News of Recent Military System Deployments

Defense Dept. photo by U.S. Air Force Staff Sgt. D. Myles Cullen

George H. W. Bush Christened At Newport News

The nuclear-powered aircraft carrier USS George H. W. Bush (CVN 77) was officially christened October 7 at Northrop Grumman Newport News ship yard with its namesake and 41st president in attendance.

"I hope the American people will accept my sincere gratitude for an honor that touches my heart," said former President Bush. "This is any naval aviator's dream come true."

The ship's sponsor, Bush's daughter, Doro Bush Koch, christened the ship with the ceremonial breaking of a champagne bottle across the bow. President George W. Bush also attended the ceremony, standing side-by-side with Koch and his father for the christening.

While the carrier still follows basic Nimitz-class specifications, it includes numerous improvements. Most of the changes have been made to the 700-ton island structure, including the removal of one level and increasing the height of individual levels by nine inches, which leaves room to add new and upgraded systems as they become available.

The ship's communications systems have been dramatically redesigned to leave room for easy-integration of future systems upgrades. Improvements include communication and navigation systems upgrades, a new radar tower and transparent armor windows.

George H. W. Bush also features the new bulbous-bow design, the second carrier to utilize that design. The new bow provides more buoyancy to the forward part of the ship and improves the hull's efficiency. The design was first seen with the nuclear-powered aircraft carrier USS Ronald Reagan (CVN 76), commissioned in 2003.

The carrier's four brass propellers weigh approximately 30 tons each and are powered by two nuclear reactors that can operate for 20 years without refueling. The blades have been slightly redesigned to reduce wear and erosion.

Nimitz-class aircraft carriers can exceed 30 knots while underway and can carry 80-plus combat aircraft. Ships in that class are 1,092 feet long and displace about 97-thousand tons fully loaded.

CVN 77 is the 10th and final Nimitz-class aircraft carrier to be built during the 31-year span of the class. Its delivery is set for early-to-mid 2008.

Polar-Region Instruments Enhance Space Weather Forecasts

Improving the prediction of ionospheric-created disturbances is the aim behind two weeks of digging through 3 feet of snow, ice and slush in the tundra of Greenland by four members of the Air Force Research Laboratory Space Vehicles Directorate, with assistance from Danish personnel. Ionospheric-created disturbances disrupt radar and global positioning systems as well as satellite and high frequency communications.

Following three and a half years of negotiations with the Danish government, the group of researchers serving with the organization's Battlespace Environment Division, Hanscom Air Force Base, Mass., received approval last year to install equipment measuring the different properties of the ionosphere at Station Nord, a military outpost located in the far northeast portion of the giant isle.

In the polar region, located above the Arctic Circle, instabilities in the ionosphere create structuring of sunlight-produced plasma, which causes significant effects on radio wave transmissions. Similar in form to cumulus clouds, but not visible to the naked eye, these disruptions drift away from the direction of the sun across the polar cap. For the past 20-plus years, the Air Force has conducted ionospheric research at Danish Meteorological Institute sites in western Greenland, and also since the mid-1990s at a civilian facility at Svalbard, a group of islands belonging to the Kingdom of Norway, situated between the Scandinavian nation and the North Pole.

Both stations have provided real-time data to the Air Force Weather Agency at Offutt AFB, Neb., but the bulk of the information has been returned months later to the Hanscom AFB-based team. In addition, forecast capabili-

ties at the two locations have experienced a gap in coverage as the ionospheric turbulence moves at 500 meters per second across the polar cap, becoming fully developed by the time it reaches Thule Air Base, the U.S. installation in northwest Greenland. To bridge the lapse, placing instrumentation at Station Nord served as the optimum option. With the new instruments the forces creating the disturbances can be observed, along with their impacts on systems such as GPS and radar.

In July, AFRL scientists installed five instruments including an approximately 82 feet by 200 feet ionosonde transmit antenna, capable of determining ionospheric density profiles; an all-sky imager for viewing aurora and ionospheric plasma clouds; and three other systems employed to identify ionospheric scintillation through fluctuations in the strength of radio signals transmitted by various satellites such as GPS.

Researchers expect the exterior sensors to produce data for one year at a time, and believe the equipment's output can be extended another 48 months with annual maintenance. Meanwhile, the Station Nord site crew, comprised of five Danish military members, manages the instrument suite, which compiles short summaries of ionospheric disruptions every 15 minutes.

Army Develops Technology for First Responders

The U.S. Army Communications-Electronics Research, Development and Engineering Center (CERDEC) has developed the First Responder – Response Mobile Communications System, a rapidly deployable communications system that provides wireless connectivity, situational awareness and 3-D location and tracking in the absence of a fixed communications infrastructure.

The RMCS monitors vital signs of responding personnel and provides the incident commander cognitive oversight of the responders' environmental conditions. It also delivers voice communications and live high-quality video to the incident commander and headquarters coordinating the operation.

The recent RMCS demonstration is an enhancement to a demonstration held in August 2005. After a year of refinement, CERDEC has reduced the size, weight and power consumption of the overall system, and increased the range and data capacity to enable broad integration with standard first responder applications. These enhancements came as a result of feedback from Defense Department emergency response personnel and Department of Homeland Security public safety experts.

Army Begins Assessment of New Land Warrior System

The Army conducted an extensive operational assessment of the Land Warrior and Mounted Warrior Soldier Systems at Fort Lewis, Wash., this past summer. Land Warrior, developed by Program Executive Office Soldier, Fort Belvoir, Va., combines computers, lasers, navigation modules, radios, and other technologically advanced equipment to improve soldiers ability to communicate on the battlefield, their situational awareness, and, ultimately, their ability to fight effectively and survive.

C-130 Upgrade Program

A specially modified C-130 Hercules flies over the Texas countryside Sept. 19 during its initial test flight. The Hercules, which took off from Lackland Air Force Base, Texas, was modified under the C-130 Avionics Modernization Program which included a comprehensive upgrade of the avionics system that increases situational awareness for the warfighter tenfold over old analog cockpits. (Boeing photo/Ron Bookout)

Mounted Warrior, designed for combat vehicle crewmen, includes communications and displays that will improve situational awareness on or off the vehicle.

The 4th Battalion, 9th Infantry Regiment, 4th Stryker Brigade Combat Team, 2nd Infantry Division conducted the assessment. The battalion was equipped with 440 Land Warrior systems and 147 Mounted Warrior Systems for the assessment.

Small Diameter Bomb (SDB) Initially Operational

The Air Combat Command commander declared initial operational capability for the Guided Bomb Unit-39/B Small Diameter Bomb Oct. 2 and the weapon made its combat debut just three days later. Gen. Ronald E. Keys made the IOC announcement six months ahead of schedule, only weeks after it was initially delivered to the warfighter in early September for Air and Space Expeditionary Force 3/4.

The GBU-39/B was flown into combat for the first time Oct. 5 by members of the 494th Expeditionary Fighter Squadron based in Southwest Asia. A two-ship formation of F-15E Strike Eagles carried the new air-to-ground bomb while providing close-air support for ground troops operating in Iraq.

The F-15E Strike Eagle is the only aircraft currently equipped to carry the SDB. However, future potential platforms include the F-16 Fighting Falcon, B-1 Lancer, B-2 Spirit, F-22 Raptor and F-35 Lightning II.

The SDB have high precision capabilities. They are lightweight and small which means increased aircraft payload. The bomb, a mere 250 pounds, has a smaller lethality radius, but its advanced coordinate-seeking technology makes the small blast a benefit, not a liability.

Furthermore, its small size enables aircraft to carry more weapons, allowing commanders to "service more targets on a single pass." Its mounting carriage, the BRU-61/A, fits four bombs on one weapon pylon.

It is also a versatile weapon. The SDB range is more

A bomb rack unit carrying four Small Diameter Bombs is loaded onto an F-15E Strike Eagle at Royal Air Force Lakenheath, England. *(U.S. Air Force photo/Master Sgt. Lance Cheung)*

than 50 nautical miles when launched at 40,000 feet at Mach .95. This enables an aircraft to launch SDBs to multiple targets, while beyond the range of many anti-aircraft systems. Additionally, it is an all-weather weapon, effective day or night and can be fired at targets in front of, to the sides, and behind the employing aircraft. It is effective on stationary targets within 1.2 meters. Typical targets include hardened aircraft bunkers, early-warning radar, stationary SCUD missile launchers, stationary artillery and more.

Joint Strike Fighter Named Lightning II

On July 7, 2006, The Deputy Secretary of Defense, Gordon England and Air Force Chief of Staff Gen. T. Michael Moseley announced 'Lightning II' as the F-35 name during a Joint Strike Fighter inauguration ceremony in Fort Worth, Texas.

Moseley made the final decision after an extensive nomination and review process that was coordinated with the other military services and partner nations. In naming the F-35 General Moseley said, "Today, the enemies of peace and freedom have been put on notice. They have feared this day because the F-35 provides the coalition warfighter the perfect blend of speed, precision, and stealth."

Contracts Awarded

Rockwell Collins Government Systems, Cedar Rapids, Iowa, is being awarded a $45,000,000 indefinite delivery/indefinite quantity with cost-plus-fixed fee contract. This action provides for Advanced Tactical Targeting network Technology Development. The objective of this program is to develop robust indoor geo-location concepts that exploit multi-path radio frequency time of arrival phenomena. Specifically, this program will analyze, improve, and evaluate the performance of algorithms through modeling, simulation, and field test experiments in support of indoor geo-location via multi-path phenomena.

Northrop Grumman Systems Corp., Linthicum Heights, Md., was awarded a $10,000,000 cost-plus-fixed-fee contract for vehicle and dismount exploitation radar development and demonstration program. Work will be performed in Linthicum, Md., and is expected to be completed by April 1, 2007. Contract funds will not expire at the end of the current fiscal year.

BAE Systems Technical Services, Inc., Fort Walton Beach, Fla., is being awarded an $8,916,040 firm-fixed-price, cost reimbursable line items contract for operation and maintenance support for facilities operating under Naval Computer and Telecommunications Station (NCTS) Guam. This contract consists of one base year and four one-year options, which if exercised, bring the total estimated value of the contract to $45,386,608. Work will be performed in Guam, and work is expected to be completed by September 2011.

Lockheed Martin Space Systems Co., Space and Missiles, Sunnyvale, Calif., is being awarded a $7,639,325 cost-plus-award fee contract modification. This contract modification incorporates software and hardware changes to the Advanced Extremely High Frequency (AEHF) satellite system. The changes are necessary to develop and maintain backward compatibility with the predecessor Milstar communications satellite system. The changes made in this modification are part of a series of modifications necessary for backward compatibility. Backward compatibility will allow the AEHF system to work with this Milstar system and better service the joint warfighter. At this time, $263,922 has been obligated.

Litton Systems, Inc., Navigation Systems Div., Woodland Hills, Calif., is being awarded a $6,690,000 modification to a previously awarded firm-fixed-price contract (N00019-05-C-0074) for the procurement of one AN/UPX-24(V) Interrogator set, 9 control indicators, and 14 retrofit kits for the U.S. Navy. The AN/UPX-24(V) Interrogator Set is one of two major subsystems that provide a centralized identification system for Fleet tactical ships.

Boeing Co., Huntington Beach, Calif., is being awarded a $5,667,518 cost-plus-award fee contract modification. The Navstar Global Positioning System Block IIF contract will provide the next generation of advanced GPS satellites with enhanced navigation support for both military and civilian users. This modification consists of the funding of calendar year 2006 sustainment action for the following efforts: high power amplifier/black shelter equipment upgrade test capability, ground antenna/monitor station simulation, remote site data flow simulation, second strip sustainment.

Boeing Co., Anaheim, Calif., is being awarded a $5,290,000 firm-fixed price contract modification. This development activity will design, develop, test and evaluate a modification to the Combat Survivor Evader Locator hand held Radio (HHR). This modification will enhance the HHR by providing a Distance Measurement Equipment beacon. This will expand the search function in selected environments.

News and photos provided by the Department of Defense and branches of the U.S. Armed Forces.

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