DARPA Director Introduces NPS to Agency’s Latest Advanced Research

By PO2 Victoria Ochoa

Dr. Arati Prabhakar, Director of the Defense Advanced Research Projects Agency (DARPA), addressed students, staff and faculty during an NPS Secretary of the Navy Guest Lecture (SGL) in King Auditorium, Oct. 18.

“Our purpose was to prevent technological surprises. The people who created the original organization understood that the best way to prevent surprise was to go create a few surprises of our own,” said Prabhakar.

Prabhakar has focused the agency’s efforts on rethinking complex military systems in fundamental ways, leading to innovations in the fields of mathematics, synthetic biology, and neurotechnology.

“At any given time, we can have about 200 ongoing programs in the agency across a $3 billion budget,” said Prabhakar. “One of our programs is primarily focused on military systems and capability, which are phenomenally powerful.”

DARPA also looks into various communities from small start-ups to government labs, and universities like NPS, to make pivotal early investments to help fund and innovate new technologies.

“Over the past few decades, our adversaries around the world have had an opportunity to see and learn more about those systems. To help us advance our goals, we put out feelers into organizations that express interest in an area we have interest in, because we want to hear from them and do business,” added Prabhakar.

Some of the programs that Prabhakar mentioned included semi-autonomous ships, UAV technology, and prosthetics that could be controlled with the mind.

“Think about a United States destroyer that could launch a predator class UAV from its back deck, and have that aircraft be able to identify enemy ships,” said Prabhakar. “Then through communication relays, using parafoil, communicate with submarines that have the ability to launch a torpedo to take out that adversary ship. And think about that happening not 10 miles, but hundreds of miles away.

“You can see why these technologies, integrated together, give us a way to exercise our influence over the vastness of oceans in a way that is far more powerful and efficient than the scale we are able to operate at today,” stressed Prabhakar.

NPS Meteorologist Employs UAVs to Advance Atmospheric Research

Senior Officers Take Advantage of NPS’ EMBA Program

NPS Foundation Director Honored at Celebration of Life Ceremony
NPS Meteorologist Employed UAVs to Advance Atmospheric Research

By Kenneth A. Stewart

NPS Professor Peter Guest with the Department of Meteorology has been employing quadrotors, small unmanned aerial vehicles, to measure the various atmospheric conditions that affect the Navy’s ability to operate throughout the world’s oceans.

“It is crucial to understand how the atmosphere is affecting electromagnetic signals. In particular, you need to be able to build a profile of the temperature and humidity. We can measure those at one level from a ship pretty well, but it is harder to determine what is going on above the ship,” said Guest.

Using electromagnetic radiation in its various forms, including radio waves, light and infrared, is increasingly important to the Department of Defense and of particular interest to the Navy.

“All radio communications use a type of electromagnetic radiation, as do radar and jamming systems that ships use to disrupt enemy communications,” explained Guest. “[EM radiation] is also used in electronic surveillance to listen to or identify when an enemy turns on their shipboard radar or other EM systems.”

EM radiation is a term that describes any number of radio waves we use both consciously and subconsciously to interact with the world around us.

“EM systems are very important to the Navy, and will become more important in the future as we depend more and more upon the remote sensing of targets to protect our forces,” said Guest. “You can’t just look out the window anymore [and engage a target]. We have to be able to reach beyond.

“Future conflicts may be fought as much in the electromagnetic space as in real space,” continued Guest.

So what does EM radiation have to do with the weather, and how does the weather effect it? It turns out quite a bit.

“The atmosphere has a great effect on a lot of these types of electromagnetic transmissions, and the effects vary depending on the frequency that you are operating in,” Guest said.

One of the major weather effects that Sailors operating in the EM spectrum must contend with is refraction, the bending of radio waves by atmospheric conditions.

“If you have a moist marine layer, like we do here in California, and dry air up above it, it is going to bend radio waves downward toward the surface in a process known as ducting,” said Guest. “The radiation can stay in that duct, go way over the horizon, and have a dramatic effect on radar detection. Sometimes it’s a bad thing, you can have your radar set for 100 kilometers and the ducting conditions may allow you to see something 200 kilometers away, giving the illusion that a target is closer than it really is.”

Another kind of ducting happens right at the surface and is caused by evaporation.

“When you have high humidity, evaporation can make higher frequency waves, such as microwaves, bend downward. These are important effects that the military really needs to consider,” Guest said.

What this equates to for Guest, and others contributing to work in this area, is increased “battlespace awareness.” As both friends and adversaries develop smarter technologies, including more accurate missile and guidance systems, the ability to see and to avoid being seen has taken on ever greater importance.

“You may also want to minimize your leakage of radiation so that your adversaries do not know exactly where you are … If you are on a ship, you want to know about these things. You need to know if the enemy can evade detection in a certain area and be able to move somewhere else,” said Guest.

In the past, meteorological information like that which Guest is seeking, was obtained by launching deck-side weather balloons from naval vessels.

“We have good models, but it turns out that our EM systems are affected by very fine detail humidity variations in the atmosphere and you really have to be able to measure things vertically every few meters. Models rarely provide that level of detail,” said Guest.

Relying upon models for the sort of detailed information that Guest is seeking is further hampered by the bandwidth issues common to vessels operating in some of the most remote areas of the planet.

“The Navy needs to be able to make measurements from the ship itself … We need to have low-level detailed measurements. You can use kites to do that or tethered balloons, but you can’t really fly a kite from an aircraft carrier … [That is why] I propose that we use small unmanned aerial vehicles to make these measurements.

“What we want to do is fly up and down creating a profile of the atmosphere … I envision having one of these on every ship replacing the now discontinued weather balloons,” added Guest.
Senior Officers Take Advantage of NPS’ EMBA Program

By Kenneth A. Stewart

A growing number of senior naval officers are turning to the NPS Executive Master of Business Administration (EMBA) degree program to meet their graduate education needs despite the rigorous demands and back-breaking tempo that comes with serving in the Navy’s most challenging leadership positions.

And since the notion of a senior officer taking an 18-month leave of absence to attend graduate school is rarely an option, NPS’ Graduate School of Business and Public Policy (GSBPP) offers an EMBA with a short-term residency requirement coupled with distance learning that is tailored to meet the advanced education needs of mid to senior level naval officers.

Senior Lecturer retired Cmdr. William “Bill” Hatch is the EMBA program manager, and has been with the program since 2004. He welcomes one cohort every 36 months, with new enrollments taking place in the Spring and Fall.

“It’s part of a professional military education continuum. You can give a flag officer a graduate degree, but the O7 level is not the time in your career that you send someone off to school for 18 to 24 months. You do that at O4 through O6 levels, and more and more promotion boards are looking for people with graduate degrees.

“Many O4, O5s and O6s are recognizing that this is their ticket toward reaching their next promotion milestone if they do not have a graduate degree,” continued Hatch. “The goal of the program is to provide graduate education to officers whose career milestone do not afford them the opportunity to come to NPS.”

The program addresses the myriad issues that senior officers are asked to address, many of which have little to do with the specific job that the Navy trained them to accomplish.

“The more senior you become in the Navy, particularly at the O5 and O6 levels, the less you work within your designator and the more you become a resource manager, running people and material. That’s what the program provides,” explained Hatch. “It has a little money, a little risk management, some contract and program management, and acquisitions. In fact, students come out of the program with Defense Acquisition Workforce Improvement Act (DAWIA) Level II certificates of completion.”

DAWIA is an important part of a senior naval officer’s professional development. It was signed into law in 1990 and has been modified several times since with an eye toward arming acquisition professionals, and those that supervise or work with them, with an understanding of a host of acquisition skills including program management, cost estimation and auditing.

“NPS works very hard to have DAU [Defense Acquisition University] equivalent courses. The business school is current on all the DAU courses, and is able to offer equivalent course work embedded within our educational programs,” said Hatch.

Rear Adm. Michael E. Jabaley, who serves as the Navy’s Program Executive Officer for Submarines, is a graduate of the program.

“I would recommend the executive MBA to anyone who is considering a career path in acquisitions, especially, but also to anyone who is interested in dealing with business within the Navy,” said Jabaley.

“The most valuable part of the Naval Postgraduate School’s executive MBA program would be the opportunity to take classes with a group of students who are looking at the same future, the same career path [that you are],” Jabaley continued.

“There is clearly something for everyone in this course. If a junior officer is interested in a career in business, either within the Navy or post Navy, this is a very helpful degree to earn. If the officer is more advanced in their career, as I was, it is useful to use this program to put the finishing touches on their education,” he added.

The program orientation, Sept. 20. While the hybrid program remains strong with mid-level career officers and civilians, senior naval officers are also taking advantage of the program in larger numbers. (U.S. Navy photo by Javier Chagoya)
Contracting, Comptroller Conquer Year-End Fiscal Onslaught

By PO1 Lewis Hunsaker

Every year like clockwork, agencies across the federal government rush to ensure final requirements are met by fiscal year-end all while balancing the crucial processes of budgeting for the coming year. NPS is no different, but even though the Navy’s direct budget for NPS is just under $90 million, the university operates much larger, with total revenues well over $200 million for fiscal year 2016.

Behind the scenes, making sure the campus’ needs were met during the last fiscal year transition, is a dedicated team of analysts, specialists and the like, ensuring requirements are met.

“One of the issues we face is that funds expire, and we can’t take any of that money past Sept. 30,” said Comptroller and Director of Financial Management Kevin Little. “With that, there is a rush to ensure all the necessary purchases are made, labor is paid, and contracts completed.

“If we’re able to have people expend funds earlier in the year rather than later, that would help us, such as making an equipment purchase in the 2nd quarter vice the 4th quarter. But even that isn’t the total solution,” Little continued. “However, every year the process gets better as we constantly improve upon the previous year.”

Efficacy in the Comptroller’s Office is broken into several small departments to include accounting, fiscal analysts, systems, travel, and budgeting.

“My largest department, by far, is accounting. If anyone wants to do anything, from grants to contracts or purchases, they have to go through this department,” said Little. “There are thousands upon thousands of transactions that go through this department.

“My team is very dedicated and does an outstanding job, especially when you consider the workload, and that we are shorthanded,” he continued.

Little and his team’s efforts come to fruition when coupled with the diverse team of contracting, purchasing and property professionals that make up NPS’ Contracting and Logistics Management (C&LM) department led by C&LM Director Patricia Hirsch. In fact, the largest part of the comptroller’s budget, beyond labor, is acquisition.

“Working with our requirements planning boards, project leads, technical experts and customers, we are able to plan and execute for products and services that enable this university to succeed,” said Hirsch. “Our mission is to enable NPS. It really comes down to the students, their research, and their thesis projects. We are like the aorta of the campus. If you cut off acquisition, the mission fails.”

Hirsch says her team has come a long way to managing their large workload in support of the campus. And external inspectors agree … C&LM recently passed their Procurement Performance Management Assessment Program (PPMAP) Review, which is equivalent to a focused Navy Inspector General Inspection, with the highest grade given by the inspectors.

But Hirsch and Little’s teams are not resting on their laurels. The Financial Management and C&LM teams are working on improvements to existing processes, and are committed to regular meetings with customers across campus to manage priorities.

“Our goal is to give assurance to the campus that contracting and comptroller are truly tied together as one,” said Hirsch.

Federally Employed Women Learn, Teach Professional Growth

By Javier Chagoya

Newly-installed officers of the Central Coast of California chapter of Federally Employed Women (FEW) were introduced to membership, newcomers and visiting FEW Western Region Manager Sandra J. Johnson Simon during the latest FEW meeting in the Dudley Knox Library, Sept. 29.

“The FEW organization has given me the resources, motivation and courage to work towards and improve my personal and professional goals,” said chapter president Sara Stolt, a FEW member since 2012. “I chose few because FEW chose me.”

“The FEW mission promotes diversity, workplace equity, and because I’m a minority, inclusion is very important to me,” added recording secretary Neecha Gwin.

“FEW provides scholarships that pay for attending national conferences and training seminars, including travel expenses. Recently, a member was certified in the nationally-recognized John Maxwell Coaching Program, providing leadership and motivational coaching to her colleagues.

“It took me three years to join FEW,” said treasurer Jaye Panza. “When I finally went to a [FEW] national conference, I walked into this giant convention hall filled with thousands of women, and men too, and I felt like I was part of a bigger movement, a forward momentum in my life.”

“The thing that struck me was the diversity of professionals in our group,” added retired Navy Cmdr. Val Moulé, now on staff at the Dudley Knox Library. “It’s so important to continue striving to be a professional. And not just work-related, but personal growth.”
Asst. Secretary of the Navy for Manpower and Reserve Affairs Explores NPS

By PO2 Victoria Ochoa

Assistant Secretary of the Navy for Manpower and Reserve Affairs, the Honorable Franklin R. Parker, was introduced to NPS research efforts in swarming unmanned systems during a visit to NPS, Oct. 6.

Parker met with academic representatives from across the campus to learn more about the university’s broad range of education and research programs.

“I think [NPS] really performs a critical service, not just for our service members, but also for our joint community and international partners,” said Parker.

During an executive brief, Parker was introduced to academic leadership from across the campus, offering their own views on how NPS achieves its mission of graduate education, and the impact on students.

“I want to say one thing about the students, I can’t imagine after all these years teaching anywhere else,” said NPS Department of Defense Analysis Chair Dr. John Arquilla.

“There aren’t students anywhere like this. We have the most experienced combat officer corps, and many of them have had searing experiences ... They want to make things better.” Parker’s tour of the campus also provided an introduction to several innovative research programs.

NPS Community Celebrates Hispanic Heritage Month

By PO1 Lewis Hunsaker

Each year, from Sept. 15 to Oct. 15, the U.S. Navy joins the nation in celebrating the history, culture and contributions of Hispanic Americans, citizens with ancestors from Spain, Mexico, the Caribbean, and Central and South America.

“It’s an honor and a privilege to stand amongst you today as a first and third generation Cuban and Salvadorian American serving in the U.S. Navy,” said guest speaker Petty Officer 3rd Class Brandon Carcamo. “My mother’s family fled Cuba in the late 1950s as Fidel Castro established his dictatorship.

“My father was born and raised in Santa Ana, El Salvador, where conditions were rough due to limited resources in a household of five kids,” continued Carcamo.

In 1979, tensions and unrest in El Salvador over inequality boiled over into a 12-year civil war.

“My dad was in a movie theater with his friends when Salvadorian soldiers rounded up all the boys at gunpoint, threatening to kill their families if they didn’t comply,” said Carcamo.

“During basic training my dad escaped, and at the age of 14, he began a perilous journey by himself through Guatemala and Mexico to family in Los Angeles.”

Carcamo expressed great pride in his Hispanic heritage, and in the sacrifices his parents made to build a better life for their family.

“Since our founding, our nation has drawn great strength from the diversity of our people,” said Carcamo. “With faith, passion, a sturdy work ethic, and a devotion to family, Hispanics have helped carry forward a vibrant beacon of opportunity to all.”

In 2015, Hispanic Americans had the largest gains of any group in median income and reduction in poverty, and high school graduation rates continue to rise.

“Our nation’s story began with immigration,” Carcamo said. “Instead of bashing our newcomers let’s all step up to support the integration of immigrants and refugees into our communities ... Let us reaffirm our commitment to expanding opportunities and building an even brighter future for all.”
NPS Staff Judge Advocate Capt. Pamela Ball may be new to NPS, however, she brings 28-years of experience in the legal field. Ball was commissioned into the judge advocate general’s corps in 1988 and attended the Naval Justice School in 1989. She began her career as a defense counsel, prosecutor and legal assistance attorney at the Naval Legal Service Office Detachment in Rota, Spain followed by assignments aboard submarine tenders USS Proteus (AS 19) and USS Holland (AS 32) and later earned a master's of law degree at George Washington School of Law, specializing in health care law.

Her operational experience includes tours in Iraq supporting detainee operations and Afghanistan serving as a legal mentor for the staff judge advocate office and judiciary of the 201st Afghan Nation Army Corps.

“I volunteered for both the Iraq and Afghanistan tours. As a lawyer, we are usually not required to volunteer for these tours. However, I looked at it as an opportunity to get out into the field, while supporting these countries in establishing their law practices,” said Ball. “Which in return was a great experience to see how other countries live and to appreciate what we have here in the United States.

“I look forward to my time at NPS and establishing new connections here and at DLI,” added Ball.

Focus On … Legal
A Monthly Look at Names and Faces on Campus

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Any Day at NPS ...

U.S. Marine Corps Capt. Samual Hong, Chairman of the President’s Student Council

The results for the Student Experience Survey have been reviewed and submitted to the Dean of Students as recommendations and actions for change.

Some of the recommendations submitted have already been taken for action.

Thank you to those who submitted comments to help us improve student life on campus and I encourage you to continue to stay engaged with the President’s Student Council (PSC).

You can still provide comments or recommendations to the Suggestion Box on the NPS intranet page. Every submission is read and addressed.

If you are interested in innovation in the DoD and connecting with like-minded people, I recommend attending the Defense Entrepreneur’s Forum at Silicon Valley (DEFxSV). DEFxSV will be an exciting conference with guest speakers from Silicon Valley and academia. The event will be held at the Hoover Institute at Stanford University, Nov. 12.

My six-month term is coming to a close in December 2016. If you are interested in the Chairman or Vice-Chairman position in the President’s Student Council, you must attend the next two meetings and have 6-months left before graduation.

You are also welcome to just check out or get involved with the PSC without commitment.

E-mail me for further details.

Have a story to share? Public Affairs is constantly seeking interesting news and stories for Update NPS. Send your tips to pao@nps.edu.
Historical Highlights

In 1941, Del Monte Properties provided the site of a state-of-the-art airport for Monterey. When the Navy leased the airfield and new macadam runway a few years later, it became the U. S. Naval Auxiliary Air Station at Monterey, and provided complete ground and air instruction to pilots and air crewmen of the Navy's carrier-type fighter, torpedo and bomber planes.

Instruction was practical: in 1944 alone, 21 squadrons dropped 1511 torpedoes on two target ships in Monterey Bay. The spent torpedoes were recovered and trucked back to Alameda for overhaul (except, perhaps for the 71 lost in the waters of the Monterey Bay).

At the end of the war, the station was placed on caretaker status. It was recommissioned in 1947, during establishment of the General Line School. One of the few Navy installations then activated in the country, it would be used to provide flight proficiency training to the Naval Postgraduate School, the Defense Language Institute, the Naval Reserve Training Center and the Naval Facility, Point Sur. The first flight by a student was made on March 4, 1948.


Historical Highlights are provided by the Dudley Knox Library.