



(U.S. Navy photo by MC2 Victoria Ochoa)

NPS Celebrates International Day

by MC2 Victoria Ochoa

An estimated 5,000-plus guests attended NPS' annual International Day celebration hosted by the International Executive Committee (IEC), April 23. The event displayed the diversity and culture of more than 27 countries comprising NPS' student population. NPS students and volunteers offered food, entertainment and information about their respective countries to visitors.

"This event provided a great opportunity for everyone to meet different cultures and sample various foods and beverages," said NPS Brazilian student Stilson Cardoso. "Everyone seemed to enjoy the event and a lot of fun was had by all."

Students from around the world participated in the celebration with food and performances including dancing and singing.

This was a day of union between all of us studying here at NPS and the community. — Peruvian Navy Lt. Alfredo Belaunde

Each booth featured the country's most popular dishes, including but not limited to South Korean japchae, Greek baklava, Canadian poutine and Indonesian coconut cake. Students also offered information about their countries and one booth offered henna tattoos.

"This event provided a unique opportunity for international students to promote their culture, their cuisine, and their customs," said Hellenic Navy Lt. Ioannis Kanlis. "Along with performances from an Indonesian folk group, brass band, and live dancing from Turkish and Hawaiian dancers."

The IEC supports international students and their families as they adapt to American life and culture while promoting good relations and cultural understanding between the U.S. and NPS' international students through events like International Day.

"International Day was a great success, one of the best we have ever had," said International Programs Coordinator Kim Andersen. "This year we had record-breaking attendance and sales which will directly benefit the international students."

"This was a day of union between all of us studying here at NPS and the community," said NPS Peruvian Navy Lt. Alfredo Belaunde. "It was a wonderful opportunity to showcase our pride for our homelands, and the cultural diversity that each student brings to the NPS community."



NAVAL POSTGRADUATE SCHOOL

UPDATE

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ASIAN AMERICAN
PACIFIC ISLANDER
HERITAGE MONTH

May 2016

Retired Navy Capt. Paul Rinn Delivers SGL

MC1 Lewis Hunsaker

Retired Navy Capt. Paul Rinn, first commanding officer (CO) of the guided-missile frigate USS Samuel B. Roberts (FFG 58), addressed Naval Postgraduate School (NPS) students, faculty and staff during a Secretary of the Navy Guest Lecture (SGL) in King Auditorium, April 19.

Rinn shared his story of when, as the CO of Samuel B. Roberts, his ship struck a mine in the spring of 1988 while on escort duty in the Persian Gulf.

“The story of Samuel B. Roberts doesn’t happen on April 14, 1988. It happens long before that,” said Rinn. “The story of preparedness, combat readiness, strong leadership and everything else, starts way in advance.”

When Rinn graduated from Marist College in 1968, one of his professors by the name of Dr. Roscoe Balch took him aside. Balch had a unique view on life, Rinn said, probably because he landed on Omaha Beach during Normandy at the age of 17. When his company arrived at the Rhine River, several months later, Balch was the only one alive.

Rinn shared with the audience a conversation he had with Balch that left a lasting impression.

“Paul Rinn, generals and admirals don’t win battles. Soldiers, Sailors and Marines win battles,” Rinn quoted. “How you lead, train, treat, and the example you give them will determine your success. That is the primary thing you should always remember.”

“I never forgot those words throughout my entire career in the Navy. I realized it was very important to train well and hard, to be aggressive, to be a strong and honest leader, to be an example, and to never impose on my people things that I wouldn’t impose on myself,” Rinn continued.

With 13 years of Navy experience behind him at the time, Rinn was assigned to be the CO of the U.S. Navy’s newest ship, USS Samuel B. Roberts. He was also the youngest CO in the Navy at that time.

“When I first arrived at the ship, I wanted to generate a sense of what was important ... not just for me but for the entire ship’s company,” said Rinn. “The crew of 220 Sailors came from 47 different states.

I had to bring everyone together to think, fight and care alike in order to be one unit.”

With very little time to get his crew up to speed, Rinn initiated an intense training regimen that included cross training for all of his crew.

“We practiced, drilled, and practiced and drilled some more,” said Rinn. “Until the crew was convinced that we could do everything faster and better than anyone. Once the crew saw that they were doing everything better than everyone, they really bought into the system.”

Rinn also wanted to make sure all the Sailors respected and trusted each other.



Retired Navy Capt. Paul Rinn addresses students, faculty and staff during an NPS Secretary of the Navy Guest Lecture (SGL) in King Auditorium, April 19. (U.S. Navy photo by MC1 Lewis Hunsaker)

“The number one reason people are unhappy in the military is because they think no one cares about them. Empower them, take care of them, make their lives better, and help them to get advanced ... Care about them to be successful,” said Rinn. “Never give up on anyone, always give them the opportunity and chance to succeed.”

On April 14, 1988, that training was put to the test when the Samuel B. Roberts hit a mine in the Persian Gulf, causing the ship to lose all power in the aft end of the ship.

The scramble was on to save those Sailors and the ship. Rinn said they were able to get some of

their weapons systems operational to defend against any attack, but the fire suppression systems did not work. And they had no power to get the ship moving. They were dead in the water.

“Power for the ship was rigged in 22 minutes by a Boatswain’s Mate, Sonar Technician, Shipfitter, Cook [Culinary Specialist], and a Radioman with an Electrician arriving at the end,” said Rinn. “This team powered up the ship and essentially saved the ship without a single engineer. Why was that? Because we trained!”

For his actions during the attack, Rinn was awarded the Legion of Merit with Combat “V” and he received the U.S. Navy League John Paul Jones Inspirational Leadership Award. Over the course of their Navy careers, 34 of his crewmembers made Chief Petty Officer, 20 Master Chief Petty Officer, while five of his officers went on to command and three to major commands. Rinn retired from the Navy in 1997.

“Update NPS” is a monthly publication for students, faculty and staff of the Naval Postgraduate School produced by the Public Affairs Office. For additional copies, comments, or to suggest story ideas, contact the editorial staff at pao@nps.edu.

NPS Professor to Join Astronauts in Return to Aquarius Habitat

By Kenneth A. Stewart

NPS Research Assistant Professor Dr. Noel E. Du Toit has been granted access to Florida International University's Aquarius Reef Base Underwater Habitat located beneath the waters of the Florida Keys National Marine Sanctuary to advance his research into joint human-robot exploration.

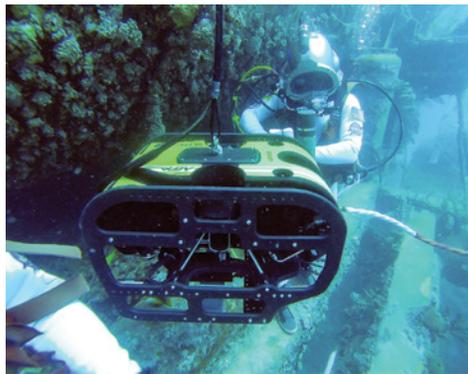
Aquarius is a research habitat designed to study marine ecosystems over long periods of time through saturation diving and is used by NASA to prepare astronauts for the rigors and isolation of space exploration, in conjunction with NASA's Extreme Environment Mission Operations (NEEMO) program.

"I will deploy with two astronauts for the second half of a 16-day mission aboard the habitat, where we will be looking at what aspects of human-robot interaction are useful to astronauts and, from a robotics side, what capabilities are required," said Du Toit.

Du Toit will enter the habitat after training with astronauts at NASA's Johnson Space Center and utilizing its Neutral Buoyancy Lab in conjunction with preparations for NEEMO 21 in July.

NEEMO expeditions have been on-going since the mid-90s. NASA shifts its focus from year to year depending upon its current mission set. This year, the mission will be designed to answer questions related to the human exploration of Mars.

"We have some very diverse objectives at the habitat," Du Toit explained. "We want to continue work that we began last year integrating a hovering, autonomous vehicle directly with the astronauts as they execute



Researchers with NASA work with one of NPS' unmanned underwater vehicles during a 2013 trip to the Aquarius underwater research facility off the coast of Florida. (Courtesy photo)

their missions and support them with our robot assist technology.

"We are also pushing our level of autonomy, looking at things like autonomous docking and the mapping of complex environments so that we can efficiently and safely operate in them," he added.

Additionally, the NPS team seeks to enhance its ability to launch and recover autonomous underwater vehicles (AUVs), as well as their ability to collaborate between different classes of vehicles using a common software architecture.

Du Toit is looking forward to the opportunity to work hand-in-hand with his astronaut colleagues to discern what capabilities they need and to what extent experts, like himself, can step aside and allow operators to deal directly with autonomous and semi-autonomous robotic assist vehicles.

"We have a mandate to look at manned-unmanned system integration. We want to build upon our work last year, which focused on diver-robot interaction through exercises like tool delivery and object recovery. We are starting to test more and more of those kinds of capabilities.

"And we want to get away from the need for subject matter experts to deploy these systems. We need to know what it is that human operators really need so that the vehicles can be used by non-experts in a way that is helpful and adds value to human operations in extreme environments," Du Toit explained.

Du Toit hopes that by living with the astronauts aboard the Aquarius habitat, he will gain important insights toward fulfilling this mandate and meeting his other research objectives.

"I am going to gain such a different perspective," Du Toit said. "Normally, in unmanned underwater vehicle research, you program a vehicle and let it go and then analyze the data it collected. In this case, I will be diving 4-8 hours per day with the vehicles and the astronauts they are assisting."

As Du Toit prepares to begin his Aquanaut training, he has high-hopes that he and his colleagues will find some of the answers to these questions beneath the sun-soaked waters of the Florida Keys.

FACULTY news & notes

NPS Distinguished Professor of Computer Science Cynthia Irvine was recently honored with the National Science Foundation's Women in Cyber Security 2016 Award of Excellence.

Irvine was recognized for her research, innovation and contributions to cybersecurity. She has been an instrumental part of the NPS cybersecurity team since 1994 and has been a pioneer in the field since its early stages.

Acting NPS Provost Jim Newman recently announced awards of tenure and promotion for the following NPS faculty:

Mechanical and Aerospace Engineering Associate Professor Brian Bingham, Graduate School of Business and Public Policy Associate Professor Robert Eger and National Security Affairs Associate Professor James Russell.

The following assistant professors were promoted to associate professor and awarded tenure:

Computer Science Associate Professor Robert Beverly, Physics Associate Professor Drago Grbovic, Physics Associate Professor Joseph Hooper, Electrical and Computer Engineering Associate Professor Ric Romero, Mathematics Associate Professor Lucas Wilcox.

The following associate professors were promoted to full professor:

Graduate School of Business and Public Policy Professor Geraldo Ferrer, Operations Research Professor Johannes Royset, and Electrical and Computer Engineering Professor Todd Weatherford.

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Professor Calls Capacitor Development Revolutionary

By Kenneth A. Stewart

NPS Research Professor Jonathan Phillips has made what he calls a “revolutionary” development in the field of capacitors.

“For a few years, no one believed me, but our Novel Paradigm Supercapacitors [NPS] are now getting traction.” The bottom line, he says, is a dramatic increase in the “dielectric constant of the best dielectrics by more than six orders of magnitude.”

The dielectric constant is a measure of the relative polarization of an electrically-insulating material known as a dielectric. The higher the degree of polarization of the dielectric material in a capacitor, the more it cancels the field created by the electrons stored on its electrodes. By cancelling the field with a dielectric, Phillips makes it easier to bring new electrons to his capacitor thereby increasing the electron density on the electrodes for any particular applied voltage.

Phillips and his team came to this discovery by putting conventional wisdom aside, and revisiting a long dormant area of capacitor research. In short, the team devised a means whereby electrostatic capacitors can store far more energy than alternative capacitors – including supercapacitors.

“We think that we are just at the beginning. We are at this little, tiny lab at NPS and we are the only team in the world studying this,” Phillips said.

Any object that will hold an electron until a desired release is a capacitor, and they are important to the Navy, and industry, because

they have the potential to store and release large bursts of energy in relatively short periods of time.

“You want capacitors to be really, really high in electron density because their energy is stored in individual electrons,” Phillips explained. “Every electron you bring up to the electrode surface is one more pellet of energy that you can release.”



NPS Research Professor Jonathan Phillips is pictured in his NPS lab with a sample of the “beach sand” he created to increase capacitor performance. Phillips and his students say they have dramatically increased the output of parallel-plate capacitors with the substance. (U.S. Navy photo by Javier Chagoya)

Researchers have tried many things to improve capacitor energy storage. In recent decades, two primary methods have been the focus of nearly all capacitor research. Researchers have created integrated circuits or “micro-machines” that work by bringing the plates in parallel plate capacitors very close together – as little as a micron apart. But most researchers have focused primarily on a second area of supercapacitor research, which aims to improve efficiency by increasing the electrode surface area within capacitors. This is done by replacing metal plates

with highly conductive, high-surface-area materials like graphene.

Phillips is focused on a third method that relies upon an area of research largely abandoned decades ago – the dielectric constant of the material placed between electrodes in a capacitor.

“I’m working on the Epsilon, or dielectric, value ... I ignored 30 years of mathematical nonsense and went back to the understanding of dielectric behavior that was widely held,” he said emphatically. “I believe people had it right, we just took a turn in a strange direction.”

Resident Naval Strategist Wayne Hughes Talks Maritime Innovation

By MC2 Victoria Ochoa

NPS Department of Operations Research Professor of Practice Wayne P. Hughes Jr. discussed maritime innovation during the latest Naval War College Monterey Faculty Workshop.

The Navy is undergoing swift progress in innovation, Hughes said, and will continue to do so by close paying attention to the work at NPS.

“NPS is supporting innovative products that affect the surface Navy,” said Hughes. “By anticipating Navy needs, we [NPS] have stayed a good five years ahead of the Pentagon in regards to future opportunities and risks.”

Hughes went on to discuss one of those NPS-supported innovations, distributed lethality, spearheaded by Commander, Naval Surface Forces, Vice Adm. Thomas S. Rowden.

“Rowden is specifying actions to give his surface forces an immediate, more distributable offensive capability to achieve his intentions with existing ships and aircraft, manned and unmanned,” he said.

“He has embarked on real innovation to achieve a big change in a short time ... Quick innovative thinking can bring definitive change to our Navy,” added Hughes.

NPS Union President Plays Lead Role in New DOD Performance Management System

By MC1 Lewis Hunsaker

National Federation of Federal Employees Local 1690 President Pete Randazzo has played an instrumental role in a recently announced DOD-wide civilian performance management system, an effort he has been



Local 1690 President Pete Randazzo is pictured in his NPS Office. Randazzo has played an instrumental role in a DOD-wide civilian performance management system. (U.S. Navy photo by MC1 Lewis Hunsaker)

involved with since October of 2010. "I saw an opportunity to be part of a historical and unprecedented effort that could reshape DOD civilian culture," said Randazzo. "The return on this investment would be improved services and mission readiness."

Initial discussions started in 2010 with more than 200 labor representatives, human resources professionals, supervisors and government leaders. Design teams were formed, with the details scrutinized by dedicated working groups over the last 2 1/2 years.

"A huge emphasis has been placed on employee engagement, the relationship between the first-line supervisor and employee, as well as investing in training for supervisors," said Randazzo.

Over the next two years, a majority of the approximately 750,000 employees in the DOD civilian workforce will have their performance rated under the "New Beginnings" system.

RoboDojo Invites NPS Personnel to Build the Perfect Glider

By MC3 Brian H. Abel

NPS' RoboDojo Laboratory hosted a competition, open to all hands, to see who can create a glider that will fly the furthest when thrown or launched.

"We are allowing everyone the opportunity to participate in this experiment to build a glider," said NPS Department of Defense Analysis Lecturer and RoboDojo sensei Kristen Tsohis.

"We thought it's pretty exciting that people could use inexpensive foam board, 3D-printed motor mounts, and some basic electronics and make a really cheap glider that can accurately make it to its destination," she continued.

Participants had until April 21 to build, design and modify their gliders. During Robots in the Roses, participants will demonstrate their building skills during a distance challenge.

"On April 21, participants will bring their assembled gliders with the adjustments they made to help them fly," said Tsohis. "Whoever

throws their glider the furthest will win a \$15 dollar gift card."

The competition is one of several upcoming RoboDojo events, more information is available at <https://my.nps.edu/web/robodojo/> welcome.



NPS student Lt. Chris McCook, left, receives instructions on how to assemble a glider, April 8, during an introduction to the RoboDojo's competition to see who can create a glider that will fly the furthest when thrown or launched. (U.S. Navy photo by MC3 Brian H. Abel)

CAMPUS news & notes

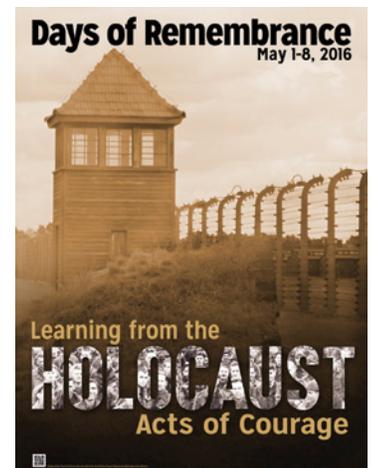
The Military Cyber Professionals Association (MCPA) recently welcomed Department of Homeland Security (DHS) Chief, Cybersecurity Plans and Coordination Antonio Scurlock to speak to cyber professionals at the NPS Foundation Cottage.

The chapter will be hosting a number of future briefings open to the NPS community. Future events include a briefing with E-Trade's information security officer and planned visits from Microsoft officials.

Naval Support Activity Monterey (NSAM) recently joined with various city, county, state and federal representatives to host a Tsunami Preparedness Seminar.

An earthquake-driven tsunami could take 10 or more hours to arrive at California shores, cities have adopted different forms of warning systems to advise citizens to move to higher ground. Once higher ground is reached, authorities advise residents to remain in place.

Residents of Monterey can register their cellphones for emergency messages using the Alert Monterey website at <http://alertmonterey-county.com>.



Send your campus news and notes to update@nps.edu.

A Letter of Thanks from a Grateful Father

By Andy Hernandez

On behalf of the entire Hernandez family, I offer this short article as a way to express our gratitude to the many individuals and organizations, and NPS as a whole, who have seen us through a very difficult time.

On 30 March 2016, my family suffered a heartbreaking loss with the death of my daughter, Tara. She was a wonderful, remarkable, young woman in all things, and in all ways. Her will to live and appreciation for the gifts that life offers was incredible. Tara was the best person I knew. The response from NPS matched her goodness. It overwhelmed.

The compassion that we felt from the entire campus eased our pain. My wife, sons, daughters, father, brother and sisters, and in-laws marveled at everyone's kindness and desire to help in every detail to memorialize and honor Tara. Cards of condolence, flowers, and messages of support and consolation from individuals, departments, centers, and schools comforted us. Each was a reminder of how special Tara was and how others recognized it.

NPS was in full support of Tara's vigil and funeral. Chaplains Nelson and Van Dyke spared no actions to support Father Dominic in meeting my family's spiritual needs. The NSA literally opened all facilities and roads to us. It was a tremendous demonstration of humanity and organizational unity during this dire period. Tara embraced NPS. And it embraced her in return. The positive role that the school has played in her life is immeasurable.

Tara loved life and was ever grateful to anyone who showed her consideration in any form. For every supervisor who mentored her; every person who visited her at home or hospital; every person who took her to have a meal; anyone who called or dropped her a note of encouragement; any organization that supported her, she let them know how much she appreciated them. They were a friend. It is only fitting that we simply, but most sincerely say, "thank you" to our friends.



Sponsored Program Administrator Tara Carmilia Hernandez (Courtesy photo)

Focus On ... Security

A Monthly Look at Names and Faces on Campus

OPSEC is a force multiplier! It costs the DOD nothing yet provides invaluable protection. Additionally, the basic principles can be tweaked and applied to one's own self or family as a form of identity protection, explained NPS' Security Manager's Office (SMO).

The staff of the SMO cumulatively has over 70 years of active duty military service, and additional decades more as civilians. They understand the needs of students

having served in the military, operated in other service schools, and worked as a board-certified instructor.

Maintaining one's clearance allows detailers to offer a wider choice of programs and duty stations upon graduation. Meanwhile, students desiring to actively participate in classified conferences or symposia outside of NPS in support of their educational or career goals may request to have their clearances passed.

The SMO can also offer assistance in the proper transmission of classified material, either electronically or by preparing for authorized shipment, and can receive and hold classified material sent from the distant end to the student here at NPS for further study.

The SMO realizes how important customer service is to a rewarding military career, and look forward to providing positive support. The office also provides various



security briefs. For more information, the Security Manager's Office lists its various services on NPS' Intranet page at <http://intranet.nps.edu/security/>.

Any Day at NPS ...



Penn State University Professor of Practice and NPS alumnus, retired Rear Adm. David Titley delivers a presentation on communicating climate change in the Mechanical and Aerospace Engineering Auditorium, April 1. (U.S. Navy photo by Javier Chagoya)



Army Gen. Joseph L. Votel, Commander, U.S. Central Command addresses students, faculty and staff during a guest lecture in Ingersoll Hall, April 8. (U.S. Navy photo by MCI Lewis Hunsaker)



Robots, build by local high school students battle during NPS' 6th Annual Robots in the Roses research fair, April 21. (U.S. Navy photo by MC3 Brian H. Abel)



NPS student Australian Army Capt. Adam Hepworth speaks during the annual Australian and New Zealand Army Corps (ANZAC) Day ceremony outside Herrmann Hall at dawn, April 25. (U.S. Navy photo by MC3 Brian H. Abel)



Sideboys render honors to Naval Support Activity Monterey Operations Officer Lt. Cmdr. Dan McKaughan during his retirement ceremony, April 21. (U.S. Navy photo by MC2 Michael Ehrlich)



Retired Pakistan Air Chief Marshall and former Chief of Air Staff of the Pakistani Air Force (PAF) Rao Qamar Suleman meets with NSA students in Glasgow Hall to discuss the modernization of the Pakistan and Indian air forces, April 25. (U.S. Navy photo by MC2 Michael Ehrlich)



STUDENT voice

Army Special Forces Maj. Tim Ball, Chairman of the President's Student Council

This month, I'd like to highlight our international students and the unique contributions they bring to NPS. I hope you all had a chance to make it out to International Day at the end of April.

My wife and I arrived, and immediately tried to sample every single booth that we could. The quality of food provided by our international partners was extraordinary. The friendliness was a step beyond that. As we went from booth to booth, it wasn't just to get a taste of some date cakes from Saudi Arabia, or some bratwurst from Germany. We were also greeted with warm smiles from all over the world, and unspoken invitations for us to come experience someone else's culture.

Different cuisines were explained to us along with the occasional insistence that we MUST try a certain dish. As someone whose military specialty revolves around living and working with other cultures (and eating with them!), I was in heaven.

So as you walk around campus or sit down in a class, take a moment and figure out if you have an international student nearby. Get to know them. Figure out how to say "hello" and "how are you doing?" in another language. Enjoy the experience and make sure they feel welcome in our country.

To all the international students, and the American NPS students who helped them with International Day: Great job! I look forward to trying to sample every booth again next year.

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

On Campus this Month

ASIAN AMERICAN PACIFIC ISLANDER HERITAGE MONTH

May 4-5

13th Acquisition Research Symposium
Located at Embassy Suites, Seaside, Calif.

May 5

Holocaust Remembrance Day
12:00 p.m. - 1:00 p.m.
at MAE Auditorium



May 6

Defense Energy Seminar
1:00 p.m. - 2:00 p.m. at MAE Auditorium

May 10-13

JIFX 16-3
Located at Camp Roberts



May 17

Asian American Pacific Islander Heritage Celebration
12:00 p.m. - 1:00 p.m. at the steps of Herrmann Hall

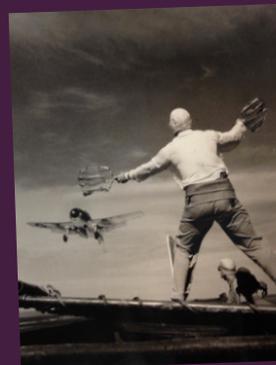
May 30

Memorial Day



Historical Highlights

USS Monterey (CVL 26) was launched February 28, 1943. She received 11 battle stars for World War II service. But, "The Mighty Monty" really comes alive for us with a scrapbook made by crewmember R.T. Winstead. Capturing shipboard life at eye level, "Winnie" even caught a few shots of basketball games with a young Lt. Gerald Ford, the ship's athletic director, later assistant navigator and eventually the 38th U.S. president.



Though unscathed by battle, Monterey was one of many U.S. Navy ships to encounter Typhoon Cobra, which sank or damaged ships and killed hundreds of sailors. Conditions were so intense that planes tore loose from their cables causing fires on the hangar deck. Winstead's crewmates extinguished the fire and got the ship underway. The Monterey lost three men to the storm.

The Dudley Knox Library is proud to honor the "The Mighty Monty" and her crew by providing a new home for her bell. We thank the Naval History & Heritage Command for loaning it to us.

Historical Highlights are provided by the Dudley Knox Library.

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