



**PRECISION STRIKE
ASSOCIATION**
Affiliate, National Defense
Industrial Association

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"From Cruise Missiles Association to Precision Strike Association we have been dedicated to advancing the art and science of precision engagement concepts and technology for more than 20 years."

VISION STATEMENT

We aspire to be the premier association dedicated to advancing the art and science of precision engagement concepts and technology.

To accomplish this, we will promote the development of systems and procedures in order to locate, fix, track, target, and attack fixed, moving, and relocatable targets.

We recognize that battlespace management, the network within which it functions, and the adjunct command and control requirements are crucial to success on the battlefield.

PSA has a global perspective and welcomes international participation.

PSTS-14 SHOWCASES STRENGTH THROUGH INVESTMENT

By Ginny Sniegon – PSA Programs Chair

America's future is being threatened today as never before, in light of Russian Aggression in Ukraine, the humanitarian crises in the Middle East, and other global terrorist activities. As a result, critical challenges related to precision engagement are escalating globally. We must ensure that our great Nation stays ready for these challenges.

Fortunately, the precision strike community remains committed to a strong, prosperous and free America. This allows us to focus on providing the Defense Department the support required to defend our great Nation as we engage in the investment of precision strike capabilities that will give our great country the edge on the battlefield.

Ensuring that the U.S. military keeps its strategic advantage is the prime objective of our SECRET//NOFORN Precision Strike Technology Symposium (PSTS-14) scheduled for the Kossiakoff Center on 21-23 October 2014. Global precision strike challenges and issues will be the core focus of the symposium as leadership speakers and key precision engagement experts highlight critical topics that will address opportunities and innovations for the future of warfare. Further, other speakers will present insights that will allow for a greater understanding of the capabilities possessed by potential adversaries.



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Rob Wittman
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**Alan Shaffer
PDASD (R&E)
OSD**



**Dr. Laura Junor
DASD Readiness
OUSD (P&R)**

A few highlights that support the Department's objectives that are expected to be addressed by five of the leadership speakers (pictured on this cover) during the 3-day symposium are reflected below



**Major General
Garrett Harencak
ACS A10 HQ USAF**

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It has been an exciting year full of accomplishments for the Precision Strike Community.

Please join us as we discuss and celebrate those accomplishments at the 24th Annual Precision Strike Technology Symposium, October 21-23, 2014 at the Johns Hopkins University Applied Physics Laboratory, Kossiakoff Center, Laurel, MD.

The theme of this year's symposium is *Strength Through Investment – Decisive Strike Capabilities*. It will be conducted at the SECRET//NOFORN classification level. For more information and to register, please visit our website: www.precisionstrike.org.

In addition to a riveting agenda, we will be presenting the Richard H. Johnson Technical Achievement Award during a luncheon ceremony on Wednesday, October 22nd. You won't want to miss this event!

Not only does the 2014 Precision Strike Technology Symposium provide a unique opportunity to hear about the key technologies, initiatives, and needs of the Department of Defense, it also provides an opportunity to engage with key leaders in Precision Strike.

Meanwhile, our exhibit area allows our industry partners to showcase their technology, innovations, and products. You will have the opportunity to put your product in the hands of the PSTS-14 attendees during this exhibition. Please click here to download the exhibit display form <http://www.precisionstrike.org/Events/5PST/PDFs/5PST%20exhibit-displayform.pdf>.

We also have a number of sponsorship opportunities for those organizations interested in financially supporting the Precision Strike Association. We are a non-profit organization whose mission is to facilitate communication on topics of interest to the Precision Strike Community. It is the financial support of our member organizations that allows us to continue to host these

important events.

We can't be successful in our mission without your support. Please consider sponsoring this event. Click the below link to download the sponsorship form <http://www.precisionstrike.org/Events/5PST/PDFs/5PSTsponsorform.pdf>.

One of the key benefits of membership in the Precision Strike Association is invitation to the PSA Executive Roundtables. These events present unique access to senior leaders. The structure of the event allows senior leaders in government and industry to have frank conversations in a small, not-for-attribution setting. We held three Executive Roundtables in 2014 featuring: Dr. William LaPlante, Assistant Secretary of the Air Force (Acquisition); VADM David "Decoy" Dunaway, Commander, Naval Air Systems Command; and Mr. Jose Gonzalez, Deputy Director, Land Warfare and Munitions within OSD(AT&L).

As we plan future Executive Roundtables, we would like to hear your thoughts. What topics or speakers would be of interest to you? We want to ensure we are meeting the needs of the Precision Strike Community. Please don't hesitate to contact us at info@precisionstrike.org

Thanks so much for your participation in and support of the Precision Strike Association. We look forward to another productive and fulfilling year! Please mark PSAR-15 on your calendar for 17-18 March 2015.

Suzy Kennedy
Chairperson of the Board
Precision Strike Association

Advanced Hypersonic Weapon Destroyed during Second Test

A hypersonic weapon being developed by the U.S. military was destroyed four seconds after its launch from a test range in Alaska early on Aug. 25 after controllers detected a problem with the aircraft, according to the Pentagon. It marked the second test flight for the program.

The flight test was terminated as a safety precaution, and no one was injured in the incident at the Kodiak Launch Complex in Alaska. The AHW prototype and its three-stage rocket booster system fell back on the launch site, a facility on Kodiak Island, about 300 miles southwest of Anchorage.

Maureen Schumann, a spokeswoman for the U.S. Defense Department, said the U.S. Army Space and Missile Defense Command/Army Forces Strategic Command, as part of the Defense Department's Conventional Prompt Global Strike technology development program, conducted the flight test of the Advanced Hypersonic Weapon.

“Due to an anomaly, the test was terminated near the launch pad shortly after lift-off to ensure public safety. There were no injuries to any personnel. Program officials are conducting an extensive investigation to determine the cause of the flight anomaly,” she stated.

The weapon was developed by Sandia National Laboratory and the U.S. Army. The AHW is part of an effort to develop a conventional “Prompt Global Strike” capability. The AHW is designed to be launched from the United States and hit a target anywhere in the world. It can travel at speeds of Mach 5, about 3,600 mph, or higher.

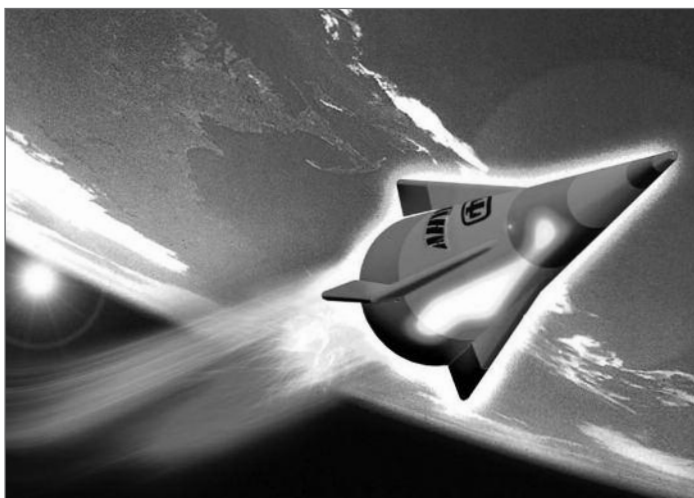
The Prompt Global Strike program seeks high-speed strike weapons that can hit targets rapidly with conventional warheads. The Advanced Hypersonic Weapon is designed to attack terrorists or storage or development areas used for weapons of mass destruction

and missiles that are discovered and must be struck swiftly.

In the first flight test of an Advanced Hypersonic Weapon on Nov. 17 2011, the AHW was launched from the Pacific Missile Range Facility, Kauai, Hawaii, and arrived 30 minutes later at the Reagan Test



The U.S. Army's Advanced Hypersonic Weapon took off for the first time in November 2011 from the Pacific Missile Range Facility in Hawaii. The second test from the military's Kodiak Launch Complex in Alaska took an unexpected turn when the weapon exploded four seconds after takeoff. (Courtesy of the U.S. Army)



An artist's rendering of the Advanced Hypersonic Weapon in flight.

Site, U.S. Army Kwajalein Atoll, Marshall Islands — a distance of about 2,500 miles.

The latest test was designed to enhance previous ground testing, modeling and simulation. Traveling at hypersonic speed, the glider also was aimed at Kwajalein and was supposed to cover the 3,500 miles in less than an hour.

The booster and glide vehicles were built in Albuquerque, NM by Sandia National Laboratories. The glide vehicle's thermal protection system was designed by the Army Aviation and Missile Research Development and Engineering Center at Redstone Arsenal, AL. ■

From CAS to Fire Suppression

Air-to-ground warfare technology to help firefighters

In the heat of battle, lives can depend on being able to coordinate troop positions safely while directing aircraft to provide close air support for ground forces.

DARPA's Persistent Close Air Support (PCAS) program aims to help overcome those challenges by providing warfighters with advanced digital tools for situational awareness and targeting in place of legacy communications systems and traditional paper maps.

Firefighters battling wildfires face challenges very similar to those that troops face in battle—the need for situational awareness, precise coordination of airborne water drops and ensuring fellow firefighters are kept safe from rapidly moving and shifting flames.

Unfortunately, advanced technology to overcome these hurdles has not been readily available to the firefighting community.

But this past May, DARPA researchers traveled to Prescott, AZ to collaborate with firefighters to test the potential value of PCAS technology for fighting wildfires.

Called Fire Line Advanced Situational Awareness for Handhelds (FLASH), the prototype system



FLASH Kit

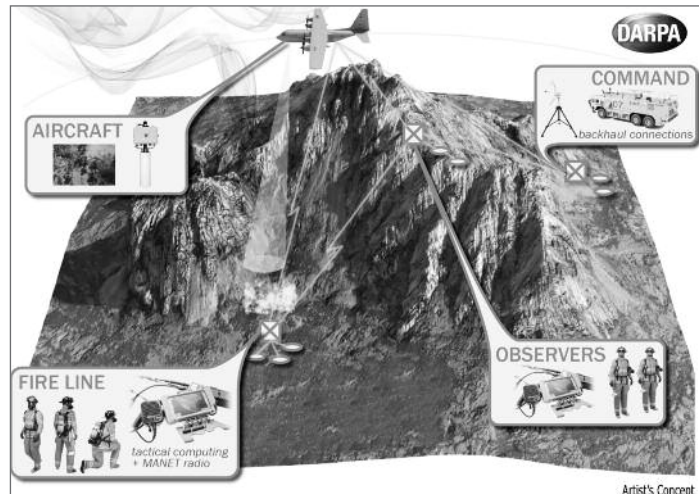
includes tablet computers, aircraft-mounted sensors and radios designed to identify the location of every firefighter and firefighting aircraft in expansive fire zones.

The system overlays multiple streams of information from airborne sensors, firefighters and fire command posts onto a shared digital map visible via tablet computers.

Using these technology tools during the three-day training demonstration, the firefighters were able to track each other's positions in real time. They monitored the position of an observation aircraft overhead and watched a live video feed from the aircraft providing a bird's-eye view of the terrain. Participants in a command post in Prescott as well as remote DARPA observers viewed the same live video feeds from the aircraft and could communicate in real time with firefighters in the field.

The FLASH system relies in part on Mobile Ad Hoc Networking (MANET) radio technology—a technology with roots in seminal DARPA investments and now at the core of today's advanced wireless industry.

“This training demonstrated the potential of MANETs and tactical tablet computing to provide powerful, flexible shared situational awareness for the fire community,” said



FLASH Graphic

Dan Patt, DARPA program manager. “We’re leveraging ongoing DARPA investments initially aimed at warfighters to help firefighters coordinate their efforts in ways we believe can increase firefighting effectiveness, as well as firefighter safety.”

Participants in the exercise were quite impressed with the FLASH prototype's capabilities. “This technology has great potential to increase situational awareness as well as personnel accountability, two things paramount to a successful and safe wildfire operation,” said Kevin Keith, fire captain in the Prescott Fire Department.

FLASH could help address smaller-scale incidents as well, such as search and rescue in difficult terrain. A separate but related demonstration included a live simulation of finding and retrieving an injured hiker in the nearby mountains. Triangulating from the person's 911 call, the FLASH-equipped team found the person within 15 minutes—a task that currently can take hours or even days. ■

ADAM Laser Goes Against Small Boats

In tests off the California coast, a Lockheed Martin prototype laser system successfully disabled two boats at a range of approximately 1.6 kilometers (approximately 1 mile). These were the first tests of the Area Defense Anti-Munitions (ADAM) system against maritime targets.

Lockheed Martin is developing the transportable, ground-based ADAM laser system to demonstrate a practical, affordable defense against short-range threats, including rockets, unmanned aerial systems and small boats.

In less than 30 seconds, the ground-based system's high-energy laser burned through multiple compartments of the rubber hull of the military-grade small boats operating in the ocean. Lockheed Martin pre-

viously demonstrated the system's capabilities in countering representative airborne targets in flight, including small-caliber rocket targets and a drone.

The system can precisely track moving targets at a range of more than 5 kilometers (3.1 miles), and its 10-kilowatt fiber laser can engage targets up to 2 kilometers (1.2 miles) away.

The ADAM design pairs commercial hardware components with Lockheed Martin's laser beam control architecture and software to affordably provide the performance needed for close-in threats, along with a virtually unlimited "magazine" at a low cost per engagement.

"Our ADAM system tests have shown that high-energy lasers are



ADAM in action

ready to begin addressing critical defense needs," said Tory Bruno, president of Strategic and Missile Defense Systems, Lockheed Martin Space Systems Company. "Our laser weapon initiatives leverage commercial products and processes, focusing on affordability for the user," said Dr. Ray O. Johnson, Lockheed Martin senior vice president and chief technology officer. ■

Laser Weapon for Marines

The Office of Naval Research (ONR) is developing a laser weapon to be used on ground vehicles.

The Ground-Based Air Defense Directed Energy On-the-Move (GBAD) program aims to provide an affordable alternative to traditional firepower to keep enemy unmanned aerial systems (UAS) from tracking and targeting Marines on the ground.

ONR is working with Naval Surface Warfare Center Dahlgren Division and industry partners on the development of GBAD's components and subsystems, including the laser itself, beam director, batteries, radar, advanced cooling, and communications and command and control.

The GBAD system is being designed for use on light tactical vehicles such as the Humvee and Joint Light Tactical Vehicle.

Some of the system's components already have been used in tests to detect and track UAS of all sizes. Later in the year, researchers will test the entire system against targets using a 10kW laser as a stepping-stone to a 30kW laser.

The 30kW system is expected to be ready for field testing in 2016, when the program will begin more complex trials to ensure a seamless process from detection and tracking to firing, all from mobile tactical vehicles.

Raytheon is on the GBAD team having won an \$11 million contract. The Raytheon-built laser will be packaged to meet the U.S. Marine Corps' demanding size, weight and power requirements.

"Raytheon's laser solution generates high power output in a small,

light-weight rugged package ideally suited for mobile platforms," said Bill Hart, vice president of Raytheon Space Systems.

Raytheon's planar waveguide (PWG) technology is the key to its unique approach to high energy lasers. Using a single PWG, the size and shape of a 12-inch ruler, Raytheon high energy lasers generate sufficient power to effectively engage small aircraft.

"Our PWG laser architecture is scalable: We can achieve increasingly higher power levels with the same compact design we're using for GBAD," Hart said. "Raytheon is paving the way for fielded directed energy weapon systems in the very near future with the demonstration of a Marine Humvee-based high energy laser." ■

Guided .50-Caliber Bullets

DARPA's Extreme Accuracy Tasked Ordnance (EXACTO) program recently conducted the first successful live-fire tests demonstrating in-flight guidance of .50-caliber bullets.

EXACTO's specially designed ammunition and real-time optical guidance system help track and direct projectiles to their targets by compensating for weather, wind, target movement and other factors that could impede successful hits by a sniper rifle.

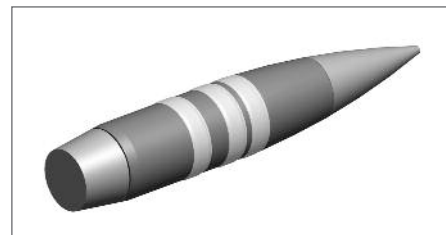
The EXACTO program is developing new approaches and advanced capabilities beyond the current state of the art for sniper systems. For military snipers, acquiring moving targets in unfavorable conditions, such as high winds and dusty terrain com-

monly found in Afghanistan, is extremely challenging with current technology. It is critical that snipers be able to engage targets faster, and with better accuracy.

The EXACTO system seeks to improve sniper effectiveness by allowing greater shooter standoff range and reduction in target engagement timelines. The program aims to revolutionize rifle accuracy and range by developing the first ever guided small-caliber bullet.

The EXACTO 50-caliber round and optical sighting technology will greatly extend the day and nighttime range over current sniper systems.

The EXACTO system combines a maneuverable bullet and a real-time guidance system to track and deliver the projectile to the target, allowing



EXACTO

the bullet to change path during flight to compensate for any unexpected factors that may drive it off course.

Technology development in Phase II included the design, integration and demonstration of aero-actuation controls, power sources, optical guidance systems, and sensors. The program's next phase includes a system-level live-fire test and technology refinement to enhance and improve performance. ■

New Capabilities for Seahawks

A modernized rocket launcher will soon enable Sikorsky Aircraft MH-60 Seahawk helicopters to carry and deploy a variety of weapons for the first time.

As part of an Early Operational Capability (EOC), the Navy delivered the new system, called the Digital Rocket Launcher, to Helicopter Sea Combat Squadron (HSC) 15 in March for pre-deployment training.

"DRL is the answer to an urgent operational needs statement (UONS) from the Navy, and its quick fleet deployment is the result of the hard work and cooperation of a number of program offices here at Naval Air Systems Command (NAVAIR)", said Cmdr. Alex Dutko, the Airborne Rockets and

Pyrotechnics team lead for the Direct Time and Sensitive Strike Weapons program (PMA-242).

Dutko's team worked closely with the H-60 Multi-Missions Helicopter Program (PMA-299) to deliver DRL to the fleet in less than 24 months.

This new, "smart" launcher will first be integrated onto the MH-60S as part of a Rapid Deployment Capability (RDC) and later, onto the MH-60R and potentially other platforms.

Though the helicopter can be equipped with a variety of other weapons systems, the DRL will permit employment of the Advanced Precision Kill Weapons System (APKWS), Dutko said.

A semi-active laser guidance section added to legacy rocket



Seahawk gets precise

components, APKWS offers greater precision than the unguided rockets currently employed from helicopters.

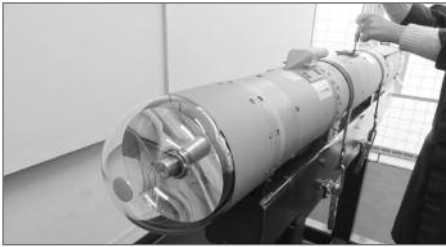
Additionally, the DRL's digital interface makes it capable of employing a wider variety of rocket configurations, offering significant flexibility to engage different target sets.

DRL allows for sequential and selective single fire; selective and all ripple fire; and rocket-inventory tracking, not available in its legacy predecessor, which required aircrew to keep a physical record of rockets fired. ■

News Briefs

Brimstone Demos Maritime Capability

MBDA has successfully demonstrated its Dual Mode BRIMSTONE missile against fast moving fast attack craft. At the Aberporth range in west Wales, UK, an RAF Tornado GR4 aircraft fired two Dual Mode BRIMSTONE missiles (one telemetry and one operational), each fitted with MBDA's latest Anti-FIAC software upgrades, at remotely controlled, 40ft ASV C13 Fast Inshore Attack Craft targets. The telemetry



Brimstone

missile achieved a direct hit on the FIAC's engines with the target operating at its maximum achievable speed in 'low sea state 4' conditions. The operational missile achieved a direct hit at the rear of the second FIAC's cabin, destroying and sinking the target which was operating at maximum achievable speeds in 'sea state 3' conditions. The test confirmed Dual Mode BRIMSTONE's first pass precision and lethality against challenging targets in stressing environments. ■

DAGR and HELLFIRE II Missiles Score Direct Hits

Lockheed Martin successfully fired HELLFIRE and DAGR missiles from its Long Range Surveillance and Attack Vehicle (LRSAV) turreted weapon system during recent ground-to-ground tests at Eglin AFB, FL.

The LRSAV is a fully integrated, turreted, ground-vehicle weapon system. It uses advanced missile and weapon control-system technologies and a newly developed 15-inch, spherical, mast-mounted electro-optical/infrared sensor to enable targeting and employment of missiles from a wide range of surface platforms.

During the tests, the vehicle-mounted LRSAV system launched a HELLFIRE II missile from 6.4 km and a DAGR missile from 3.5 km. Both missiles successfully impacted their targets. In both tests, missile lock-on-before-launch and lock-on-after-launch capabilities were used to demonstrate LRSAV's flexibility for various engagement scenarios.

Additionally, an AH-64D Apache helicopter equipped with Lockheed Martin's Modernized Target Acquisition Designation Sight/Pilot Night Vision Sensor (M TADS/PNVS) was used to remotely designate the short-range target, validating LRSAV's cooperative battlefield-engagement capability.

The tests confirm that the LRSAV weapon system is a low risk solution that can support multiple missions. Lockheed Martin's LRSAV weapon system delivers a superior capability that will engage targets from safe standoff distances, and enhanced performance for increased mission success, survivability and low collateral damage.

The LRSAV system was designed and built at Lockheed Martin Missiles and Fire Control facilities in Dallas, TX, Orlando, FL and Amptill, England. ■

Excalibur Ib Enters FRP

Raytheon's Excalibur Ib precision guided projectile has entered full rate production (FRP). Excalibur Ib is the newest variant of the 155mm GPS-guided projectile.



Excalibur

"International interest in Excalibur has risen sharply during the last year," said Michelle Lohmeier, Raytheon Land Warfare Systems vice president. "Excalibur has revolutionized cannon artillery, making it possible to engage targets precisely at long ranges while avoiding collateral damage, a capability that appeals to military leaders around the world".

In recent tests, all projectiles scored direct hits on their intended targets. The projectile's reliability, lethality and range are in excess of Army requirements and at all-time highs, while the unit cost has dropped significantly during the program's lifetime.

Raytheon is also developing Excalibur S, which incorporates a laser spot tracker in Excalibur's guidance section. Excalibur S was tested successfully on May 7th at Yuma Proving Grounds.

In a company-funded R&D initiative, Raytheon successfully fired the dual-mode GPS- and laser-guided Excalibur S for the first time. Although the Excalibur S was initialized with a GPS target location,

it scored a direct hit on a different, or offset, target after being terminal-guided with a laser designator.

The Raytheon-funded Excalibur S builds on the proven, GPS-guided Excalibur Ib variant. It will enable the warfighter to attack moving targets, engage targets that have repositioned after firing, or change the impact point to further avoid casualties and collateral damage.

With Excalibur N5, a 5-inch/127mm variant of the projectile, Raytheon is bringing this proven technology to the maritime domain. A live fire demonstration of the Excalibur N5 is planned for later this year. ■

SM-6 Intercepts Supersonic Target

The USS John Paul Jones (DDG 53) recently used a Raytheon Standard Missile-6 to destroy a supersonic high altitude target drone (AQM-37). The test moves the program one step closer to full operational capability.

Deployed for the first time in December 2013, SM-6 provides the U.S. Navy extended range protection against fixed- and rotary-wing



SM-6 Shot

aircraft, unmanned aerial vehicles and cruise missiles.

SM-6 is the longest range integrated air and missile defense interceptor deployed today.

Raytheon has delivered more than 100 SM-6 interceptors to the USN. The SM-6 uses both active and semiactive guidance modes and advanced fuzing techniques. It also incorporates the advanced signal processing and guidance control capabilities from Raytheon's Advanced Medium-Range Air-to-Air Missile.

Separately, an SM-6 destroyed a cruise missile target (BQM-74) at near the missile's maximum range. The USS John Paul Jones achieved the milestone while executing a series of three SM-6 flight tests designed to test the missile against subsonic, low altitude target drones (BQM-74) in over-the-horizon test scenarios. All three targets were destroyed. ■

Fury Lightweight Precision Guided Weapon

Textron Systems has unveiled its Fury precision guided weapon, a small, lightweight, precision guided glide system engineered to address a wide range of target sets from a variety of aircraft platforms.

It was displayed for the first time on a Beechcraft AT-6 aircraft during the 2014 Farnborough International Air Show.

Developed by Textron Systems' Weapon & Sensor Systems and its partner Thales UK, Fury applies elements of mature weapon systems from both companies to shorten the development cycle and time to the U.S. market.

Fury is 27-inches long, three inches in diameter, weighs 12.7 lbs. and uses a common interface for rapid

integration on multiple manned and unmanned aircraft systems. The lightweight weapon and rack design creates very little drag on an aircraft, causing minimal impact on aircraft performance and endurance.

The system has been integrated onto an aircraft platform, with test events proving accuracy within 0.2m of the target. Additional testing to further prove out weapon maturity is continuing.

The weapon is equipped with a proven warhead and tri-mode fuzing – impact, height of burst and delay – which further enables a single Fury to address a broad target set, ranging from static and moving light armored vehicles to small boats and personnel.

Fury is guided by a GPS-aided inertial navigation unit system with a Semi-Active Laser Seeker terminal guidance capability. This enables the weapon to engage both stationary and moving targets within one-meter accuracy, or fly to specific target coordinates. ■

AI3 Missile Intercepts Target

Raytheon and the U.S. Army recently scored the first intercept of a cruise missile by the Accelerated Improved Intercept Initiative missile. An AI3 missile also destroyed an unmanned aerial system (UAS). Both intercepts occurred during the Black Dart demonstration – a U.S. military exercise.

Fired from an Avenger launcher, AI3 missiles intercepted both targets at low altitude over water and in a high-clutter marine environment – capabilities made possible by upgrades to the missile's semi-active seeker and radar. The ability to defeat UAS and cruise missile threats is the key requirement of the

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for your awareness and interest:

The strategic vision of the present and prior CNOs on the affordable and reliable integration and use of maritime robotic systems to augment the warfighting offensive and defensive capability of our manned ship assets is one of the highest priorities of COMNAVSEA just as it is of the CNO and the SECNAV. The Keynote Address on Opening Day of PSTS-14 will be delivered by **Vice Admiral William Hilarides**—Commander, Naval Sea Systems Command. Admiral Hilarides is the acquisition owner of many of the Naval strike platforms and capabilities from sea frames to weapon systems which play a key role in all potential conflicts from the Asia-Pacific AOR to the Arabian Gulf to the Med. As part of Admiral Hilarides' portfolio, he has been invited to illustrate the variety and effectiveness of the surface and submarine Navy now and into the future for above and below water operations during his Keynote Address.

As our great Nation continues in a long fight with Islamic fundamentalists and other terrorist groups who would destroy our way of life, it will take courageous young men and women willing to stand up for the rest of us for years to come to ultimately preserve the country our Founding Fathers left to us. On the second morning of PSTS-14, we will turn our attention to Capitol Hill to obtain a congressional perspective from **Representative Rob Wittman (R-VA)**. Congressman Wittman, a staunch advocate for strengthening our nation's security and national defense, is a member of the House Armed Services Committee. The Congressman will present us with key concerns and challenges of the Committee from his perspective, and

then focus on the imperative of congressional support for our military.

A recent Executive Office of the President Memorandum on S&T priorities for the FY 2016 budget points out that “scientific discovery, technological breakthroughs, and innovation are the primary engines for expanding the frontiers of human knowledge and are vital for responding to the challenges and opportunities of the 21st century.” To meet the threats of the future, DoD is pursuing ambitious goals that require advances in science, technology and innovation and investing in S&T by developing innovative new security capabilities to maintain our decisive technological edge. During PSTS-14, the Principal Deputy ASD for Research & Engineering in OSD **Alan Shaffer** will talk about the need for Rebalance of R&E Investments as well as Technology Surprise with an emphasis on the Asia-Pacific region. Challenges that will advance promising innovations for acute warfighting needs for precision engagement will be addressed as well.

One of Secretary Chuck Hagel's Six Focus Areas is ***Prepare for a Prolonged Military Readiness Challenge***. Situational awareness points to the fact that we are consuming our future readiness now. This carries the risk that fewer options will be available to fulfill our national security objectives. **Dr. Laura Junor**—DASD for Readiness, OUSD (Personnel & Readiness)—will join us at PSTS-14 to address critical concerns related to Operational Readiness of Joint Forces for Precision Strike. We have already seen the readiness of non-deploying units suffer as training has been curtailed, flying hours reduced, ships not steaming, and exercises being canceled. Dr. Junor will focus on OSD's responsibility to our forces to ensure that our warfighters do not

go into harm's way unprepared.

Based on the Chairman of the Joint Chiefs of Staff assessment of QDR-14 related to the six national security interests for which this Administration is responsible, maintaining a secure and effective nuclear deterrent is the top priority of ways to advise the Secretary of Defense and the President. On the concluding day of PSTS-14, this priority will be discussed by **Major General Garrett Harencak**—Assistant Chief of Staff for Strategic Deterrence and Nuclear Integration, HQ USAF—during his keynote address. Further, General Harencak will discuss U.S. Strategic Interests and Nuclear Triad issues.

Additionally, 35 other distinguished leaders and experts will address PSTS-14. This includes Cyber Threat observations to be highlighted by **Chris Inglis** (NSA's Former Deputy Director) and the dynamic and very informative Intelligence Session chaired by **Rick Smith** of the Defense Intelligence Agency. Rick's session will address Foreign Threat Trends, Worldwide Ballistic Missile Programs, Middle East UGF Programs, East Asia update, and Hot Spots in Africa.

Also, you will want to be engaged in OSD's session chaired by **Greg Hulcher** on Conventional Prompt Global Strike that will discuss Advanced Hypersonic Weapons and Prompt Global Strike Warhead Design and Test Status.

Further, you will not want to miss **Dr. Steve Blank**—Senior Fellow for Russia, American Foreign Policy Council—who will provide new insights on Russian Military Power in Europe, including Intentions, Doctrine and Capabilities.

And, to provide captivating luncheon observations, **Dr. Peter Huessy**—President, Geostrategic Analysis—will provide insightful

remarks on The Challenge of Totalitarianism and Peace through Strength for Liberty.

NATO's *Role in the New Security Environment* remains a topic being reviewed for presentation by EUCOM during PSTS-14. Working together through the NATO Special Forces, the EUCOM team is providing the decisive edge during NATO missions in Europe, Afghanistan and Africa. It is important to receive an update on the perilous challenges we are facing in that part of the world.

In addition, Major General Bill Hix—Deputy Director, Army

Capabilities Integration Center—has been invited to talk about *Long-Range Precision Fires*.

Please review page 11 of this issue to capture the other numerous critical agenda topics that will be addressed during the very busy three-day program. And, remember that the **Sixth Richard H. Johnson Technical Achievement Award** will be presented to a worthy precision strike recipient during PSTS-14.

PSTS-14 is honored to be host to numerous **Midshipmen** from the U.S. Naval Academy's Weapons & Systems Engineering Department.

The Midshipmen are very excited for the opportunity to join us again for a great educational experience. Approximately 40 students (13 different students each day and 2 instructors) will join us each day.

You are guaranteed to gain valuable insights that will prove very beneficial as we focus on the future of precision engagement. Precision Strike values your participation and looks forward to having you and your cleared colleagues join us to share in this crucial and timely symposium. ■

Newsbriefs, Continued from page 8 U.S. Army's Indirect Fire Protection Capability (IFPC) Block 1. IFPC is a mobile, ground-based weapon system designed to acquire, track, engage and defeat UAS, cruise missiles, rockets, artillery and mortars.

Earlier this year, in preparation for the Black Dart event, AI3 missiles destroyed a 240 mm rocket and a UAS at Yuma Proving Ground, AZ.

Happy Birthday B-2

Just as they had on that historic day 25 years ago, Several thousand Northrop Grumman employees, civic leaders and USAF personnel on July 17 stood along the company's southern fence line in Palmdale to watch a B-2 stealth bomber taxi onto Runway 25.

As the tailless, bat-wing-shaped jet made its final turn and paused, its four General Electric engines began to roar. Slowly at first, then faster and faster, the B-2 thundered down the runway. As it lifted off and rose gracefully into the western morning sky, so too did the cheers of the crowd.

"The B-2's maiden flight from Palmdale to Edwards AFB lasted just

over two hours, but it changed forever the tenor of long range strike and international diplomacy," said Tom Vice, corporate vice president and president, Northrop Grumman Aerospace Systems. "Today, the bomber personifies Northrop Grumman's innovation and imagination, and provides an enduring symbol of the company's commitment to the brave men and women who defend our nation."

The B-2 can carry both conventional and nuclear weapons. It is the only aircraft that combines stealth, long range, large payload and precision weapons delivery in a single platform. The B-2's unique capabilities allow it to penetrate an enemy's most sophisticated defenses and put at risk its most heavily defended targets. ■

Wildcats to be Armed

The next-generation precision future anti-surface guided weapon (FASGW) (heavy) and FASGW (light) missiles will be integrated, tested and installed on 28 UK Royal Navy Wildcat helicopters by 2020. Capable of targeting small boats, fast attack craft and targets on land, each airframe is able to carry up to 20 missiles. Minister for Defence



FASGW

Equipment, Support and Technology Philip Dunne says "FASGW state-of-the-art missiles will provide Royal Navy Wildcat helicopters with unparalleled strike capabilities." ■

Works in Wind and Fog

Boeing and the U.S. Army have proven the capabilities of the High Energy Laser Mobile Demonstrator (HEL MD) in maritime conditions, successfully targeting a variety of aerial targets at Eglin AFB, FL.

In these recent demonstrations, the HEL MD used a 10-kilowatt, high energy laser installed on an Oshkosh tactical military vehicle. The demonstrator is the first mobile, high-energy laser, counter rocket, artillery and mortar (C-RAM) platform to be built and demonstrated by the U.S. Army. ■

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Cyber Threat & Challenges

NATO's Role in the New Security Environment

Operational Readiness of Joint Forces for Precision Strike

Hot Spots in Africa

Technology Surprise—Need for Rebalance of R&E Investments

Russian Military Power in Europe—Intentions, Doctrine & Capability

Effectiveness of Surface and Submarine Navy Now & Into the Future

Conventional Prompt Global Strike Session

United States Strategic Interests and Current Triad Requirement

Other Riveting Critical Topics

- Precision Strike Challenges and Opportunities
- Resurrecting Peace Through Strength
- Sustaining U.S. Global Leadership
- Strategic ISR—Defense Strategy Adjustments
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- Air-Sea Battle Implementation Update
- Arming Current & Next Generation Aircraft—Counter A2/AD
- Army Long-Range Precision Fires
- Changing Strategic Interests
- Bomber Force Structure
- Stand-Off Munitions Application Center (SMAC)
- Modular Autonomous Counter-WMD System Development & Roadmap
- Global Reachback for Targeting Support
- Potential of Multiphase Blast Weapons to Enhance Near Lethality in Precision Strike

Special Award Ceremony

6th Richard H. Johnson Technical Achievement Award

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The Precision Strike Digest is an important vehicle for the Precision Strike Association to share information and to engage in discussion. You have an opportunity to share your passion about a particular Precision Strike topic. The Precision Digest is published three times a year. Please contact PSA Chair for Communication Earle "Rudy" Rudolph (earle.rudolph@mbda-us.com), if you would like to have an article included in The Precision Strike Digest.

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