

# IN REVIEW

July 2008

NAVAL POSTGRADUATE SCHOOL



**Inauguration**  
*President Oliver  
&  
Provost Ferrari*



# PRESIDENT'S MESSAGE



Colleagues and Friends of NPS:

Recently the Naval Postgraduate School Foundation hosted a trip to Washington, D. C. I was pleased to join the group of nearly 60 members of the NPS Foundation President's Circle who participated in the event. The program included extended meetings with the Chairman of the Joint Chiefs of Staff, the Chief of Naval Operations, the Under Secretary for Science and Technology at the Department of Homeland Security, the Director of National Intelligence, the Deputy Secretary of Defense, the Director of National Security, Pro-

fessional Development Integration Office, Congressman Sam Farr, Congressman Ike Skelton, and His Excellency, Ambassador Prince Zeid of Jordan.

As you can imagine, the three-day program was stimulating and provided an extraordinary opportunity to hear directly from Pentagon leadership about the issues of the day. The Pentagon speakers repeatedly expressed their enthusiastic support for the Naval Postgraduate School, and the centrality of the school's mission in the Long War. Given scheduling demands of the individuals in these leadership positions, it was particularly gratifying to see the time each of the speakers gave to NPS. Almost all of the speakers pledged to visit NPS in the near future, and to continue their engagement with our mission.

It is crucial for our nation's leaders to see the NPS mission directly aligned with national priorities. This means we must continue our visits to Washington, D.C., and continue inviting Department of Defense and federal agency leaders to visit the Naval Postgraduate School. In addition, we must expand our communications reach. We will continue and expand the distribution of our quarterly magazine, *In Review*, in addition to developing new publications and media for keeping NPS at the forefront of leadership thinking and priorities. Finally, we need to assist our Foundation's efforts to expand the network of NPS supporters. Similar to computer network algorithms, arithmetically increasing the number of people in a network, exponentially increases the value of the network itself.

Members of the Naval Postgraduate School Foundation's President's Circle are all individuals who have contributed financially at significant levels to the Foundation. The group that went to Washington, D.C. included longstanding President's Circle members as well as very recent donors. We are fortunate to have these individuals as our friends and advocates, and to have the NPS Foundation as the rallying organization for our combined efforts to ensure a robust and energetic NPS future.

Thanks to all who made this such a successful event, and for everyone who has an interest in joining the NPS Foundation, please contact retired Rear Adm. Merrill Ruck at the NPS Foundation office, 831-656-2427.

# IN REVIEW

## NAVAL POSTGRADUATE SCHOOL

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ON THE COVER: Naval Postgraduate School President Daniel T. Oliver and Provost Leonard A. Ferrari are the first inaugurated civilian leadership team at NPS.

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

**7** **New GSEAS Dean**  
*Dr. Sivaguru S. Sritharan  
 is appointed as Dean*

**11** **Wargames!**  
*Explores Use of  
 Counter-IED Systems*



**12** **Inauguration**  
*For the first time at NPS, in nearly 100  
 years, civilian president, provost inaugurated*

**19** **COASTS Wraps up Experiments**  
*Successful two-week field experiment with  
 Royal Thai Armed Forces held in Thailand*



**Also in this Issue:**

- 4....Aura of Optimism Tangible at 49th Board of Advisors Meeting  
 ....Senator Hart Speaks at NPS  
 ....Quarterly Foundation Event
- 5....CCMR Conducts IDT Seminar in Montenegro  
 ....NPS Super Computing Stays On Top  
 ....NPS Receives President's Partnership Award from Hartnell College
- 6....Bahrain Air Force Officer Receives Ph.D. in Special Ceremony  
 ....FAO Conference  
 ....Astronaut Alumni Receives DA Award
- 8....Thesis Wins Operations Research Tisdale Prize  
 ....New MORS Junior Analyst Award Named for Professor Wayne Hughes
- 9....NPS Students Build Battle Autonomous Robots
- 10...SEED Center Hosts International Data Farming Workshop  
 ....Navy Homeports HR Center of Excellence at NPS
- 11...NPS Celebrates International Day 2008

- 14....NPS Celebrates Memorial Day
- 15....Proliferation Seminar Brings International Perspectives  
 ....Systems Engineering Analysis Capstone
- 16....APCSS Shares Security, Disaster Relief Tools  
 ....NPS Hosts Acquisition Symposium 08
- 17....NPS Hones Cyber Defense Skills During CDX 2  
 ....NPS Hosts Phoenix Challenge Conference
- 18....CCMR Executive Program Consolidates Developing Democracies  
 ....Romanian Prince Visits NPS
- 19....NPS Students Exercise UN Peacekeeping in Bangladesh
- 20....SECNAV Attends Spring 2008 Graduation
- 21....Burst of Firsts at Spring Quarter 2008 Awards Ceremony
- 22....History of the Del Monte Revealed  
 ....NPS Students, Faculty Commemorate Great White Fleet's Centennial Anniversary

# Aura of Optimism Tangible at 49th Board of Advisors Meeting

By Barbara Honegger

The aura of optimism from the inauguration and academic investiture of President Daniel Oliver and Executive Vice President and Provost Leonard Ferrari was tangible at the 49th meeting of the Naval Postgraduate School Board of Advisors, held at NPS Apr. 22-23.

Three Board members attending the meeting had also been principals in the previous day's ceremony: Dr. Graham Spanier, president of Pennsylvania State University, gave an address and officiated the investiture of the provost. Vice Admiral Mark E. Ferguson, III, Chief of Naval Personnel and Deputy Chief of Naval Operations for Manpower, Personnel, Training and Education (N1), spoke and presented the Legion of Merit to NPS Chief of Staff Air Force Col. David Smarsh. And Ferguson and Board chairman, the Hon. Kim Wincup, co-officiated the investiture of President Oliver, who previously served in the same positions now held by Ferguson. Ferguson is an NPS alumnus in computer science, and Wincup previously taught in the National Security Affairs Department, in 1994.

The Board schedule included updates from the president and provost,

a strategic plan overview and discussion, lunch with NPS students, an NPS Foundation brief and visits to the four Schools the first day. The second day included a campus tour and briefs on student enrollment and planning for the upcoming NPS centennial. A highlight of both days was lively, in-depth discussion by Board members giving feedback to NPS leadership. The entire leadership team, including the president, provost and deans, actively took part in the sessions.

"I've seen real progress over the four and a half years I've been on the Board of Advisors," said Spanier. "With the inauguration of President Oliver and Provost Ferrari, we now have new and stable academic leadership, and you can see a vision coming together that puts the highest priority on faculty and students. Research funding is strong, we've had excellent accreditation reviews, and there's an increasing effort to appropriately connect with other institutions of higher education. I sense a very positive spirit around the new president and around the 100th anniversary celebration next year. There are a lot of things to be proud of at NPS." 

## Senator Hart Speaks at NPS

By MC2 (SW) Corey Truax

Former Colorado Sen. Gary Hart spoke to the NPS student body, faculty and staff about terrorism and national security issues during a Secretary of the Navy Guest Lecture Series (SGL) on May 27.

Since retiring as a member of the United States senate in 1987, Hart has been extensively involved in international law and business as a strategic advisor to major U.S. corporations and as a teacher, author and lecturer. He has authored and co-authored four novels and a number of books regarding national security.

Beginning his speech Hart said, "I am deeply honored to be here, particularly the day after Memorial Day to add my word of thanks to all of you wearing uniform and in service to our country for what you do on a daily basis."

Focusing his speech on a book he recently authored titled, *Under the Eagles Wing: A National Security Strategy of the United States for 2009*, Hart spoke about foreign policy and security issues facing the United States currently and in the future.

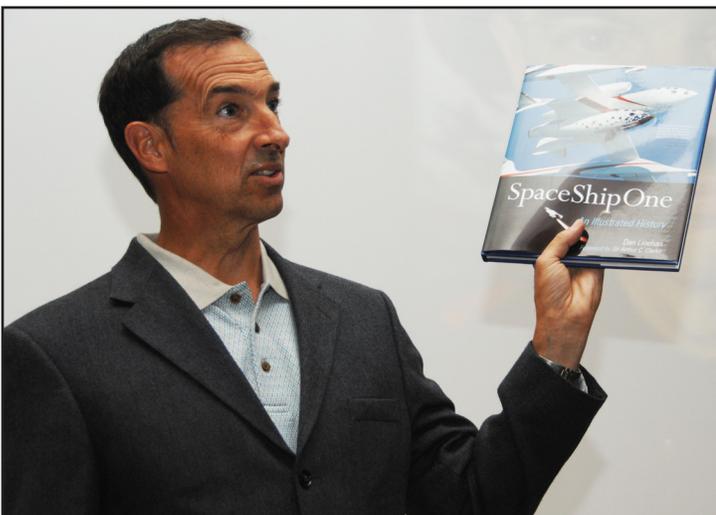
Stressing the importance of using U.S. Constitutional ideals as a guide to help the world face issues like dependency on oil, globalization, climate change and terrorism, Hart challenged students to, "...go up to 30,000 feet and ask yourself some strategic questions about issues facing the world of the future."

Prior to the SGL, Hart toured the NPS campus and met with NPS President Dan Oliver and Provost and Executive Vice President Leonard Ferrari.

## Quarterly Foundation Event

By MC2 (SW) Corey Truax

Brian Binnie, the 434th human to have left the planet to go into space, visited the Naval Postgraduate School (NPS) to speak to members of the NPS Foundation about his experiences as a Navy pilot and in the civilian world May 30th in the Mechanical Engineering Auditorium.



Growing up in Scotland, it was Binnie's mother who first turned him on to space, ever since then he had always looked to the stars.

As the pilot of the legendary SpaceShipOne, Binnie launched himself 367,442 feet into space, setting a new altitude record for the craft and also proving that private industry can build and fly a vehicle capable of sending paying passengers into space. This trip also secured him the Ansari X Prize, an incentive prize for spaceflight innovation, which was \$10 million. Binnie joked during his speech that people always ask him what he did with the money and to that he would reply, "I won \$10 million and SpaceShipOne cost \$20 million to build, you do the math."

With this being said Binnie then joked that he would shamelessly take this opportunity to share with the NPS Foundation crowd the book, *SpaceShipOne: An Illustrated History*, which recounted the adventures he and his aircraft had in winning the Ansari X Prize.

The NPS Foundation hosted this event and hosts many others to reinforce NPS' initiatives. The Foundation uses private contributions to promote excellence, in academic accomplishment and research; to enhance the academic and support facilities of the School; to promote the recruitment, retention and recognition of high-quality faculty; and to undertake other projects as deemed appropriate by the NPS President to enhance the operational effectiveness. 

## CCMR Conducts IDT Seminar in Montenegro

By Lt. Cmdr. Rob Woods

Within the North Atlantic Treaty Organization (NATO), attention has focused in recent months on the Alliance's expansion in membership and roles. As the Alliance has grown, an equally powerful process is underway in defense transformation. NATO's member countries and their counterparts in the Partnership for Peace are changing dramatically in their missions and capabilities. As the only U.S. designated Partnership for Peace Training and Education Center, the Naval Postgraduate School is contributing to the management of that change through the Center for Civil-Military Relations (CCMR).

CCMR conducted an International Defense Transformation (IDT) Seminar in Podgorica, Montenegro, May 12-15. Sponsored by NATO Headquarters, Supreme Allied Commander Transformation and at the request of Joint Forces Command Headquarters Naples, the seminar introduced Partners to transformational principles for maintaining competitive advantage over adversaries in the 21st century. CCMR led 19 participants from five nations in a review of transformation concepts, trends and implications.

Individual lectures and seminars were presented by multiple subject matter experts from various NPS departments, specifically, Scott Jasper and Scott Moreland from CCMR, Tom Bruneau and Dan Moran from National Security Affairs, and Sue Higgins from Information Sciences.

Participants in the IDT Seminar included military officers and defense ministry officials from the host country Republic of Montenegro. The Deputy Minister of Defense for Montenegro kicked off the program with national press coverage. Other nations represented were the Republic of Ukraine, the Republic of Bosnia and Herzegovina, the Former Yugoslav Republic of Macedonia and the Republic of Serbia. 

## NPS Super Computing Stays On Top

By MC2 (SW) Corey Truax

Naval Postgraduate School computer engineering students and staff met with super computing guru, Jon M. Huppenthal, CEO of SRC Computing, to discuss possible opportunities to improve NPS' current super computing power in Spanagel Hall April 17.

Super computers are used for calculation-intensive tasks such as problems involving quantum mechanical physics, weather forecasting, climate research, molecular modeling, physical simulations and cryptanalysis, to name a few. Major universities, military agencies and scientific research laboratories are the heavy users of supercomputers.

"An issue NPS frequently faces is why the school purchases the latest and fastest super computers," said Associate Dean of Research Douglas Fouts, who is also a Professor of Electrical and Computer Engineering.

"The answer to that question is because of the nature of the research done at NPS by the faculty and the students," Fouts explained. "The research done in the science and engineering departments at NPS is at the cutting edge of technology and has been for many decades. Thus, decade after decade after decade, NPS faculty and students have had a critical requirement for high-performance computing."



John M. Huppenthal, CEO of SRC Computing, (right) and Naval Postgraduate School Associate Dean of Research Douglas Fouts

## NPS Receives President's Partnership Award from Hartnell College

By MC2 Kellie Arakawa

The Naval Postgraduate School was presented with the President's Partnership of Excellence Award at the 2008 Hartnell College Foundation Party in the Library for the development of a summer internship program that provides Hartnell students a chance to work on graduate-level research projects.

"Giving this kind of high level exposure to sophisticated, rigorous study through mentoring relationships is turning Hartnell's math and science students into serious high-achieving, engineers, mathematicians, computer scientists and rocket scientists," said Phoebe Helm, President of Hartnell College. "Largely because of your [NPS] support, Hartnell is becoming known as a magnet college for math and sciences."

Joe Welch, an NPS Lecturer for Information Sciences and a Computer Science Instructor at Hartnell College, first began meeting with students from neighboring Salinas, Calif., to encourage greater awareness of

educational paths involved with math and science. In 2006, he and NPS Prof. Craig Martell partnered with Hartnell Instructors Pimol Moth and Shannon McCann to provide four students with summer internships at the NPS robotics lab. The following summer, NPS Prof. Chris Brophy also joined the partnership to provide Hartnell students an opportunity to intern at the school's rocket lab.

Building upon the strong relationships Welch and Martell have developed with Hartnell, the NPS Cebrowski Institute for Innovation and Information Superiority recently began formalizing the internship process to help provide students greater access to faculty across the entire campus. Sue Higgins, Deputy Director for the Cebrowski Institute, and Programs Manager Alison Kerr organized a pilot program where more than a dozen Hartnell students and NPS faculty met to discuss possible internship opportunities and shared academic interests.

Angelica Meza, a former Hartnell student who is now an aerospace engineering major at California State Polytechnic University, Pomona, spoke about her experience as an intern at NPS. "The opportunity the Naval Postgraduate School has given me has been one of the most fascinating and amazing experiences I've ever had, and it's opened so many doors for me," she said.

In an acceptance note for the Partnership Award, Martell discussed his experiences with some of Hartnell's students. "Working with the wonderful Hartnell interns is, to put it simply, a joy," he wrote. "Over the past three years, it has been our privilege to work with students whom I consider to be among the very best in the nation. They work hard, are goal-driven, have a passion for learning, and have math and engineering skills that match those of interns we have had from places like Boston University, MIT and Harvard." 

# Bahrain Air Force Officer Receives Ph.D. in Special Ceremony

By Barbara Honegger

Colleagues and family members ringed the room in rapt attention as Bahraini Air Force Lt. Col. Waleed Al-Mannai received his doctoral degree from NPS President Daniel Oliver and Provost and Executive Vice President Leonard Ferrari in a special ceremony in the President's Conference Room, May 22.

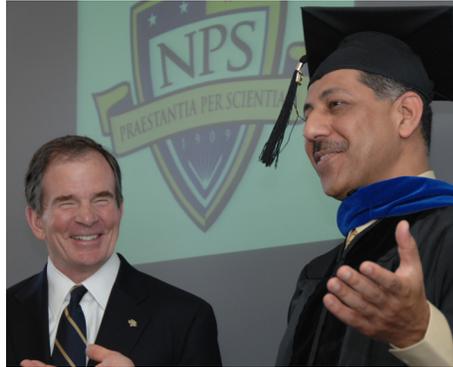
Al-Mannai's committee chair Prof. Rudy Darken and dissertation adviser Prof. Ted Lewis, both in academic robes, also participated in the honors.

Al-Mannai's dissertation was on "Development of a Decision Support Tool to Inform Resource Allocation for Critical Infrastructure Protection in Homeland Security."

"The reputation of the Naval Postgraduate School among our leaders is that it is a very strong and great school, because of the high quality and expertise of the instructors and because you learn a subject from both the civilian and military sides," said Al-Mannai. "If

someone graduates from NPS, they look at him very differently, because this is the best military research school."

"Lt. Col. Al-Mannai has developed a critical new infrastructure protection tool for homeland security policy makers that builds on the pioneering work of NPS Professor Ted Lewis," said Darken. 



(left) NPS President Oliver and Lt. Col. Al-Mannai

## FAO Conference

By Barbara Honegger

Foreign Area Officers (FAOs) from all four military services converged on the Naval Postgraduate School Apr. 10-11 for the second annual Inter-Service Foreign Area Officer (ISFAO) Conference.

The conference, whose theme was "Working the Seams: Consistency and Coordination Across Six Areas of Responsibility," was organized and hosted by the Foreign Area Officer Association of Monterey, a student organization of FAO candidates from NPS and the Defense Language Institute Foreign Language Center. It featured interdisciplinary panels of deployed FAOs and academic, military, State Department and non-governmental organization experts addressing the national security issues that transcend national, regional and cultural boundaries.

"This conference is unique in the U.S. military, in that it's entirely student visioned and run, and currently is the only place where this many FAOs come together across the geographic and service divides to address common issues and best practices," said conference coordinator Lt. Cmdr. Jennifer Jones. "It's the only forum for FAO, RAS and PAS officer trainees from all the service branches to meet and network, discuss common challenges, consult with academic and military experts on topics of common interest and concern, and benefit from each others' experiences serving U.S. foreign policy interests around the world."

## Astronaut Alumnus Receives DA Award

By MC2(SW) Corey Truax

The Naval Postgraduate School welcomed home one very well-traveled astronaut and alumnus, retired Army Col. Jeffrey Williams, and bestowed upon him the honor of Distinguished Alumnus during a surprise presentation April 3.

"Everywhere he's gone he's won awards and he's just had a stellar career and we're very happy to have him back here," said NPS President Dan Oliver. "Let me add to your list of awards by saying it is my great pleasure to recognize you as a Distinguished Alumnus. I'm going to present this certificate to you based on your significant accomplishments as a U.S. Army Aviator, an NPS Astronaut on the space shuttle and international space station, a leader at NASA, and for your continued support of education."

Williams graciously accepted the honor, returning the sentiment with a gift of his own.

"I think it's important when you have the opportunity to do something like this to recognize the roots of a person and of course my roots include this institution and having the unique opportunity to go to space and spend six months in that tin can, as me and my wife like to say. I wanted to bring a part of me and part of that experience back here to the institution and of course that is what we are going to do today

but I also wanted to leave a memento in appreciation for what the Naval Postgraduate School has given me the opportunity to do," said Williams.

With that being said, Williams handed Oliver a flag bordered by various pictures of space travel. "This flag flew on the Soyuz with me and spent 183 days in space with me," Williams explained. "There are also pictures from the six months I spent on the International Space Station as well."

After the exchange, Williams spoke to NPS students, faculty and staff about the duration, sights, feelings and challenges he encountered while working on the International Space Station.

NPS has a rich history of producing astronauts, having produced 33 already; more than any other institution in the United States.

"It's good to come back to this institution," Williams said. "This is one of those institutions you look back on and say, 'What opened the door for an opportunity to work at NASA and achieve space flight?' - well this school is at the top of the list." 



Retired Army Col. Jeffrey Williams, an astronaut and NPS Alumnus, speaks to students, faculty and staff

# NPS Names *New* GSEAS Dean

By Barbara Honegger

Following a nationwide search, Prof. Sivaguru S. Sritharan, former head of the Space and Naval Warfare Systems Center, has been named the new dean of the Naval Postgraduate School Graduate School of Engineering and Applied Sciences (GSEAS). Prior to accepting the appointment, Sritharan was professor and previously chair of the Department of Mathematics at the University of Wyoming.

NPS Provost and Executive Vice President Leonard Ferrari announced the appointment, which also includes the position of Professor of Mathematics, on May 13.

"With the leadership of Dr. Sritharan, NPS can look forward to many more years of excellence in the Graduate School of Engineering and Applied Sciences," Ferrari said in the announcement. "I hope you will join me in welcoming him to our community."

"It is my great honor and privilege to be selected to serve as the Dean of the Graduate School of Engineering and Applied Sciences at NPS and to represent its world-class faculty members," Sritharan said in a phone interview following the announcement. "My primary goal is to build the individual departments within GSEAS to achieve rankings comparable to those of top-tier universities and to build NPS to become the world's very best university for research and education in naval and defense science and engineering."

"There were numerous applications for the deanship," said Search Committee Chair Prof. Terry McNelley. "The committee reviewed them all and forwarded a short list of recommendations to the Provost. Though it was a difficult decision, as all [short list] applicants were strong, at the conclusion of the interviewing process we were confident Dr. Sritharan was our prime candidate. He represented, in the committee's opinion, an outstanding balance of academic expertise, prior government experience at SPAWAR and administrative experience as a department chairman, during which he oversaw a major fundraising effort and an extensive revitalization and strengthening of the department's doctoral program. In addition, we found him to be extremely personable and collegial, and all of his colleagues agreed he is both

hard-working and easy to work with. I am personally very pleased that Dr. Sritharan emerged as the leading candidate and that he has accepted NPS' offer of this important position."

Sritharan received his honors Bachelor of Science degree in mechanical engineering with first position in all examinations from the University of Sri Lanka, in 1977; an M.S. degree in aeronautics and astronautics from University of Washington, in 1979; and M.S. and doctoral degrees in Applied Mathematics from the University of Arizona, in 1982. His dissertation was on the nonlinear aerodynamics of supersonic conical delta wings.

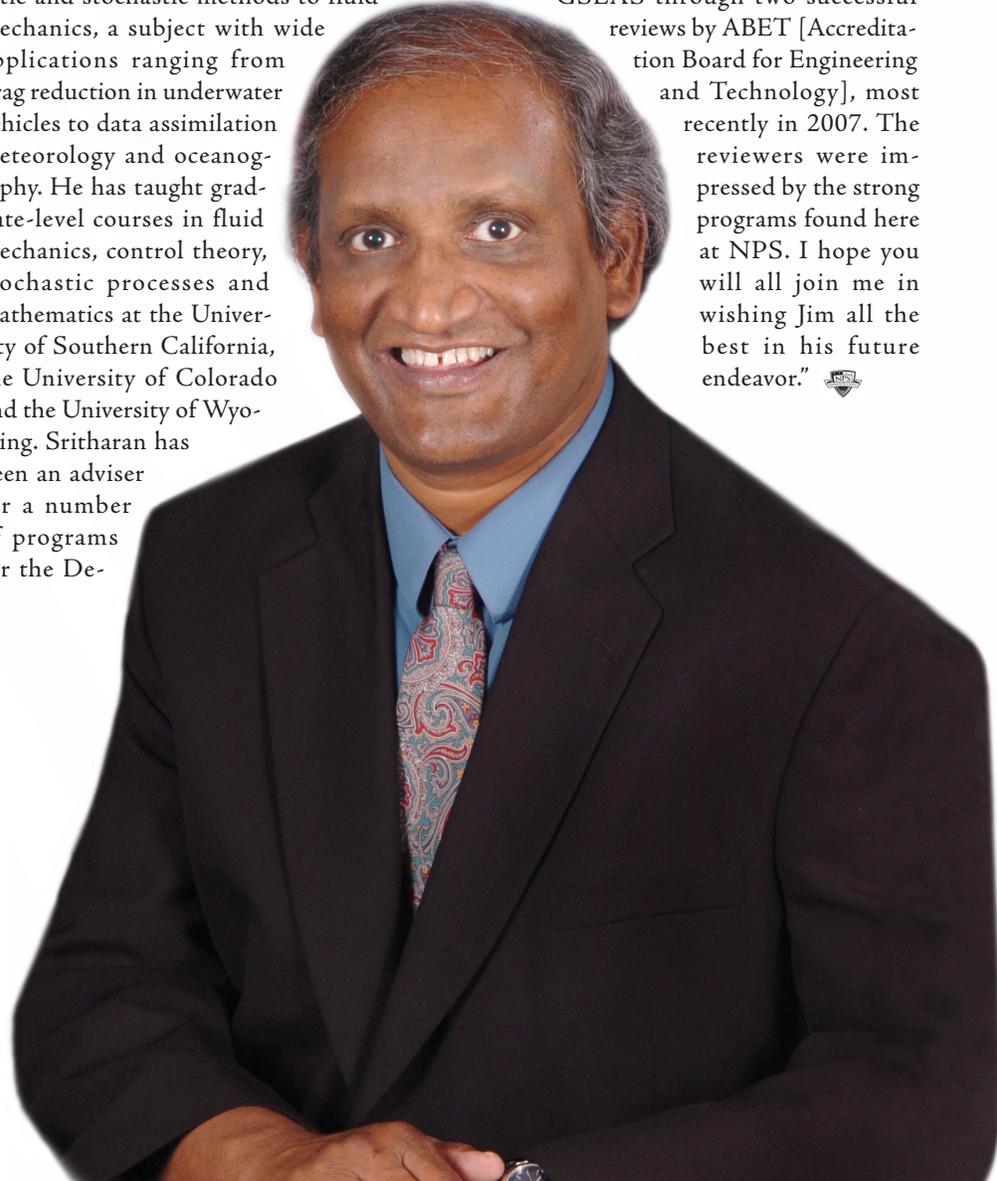
Building on his doctoral research, Sritharan has become internationally known as a major contributor to the systematic development and application of control theoretic and stochastic methods to fluid mechanics, a subject with wide applications ranging from drag reduction in underwater vehicles to data assimilation meteorology and oceanography. He has taught graduate-level courses in fluid mechanics, control theory, stochastic processes and mathematics at the University of Southern California, the University of Colorado and the University of Wyoming. Sritharan has been an adviser for a number of programs for the De-

fense Advanced Research Projects Agency (DARPA), has published more than 80 articles in professional journals and has given close to 200 colloquia at universities and research institutes worldwide.

"I want to thank the search committee for an outstanding job," Ferrari said. "They put in many tireless hours of work to ensure that the best candidate was selected for the position.

"I would like to take this opportunity to thank Jim Kays, the retiring Dean of GSEAS, for his many years of dedicated service to his school and to the university," Ferrari concluded. "Jim has provided the highest level of professionalism and leadership and has set GSEAS solidly on a path to a successful future. As the first dean of the school, Jim guided the formative years of the new organization. He steered

GSEAS through two successful reviews by ABET [Accreditation Board for Engineering and Technology], most recently in 2007. The reviewers were impressed by the strong programs found here at NPS. I hope you will all join me in wishing Jim all the best in his future endeavor." 



# Thesis Wins Operations Research Tisdale Prize

By Barbara Honegger

Naval Postgraduate School student and Surface Warfare Officer Lt. Benjamin "Ben" Abbott has won the prestigious Military Operations Research Society (MORS) Stephen A. Tisdale Graduate Research Award for the March 2008 graduating class.

Abbott's thesis was chosen by a faculty panel following a formal competition in which he and two other finalists briefed their theses at NPS, Mar. 13. The award recognizes high-quality NPS thesis work of immediate or near-term value to U.S. or allied military operations, readiness or training. A key criteria is that the anticipated benefits from the research are deemed by the selection committee to be "very great."

In his winning research on "Littoral Combat Ship (LCS) Mission Packages: Determining the Best Mix," Abbott used computer simulation, data farming and other analytic techniques to determine the best squadron size

and composition for the Navy's planned fleet of "green water" ships to counter the complex threats faced in coastal areas.

"The key results are that a squadron size of six to 10 provides the best results in terms of both friendly and enemy casualties and, as a compositional rule of thumb, five ships configured for the primary threat and two configured for the secondary threat holds for each warfare area," Abbott said.

"The LCS is at the cutting edge of Navy transformation, and Ben's research was deemed so important that he was asked to brief his results to the staffs of the Commanders of Third Fleet, Naval Surface Forces, the Naval Warfare Development College, the Naval Mine and Anti-Submarine Warfare Command, the LCS Class Squadron, and the Navy's program executive officer for LCS modules Capt. Michael Good, his thesis co-advisor," said Dean of the Graduate School of



(from left) Dean of the GSOIS Peter Purdue, Lt. Benjamin Abbott and Prof. Tom Lucas

Operational and Information Sciences Dr. Peter Purdue. "Good saw the research as cutting edge and supported it from the beginning, and spread the word at the top levels in Washington."

"What's important about the MORS Tisdale Award is that it's not just for outstanding applied research, but for the impact it's making. And at the time of the judging, Ben's thesis was already making a real impact, because of iterations back and forth with

Capt. Good, the LCS commander who's actually going to deploy the new ships," said Abbott's thesis co-adviser, NPS alumnus and OR Department Senior Lecturer retired Navy Capt. Jeffrey Kline.

Abbott reported May 1 to Surface Warfare Officer School in Newport, R.I.

"My message to fellow SWOs – and I make calls to junior officers saying this – is to make sure you come to NPS for your first shore duty," said Abbott. 

## New MORS Junior Analyst Award Named for Professor Wayne Hughes

By Barbara Honegger

The Military Operations Research Society (MORS) has named its new Junior Analyst Award in honor of Naval Postgraduate School Professor of Operations Research and former



Wayne Hughes

Dean of the Graduate School of Operational and Information Sciences Wayne Hughes.

The award is the first given by the professional society to an outstanding individual new to the profession. Candidates must be 40 years of age or less as of June 2, 2008, have been in the field for less than ten years, be nominated by a mentor who need not be a MORS member, and already be making an impact in the field.

"The Prize Committee named the new MORS Junior Analyst Award after Wayne Hughes, because he embodies everything we want our junior analysts to be," said MORS President retired Navy Lt. Cmdr. Jack Keane, an NPS alumnus (Operations Research, 1993). "When we looked at all the candidates to name the new award after – and they all were strong – Wayne stood out. He has been a mentor to 90 percent of MORS' board of directors, a past president, a fellow and a winner of MORS' highest honor, the Vance R. Wanner Award for significant contributions to national security. Most importantly, he's constantly trying to instill enthusiasm in all military analysts, up and down the chain of command."

"I'm especially pleased to be associated with an award that honors superb work by up and

coming junior analysts, because I've always held that part of every professional's duty is to find someone better than he is and nourish their career – to ensure that the pupil goes on to exceed the teacher," said Hughes. "I will express this sentiment, in which I believe deeply and which has guided my career, when presenting the first award at the MORS Symposium in June."

"There can be no better name for this award," said Operations Research Senior Lecturer, retired Navy Capt. Jeff Kline. "Generations of military and naval analysts have been taught and motivated by Wayne Hughes to apply quantitative methods to national- and operational-level decision making. His name is recognized for excellence from the Chairman of the Joint Chiefs of Staff to the most recent Naval Postgraduate School graduate."

"It's a great honor that the MORS Junior Analyst Award has been named after Wayne Hughes because of his lifetime dedication to the education and mentoring of junior officers," said NPS OR Department Chair Prof. Jim Eagle. "It's also an honor for the OR Department and the Naval Postgraduate School, as this is the third award through which MORS has recently chosen to honor NPS."

# NPS Students Build

By MC2 Kellie Arakawa

# Battle

# Autonomous Robots

Naval Postgraduate School students in the Systems Engineering (SE) Systems Suitability course (SE 3302) spent several weeks engaging in coursework that gave them an opportunity to step out of the classroom and into a lab to build and test mission-tasked autonomous NXT ARM7-based Mindstorm robots.

Student teams were assigned to build and program either “Tri-bot,” a small robot with claws, or “Spike,” a scorpion-like robot with a movable tail. During the second phase of the project, they tested the robots by placing them in a makeshift ring at the Electrical and Computer Engineering (ECE) Department’s Controls and Robotics Laboratory, where they battled for possession of an improvised explosive device, represented by a small, blue ball.

Tri-bot’s mission was to retrieve the ball and retreat to the outskirts of the ring without being attacked, while Spike’s task was to prevent Tri-bot from successfully recovering the ball by striking it with its tail.

“The basic idea is to have SE students do what we call design synthesis, and design a system, measure its reliability, maintainability and availability (RMA), and then task the robot to do a very simple task,” said Peter Ateshian, Visiting Instructor for the NPS ECE Department.

For this course, we wanted to introduce some new technology, a new approach that includes design rather than just analysis, Ateshian said. “Usually with RMA, people are just analyzing and recommending systems. In this case, students actually have to design the system and measure the RMA and then task the



*Student Lt. Daniel Tyler (far right) celebrates the victory of his team’s robot, “Spike,” as it successfully attacks a fellow classmate’s robot, “Tri-bot,” at the Electrical and Computer Engineering Department’s Controls and Robotics Laboratory*

robot with the mission ... it’s a little bit more effort and a little bit more work, but more engaging,” he explained.

As part of the SE curriculum within the Graduate School of Engineering and Applied Sciences, SE 3302 presents techniques of system design for operational feasibility, and includes software and human systems suitability. The course was designed by Associate Prof. Cliff Whitcomb with the intention of applying as much real-world involvement into the course structure as possible.

“We believe that learning is most effective when it is placed in the context of a realistic setting where learning objectives are met through a combination of lecture and hands-on experience. We want to not only motivate and challenge the students,

but instead of just learning facts, principles and processes, we want to cultivate insight, perception and reflection so they internalize what systems engineering means in their future roles as leaders,” said Whitcomb.

Ensign Robert Beauchamp, a student who worked on the Spike robot, emphasized the value of the hands-on project and the knowledge he and his teammates gained from the process. “Actually building it is a lot different, because we’re understanding how the different setbacks and failure rates really affect our operation, and we’re actually doing the real timing rather than just looking at a chart. So it gives us a better feel for where the data really comes from,” he said.

Air Force Maj. Anthony Tvryanias, a Human Systems

Integration student who worked on the Tri-bot, found the project relevant to his field of study. “This is essentially what we would do with real systems,” he said. “So it gets you the actual experience of having to collect the data.”

Ateshian noted that in previous courses the Tri-bots were not faced with adversaries that prevented them from performing their tasks, and this year marked the first time the Spike robots were introduced into the project.

“From a systems engineering perspective, there’s been interest in doing these sorts of courses and getting them to be more hands-on, where students actually design a system. This is a very dynamic course. The students set the rules and built the robots to adapt to those rules,” he said. 

# SEED Center Hosts International Data Farming Workshop

By MC2 Kellie Arakawa

From situational awareness effects of unmanned ground vehicles to the use of non-lethal weapons in crowd control, teams from around the world analyzed various outcomes of experimental situations during the Spring 2008 International Data Farming Workshops 16 (IDFW) at the Naval Postgraduate School.

The NPS Simulation Experiments and Efficient Designs (SEED) Center for Data Farming hosted the semi-annual event, which gave 10 teams with members from seven different countries an opportunity to engage in collaborative research. In addition to the U.S., government agencies and researchers from the United Kingdom, Germany, Netherlands, New Zealand, Singapore and Canada participated in the workshop.

Rooted in the Operations Research Department, the SEED Center studies "efficient, smart ways of generating data from simulation experiments so that decision makers are



Participants from the Spring 2008 International Data Farming Workshop gather at Fisherman's Wharf in Monterey

able to gain more insight about systems that they're modeling," said Prof. Susan Sanchez, Co-Director of the SEED Center.

"We call this data farming," she added. "I think everybody's heard of data mining—trying to find nuggets of useful information from a huge set of data. With data farming the idea is to figure out how to actually grow that data. So when we have a simulation environment we have the possibility of de-

terminating where we're going to sample, where we're going to run the simulation and look for interesting results," Sanchez explained.

"In a lot of cases, you can't run real-world experiments, so we run those experiments in a computer world," said Prof. Tom Lucas, Co-Director of the SEED Center. "Our main strength is taking very complex problems, putting them into computer experiments and running them

lots of times to look at the value of certain systems and what tactics, techniques and procedures work well," he added.

Teams for the IDFW were composed of subject matter experts, modeling experts, analysts and statisticians, who in just a single week, abstracted a model, built a design of experiments, ran it thousands of times, analyzed the data and then iterated it several times to see what insights they could find, Lucas said.

Sanchez believes the collaboration with international colleagues was extremely valuable, because it offered wider perspectives of how to approach various problems. Interest from the international community is growing, and professors, researchers and students from Germany, Korea, Brazil, France and Singapore are planning to spend time at the SEED Center. "We're being recognized as a place where a lot of people want to visit, and we're being recognized as a simulation analysis center of excellence," said Lucas. 

## Navy Homeports HR Center of Excellence at NPS *By Barbara Honegger*

NPS' Graduate School of Business and Public Policy has been designated the homeport for the new Navy-wide Human Resources Center of Excellence (HRCOE).



Associate Prof. Ken Doerr, standing, guides students in a supply chain logistics exercise

Under the leadership of HRCOE Director Capt. Maureen Cahill, the Center is responsible for the development and execution of the learning continuum for all active duty and reserve Navy Human Resources (HR) officers.

"Just like when you think of Navy Surface Warfare officer training, you think of Newport, and when you think of Naval Aviation officer training, you think of Pensacola, as of October 2007, when you think of Navy Human Resources training and education, you think of NPS and Monterey, California," said Cahill, an NPS graduate (Manpower Systems Analysis, 1993) and one of seven members of the Navy's Human Resources Community Executive Board.

"Captain Cahill has done a superb job in getting this new Center off the ground," said Capt. Cindy Covell, the Navy's newest HR flag select. "HRCOE promises to pay big dividends for the Navy in the future."

For more information about the Human Resources Center of Excellence and its programs, go to the above web site or contact Cahill at [mmcahill@nps.edu](mailto:mmcahill@nps.edu), (831) 656-3174. 

# WARGAME EXPLORES USE OF COUNTER-IED SYSTEMS

By Esther Goshorn and MC2 (SW) Corey Truax

design must support the analytical objectives of the game, as well as its educational objectives.

Using JCATS, players moved convoys through combat areas, similar to those where service members have and would be facing actual IED attacks. The database for the game used information from system developers and operational subject matter experts. JCATS algorithms determined the level of damage sustained by both personnel and equipment.

The goal for the wargame was to learn how to employ specific pieces of equipment and determine which policies would work

best in the specified scenarios. "We explored the impact of using different types of equipment to defend our forces against IED's," Shaw explained. "We played the game for the equipment to defeat specific devices.

"We were able to draw some useful insights through the wargaming process," Shaw continued. "In our design of the wargame we created a means to collect data." As such, the wargaming team could quantify those insights and make more compelling arguments for their findings. Analysis is what separates a military wargame from a hobby wargame. 

**O**n May 15-16, 2008, in the basement of Glasgow Hall at the Naval Postgraduate School, warfighters gathered to conduct a wargame to explore the possible employment of new countermeasures for improvised explosive devices (IEDs).

Students from the Wargaming Analysis course served in a variety of roles requiring them to develop and implement operational plans to use the new counter-IED (C-IED) equipment. Students played both coalition forces and terrorists. The class used the Joint Conflict and Tactical Simulation (JCATS) as the driver for the wargame. JCATS is an inherently joint simulation that the Joint Forces Command's (JFCOM) Joint Warfighting Center (JWFC) employs in performing its mission as the Joint trainer for United States military forces. JWFC partnered with NPS to send a team of technical operators as the conduit for implementing decisions and actions from the student role players to realization in JCATS. The resulting interaction among the players provided insights to the deployment and combinations of the C-IED systems. As part of the educational goals of the game, the class developed analytical issues, objectives, and measures that would help quantify the understanding that they gained from the wargame.

"Military wargaming is a simulation, but not necessarily a computerized one," said Army Lt. Col. Jerry Shaw, a military instructor in the NPS Operations Research (OR) Department. According to

Shaw, military wargaming can range from a two-person board game to a fully distributed computer exercise, but in its most simplistic form, it is a simulation involving two or more forces in an operational struggle. Its purpose is to gain insights about the operations. In this sense the game

## NPS Celebrates International Day 2008

By MC2(SW) Corey Truax

The air was thick with different accents, languages, foods and laughter as the Naval Postgraduate School international student body welcomed the Monterey, Calif., community to join them in celebrating this year's International Day on May 3.

The celebration gives the schools' vast international student population a chance to bring their nations' customs here to America.

"It's an opportunity to share the international diversity of our student body with the local community," explained Air Force Maj. Kimberly Damalas, NPS student and the U.S. Co-Chair of the International Executive Committee.

NPS has students from approximately 40 different countries and 20 of those countries set up booths highlighting their individual nations. The booths had informational posters, handouts and trinkets and most of them also provided ethnic foods.

One thing that made International Day 2008 special to so many people was that it was held on the NPS campus. This is the first time it has been held at NPS since 9/11 due to security concerns.

"I think it was really great because it was the first time in seven years we have had it back on campus where it belongs," said retired Col. Gary Roser, Assistant Dean of the School of International Graduate Studies (SIGS). "I think the Monterey community also really enjoyed the event."

Children crowded around martial arts mats to watch demonstrations, families cautiously tried new foods together from far away lands, and people of all nationalities joined hands to dance in a way they had never seen, and most importantly opened their minds and hearts to new ideas and ways of life.

"A lot of the local people around Monterey might have attended a Greek festival or Italian festival but I doubt they've seen this many different cultures in one place before," said Damalas. "I think a lot of people are really surprised at the diversity here."

"What stood out in my mind were the smiles, interest, and enthusiasm by both the attendees and the international folks," said Roser. "I think the families of the international community enjoyed this especially."

In addition to being a fun learning experience for all those attending, International Day is also a fund raiser. The International Committee uses this money to pay for local tourist events, low-cost furniture rentals, and social events for the international student community.

"This year's numbers were really good," said Damalas. "It's hard to say why, but I think one reason was because it was on NPS. A lot of people wanted to come on to see the campus. Everyone had fun, we raised money, and no one got hurt so overall it was a good event."

# NPS Inaugurates First Civilian President

By MC2 Kellie Arakawa

For the first time in its nearly 100-year history, the Naval Postgraduate School welcomed the first civilian president and provost team to its executive office in a historic inauguration celebration and ceremony April 20-21.

NPS Pres. Dan Oliver and NPS Provost Leonard Ferrari were recognized by the school and its educational, community and military partners at a black-tie dinner in Herrmann Hall April 20, and then formally conferred to their positions during an all-hands ceremony April 21.

Oliver, a retired vice admiral, was appointed President of NPS by the Secretary of the Navy in April 2007. He was commissioned in 1966 as a naval aviator and led a notable 34-year military career in which he served as the Chief of Naval Personnel and Deputy Chief of Naval Operations for Manpower and Personnel.

Ferrari began his position as Provost in July 2006 and served as the NPS Dean of Research prior to his appointment. He was the Department Head of the Bradley Department of Electrical and Computer Engineering as well as Vice Provost for Special Initiatives and Executive Director of the Institute for Information Technology at Virginia Tech.

NPS celebrated the inauguration of its new civilian leadership with a two-day event, beginning with a black-tie dinner on the eve of the inauguration. The evening's guests included civic leaders, presidents and provosts of higher educational institutions, members of the NPS Board of Advisors (BOA), retired admirals and senior leaders at NPS.

Guest speakers Elisabeth Paté-Cornell, Professor and Chair, Management Science and Engineering at Stanford University, and retired Adm. Henry Mauz Jr., Chairman of the NPS Foundation, lauded the leadership qualities of Oliver and Ferrari, and expressed their confidence in the future of the school.

Ferrari noted the significance of the event and conveyed his high regard for the NPS community. "I'm very proud of my association with this institution and of the caliber of the dedicated faculty, staff and students," he said. "They truly are the best and brightest our country has to offer, and it is my privilege to be selected as their Provost."

At the inauguration ceremony, Graham Spanier, President of Pennsylvania State University, performed Ferrari's investiture and praised him for being "one of the nation's most respected academic leaders."

He described both Ferrari and Oliver as proven leaders who are well-prepared to advance the mission of the school.

NPS Alumnus Vice Adm. Mark E. Ferguson III, Chief of Naval Personnel and Deputy Chief of Naval Operations for Manpower, Personnel, Training and Education, also lauded the school's new leadership during the ceremony.

"It is appropriate that the Navy has selected Dan Oliver to take the helm at this inflection point in its history," he said. "His intellect, operational experience and leadership at the highest ranks of the Navy make him eminently well-qualified to lead the Naval Postgraduate School. But more importantly

it is his vision and understanding of the challenges we will face in the future and his understanding of the evolution of our maritime strategy that make him the right individual at this place and at this time."

In honor of another key NPS leader, Ferguson presented Air Force Col. David Smarsh, NPS Chief of Staff, with a Legion of Merit for his meritorious conduct and outstanding service as the Acting President of NPS from June 2006 to December 2006 and as Chief of Staff from July 2003 to April 2008.

G. Kim Wincup, Chairman of the BOA, confirmed Oliver's appointment as President of NPS while Adm. Patrick Walsh, Vice Chief of Naval Operations, presented him with a badge of office, a symbol of the authority vested in him by the charter and bylaws of NPS.

"To be formally invested as President of NPS is a humbling and deeply felt honor made even more profound after spending this past year here and learning about the breadth and richness of the education, research and service that are the Naval Postgraduate School," said Oliver. "I have had the honor of meeting extraordinary faculty, students and staff here, learning about your contributions and your passion for your work and your university."

In closing, Oliver acknowledged the importance of NPS' role in preventing wars as well as prevailing in them when necessary. He also emphasized the school's commitment to its alumni and their fellow service members who are engaging in global security efforts.

"It is in our duty to them, in our memory of those who have gone before and in anticipation of those who will follow, that we must commit our collective ardent endeavors to make this the wonderful university the best that it can be," Oliver said. "After all, that is what our motto, 'Excellence Through Knowledge,' expects of us."



# ent, Provost Team



# NPS Celebrates Memorial Day by *'Honoring Heroes Together'*

*By MC2 Kellie Arakawa*

In celebration of Memorial Day, the Naval Postgraduate School opened its gates to the local community for the annual Concert on the Lawn, an all-day event that featured song and dance performances, children's activities, tours and patriotic music.

This year's theme, "Honoring Heroes Together," reflected the historic union of two local symphonies in remembrance of military members and their past and present service to the nation. Carl Christensen, conductor for the Monterey Bay Symphony and Max Bragado-Darman, conductor for the Monterey Symphony, led musicians from both symphonies in a diverse program of music that ranged from "The Stars and Stripes Forever" to "Pirates of the Caribbean."

Prior to the concert, Herrmann Hall was a buzz of activity, with historical tours of the Hotel Del Monte and Arizona Garden, booths and displays on the Quarterdeck, and dance performances in the Barbara McNitt Ballroom.

On the East Lawn, children were entertained with bouncy houses, face painting, bubble blowing and balloon tosses, while several non-profit organizations and NPS academic departments provided information booths for adults.

Also, for the first time, guests were given the opportunity to tape 20-second Memorial Day messages to the troops, which were sent to the Pentagon Channel for airing.

During the concert's opening ceremony, NPS President Dan Oliver addressed the sea of guests with a message of remembrance.

"As you can see from some of these banners around campus, the Naval Postgraduate School is about to celebrate its centennial. Like the military itself, the Naval Postgraduate School has built its foundation on a tradition of faithful and honorable service," he said.

"Today we join with our nation in remembering the more than one million Americans who have died to preserve our freedoms, the

more than 150,000 citizens who were prisoners of war and all of those who were declared missing in action. For all who have answered the great call to serve our country and who have worn the uniform of the United States, we gather to honor their sacrifice and to recognize the price that they and their loved ones have paid for our freedom."

Oliver then led the crowd in a moment of silence to remember "those who have fallen through their faithful and honorable service to our country."

Following the national anthem, Christensen opened the program by leading the symphony in the Armed Forces Salute, a medley that features songs from each branch of the military.

As the familiar tune of each service song filled the air, past, present and allied service members proudly took to their feet in honor of their respective branches and received the applause of both an enthusiastic and grateful audience. 



*(left) Conductors Max Bragado-Darman and Carl Christensen*

## Proliferation Seminar Brings International Perspectives

of the threats we must address and maximize our tools to address these threats.”

Russell believes that hosting the seminar at NPS helps raise the profile of the school and highlights the various programs within the National Security Affairs Department. “We have this world-class faculty and a great research program, so it’s a way to emphasize our strengths to the government system and to our sponsors,” he explained.

“The issue of nuclear, chemical and biological proliferation is of great interest to the Navy and the entire defense department, and we in the DoD community play a vitally important role in implementing our national strategy to combat the proliferation of WMD,” continued Russell. “This is just an effort on our part at NPS, as a center for research and learning in the defense department educational system, to help spread this knowledge and thinking throughout our institutions to help them do their jobs better.” 

By MC2 Kellie Arakawa

To provide a global assessment of the tools and policies aimed at stopping the spread of weapons of mass destruction (WMD), the Naval Postgraduate School Center for Contemporary Conflict partnered with academic institutions from around the world to host the 2008 Monterey Proliferation Seminar.

Sponsored by the Defense Threat Reduction Agency’s Advanced Systems and Concepts Office, the annual seminar united schools, institutes and government officials in a three-day discussion that highlighted perspectives from Europe, South Asia and the Middle East, and included panel discussions on international regimes and threats from non-state actors.

“Over the last six or seven years, the United States has been at the forefront of attempts to supplement existing export control and international regimes that are meant to stop the spread of nuclear, chemical and biological weapons,” said NPS Prof. James Russell, the seminar’s principal investigator. “The purpose of this conference is to look at all of these things in total, and assess where we’re doing well, where we’re doing not so well and how we can improve the existing system.”

The seminar featured a keynote speech by the Honorable Patricia McNERney, the Department of State Principal Deputy Assistant Secretary for International Security and Nonproliferation, who spoke about U.S. non- and counter-proliferation policies. She outlined several key pillars to the nation’s approach and discussed many of the tools and programs that have been put in place to address some of the challenges that have been faced.

McNERney also spoke about the importance of international collaboration in combating security threats. “Innovation alone will not win this fight,” she said. “We must strengthen our partnerships, old and new, and ensure that we share a common vision

## Systems Engineering Analysis Capstone

By MC2 (SW) Corey Truax

Naval Postgraduate School Systems Engineering Analysis (SEA) students worked alongside Singaporean, Taiwanese and Israeli students from the Temasek Defense Systems Institute (TDSI), on a Capstone Integrated Project titled, *Maritime Interdiction in Logistically Barren Environments*, which was presented on June 5 in Glasgow Hall.

Maritime Interdiction Operations or MIO is the practice of boarding vessels to search for illicit cargoes. There are many factors that have to be taken into consideration when conducting such a mission; this is what the Capstone Project set out to demonstrate.

The idea for the project was taken from the halls of the Pentagon when Senior Lecturer Jeff Kline of the Operations Research Department was there trying to find out topics of interest to the Navy. MIO was high up on that list.

Once the project is assigned, students are challenged to work in an iterative, largely self-defined environment that challenges their abilities to start from broad concepts, understand capability needs and formulate design approaches using multi-disciplinary teams, according to the NPS SEA webpage.

Leading the project and illustrating the danger of MIO missions, SEA Capstone Project Team Lead, Lt. Randal Fuller said, “MIO is a dangerous way for a sailor to get killed very quickly. I felt that I could do some good here by trying to figure out a way that maybe we could do this a little more effectively and a little more safely.”

Once the project was decided on, the group immediately started working with the Surface Warfare Directorate to ensure the information they accrued was information that was vital to the Navy, according to Fuller.

With no real “handbook” on MIO existing Fuller and his classmates broke down the problem into different criteria, including operations management, logistics, maneuvering, boarding, search, information superiority, and modeling and simulation.

With the tasking statement to, “Design a system of systems to employ a regional Maritime Interdiction operation in a logistically barren area,” the group began the arduous task of collecting huge amounts of information and putting it all together.

“I really couldn’t tell you what the biggest problem was out of so many to choose from. However the biggest part of the solution was to figure out how to get everyone into mutually understood ‘swim-lanes’ that were appropriately complementary, but non-overlapping,” explained Fuller.

After many days and nights spent pouring through different scenarios and possibilities, the students concluded their project. The result was the final presentation as well as a 400 page report that went into significantly more detail.

“I’m hopeful that some of our ideas will show up in the fleet in a few years from now,” said Fuller.

Lt. Bryan Koehler speaks to Laurence L. Parme about the SEA Capstone Integrated Project



# APCSS Shares Security, Disaster Relief Tools with NPS

By MC2 Kellie Arakawa

Amidst the aftermath of natural disasters in Burma and China, leaders from the Asia-Pacific Center for Security Studies (APCSS) met with faculty, staff and students from the Naval Postgraduate School's security and stabilization programs to discuss new online communication portals for disaster preparedness, security and response.

APCSS, a Department of Defense (DoD) regional study, conference and research center, provides an executive education for senior military leaders and government decision-makers. Established in 1995, the center supports the U.S. Pacific Command (PACOM) with a mission to help educate and develop security leaders to advance Asia-Pacific security.

With the NPS Hastily Formed Networks Center as its host, APCSS spent three days sharing and discussing new technologies with the Cebrowski Institute for Innovation and Information Superiority, Common Operational Research Environment Program and Lab, Center for Stabilization and Reconstruction Studies, as well as students and faculty from the National Security Affairs and Defense Analysis programs.

Retired Army Col. Charlie King, Chief of the APCSS Trends Analysis Program, said the goal of the visit was to exchange key information with faculty, staff and students, as well as maintain its long-standing, professional relationship with the school. "We're interested in having a better understanding of the resources here and also making sure that interested students here know what we're doing," he explained.

We're trying to build higher levels of shared awareness between NPS and APCSS, as well as look for potential collaborative activities in the future, said Air Force Maj. Bryan Greenstein, Deputy Chief of the APCSS Trends Analysis Program.

A specific focus of King and Greenstein's visit included the presentation and discussion of online communication portals developed by the Asia-Pacific Collaborative Security Consortium (APCSC), an APCSS-led partnership of DoD and civilian organizations dedicated to regional security, disaster preparedness and response.

The APCSC portal is an online, interactive environment that allows people and organizations to exchange ideas and information on transnational security, disaster management, stability and education. With such open lines of communication, APCSC hopes the portal will help create better prepared responses to disasters and humanitarian crises in the Asia-Pacific region.

In addition to the portal, King and Greenstein shared information on another online community, the Disaster Resilience Visualization and Assessment Tool (DRVAT), with NPS faculty and students. To help reduce economic and human losses associated with disasters, DRVAT provides users with detailed visual, social and economic data about countries where hazards have occurred.

King believes that discussions with NPS and the interchange of ideas with a school that has both a global perspective and students with operational experience are invaluable for APCSS.

"The Asian-Pacific region in general benefits from the students that come through NPS," said Greenstein. "Eventually, there's a good chance we'll see them as they get assigned to PACOM units, and their knowledge is going to be evident as they come through and get access to our programs. It's a pretty good symbiotic relationship." 

## NPS Hosts Acquisition Symposium 08 *By MC2 (SW) Corey Truax*



Honorable Sue C. Payton, Assistant Secretary of the Air Force for Acquisition

The Naval Postgraduate School Acquisition Research Program of the Graduate School of Business and Public Policy hosted the 5th Annual Acquisition Research Symposium in Monterey, Calif., on May 14 and 15.

The symposium provided a forum for presentation and promotion of acquisition research, bringing together leaders from all services and throughout the Department of Defense to collaborate and contribute to innovation, creative problem solving and the evolution of DoD acquisition strategies.

NPS Acquisition Chair, retired Rear Adm. James B. Greene Jr., encouraged active participation from all attendees by saying, "This is your event, your research, your comments and it's your participation that makes this whole event go."

Time was spent looking to the future and anticipating the costs of upgrading and even replacing aging weapons systems and many other pieces of military equip-

ment in a time where rising fuel prices have put a substantial strain on the overall budget.

"We've got to worry about the future," said the Honorable Sue C. Payton, Assistant Secretary of the Air Force for Acquisition, a keynote speaker on May 14. "What is the threat in 2018, what is the threat in 2030? What are the threats of the future? Will the acquisition community be able to meet those threats?"

Air Force Gen. Bruce Carlson, Commander, Air Force Materiel Command echoed Payton's concern for the future by highlighting past lessons and future possibilities.

Closing his speech Carlson summarized the importance of the Acquisition Research Symposium by saying, "Your research can and will make a difference in our nation. I look forward to seeing how you solve the challenges you are tackling." 

# NPS Hones Cyber Defense Skills During CDX 2008

By MC2 (SW) Corey Truax

The battlefields of the planet keep expanding. Air, sea, land, space, and now a new battle is currently being waged on the cyber frontlines. This new warzone requires a new breed of warrior to fight in this cyber battlespace, and the Naval Postgraduate School is in the business of preparing them to stand strong.

The 8th Annual Cyber Defense Exercise (CDX) 2008, sponsored by the National Security Agency (NSA), put NPS and many other Department of Defense schools on the receiving end of over a 1,000 cyber attacks spanning a week to test each school's ability to protect against an onslaught of cyber assaults.

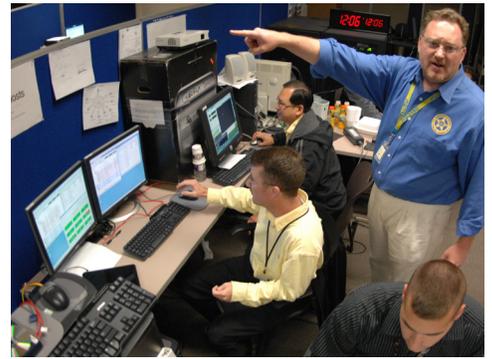
"You're spending four days with a professional team at NSA who are doing what's called 'red cell' or attacking of networks everyday," said Scott Coté, a senior lecturer

in the Center for Information Security Studies and Research (CISR) at NPS. "In the military we do these live-fire exercises all the time, we drop real bombs, we shoot real ammunition and this shouldn't be any different."

The exercise had students from the various military academies and graduate schools set up networks within a small fictional budget that they would have to defend while still providing basic services to theoretical users.

After weeks of preparation and five days of unremitting attacks, the cyber dust had settled, and Coté estimated they had received over 1,000 attacks from the NSA red cell. NPS got one hit.

"Only one attack got through and it was on the first day," Coté recollected. "We realized almost immediately what was happen-



ing and had it taken care of in minutes, but it still cost us.

"We in the military understand this threat but a lot of the nation doesn't," said Coté. "A lot of people think it's going to take some kind of cyber Pearl Harbor to get the nation to wake up and that's what we are doing here, training to prevent such an attack from happening." 

## NPS Hosts Phoenix Challenge Conference

By MC2 Kellie Arakawa

The Naval Postgraduate School hosted the Spring 2008 Phoenix Challenge Conference April 1-3 to provide the Information Operations (IO) community an opportunity to discuss the latest strategies and evolving challenges in information warfare.

The Phoenix Challenge Conference, which is co-chaired by the Office of the Deputy Under Secretary of Defense for Warfighter Support,

Information Operations and Strategic Studies Directorate and the Air Force Information Operations Center, provides a professional discussion forum that promotes partnering and networking among senior-level IO leaders from across the Department of Defense.

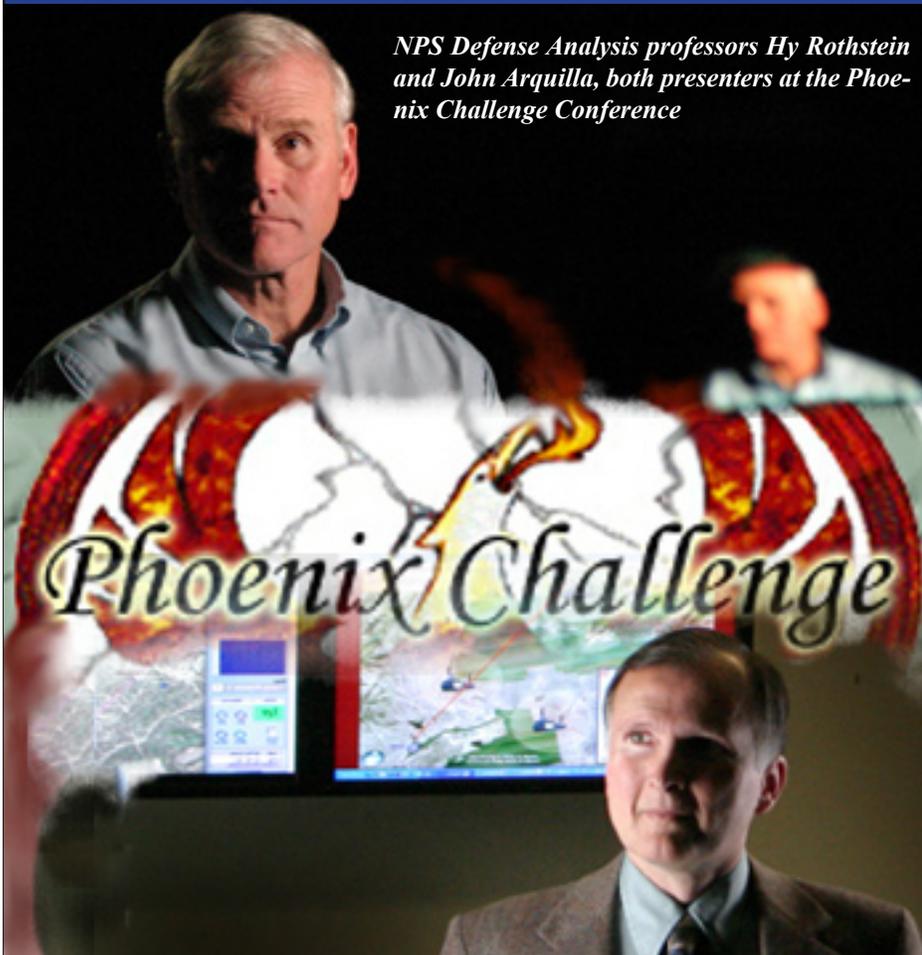
Cmdr. Michael Herrera, Lecturer for the Department of Information Sciences, said IO involves integrating, coordinating and synchronizing different activities to achieve desired effects. "That was the theme of the conference, and NPS has a lot of different departments that work in this area," he stated.

Focused discussions included phases of operations; integrating IO with capabilities of sea, air, land, cyber and space power; and new technologies, research, intelligence support, policies, combat assessments, mission planning and operations.

The conference featured briefings by several senior military leaders who offered their various service perspectives on the integration and synchronization of IO, and included the perspectives of international partners from the United Kingdom and Australia. Defense Analysis Professors John Arquilla and Hy Rothstein also participated in the conference with briefings about IO-related research at NPS.

In support of the conference's objectives and to showcase the school's IO-related research and technological capabilities, attendees were given the opportunity to tour several NPS research labs, which included the Common Operational Research Environment Lab, Center for Network Innovation and Experimentation, Radar and Electronic Warfare Systems Lab, Computer Network Research Lab and the Mobile Weather Radar.

*NPS Defense Analysis professors Hy Rothstein and John Arquilla, both presenters at the Phoenix Challenge Conference*



# CCMR Executive Program Consolidates Developing Democracies



By Barbara Honegger

The timing couldn't have been more opportune for the Naval Postgraduate School Center for Civil-Military Relations to illustrate civilian control of the military to high-ranking officers from new and developing democracies.

As more than 20 top defense decision makers from new and developing democracies gathered at the Naval Postgraduate School for the Center's Executive Program in Defense Decision-Making, June 2-13, the top U.S. Department of Defense civilian, Secretary of Defense Robert Gates, relieved the Secretary of the Air Force and the Air Force Chief of Staff of their commands.

"This is a great example of how civil-military relations works in the real world," retired Air Force Maj. Gen. Richard Goetze, Jr., told the officers from 14 allied and coalition nations. "The fact that the Secretary of Defense fired both the Secretary of the Air Force and the Air Force Chief of Staff shows that civil-military relations are working well in the U.S."

Over two weeks, NPS faculty coordinated simulation exercises and presented briefs on civilian control of the military and civil-military relations. Topics included formulating and implementing a national strategy; defense decision-making and terrorism in the global context; a review of global threats; the roles and missions of defense ministries, security forces and national legislatures; peace support operations and

post-conflict stabilization; democratic control and oversight of intelligence; interagency process; security and the media; defense transformation and reform; professional military education; professionalism and private military contractors; homeland defense and security; and implications of the U.S. 2008 elections for global security.

Participants were the Assistant to the Deputy Interior Minister for Support Forces, and the head of the Counter Terrorism Center, of Iraq; the Chief of Military Intelligence of Tanzania; the Deputy Air Force Commander, Assistant Chief of Staff for Operations and Air Defence and the Director for Electro-Mechanical Engineering of the Royal Jordanian Air Force; the Director of Air Transport and Maritime Systems Director of Air Transport and Maritime Systems of South Africa; the Commandant of the Defence Services Command and Staff College of Sri Lanka; the head of Strategy and Planning of the Ministry of Defense of Austria; the Head of the Defense Policy and Planning Department of the Republic of Moldova Ministry of Defense and the Deputy of the country's Antiterrorist Center, Deputy Head for Multilateral Cooperation Ministry of Foreign Affairs and head of strategy for the Main Staff of the National Army; the Director of the Recruiting Directorate, Branch of Army Headquarters of Nepal; the Training and Doctrine Command Commander and the representative of the Joint Staff Support Sector of Bosnia and Herzegovina; the Commander of Security Forces and of the Staff College of Sri Lanka; the Deputy Commandant of the Nigerian Armed Forces Resettlement Centre; the Additional Secretary of the Ministry of Home Affairs of Bangladesh; the Director for Military Standardization Quality and Codification Directorate of Bulgaria; and a member of the faculty of Argentina's National Defense School.

The executive program has been held at NPS annually since the Center's founding in 1994. 

## Romanian Prince Visits NPS

By MC2 (SW) Corey Truax

International relations took another step forward here at the Naval Postgraduate School with a visit by Romanian Royalty March 31.

His Royal Highness Radu Duda Prince of Hohenzollern-Veringen, Prince of Romania, an Army colonel and also Special Representative of the Romanian Government visited as part of an official program called, "The Friendship Tour."

The primary objective of the visit was to highlight cultural patrimony, economic and educational values and Romanian traditions abroad, as well as Romania's relation to their partner countries.

"Prince Radu has traveled extensively around the world and would like to visit all 50 states in the USA," said Bill Shewchuk, Executive Assistant to the Dean of the School of International Graduate Studies. "He is on a goodwill mission, explaining to Americans the history, culture and traditions of freedom and democracy

that Romanians share with Americans."

One of this program's characteristics was the military aspect, which had the Prince meeting with high-ranking military officials. Additional visits included military educational institutions and units, and Prince Radu also gave lectures to the students and cadre of the institutions visited.

"As far as I was concerned, I waited for three or four years to come to this beautiful place," said Prince Radu. "I can only tell you how privileged I feel to have visited this school and have the opportunity to talk to the Admiral [Dan Oliver], students and the professors here."

"The Prince was very favorably impressed with the beautiful NPS campus and the intellectual activity here," said Shewchuk.

"I was so happy to hear about the philosophy of your school, because it's reflected in what I believe is the real challenge in

the 21st century in my part of the world," said Prince Radu. "It was very encouraging and almost inspirational to hear about the philosophy of the school that I have had the privilege of visiting today." 



# COASTS Wraps up Experiments

By James Ehlert

The Cooperative Operations and Applied Science & Technology Studies (COASTS) international field experimentation team, consisting of over 30 members representing Naval Postgraduate School faculty and students, Office of Naval Research reservists and industry representatives, recently completed a successful two-week field experiment in partnership with the Royal Thai Armed Forces at Ao Manao Air Base in South-Central Thailand.

COASTS engages international and domestic partners at the research & development (R&D) level through cooperative science and technology field experimentation to investigate and match participant mission needs with integrated command and control, computers, communications, intelligence, surveillance and reconnaissance solutions in domestic, bi-lateral and multi-national environments. COASTS provides a low-cost test bed for assessment of specific technologies, components and/or systems solutions resulting in NPS student-the-sis projects and formal Military Utility Assessments of these C4ISR technologies.



"The COASTS 2008 International Field Experimentation Team is experiencing wonderful R&D synergy with the Royal Thai Armed Forces via its veteran partners such as the Defense Science & Technology Organization and the Royal Thai Air Force, but also with the inclusion of several new partners such as the Royal Thai Navy Research & Development Office, the Royal Thai Navy surface fleet, and the Royal Thai Navy SEALs," said NPS Information Sciences Research Associate James Ehlert, COASTS Program Manager.

The recently completed Field Experiment (FEX) IV at the Royal Thai Air Force Base in Ao Manao, Prachuap Khiri Khan province, brought the US-based COASTS infrastructure employed in FEXs I, II and III at Camp Roberts, Calif., into the challenging environment of Central Thailand. FEX-IV also integrated the COASTS Thai partners including officers and enlisted personnel from the RTAF and the RTN. FEX-IV featured the first time integration of an RTN Fast Patrol Craft into the COASTS architecture.

The COASTS-08 Scenario features a combined Thai-US Team operating jointly in three scenario phases: (1) a Humanitarian Assistance/Disaster Relief phase, (2) a Force Protection/Base Security phase, and (3) an Oil Pipeline Security/Maritime Interdiction Operations phase.

COASTS-08 is the fourth in an annual series of cooperative field experiments with the Thais. COASTS has proven highly valuable for the Royal Thai Armed Forces by introducing technologies useful for their missions.

COASTS-08 U.S. sponsors include the Office of the Secretary of Defense, U.S. Pacific Command, U.S. Special Operations Command, U.S. Embassy Bangkok, Joint U.S. Military Advisory Group Thailand, Commander Logistics Group Western Pacific, U.S. Coast Guard Monterey, Joint Information Operations Warfare Center, Program Executive Office C4I, Space and Naval Warfare Systems Command, Counter Narcoterrorism Technology Program Office, Office of Naval Research, Naval Research Laboratory, Air Force Research Laboratory, Naval Surface Warfare Center-Panama City Division and the Biometrics Fusion Center. 

## NPS Students Exercise UN Peacekeeping in Bangladesh

By Air Force Capt. Robert Firman

A UN peacekeeping exercise in Bangladesh in April gave six NPS students the chance to bridge their academics to the real world in a multi-national setting.

The exercise known as "Shanti Doot 2"—which means Ambassador of Peace—was sponsored by the Center for Civil-Military Relations (CCMR). Hosted by the armed forces of Bangladesh in the capitol city Dhaka and co-hosted by the United States Pacific Command, the exercise operated in two parts. The smaller section was a command post exercise (CPX) in Dhaka, while the larger portion was a field training exercise (FTX) in the jungles north of the city. Five of the NPS students worked in the CPX and one helped run the FTX.

Both sections were designed to certify attendees in UN peacekeeping operations. Nearly 80 senior officers from 13 countries worked in the CPX while more than 800 soldiers went through the FTX training.

Army Capt. Chris L'Heureux spent two weeks supporting lane training in the field portion, working with instructors to teach everything from conducting patrols to personnel searches. Despite the austere living conditions, he found the training experience useful.

"It was interesting to see how each country does things a little differently. Probably our biggest challenge out there was communicating with each other. We did everything in English, but not everyone was quite ready for that," L'Heureux said.

CCMR Director Rich Hoffman says the impact made by NPS students was significant. "These officers brought a lot of valuable real-world and academic experience to this exercise. Everything we've heard from PACOM and Bangladesh is that they really made a big difference. NPS has set a high standard."

Other NPS student attendees included Air Force Major Jim Hackbarth, Marine Corps Maj. Chris Curran, Air Force Maj. Chris Fuller, Army Maj. Eric Self and Air Force Capt. Robert Firman.

Countries involved in the exercise included Australia, Bangladesh, Brunei, Cambodia, Canada, India, Indonesia, Pakistan, Nepal, Norway, Malaysia, Mongolia, New Zealand, Philippines, Singapore, Sri Lanka, South Korea, Tonga, U.K., U.S., and Vietnam.

CCMR plans to include NPS students in future exercises as well. For more information on CCMR, go to <http://www.ccmr.org/public/home.cfm>.

# SECNAV

## Addresses Spring 2008 Graduation

By MC2 (SW) Corey Truax

Naval Postgraduate School students walked across the King Hall stage, shook hands with Secretary of the Navy Donald Winter and received their hard-earned diplomas during the spring 2008 graduation June 20.

NPS President Dan Oliver began the commencement ceremony by first thanking his faculty and staff for their hard work in creating a challenging environment for the students to thrive in and then he thanked all attending family and friends for giving the students the emotional support and backup to push through to graduation.

Introducing Winter, Oliver said he was, "... clearly an accomplished professional, a distinguished scholar and a dedicated public servant and he has also been a strong supporter of the Naval Postgraduate School in the nearly three years that he has been Secretary of the Navy and Marine Corps. I am proud and delighted to have him with us on the podium today."

Beginning his speech, Winter reflected on the story of Sir Ernest Shackleton. An Antarctica explorer, Shackleton most notably kept himself and all of his men alive while they were stranded in Antarctica for 22 months from 1914 to 1916.

Winter focused on an advertisement Shackleton used to draw people in: "Men Wanted: For hazardous journey. Small wages, bitter cold, long months of complete darkness, constant danger, safe return doubtful - honor and recognition in case of success."

"I know it's not fair to compare a South Pole journey to a few years in Monterey but there is an important point to be made here," Winter explained. "You are now the beneficiaries of graduate-level education that

has made you significantly more valuable to your services than you were when you began your studies here.

"Four years from now, after having served your payback commitments, you will have a decision to make – stay in, or get out," said Winter. "In a sense, many of you will have the choice of pursuing potentially more lucrative careers on the outside, or taking the Shackleton challenge."

Likening the a life of service and duty to that of what Shackleton proposed Winter said, "Service may not always mean a hazardous journey, with low wages, cold and darkness as extreme as offered to Shackleton's fellow explorers of Antarctica,

but there is no question that a life in uniform entails sacrifices and hardships that go far beyond what one normally finds in civilian life.

"But if you do decide to serve, honor and recognitions await those who choose the challenging journey of those who defend the nation," said Winter.

"Those who stay will be champions," Winter continued, quoting the late University of Michigan football coach Bo Schembechler.

In closing Winter proclaimed, "I urge you to take the Shackleton challenge and seek the higher rewards of honor and recognition that goes to those who serve. We need you, our nation needs you."

After more than 200 graduates crossed the platform to receive their diplomas, the last of the graduates, Lt. Cmdr. Gregory Fitzgearld, a recipient of a Master of Science in Space Systems Operations, walked across the stage, shook Winter's hand, and received his diploma. With that the auditorium erupted into a roar of cheering and applause.

In response to Winter's speech Fitzgearld said, "The point that I took away was there is room in our organization for people who want to make a difference, but in the end it is a personal choice if you want to stay and participate or not. The war we are in will not end soon, and we need people who are dedicated to winning." 



SECNAV Donald Winter

# Burst of Firsts at Spring Quarter 2008 Awards Ceremony *By Barbara Honegger*

The Naval Postgraduate School celebrated a number of firsts at the Spring Quarter Awards ceremony, June 10.

Lt. Benjamin Grant, a submarine warfare officer and student in the Graduate School of Business and Public Policy (GSBPP), received five honors, including the Monterey Council of the Navy League Award for Highest Academic Achievement in his graduating class. Another GSBPP student, naval supply officer Lt. Cmdr. Christopher "Chris" Kovack, took four awards, highlighted by the inaugural Cmdr. Philip A. Murphy-Sweet Memorial Award for Excellence in Acquisition.

Murphy-Sweet's widow Cheryl received a standing ovation after taking the podium to re-

member and honor her husband, for whom the award is named, a fellow Naval supply officer and NPS alumnus who died while serving in Iraq.

Another first was the inaugural presentation of the Gary Laughlin Patriot Award. Laughlin, a 1943 graduate of the World War II pre-flight training school located at what is now NPS, presented the award to its first recipient, civil engineering and explosives ordnance disposal officer Air Force Maj. Christopher K. Fuller.

In addition to the student awards (full list below), six exceptional faculty members were also recognized for outstanding achievement: Defense Analysis Prof. Frank Giordano received the Rear Admiral John Jay Schieffelin

Award for Excellence in Teaching; National Security Affairs Associate Prof. Jeffrey Knopf received the Lieutenant Commander David L. Williams Outstanding Professor Award; GSBPP Lecturer Diana Petross received the Louis D. Liskin Award for Teaching Excellence in the Graduate School of Business and Public Policy; Systems Engineering Prof. David Hart received the Northrop Grumman Faculty Award for Excellence in Systems Engineering and Analysis; Prof. Eugene Paulo received the Meyer Award for Teaching Excellence in Systems Engineering (Distance Learning); and Prof. Gary Langford received the Meyer Award for Teaching Excellence in Systems Engineering (Integrated Projects). 

## Full List of Student Awardees

2008 Warren Randolph Church Award for Excellence in Mathematics: Air Force Maj. John R. Dea

Air Force Association Award for Outstanding U.S. Air Force Student: Air Force Maj. Shaio Hui Zerba

Outstanding United States Air Force Graduate Award, Department of National Security Affairs: Air Force Maj. Shaio Hui Zerba

Gary Laughlin Patriot Award: Air Force Maj. Christopher K. Fuller

School of International Graduate Studies Outstanding International Student Award: German Navy Cmdr. Stephan Juetten

Louis D. Liskin Award for Excellence in Regional Security Studies: Lt. Cmdr. Corey Johnston

Monterey Council of the Navy League Award for Highest Academic Achievement: Lt. Benjamin P. Grant

Department of the Navy Award for Academic Excellence in Financial Management: Lt. Benjamin P. Grant

American Society of Military Comptrollers Award for Excellence in Research (Graduate Level): Lt. Benjamin P. Grant

Louis D. Liskin Award for Excellence in Business and Public Policy: Lt. Benjamin P. Grant

Conrad Scholar Award for Distinguished Academic Achievement

in Financial Management: Lt. Benjamin P. Grant and Lt. Tiffany F. Hill

Commander Philip A. Murphy-Sweet Memorial Award for Excellence in Acquisition: Lt. Cmdr. Christopher T. Kovack

Naval Supply Systems Command Award for Academic Excellence in Management: Lt. Cmdr. Christopher T. Kovack

Louis D. Liskin Award for Excellence in Business and Public Policy: Lt. Cmdr. Christopher T. Kovack

Naval Postgraduate School Outstanding Academic Achievement Award for Department of Defense Student: Lt. Cmdr. Christopher T. Kovack

Northrop Grumman Student Award for Excellence in Systems Engineering and Analysis: Lt. Cmdr. Walter Sandell

Meyer Award for Outstanding Student in Systems Engineering (Integrated Projects): Lt. Brett Lefever and Kine Seng Tham

First Command Military Leadership Award: Marine Corps Lt. Col. Carl Oros

Graduate School of Business and Public Policy Faculty Outstanding International Student Award: Greek Air Force Maj. Christos Zahos

Naval Postgraduate School Outstanding Academic Achieve-

ment Award for International Students: Greek Air Force Maj. Dimitrios Fanaras

Marine Corps Association Superior Service Award for Outstanding U.S. Marine Student: Marine Corps Maj. Scott LaRocca

Armed Forces Communications and Electronics Association Award: Marine Corps Capt. Bryant J. Pater and Air Force Capt. Kevin Fournier

Army Chief of Staff Award for Excellence in Operations Research: Army Maj. Michael S. Scioletti

Chief of Naval Operations Award for Excellence in Operations Research: Lt. Cmdr. Claude M. McRoberts

Space and Naval Warfare Systems Command Award in Electronic Systems Engineering: Marine Corps Capt. Corry P. Murphy

Oceanographer of the Navy Award for Outstanding Academic Performance in Meteorology and Oceanography: Lt. Timothy P. McGeehan

Rear Admiral Thomas R. McClellan Award for Academic Excellence in the Graduate School of Business and Public Policy: Cmdr. Thomas Curran and Lt. Cmdr. Shane P. Tallant

Rear Admiral Grace Murray Hopper Computer Science Award: Marine Corps Maj. James J. Migletz

Rear Admiral Donald R. Eaton Logistics Award for Outstanding Achievement: Lt. Cmdr. Jason C. Warner

Joint Chiefs of Staff Command, Control and Communications Award for Academic Achievement: Lt. Douglas Jonart

Rear Admiral Grace Murray Hopper Information Technology Management Award: Lt. John Michael Thorpe

Surface Navy Association Award for Excellence in Surface Warfare Research: Royal Bahraini Navy Lt. Ahmad M. Abdul-Ghaffar

Military Operations Research Society Stephen A. Tisdale Graduate Research Award: Royal Bahraini Navy Lt. Ahmad M. Abdul-Ghaffar

Association of the United States Army, General Joseph W. Stilwell Chapter, Award for Outstanding Army Student: Army Capt. Christopher Stelle

Awards granted in absentia: Naval Postgraduate School Superior Service Award: Lt. Kimberly M. Freitas

Meyer Award for Outstanding Student in Systems Engineering: Chad James Cossey and Steven Robert Wright

# History of the Del Monte Revealed By MC2 (SW) Corey Truax

Visitors often come to Monterey, Calif., to tee off on Pebble Beach or enjoy the beautiful and scenic 17-mile drive, but not many people realize the history of those two places can be traced back to the Naval Postgraduate School campus and its beginnings as the luxurious Hotel Del Monte.

When many longtime residents of Monterey think of NPS they talk of the Hotel Del Monte, which is now Herrmann Hall. It has been more than half a century since people like President Theodore Roosevelt, Bing Crosby and Amelia Earhart signed into the guest register of the Del Monte.

To keep this history alive, the Monterey Maritime and History Museum at Custom House Plaza, in Monterey, is displaying approximately 700 square feet of Hotel Del Monte artifacts and memorabilia into September as part of their new, *Relive the Magic: Hotel Del Monte*, exhibit.

"The exhibit is an incredible success story. It really is a lost chapter in the origins of Pebble Beach," said John Sanders, NPS Dudley Knox Library, Special Collections Manager, who put together visual and oral presentations and helped organize the exhibit. "Alex Vance, the Monterey History and Art Association execu-

tive director told me that 9,700 people saw the exhibit in June and the response was so positive that they extended the exhibit longer," said Sanders. "It's going to help set the stage for an exhibit that will showcase the Naval Postgraduate School and its upcoming centennial."

Also contributing immensely to providing vital pieces of history was the NPS Trident Room's Head Bartender, Pete Charette, who along with his wife found a piece of Del Monte memorabilia at a yard sale, and became an avid collector. They have hundreds of postcards from the hotel, silverware, menus, photos, a guest register filled with signatures from 1910 and many other artifacts. "You really find out a lot more about history when you get into something like this," said Charette.

Along with a number of Charette's artifacts, another display is a horse drawn carriage. "Carriages like this one were used to take people to the race track as well as take them along the 17-Mile Drive," said Sanders.

Admission to the exhibit is free and it is open daily except Monday from 10 a.m. to 5 p.m. 

*Movers push a carriage into the Monterey Maritime and History Museum at Custom House Plaza, in Monterey. The carriage was part of the Relive the Magic: Hotel Del Monte, exhibit. Carriages like this one were used to take people to the race track, as well as take them along the 17-Mile Drive*



## NPS COMMEMORATES GREAT WHITE FLEET'S CENTENNIAL ANNIVERSARY

*By MC2 Kellie Arakawa*

On the morning of May 1, 1908, a string of white battleships from the U.S. Atlantic Fleet emerged along the horizon of the Monterey Bay and steamed into California's central coast during what was at the time the most ambitious circumnavigation ever attempted by a nation's naval forces.

To commemorate the 100th anniversary of the legendary Great White Fleet, the Monterey Peninsula Section of the American Society of Naval Engineers (ASNE) hosted an event at the Monterey Maritime and History Museum that featured a lecture by Naval Postgraduate School Professor and retired Navy Capt. Charles Calvano.

Under the direction of President Theodore Roosevelt, who once served as the Assistant Secretary of the Navy, the Great White Fleet was sent around the globe to showcase the country's military power and strengthen foreign relations.

In December 1907, 16 warships with a crew of 14,000 left Hampton Roads, Va., for a 14-month, six-continent deployment that would become one of the most celebrated diplomatic missions in naval history.

Calvano's lecture, "The Ships of the Great White Fleet; an Era of Rapid Technological Change," focused on the technical aspects of the Great White Fleet's battleships and the various technological changes

the Navy was experiencing at the time. "Things were changing very rapidly, and the U.S. was becoming a world power," said Calvano. "Battleships and warships were routinely considered obsolete within two or three years ... things were changing that rapidly."

In addition to the technological and design advancements that were being made with the Great White Fleet, the image of the Navy and its Sailors was also beginning to evolve. At the time, Sailors were typically older, "rough and tumble sailors," who had previously worked in merchant services, Calvano said. But the demands for an increase in manpower for the Great White Fleet's deployment led the Navy to recruit heavily from civilian populations, which gave rise to the slogan, "Join the Navy and See the World," an appeal that remains with the service to this day.

Even after 100 years, it is important to note the advancements of the Great White Fleet because the challenges they faced in integrating rapid technological changes and developments are still occurring today, said Lt. Will Koszarek, the ASNE Chairman.

Lt. Clint Hoskins, the ASNE Vice Chairman, shared the same sentiment. "It's good to understand that back then they felt that they were good as a nation and Navy, but they still saw things they could improve on. The same thing is happening today," he said. 

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