Standard Missile-3 Block IIA Destroys Target in First Intercept from Land

PACIFIC MISSILE RANGE FACILITY, Hawaii – The Missile Defense Agency completed the third successful intercept of a ballistic missile target by a Raytheon Co. Standard Missile-3 (SM-3) Block IIA missile, the next-generation variant that defeats missile threats outside the earth's atmosphere, the company announced Dec. 11.

The test evaluated the system's overall performance and achieved three milestones for the IIA variant:

■ The first successful intercept from a land-based launch.

■ The first intercept of an intermediate-range ballistic missile target.

■ The first intercept using tracking data from remote sensors, known as "engage on remote."

Raytheon's missile defense solutions continue to expand the defended area by protecting against increasingly sophisticated threats with the use of remote sensors. In this test, Raytheon's AN/TPY-2 radar served as a remote sensor, tracking and providing the missile with data on the incoming threat, instead of using the phased-array connected to the Aegis Ashore system.

"This is a versatile and sophisticated missile," said Dr. Taylor W. Lawrence, Raytheon Missile Systems president. "Our partnership with the Missile Defense Agency and Japanese industry made these results possible."

The IIA variant has larger rocket motors and a bigger kinetic warhead, raising its effectiveness against evolving threats.

The advanced missile obliterated a medium-range ballistic missile target at sea in October. SM-3 is the only ballistic missile interceptor that can be launched at sea and on land, and has achieved over 30 intercepts in space.

Navy Announces Findings on Sinking of World War I Cruiser USS San Diego

WASHINGTON – The Navy announced its findings Dec. 11 after a two-year study into what sank the World War I cruiser USS San Diego (ACR 6).

Alexis Catsambis, Ph.D., of the Naval History and Heritage Command's Underwater Archeology Branch, based at the Washington Navy Yard, led the project and chaired a panel discussion for media at the American Geophysical Union's (AGU) Fall Meeting. Although the original court of inquiry believed the explosion that sank the 500-foot armored cruiser was caused by a mine, later speculation raised the theory that it might have been a torpedo.

After examining new survey data, additional archival research, computer impact and flooding models, the area of the ocean floor in which the wreck rests, and other elements related to the ship's loss, Catsambis announced that research team believed the explosion's cause was a mine. In fact, they believe it was one of two types of mines laid by German submarine U-156.

"The legacy of the incident is that six men lost their lives on July 18, 1918," Catsambis said. "With this project we had

an opportunity to set the story straight and by doing so, honor their memory and also validate the fact that the men onboard did everything right in the lead up to the attack as well as in the response. The fact that we lost six men out of upwards of 1,100 is a testament to how well they responded to the attack."

In addition to Catsambis, the panel participants included Ken Nahshon, Ph.D., of the Naval Surface Warfare Center Carderock Division in Bethesda, Maryland, and Arthur Trembanis, Ph.D., from the University of Delaware in Newark, Delaware.

The 15,000-ton armored cruiser San Diego sank off Long Island, New York, losing six sailors from a crew of 1,100. German submarines had mined the coast, implicating a mine. But the ship's captain was perplexed that the explosion occurred aft of the ship's widest point, which gave rise to the notion the explosion might have been caused by a torpedo even though no submarine or torpedo trail had been spotted.

Later theories suggested a coal bunker explosion or sabotage, but the source of the explosion remained a mystery.

During the presentation, the scientists detailed how each of their teams used historical analysis, archaeological research, site investigation, and impact and flood modeling to eliminate other possibilities that might have caused San Diego's sinking such as sabotage, accident or enemy torpedo.

Trembanis explained how the use of underwater robotics and remotely deployed instruments including an autonomous underwater vehicle allowed researchers to collect high-resolution 3D images of the site to support their conclusion.

"The format of the 3D modeling data makes analysis readily comparable," said Nahshon. "Before we started this, I wasn't familiar with the ability to do this underwater; above the water we do it all the time, but below water collecting 3D data is a challenge. I've learned that the sheer amount of

expertise that’s needed to interpret it is a credit to the advances of technology in sea floor mapping.”

Before taking questions, Catsambis shared why this research is important for the U.S. Navy and how learning from the past will help to prepare for the future.

“The collection of archeological and hydrographic data establishes a baseline informing site formation processes and management of USS San Diego,” said Catsambis. “Lessons learned here are applicable to other U.S. Navy sunken military craft. This endeavor also provided real-world training opportunities for U.S. Navy divers, archaeologists, historians, modelers, naval engineers and graduate students.”

To commemorate the 100th anniversary of the loss of San Diego, the only major U.S. warship sunk in World War I, a multipartner investigative campaign dubbed the USS San Diego Project was launched in 2017; mapping the wreck, assessing the wreck’s state of preservation, modeling its sinking, and uncovering the weapon that likely sank it.

Dive training at the site occurred in August 2016 and June 2017, with the site investigation commencing September 2017, followed by the commemoration and diver survey July 2018. A major goal of the project is to raise awareness of the importance of preserving the wreck site into the future.

Coast Guard Continues Search for Possible Survivors of

Capsized Migrant Boat

SAN JUAN, Puerto Rico – Coast Guard rescue crews continue searching Dec. 7 for possible survivors of a capsized migrant boat in waters just off Isla Saona, Dominican Republic.

So far, 21 people have been rescued, while seven others are reportedly still missing.

Coast Guard watchstanders in Sector San Juan overheard a VHF Channel 16 radio transmission at approximately 2 p.m. Dec. 6 from the commercial tanker Sea Board Ranger requesting assistance to find for persons in the water, approximately six nautical miles east of Isla Saona, Dominican Republic. The Sea Board Ranger crew further relayed that they located a capsized vessel at and safely recovered 20 migrants from the water.

Survivors reported that there were 28 people aboard the makeshift vessel. Shortly thereafter, Coast Guard Sector San Juan received a request for assistance from Dominican Republic authorities.

Coast Guard watchstanders diverted the Coast Guard Cutter Joseph Tezanos and launched an MH-65 Dolphin helicopter and an HC-144 Ocean Sentry aircraft to search for possible survivors.

The cutter Tezanos arrived on scene located and rescued a woman from the water on the afternoon of Dec. 6, while the crew of the Coast Guard helicopter also located the capsized vessel.

Coast Guard rescue crews participating in the search are the Cutters Joseph Tezanos and Winslow Griesser, MH-65 Dolphin helicopters from Air Station Borinquen, HC-144 Ocean Sentry from Air Station Miami and HH-C-130 Hercules from Air Station Clearwater, Florida.

ODU, LAVLE USA Announce New Marine Electric Propulsion Laboratory for Newport News

NORFOLK, Va. – Old Dominion University (ODU) is collaborating with LAVLE USA Inc. to establish a new Marine Electric Propulsion Simulation (MEPS) Laboratory, the university announced in a Dec. 8 release. The $12 million, 22,000-square-foot lab will be built on 1.33 acres in the heart of downtown Newport News, Virginia.

The lab will house state-of-the-art equipment to develop marine electric propulsion, advanced energy storage, autonomous systems and associated technologies to advance marine vessels for military and commercial applications. It will also focus on training the current and next-generation workforce supporting the shipbuilding and ship repair industry.

ODU President John R. Broderick sees the partnership in Newport News as an ideal opportunity for hands-on learning, particularly in one of the region's key industries.

"The university is excited about this project, which has grown from of our digital shipbuilding initiative and aligns with our partners' collective vision for America Builds and Repairs Great Ships," Broderick said. "It is exactly the sort of collaborative research with which ODU wants to be affiliated – it is cutting edge, makes a significant economic impact to the region, supports the region's military, maritime and industrial bases, and provides hands-on training and education for students, industry and naval personnel."

The lab is expected to create at least 25 high-paying jobs including designers, engineers, programmers, and analysts.

LAVLE will design the lab's engineering and building plans for city approval in the first half of 2019. Construction is expected to begin in the summer with occupancy anticipated in summer 2020.

"The advantages of workforce development in Newport News cannot be overstated. In addition to the technical advantages of partnership with ODU and the MEPS Lab, LAVLE USA is extremely excited about the workforce development opportunity where our business will become even more heavily invested. Vessel electrification and hybridization within the region is a critical future market," said Jason Nye, LAVLE CEO.

"We are pleased LAVLE and ODU have selected Newport News as the site of the MEPS Lab," said Mayor McKinley L. Price. "The research and development that will be conducted at MEPS will bring new technology to the commercial and military markets and expand Newport News' role as a center of excellence for maritime innovation and construction."

"The city and EDA are excited to host MEPS," said Florence G. Kingston, the city's director of development and secretary/treasurer of the EDA. "We have been impressed by the entrepreneurial approach LAVLE and ODU have displayed during the site-selection process for the lab."

General Dynamics Awarded $346

Million by U.S. Navy for Virginia-Class Submarine Work

GROTON, Conn. – General Dynamics Electric Boat has been awarded a $346.5 million contract modification by the U.S. Navy to provide research and development and lead-yard services for Virginia-class nuclear-powered attack submarines. Electric Boat is a wholly owned subsidiary of General Dynamics.

Under the contract modification, Electric Boat will undertake development studies and other work related to Virginia-class submarine design improvements. Additionally, Electric Boat will perform research and development work required to evaluate new technologies to be inserted in newly built Virginia-class ships, including the Virginia Payload Module.

Initially awarded in 2016, the contract has a potential value of $1.3 billion through September 2019.

ONR-Sponsored Researcher Wins Nobel Prize

ARLINGTON, Va. – The Office of Naval Research (ONR) has a long record of placing winning bets on up-and-coming scientists. In fact, it was 30 years ago that the ONR Young Investigator Program sponsored Dr. Frances H. Arnold, a professor from the California Institute of Technology, who has been awarded the 2018 Nobel Prize in Chemistry.

Arnold – who still serves as a professor of chemical

engineering at Caltech – was in Stockholm, Sweden, for the Nobel Prize Award Ceremonies, where she became only the fifth woman – and the first American woman – to take home science's most recognized award.

"Dr. Arnold is the latest in a long line of Nobel Prize winners to have been sponsored through ONR basic research programs," said Dr. E. Anne Sandel, ONR executive director. "Like the others, her research has led to discoveries and breakthroughs with important implications for both the Navy and society at large."

ONR sponsored Arnold with a series of grants between 1988 and 2002.

"I received an ONR Young Investigator Award in the late 1980s, which introduced me to problems of interest to the Navy, but also problems of good intellectual content that overlapped with some of my interests in metal recognition and protein engineering," said Arnold.

It was during this period that Arnold pioneered a process known as directed evolution of enzymes, which steers enzymes – proteins that accelerate chemical reactions – toward specific functions, such as manufacturing pharmaceuticals and biofuels.

"During those years, I developed methods for creating proteins that could be useful for naval applications, but that also pushed the boundaries of protein engineering," said Arnold. "We were doing things that no one knew how to do.

"The methods we devised to make new proteins became useful to many other laboratories. That's the reason I won the Nobel Prize," she continued, "not just for what I have done with directed evolution, but for the impact that others have made with the technology we developed in those early days."

Subsequent to Arnold's original research, Dr. Laura Kienker, a program officer in ONR's Warfighter Performance Department,

saw the promise in Arnold’s work and provided a grant from 2011 to 2014, which led to the creation of a whole new class of enzymes that is important to sustainable production of chemicals and fuels from renewable sources.

Arnold’s research and teaching has also benefitted a new generation of scientists, several of whom ONR currently sponsors through basic research grants. According to Arnold, it’s important to take interest in and support this new generation of researchers, just like ONR did in her 30 years ago.

“It’s really important to fund people at an early stage, when they are just starting to formulate their ideas, because problems we learn about early in our careers stay with us,” said Arnold. “I

can’t thank ONR enough for that critical early support and also for introducing me to a community of brilliant scientists who were breaking new ground in biological engineering.”

Since 1952, more than 60 Nobel laureates have been sponsored by ONR for their work in everything from laser technology to graphene.

U.S. Coast Guard, Royal Canadian Navy Offload More than 5,100 Pounds of Seized

Cocaine

SAN DIEGO – U.S. Coast Guard and Royal Canadian Navy crews offloaded more than 5,100 pounds of seized cocaine on Dec. 7, worth nearly $70 million wholesale, in San Diego following a 49-day counter-drug patrol in the Eastern Pacific aboard Her Majesty's Canadian Ship (HMCS) Edmonton with an embedded U.S. Coast Guard law enforcement detachment, the Coast Guard Pacific Area said in a release of the same date.

The cocaine was seized in international waters off the coast of Central and South America in support of Operation Carribe.

The crew of Edmonton with their embedded U.S. Coast Guard law enforcement detachment stopped two go-fast boats, resulting in the seizure of more than 3,500 pounds of cocaine worth almost $50 million. The crews also recovered an additional 1,600 pounds of cocaine from the Eastern Pacific Ocean during the patrol.

"This 'cycle of justice' disrupts a 'cycle of crime,' which left unchecked, fuels violence and instability that corrodes our hemisphere's social and economic fabric," said Vice Adm. Linda Fagan, U.S. Coast Guard Pacific Area commander. "I stand here today, alongside our Royal Canadian Navy partners, resolved in a shared commitment to protect those threatened by criminals and bring to justice those engaging in these nefarious acts."

The Canadian Armed Forces are an international partner in the fight against transnational crime. Canadian-U.S. crews were responsible for seizing more than 31,000 pounds of cocaine from suspected drug smugglers in the Eastern Pacific since 2015 – taking an estimated $417 million out of the hands of the transnational organized crime networks.

Go-fast boats, traditionally open-hulled boats with multiple outboard engines, are used to outrun military and law

enforcement officials. This offload showcases the variety of tactics and methods of conveyance transnational organized crime groups use to evade military and law enforcement detection.

The multinational effort to combat criminal networks in the region includes more than 19 partner nations operating with Joint Interagency Task Force South (JIATF South) a component of U.S. Southern Command. JIATF South partner nations, including Canadian forces, removed approximately 113 of the 283 tons of cocaine seized or disrupted for fiscal year 2017. JIATF South detects and monitors illicit trafficking in the air and maritime domains to facilitate international and interagency interdiction and apprehension of suspected illicit traffickers.

Operation Caribbe takes place in the Eastern Pacific Ocean and the Caribbean Sea. Under this operation, Canada sends Canadian Armed Forces ships and aircraft to assist Operation Martillo. This U.S.-led effort involves multiple countries cooperating to thwart the flow of drug trafficking.

Coast Guard Cutter Alex Haley Returns After Bering Sea Patrol

JUNEAU, Alaska — The Coast Guard Cutter Alex Haley returned to homeport in Kodiak, Alaska, Dec. 6, following a 66-day multimission patrol, the 17th Coast Guard District said in a release.

Alex Haley spent the last two months patrolling the Bering Sea

and the Aleutian chain. The crew conducted boarding evolutions on the Alaskan crabbing and fishing fleet, and responded to four separate search and rescue cases.

During the Alex Haley's patrol, the cutter's crew conducted 25 fisheries boarding evolutions ensuring the safety of the crews, vessels and the protection of the Bering Sea living-marine resources.

"Following a transfer season that saw a large crew turnover, this patrol provided quality training and operational opportunities across a broad spectrum of Coast Guard missions," said Cmdr. Jon Kreischer, commanding officer of Alex Haley. "We are returning from a highly productive winter season Bering Sea patrol, and I am pleased with the favorable search and rescue case outcomes because they will brighten the holiday season for those families involved."

The Alex Haley is a 282-foot medium-endurance cutter with 100 personnel assigned aboard it. The cutter steamed more than 8,735 miles throughout the last two months, traveling as far west as Adak along the Aleutian chain and as far north as St. Lawrence Island. The crew's time underway was in support of those who make their livelihood on the Bering Sea.

United States' Lone Heavy Icebreaker Begins Antarctic Deployment

HONOLULU – The Coast Guard Cutter Polar Star arrived Dec. 4 in Pearl Harbor to make final preparations before sailing to Antarctica in support of Operation Deep Freeze 2019, the Coast

Guard Pacific Area said in a release.

The 42-year-old Coast Guard cutter is the United States' only operational heavy icebreaker. The crew is scheduled to make their sixth deployment in as many years to directly support the resupply of McMurdo Station – the United States' main logistics hub on Antarctica.

Polar Star recently completed a six-month drydock period where outdated equipment was upgraded or replaced. The 399-foot icebreaker is the only ship in the United States' fleet capable of clearing a path through the Antarctic ice to escort resupply ships to McMurdo Station. The resupply ships deliver cargo and fuel to sustain year-round operations on the remote continent.

Operation Deep Freeze is a joint military service mission in support of the National Science Foundation – the lead agency for the United States Antarctic Program. Since 1955, U.S. Pacific Command has assisted in providing air and maritime support throughout the Antarctic continent. This year marks the 63rd iteration of the annual operation.

The Coast Guard has been the sole provider of the nation's polar icebreaking capability since 1965, and is seeking to increase its icebreaking fleet with six new Polar Security Cutters to ensure continued national presence and access to the Polar Regions.

While in Pearl Harbor, the Polar Star will complete a variety of maintenance and repairs and to take on provisions in preparation for the month-long transit to Antarctica.

USS Thomas Hudner Brought to Life in Boston

BOSTON – The Navy commissioned its newest surface combatant, USS Thomas Hudner (DDG 116), during a Dec. 1 ceremony, the commander, Naval Surface Force, U.S. Pacific Fleet Public Affairs said in a release.

USS Thomas Hudner, commanded by Cmdr. Nathan Scherry, is the 66th Arleigh Burke-class destroyer, and the 36th DDG 51-class destroyer built by General Dynamics Bath Iron Works (BIW). It is the first warship named for naval aviator and Medal of Honor recipient Capt. Thomas J. Hudner, Jr.

Hudner, a native of Fall River, Massachusetts, received the Medal of Honor for his heroic actions during the Battle of the Chosin Reservoir in 1950. Hudner crash-landed his plane in a selfless effort to save the life of his wingman and friend, Ensign Jesse Brown, the Navy's first African American aircraft carrier qualified naval aviator.

Among the distinguished guests and speakers at the commissioning, Thomas Hudner III, son of Capt. Hudner, gave a speech about his father's life and legacy.

"While many would say that my father's actions were an extraordinary act, my father never thought of himself or that action as extraordinary," said Hudner. "To the contrary, when he was asked through the years why he did what he did, he responded simply that it was the right thing to do and if he hadn't acted, someone else would have. Throughout military history there have been countless acts of unselfish heroism, in fact the history of the United States has been built upon these acts many of which went unseen and without recognition. However, it was Capt. Hudner's unselfish act in the service of his country, the United States Navy, and his friend and

squadron mate that lives in the spirit of this ship.”

Massachusetts Gov. Charlie Baker delivered the principal address at the ceremony, which was attended by Chairman of the Joint Chiefs of Staff Gen. Joseph Dunford, Secretary of the Navy Richard V. Spencer, Mayor of Boston Martin Walsh, Vice Chief of Naval Operations Adm. William Moran, U.S. Rep. Stephen Lynch, D-Mass., and others.

“Simply put, life was never about Tom Hudner,” said Baker. “He was the consummate team player. The only way a person would know anything about what took place on that mountain top during the Korean War would have been to hear from someone else or to have read about it because he never talked about that day. It is my fervent hope that this ship is imbued with the humility, selflessness, patriotism, the commitment to one another, the kindness and decency that transcends our differences that made Tom so special.”

The ship’s sponsors, Georgea Hudner, wife of Capt. Hudner, and Barbara Miller, former co-chair of the Flag Officer Spouse Training, gave the traditional order to “Man this ship and bring her to life,” signaling the Sailors to embark and officially begin service as a U.S. Navy ship.

For the ship’s crew, the day was the culmination of a few years of work to get USS Thomas Hudner prepared for commissioning. The day was a special opportunity to bring the ship to life in Boston, where the legacies of great ships and great people are kept and revered.

Next, the ship will make its way to homeport in Mayport, Florida.