen on campus.

At a ribbon-cutting ceremony in Ingersoll Hall, Dr. Christine Cermak, the NPS Chief Information Officer, said the new supercomputer is a reflection of NPS' growing reputation as a world-class teaching and research university. "We have made such great strides in high-performance computing at the Naval Postgraduate School in the last several years, but this is really a peak moment for us," she said.

**"This is the biggest, fastest machine NPS has had in a long time, and as far as we know it's the fastest computer in the county."**

Dr. Jeff Haferman, the Technical Manager for the High Performance Computing (HPC) center, described supercomputers as a cluster of computers that provide researchers with high-powered processing capabilities. The need for a single, high-

level supercomputer at NPS stemmed from the limited capabilities of the school's older set of supercomputers, which are scattered throughout the campus. Because professors have to share these relatively small systems, which have anywhere from 20 to 250 central processing units (CPUs), their research is often slowed, Haferman explained.

The new supercomputer – named "Hamming" after the late Dr. Richard Hamming, a world-renowned mathematician who was a pioneer in his field and an NPS professor from 1976 to 1998 – is a Sun Microsystems High-Performance Computing Cluster with a processing power of 10.736 teraflops, or 10.736 trillion floating-point operations per second. The system includes 112 terabytes of storage, more than 1,100 CPUs, and blade-based technology, which helps the system consume less energy.

"This is the biggest, fastest machine NPS has had in a long time, and as far as we know it's the fastest computer in the county," said Haferman. "Researchers and students will now have a resource available where there are thousands of CPUs ... they should be able to solve larger and

more complex problems than they're doing now."


At the ceremony, NPS President Dan Oliver recognized the milestones NPS has achieved in its last 55 years of computing. He also introduced special guest, Mrs. Wanda Hamming, who was on hand to witness the unveiling of her husband's latest namesake. With the new supercomputer's incredible computational power, "I don't think it could have a more appropriate appellation," Oliver said.

NPS Provost Leonard Ferrari praised the efforts of the HPC Center, and said the new super-



*Wanda Hamming (left), wife of the legendary Dr. Richard Hamming, assists NPS Provost Leonard Ferrari and President Dan Oliver in welcoming the High Performance Computing center's newest muscle. The Sun Microsystems cluster, named Hamming after the pioneering mathematician, will greatly enhance the university's research capabilities.*

computer will not only improve the school's research, but help with recruitment as well.

"This is going to enhance the capacities of researchers all over the NPS campus, and will really help the national labs, war-fighting labs and systems commands. I think this will help attract more civilians and Ph.D. students to the campus, so this is a great asset," he said. "This system also ranks among the top 1,000 systems in the world. Today, that's an impressive number." 



### Netzer Honored by Special Ops Command

*Dr. Dave Netzer (left), former Dean of Research and retiring Director of the U.S. Special Operation Command/NPS Field Experimentation Cooperative, receives a plaque from U.S. Marine Lt. Col. Thomas J. Beikirch, J9 War-gaming and Experimentation Division Chief, honoring him for his outstanding contributions and service. He was also presented with a flag flown over USSOCOM headquarters along with a note of appreciation from Adm. Eric T. Olson. The presentation was made in the presence of William Shepherd, the new Special Operations Command Science and Technology Advisor, during a USSOCOM workshop on Jan. 15, 2009. Since 2003, Netzer has led the formation and development of the quarterly Tactical Network Topology field experiments, which bring together faculty and students from across campus along with government and industry collaborators to develop and test emerging technologies that will ultimately benefit the warfighter.*



# Deputy DoS Returns from Afghanistan, Earns Medal for Service

By MCSN John R. Fischer

With a host of his peers and colleagues in attendance, Cmdr. Bob Chambers, Deputy Dean of Students at the Naval Postgraduate School, was presented with a Meritorious Service Medal on the Quarterdeck of Herrmann Hall at NPS Jan. 13, 2009.

NPS President Dan Oliver read the award citation to the crowd before pinning the medal on Chambers. The medal was given to Chambers for his exemplary service during a voluntary Individual Augmentee deployment in support of Operation Enduring Freedom.

"It's great to be back amongst family and friends," Chambers said in his remarks after the ceremony.

Chambers served nine months in Afghanistan, and trained for nearly three months in Fort Riley, Kan., before his deployment, sequestering him from his wife and children for almost an entire year.

"My wife, Theresa – she's wonderful," explained Chambers. "I'm so glad to be back with her and my twin boys, Robert and John. We really are grateful for those who kept in contact, and for all of the support we've received from NPS."

During his deployment, Chambers served as the Director of Human Resources for the Afghan Regional Security Integration Command-East (ARSIC-E), handling all aspects of personnel management, including replacement operations for more than 700 personnel positioned in a score of remote locations along the Afghan-Pakistani border.

The citation for the award proclaimed that Chambers' "Direction, creativity, and analytical skill proved critical to the Command's ability to effectively mentor the Afghan National Army and Police, dramatically improving the integration of Coalition Forces and Afghan Civilian Organizations. His performance of duty in a combat zone reflects great credit upon himself, Task Force Phoenix, and the United States Navy."

"Bob is the consummate professional, tirelessly supporting those at the tip of the spear while providing outstanding leadership and mentorship to his subordinates," Lt. Col. Ellis F. Hopkins, the Chief of Staff for ARSIC-E at Forward Operating Base Lightning, wrote in a narrative of Chambers' actions during deployment.

The narrative also detailed Chambers' adaptability to the Joint and Combined service environments, and, "His diligence, perseverance, and

analytical skill" was more than enabling to mentoring operations for the Combined Security Transition Command-Afghanistan.

**Cmdr. Bob Chambers, NPS Deputy Dean of Students, displays his Meritorious Service Award given for exemplary service during his recent voluntary deployment in Afghanistan.**



## NPS Professor Inducted into California Astronaut Hall of Fame

By Barbara Honegger

Former NASA astronaut and Naval Postgraduate School Professor of Space Systems James Newman has been inducted into the California Astronaut Hall of Fame.

The award was presented at the California Space Authority's Fifth

Annual SpotBeam Awards Dinner, an event co-sponsored with the California Space Education and Workforce Institute as part of Los Angeles Air Force Week. Newman received the honor in the former astronaut category, joined by Air Force Col. Rex Walheim who was inducted as a current astronaut.

"I'm very honored and pleased to have participated in the American Space Program, which is especially meaningful for me now that I'm at the Naval Postgraduate School," Newman said. "I left California when I was 17 to follow my dreams, and it took me 32 years to get back. Now I'm trying to help others pursue their dreams by educating the space professionals of tomorrow at NPS."

"The Graduate School of Engineering and Applied Sciences (GSEAS) is proud to have Professor Jim Newman mentoring our students," said GSEAS Dean Sivaguru Sritharan. "It is a privi-

lege in any student's career to be taught by such an accomplished astronaut."

The Chairman of NPS' Space Systems Academic Group, Prof. Rudy Panholzer, agreed. "I was privileged to be with Jim at the Fifth Annual California SpotBeam Awards dinner," he said. "I can't think of a more qualified and deserving person to be honored by induction into the California Astronaut Hall of Fame. Jim is an outstanding teacher, a great researcher and a perfect role model for our space students."

Newman is a veteran of four Space Shuttle flights, logging a total of more than 17 million miles, 679 Earth orbits and 43 days in space, including the first International Space Station assembly mission and six space walks. His current specialization is using very small satellites in focused research and education projects of national interest.

Newman earned his master's and doctoral degrees in physics

from Rice University in Texas, where he also was an adjunct professor, before moving to NASA's Johnson Space Center to conduct flight crew and flight control team training for all Orbiter propulsion, guidance and control mission phases. He was selected for the space agency's astronaut program while serving as a simulation supervisor at the Center, entering the astronaut training program in July 1990.

Newman is the recipient of NASA's Exceptional Service Medal and the Institute of Navigation's 1995 Superior Achievement Award for his "outstanding accomplishments as a practical navigator" working on the Space Shuttle's Global Positioning System. As the leader of NASA's Space Vision System Development Team, he shared the space agency's 2002 Group Achievement Award and the Rotary National Space Achievement Foundation Team Award for 2001.

**Space Systems Professor James Newman, recently inducted into the California Astronaut Hall of Fame, has logged more than 17 million miles and 679 orbits around the earth, including six space walks.**





# Nobel Laureate John Nash's Week-long Visit Galvanizes NPS

By Barbara Honegger

A term from his own beloved field of mathematics, singularity – the quality or state of being one of a kind – best describes the profound impression Nobel laureate Dr. John Forbes Nash, Jr. made on the Naval Postgraduate School during his week-long academic visit, February 15-21.

NPS faculty and students excitedly described the uniqueness and brilliance of the octogenarian Princeton University Senior Research Mathematician who participated in classes, toured labs and presented the third in a series of special lectures by Nobel laureates at NPS.

"John Nash is one of the most famous and innovative mathematicians of our lifetime," said Graduate School of Engineering and Applied Sciences (GSEAS) Dean Sivaguru Sritharan. "It was a great honor and credit to the school that he accepted our invitation, and his guest lectures and visits to a number of classes across campus were extremely well received by the faculty and students. His gentle and humble personality was an inspiration to the entire campus community."

Distinguished Professor of Mathematics Guillermo Owen, whom Nash called "your game theory star here at NPS," went even further.

"Professor Nash is the best known academic in America," Owen said. "With a Nobel Prize and [being] the subject of a heartwarming film that won the Oscar for

Best Picture, people want to see this brilliant man who had all these personal problems and yet overcame them. Bringing him here to NPS, where he definitely enjoyed his stay, many more people will hear about the Naval Postgraduate School."

"It was a surreal experience to have him here, like you almost had to pinch yourself to believe it's real," said Associate Professor of Mathematics Francis Giraldo who was an undergraduate at Nash's university, Princeton, and sat across from the Nobel laureate at a special dinner for faculty and students. "His work has touched so many fields in mathematics, including my subfield of partial differential equations, and the amount of energy he had at age 80 for a full week of non-stop activities was awe-inspiring. To have this caliber of scholar come to NPS for such an extended period of time reflects great credit on the School."

Mathematics Ph.D. student Army Capt. Natalie Vanatta, who is also earning a master's degree in Systems Engineering, wholeheartedly agreed.

"Professor Nash is probably the smartest mathematician alive today," Vanatta said. "Where else but NPS could you get the opportunity to interact with a world-class scholar of this caliber ... I had the opportunity to talk with him one on one about my dissertation, and we shared our joy in doing mathematics."

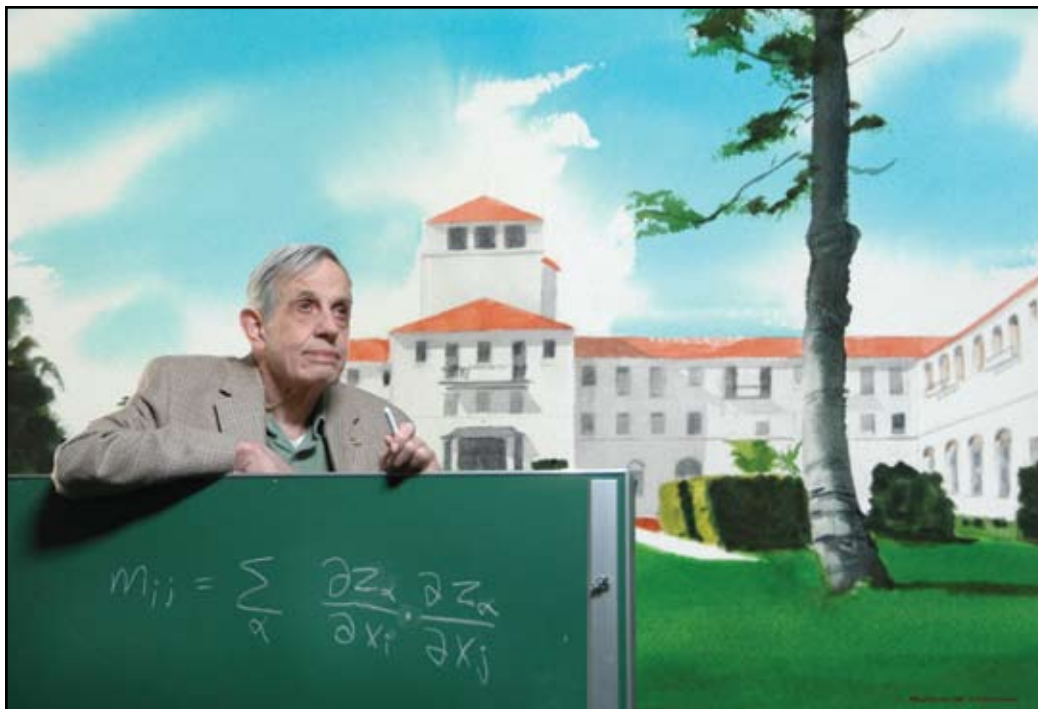
The highlight of Nash's visit was his GSEAS Distinguished Lecture on "The Agencies Method for Modeling Coalitions and Cooperation in Games," in King Hall Feb. 19. Sensing the historic importance and singularity of the moment, for the first time in recent memory the assembled student body rose to give the soft-spoken hero of "A Beautiful Mind" a standing ovation. The movie dramatized Nash's struggle with what he calls mental disturbances, which he overcame with the extraordinary devotion and dedication of his wife, Alicia Larde Nash.

Following the lecture, the Nobel laureate also attended and spoke at a gala Nash family reception on the Herrmann Hall Quarterdeck. Following an informal discussion of game theory from the podium, Nash cut a large sheet cake decorated with one of his most famous formulas as his physicist life partner Alicia, and their son, Ph.D. mathematician John Charles Martin Nash, looked on. And in a moment reflective of his subtle sense of humor, before cutting the cake Nash read the formula arrayed in Navy blue icing, and declared it to be inaccurate.

Nash's world renowned contributions in non-cooperative game theory, differential geometry and partial differential equations began with a Cold War era interest in bargaining and gambling and provide deep insight into complex natural systems and collective human behavior. His work is widely

used in economics, evolutionary biology and military theory and for predicting the outcome of competition and conflict. In 1994, Nash shared the Nobel Memorial Prize in Economic Sciences with two fellow game theorists for his Ph.D. thesis. 🏆

*Nobel laureate John Forbes Nash, Jr., one of the most famous mathematicians in U.S. history, displays his well known solution to the 'embedding problem.' Nash spent several days on campus, visiting classrooms, students and faculty, in addition to his presentation on cooperative game theory through the GSEAS Distinguished Lecture program.*



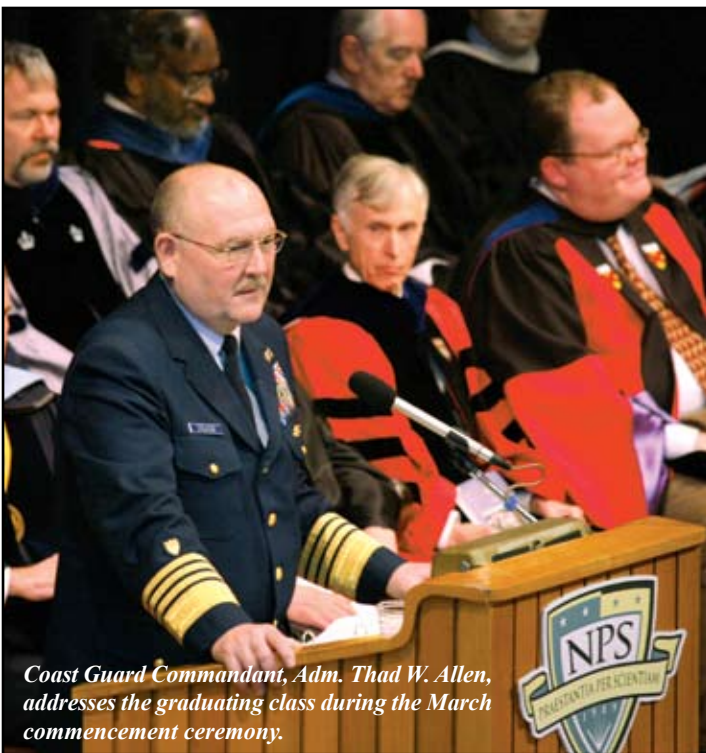
# Coast Guard Commandant Preps Grads for Change, Leadership, Moving Forward

By MCSN John R. Fischer

Graduating students from the Naval Postgraduate School received personal congratulations from the Commandant of the Coast Guard Adm. Thad W. Allen as they walked across the stage in King Hall during the 2009 Winter Quarter Commencement Ceremony March 27.

NPS President Dan Oliver introduced Allen, highlighting "his leadership in times of crisis, and tremendous ability to effect change." Oliver cited extraordinary tasks and challenges faced by Allen, not the least of which were the aftermaths of hurricanes Katrina and Rita.

Allen praised the 264 graduates, noting the significance of the NPS experience. "You could not be in a better place at a better time in your professional careers than right here, right now," he said. He remarked on the school's capability "to create a more competent, intellectually-ready, change-centric set of individuals."



Coast Guard Commandant, Adm. Thad W. Allen, addresses the graduating class during the March commencement ceremony.

Allen called upon the graduating class to deliver their lessons learned at NPS to the people they will lead in the future. "My favorite definition of leadership is, the ability to reconcile opportunity and competency," he said. "You can be very talented and competent but never recognize the opportunity. The issue is, knowing when the time is right to bring to bear your skill set on a particular problem – whether it's in your work environment, in your particular unit or something that will have service-wide, nationwide or global impact."

The skills and lessons learned both in and outside of the classrooms at NPS would be paramount to the graduates in the success of effecting changes at every level, said Allen. "You are being provided the skills here at this institution. It is your responsibility to take those skills and drive them not only into your personal life, and continue that with life-long learning, but to drive them into your workplace and your institutions."

In closing, Allen congratulated the graduates on a strong finish, and congratulated the school on an astounding century of service to the nation. "Be life-long learners," he told the audience. "Constantly expand your horizons. Get out there and experiment."

His parting sentiment was appropriately coined originally by local legendary author, John Steinbeck. "A journey is a person in itself; no two are alike. And all plans, safeguards, policing, and coercion are fruitless. We find that after years of struggle that we do not take a trip; a trip takes us," he said.

"This has been one stop on the trip that is taking you to the next stage in your life," Allen stated, connecting Steinbeck's words to the graduating class. "That next stage of your life is going to require all of your commitment, your dedication and your devotion to duty; not only for you and your families, but for this country and the world we live in."

As the commandant shook the hand of the final graduate, exuberant applause erupted from the friends, family and graduates.

Following the commencement ceremony, a sea of graduates and their family and friends poured out of King Hall. There was an ebb and flow of activity at Spruance Plaza, where families took casual photographs together and made the acquaintances of their graduates' classmates.

The tide of events led the crowd to the Barbara McNitt Ballroom, where Allen and Oliver met with the graduates for the official graduation reception.

## Winter Quarter Award Recipients

- Legion of Merit: Army Col. Alejandro S. Hernandez
- Richard W. Hamming Award for Interdisciplinary Achievement: Keith F. Snider and retired Rear Adm. James B. Greene
- Monterey Council Navy League Award for Highest Academic Achievement: Lt. Alisha E. Hamilton
- Association of the United States Army General Joseph W. Stilwell Chapter Award for Outstanding Army Student: Army Capt. Colin Tansey
- Admiral Wayne E. Meyer Award for Teaching Excellence in Systems Engineering: Marine Corps Lt. Col. Sergio Posadas
- Louis D. Liskin Award for Excellence in Regional Security Studies: Air Force Maj. Ryan C. Hall
- Outstanding United States Air Force Graduate Award, Department of National Security Affairs: Air Force Capt. Christopher R. Mullins
- Hans Jones Award for Excellence in Thesis Research in Special Operations and Irregular Warfare or in Security, Stabilization, Transition and Reconstruction: Air Force Capt. Steven C. Taylor
- Naval Postgraduate School Outstanding Academic Achievement Award for Department of Defense Student; and Air Force Association Award for Outstanding U.S. Air Force Student: Air Force Capt. Casey Hayden
- Naval Postgraduate School Outstanding Academic Achievement Award for International Students: Hellenic Navy Lt. Dimitrios Alevras
- Naval Postgraduate School Superior Service Award: Air Force Maj. Rob W. Chambers
- Marine Corps Association Superior Service Award for Outstanding U.S. Marine Student; and Space Naval Warfare Systems Command Award in Electronic Systems Engineering: Marine Corps Capt. Jameson B. McGee
- Surface Navy Association Award for Excellence in Surface Warfare Research: Lt. Stephen Valerio and Lt. Eric Boernke



# Legion of Merit Headlines Winter Awards Ceremony By Barbara Honegger

The festive spirit of St. Patrick's Day filled King Hall as the Naval Postgraduate School recognized more than two dozen students and five faculty members for outstanding achievements at the Winter Quarter 2009 Awards Ceremony, Mar. 17. Graduate School of Business and Public Policy Military Associate Dean Capt. Theresa Rea officiated the event, which highlights exceptional accomplishments in academics, instruction, research and community service.

Kicking off the ceremony with a bang was the presentation of the Legion of Merit to Army Col. Alejandro S. Hernandez for his "exceptionally meritorious" service as Associate Dean of the Graduate School of Operational and Information Sciences, as a military faculty member, as Director of Wargaming and as Senior Army Representative. The citation from the President, signed by Chief of Naval Operations Adm. Gary Roughead, honors Hernandez for his outstanding mentoring and superb leadership in "flawlessly managing 160 military and civilian faculty including 600 students." It lauds him as an exemplary researcher who established and developed a partnership with the Joint Improvised Explosive Device Defeat Organization that "has had a profound effect on our current operations in both Iraq and Afghanistan."

The second highlight of the afternoon was the Richard W. Hamming Award for Interdisciplinary Achievement, presented by NPS Foundation Executive Director retired Rear Adm. Merrill Ruck to two faculty members, Associate Professor of Public Administration and Management and Principal Investigator for the university's Acquisition Research Program Keith F. Snider; and Senior Lec-

turer and Director of the Acquisition Research Program retired Rear Adm. James B. Greene.

"It's a tremendous honor to receive the Hamming Award, which is very prestigious here on campus," said Snider. "It reflects very well on our [acquisition] research program to have it associated with someone of the caliber and reputation of Professor Hamming whose name is so well known in scientific circles." Greene, an NPS alumnus (Electrical Engineering and Business Administration, 1973), was unable to attend as he was in Washington, D.C., meeting with program sponsors.

Receiving the prestigious Monterey Council Navy League Award for Highest Academic Achievement by a student in the Winter 2009 graduating class was National Security Affairs-Western Hemisphere student Lt. Alisha E. Hamilton.

"I'm absolutely floored and completely flattered that the Navy League chose me to receive this honor," Hamilton said. "They do so much to involve the community at NPS, and everywhere. I'm really honored.

"Being able to be at the Naval Postgraduate School is absolutely priceless," she continued. "Even more than the superb education are the interactions with the officers from all the services and our international partners, and the relationships that you'll maintain for a lifetime." After graduating Mar. 27, Hamilton will report as Flag Aide to Rear Adm. David Thomas, Jr., Commander, Joint Task Force-Guantanamo Bay.

Accepting the Association of the United States Army General Joseph W. Stillwell Chapter Award for Outstanding Army Student on behalf of her husband Army Capt.



***Lt. Alisha E. Hamilton receives one of the quarter's top awards, the prestigious Monterey Council Navy League Award for Highest Academic Achievement, from local chapter president and NPS Special Collections Manager John Sanders.***

Colin Tansey, who left NPS a week previous for operational duty, was his wife Leoann. "Colin worked really hard, and I'm really proud and excited to be able to receive this for him today," she said. "As a civilian, it was great to get to see all the services together in uniform. I can't wait to tell him about it."

Also garnering special recognition as a faculty member was Marine Corps Lt. Col. Sergio Posadas, who received the Admiral Wayne E. Meyer Award for Teaching Excellence in Systems Engineering (Distance Learning).

- Military Operations Research Society Stephen A. Tisdale Graduate Research Award: Lt. Stephen Valerio
- Chief of Naval Operations Award for Excellence in Operations Research: Lt. David T. Clark
- Rear Admiral Grace Murray Hopper Computer Science Award: Lt. Paul Francis Farrell, Jr.
- Rear Admiral Grace Murray Hopper Information Technology Management Award: Hellenic Navy Lt. Cmdr. Ioannis Tzanos
- Armed Forces Communications and Electronics Association Award: Mr. Steven Mico Benveniste, Department of Defense Civilian, Edwards Air Force Base
- Naval Undersea Warfare Center Division Newport Award for Excellence in Undersea Warfare Technology: Lt. David C. Zinkhon
- Chief of Naval Operations Undersea Warfare Award: Lt. Christopher S. Bernotavicius
- American Society of Naval Engineers Award for Excellence in Naval Engineering: Lt. Kiah Rahming
- Graduate School of Business and Public Policy Faculty Outstanding International Student Award: Turkish Air Force 1st Lt. Fatih Sahin
- Lieutenant Commander David L. Williams Outstanding Professor Award: Dr. Nadav Morag, Center for Homeland Defense Security
- Curtis H. "Butch" Straub Achievement Award: Deputy Chief Phillip L. Sanchez, Santa Monica Police Department, Santa Monica, Calif.
- Zimbardo Award for Graduates of Master of Arts in National Security Studies (Homeland Defense and Security) Department of National Security Affairs: Mr. Robert Miranda, Federal Bureau of Investigation
- Rear Admiral Thomas R. McClellan Award for Academic Excellence in the Graduate School of Business and Public Policy: Cmdr. John Chewing
- Admiral Wayne E. Meyer Award for Outstanding Student in Systems Engineering (Distance Learning): Mr. Robert Earl Howard
- Chief of Naval Personnel Award for Excellence in Manpower Systems Analysis: Lt. Scott Woosley

# RSEP Delivers Graduate-Level Programs to Naval Strike Groups

By MC2 Kellie Arakawa

When leaders of deployed U.S. carrier and expeditionary strike groups want to gain a better understanding of the cultural and security challenges they may face overseas, the Naval Postgraduate School's Regional Security Education Program (RSEP) sends teams of professors and regional experts to deliver graduate-level briefings at sea.

The program, which was established in 2002 as a result of the USS Cole investigation, is intended to enhance the operational mission of strike groups by providing cultural, historical and security contexts of the regions in which they deploy.

**"RSEP teams have visited every U.S. carrier strike group, and in just the last few years, they have reached more than 150,000 participants worldwide."**

RSEP teams have visited every U.S. carrier strike group, and in just the last few years, they have reached more than 150,000 participants worldwide. Additionally, RSEP has seen a growing demand for the program's curriculum. Since 2005, the number of RSEP trips per year has more than doubled.

Most recently, an RSEP team accompanied the USS Dwight D. Eisenhower (CVN 69) Carrier Strike Group when it departed in February for a five-month deployment to the Middle East. Led by RSEP Program Director retired Rear Adm. Stephen Loeffler, team members Dr. Robert Rook, a Professor from Towson University, Dr. Michael Freeman, an Assistant Professor from NPS, and Dr. Ahmad Ghoreishi, a Professor Emeritus from NPS, delivered a series of lectures for 10 days at sea.

The team spoke to officers and senior enlisted personnel about U.S. security strategies in the Middle East, cultural awareness and diplomacy, Islam and Islamic fundamentalism, Middle East conflicts, and regional insurgencies. To ensure every Sailor had the opportunity to view the briefings, they were also recorded and broadcast on the Eisenhower's television system.

"Having the RSEP team aboard the ship is a fantastic asset," said Eisenhower's Executive Officer Capt. Ted Williams. "These profes-

sors bring a wealth of knowledge that you just couldn't get through a slide presentation ... I'm amazed at their level of expertise and how our Sailors have been able to glean as much information as possible from them."

Lt. Cmdr. Robert Pedre, a surface warfare officer for the United Kingdom Carrier Strike Group who was training aboard the Eisenhower, thought the RSEP briefings were tremendously valuable. "I think it's critical that we understand the historical and cultural context of the countries in which we are operating to ensure the effectiveness of those operations," he explained.

Pedre said the British Royal Navy also has a program similar to RSEP, but plans to brief his commander about NPS' program when he returns.

"Feedback for the program is overwhelmingly positive," Loeffler commented. "In some of the first deployment briefs the strike groups have given to Navy leadership at both the fleet level and in Washington, they've mentioned RSEP very positively and the impact that it had."

Loeffler also pointed out that while RSEP provides an important service to the fleet, it also provides unique learning experiences for the civilian professors and instructors who deploy with the strike groups.

Ghoreishi, a seasoned RSEP instructor who retired from the National Security Affairs Department in 2003, has been on more than 30 RSEP missions since the program's inception. He enjoys participating in RSEP, because it gives him a better understanding of the Navy's culture. "I think it's very educational for me ... on every trip, I learn something new," Ghoreishi said.

For Freeman, a first-time RSEP lecturer, teaching aboard the carrier was a new and challenging experience. But despite the change in environment, Freeman said the students and curriculum were not all that different. "In the classroom at NPS, we have to make the lectures practical and useful to people in combat. I think that's the same case here [aboard Eisenhower]. It's really an extension of what we do on campus," he explained. Freeman also noted that Eisenhower's officers and senior enlisted personnel were much like the students at NPS — enthusiastic and eager to learn.

Rook, the Chair of Towson's History Department, has served on two previous RSEP teams and was introduced to the program by colleagues from the U.S. Naval Academy. "I think this program is a really wonderful idea in terms of bringing expertise out into the fleet and helping enlisted and officers become a bit more comfortable about the areas and topics they're going to be encountering," he said. "I'm very pleased to be a part of it."

One of the benefits for Rook, who teaches military history and U.S. security strategy, is that the program has helped him gain exposure







*(above) Dr. Robert Rook, Chair of the History Department at Towson University, observes flight operations from vulture's row while aboard the USS Dwight D. Eisenhower (CVN 69). (left) Dr. Michael Freeman, Assistant Professor in the NPS Defense Analysis Department, delivers a briefing on U.S. military strategy to officers and senior enlisted personnel aboard the USS Dwight D. Eisenhower (CVN 69).*

to military culture. By spending time aboard deployed ships, he has gained a better understanding of the technical and institutional practices unique to the armed forces. "It's a win-win situation. I bring something out to the fleet, and I also take away a tremendous wealth of experience that I hope makes me a better professor in the classroom," he explained.

Ghoreishi agreed, and said the experience and knowledge professors gain through RSEP make them better prepared to teach security topics as well as military students. "I think it's very good for the faculty of the Naval Postgraduate School to come on these sorts of missions to really get to know the Navy people better and what they're doing," he said. "We learn more this way and become better teachers, so it works both ways – we educate them and they educate us."

For more information about RSEP, visit [www.ccc.nps.navy.mil/rsepProgram](http://www.ccc.nps.navy.mil/rsepProgram).

## Retired Professor Provides, Gains Valuable Learning Experience at Sea

By MC2 Kellie Arakawa

Since 2001, Naval Postgraduate School Professor Emeritus Ahmad Ghoreishi has spent more than 300 days at sea and visited almost every aircraft carrier in the fleet.

As an instructor for the NPS Regional Security Education Program (RSEP), Ghoreishi serves with teams of regional and security experts, providing graduate-level briefings for deployed carrier and expeditionary strike groups.

Ghoreishi first served as an RSEP instructor for its pilot program aboard the USS Constellation (CV 64) and has since embarked on more than 30 RSEP missions.

Despite retiring from NPS in 2003, he continues to participate in RSEP and educates

naval officers in Middle East politics, history and religion.

Born and raised in Iran, Ghoreishi first moved to the United States to attend college at the University of Colorado, Boulder. He received his master's degree from the University of California, Berkeley then back for his doctorate degree from the UC Boulder, where he also taught for two years.

In 1966, Ghoreishi returned to Iran to teach American Government and Political Philosophy at the National University of Iran, and later served as Dean of the law school and Chancellor of the university.

Following the Iranian Revolution in 1979, Ghoreishi moved to the San Francisco Bay Area to teach at various colleges. In 1984, he taught an introduction to Middle East Government and Politics course at NPS, with the intention of teaching at the school for just

(continued on page 12)

# Golf Course Annex Gets High-Speed Boost

By MCSN John R. Fischer

For such a cool, sunny day, not a single set of golf clubs gleamed on the greens at the Monterey Pines Golf Course. True, there may have been golfers aplenty at the clubhouse that day, but all were present for a more ceremonious purpose. Besides, the course is still closed for renovation.

The gathering of leadership, faculty, students and staff was actually for the Gigabit Light Speed and Beyond ribbon cutting ceremony early this year, celebrating one of the milestones of Information Technology and Communications Services (ITACS) at the Naval Postgraduate School.

In addition to the almost-complete, newly-renovated golf course, Monterey Pines is also home to remote research facilities – the Rocket Propulsion Lab, Free Electron Laser Lab, Turbopropulsion Lab, X-RAY Lab and Machine Shop, collectively known as the Golf Course Annex Labs. These labs further critical work and research by numerous departments at NPS, and were essentially inaccessible

via the NPS network before the upgrade.

"This project, which adds the high-speed connectivity between our station out here and mother ship NPS, is not only helping our computational abilities but also our experimental capabilities," said Knox Millsaps, both a Professor and the Department Chair for Mechanical and Astronautical Engineering (MAE). "What this really did was connect our experimental capabilities, which already link to the computational capabilities [at the Annex Labs], to the computational resources a couple miles away at the NPS main campus."

"We have a lot of milestone events; most of them belie the amount of work that goes into them," said NPS President Dan Oliver during the ribbon-cutting ceremony. "These things don't happen by accident. I know this took an awful lot of planning, diligence and teamwork."

"Up until about four years ago, I felt like I was at the end of the world out here," said Chris Brophy, Associate Professor of MAE and the Director of the Rocket

Propulsion Laboratory. "When I arrived in 1997, three labs had one 28.8 [Kbps] dial up connection to share in order to connect to campus."

Download time has decreased considerably with recent network updates. "We can now transfer about one fourth of a gigabyte in 30 seconds," explained Garth Hobson, Professor of MAE and Director of the Turbopropulsion Lab. "It used to take about half an hour. We can finally visualize data in real-time instead of downloading every day and waiting to review it."


"Now at the end of the day we end up with three to four gigabits of data we need to transfer to other schools we combine our research efforts with," Brophy explained. "We can use FTP [File Transfer Protocol] now, but before this capability existed we were copying everything to CDs or DVDs and mailing them out – which tremendously slowed down our progress."

The change-over was led by Doug Weismann, the Collaborative Networking Program Manager for ITACS. He brought to the forefront the fact that the challenging task was accomplished thanks to incredible assistance and cooperation between ITACS,

the Annex Lab Research Faculty, and Morale, Welfare and Recreation (MWR), who runs the golf course. Through the combined efforts of these NPS forces, every stage of the new network project was laid down almost seamlessly.

"The future of this network has applications such as Voice Over Internet Protocol (VoIP) – the new age in telephony," Weismann said as he began to describe what the upgrade will mean to the future of NPS lab and research work. He listed other technological landmarks such as "virtualization and new server paradigms; highly efficient, available, adaptable and secure new clusters; federations – research collaboration from our most trusted partners can occur worldwide in new trusted domains; and other new protocols and technologies."

"We anticipate making very good use of this," proclaimed Bill Colson, Distinguished Professor of Physics. "There will be about 40 experts from around the country reviewing our [Free Electron Laser] Program, and the Free Electron Laser Program nationally, and this upgrade could not have come at a better time."

"This is just the beginning," said Weismann. "Welcome to the world of light speed." 



*Faculty and NPS leadership use a symbolic Ethernet cable in place of a ribbon at opening ceremonies for the completion of the new "Gigabit Light Speed" network installed between the main NPS campus and the Golf Course Annex Labs at Monterey Pines. From left, Garth Hobson, Professor and Director of the Turbopropulsion Lab; Chris Adams, Lecturer; Doug Weismann, Collaborative Networking Program Manager for ITACS; NPS President Dan Oliver; Sivaguru Sritharan, Dean of the School of Engineering and Applied Science; and Chris Brophy, Associate Professor and Director of the Rocket Propulsion Laboratory.*


(continued from page 11)

one academic quarter. Now 25 years later, Ghoreishi says he never imagined he would still be so involved in military education.

"I believe RSEP is a very important contribution the Naval Postgraduate School directly makes to the Navy," Ghoreishi stated. "When we go on these trips, we're often told by officers that this is the first time they have received a briefing about the history and culture of the

area they're deploying to ... people often stop us in the passageways and wardrooms and tell us how much they appreciate these briefings."

Although Ghoreishi has been on more RSEP trips than any other NPS professor, he finds value in each experience and always learns something new. "I really enjoy getting to know the young officers and talking with them," he said. "I enjoy every trip. It's never boring."

Ghoreishi described RSEP missions as important opportunities for professors to get "up-close and personal" with the Navy's operations and culture. Each time he embarks on a ship, Ghoreishi said he develops an even greater level of appreciation for service members and the contributions they make to international security and stability. 



# Cebrowski Institute Explores Ways to Re-energize Computer Science

By MC2 Kellie Arakawa

To radically change the way younger generations are looking at the computer science field, the Naval Postgraduate School Cebrowski Institute for Innovation and Information Superiority recently invited more than 200 representatives and leaders from academia, industry, the media and government to a three-day working summit, "Rebooting Computing: The Magic and Beauty of Computer Science," at the Computer History Museum in Mountain View, Calif.

The summit, sponsored by the National Science Foundation, was developed by a design team led by Dr. Peter Denning, Director of the Cebrowski Institute. Denning said he became concerned about the future of computer science after studies began showing a rapid decrease in computer science enrollments, particularly among women and minority groups. One report, conducted by the Computing Research Association, indicated a 50 percent decrease in undergraduate computer science enrollments since 2001. Denning also cited reports from the U.S. Bureau of Labor Statistics, which put the number of computer science graduates at about two thirds of the need.

To address the issue, the design team developed an appreciative inquiry (AI) organizational summit facilitated by NPS Prof. Frank Barrett and Case Western Reserve University Prof. Ronald Fry, which required key stakeholders from around the world to actively participate in a collective discussion.

Dr. Vint Cerf, Vice President and Chief Internet Evangelist for Google, who is also known as a "father of the Internet," joined the summit's design team because he believes computer science and information technology are vital assets to the country. "If we don't rethink the way in which we introduce this subject to people so that they appreciate its core value ... we will actually lose a very important capability that has made us competitive. This meeting is critical in my view, because it's forcing us to think about how to reintroduce computing as a subject of relevance to a large population," he said.

The summit engaged these experts in robust, exploratory discussions. They reflected on their past experiences in the computing field, sharing what first sparked their interests in computer science. They collectively decided which practices and principles should be preserved, aspects they believe give life to the discipline. They also outlined four central visions for their field's ideal future, including a new image of computer science in which the field is viewed as a tool to transform real-world problems. Another vision illustrated a future where computer science receives more scientific respect – one group said that "computer science should be seen as the physics of the 21st century." The third common vision included the integration of computer science into education programs, where computing is seen as fun, accessible and a core discipline




*Members of the Rebooting Computing summit gather just outside the Computer History Museum in Mountain View, Calif. NPS' Cebrowski Institute brought together more than 200 computer science leaders to discover new methods in re-energizing the computer science discipline.*

similar to writing and math. The final vision centered on a future with greater self identity, where the definition of computer science is clear, consistent and agreed upon by all in the field.

On the summit's final day, more than a dozen newly-formed groups gathered to work on their respective ideas for changing the computer science field. Groups that received high levels of interest included ones that focused on changing the image of computing, improving computer science curriculum and increasing educational opportunities for young students.

"I'm interested in changing the face of computer science, because there are very few women and minorities in my classes," said Sara Melnick, a computer science student from the University of Rochester. "It's disappointing that everyone thinks we're just geeks who sit in dark rooms with our computers. There is so much more to the field than people think."

Reaching out to future generations of computer scientists at a young age is also important from a national security perspective, Denning said. "Computing is widely recognized as critical technology, and a lot of systems in the Navy depend on computing," he explained. "The Navy wants to be sure they will have access to expertise in these systems ... so here at the Cebrowski Institute, we really wanted to do something innovative that hasn't been done before; we wanted to put people back in touch with the magic and beauty of computer science, because it's what we believe the key to attracting new people is."

For more information about the effort, visit [www.rebootingcomputing.org](http://www.rebootingcomputing.org). 

## Mathematics Prof Co-authors Book on Cryptographic Applications



*Cryptography is the standard method for protecting digital information from unauthorized access, the applications of which have increased in importance tremendously over the last 25 years as use of the Internet has exploded worldwide.*

*Boolean functions have been an object of study in cryptography for over 50 years. The book, Cryptographic Boolean Functions and Applications, is designed to serve as a reference for various applications of Boolean functions in modern cryptography. Co-authored by NPS Associate Professor Pantelimon Stanica (middle), the book is suitable for a broad audience of students, engineers, software and hardware developers, computer scientists, mathematicians and other researchers.*

*Stanica, flanked by GSEAS Dean Sivaguru Sritharan (left) and Provost Leonard A. Ferrari (right), joined NPS in 2006 in the Applied Mathematics department. He received a Ph.D. in Mathematics from State University of New York at Buffalo, and a Doctorate in Algebra from the Institute of Mathematics of the Romanian Academy in 1998.*

# NPS Establishes New Academic Group By MC2 Kellie Arakawa

A strong need for in-depth research that explores the relationship between globalization and national security recently prompted the Naval Postgraduate School to establish the Global Public Policy Academic Group (GPPAG), an interdisciplinary group that will draw expertise from across the NPS campus to create defense-related global public policy research and educational programs.

At NPS, an academic group is an organization led by a core team of faculty that addresses multidisciplinary topics and initiatives, NPS Provost and Executive Vice President Leonard Ferrari said. The school currently has an academic group dedicated to space systems, which includes academic departments that study computer science, engineering, mathematics and applied sciences.

While the Graduate School of Business and Public Policy (GSBPP) as well as the School of International Graduate Studies examine public policy and international security issues, Ferrari felt it was important to bridge their expertise with those in the computing, science and engineering fields.

"We look at globalization and national security, and it's really an interdisciplinary area," explained Dr. C.J. LaCivita, the Executive Director of the Defense Resources Management Institute

(DRMI), who will serve a joint appointment as the GPPAG chair. "So rather than try to put it [GPPAG] in one school, the idea was to form a group which would allow joint appointments for people from all over campus who might have interest in particular topics that we're working on."

Although participating professors and contributing academic departments have yet to be determined, professors from DRMI and the Cebrowski Institute for Innovation and Information Superiority have committed to joining the group, as will GSBPP Prof. Frank Barrett, who will serve a joint appointment as the GPPAG's associate chair. Faculty from all departments at NPS will be eligible to participate in the group's research programs both formally and informally.

LaCivita said the GPPAG is still in early strategic planning stages where it is determining goals and a full vision for the future. "Ideally, we would like the group to be involved in research-led education; we want to establish a strong research program and have that lead to education programs," he explained.

Specific research areas are also still being outlined, but LaCivita suggested that issues with significant global market and security implications – such as energy security and cyber security – are potential areas of study for the group.

Plans for future research may involve collaborations with other universities and outside organizations, as well as a doctorate or master's degree program that would allow students to take global public policy core classes and then emphasize in a specific area such as international business or maritime security. Certificate programs using current courses from various academic departments may also be integrated into the group's education curriculum.

Ferrari believes the new academic group is well-suited for NPS, because it addresses important international issues that impact national security – a primary area of study at NPS. "Also, we think it's important for military officers to have a deeper understanding of the international community that they're going to be working in," Ferrari stated.

Given the interconnectedness of the world and the accessibility of technology today, it's important for an institution like NPS to examine these topics, LaCivita said. "What we do is take a topic like globalization and say, 'How does that relate to national security?' That's where we think our niche is," he added. "So what we're trying to do is focus on exactly the kind of thing that NPS does really well."

## CCMR Prof Pioneers Book on Transforming Defense Capabilities By Barbara Honegger

When he touches down in Argentina the weekend of Apr. 17, Naval Postgraduate School lecturer in the Center for Civil-Military Relations (CCMR) and Department of National Security Affairs retired Navy Capt. Scott Jasper will be carrying hot-off-the-*Center for Civil Military Relations and National Security Affairs Lecturer retired Navy Capt. Scott Jasper with the pioneering anthology he edited, Transforming Defense Capabilities: New Approaches for International Security.*

press copies of his pioneering book *Transforming Defense Capabilities: New Approaches for International Security*. The anthology will form the core of a "Capabilities-Based Operations" executive course for 40 senior Argentine military officers and Ministry of Defense officials, the first of many bilateral and partner nation courses using the text.

As former Deputy for Joint Experimentation at Headquarters, U.S. Pacific Command (PACOM), Jasper is a hands-on expert on joint experimentation and capabilities-based military transformation. At PACOM, he promoted the creation and implementation of a revolutionary concept for joint warfare using standardized procedure sets, mission-focused training tasks and routine technology integration exercises for Joint Task Force component commands.

"Until now, international military decision makers have had no concise and comprehensive guide or reference for commonly accepted principles and practices that can be used

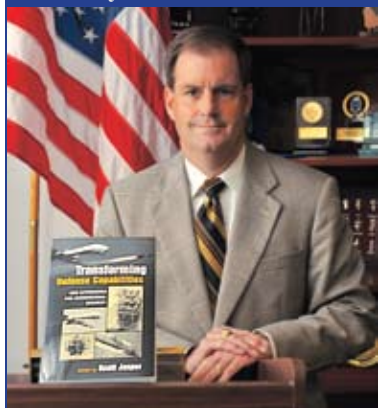
to implement transformational concepts and procedures that apply to all military modernization and innovation strategies for both irregular and conventional warfare," Jasper said. "There wasn't a single volume that pulled together the disparate concept papers and command instructions into one coherent set, and this book fills that void. It's exciting that it will be of real value and use for the Center's programs at NPS and abroad, as well as at Professional Military Education institutions in the U.S. and in NATO and partner nations."

The new textbook is a collaborative effort among the Naval Postgraduate School; Supreme Headquarters, Allied Command Transformation; U.S. Joint Forces Command Experimentation Directorate; the Office of the Secretary of Defense Transformation Chairs Network; and U.S. Pacific Command Experimentation Directorate, which also endorse its content.

In addition to Jasper, who wrote the opening chapter on "The Capabilities-Based Approach" and conclusion on

"Measuring Progress," other NPS chapter contributors are Professor of National Security Affairs Dan Moran; Cebrowski Institute Deputy Director and Information Science Department Lecturer Sue Higgins; and CCMR Research Associate Army Reserve Capt. Scott Moreland. CCMR Director Richard Hoffman and Profs. Tom Bruneau and Harold Trinkunas provided invaluable advice and support, while Elizabeth Skinner provided insightful comments and served as copy editor.

Jasper teaches courses in international defense transformation for CCMR and the National Security Affairs Department. He earned a Master of Business Administration from San Jose State University and a Master of Arts in National Security and Strategic Studies from the Naval War College. He is currently working on a follow-up edited volume on specific applications of capabilities-based defense transformation, *Securing Freedom in the Global Commons*.





# The Power to Heal from a Hundred Miles Away *By Dale Kuska*

The spatter of continuous gunfire is such a constant, it's become nothing more than background noise, something the soldier hardly even hears anymore. He creeps silently across the warm sand, slightly comforted by the new battlesuit he's wearing and the protection it will give him in the field.

With a collection of thumps, bullets spray the ground next to this warrior, spurring a light sprinkle of sand into his face. A strange sensation indeed, but it's the even stranger singeing heat on his right side that is the most curious. A lunge forward, and his adrenaline ceases from masking the pain of the wound ... he has been shot, and is beginning to lose blood rapidly.

The soldier finds cover, but knows that his blood loss is approaching severity, and there will not be a medic at his side fast enough, not in this firefight. He then hears something wonderful ... not a voice offering help, not another soldier on his way to treat the wound. Rather, it's that undeniable buzz of the Navy's Predator Unmanned Aerial Vehicle, which has been circling tonight's area of operations.

With that sound, the soldier knows the medicine he needs has already been delivered to his bloodstream; relief is immediate, and his condition is stabilizing. The medic will be there soon, and this soldier will make it.

It's called battlefield medical, and discovery into this new field and the technologies that make it possible are just one of several applications researched through the Center for Network Innovation and Experimentation, or CENETIX. Working in close collaboration with the Institute for Soldier Nanotechnology at the Massachusetts Institute of Technology (MIT), a remotely deliverable medical nanopatch is just one small piece of the potential battlesuit of the not-so-distant future.

"Help can be delivered in so many ways," says Dr. Alex Bor-



**Dr. Alex Bordetsky, Director of CENETIX and Professor of Information Science, stands in front of several screens displaying some of the advanced networking experimental applications currently in discovery through the Center.**

detsky, Director of CENETIX and Professor of Information Science at the Naval Postgraduate School. "There must be other means available of delivering the healing control to the casualty in the field." This is the essential thought behind battlefield medical, Bordetsky adds, taking advantage of current technology "to deliver the healing power without direct contact from medical personnel."

The science is relatively simple. A nanopatch built into a soldier's field suit can contain almost any medicine, and with a basic actuator, the patch can release the medication through the skin, and into the bloodstream. A suit can easily include multiple patches, each carrying a different medicine depending on the severity and need of the patient.

The Predator UAV circling the mission's area of operation is not only there for video surveillance, it is also the delivery mechanism, capable of sending a signal from the craft to the nanopatch actuator, releasing the medication into the casualty.

With the extensive experience in advanced networking, one of

the hallmarks of the CENETIX team's work, the notion of using a broadband, deployable network to activate the medical patch was an easy and intuitive transition. "Using the UAV to get close to the casualty and ignite the healing control is obvious," Bordetsky notes. "Really, activating the medical patch is a very simple networking action."

These capabilities are what advanced networking and CENETIX make possible. Clearly, battlefield medical is just one application of this capability, but the research conducted through CENETIX takes this same concept to futuristic extremes.

Research has already been conducted that would allow a Predator UAV circling an area of operations to continuously feed data back through a deployed broadband network to the Tactical Operations Center. Small sensors called eTags, like the medicine delivery nanopatches, are built into the future battlesuit. These eTags read and send critical health data and vital sign telemetry for each soldier in the field back to the TOC, such as pulse, blood pressure, body tem-

perature, even anxiety levels and much more.

With all of this, in addition to the GPS locators, decision makers in the TOC can see exactly where each member of the team is located, their health and physiological status, details on the surrounding environment, and video and audio. In short, the level, detail and range of information available to effectively direct the mission are at the highest of levels, and are at the core of the work performed by Bordetsky and his team of students and fellow researchers.

So when that same soldier creeps silently through the warm sand, equipped with that fully operational battlesuit of the future, he can rest assured that the medicine is readily available if the dire need arises. But with the continued exploration of advanced networking technologies and capabilities through NPS and CENETIX, perhaps even more comfort can be derived in knowing that the tools are in place to ensure he won't even need that medicine in the first place. 🛡️

# Global Center for Security Cooperation, DLI Sign Historic Collaboration

By Barbara Honegger

The Global Center for Security Cooperation (GCSC) and Defense Language Institute Foreign Language Center (DLIFLC) signed a historic Letter of Accord making the nation's language provider for defense personnel the newest member of the Center's consortium of higher educational institutions. Penning their signatures to the agreement in a ceremony at GCSC's headquarters at the Naval Postgraduate School were Center Director retired Army Lt. Gen. Robert L. Ord III and Army Col. Sue Ann Sandusky, Commandant of DLIFLC and Commander of the Presidio of Monterey.

The purpose of the agreement was to establish a new, mutually supportive relationship between the two institutions, and to delineate their respective roles and responsibilities to ensure ef-

fective cooperation and collaboration.

"Consortium members represent the leading edge in international partner education covering a wide spectrum of education providers and topics, from medical and legal operations to defense reform, resource management and civil-military operations – and, as of today, language education," GCSC Operations Director Warren Hoy said in kicking off the ceremony in the Center conference room in the west wing of Herrmann Hall.

"The Defense Language Institute Foreign Language Center's membership adds a wealth of resources not available at other member schools," Hoy added. "In addition to its unique language capabilities, DLI has a vast wealth of cultural expertise and products that will be very helpful to other members as they prepare to travel overseas

and present courses, workshops and seminars to other nations. Because all of DLI's foreign language education and training is culturally based, its lessons will be doubly useful for other Consortium members' faculty when they're preparing to travel overseas."

"I'm proud and honored to be here today to sign an agreement making DLI the 13th member of the Consortium," Sandusky told the audience. "We've been cooperating informally in security studies since the Center's creation, and we're happy that this informal relationship is now being formalized. We're very pleased to be part of the Consortium, which will enhance our ability to market our courses and materials to other countries."

"It's a great day for the Global Center for Security Cooperation, and to be here in Monterey," Ord said on taking the podium, and thanked Congressional District 17 Representative Sam Farr for attending and for his ongoing support for the Naval Postgraduate School.

"NPS and the Defense Language Institute are the crown jewels of higher education here on the Monterey Peninsula, so it's a giant step forward for these two crown jewels to come together in this formal partnership," said Farr. "I feel privileged to be here, and I'm excited about the global security initiatives that will grow and extend out to the whole world as a result of this agreement signed here today. And this is very important because, before you can build capacity abroad, you have to build capacity at home. The future is in how we use our existing resources to build a much stronger base and capacity through mutual collaboration."

Sandusky also acknowledged Farr "for being an inspiration and directly responsible for our Global Language Online Support System, which we now have in dozens of languages, and growing." Farr has been a consistent supporter of Defense Security Cooperation programs dating back to the 1960s, when he served in the Peace Corps.

"We're all proud to be here today, and I'm especially proud of what you've accomplished," said NPS President Daniel Oliver in addressing the assembled Center and NPS leadership. "The addition of DLI is a milestone in the growth of the Center and will greatly add to its capabilities and positive impact on our allies and coalition partners around the world."

After the ceremony, Sandusky gave an example of the benefits she expects to see from the newly formalized partnership. "We're struggling to train our military linguists in Afghanistan," she noted, "and this larger collaborative process will make our courses and programs far more visible."



*Global Center for Security Cooperation and Director retired Army Lt. Gen. Robert L. Ord III, front left, and DLIFLC Commandant and Commander of the Presidio of Monterey, Army Col. Sue Ann Sandusky, front right, sign a historic Letter of Accord making the nation's language provider for defense personnel the newest member of the center. Sharing the capstone moment were NPS President Dan Oliver, back left, and Calif. Congressional District 17 Representative Sam Farr.*



## NATO Diplomats Prep for 60th Anniversary Summit *By MCSN John R. Fischer*



*Conference keynote speaker U.S. Marine Corps General James N. Mattis, NATO's Supreme Allied Commander Transformation and Commander, U.S. Joint Forces Command, speaks to attendees of the NATO conference.*

The North Atlantic Treaty Organization (NATO) held a conference in Monterey, Calif., to discuss best practices in building institutional integrity within the global defense sector, Feb. 25-27. The outcomes of the conference will contribute to NATO defense cooperation and collaboration and will be a subject at the annual NATO Summit meeting, which has a goal of integrating defense planning systems and ensuring a high degree of transparency in national defense planning.

The gathering brought together the expertise of 170 senior officials from 30 NATO member and partner countries, as well as international organizations such as Transparency International, a non-governmental organization focused on anti-corruption and civil service, and the World Bank, a global source for the financial assistance of developing countries.

The alliance meeting focused on developing recommendations for more efficient and effective defense policy and training in the areas of building institutional integrity and reducing corrupt practices through improved transparency and accountability.

In opening remarks, Joseph Benkert, the Assistant Secretary of Defense for Global Security Affairs under the U.S. Office of the Secretary of Defense, discussed the capacities of allies and international partners. He focused on the importance of the processes established by the alliance and how to bolster progress in transforming and developing countries, including the need for the military to work in a more synchronous way with state departments and other governmental and non-governmental organizations.

Aurelia Bouchez, Deputy Assistant Secretary General of Political Affairs and Security Policy for NATO, reaffirmed the specifics of the actions Benkert had discussed, stating during her own establishing remarks, "Building integrity, increasing transparency, and improving accountability – those are the three pillars of our action."

With the premise and key focal points for the conference established by Benkert and Bouchez, the stage was set and awaiting its keynote speaker.

U.S. Marine Corps General James N. Mattis, NATO's Supreme Allied Commander Transformation and Commander, U.S. Joint Forces Command, spoke boldly and to the point. "This [conference] is absolutely fundamental to our success in defending our values," Mattis told the attending members.

"This effort in integrity building goes to the heart of our mission," Mattis continued. He cautioned the audience that undertaking the just cause of clarifying actions and fighting corrupt practices would be "inconvenient, unprof-

itable and dangerous." The rewards, however, would be reaped by the masses, Mattis assured. "Building integrity in the military results in improved political and economic conditions for the rest of the nation's efforts," he said.

The rest of the morning and afternoon was filled with short, topical lectures accompanied by panel sessions offering the attendees an opportunity to ask questions.

The talks by subject matter experts and the question and answer sessions gave the conference participants a chance to develop concepts and methods for the following day, during which small working groups were formed. The working groups' topics included reducing corruption while strengthening economies, integrity and education, corruption risks in defense contracts, and building effective partnerships with civil society.

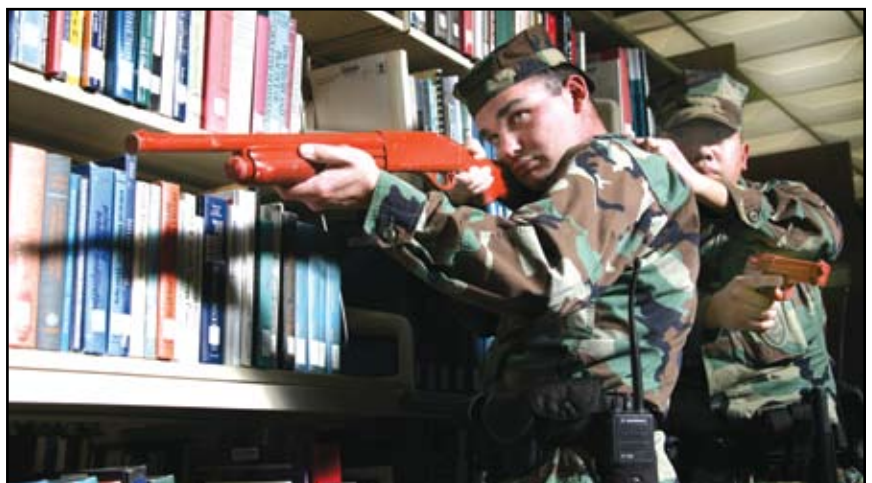
The working groups offered findings, notes, questions and arguments observed and discussed throughout the process at a final panel session before calling the conference to a close. The outcomes are to be consolidated into final recommendations to be presented at the upcoming Strasbourg-Kehl NATO Summit, which will also mark the 60th anniversary of the alliance.

The conference closed with remarks from His Excellency, Ambassador Stewart Eldon, Permanent Representative of the United Kingdom to NATO. He praised the significance of the event and hopes the results of the conference "will lead NATO to a comprehensive approach to state building (security building)."

The conference was organized and hosted by the Defense Resources Management Institute (DRMI), which is located at the Naval Postgraduate School in Monterey, Calif. NPS is the only Partnership for Peace Education and Training Center in North America.

## All Clear!

*Members of the Auxiliary Security Force clear an area between the stacks in Dudley Knox Library in search of a "shooter" during on campus training exercises on February 24. Actors who posed as NPS students were the targets, some had to play dead as a dozen other officers swept the library's second floor. The "shooter" exercise was the grand finale of the day's anti-terrorism scenarios, which began with anti-military protesters. Pictured are Aviation Electronics Technician 2nd Class Joshua McDonald (left) and Master-at-Arms Seaman Johari Doctolero.*





NAVAL  
POSTGRADUATE  
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CENTER for  
EDUCATIONAL  
DESIGN, DEVELOPMENT,  
& DISTRIBUTION



## CED3 Takes Learning Far Beyond the Campus *By MCSN John R. Fischer*

Fads come and go. But sometimes, fads come and stay, and change the way we do business. In the late 60s, professors at NPS experimented with computer-based learning; in the late 70s, the Personalized System of Instruction program (PSI) emerged. Many called these efforts fads, but they were actually building a foundation for a new era in education where the traditional classroom was about to become quite untraditional.

Fast forward 20 years, and the seeds that had been planted so long ago began to flourish. The university began to embrace the concepts of delivering education off campus. A new distance learning strategy formed, which went beyond the video tele-education (VTE) programs that were then gaining acceptance throughout DoD. Then Dean of Instruction, Dr. Maury Weir, sought to stand up the infrastructure for a distributed learning program that would be truly "anytime and anywhere."

"The earliest distance learning programs at NPS mailed books to ships," said Tom Hazard, Director of Operations for the Global Public Policy Group and Chair of the Education Development Working Group under the Partnership for

Peace Consortium. "Next, NPS, under Tracy Hammond, developed a robust VTE program. By the late 90s NPS began taking learning to the next level by leveraging the new web-based technologies that were emerging. What we had to do was enhance the ability for interaction at a distance in a distributed fashion; faculty with students, students with each other and finally, students with the content, all while maintaining NPS' high academic standards and doing it in a more distributed fashion."

The result was the Office of Continuous Learning (OCL), initially headed by Capt. (ret.) Ernie Haag, then by Hazard. After a decade of innovation, the effort has evolved again becoming the Center for Educational Design, Development and Distribution (CED3).

An explosion of virtual educational technologies pushed NPS to the forefront of distance and international scholastic acclaim. Advancements in resident and distributed learning programs, promotion of programs, and innovations in technology have transformed the school from a small campus in Monterey to a worldwide educational center.

"The same great educational material is being distributed via learning platforms, virtual teleconferencing and portable media," explained Tom Mastre, the Director of CED3. "That's what we do: design educational material, develop curriculum-specific products, and distribute those materials."

CED3 supports the university's resident and non-resident instructional programs through expertise in instructional design, media development and production, and communications. The center boasts its own student services and administrative support, which helps to give distance learning students as close to a resident-type experience as possible.

Through collaboration with NPS schools, departments and faculty, CED3 is helping to exploit new and existing technologies to be the vanguard of total force graduate level education.

"CED3 provides high quality services to NPS' schools and departments and for our world-class faculty – in both developing and distributing graduate education globally," said Doug Moses, the Vice Provost of Academic Affairs. "CED3 facilitates the creation of instructional materials and pro-

vides administrative and student support, permitting the faculty to focus on their teaching and scholarship activities, keeping NPS at the leading edge."

Learning objects created by CED3 were used more than 3,500 times during the last academic year, with nearly 600 students supported by their in-house student services.

With the help of CED3, Wally Owen, the Associate Chair for Distributed Programs and Outreach for Systems Engineering, manages approximately 500 NPS distance learning students.

"It takes an entire organization," said Owen of the challenges of distributed education. "That's where CED3 comes in. This is a very complex system we're working in – but I know who I can talk to, and things get taken care of right away."

It would seem, then, that the business of delivering learning has indeed changed forever. Now, NPS can deliver education to personnel "anytime and anywhere." One can only wonder what this effort will look like, or who we will be teaching, in another 20 years.

For more information visit <http://www.nps.edu/DL/CED3/index.asp>.



### **Robot Delivers Prestigious Award to Dutch Student**

*Lt. Cmdr. Bjorn Kerstens, Dutch Navy, has been bestowed with an incredible honor from the Royal Institute of Engineers in The Netherlands. Kerstens, and his thesis project at NPS, have been selected best University Graduate in Defence Security and Technology, given to the "most relevant contribution to defense and security related issues."*

*The award was presented during the Annual Prof. Kooy symposium by Wim Borawitz, Chairman of the department of Defense and Security Technology of the Royal Institute of Engineers. With the symposium's focus on robotics, the award was appropriately delivered to Kerstens via an Explosive Ordnance Disposal robot.*



# Mini-Satellite Launcher Makes NPS Player in CubeSat Space Race

By Barbara Honegger

Like the Sputnik launch that triggered the Cold War space race, Russian miniature spacecraft launches have catalyzed the Naval Postgraduate School to design and build a revolutionary new mini-satellite launcher to quickly bring the U.S. into the competition.

Space Systems Academic Group (SSAG) Profs. Jim Newman and Rudy Panholzer and Research Associate Dan Sakoda came up with the idea for the NPS CubeSat Launcher (NPSCuL) that attaches to an Atlas or Delta rocket via a secondary payload adapter and deploys a large number of miniature satellites into tumbling, low-earth orbit. Command signals trigger a sequence of spring releases in the "Jack-in-the-Box" device that catapult the tiny cube-shaped spacecraft carried inside the launcher into orbit. Once freed, the small CubeSats conduct a wide range of missions, from earth observations to testing cutting-edge technologies for spaceflight such as new solar cells, to studying the effects of microgravity on biological samples.

Through the integrated thesis research of a team of NPS master's students, the CubeSat Launcher vision is being rapidly brought to life under SSAG's Small Satellite Design Program.

"Our goal is to create a new 'coach class to orbit' so that we can regularly, quickly and affordably launch the increased number of very small spacecraft on orbit needed to keep the U.S. government, military and academic space community on the cutting edge," said the project's new student program manager Lt. Christina Hicks. "Current U.S. launch opportunities for individual CubeSats are limited and expensive, and most are launched by other countries – predominantly on Russian rockets – with the sole U.S. exception being NASA's GENESAT, so there's a real need for quick and affordable domestic access to space for purposes of experimentation and education. When NPSCuL goes up in late 2010 or 2011, it will be both the world's first high-capacity CubeSat launch and the first U.S. non-NASA CubeSat launch," she noted.

"The wave of the future is spacecraft miniaturization, just as miniaturization was a major

turning point for computers," said Newman, the project's lead principal investigator. "This project is a unique hands-on opportunity for Space Systems officer students to build a real piece of space hardware that's a major enabling technology for access to orbit and that will actually be launched, all within a two-year curriculum. Though each is doing an individual thesis, they also work as a team and coordinate at the group level. In this world, very little gets done without teamwork."

Three NPS students in addition to Hicks – Lt. Matt Crook, Lt. Cmdr. Adam "Tito" Dejesus and Lt. j.g. Anthony "Tony" Harris – are currently working on NPSCuL-Lite, a variation of the launcher with eight CubeSat containers, or P-PODs (Poly Pico-Satellite Orbital Deployers), compared with ten in the original design.

Crook, the project's first student program manager, came to NPS with a B.S. in computer engineering. For his thesis, he built a half-scale model and wrote the process by which non-government CubeSats can get added to launch manifests on a space-available basis, sponsored by the California Space Education and Workforce Institute.

"By capitalizing on excess capacity on space-available flights aboard U.S. launch vehicles, NPSCuL-Lite will catalyze CubeSat development by government, industry and educational institutions who want to avoid the challenges and potential issues associated with foreign launch providers," Crook said. "Also, this launcher is a lot more complicated than it looks. All the components have to work together seamlessly and be rigorously tested before they fly."

Dejesus is building a full-scale NPSCuL model and doing the integration, assembly and laboratory testing with vibrations more severe than those that would be encountered in space. "The greatest challenge is understanding the launch environment, because the stresses at launch are literally not of this earth," he said. "The launcher needs to be both strong enough to survive the



*CubeSat design team members hold prototypes of the system's components, from the right: current student program manager Lt. Christina Hicks, with a CubeSat frame; Lt. j.g. Anthony Harris, with a CubeSat Poly Pico-Satellite Orbital Deployer; the project's first student program manager Lt. Matthew Crook, with a scale model of the launcher; and Lt. Cmdr. Adam Dejesus, with the payload adapter ring that attaches to a rocket.*

launch stresses, but also light [weight] enough to make it onto the manifest."

Harris is adapting an existing microcontroller for the command-signal-initiated launch sequencer. "Coming from a B.A. in economics, everything about this project has been a challenge, but we've more than met it as a team," said Harris.

"A significant NPS role is outreach to other players in the CubeSat development community – which already consists of over 100 universities, half of them in the U.S., industry, and DoD and other government agencies – to foster DoD-relevant science and technology, as well as coordinate with launch providers," said Newman. "The Naval Postgraduate School functions in a dual-hatted academic and military environment, which puts us in a unique position to contribute to this kind of technological innovation."

"If interest in CubeSat development continues, NPSCuL-Lite may well establish itself as a standard payload aboard compatible launch vehicles, paving the way for relatively inexpensive demonstration of DoD-relevant technologies and educational opportunities for future space professionals," Hicks concluded.

## Space Systems Students Power University's CubeSat Program

*Students of the Naval Postgraduate School Space Systems Operations and Engineering Program stand in front of a microwave dish near their labs in Bullard Hall. The students are now conducting Solar Cell Array Tester (SCAT) evaluations for future satellite electric power production and distribution systems. Their project is expected to launch into space in 2010 or 2011.*

*(SCAT Team left to right) Program Manager, Lt. Cmdr. Christopher Malone; Power Systems, Lt. Cmdr. Lawrence Dorn; Communications Sub-System Designer, U.S. Marine Corps Capt. Matthew Schroer; Structural Engineer, German Army Aviation 1st Lt. Alexander Schulenburg; Payload Designer, Lt. Rod Jenkins; Software Engineer, Nathan Moshman and Senior Systems Engineer, U.S. Army Maj. Christopher Ortona.*



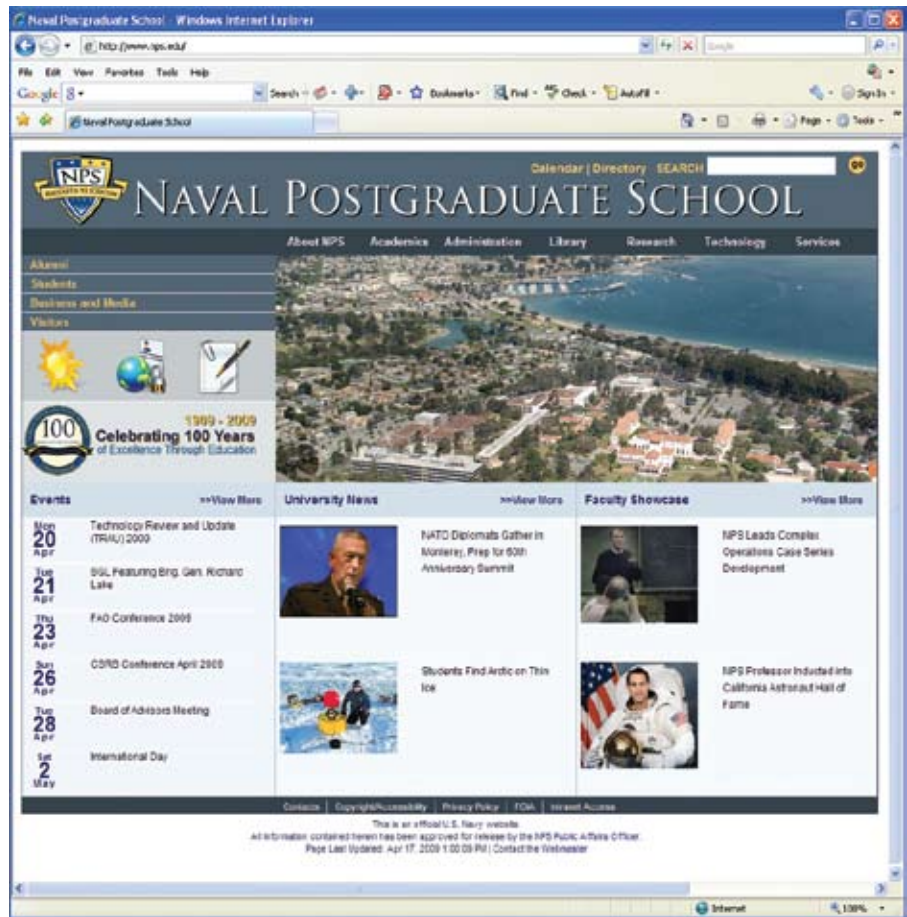
# New Look for NPS Web By Joan Ackerman

**“Our external Web site focuses now on the great work of NPS faculty and students and our world-class research. Keeping the Web site current and relevant will now be easier and faster and that is important as NPS moves to take its place among the truly great research institutions.”**

**O**n Wednesday, March 18, 2009, NPS launched its new external Web site, [www.nps.edu](http://www.nps.edu), marking a milestone in reaching one of the School's strategic goals – streamlining business processes and practices – and in meeting one of ITACS' strategic goals: updating the Web site and implementing the Web Content Management system.

“The Web project is a very exciting development for us, because it has been something that was planned for some time and only recently did we get resources to accelerate its progress,” said Dr. Christine Cermak, Vice President of Information Resources and Chief Information Officer of NPS.

With currency of information a primary issue, a better system to process Web content can now be utilized. Much easier through which to navigate and to keep updated, postings can be automatically added or removed at a prescribed time and date, and delays in posting through a webmaster will be eliminated. “NPS installed a new Web Content Management system that is designed with automatic workflows, putting control of content in the hands of the end user,” said Terri Brutzman, Deputy Director of ITACS. “This gives direct control of content to the information owner and allows for nearly instant update capability.” Dr. Cermak echoes that sentiment, “I expect to see more current information about NPS displayed in a way that is responsive to the actual users' interests.”



The enormous project of updating and reorganizing the Web site is not only to increase ease of use by content providers, but also to have a Web site in which NPS is presented in a manner that illustrates the many unique aspects of the School. In addition, a great deal of usability testing was conducted to ensure that the available navigation does what it is intended to do, and presents the desired information for which site visitors are hunting. “The new Web site is not only designed to provide information to our students, staff and faculty, but also to further our outreach to other institutions, interested prospective students and the general public,” Cermak stated. “The Web project is important because it permits us to use technology in very effective ways to not only get more current information about the Naval Postgraduate School out to our stakeholders, our constituent groups and the world, but also it is a very powerful tool to potentially transform our business practices. We are

just beginning to explore how we're going to take advantage of this.”

Because external outreach is an important aspect of the new makeup of the site, another aim of the project was to have a specific look and feel that pertains to NPS. “I expect to see the fact that you are visiting a Naval Postgraduate School Web site to be visible and recognizable at every level of the site,” said Dr. Cermak.

Implementation of this initiative involved a campus-wide collaboration. Dr. Fran Horvath, Director of Institutional Planning and Communications at NPS said, “A great many people on campus worked long hours to make this project a reality. Our external Web site focuses now on the great work of NPS faculty and students and our world-class research. Keeping the Web site current and relevant will now be easier and faster and that is important as NPS moves to take its place among the truly great research institutions.”



# NPS Centennial Kick-off

May 22 - 25, 2009  
Schedule of Events

## FRIDAY, MAY 22

### STATE OF THE SCHOOL ADDRESS

KING HALL, 0900 – 1000

*NPS President, Dan Oliver, will provide an overview of the Naval Postgraduate School and its national and global leadership roles.*

### UPDATE ON STUDENT LIFE AT NPS

ME AUDITORIUM, 1300 – 1400

*Find out how student life has evolved over the years. Hear from current students on military life at NPS, dress codes, housing, academics, community involvement and Monterey hot spots.*

### INSTITUTE, SCHOOL AND DEPARTMENT OPEN HOUSES

1300 – 1630

*Faculty, staff and students representing each of the four graduate schools will be available to answer your questions about NPS programs and services. Many of the academic areas will present displays in their campus buildings.*

### CLASS PHOTO OPPORTUNITY

CLOCK AT THE QUAD, 1400 – 1630

*Gather your classmates together and schedule a time for NPS photographers to snap your picture.*

### NPS EXHIBITION OPENING RECEPTION

MONTEREY MARITIME AND HISTORY MUSEUM, 1700 – 1900

*Join us at the opening reception for Hidden History: Untold Stories of the Naval Postgraduate School. Curator and NPS historian, John Sanders, will present slides and videos on the history of the school.*

## SATURDAY, MAY 23

### ALUMNI GOLF 'SHAMBLE'

MONTEREY PINES GOLF CLUB, 0900 – 1200

*Be one of the first to golf the new, improved Monterey Pines Golf Club course, also known as the Old Navy Course. Nine holes are ready for play on this historic course, which has not been reopened to the public. Shotgun start at 0900. Prizes for closest to the pin on the two par 3 holes. A box lunch is included. Carts and rental clubs will not be available.*

### NPS EXHIBITION AND PRESENTATION

MONTEREY MARITIME AND HISTORY MUSEUM, 1300 – 1500

*Exhibition curator and NPS historian, John Sanders, will present slides and videos on NPS history,*

*accompanying Hidden History: Untold Stories of the Naval Postgraduate School.*

### WINE TASTING AND HORS D'OEUVRES

QUARTERDECK, 1800 – 1900

### A TIME TO REMEMBER GALA

MCKNITT BALLROOM, 1800 – 2300

*THE place to be on Saturday night! Dine and dance with fellow alumni and other special guests. Live music by The Marotta Band, "Monterey Peninsula's Ultimate Variety Dance Band." Buy tickets online today!*

## SUNDAY, MAY 24

### COLORS, PRESENTATION OF THE FLAG

HERRMANN HALL, 0800

*Join us as we honor our daily tradition of raising the flag.*

### SERVICE OF REMEMBRANCE

CHRIST THE KING CHAPEL, 0830 – 0930

*In this nondenominational service, we will remember all those who have been a part of the Naval Postgraduate School throughout the years.*

### CONTINENTAL BREAKFAST

EL PRADO ROOM 0830 – 1100

*Enjoy breakfast with alumni and friends from NPS.*

## MONDAY, MAY 25

### CONCERT ON THE LAWN

A COMMUNITY EVENT AT NPS, 1000 – 1530

*NPS opens its gates to the community for concerts, open houses, events for kids, and birthday cake to officially kick-off our yearlong Centennial Celebration.*

### HERRMANN HALL TOURS

QUARTERDECK, EVERY HALF HOUR, 1030 – 1330

### GLASGOW HALL DEDICATION CEREMONY OF NEW WING

GLASGOW HALL, 1030

### KNOX LIBRARY REDEDICATION CEREMONY

DUDLEY KNOX LIBRARY, 1115

### MONTEREY BAY SYMPHONY PERFORMANCE

MAIN LAWN, 1400 – 1530

*Register for activities online at  
[www.nps.edu/100](http://www.nps.edu/100).*



# NAVAL POSTGRADUATE SCHOOL



## OFFICE OF INSTITUTIONAL ADVANCEMENT

### MISSION

*NPS provides high-quality, relevant and unique advanced education and research programs that increase the combat effectiveness of the Naval Services, other Armed Forces of the U.S. and our partners, to enhance our national security.*

[WWW.NPS.EDU](http://WWW.NPS.EDU)