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 Ghostrider, 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 of 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 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.”

With SPY-6, Navy Has Radar to Match the Range of its Missiles

The SPY-6(V)1 is being installed on Flight III Arleigh Burke-class DDGs. This air-and-missile-defense radar has been installed on the future USS Jack H. Lucas (DDG 125), shown here, scheduled to join the fleet in 2024. *HII*

ARLINGTON, Va. – The SPY-6 air and missile defense radar, the first of which has been installed on a guided-missile destroyer, will give the Navy a sensor worthy of its long-range Standard SM-3 Block IIA surface missiles, Raytheon officials said.

Briefing reporters April 1, Ken Spurlock, Raytheon's Strategic Missile Defense Requirements & Capabilities director, said the SM-3 missile "out-shot" the capabilities of earlier radars – presumably the SPY-1 on earlier DDGs. With the SPY-6, the SM-3 "can engage at the maximum range possible" for the missile.

Spurlock said the SPY-6 allows a ship to provide air and missile defense simultaneously, provide regional defense organically, offer greater clarity of the battlespace, give more defense in depth, reduce the risk of fratricide and reduce the number of missiles needed to defeat a target.

Also briefing was Michael Nulk, Raytheon's associate director, Requirements and Capabilities – Naval Power, said the SPY-6 will give commanders the discrimination capability to make better decisions and to "change their shot doctrine."

“There is no other radar with the surface maritime capabilities of SPY-6,” Wes Kremer, president of Raytheon Missiles & Defense, said in a March 31 release. “SPY-6 is the most advanced naval radar in existence, and it will provide our military a giant leap forward in capability for decades to come.”

Raytheon Missiles & Defense was awarded a $651 million Naval Sea Systems Command contract, with options totaling $2.5 billion, for “hardware, production and sustainment for full-rate production” of the SPY-6 family of radars. The contract provides for five years of production for radars for up to 31 U.S. Navy ships of seven types.

Scott Spence, naval radars executive director at Raytheon Missiles & Defense, also briefing reporters, said the company had 46 SPY-6 shipsets under contract, with six of those in work at the Raytheon plant. He said the enlarged footprint of the SPY-6 production will help reduce sustainment costs.

Spence noted the last transmitter that Raytheon builds for the SPY-1 radar will be delivered in April, concluding 41 years of production for the SPY-1.

The SPY-6 family includes the SPY-6(V)1, being installed on Flight III Arleigh Burke-class DDGs. The (V)1 has four flat antenna faces each with 37 radar module assemblies. This air-and-missile-defense radar has been installed on the future USS Jack H. Lucas (DDG 125), scheduled to join the fleet in 2024. The second shipset has been delivered for installation on the future USS Ted Stevens (DDG 128).

The SPY-6(V)2 Enterprise Air Surveillance Radar (EASR) has a rotating face with nine RMAs. The (V)2 will equip the America-class and Wasp-class amphibious assault ships, San Antonio-class amphibious transport dock ships, and Nimitz-class aircraft carriers.

The SPY-6(V)3 EASR has three fixed faces each with nine RMAs.

The (V)3 will be installed on Ford-class aircraft carriers and Constellation-class guided-missile frigates.

The SPY-6(V)4 EASR will have four fixed faces each with 24 RMAs. The (V)4 will be back-fitted on some Flight IIA Arleigh Burke-class DDGs.

Builders, Suppliers of Navy Ships Facing Inflation Costs for Materials

USS Gerald R. Ford (CVN 78) transits the Atlantic Ocean, March 30, 2022. *U.S. NAVY / Mass Communication Specialist 3rd Class Jackson Adkins*

ARLINGTON, Va. — The price inflation hitting American

consumers also is hitting the shipyards that builds ships for the U.S. Navy, which are facing increased costs for the materials used to build the ships and their components, said two executives who chair shipbuilder and supplier industrial base coalitions.

Suppliers who were not given advance funding especially are vulnerable to price inflation, which could have long-term effects in driving up the cost of the ships the Navy plans to procure. In addition, the shipbuilders are facing daunting labor shortages in the current tight labor market.

David Forster, a retired Navy captain, Global Strategy Executive of Naval Services, Rolls-Royce North America Inc., and chairman of the Amphibious Warfare Industrial Base Coalition, and Rick Giannini, chairman of the Aircraft Carrier Industrial Base Coalition and CEO of Milwaukee Valve, described the industrial base challenges of the fiscal 23 budget and Future Years Defense Plan in an April 1 interview with *Seapower*.

Giannini said inflation is the top concern of the aircraft carrier industrial base, especially to those suppliers who did not receive advance funding during the COVID-19 pandemic. He said the block buy of CVNs 80 and 81 saved the taxpayers money because it allowed suppliers to order advance materials, which are now in hand and unaffected by the inflation now hitting the industry.

Giannini's company, Milwaukee Valve, uses a large amount of nickel and copper in its aircraft carrier components, which it ordered as soon as possible for two CVNs and was able to lock in the low costs before the current inflation. He said the prices of nickel have jumped and that suppliers that did not or could not order earlier were now facing the effects of inflation.

The ACIBC chairman said the CVN block buy is going well from

his perspective and the ACIBC is working to show Congress the benefits of a two-CVN buy, including the advance procurement of materials that helps the suppliers to have the materials on hand when the builder needs them, making for a smooth build rate.

Forster said the Navy's efforts to award contracts early during the first two years of the COVID pandemic "saved a lot of jobs" and gave credit to James "Hondo" Geurts, then assistant secretary of the Navy for research, development and acquisition, for his successful efforts to advance funding to shipbuilders and in turn to their suppliers.

Forster said the three to 3.5 year build cycle for amphibious assault ships was in place and good for the stability of the industrial base, but the Navy's 2023 budget plan to end procurement of the Flight II San Antonio-class amphibious transport dock ships after a "handshake deal" for a block buy was disappointing and illustrated the ambiguity of the plans, especially since Marine Corps Commandant Gen. David Berger supported a requirement of 31 large- and medium-size amphibious warfare ships. In concert with the 2023 budget calling for the decommissioning of four dock landing ships, the Navy's budget is at odds with its plans to a build a force structure of 31 amphibious warfare ships.

Forster also noted the procurement of the light amphibious warship had slid until 2025, a further challenge to stability for the workforce.

He also advocates the Navy procure a replacement for the amphibious assault ship USS Bonhomme Richard, which was scrapped after a devastating fire in July 2020, having been modified for operation of the F-35B strike fighter.

Giannini said the second major concern of the shipbuilders and its supplier industrial base was the workforce, which is stressed by the difficulty of hiring skilled labor. He cited

the increasing age of the workforce and the retirements earlier than planned as a consequence of the COVID-19 pandemic.

The Navy's shipbuilding and ship retirement plans for 2023 and the Future Years Defense Plan and are likely to face intense scrutiny from the armed services committees in Congress, who have pushed back against retirement plans for several ships in the recent past and have been critical of the Navy's "divest to invest" strategy.

DoD Releases Fiscal Year 2021 Freedom of Navigation Report

Arleigh Burke-class guided-missile destroyer USS Barry (DDG 52) transits the Taiwan Strait during a routine transit in

2021. *U.S. NAVY / Mass Communication Specialist 3rd Class Justin Stack*

ARLINGTON, Va. – The Department of Defense released on April 1 its annual Freedom of Navigation Report for fiscal year 2021. During the period from Oct. 1, 2020, through Sept. 30, 2021, U.S. forces operationally challenged 37 different excessive maritime claims made by 26 different claimants throughout the world.

Excessive maritime claims are inconsistent with international law as reflected in the Law of the Sea Convention. They include a variety of restrictions on the exercise of navigation and overflight rights and other freedoms. Unlawful maritime claims – or incoherent theories of maritime entitlements – pose a threat to the legal foundation of the rules-based international order. If left unchallenged, excessive maritime claims could limit the rights and freedoms enjoyed by every nation.

Upholding freedom of navigation as a principle supports unimpeded lawful commerce and the global mobility of U.S. forces. DoD's freedom of navigation operations demonstrate the United States will fly, sail, and operate wherever international law allows.

DoD's regular and routine operational challenges complement diplomatic engagements by the U.S. State Department and supports the longstanding U.S. national interest in freedom of the seas worldwide.

Each year, DoD releases an unclassified summarized FON Report identifying the broad range of excessive maritime claims that are challenged by U.S. forces. It also includes general geographic information to describe the location of FON assertions while still maintaining operational security of U.S. military forces.

Click to see previous DoD FON Reports.

CNO, Indonesian Navy Chief Meet; Discuss Maritime Security

Chief of Naval Operations Adm. Mike Gilday, shown speaking to the U.S. Naval Academy's Silent Drill Team at the christening ceremony for the future Jack H. Lucas (DDG 125) in Pascagoula, Mississippi, March 26. *U.S. NAVY / Cmdr. Courtney Hillson*

WASHINGTON – Chief of Naval Operations Adm. Mike Gilday met with Chief of the Indonesian Navy Adm. Yudo Margono, at the Pentagon, March 30, the CNO's public affairs office said in a release.

This was their first meeting, during which the two leaders discussed the importance of maritime security and exchanged views on regional and global security issues.

“Working alongside our Allies and partners has never been so important. Today’s maritime challenges require interoperability and presence,” said Gilday. “Together we will continue to keep the maritime commons open and free as we promote the security, stability, and prosperity of the Indo-Pacific.”

The two leaders exchanged views about security issues in the Indo-Pacific, underscoring the importance of the U.S.-Indonesian bilateral relationship.

“The purpose of this visit is to enhance relationships and partnerships between the two navies that have been well established so far,” said Margono.

Gilday emphasized a commitment to continuing dialogue and building upon our strong bilateral defense relationship.

“For more than 70 years, Indonesia has been a valued partner,” said Gilday. “There is a strong strategic partnership between Indonesia and the U.S. and I am grateful for our long history of collaboration, cooperation, and training,” said Gilday.

Gilday and Margono also reviewed progress made in recent years in military-to-military cooperation to increase exercises and training, as well as regular defense policy dialogues.

U.S. and Indonesia operate together around the globe regularly. Indonesia has been part of the CARAT exercise series since it began in 1995. After 27 years of annual training events between the armed forces, CARAT Indonesia remains a model for cooperation that has evolved in complexity and enables both navies to refine operations and tactics in response to both traditional and non-traditional maritime security challenges.

The U.S.-Indonesian relationship is strengthened through training. For the first time, Indonesia has two midshipman attending the U.S. Naval Academy.

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 NIPO'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, NIPO's mission supports a whole-of-government approach to Russian aggressive actions toward Ukraine.

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

Rossi: NIPO 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 NIPO. Over the years, NIPO 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 NIPO 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 is 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.”

SECNAV Names Future Replenishment Oiler Ship Ruth Bader Ginsburg

USNS John Lewis (T-AO 205), the Navy's lead ship of its new class of fleet replenishment oilers. A future ship in the class will be named USNS Ruth Bader Ginsburg. *GENERAL DYNAMICS NATIONAL STEEL AND SHIPBUILDING. CO.*

WASHINGTON – Secretary of the Navy Carlos Del Toro announced March 31 that a future John Lewis-class replenishment oiler (T-AO) ship will be named USNS Ruth Bader Ginsburg to honor the former Supreme Court Justice and women's rights activist.

The future USNS Ruth Bader Ginsburg (T-AO 212) will be the first U.S. Navy ship to bear her name.

"As we close out women's history month, it is my absolute honor to name the next T-AO after the Honorable Ruth Bader Ginsburg. She is a historic figure who vigorously advocated for women's rights and gender equality," said Del Toro. "As Secretary of the Navy, it is my aim to ensure equality and eliminate gender discrimination across the Department of the Navy. She is instrumental to why we now have women of all backgrounds, experiences and talents serving within our ranks, side by side with their male Sailor and Marine counterparts."

The name selection for the John Lewis-class replenishment oiler follows the naming convention of honoring people who have fought for civil and human rights. Born in 1933, Ruth Bader Ginsburg was a pioneering advocate for women's rights turned Supreme Court Justice. Ginsburg made history as the second woman to serve on the U.S. Supreme Court when she was nominated by President Bill Clinton and confirmed in 1993. Of her 27-year tenure on the Supreme Court, she is most noted for her work toward issuing the majority opinion for United States v. Virginia, a landmark 1996 case that struck down Virginia Military Institute's male-only admissions policy.

The future T-AO 212 is the eighth of the T-AO ships awarded to the Navy, with the first delivered in 2021. The class and lead ship T-AO 205 is named in honor of Rep. John Lewis (D-Ga).

Del Toro also named Justice Ginsburg's daughter, Jane Ginsburg, as the ship's sponsor.

T-AO ships are fleet oilers designed to transfer fuel to the Navy's operating carrier strike groups. The oilers have the ability to carry a load of 162,000 barrels of oil, maintain significant dry cargo capacity, aviation capability and a speed of 20 knots. General Dynamics National Steel and Shipbuilding Company designed the vessels with double hulls that protect against oil spills as well as strengthened cargo and ballast tanks. The T-AO measures 742-feet in length with a full load displacement of 49,850 tons.