

CMS Outlook: What's in a Name? Understanding the Indo-Pacific and Its Challenges for the U.S.



Mineman 2nd Class Jeffrey Langston stands security watch during sea-and-anchor aboard the Independence-class littoral combat ship USS Tulsa (LCS 16). Tulsa, part of Destroyer Squadron Seven, is on a rotational deployment, operating in the U.S. 7th Fleet area of operations to enhance interoperability with partners and serve as a ready-response force in support of a free and open Indo-Pacific region. *U.S. NAVY / Mass Communication Specialist 1st Class Devin M. Langer*

NATIONAL HARBOR – We have often seen the rise and fall of new terminology to express renewed, or sometimes diminished, value placed upon different regions of the globe as the geography of national interests waxes and wanes. Until recently, the geographical expression that dominated foreign and national

security policy documents of the United States in the Pacific region was “Asia-Pacific.” This term, however, is increasingly giving way to “Indo-Pacific” in national security policy documents and discourse, as can be seen in the Sea-Air-Space Show Guide and Directory.

What is prompting this evolution in geospatial conception? In large part, the shift to Indo-Pacific has been driven by two key factors: an observed increase in China’s interests in the Indian Ocean region and the increasing commercial, cultural, political, and security interconnections between the Indian and Pacific Ocean communities. The symbolic change to recognizing the Indo-Pacific as the now-dominant strategic region in the areas adjoining eastern Asia began with the Obama administration’s late 2011 “Pacific Pivot,” and continued with the Trump administration’s 2017 concept, the “Free and Open Indo-Pacific.” A year later, U.S. Pacific Command was renamed as the Indo-Pacific Command. Now, the Biden administration has published its own “Indo-Pacific Strategy of the United States,” with remarkable similarities to the strategies of the previous administrations.

It’s worth considering though, what does the “Indo-Pacific” entail? Geographical concepts are inevitably contestable, as their construction is tailored to suit the purposes of the name-giver. In its most expansive interpretation, the Indo-Pacific can be thought of as the world’s largest region, spanning the distance from Russia’s Siberian coastal frontier and the beaches of California to the shores of South Africa and Oman. The broadly defined Indo-Pacific covers roughly half of the Earth’s surface and more than half its population. It is home to the world’s largest economies – the United States, China, Japan – and its smallest – Palau, Nauru, Tuvalu. The world’s two largest countries by population, India and China, and some of the smallest also reside within the scope of the Indo-Pacific.

What this vast expanse of sea and land holds for the United

States is the largest and perhaps most dynamic international environment where American companies and military units operate. While the United States is undoubtedly a Pacific power, its ability to access the epicenter of Pacific activity in East and Southeast Asia is severely constrained by the nature of the same expansive geography. The continental United States is some 6,600 miles removed from Taiwan, 6,200 miles from Okinawa, 6,000 miles from Guam, 5,800 miles from South Korea and 5,300 miles from the main islands of Japan. The realities of these distances between the United States and its major Pacific allies, outposts, and partners are seldom considered, let alone understood. That a voyage by ship from San Francisco to the American military base at Okinawa may take anywhere from six to more than 14 days is a major complicating factor in the ability of the United States to fulfill its commitments to Pacific allies and partners.

The physical separation of the United States from its many allies and partners in the Western Pacific serves as the foundation for the forward positioning of major military assets. Indeed, the military, joint INDOPACOM command oversees roughly 375,000 military and civilian personnel across its area of responsibility. The primary naval means of maneuvering personnel and material as well as projecting power across the vast seascape of the region, the U.S. 7th Fleet, must operate with between just 50 and 70 vessels to manage almost 50 million square miles of sea, the largest area of responsibility of any forward-stationed American fleet. The strain on the fleet is compounded when one considers the need to counter the rapid and continuing expansion of the People's Liberation Army Navy, coast guard and maritime militia.

The result has been a continuing fixation of American regional assets on the Western Pacific despite Washington's ostensible recognition of the Indo-Pacific as a region of much greater scope in its official policy documents. Perhaps the most promising solution is the revival of the 1st Fleet, a concept

most recently suggested by former Navy Secretary Ken Braithwaite to be based in both Singapore and Darwin, Australia. This new formation would take over the area of responsibility in the Indian Ocean and Southeast Asia from the 7th Fleet, thereby alleviating its divided attention between China and the Indian Ocean region – a region of growing interest but where little force structure or action has thus far been applied. Even if the 1st Fleet is returned to service, the massive mandate of American forces in the Indo-Pacific necessitates greater presence and mobility that can only be provided by more naval platforms. If the “Indo” of Indo-Pacific is to be anything more than a genuflection towards the Indian Ocean’s existence, the Navy needs to be empowered to maintain a credible presence in the West Pacific as well as the Indian Ocean.

The Center for Maritime Strategy, housed inside the Navy League of the United States, conducts and supports policy research and advocacy efforts across a broad spectrum of issues that impact the United States’ position as a maritime nation. CMS is hosting a ticketed breakfast at Sea-Air-Space 2022 on Tuesday, April 5.

Kid-Friendly Expo Showcases STEM to Kick Off Sea-Air-Space 2022



(Left to right) Trisha Anand, 8, and Mary Bodoh, 9, enjoy playing with bubbles after a science experiment at STEM Expo 2022. *SOLARES PHOTOGRAPHY*

The 2022 STEM Expo, which kicked off Sea-Air-Space 2022 April 3, marked the largest crowd yet for the science- and fun-focused event, geared to students in the fifth to 12th grades.

The popular expo featured hands-on “mad science” demonstrations with dry ice, electricity, chemical reactions, robots, military animals and more, including nearly two dozen exhibits.

A performance by the U.S. Coast Guard Drill Team led the event, which also included a large and very popular version of the game Battleship; a nitrogen ice cream station, an edible version of some of the mad science experiments; and a unique building event with Tinker Man, who builds large, complex structures from children’s toys.

“It is great to see so much attention at the booth,” said Heather Deagle, a member of HII’s STEM team. “These kids are the future. It is their talent and contributions that will

have an impact on shaping future technologies – and being part of this STEM event is a great opportunity to display our commitment to the education of these future generations.”

The expo encourages students to pursue coursework and careers in STEM and reaches underserved communities to promote STEM education.

The “champion” sponsor for the event was HII, whose booth included everything from a 3D printer to a REMUS unmanned underwater vehicle. Sponsors included CACI, L3Harris, Raytheon Technologies and Lockheed Martin.

Through the years, HII has made numerous investments in STEM education programs; partnerships with local high schools, community colleges and technical schools to develop trade-based curriculum; summer internships for both students and teachers; and industry-leading apprentice schools at the company’s two shipyards.

Free Service Helps Vets Launch Civilian Careers



Don Fried, a Marine Corps veteran who now serves as director of branding and marketing for VetJobs, says the service has surpassed 75,000 verified job placements, and currently have more than 3 million job listings. *VetJobs*

In 2004, Deb Kloepfel left her executive job at American Airlines to make an overseas permanent change of station with her husband, U.S. Navy Rear Adm. Dan Kloepfel. She hoped to further her career in her new location but discovered the opportunities were virtually nonexistent.

Kloeppel realized she wasn't alone. She met other highly trained and educated military spouses who also had to choose between their careers or their devotion to family and country. So, with a \$323 investment, she started the Military Spouse Corporate Career Network, or MSCCN, to help support people like her.

MSCCN was so successful that in 2010, the Kloeppels cofounded CASY: Corporate America Supports You. CASY's goal was to provide free vocational training and job placement services for people transitioning from all military services, veterans and members of the National Guard and Reserves.

By 2019, CASY and MSCCN had helped more than 57,000 members of the military and their spouses find new civilian careers. That year, the two organizations acquired VetJobs, an online military job board, and launched MilitarySpouseJobs.org. The company is one of the resource partners featured at today's Transition Connection job fair, being held in Cherry Blossom Ballroom from 11 a.m. to 5 p.m. This Sea-Air-Space hiring event focuses on providing job opportunities to those with a military family or defense background.

Today, VetJobs.org and MilitarySpouseJobs.org are the largest free online job training, counseling and placement resources for all members of the military and their spouses. Last year, they surpassed 75,000 verified job placements, and currently have more than 3 million job listings, says Don Fried, a Marine Corps veteran who now serves as director of branding and marketing for VetJobs.

"When I separated out in 1999, there were nowhere near the resources we have today," he says. "I think we had a three-day TAPS [transition assistance program] class. Now, people start planning their transition six to 12 months before they leave the service."

This is key, Fried says, because statistics show that more

than 60% of former service members work at different types of jobs than they did in the military.

“It’s sometimes hard to know your interests and what to look for in a civilian job,” he says. “VetJobs can help with that.”

Any current or former member of the military or their spouses can use VetJobs’ and MilitarySpouseJobs’ online employment listings, job assessment quiz and video job training resources for free. If they register with the sites, they also have access to a free career specialist who can help them navigate a new career search. They can get a direct introduction to employers with job openings, and can also participate in mentorships with industry partners.

Fried estimates that 400 to 700 people use VetJobs every week. The organization is funded by charitable foundations, grants and sponsorship by corporations like Microsoft, Amazon, IBM, Boeing, Wells Fargo, Prudential, Deloitte and Swift Transportation. Job listings are provided by the nonprofit DirectEmployers Association.

Fried says companies like to hire service members for a variety of reasons.

“In a time when employers are having a hard time putting butts in seats, we show up. We have an air of maturity and discipline, and we’re contributors,” he says. “Employers like those types of soft skills. They can take our soft skills and then train us in the technical aspects of a job.”

Lockheed Martin Marks Delivery of 500th C-130J Super Hercules



An HC-130J Super Hercules long range surveillance aircraft sits on a runway in Waco, Texas, following its arrival May 11, 2017, to begin installation of the Minotaur Mission System Suite. *U.S. Coast Guard*

ARLINGTON, Va. – The 500th C-130J Super Hercules aircraft built by Lockheed Martin (Booth 1001) has been delivered to its customer, the company announced March 15.

The aircraft, Lockheed Martin C-130 construction number 5934, is a C-130J-30 version that was delivered to the 130th Airlift Wing, a unit of the West Virginia Air National Guard based at McLaughlin Air National Guard Base in Charleston, West

Virginia. The wing is replacing its older C-130 Hercules aircraft with new C-130J-30s.

The C-130J Super Hercules represents a significant advancement in performance, technology and airlift capability over the older C-130 Hercules family of aircraft. The C-130J is equipped with the more powerful Rolls-Royce AE 2100D3 turboprop engines, six-bladed GE-Dowty R391 composite propellers, modern avionics and mission systems. The Super Hercules features dual head-up displays, an integrated defensive suite, automated maintenance fault reporting, and a rear ramp door capable of opening at airspeeds of up to 250 knots. It has greater speed, range lift capacity, climb rate, cruise altitude and short-field performance than the legacy C-130.

The C-130J Super Hercules is the current production model of the legendary C-130 Hercules aircraft. The C-130J first flew in 1996 and entered service in 1999. It is now the airlift aircraft of choice of 26 operators in 22 nations.

The U.S. military services operate the largest C-130J Super Hercules fleet in the world. The U.S. Air Force and Air National Guard collectively operate C-130J, C-130J-30, AC-130J Ghost Rider, EC-130J Commando Solo, HC-130J Combat King II, MC-130J Commando II and WC-130J Weatherbird variants. The Marine Corps operates the KC-130J tanker version and a C-130J as part of the Blue Angels Flight Demonstration Team. The Coast Guard operates a version of the HC-130J which is different than the version used by the Air Force for search, rescue and logistics. The U.S. Navy is planning to test a version of the C-130J-30 for the Take Charge and Move Out (TACAMO) strategic communications mission.

These are some of the 17 different mission configurations of the C-130J used worldwide for transport (military and commercial), humanitarian aid delivery, aerial firefighting, natural disaster relief support, medevac, search and rescue,

special operations, fire support, weather reconnaissance, atmospheric research and aerial refueling.

The C-130J-30 is a version of the Super Hercules, which has an extended fuselage (15 feet, or 4.6 meters) when compared to the basic C-130J. As such, it can carry 30% more passengers and cargo than the basic C-130J and 50% more container delivery system bundles.

The rugged C-130 family of aircraft has been in serial production longer than any other military aircraft in the U.S. inventory. The first C-130A made its first flight in 1954 and entered service in 1956. Since the first C-130 rolled off the Lockheed Martin production line, more than 2,100 were built before production switched to the C-130J. It is flown out of more than 70 nations and has been certified to support upwards of 100 different mission capabilities in its lifetime.

“No aircraft in history, production or operation matches the C-130 Hercules in terms of its versatility. The C-130J both extends and expands this reputation thanks to increased speed, integration and strength,” said Rob Toth, director of Business Development for Lockheed Martin’s Air Mobility and Maritime Missions line of business.

As a retired U.S. Air Force Special Operations MC-130H navigator, Toth has experience flying and commanding operations with both legacy and C-130J aircraft.

“The legacy Hercs were great aircraft. The C-130J offers a more enhanced flying experience, especially with the advanced situational awareness and added power,” he said. “You see the value of those attributes across all mission scenarios, especially with the maritime patrol, search and rescue, special operations and aerial refueling requirements supported by the U.S. Marine Corps and Coast Guard.”

To date, the Navy is the only U.S. government operator to not have a J in its fleet. Currently the Navy flies C-130s for

transport and for 20 years (1963-1993) on the TACAMO missions.

Lockheed Martin is honored to have the Super Hercules selected for TACAMO testing – possibly bringing it back to where it all began, Toth said.

“We are working closely with NAVAIR to support an aggressive acquisition strategy that prioritizes both speed of acquisition and affordability to accelerate recapitalization of one of our nation’s most important capabilities – survivable, reliable, and endurable communications between the president and the nation’s nuclear forces,” Toth adds. “We are proud to be at the heart of this effort and confident that the Super Hercules will deliver the critical capability our nation needs.”

Q&A: Navy International Programs Office, Rear Adm. Anthony E. “Tony” Rossi, Deputy Assistant Secretary of the Navy, International Programs, Director, Navy IPO



Rossi, center, stands in front of an Foreign Military Sales-delivered Royal Saudi Naval Forces MH-60R with the RSNF aircrew at the World Defense Show 2022 in Riyadh, Saudi Arabia. *NIPO*

The Navy International Programs Office manages and implements international security assistance programs, cooperative development programs and technology security policy. Led by Rear Adm. Anthony E. "Tony" Rossi and Steve Bowdren, Navy IPO is a reporting unit to the Assistant Secretary of the Navy for Research, Development and Acquisition and is an Echelon II Command to the chief of naval operations. It supports regional combatant commanders' and Navy leadership's efforts to build

vigorous relationships with U.S. maritime security partners around the world. Rossi answered questions from Seapower Deputy Editor Brett Davis.

With all that's going on in the world, it seems NIP0's mission is more important than ever. To what extent do fast-moving threats, such as the war in Ukraine, affect your work?

Rossi: Our mission is to strengthen global maritime alliances, partnerships, and coalitions through security and technology cooperation. In today's environment, multilateral relationships are more important than ever, particularly in areas of defense and security. As part of the Department of Defense, NIP0's mission supports a whole-of-government approach to Russian aggressive actions toward Ukraine.

How does NIP0's work strengthen U.S. security?

Rossi: NIP0 is a key player in strengthening relationships with our allies and partners while enhancing interoperability and increasing maritime domain awareness. Investing in these relationships is critical in defending sovereignty from authoritarian influence and coercion.

How would you characterize the current state of interoperability between the U.S. and its allies?

Rossi: First, I think it's important to define interoperability. I define it as platforms or systems that can operate together to complete a mission. That said, I think that the current state of interoperability between the U.S. and our allies and partners is always improving and expanding. Each year we hold cooperative exercises and execute cooperative deployments to test and prove our interoperability. For example, last year the U.S. Marine Corps conducted a first-ever cross-decked operation highlighting interoperability of the F-35B, underlining the strategic importance of the joint integration with the United Kingdom Carrier Strike Group. We also conducted multi-carrier

operations in several theaters.

What are some ongoing challenges as you seek to create greater interoperability?

Rossi: As we continue to integrate more of our systems, the challenge lies within tying distributed sensors with distributed effectors that identify and stop potential threats over various networks and architectures. This not only is an ongoing challenge, but it hinders the ability for greater interoperability with our allies, given that they may have different systems, architectures or data standards. Even if our allies have the same systems as the U.S., there are other technical impediments that create a challenge, not to mention training and logistics that also need to be addressed to have a viable and sustainable interoperable capability.



Rossi, center, stands with representatives from the Israeli navy, Ministry of Defense, Navy International Program Office,

and Office of Defense Cooperation as they tour the Israel's Haifa naval base. *Supplied by NIPO*

How important is it to have a full-spectrum approach for Foreign Military Sales, instead of just selling hardware?

Rossi: When FMS customers enter into an FMS case with the U.S., they aren't just purchasing a system. They're purchasing all the services that go with that system – training, spare parts, follow-on support, etc. We refer to this as the “total package approach,” and it is our absolute advantage and strength in competing internationally. Eighty percent of the total cost of a platform or system over its lifespan is sustainment, spanning from equipment deployment to equipment decommissioning. A crucial element of any FMS contract we offer is sustainment: the provision of parts, services and training to ensure our product stays fully mission capable throughout its life cycle. There are international examples where this is not the case – a client nation's military receives shiny new equipment but is ultimately hamstrung by sustainment issues that hinder their ability to keep the equipment fully operational or render this capability moot.

What is the current operational tempo of the Foreign Military Sales program? Have there been more FMS transactions in recent months and years?

Rossi: If you look at FMS sales in the past few years, you would see the record-breaking \$22 billion spike in 2018, which indicated the changing world as we transitioned out of the Cold War era. Since then, we have been averaging \$11 billion-\$12 billion in annual sales. In FY21, we had a 9% increase from the previous year, resulting in \$12.41 billion in FMS execution. I would say that this has been maintained throughout the pandemic, and we are generally on track to reach it again this year. While we are maintaining our average, its important to note that FMS is a long and complex process, so most of these cases were in the queue before

COVID-19. We have seen countries reassessing their arms imports since the pandemic both positively and negatively. For example, Germany entered into a \$1.7 billion FMS contract for P-8A aircraft and accompanying services and equipment.

Are you getting more FMS requests for certain types of systems?

Rossi: Tactical fixed- and rotary-wing aircraft remain most prevalent in FMS sales cases. However, in recent years, some allies have shown interest in acquiring state-of-the-art multimission surface ships and combat systems. This appears largely cyclic in nature, as some ally fleet assets are reaching the end of their lifespan. In addition, there has been a constant demand for weaponry and associated support systems.

What steps have you taken to speed up the process for Foreign Military Sales, and which has proven the most effective?

Rossi: The “Speed” initiative has been an ongoing effort at NIP0. Over the years, NIP0 has been able to assess the FMS process and determine ways to compress the timeline. We have successfully been able to expedite delivery of coalition capacity and capability from when the requirement is understood to when the article or service is delivered. We have done this by implementing “tactical” fixes to tighten the process, but our major achievement to date has been in the area of disclosure policy.

Typically, developing this policy, a one-to-two-year undertaking, has begun after formal sales approval has been received. We now get a jump on the process – when it is deemed likely that an ally’s sales case will be approved, we begin parallel development of disclosure policy. This could halve the time required for this phase of the FMS process.

We continue to reevaluate what we do and how we do it in the spirit of [Chief of Naval Operations Adm.] Gilday’s drive for

the Navy to “get real, get better.”



Rossi, left, met with Director General Bang Guckcheol from the Republic of Korea’s Defense Acquisition Program Administration, located at the Washington Navy Yard. *NIPO*
What impact has the worldwide pandemic had on your operations, and have you made any permanent changes in response to it?

Rossi: While we recognize that the COVID-19 pandemic disrupted some planned production and delivery, we have seen at the height of the pandemic countries sign large contracts for major arms. INDOPACOM [Indo-Pacific Command], EUCOM [European Command] and CENTCOM [Central Command] portfolios experienced the greatest volume: INDOPACOM expects over \$6 billion in

sales across nearly 500 FMS cases, EUCOM over \$5 billion across over 500 cases and CENTCOM, \$1.25 billion across 230 cases.

In terms of volume, we have actually seen about a 15-20% increase in sales and support during the pandemic. This includes LORs [letters of request] received, LOA/amendments [letters of offer and acceptance], third party transfer, international agreements, TS&FD [technology security and foreign disclosure] policy achieved, even partner/industry engagements.

As we emerge from COVID, the Navy as a whole is now assessing lessons from operating largely remotely over extended time, and there are many positives. I can tell you NIP0 aptly met the challenges of working from home and was even able to ramp up to meet a surge in business. Now we, like many organizations, are looking to how we return to the workplace more while keeping what worked during COVID and changing what didn't.

New Safety Command Isn't Just About Safety, It's About Readiness



NORFOLK (Feb. 4, 2022) Rear Adm. F.R. Luchtman, right, reports to Chief of Naval Operations, Adm. Michael Gilday, as he assumes command of the Naval Safety Command during the establishment ceremony for the Naval Safety Command. The Naval Safety Command serves as the naval enterprise lead for non-nuclear safety standards, expertise and oversight of the Navy Safety Management System (SMS). The command will operate with the requisite authorities and responsibilities to establish a SMS that provides defense-in-depth and ensures the Naval enterprise is both safe to operate and operating safely. (U.S. Navy photo by Mass Communication Specialist 2nd Class (SW/AW) Weston A. Mohr)

“Our mission and our focus every day is to enable warfighting capability by reducing preventable mishaps, loss of life and damage to materiel,” says Rear Adm. F.R. “Lucky” Luchtman, commander of the new Naval Safety Command. “Everything we do is to save the lives of Sailors and Marines, whether they’re wearing a uniform or civilian clothes. That’s what keeps us

motivated. We're focused on Sailors and Marines every day."

The Department of the Navy has had a safety management system, but there have been incidents and accidents that would indicate that the service's SMS is "inconsistently effective," according to Luchtman.

The new command assumed the functions of the Naval Safety Center but raised it to a command that reports directly to the chief of naval operations.

By elevating the Naval Safety Center to the Naval Safety Command, the service is making a statement that it's going to start looking at problems differently.

"It's a refocus of our current missions. We want to get after leading indicators and become the regulation authority that can evaluate the effectiveness of the safety management system as a whole," Luchtman said.

"Some things won't change a whole lot," he acknowledged. "For example, we have an investigations branch of world-class investigators that help us understand the root causes of mishaps wherever they occur, whether on the surface, below the surface, in the air or on the land. Their mission is not really going to change a whole lot. Within our knowledge management directorate, we have a center of excellence with respect to data analytics. We have tremendous capability and capacity look at leading indicators and how we can use those indicators to reduce preventable loss of life and materiel."

Also within the data analytics and safety promotions directorate is safety promotions, which shares safety awareness dispatches; publishes some well-known publications such as Approach, Mech, GroundWarrior and Ride; and has a robust social media presence on LinkedIn, Twitter, Facebook, Instagram and a public-facing website it uses to target the message to the fleet.

“What will change is the modernization of our safety management system,” Luchtman said.

The SMS is a high-level framework that identifies and communicates risk and helps mitigate or eliminate it.

“Safety Command will implement the Navy’s safety management system, which is a formal organization-wide approach to enhanced risk management reduction, problem solving and, really importantly, critical thinking,” said Chief of Naval Operations Adm. Michael Gilday, speaking at the command’s Feb. 4 establishment ceremony. “It will move us away from reacting – reactively managing safety, to proactively managing risk by making sure accountability for risk is held at the appropriate level.”

Luchtman said, “We currently have an SMS, and we’re looking to modernize it and meet the international ISO 45001 standard for occupational health and safety. But we’ve done some analysis that shows that we’re just not learning from some of the lessons-learned from previous mishaps. We know that because as we look at causal factors over time, many of them appear again and again over time.

“We’re going after the gaps and seams to ensure our SMS functioning at 100% to reduce preventable mishaps. If we surmise that we’re not learning as effectively as we should, or as consistently as we could, we want to know why, and take corrective action. The Navy that proves it can learn and adapt is going to be better postured for that fight than the one that does not.”

Luchtman said leadership should be absolutely engaged in the SMS design and implementation. Under SMS is the Safety Management Program, which gets into the tactical level of policies and procedures. “Our goal is to identify risk, communicate risk and, at the appropriate level, mitigate or eliminate that risk via accountability.”



Sailors assigned to USS Gerald R. Ford (CVN 78) and Carrier Air Wing 8 prepare to conduct a foreign object debris walkdown on the flight deck, March 22. *U.S. NAVY / Mass Communication Specialist 3rd Class Riley McDowell*

Safety Assessment

Luchtman said the Navy is now stressing accountability to make sure safety management is effective.

“As we get our SMS to where we want it to be, then how can we assess it to make sure that it’s operating the way we want it to? That’s where the Naval Safety Command comes in,” he said.

The command will assess the effectiveness of the SMS through unit-level spot inspections focused on compliance, deviation from standard and self-assessment and self-learning.

“We’re going to walk onto a ship or submarine or into a squadron,” he said. “And we’re going to take compliance with guidance and policy that exists throughout the safety management system. And then we’re going to note deviation from

those practices. And then we're going to ask the question, why? That question really is foundational to everything we're doing. It's important to get those safety issues addressed right away, but that noncompliance can also be used as an indicator as to the health of the entire enterprise broadly."

Gilday said the Safety Command, much like the Navy's Board of Inspection and Survey, "is going to take a look at our commands, our units, our squadrons, our submarines, our ships' ability not only to comply with safety instructions, but ... the real magic is going to be their ability to take a deeper look at our commands' ability to self-assess and to self-correct."

The design for the fleet assessments is not final yet, Luchtman said.

Identifying Risk

When a unit deploys, there are factors that develop and evolve that affect risk – such as training, manning shortfalls or equipment status or casualties – that require an understanding of the aggregation of risk to make decisions about how best to continue the mission, he said. But risk is more encompassing than just safety.

"In our profession, risk follows us around 24 hours a day, seven days a week. We're always making risk decisions involving challenges and opportunities. There's no escaping it."

"There is almost no aspect of naval operations that can be separated from risk," Gilday said. "But risk can be controlled."

Luchtman said his command will identify best practices that can be applied throughout the fleet.

"We're really focused on units and their ability to properly assess where they are, and whether or not they've implemented

changes at the local level to address those gaps. So, that's the unit level assessment. But we're also going to be assessing the effectiveness of the safety management system from a higher echelon perspective, including the large staffs at the fleets, type commands and systems commands, to make sure they can properly identify the risk that is out there.

"We want to ensure the upper echelons understand the aggregation of risk that is occurring below them, appropriately communicate that risk both up the chain and down the chain, and are holding at the appropriate level the accountability to address those concerns that are found in risk identification process. That process of assessing higher echelon is brand new for the Naval Safety Command," Luchtman said. "We have not done that in the past."

Luchtman said this journey started with the thesis that the Department of the Navy's safety management system is inconsistently effective.

"We looked at how we solve the problem. We started doing our homework to look at industry best practices, our sister services and our international partners, and we realized that we can do a lot better. We have to be honest with ourselves and recognize our capabilities and our limitations, understand those gaps, and fill those gaps through the safety management system."

He said there are two commodities at stake, the first being money.

"The Navy spends about a billion dollars a year on mishaps across the communities. Wouldn't it be better to apply that money in areas of readiness, rather than replacing materiel or human life that we've lost because we weren't in compliance with an effective safety management system?"

The other commodity is trust.

“Every preventable mishap erodes public trust. We need to be able to say with credibility that we understand our business, we understand where the risks are and we put into place mitigations to allow us to operate at the very highest level, while minimizing unnecessary loss to human life and materiel. And there’s also a level of trust with taxpayers and the American public. Nobody wants to see ships damaged, aircraft crashed or lives lost on the front page. We actually are a pretty safe enterprise considering the number of days we steam or the hours we fly,” Luchtman said. “We actually do it pretty well. But when we fail, it’s normally a high visibility event.

“We want to have the conversation not about safety, but about readiness and warfighting capability.”

Satellite Imagery Analytics: A New Way of Looking at the Ukraine Conflict



BlackSky's Spectra AI can provide up-to-date imagery of battle zones, disaster areas, wildfires and more. / *BLACKSKY*
Every day, every hour, even every minute, the conflict in Ukraine is evolving. Monitoring and understanding those changes is key not only for geopolitical entities, but also corporations, humanitarian organizations and other private-sector groups.

But sifting through the abundance of data coming out of Ukraine can be overwhelming. Propaganda abounds. Videos and images may be manipulated. And traditional satellite imaging can't capture the real-time data necessary to make informed decisions.

Seattle-based BlackSky (Booth 957) is solving those problems through its global monitoring services that combine artificial intelligence, cloud computing, multisensor data fusion, activity analysis and autonomous satellite tasking. Using a proprietary worldwide satellite constellation, BlackSky's Spectra AI analytics platform provides real-time geospatial intelligence to customers in both the public and private sectors

This is quite an evolution from the core technology behind

global satellite imagery, says Patrick O'Neil, BlackSky's chief innovation officer. Traditionally, satellites are used for mapping applications, identifying landmarks like roads and buildings. But those images tend to be updated only a couple times a year, and that's not helpful in today's fast-moving world.

"You want to be able to take images rapidly as the situation changes," O'Neil says. "We're seeing the conflict in Ukraine as a kind of proving point for why real-time intelligence matters so much. Customers can't wait for days for their overhead imagery or the analytics we supply. We've built our system to support that."

The automated satellite constellation that fuels Spectra AI passes a site roughly once an hour, with the capability of tracking virtually every spot on the planet. The satellites also monitor thousands of active targets, including major airports and commercial ports around the world.

That image data is then combined with open-source information such as social media postings, news reports and press releases. Other information, such as infrared data, can show active fires and pinpoint where conflict is occurring. Spectra AI uses artificial intelligence to fuse all of this data into a single dashboard analysis that customers can pull up on a web browser, with a 90-minute delivery timeline.

"Being able to just log in and have an e-commerce-like experience where you're buying satellite imagery and the analytics that go on top is really a pretty significant change from the historical satellite imagery patterns," O'Neil says.

In Ukraine, BlackSky can provide images of where damage is occurring, how transportation networks are impacted and how refugee travel is flowing. It can help companies understand the macroeconomic impacts, including the availability of energy in Europe and the flow of commodities from Ukrainian

port cities.

BlackSky can also track other events around the world, including natural disaster cleanups, climate-change events, wildfires, drone strikes and supply-chain operations.

“Applications like that are really quite interesting and are enabled by our unique technology,” O’Neil says. “They’re opening up use cases that previously would not have been possible.”

Mayflower Autonomous Ship to Attempt Second Ocean Crossing With AI Captain



The Mayflower Autonomous Ship begins its first, ill-fated Atlantic Ocean crossing attempt. / *IBM*

Roughly a year after a mechanical problem forced it to turn around, the Mayflower Autonomous Ship is poised to cross the Atlantic, traveling autonomously from Plymouth, United Kingdom, to Plymouth, Massachusetts.

The voyage will showcase IBM's AI Captain, the artificial brain of the operation that allows Mayflower to chart its own course across the ocean and see and avoid obstacles along the way. That's what sets Mayflower apart from other unmanned surface vessels, says Ray Spicer, vice president for defense and intelligence at IBM Federal.

"I think the key difference is the autonomous part," he told *Seapower* in an interview. "In a perfect world, we're gonna set this baby on its way from Plymouth, U.K., and not have to interfere at all. We'll just watch it with pride as it sails along and makes its own decisions based on how well we trained it. And then it appears in Plymouth, Massachusetts, at the end of the journey."

The project is led by marine research nonprofit ProMare, with IBM as lead technology and scientific partner.

The boat, a catamaran, originally set out on the voyage last spring but was forced to turn around when a connector for the onboard generator failed, filling the interior with exhaust fumes. No one was hurt – there's no human aboard – but the boat was slowed significantly so the team decided to turn it around.

The brains of the boat, the AI Captain, worked fine and continues to do so, Spicer said. The system was trained using millions of images to recognize potential hazards, from seagulls to paddleboarders to buoys.

"We taught it to recognize objects, and the more experience it gets doing that, the better the training," Spicer said. "When

we put it out there, if it ran into something that it didn't recognize, then we taught it, OK, that's a seagull ... make sure you recognize that in going forward. I would say anytime that it encounters something that we didn't anticipate, we can see it from the camera, and we can teach the system what it is actually looking at."



The Mayflower conducts sea trials in March 2021. / *IBM*
AI and COLREGS

Once underway, Mayflower will rely on its artificial intelligence and sensors to abide by COLREGS, the laws that govern ship movement on the seas.

Human operators have to be updated on COLREGS after switching from shore assignments to sea assignments to make sure they're current, but that's an easier process with an AI system.

Sailors and other human operators "always had to go through COLREGS, pass the test, make sure you were current, you were refreshed. With an AI/ML [artificial intelligence/machine learning] system like this, you just feed it the COLREGs one time, it chews them up and it won't forget," Spicer said.

The 3,200-mile trip from Plymouth to Plymouth is expected to take 10 to 12 days, depending on weather and other conditions that might pop up.

Mayflower carries visual sensors, infrared, cameras and a navigation system that allows it to use dead reckoning if it loses satellite connection.

“It’s also mapping the environment as it goes, because really the primary purpose of the vessel is to do oceanographic research,” Spicer said. “So, it’s listening to underwater sounds and it’s taking temperatures and [measuring] salinity and all kinds of things in the environment,” including measuring the amount of microplastics in the ocean.

Once it arrives on the East Coast of the United States, Mayflower is expected to take a victory lap that could take it from Norfolk, Virginia, to Washington, D.C., to Boston.

Flexible AI

The Mayflower’s brains are descended from IBM’s pioneering work in artificial intelligence and machine learning, including the Deep Blue chess computer that beat Garry Kasparov to Watson, the AI system that won on “Jeopardy!” in 2011.

“The interesting part to me is we took technologies that were already existing within IBM, and we just adapted them to this vessel,” Spicer said, including an operational decision manager used in the financial industry to verify credit card transactions.

“You swipe your credit card, and it runs hundreds of algorithms to make sure you’re you, and you’re not a bad guy, and then it lets the transaction go through. We use that same technology, we just adapted it to this use case,” Spicer said.

The ship’s systems generate a data tree, so researchers can

see why it made a given decision at any point along its route.

Ultimately, the AI Captain could be used for much more than just piloting a small boat across an ocean.

In a video series about the Mayflower project, Brett Phaneuf, managing director of the program, said he envisions it one day guiding spacecraft on other worlds.

“Years from now I’d love to see our AI Captain on another vessel in an ocean on Europa or orbiting another planet. That would be ideal, and I don’t know if I’ll live to see it, but this is the start.”

Spicer agrees, saying, “I think the sky’s the limit. I mean, we’re talking about an application of a surface vessel, but think about underwater, think about in the air, think about space. We’ve gotten lots of interest from organizations like NASA and NOAA [the National Oceanic and Atmospheric Administration] ... this [the Mayflower] is just the tip of the iceberg, I think.”

GE In ‘A Good Position’ to Power Navy’s DDG(X), Company Official Says



Derlim Cotte (center) and Cheri Undheim from Florida State College at Jacksonville’s Vision Education & Rehabilitation Center look at the inside of a LM2500 Gas Turbine Motor in 2019 at Southeast Regional Maintenance Center’s Gas Turbine Shop. *U.S. NAVY / Scott Curtis*

ARLINGTON, Va. – GE, which provides gas turbine engines to

naval ships around the world, is looking to provide engines for the U.S. Navy's next-generation guided-missile destroyer (DDG(X)), a company official said.

"We're in a good position," said George Awiszus, director, Military Marketing and Business Development for GE Marine, noting the success of his company's family of marine engines, which company marketing materials point to a 99% reliability and 98% availability of its LM2500 engines.

Awiszus noted during an Aug. 4 interview with *Seapower* that the U.S. Navy is looking to making its next-generation destroyer a "full electric ship."

He said the current Arleigh Burke-class DDG "is maxed out" in terms of electrical power and that more power will be needed for the sensors, weapons and propulsion that likely will be installed in the DDG(X).

Awiszus praised the Navy's efforts to get industry, including shipyards and naval architects, involved early in the concept design process.

GE will be providing LM2500+G4 engines for the new Constellation-class frigate. LM2500 engines already are in use on the Fincantieri FREMM frigate that is the basis for the Constellation class. The Constellation's engines will feature the Composite Enclosure that provides better noise attenuation, a 5,500-pound weight reduction, costs 50% less than the steel enclosure and keeps the engine room cooler. GE will have delivered 24 engines with the Composite Enclosure by year's end.

GE improves its marine engine designs over time as lessons are learned, new materials are provided, and processes are refined. The company now offers electric starting capability as an option along with hydraulic or pneumatic starting methods.

GE has delivered 1,365 LM2500 and LM6000 gas turbine engines to navies worldwide and 2,585 used for industrial purposes.

Navy Surgeon General: Outbreak on Aircraft Carrier Paved Way for Devising Effective COVID-19 Response



U.S. Navy Sailors assigned to aircraft carrier USS Theodore Roosevelt (CVN 71) are screened for symptoms of COVID-19 in this 2020 photo. *U.S. MARINE CORPS / Staff Sgt. Jordan E. Gilbert*

NATIONAL HARBOR, Md. – The outbreak of COVID-19 on a forward-deployed U.S. aircraft carrier helped Navy medical personnel learn how to fight the virus at sea and prevent its spread ashore, the Navy Surgeon General says.

“Our wakeup call was the Theodore Roosevelt,” Rear Adm. Bruce Gillingham told a panel discussion on the coronavirus pandemic at the Navy League’s Sea-Air-Space Expo in National Harbor Aug. 4.

After COVID-19 was detected among the crew following a port call at Da Nang, Vietnam, in March 2020, the USS Roosevelt was sidelined at Guam for months.

The data gathered by a deployed medical unit aboard the stricken carrier, where more than one thousand crew members tested positive for COVID-19 in early 2020, and one died, “helped us understand the behavior of the virus,”

Gillingham said. "It was from that investigation that we really learned the role of pre- and asymptomatic transmission of COVID and how critically important it was to understand and prevent that."

More than 76% of the crew who tested positive for COVID were not showing symptoms of the virus when tested, and only 55% later developed any symptoms.

With the experience gleaned from the Roosevelt and a smaller outbreak on the destroyer USS Kidd, "we were able to learn how to diagnose, quarantine and isolate in a shipboard environment, the surgeon general said. That led to a search for ways to create bubbles to manage the risk of COVID for forward deployed personnel, including restriction of movement for 14 days before deployment and testing personnel coming out of quarantine.

Another study by Navy scientists looked at Marine Corps recruits at Parris Island Marine Corps Recruit Depot to assess the response to the virus of healthy young adults in a tightly controlled, congregate setting. "Even in that environment, about one-sixth of recruits still became infected," Gillingham said.

Both the Parris Island and Roosevelt/Kidd research findings were published in the New England Journal of Medicine. "I'm proud our folks were able to contribute to the national discussion on how to defeat COVID," he said.

Another panelist, Rear Adm. Dana Thomas, director of Health, Safety & Work-Life at the Coast Guard, said it is also crucial to monitor the mental and emotional health of personnel working under the trying conditions imposed by the pandemic.

In field communications, "I established, early on, Wellness Wednesdays," hour-long panel sessions with chaplains, doctors and others to talk about stress and anxiety, "bringing that conversation into the ward room or the workplace," she said.

“That was one thing we will continue as a best practice,” said Thomas, who is also an admiral in the U.S. Public Health Service Commissioned Corps.