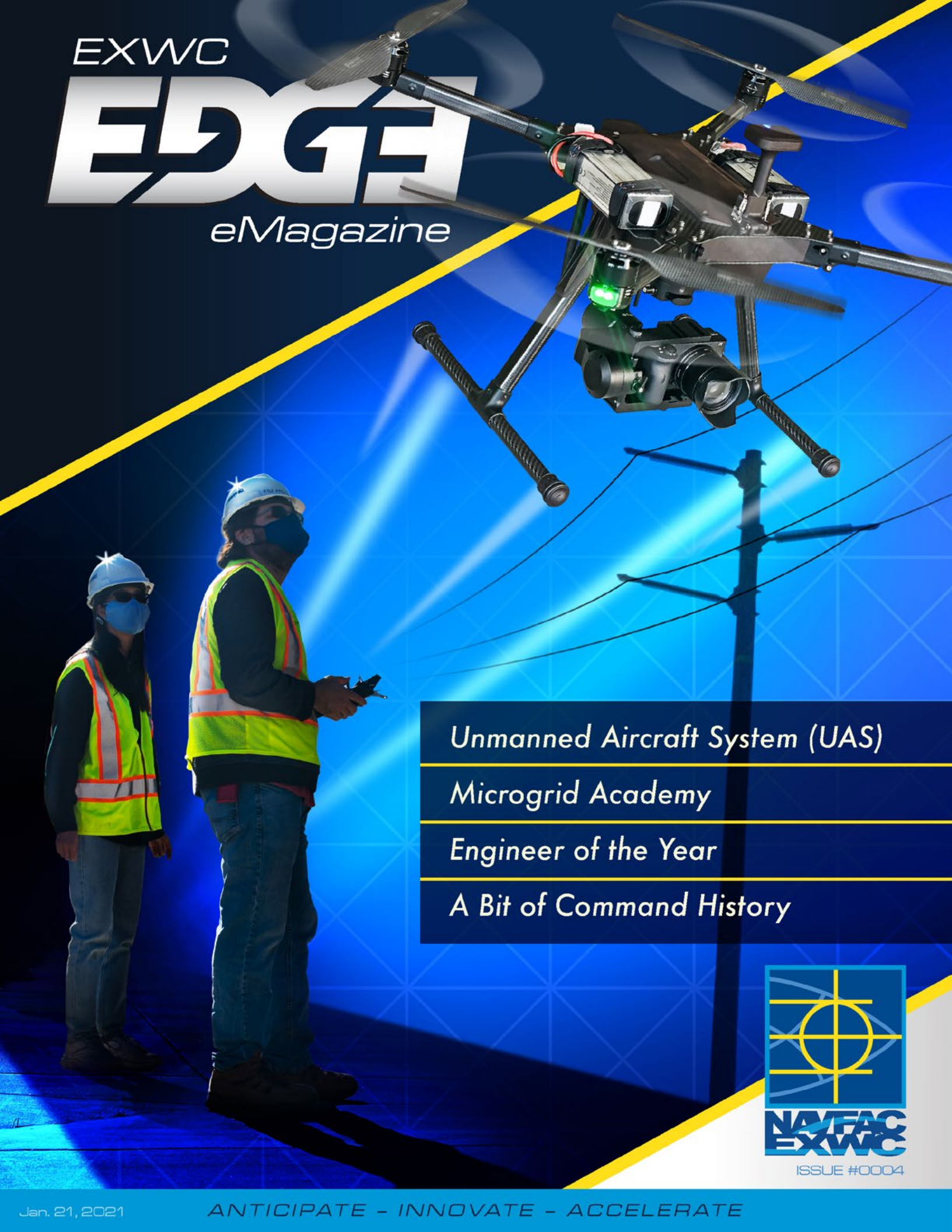
EXWC EDGE eMagazine



Unmanned Aircraft System (UAS)

Microgrid Academy

Engineer of the Year

A Bit of Command History

NAVFAC EXWC

ISSUE #0004

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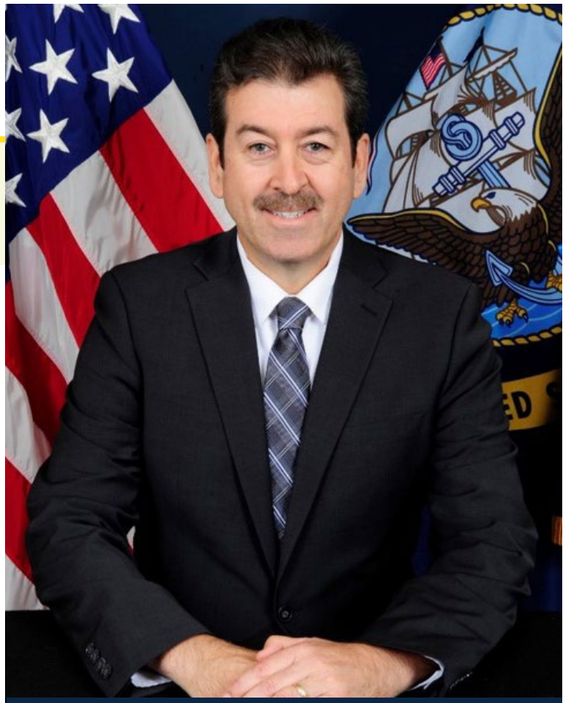


KAIL MACIAS
TECHNICAL DIRECTOR
State of California
Licensed Professional Engineer

Happy New Year!

I would like to start this message by saying that as I write this, I am humbled because after 35 years with DON, I still am able to work alongside committed individuals like you—my fellow colleagues—who continue to strive towards both the betterment of EXWC and our military.

2020 was a challenging year. We converted to a new financial system, prepared for conversion of 50 percent of our workforce to working capital fund, delivered critical capability to the fleet while dealing with a global pandemic. I am continually amazed with your unwavering service and support to the warfighter.

My journey into public service began at Naval Civil Engineering Laboratory as a summer intern many years ago. I choose this commitment to public service for a number of reasons; but namely, because I wanted to provide the latest technology and improve the capability for the warfighter. After all these years, I am still inspired, humbled and honored to serve with you.

As many you may know, my recent journey of servitude took a turn down a new and exciting path, as I now have been officially seated as your Senior Leader (SL) here at EXWC. This journey is not just my own. In order to be granted an SL position at EXWC, our entire team—from the newest of employees to the most seasoned—had to collectively prove to the Navy and DOD that we have the expertise, passion, and commitment to support the warfighter in everything we do every single day. This newly appointed position stems from what we have done, and will continue to do, to inspire those serving alongside us to further advance the technologies and capabilities for our warfighter.

As I sign off, I am humbled to have written this message—my first as your newly appointed SL—and am honored to continue to support our armed forces professionals in uniform and the Navy at-large.

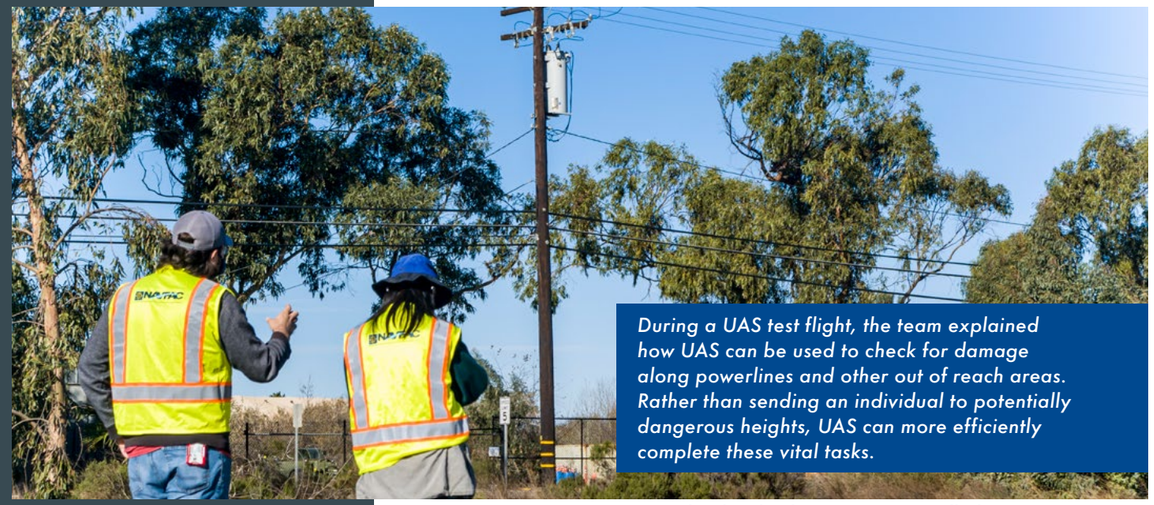
Lastly, and again it is with great pleasure that I announce our newly selected Deputy Technical Director Mr. Brant Pickrell. Brant brings a tremendous amount of leadership and experience with over 32 years leading multi-disciplined local, regional, and global matrix/complex engineering and scientific organizations in all facets of facilities infrastructure, engineering, RDTE, logistics, program, and project management. Brant will transition into the DTD position on 17 January 2021.

Mr. Kail Macias

All About UAS

How can UAS support the warfighter? How are we using this technology?

Read on to find out.



During a UAS test flight, the team explained how UAS can be used to check for damage along powerlines and other out of reach areas. Rather than sending an individual to potentially dangerous heights, UAS can more efficiently complete these vital tasks.

Dr. Jean Pan and Kyle Abrahamsen UAS test flight, Port Hueneme

What is UAS?

Unmanned Aircraft System (UAS) are various forms of remotely operated aircraft and ground stations. UAS are of interest to the Navy because of their ability to carry a diversity of payloads, provide remote situational awareness, and capture data. NAVFAC EXWC has been collaborating on UAS demonstration projects since 2016 and established its own small UAS program in 2018, in accordance with the Commander, Naval Air Forces, Guidance for the Operations of DON Group 1 and 2 Unmanned Aircraft Systems. Through our UAS program, NAVFAC EXWC researches and conducts demonstrations of UAS technologies that support various NAVFAC needs. As a warfare center, NAVFAC EXWC's UAS program has the capability to rapidly evaluate new UAS technology and achieve the mission of advancing UAS capabilities for the warfighter.

The NAVFAC EXWC UAS program has both air vehicle operators and subject matter experts (SME) on UAS from each of NAVFAC's business lines, each of who understand the needs of the Navy and how UAS can meet those needs. These SMEs work with customers to identify technological gaps, find solutions for customers with existing needs, and seek funding to support demonstrations, such as through various research, demonstration, test, and evaluation programs. The use of UAS technology can enable faster and more thorough inspections, remove personnel from dangerous operations, enhance situational awareness of the warfighter in expeditionary settings, and more.

NAVFAC EXWC's UAS program supports safe UAS operations in the national airspace and in accordance with DON policies and instructions. Members of NAVFAC EXWC's UAS program are experienced with the process and how to safely and securely conduct UAS operations on installations. NAVFAC EXWC professionals have successfully developed and conducted multiple UAS projects at various installations. The projects highlighted next show a sample of the various capabilities available tot NAVFAC and the rest of the DON.

https://hub.navfac.navy.mil/webcenter/portal/exwc/Technical+Director/UAS+Program

Facility Inspection Analysis for Enhanced Agility

One of the UAS acquired by NAVFAC EXWC to support facility inspections

Why is this important?

The Navy needs expedient and cost effective solutions to reduce operational deficits. UAS have the ability to reduce the time, personnel and equipment needed for many inspections performed by the Navy. UAS also allow for the inspection of dangerous areas with significantly reduced down time for equipment and operations. Understanding inspection needs and applying effective solutions is critical to the successful use of UAS.

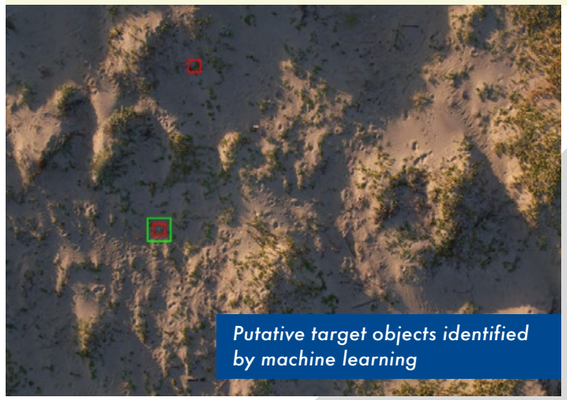
UAS are a promising technology for facility inspection, however, the right technology needs to fit the inspection since requirements and needs can vary greatly. Kyle Abrahamsen, UAS Technology Specialist of NAVFAC EXWC's UAS Program, and NAVFAC EXWC's Public Works (PW) Department were funded by the Naval Innovation Science and Engineering (NISE) Program to research which UAS and sensors can most effectively supplement or replace various traditional inspections done by personnel. SME at NAVFAC EXWC and industry were consulted on the requirements for various NAVFAC inspections. The team researched, investigated, and compared the capabilities of over 30 UAS, and found that several met the SME requirements and the FY20 National Defense Authorization Act provisions. Based on the analysis, NAVFAC EXWC procured multiple UAS for use in NAVFAC EXWC inspections inspections, such as distribution lines and construction, and have a list of UAS that the team would propose for other purposes.

Developing Automated Target Object Identification to Turn UAS Data into Information

Funded by the Naval Innovation Science and Engineering Programs, NAVFAC EXWC and Naval Information Warfare Center Atlantic, along with the Ventura County Office of Education (VCOE), have been developing a machine learning approach for automated target object identification in UAS imagery. The focus of this project was the California least tern system because the team had access to large quantities of labeled UAS imagery data from multiple years. Adult California least terns (approximately 8-9 inches) were selected as the target object for this project. After training and testing a variety of algorithms and approaches, the cascading convolutional neural network approach was found to work best for identifying adult least terns, either flying or nesting. To ensure the identified targets were actually birds, a user interface was developed to allow end-users to make the final determination for the alleged targets. This interface also allows end-users to verify the accuracy of the identification and provide information on the target.

Why is this important?

Turning data into useable information in a timely manner is critical for the DON and DOD. While UAS can rapidly collect copious amounts of data, reviewing the data and making it useful is not a fast process. Results from this project showed that machine learning is can significantly reduce the amount of time needed to identify target objects and process UAS data into useful information.



Putative target objects identified by machine learning

All About UAS

"It is only a matter of time that UAS data collection becomes common practice, which is why our team will continue optimizing our methods and workflow on various UAS data analyses, including interactive 3D scenes and augmented reality/virtual reality capabilities,"

- Shea Broussard,
NAVFAC EXWC,
Capital Improvements 7 GIS Team

3D orthomosaic of loading dock facility from a survey of the Port of Hueneme, CA

Putting the "Geospatial" into UAS Imagery Analysis

NAVFAC EXWC's Geographic Information Systems (GIS) team has been researching and developing processes for a geospatial data analysis of UAS imagery. Funded by the Naval Innovation Science and Engineering Program, the GIS team took advantage of previously collected UAS imagery from over 30 flights, to develop and refine workflows for 2-dimensional analysis. This included determining and building optimal hardware solutions for these computationally intensive analyses. Workflows and hardware solutions were tested during a survey that took place at the Port of Hueneme, off the coast of Southern California, as part of the NAVSEA PHD Advanced Naval Technology (ANTX) Exercise. Data were collected using various aircraft and hand-held sensors from imagery to light detection and ranging (LiDAR) point cloud data. The data analyses combined the ground and air datasets and geo-aligned the datasets to help produce a more complete picture of what was being surveyed. The project team produced both 2 and 3-dimensional geo-rectified products visualized on existing software products on Navy-issued computers. The products were also successfully paired together into a single application in a map scene within a platform already available within the DON. UAS's are quacking offering access to information that is difficult to obtain on Navy installations. UAS technology is at a tipping point where data collection is starting to become cheaper, of better quality, faster to collect, and can be gathered in a more focused manner. The adoption of UAS for various NAVFAC needs suggest that data collection with UAS will become an established Navy workflow in the near future.

Why is this important?

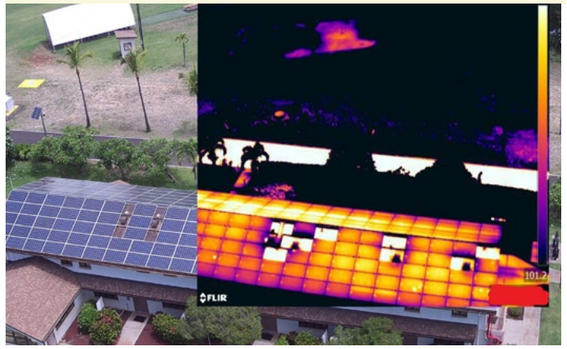
UAS offer access to information that is difficult to obtain on Navy installations. UAS technology is at a tipping point where data collection is starting to become cheaper, of better quality, faster to collect, and can be gathered in a more focused manner.

Is That Hot? Energy and Utility Solutions Using UAS

Solar panels—also known as photovoltaics—are being used at every military installation, and require periodic inspections to keep functioning. The Pacific Missile Range Facility (PMRF) Barking Sands has rooftop solar panels installed on several buildings and could detect that some systems either failed or were under-producing electricity. PMRF contacted NAVFAC EXWC for solutions on how to safely and accurately inspect the systems for problems. Funded by the Energy Systems Technology Evaluation Program, NAVFAC EXWC's PW Department successfully demonstrated the use of UAS for electrical system modeling and inspection. The pilot study used UAS and a long wave infrared camera to inspect rooftop solar panel systems for excess heat and shading, indicating a malfunctioning panel (which can cause a major reduction in electrical generation). The pilot study found several malfunctioning panels, and helped spot previously unknown roof problems.

Why is this important?

Regular inspections can provide health assessments and monitor utility infrastructure, allowing for condition based maintenance or early fault detection. NAVFAC EXWC's PW Department demonstrated that UAS can be used to quickly and accurately assess solar panels, showing the utility of airborne inspection platforms while keeping personnel safe on the ground.



IR imagery can provide facility managers with data on the health of the PV system

Using UAS to Help Build Tomorrow's STEM Workforce

NAVFAC EXWC's UAS Program has collaborated with local high schools and the VCOE to provide high school students with opportunities to participate in real-world Navy UAS projects, including conducting flights at Naval Base Ventura County. VCOE students have been supporting UAS projects by testing sensors, conducting flights and collecting data. The UAS program has also provided project opportunities for college students. Multiple students from the Naval Research Enterprise Internship Program have worked on UAS-related projects, including target object identification in UAS imagery and geospatial data analysis. Teams have also provided guidance on using UAS technology for monitoring threated and endangered bird species to faculty and students at California State University, Channel Islands.

Why is this important?

STEM initiatives are an integral part of supporting and developing the current and future DOD technical workforce. NAVFAC EXWC's outreach activities, and relationships with community programs like VCOE, have led to students becoming interns, which further leads to interns becoming Navy employees.

VCOE students preparing to conduct a UAS flight at Naval Base Ventura County. Photo taken pre pandemic.

All About UAS

Reaching greater heights to evaluate airfield runways

Data MULE UAS operations at Point Mugu, Naval Base Ventura County

UAS as a "Data MULE": Using UAS to Remotely Download Data from Ground-Based Sensors

The United States Army Corps of Engineers Research Engineering Lab (USACE CERL), NAVFAC EXWC and Mission Mule, LLC, were funded by the Environmental Security Technology Certification Program (ESTCP) to demonstrate the use of UAS to remoretly download data from ground-based sensors. The Data Mobile Ubiquitous LAN Extension (MULE) system consists of a wireless communication data station attached to a ground-based sensor, and a communications payload carried by the aircraft. The payload communicates with the data station when the UAS flies by and downloads the data from the ground sensor. The payload also initiates commands to manage the data, deleting data that has already been downloaded and preventing the sensor's memory from getting filled.

Why is this important?

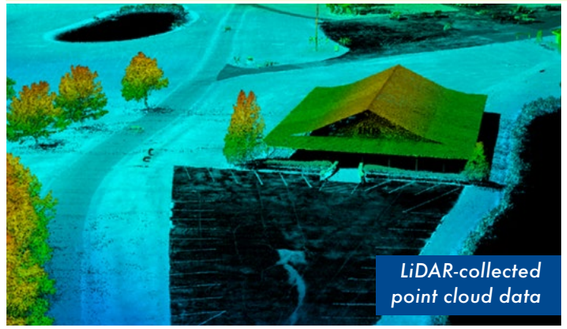
The DOD uses ground-based data sensors for a variety of purposes. Many of these sensors are placed in areas that are difficult to access, and are not generally available for easy data collection. By using the Data MULE system, personnel can access data in a safer and more timely manner. This technology can also be cross applied to various other ground-based sensors, which would provide similar benefits for the end-user.

ExPO Helps NECC Determine Requirements for UAS Use for Navy Expeditionary Rapid Airfield Damage Repair

NAVFAC EXWC led the development of an analysis of alternatives (AoA) for the Navy Expeditionary Combat Command that addressed Navy Expeditionary Rapid Airfield Damage Repair (ExR-ADR). ExP-ADR focuses on how to quickly and safely assess damage to the runway, taxiways, aprons and parking areas during a contingency operation. The AoA also examines what commercially available equipment is able to best support the mission. The AoA team conducted market research on UAS and light detection and ranging (LiDAR) sensors that would support ExR-ADR. The team reached out to various suppliers and manufacturers that could provide the best solution that meets the needed requirements. The UAS and LiDARs were evaluated based on the ease of operator use and point cloud processing speed within a set time parameter.

Why is this important?

NAVFAC EXWC's market research determined that the currently available technology would be able to help military personnel evaluate a damaged airfield runway rapidly and safely, and get operations up and running in a timely manner.



LiDAR-collected point cloud data

EXWC Transitioning UAS Technology into Department of Navy to Support Environmental Needs

To facilitate use of UAS on installations, the Environmental Security Technology Certification Program (ESTCP) funded NAVFAC EXWC's Environmental (EV) Department and various university and industry partners to support transition of UAS for natural resources management to Marine Corps Installations East (MCIEAST). This project increases the accessibility of UAS technology for MCIEAST natural resource managers. Use of UAS will increase capability of natural resources managers to collect, process, and interpret high-resolution, remotely-sensed data, which will transform DoD land-management by providing the latest information for optimizing the decision-making processes.

EXWC's EV Department is expanding capabilities of UAS on installations for supporting natural resources, restoration, munitions response, range clearance, and other environmental areas of need. Teams use in-house capabilities and knowledge of UAS operations, obtaining permits and approvals, data interpretation, etc., to develop projects in these environmental areas.

For an upcoming ESTCP project, teams will demonstrate the use of UAS-collected data as a cost effective method to locate groundwater seeps into surface water bodies. Characterizing groundwater plumes that impact surface water has been identified by the NAVFAC Sediment Workgroup as one of the top issues for maintaining clean water under the Clean Water Act. Studying the contaminant load at these groundwater seeps allows for the evaluation of the natural attenuation capacity for the contaminants of concern and sets the framework for identifying potential cleanup parameters.

UAS training and field operations. Photo taken pre pandemic.

EXWC in the NEWS

Have you spotted EXWC in the NEWS lately? Check out these latest headlines!

Microgrid Experts Host First Electric Utility Training Academy for Armed Forces

Story by Sarah G. MacMillan, NAVFAC EXWC Deputy Public Affairs Officer

Naval Facilities Engineering and Expeditionary Warfare Center (NAVFAC EXWC), the Office of Naval Research (ONR), and the Monterey Naval Postgraduate School (NPS) co-hosted a three-day virtual electric utility training academy for armed forces personnel looking to expand their understanding of microgrids.

The Department of Defense, Department of Energy, and other federal, state and local agencies are working towards U.S. energy self-sufficiency by constructing microgrids and other renewable power energy sources across military installations.

In an effort to further the understanding of renewable power energy via microgrids, NAVFAC EXWC enlisted electric utility professionals from ONR and NPS to co-host 12 classes within three half-day sessions. 46 participants from across all armed forces–U.S. Army, U.S. Navy, U.S. Marine Corps and Air Force–attended the debut Microgrid Academy.

For background, a microgrid is a self-sufficient energy grid with controlled capability–meaning it can disconnect from a traditional electric grid and operate autonomously. Microgrids are important for a variety of reasons, namely because if a first power source from an electrical grid fails, a microgrid can break off and operate on its own, using local stored energy and generation in times of crisis–for example storms or power outages. Microgrids not only provide a backup energy source in case of emergencies, but can also reduce costs, and offer a solution for communities to be more energy self-sufficient and, in some cases, more environmentally friendly.

Microgrid Academy presentations consisted of several electric utility topics, including SKM electric distribution, ARC analysis and modeling, XENDEE modeling, Navy microgrid case studies from NAVFAC EXWC and NPS, resilience in the DOD as it pertains to energy sufficiency, base utility responsibilities, doctoral thesis excerpts, and an overview of the Electric Power Research Institute microgrid development.

Of the presentations, the XENDEE modeling platform sparked great interest for participants. In laments terms, the XENDEE modeling platform allows users to begin microgrid modeling by defining detailed scenarios regarding their unique energy utility program(s). The modeling platform dissects these scenarios, and returns a comprehensive overview of data for electric utility engineers.

For military and civilian personnel who have used the XENDEE modeling platform, it has proven to be an imperative tool–especially at Naval Station Rota.

"XENDEE modeling is an additional tool in a decision maker's toolbox that can quickly and succinctly pull massive amounts of data, organize it, and allow for various modeling scenarios to be played out," said Bryan Long, NAVFAC Utilities and Energy Manager Branch Head. "Naval Station Rota–who are already using the XENDEE model–surprised UEM leadership with the results from XENDEE modeling; at first, the results may not have seemed like the way forward, but after allowing the model to optimize a solution, the results were positively astounding."

Long added that in the end, using the XENDEE model helped bring the NAVFAC EXWC UEM organization to make better strategic decisions that were both cost-effective and technologically evolved.

"The Microgrid Academy expertise from its instructors was extremely well-received by DOD students," said Robert Nordahl, NAVFAC EXWC Microgrid Power Systems Team Lead. "NPS was a significant help in bringing the Microgrid Academy to fruition! We also had students and instructors in several continents. Moving forward, as the Microgrid Academy continues to expand, so will our ability to meet the microgrid educational needs of both military and civilians, whether they are CONUS or OCONUS."

The Microgrid Academy plans to host ten Microgrid Academy students towards the end of January 2021 for hands-on microgrid instruction. This instruction has been in high-demand from Microgrid Academy participants, indicating the increase need to continue the Microgrid Academy on a more regular, quarterly basis.

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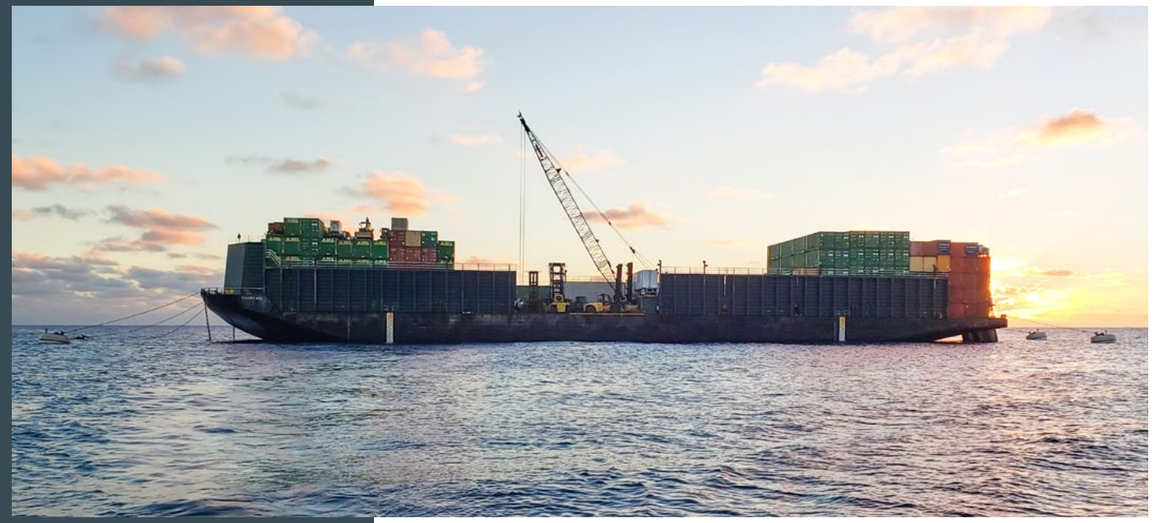
"Special shout out to Robert Nordahl, Bill Anderson, Bryan Long, and Juan Enriquez from EXWC's PW Department; congratulations on the successful launch of the Microgrid Academy!"

Wake Island



First use of the moorings by a barge transporting aggregate and materials for improvements to the Air Force runway on Wake Island.

Have you spotted EXWC in the NEWS lately? Check out these latest headlines!

NAVFAC EXWC Completes Unique Mooring Installation for Defense Logistics Agency

Story by Lt. Matt Karny and Tim Kurtin, NAVFAC EXWC Mooring Engineer

If you search for Wake Island on Google Maps, you will come across one short description: isolated coral atoll housing an airfield. Those who have been to Wake Island will assure you that description is apt.

Wake Island sits at 2,100 nautical miles equidistant between Honolulu and Tokyo, and is surrounded by light green and dark blue shallow water. The colors surrounding Wake Island have been like this for decades; with details of colorful waters dating back well before WWII.

On February 14, 1941, the 32nd U.S. President Mr. Franklin Delano Roosevelt issued Executive Order 8682 (EO 8682)—commissioning the building of defenses on the island by over 1,200 contractors. Wake Island was also fortified with 400 men from the 1st Marine Defense Battalion—who arrived with artillery and airplanes. The defenses began development prior to the Battle of Wake Island, which occurred simultaneously during the attack on Pearl Harbor. Wake Island was held by the Japanese for the duration of the Pacific War and World War II, and on September 4, 1945, two days after Japan formally surrendered, the surviving Japanese troops on Wake Island surrendered. The build-up of defenses on Wake Island ended after the attack on Pearl Harbor, and 80 years later, today's military presence of the Pacific Air Forces Regional Support Center, Detachment 1, continues to maintain a strategic refueling and defensive position in the Pacific following EO 8682.

Crane lift of the new Vryhof Stevshark Rex anchor on its way to the sea floor.

100,000-pound load test being conducted on mooring A-2

In 2015, NAVFAC EXWC's Oceans Department mooring engineer—Mr. Tim Kurtin— assessed the strength and condition of the two point mooring system that is critical to the above-mentioned strategic refueling operations on Wake Island. Through rigorous research and design, Kurtin aided in the initial inspection, design modeling and analysis, and emergency repair on the previously installed hardware and fabrication of the old mooring system. This new $4.5M design-bid-build four-point fuel mooring system was installed in November 2020 and directly supports fuel transfer operations and sustainment to the island. The new design will support fuel operations for ships as large as a T-1 coastal fuel tanker offloading fuel in an excess of 18-knot hourly wind conditions—a significant upgrade for tankers who must maintain fueling operations regardless of weather conditions on the island.

The new design uses four individual mooring points each consisting of a 10-tonne Vryhof Stevshark Rex Anchor, which includes 130 feet of 4-1/8-inch chain with four 11,500-pound steel sinkers resembling revolver firearm cylinders; and 100 feet of additional riser chain topped by a 12-foot diameter foam buoy. The 4-1/8-inch chain is larger, stronger, and harder than any standard Navy chain in use—even larger than the anchor chain used on an aircraft carrier.

NAVFAC EXWC was not the only source of labor that worked on the four point fuel mooring system. The contract team—prime contractor PCCI, Inc. and subcontractors American Marine, Inc., Healy Tibbitts Builders, Inc., and Sea Engineering, Inc.—worked around the clock early November under the direction of LT Matt Karny. Teams worked on a crane barge with extreme efficiency, allowing fueling operations to continue without disruption.

The mooring system on Wake Island will remain operable for more than two decades with proper maintenance. Looking onward, NAVFAC EXWC teams will perform underwater inspections and zinc anode changes beginning in 2023.

Engineer of the Year

Mr. Joshua Henson, P.E.

Congratulations Joshua Henson for being selected as NAVFAC EXWC and NAVFAC enterprise Civilian Engineer of the Year!

The selection of both military and civilian engineer of the year pays homage to the National Society of Professional Federal (NSPF) engineer of the Year Award program—recognizing exceptional contributions made by federal engineers to the engineering profession, and to the organizations and communities they serve.

Henson, senior engineer for NAVFAC EXWC's Oceans Facilities Department, was selected from a vast pool of talented engineers who have demonstrated selfless dedication and technical superiority to the U.S. Navy.

"This is a tremendous achievement for an exceptional engineer. NAVFAC employs thousands of young, talented and brilliant engineers; selecting only one for this award is not an easy task," said Captain Michael Saum, NAVFAC EXWC Commanding Officer. "Since 2005, Josh's accomplishments here at NAVFAC's warfare center have equipped our warfighters with innovative solutions that contribute to them being the most agile and lethal military force in the world."

Henson earned his undergraduate degree in ocean engineering from the Florida Institute of Technology and his master's degree in marine science (physical oceanography) from the University of South Florida. Immediately after completing his collegiate studies, Henson began his public service career with the Engineering Service Center—known today as NAVFAC EXWC.

For the past 15 years, Henson's dedication to the NAVFAC enterprise has been unwavering. He most recently led his team to victory with the first successful installation of a multi-phase maritime test bed (MTB). The MTB—envisioned to be the Department of Defense's (DoD) leading undersea data and power network environment for evaluating, managing, and accelerating the transition of new science and technology from research to operations—is part of a 20-year Department of the Navy (DoN) project. The MTB—and the successful completion of phase one—marked a major milestone for NAVFAC EXWC, and was quickly recognized by the DoN and DoD science and engineering community, making Henson and his team a strong contender, and ultimate winner of the 2020 Dr. Delores M. Etter Award.

Less than 12 months later, Henson now adds NAVFAC 2021 Civilian Engineer of the Year to his impressive repertoire.

"A huge congratulations to Josh on being named NAVFAC 2021 Civilian Engineer of the Year; this award is well deserved," said Roger Howard, NAVFAC Ocean Innovation Division Director. "Josh is a tireless worker and outstanding performer at NAVFAC EXWC with an unfailing focus on product and service delivery. This award is in recognition of the Josh's cultivation, leadership and execution of multiple award-winning programs within NAVFAC EXWC's Ocean Facilities Department. NAVFAC EXWC is truly fortunate to have people like Josh working to support the warfighter."

Howard added that Josh routinely demonstrates unwavering dedication to the sponsors' missions by remaining engaged in his programs at all levels—which directly benefits NAVFAC EXWC's sponsors.

"I am still processing everything, but I can tell you that it is humbling to be recognized with this award. My family is ecstatic and cannot be more proud, and I am grateful for their continued support and encouragement," said Henson.

Henson added receiving the NAVFAC 2021 Civilian Engineer of the Year award has everything to do with the colleagues he works with—the work NAVFAC EXWC does depends on teamwork, talent, dedication, and genuinely hard work.

When asked what advice he could give for the next generation of scientists and engineers looking towards a career in public service, Henson said,

"There is a significant amount of opportunity very early in one's career for someone who likes a challenge and enjoys a highly collaborative environment. When you find something that interests you, reach out and ask for advice from those working in that field. And always, regardless of what career choice you make, or where you end up working, it is important to enjoy what you do."

Henson will represent the NAVFAC enterprise at the NSPE Federal Engineer of the Year awards on February 18, 2021 at the National Press Club in Washington, D.C., at which time NSPE will announce the 2021 Federal Engineer of the Year.

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Let's Talk About the "Placemat"

2021 updates to our Strategic Alignmment.

In October of 2018, Captain Saum, Mr. Kail Macias, the Executive Steering Group and many other EXWC leaders met for the annual off-site Strategic Objective Meeting to discuss and agree upon the priorities and focus areas EXWC will pursue. The NAVFAC EXWC Strategic Alignment Placemat is a byproduct document that summarizes our vision, mission, guiding principles and focus areas, and clearly shows how these priorities are aligned with NAVFAC, the Navy, and the Department of Defense strategic objectives. Each year, the placemat is updated to reflect new objectives. Whether today is your first day working at EXWC, or you are a seasoned professional team member, every EXWC professional has a stake in the success of the EXWC mission.

For Fiscal Year 2021, the three **Focus Areas** and objectives of each are:

Enable Warfighter Lethality

1. Develop and transition Shore, Oceans, and Expeditionary solutions that enable Distributed Maritime Operations (DMO) and improve Fleet operability

Increase Agility

1. Identify and measure forward-looking Key Performance Indicators (KPI)
2. Inculcate the Working Capital Fund (WCF) business model
3. Restructure into Shore, Oceans, and Expeditionary to enhance operational effectiveness
4. Leverage appropriate Science and Technology Reinvention Laboratory (STRL) authorities

Develop the Workforce

1. Foster a culture of professionalism, accountability, and entrepreneurship
2. Invest time and money in a highly-talented, professional workforce
3. Communicate how EXWC strategically aligns with and supports the Fleet

A copy of our Strategic Alignment Placemat is available for download at this link:
https://drive.google.com/file/d/1Qv8ZfybhfIjCmBwyEMML795I-4zSEos2/view?usp=sharing

You can also view using this Quick Response Code:

NAVFAC EXWC

NAVFAC ENGINEERING AND EXPEDITIONARY WARFARE CENTER

NAVFAC NAVY DOD

STRATEGIC ALIGNMENT

NAVAL FACILITIES (NAVFAC) ENGINEERING AND EXPEDITIONARY WARFARE CENTER (EXWC)

NATIONAL DEFENSE STRATEGY

Rebuild Readiness - Build a More Lethal Joint Force ⋆ Strengthen Alliances - Attract New Partners
Reform Business Practices - Greater Performance and Affordability

CNO NAVIGATION PLAN 2021

Sailors ⋆ Readiness ⋆ Capability ⋆ Capacity

NAVFAC STRATEGIC DESIGN 2.0

Enable Lethality
Distributed Maritime Operations
Expeditionary Advanced Basing Operations

Maximize Shore Readiness
P&S Performance,
Infrastructure Capability

Strengthen Our SYSCOM Team
Financial Integrity, Workforce Talent,
Analytical Decision Making

NAVFAC EXWC

VISION

Accelerate innovation to enable fleet lethality at sea and ashore

MISSION

Provide research, development, testing and evaluation and in-service engineering to deliver specialized facility and expeditionary solutions to the warfighter

GUIDING PRINCIPLES

Integrity: We serve our warfighters and our nation with Honor, Courage, and Commitment
Accountability: We operate safely, ethically and urgently, driven by our supported commanders' priorities
Initiative: We anticipate and act with agility through teamwork to achieve high velocity outcomes
Toughness: We promote bold, credible leadership to overcome challenges in all phases of operations

FOCUS AREAS

⋆ ⋆ ⋆

Enable Warfighter Lethality
Develop and transition Shore, Oceans, and Expeditionary solutions
that enable Distributed Maritme Operations (DMO)
and improve Fleet operability

⋆ ⋆ ⋆

Increase Agility
Identify and measure forward-looking Key Performance Indicators (KPI)
Inculcate the Working Capital Fund (WCF) business model
Restucture into Shore, Oceans, and Expeditionary to enhance operational effectiveness
Leverage appropriate Science and Technology Reinvention Laboratory (STRL) authorities

⋆ ⋆ ⋆

Develop the Workforce
Foster a culture of professionalism, accountability, and entrepreneurship
Invest time and money in a highly-talented, professional workforce
Communicate how EXWC strategically aligns with and supports the Fleet

MOTTO

ANTICIPATE - INNOVATE - ACCELERATE

NAVFAC Character Trait:

MAGNANIMITY

The fact or condition of being magnanimous; to display a noble generosity; to disdain meanness; loftiness of spirit enabling one to bear trouble calmly

Example: "Both sides will have to show magnanimity."

Magnanimity and humility are two virtues that cannot be separated. Our EXWC teammates who possess the character trait of magnanimity are generous in their behavior, their temperament, and deserved to be recognized for their selflessness.

Guille Cortez, CIOFP:

Guille maintains a positive attitude and takes a genuine interest in how others are doing across the department she works in. She has continuously performed her duties well, while maintaining a great attitude, and seeking no recognition for her additional duties.

Lt. Matt Karny, CIOFP4:

Lt. Karny is always upbeat and willing to help or step in when needed for any task, no matter the size. Lt. Karny steps in to perform tasks impacted by COVID-19 restrictions, and continues to assist with COVID-19 tracking and reporting for the health and well-being of the command.

BU1 Zachary Schulte, CIOFP5:

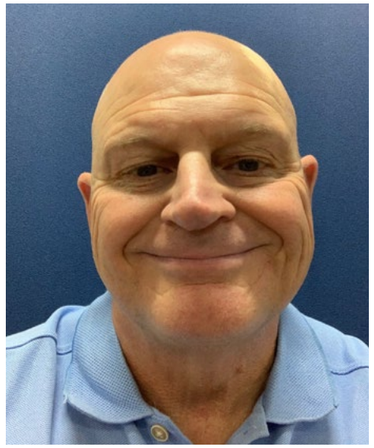
BU1 is the first the volunteer for any task, with little regard for credit or acknowledgment. He maintains a positive spirit, and always focuses on the mission at-hand.

Amy Hawkins, EV3:

Amy enthusiastically steps up to take on responsibilities—recently providing audit support to NAVFAC HQ and leading the NAVFAC Steering Committee for ongoing webinars—while continuing to work through associated project complications.

Dr. Rickie Jones, OPS:

For over 40 years, Dr. Jones has displayed vision, tenacious follow-through, and ownership to achieve his personal and professional goals. In every role Dr. Jones has served at EXWC, he has continued to hone his skills and dedicate the time and effort required to ensure the success of his team, the command, and the warfighter.



Robert Turner, EX51:

Robert has demonstrated many virtues of what it takes to be a magnanimous person. He has always continued the pursuit of learning and teaching what is best for the command, regardless of difficulty. Robert consistently displays humility, which is recognized and deeply appreciated by his superiors.

Kirsten Marble, EV3:

Although Kirsten has been with EXWC for less than a year, she has repeatedly been magnanimous. Recently, Kirsten was thrust into helping with NAVFAC HQ's summer audit, with no prior training in financial audits. She tackled the required tasks with efficiency, dedication, and a positive attitude.

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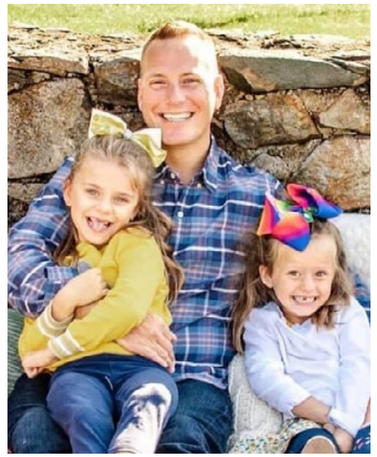


Chris Schlechta, EX21:

Chris has consistently displayed trustworthiness and magnanimity in his career. Chris is the driving force behind several components of his team's technical products. He completes his tasks with efficiency, and steps in to help his team also succeed.

Robert Strubeck, EX21:

Since joining the team, Robert has focused on learning the logistics competencies required of his job, excelling through his career development, while setting his eyes on positions of increased responsibility. Robert's willingness to take action and strive to be the best at his job is a testament to his sense of mission and ability to challenge himself.

Palmer Pinckney II, 09PAO:

Palmer's spirit is a testament to the power of being magnanimous. Whether on or off duty, Palmer is the first lend a hand to help, or a thoughtful ear to listen. In everything Palmer does, he thinks about how it can help those around him. Palmer's oversized positive spirit is an asset to the entire command; he puts the virtues of trust, honesty, and kindness into action—a characteristic of a magnanimous leader.

LS2 Albert Zhu:

Petty Officer Zhu is a valued asset to the PW team and has served flawlessly as the MUSE logistics lead petty officer. The diversity of LS2 Zhu's career at EXWC has represented his agility and ability to succeed in a variety of environments. His contributions to the MUSE team cannot be overstated.

Dave Cook, PW8:

Dave exemplifies magnanimity through his ever-willingness to help other employees whenever he can. Dave has a special interest in his work, and uses his knowledge to advise other engineers on related technologies and collaborate on research proposals. Even outside his technical domain, Dave is always at the ready to assist his team—everyone in PW8 knows that they can count on Dave to help them.

James Triplett, EX21:

James is responsible for the product set-up for all items in the display yard. His anticipation and advanced planning allowed for great teamwork with both the technical team and EMC1.

Angelina Davenport, OPS:

As the command prepared for the deep dive presentation for NAVFAC HQ, Angelina stepped up, pulled together data from multiple systems, and combined it into a comprehensive and usable tool for EXWC. Angelina had the vision, acquired the skills, and turned her vision into a reality!

Scott Barradas, EX28:

Scott's bold leadership has overcome significant obstacles—namely scheduling of events—given the moving timeline of ExPO's Stand-Down/Stand-Up Event. Scott's tireless efforts to coordinate with over a dozen fleet stakeholders has led to maximum participation and critical customer feedback prior to NAVFAC procurement.

Command History

How the SEACON vessel affected the EXWC of today

A Bit of Command History

Written by: Cmdr. Charles Bisgard, P.E.
& Sarah G. MacMillan, Deputy Public Affairs Officer

If you have been working for the NAVFAC enterprise for a few years, you likely know EXWC's history involves several consolidations of NAVFAC Commands over several decades. EXWC's family tree is confusing; with several command consolidations and mergers over a lengthy period, personnel also consolidated and merged. These consolidations and mergers brought together scientists, technicians and engineers with vast areas of expertise—especially for EXWC's Oceans Facilities Department. This information is important to note, because as you continue reading, you will see how the changes EXWC has previously undergone has deeply contributed to the ongoing success of one of EXWC's most diverse departments.

Have you heard of the SEACON vessel? From 1976 through the late 1980's, the SEACON (acronym for sea construction) vessel was a major workhouse for NAVFAC's Ocean Construction Project Office—then known by FPO-1— known today as EXWC's Oceans Facilities Department. Although the SEACON vessel retired decades ago, the SEACON's culture of teaming engineers, technicians and divers to see through complicated programs and projects still exists today. These successes are at the heart of what makes EXWC's programs successful, and offers EXWC new capabilities and authorities—like becoming a Science and Technology Reinvention Laboratory.

Mess Deck aboard the SEACON vessel

Over its lifetime, the SEACON vessel was deployed to constructions sites mainly along the eastern seaboard and the Caribbean. At the direction of civilian engineers across the NAVFAC enterprise, and personnel from the Underwater Construction Teams (UCTs), the purpose of the SEACON vessel was simple: execute whatever mission the Navy required at the time.

For perspective, the SEACON vessel was 260 feet-long. During each project deployment, it could accommodate up to 50 people at a time (which included air-conditioned quarters for around-the-clock operations). The SEACON vessel was equipped with a 48-foot beam that could displace 2,300 tons when loaded. With 6,240 square feet of open deck area, the SEACON vessel was designed to withstand heavy loading, and configured to accommodate roll-on/roll-off construction equipment and permanent deck machinery. It also had a 13 by 20 foot center well used for minimum motion over boarding operations, which included and a 50-ton gantry crane. Clearly, the SEACON vessel had numerous sophisticated capabilities of its time, and could easily be used for a wide variety of offshore construction tasks such as cable-laying, diving support, or handling heavy loads.

The SEACON vessel had a propulsion capability but was typically towed from its homeport of Portsmouth, VA to construction sites by a tug. Once the SEACON vessel was on site, the platform's surface and subsurface navigation systems enabled its dynamic positioning control system, which allowed the SEACON vessel to maintain a fixed position for precise placement and recovery of ocean structures and underwater instrumentation in wicked conditions—or up to sea state four (which is very impressive for its times).

Many of the projects SEACON vessel supported included the installation and repair of underwater cable facilities, arrays, offshore communication towers, underwater tracking ranges, and mooring systems. The same types of projects EXWC continues to build upon today.

So how does the SEACON vessel really affect EXWC today? While EXWC now utilizes vessels of opportunity for much of the capability that it received from the SEACON vessel, the expertise in both planning and executing offshore construction is still an area of strength for the EXWCS Ocean Facilities Department—thank to the SEACON vessel and the information received from its hundreds of project deployments.

Today, whether the current task is to install fiber-optic seafloor cables across the Caribbean for the Defense Information Systems Agency, or maintaining the Wave Energy Test Site offshore of Marine Core Base Hawaii, or even designing and installing cable systems for the Navy, NAVFAC remains the capability to support the Navy's offshore infrastructure.

Black History Month

Honoring the Past, Securing the Future!

Established by Public Law-224, the annual observance of Black History Month—also known as African American History Month—runs through the month of February. The observance recognizes the central role African Americans have made in U.S. history. Other countries around the world, including Canada and the United Kingdom, also devote a month to celebrating Black history.

The story of Black History Month begins in 1915—approximately half a century after the 13th Amendment abolished slavery in the U.S.

Dr. Carter G. Woodson, a Harvard-trained historian, and Minister Jesse E. Moorland, founded the Association for the Study of Negro Life and History—or ASNLH. ASNLH was an organization dedicated to researching and promoting the achievements of Black Americans and other people of African descent. Today, the ASNLH, or better known as the Association for the Study of African American Life and History (ASALH), sponsors schools and communities nationwide to organize local celebrations, performances, and lectures discussing the accomplishments of Black Americans throughout history.

In 1976, President Gerald Rudolph Ford Jr. officially recognized Black History Month, and called upon the public to, "...seize the opportunity to honor the too-often neglected accomplishments of Black Americans in every area of endeavor throughout our history."

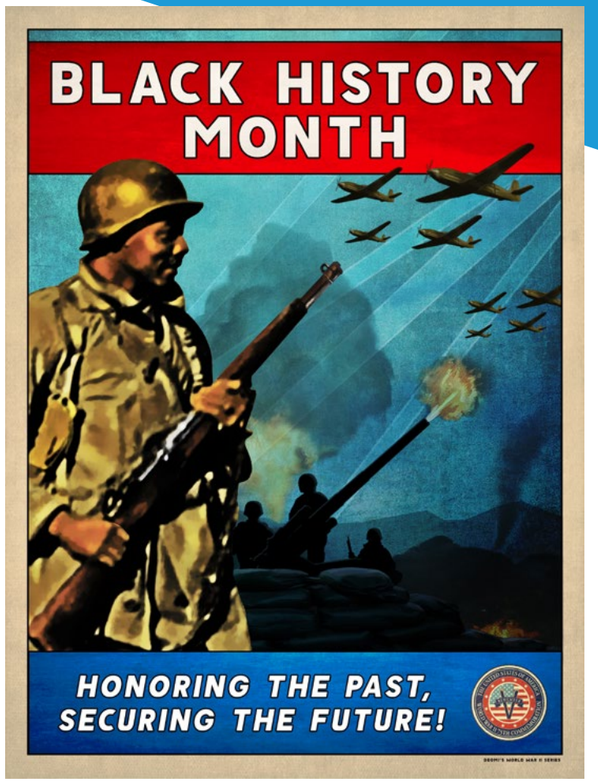
Important Black History Dates

1688: The first formal protest against slavery was passed in Germantown, Pennsylvania

1870: On February 3, 1870, the 15th Amendment to the U.S. Constitution was ratified, giving African American men the right to vote

1926: Dr. Carter G. Woodson—American Historian, author, journalist, and founder of the Association for the Study of African American Life and History—established "Negro History Week", known today as Black History Month

1976: President Ronald Reagan issued Presidential Proclamation 5443, which proclaimed that "the foremost purpose of Black History Month is to make all Americans aware of this struggle for freedom and equal opportunity... and to celebrate the many achievements of the African American community"



The Department of Defense Black History Month poster is the first in a series of posters commemorating the 75th anniversary of World War II. Each commemoration poster is reminiscent of the colors and styles found in the 1940's recruitment and victory posters from the World War II era, and showcases soldiers from A Company and the 452nd Anti-Aircraft Artillery—one of the Black-only U.S. Army combat units of its time.

5 Black Americans You May Not Know, but Should

Shirley Chisholm *(1924-2005)*

During the racially contentious late 1960's, Shirley Chisholm became the first Black woman elected to Congress. She represented New York's 12th District from 1969-1983. In 1972, Chisholm became the first woman to run for the Democratic Party's presidential nomination.

Bayard Rustin *(1912-1987)*

Dr. Martin Luther King, Jr. is usually credited for the march on Washington in August of 1963; however, Bayard Rustin organized and strategized the march amidst the shadows. Rustin, a gay man known to have controversial ties to communism, was considered a liability to be on the front lines of the Civil Rights Movement. Regardless, Rustin served his community tirelessly, pushing for better jobs and wages.

Claudette Colvin *(1939-Current)*

Prior to Rosa Parks refusing to give up her seat on a bus in Montgomery, Alabama, Claudette Colvin—a brave 15 year old—chose to not sit on the back of a bus. Colvin touted her constitutional rights to remain seated in the middle of the vehicle, and challenged the bus driver who asked her to move. The bus driver had Colvin arrested.

Annie Lee Cooper *(1910-2010)*

Born in Selma, Alabama, Annie Lee Cooper played a critical role in the 1965 Selma Voting Rights Movement. Cooper's activism was noted in the 2014 Oscar-nominated film Selma, where she is lauded for punching an Alabama sheriff in the face, and even more lauded for fighting to restore and protect voting rights.

Bessie Coleman *(1892-1926)*

Bessie Coleman was the first licensed Black pilot in the world. It was not until after Coleman's death that she was recognized for her heroism. Coleman—who went to flight school in France during 1919—paved the way for a new generation of diverse fliers, such as the Tuskagee airmen, the Blackbirds, and the Flying Hobos. In 1977, Black women pilots formed the Bessie Coleman Aviators Club, which commemorates Coleman's grand accomplishment of becoming a true American legend.

In Case You Missed It...

Retirement announcement of our fellow colleagues!

Last month's all-hands/town hall ended on a positive note as EXWC closed out an incredibly challenging CY20. In the spirit of spreading positive news, it is with tremendous pleasure EXWC EDGE continues the retirement announcement of our fellow colleagues! The below patrons of public service have dedicated over 555 years of expertise to the U.S. federal workforce. While EXWC is sad to see our teammates leave, we wish them the very best in their next chapter.

Enjoy your permanent weekend teammates!

41 Years of Service
Lupe Chaves
CI11 Program Analyst

40 Years of Service
Maggie Garcia
EX42 Management & Program Analyst

39 Years of Service
Geoffrey Dann
PW6 Electrical Engineer

Irma Gonzalez
NITC1 IT Specialist

Dr. Rickie Jones
OPS4 General Engineer

36 Years of Service
John Kunsemiller
CIOFP Supervisory General Engineer

34 Years of Service
Christopher Inaba
CI10 Research Civil Engineer

Lorraine Bermudez
EX32 Administrative Support Group Assistant

32 Years of Service
Mona Gonzales
BD131 Human Resources Specialist

31 Years of Service
Susan Meek
BD51 Program Analyst

30 Years of Service
Raymond Brothers
09SB Procurement Analyst

28 Years of Service
Michael Lizana
EX923 Heavy Mobile Equipment Mechanic Supervisor

27 Years of Service
Robert Schoff
PW8 Mechanical Engineer

Galen Marks
PW5 Mechanical Engineer

21 Years of Service
David Majcherek
PW5 Mechanical Engineer

19 Years of Service
Mary Rankin
NF30 Procurement Analyst

14 Years of Service
James Valovcin
EX93 Supervisory Program Manager

13 Years of Service
Joe Pasion
EX6 Logistics Management Specialist

8 Years of Service
Christina Silsbee
NITC2 Information Technology Specialist

5 Years of Service
Richard O'Shaughnessy
EX32 Management Analyst

EXWC Need-to-Know:

Return to Work
Naval Base Ventura County is still in the gating process of returning to the workplace. Over 80% of the command is teleworking. Thank you for continuing to be vigilant in your efforts of keeping each other safe; your actions have a major impact at fighting the virus and helping the country progress. Remember EXWC's top-three priorities during this tumultuous time:

1) the safety of you and your family,
2) accomplishing the mission, and
3) supporting the whole of government.

Navy Working Capital Fund
EXWC has begun FY21 with vigor! We have successfully converted over 400 employees to Navy Working Capital Fund. A special thank you to those involved in the following departments for getting the job completed:

FM, HR, BD, ExPO & EV.

NAVFAC Need-to-Know

Need Help Steering Your NAVFAC Career?

The Total Force Development team has created a special webinar to help you complete your Individual Development Plan (IDP)! If you have missed the live webinar course, you can now participate in an interactive version, whenever it is most convenient for you!

Check it out:
https://www.navfac.navy.mil/jobs/workforce-development/ccrc/emp_resources/idp.html

Analytics Online Training

The rollout of FY21 analytics course training is now available for registration in Total Force Training. The training courses will cover fundamental analytics; fundamental analytics for leaders; and statistics fundamentals.

Sign up today at:
https://totalforcetraining.navfac.navy.mil/courses.asp?type=community_sponsored

Take Time to Get the Flu Vaccine

Everyone 6 months of age and older are encouraged to get the annual flu vaccine. The vaccination of high-risks persons is especially important to decrease their risk of severe flu illness. Please contact your primary health physician for more information on obtaining your annual flu shot.

2020 Temporary Deferral of Social Security (OASDI) Taxes

On Sept. 12, 2020, DFAS began deferring the 6.2% OASDI tax withholding if your wages were less than $4,000 in any given pay period. In accordance with current IRS guidance, the collection of the deferred taxes will be taken from your wages between January 1, 2021 through December 31, 2021. At that time, OASDI withholding will resume at a rate of 6.2%.

More information is available here:
https://www.dfas.mil/taxes/Social-Security-Deferral/

Kudos to Our Contributors

A special thank you to EXWC EDGE's contributors this month:

Robert Nordahl, P.E.
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Juan Enriquez, P.E.
Bill Anderson, P.E.
Bryan Long, P.E.
Dr. Jean Pan
Cmdr. Charles Bisgard, P.E.
Paul Kistler, P.E.
Kelsey Pauxtis-Thomas
Lt. Matt Karny
Tim Kurtin, P.E.

Would you like to contribute to the *EXWC EDGE*?

The ***EXWC EDGE*** is always looking for fresh, applicable and compelling new content for our monthly publication. Issue #0005 will launch in March 2021. Please send your contributions before February 14, 2021 for inclusion.

CONTACT:
navfacexwcpao@navy.mil
In advance, thank you for contributing!

EXWC EDGE is a communication product created by:
NAVFAC EXWC Public Affairs Operation

EXWC

EDGE

eMagazine

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