# The

# recision Strike Digest



PRECISION STRIKE ASSOCIATION

Affiliate, National Defense Industrial Association

3rd Quarter 2013 Vol.26, No.3

"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-13 HIGHLIGHTS Precision Strike Hot Topics in the New Strategic Environment

he United States cannot address the challenges of the future alone. In an era of increasing critical threats to U.S. security, greater responsibilities, competing priorities and reduced resources, we must begin to think differently and seek a greater understanding of the environment. We must concentrate on new emerging technologies and key global challenges and issues in the precision strike arena for the rebalance to the Asia-Pacific region and hot spots in North Africa and elsewhere where a global presence is required.

Our SECRET/NOFORN Precision Strike Technology Symposium (PSTS-13) scheduled for October 22-24, 2013 will provide an excellent opportunity to be engaged in a review in progress on defense strategy and priorities, as well as key security challenges related to threats to our Nation in the areas of cyberspace, cruise missiles, and WMD proliferation. This symposium will allow the precision strike community to keep pace with requirements and capabilities of advancing adversaries as we focus on DoD's strategic shift.

In the Second Quarter 2013
Precision Strike Digest, we featured three confirmed keynote speakers who will address PSTS-13 — Lieutenant General
Bradley Heithold, USAF—Vice Commander, HQ USSOCOM;
Major General Garrett
Harencak, USAF—Assistant
Chief of Staff for Strategic
Deterrence & Nuclear
Integration, HQ USAF; and
Rear Admiral Mat Winter,
USN—PEO for Unmanned
Aviation & Strike Weapons.

Now, in this Third Quarter 2013 PSD, we feature three additional distinguished leaders who will address the precision strike community at PSTS-13 – *Vice Admiral Scott Swift, USN*— Director Navy Staff to the Chief of Naval Operations; *Ambassador John Bolton*—Former U.S. Ambassador to the United Nations; and, *Steve Callicutt*— Director, Capability and Resource Integration (J-8), USSTRATCOM.

Vice Admiral Swift is scheduled to keynote PSTS-13 on the opening day, addressing national strategy challenges and fiscal realities. Commander of the Seventh

See PSTS-13, Cont. on pg. 6



Vice Admiral Scott Swift, USN Director Navy Staff CNO



Ambassador John Bolton Former U.S. Ambassador to the U.N.



Steve Callicutt J-8 USSTRATCOM





#### Published by:

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## **Chairperson's Column**



At the writing of last quarter's Precision Strike Digest, we had just recently released the Precision Strike Community

Survey. In my column I thanked folks who had already responded to the survey and encouraged others who had not yet responded to do so. I am now pleased to say that we had a wonderful response to the survey.

A few key takeaways. The Precision Strike Association (PSA) is clearly adding value. First, the survey respondents say that the three primary benefits of participation are: direct feedback from the government about needs, requirements, and capability gaps of the warfighter; opportunity to network with potential customers, collaborators, and colleagues; and visibility into industry capabilities. Second, PSA's classified symposia and the Precision Strike Digest are considered by the respondents to be unique value discriminators. Lastly, the survey respondents indicated a desire for more single day events with specific, focused agenda.

We are gratified for the positive feedback and we are committed to continuing to provide the same high quality, events that we have historically provided. The next of these events is the Precision Strike Technology Symposium 2013 (PSTS-13), scheduled for October 22-24 at the Johns Hopkins University Applied Physics Laboratory Kossiakoff Center in Laurel, MD. PSTS-13 will be conducted at the SECRET/NOFORN level. Registration is now open and can be accessed through the Precision Strike Association website: www.precisionstrike.org

More information about PSTS-13 can be found on Pages 1 and 7. Not only is PSTS a great opportunity for dialog and networking, it is also a great opportunity to showcase your technology through exhibits or to demonstrate your commitment to the community through sponsorships. Please consider both of these opportunities.

We are also sincere in the desire to respond to the survey and bring the community additional, focused opportunities for dialog. We are in the process of planning the first of these events. We envision that they will be breakfast or lunch events with a senior government official as the featured speaker and ample opportunity for discussion. We anticipate these events to be much smaller, intimate venues.

Invitation for these events will be provided to the corporate and individual members of the Precision Strike Association. If you are not currently a PSA member, I would encourage you to consider membership and take advantage of these unique opportunities. Membership information can also be found on the website: www.precisionstrike.org

We are interested in continuing to hear your feedback and suggestions. Please don't hesitate to contact us at info@precisionstrike.org

The Precision Strike Association is focused on serving the needs of the precision strike community.

Suzy Kennedy Chairperson of the Board Precision Strike Association



## **Precision Strike Against High Speed Maneuvering Targets**

BDA Missile Systems' Dual Mode Brimstone Missile (DMB) is a low collateral damage precision weapon currently being employed by UK RAF flight crews off of GR-4 Tornado fighter aircraft in Afghanistan.

With over 300 combat engagements, the advanced missile has accrued a 98 percent success rate in both Libya and Afghanistan. DMB is effective against a broad range of stationary and maneuvering targets, from snipers to main battle tanks.

craft. Three missiles were fired each with an individual kill box demonstrating both lethality and discrimination in a congested at-sea environment with commingled combatants.

DMB is an "off the shelf" weapon built from U.S. and UK-sourced components. The U.S. and UK invested over \$1 billion to develop this unique capability, and the original Brimstone missile is a product of a successful partnership between MBDA and The Boeing Company.

The original Brimstone missile used a single mode



Combat Operations in Libya

6 meter Rigid Inflatable Hull Boat (RHIB)

Fast Inshore Attack Craft (FIAC)

The missile's precision and low collateral damage capability have made it the weapon of choice for the RAF in areas of restrictive rules of engagement that demand precision engagement and effects.

As a result of its success in combat, DMB is now a candidate for integration on other platforms, including a number of tactical jets, rotorcraft, drones, and naval vessels, and MBDA has an extensive ongoing program of system development to increase the capability of DMB.

MBDA is expanding DMB's operational envelope and target set to include a broad range of maritime targets, including small swarming attack craft. In May 2013, MBDA conducted the first surface-to-surface engagement of multiple small swarming boats with a single button push. The result was direct hits on three targeted boats within a simulated attack formation of five small surface

Millimeter Wave (MMW) seeker to engage targets. As a result of an urgent requirement to increase the missiles operational flexibility, a Semi Active Laser (SAL) seeker

DMB successfully integrates both seekers, providing multiple operating modes and attack options to an operator. This flexibility allows the operator to select from several man-in-the-loop or autonomous attack modes depending on the Tactics, Techniques, and Procedures (TTPs) in use.

For more information, go to www.brimstonemissile.com







## **Faster, More Precise Air Strikes**

lose Air Support (CAS) is a dangerous and difficult business. To help address these challenges, the Defense Advanced Research Projects Agency (DARPA) recently awarded a contract for Phase II of its Persistent Close Air Support (PCAS) program to Raytheon.

PCAS aims to enable ground forces and combat aircrews to jointly select and employ precision-guided

weapons from a diverse set of airborne platforms. The program seeks to leverage advances in computing and communications technologies to fundamentally increase CAS effectiveness, as well as improve the speed and survivability of ground forces engaged with enemy forces.

Dan Patt, DARPA program manager, says PCAS envisions an all-digital system that incorporates commercial IT

products and models such as open interfaces, element modularity and mobile software applications.

PCAS designs currently include two main components, PCAS-Air and PCAS-Ground. PCAS-Air would consist of an internal guidance system, weapons and

engagement management systems, and high-speed data transfer via Ethernet, existing aircraft wiring or wireless networks. Based on tactical information, PCAS-Air's automated algorithms would recommend optimal travel routes to the target, which weapon to use on arrival and how best to deploy it. Aircrews could receive information either through hardwired interfaces or wirelessly via

tablet computers.

PCAS-Air would inform ground forces through PCAS-Ground, a suite of technologies enabling improved mobility, situational awareness and communications for fire coordination. A HUD eyepiece wired to a tablet computer like that used in PCAS-Air would display tactical imagery, maps and other information, enabling ground forces to keep their eyes more



Persistent CAS under development

on the target and less on a computer screen.

A potential groundbreaking element of PCAS is Smart Rail, a modular system that would attach to standard external mounting rails on tactical aircraft.

## 1st LRASM Air-Launch Flight Test

ockheed Martin recently completed a successful first flight test of the Long Range Anti-Ship Missile (LRASM) in support of the Defense Advanced Research Projects Agency (DARPA) and Office of Naval Research (ONR) program.

In the test at Point Mugu, CA, a USAF B-1B released the LRASM. The missile navigated through all planned waypoints, transitioned to autonomous guidance and flew toward the maritime target using inputs from the onboard multimodal sensor. The missile then descended to low altitude for final approach to the target area, positively identified and impacted the target.

LRASM is an autonomous, precision-guided anti-ship standoff missile leveraging the successful Joint Air-to-Surface Standoff Missile Extended Range (JASSM-ER) heritage, and is designed to meet the needs of the USN and USAF.

Armed with a proven 1,000-pound penetrator and blast-fragmentation warhead, LRASM employs a multimode sensor, weapon data link and an enhanced digital anti-jam global positioning system to detect and destroy

specific targets within a group of ships.

Lockheed Martin also successfully launched the first LRASM



Artist's Rendering of LRASM

Boosted Test Vehicle (BTV) from a MK 41 Vertical Launch System (VLS) canister at White Sands Missile Range, NM.

During the company-funded test, the MK41 VLS successfully launched the LRASM BTV. The BTV, which includes the proven Vertical Launch Anti-Submarine Rocket (VL/ASROC) Mk-114 rocket motor, ignited successfully, penetrated and exited through the canister cover and performed a guided flight profile similar to a tactical configuration.

The flight test was part of an ongoing Lockheed Martin-funded Offensive Anti-Surface Weapon effort focused on shipboard integration of LRASM's surface launched variant.



#### **News Briefs**

#### **Stealthy Super Hornet**

The Boeing Advanced Super Hornet has demonstrated that it can outperform threats for decades to come with improvements that make the jet much harder for radar to detect and give it significantly more combat range.

Through 21 flights in St. Louis and Patuxent River, Md., that began Aug. 5, the team tested conformal fuel tanks (CFT), an enclosed weapons pod (EWP), and signature enhancements, each of which can be affordably retrofitted on an existing Block II Super Hornet aircraft or included on a new jet.

Improvements to the aircraft's radar signature, including the enclosed pod, resulted in a 50 percent reduction compared with the U.S. Navy's stealth requirement for the current Super Hornet variant. The tests also showed that the CFTs increase the jet's combat radius by up to 130 nautical miles, for a total combat radius of more than 700 nautical miles.

#### **SM-6 Engages OTH Targets**

The U.S. Navy recently fired two Raytheon Standard Missile-6 interceptors from the USS Chancellorsville, successfully engaging two cruise missile targets (BQM-74 drones) in the missile's first overthe-horizon test scenario at sea.

The SM-6 will provide U.S. Navy sailors and their vessels extended range protection against fixed- and rotary-wing aircraft, unmanned aerial vehicles and cruise missiles as part of the Naval Integrated Fire Control – Counter Air (NIFC-CA) mission area.

In February, Raytheon delivered the first SM-6 from its new produc-

tion facility at Redstone Arsenal in Huntsville, AL. In May, a Defense Acquisition Board approved full-rate production of the SM-6 missile.

#### NextGen Paveway II

Raytheon is leveraging innovative technology resulting in superior accuracy and reliability with the latest variant of Enhanced Paveway II "L-5" guidance kits.

This variant builds on the strengths of the current combatproven Enhanced Paveway II, integrating evolutionary technologies to the dual-mode global positioning/laser systems.

The advanced system is designed to engage maneuvering targets traveling at high speeds, while simultaneously improving accuracy and minimizing aircrew workload. At the heart of the system is the innovative digital Semi-Active Laser seeker, which improves performance and increases overall capability and reliability of the Enhanced Paveway II.

## Multi-Service Standard Guided Projectile

BAE Systems and United Technologies recently completed a successful guided flight test of the Multi-Service Standard Guided Projectile (MS-SGP) at White Sands Missile Range, NM, demonstrating its performance from a 5-inch 62-caliber Mk 45 Mod 4 Naval Gun System.

The MS-SGP provides a single projectile capable of responsive, tactical fires for addressing stationary or moving targets for multiple U.S. or allied services at a fraction of the cost of current alternatives.

The guided flight test demonstrated the tactical capability to a range of 38 kilometers, but the MS-SGP's maximum range is nearly 100 kilo-

meters, with accuracy of less than five meters. The MS-SGP will significantly enhances the capability of U.S. Army and Marine Corps field artillery and U.S. Navy Mk 45 gun systems.

#### JASSM FMS

Lockheed Martin has received a \$34.2M Foreign Military Sales contract from the USAF to support additional integration of the Joint Air-to-Surface Standoff Missile (JASSM) onto Finnish Air Force F-18C/D aircraft. Finland is the second international customer for JASSM.

The contract award follows several recent JASSM program milestones,

#### CALENDAR OF EVENTS

#### Precision Strike Technology Symposium (PSTS-13)

**Date:** October 22-24, 2013

Theme: Precision Strike in the New Strategic Environment at

Home & Abroad

**Location:** Johns Hopkins University/ Applied Physics Laboratory — Laurel, MD

This symposium will be held at the SECRET/NOFORN Classification Level.

## Precision Strike Annual Review (PSAR-14)

March 18-19, 2014

**Location:** Waterford at Springfield – Springfield, VA

Sponsorships and exhibit opportunities available for all events—for more information email info@precisionstrike.org or visit our website: www.precisionstrike.org





including successful completion of the Lot 6 Reliability Assessment Program and completion of the JASSM-ER initial operational test and evaluation program, which resulted in recommendation for fullrate production.

JASSM is an autonomous, air-toground, precision-guided standoff missile designed to meet the needs of U.S. and allied warfighters. Armed with a penetrator and blast fragmentation warhead, JASSM cruises autonomously, day or night in all weather conditions. The missile employs an infrared seeker and enhanced digital anti-jam Global Positioning System to find specific points on targets.

#### **LRLAP Under Test**

Lockheed Martin's Long Range Land Attack Projectile (LRLAP) recently completed four engineering verification flight tests. The projectiles were fired at various hard and soft targets located 45 nautical miles downrange. All four targets were destroyed.

The tests allowed engineers to collect lethality data and assess warhead performance, and provided the U.S. Navy the opportunity to develop new employment scenarios. LRLAP is a 155-mm projectile fired from the Advanced Gun System for the U.S. Navy's next-generation DDG 1000 destroyer.

#### **PSTS-13**, Continued from page 1

Fleet until July 2013, Admiral Swift will also be able to talk about kill chain challenges in the anti-access/area-denial (A2/AD) environment. Admiral Swift became Director of the Navy Staff effective 9 SEP 13. He received his commission through the Aviation Reserve Officer Candidate Program. His Master's Degree was received from the Naval War College. Admiral Swift's prior combat operations included Praying Mantis, Southern Watch, Enduring Freedom and Iraqi Freedom. Shore assignments include VA-122, F/A-18 Requirements Officer OPNAV Staff, OUSD(AT&L) Staff Officer, and Director of Operations, U.S. Pacific Command.

Ambassador John Bolton is confirmed to deliver the Luncheon Address on the first day of PSTS-13. He will focus on sustaining U.S. Global Leadership and highlight overarching national security global challenges.

A diplomat and a lawyer, John Bolton was educated at Yale where he received his B.A. from its university and his J.D. from the Yale University Law School. Ambassador Bolton spent many years in public service with a concentration on research related to U.S. foreign and national security policy. He is a prolific writer of numerous books related to

the politicaln landscape—continuously writing articles and commentary from his unique global perspective. Mr. Bolton's writings frequently receive the attention of the White House and the Congress. He is guaranteed to have your attention as well.

Steve Callicutt will moderate the Nuclear Panel on the third day of PSTS-13. His panel will focus on various critical topics that receive continuous debate, including Global Strike Requirements and Operations, Nuclear Deterrent and Triad Perspectives, Naval Nuclear Systems Requirements and Investments, Nuclear Infrastructure, Sustaining the Nuclear Security Infrastructure, Nuclear Systems, and Nuclear Weapons Effects and Survivability. These topics will be briefed by experts from USSTRAT-COM, the Military Departments, OSD, NNSA and DTRA.

As J-8 Director at STRATCOM, Mr. Callicutt is responsible for conducting force management and analysis to include integrating, coordinating, prioritizing and advocating USSTRATCOM future concepts, mission capability needs, weapons system development, support for emerging technologies, and command and control architecture across the mission areas.

Prior to his current assignment, he was Senior Technical Director, Air Force Command and Control and ISR at Langley AFB. Mr. Callicutt received his commission through the ROTC program and graduated from the University of Memphis. He served on active duty in the U.S. Air Force for 24 years, retiring in 2002. He assumed his current position in July 2005.

Other significant dynamic sessions/panels will be led by representatives from the DIA, Cyber Command, the Services, and USAFRICOM. These discussions will address intelligence challenges focused on China, Cyber and Targeting Support, the Services' perspectives on Air-Sea Battle, and a host of challenges related to Hot Spots in North Africa.

Please see page 7 of this PSD for a snapshot of numerous other confirmed critical precision strike topics that will be examined during PSTS-13.

Additionally, a special award ceremony will be conducted to present the 5th Richard H. Johnson Technical Achievement Award.

We look forward to having you join us and other members of the precision strike community for this powerful and dynamic symposium that will help prepare all of us for new emerging challenges both at home and abroad.



Please Join Us for One of the Best Technology Symposiums of Its Kind!

#### **PRECISION STRIKE TECHNOLOGY SYMPOSIUM (PSTS-13)**

#### 22-24 OCTOBER 2013

The Johns Hopkins University Applied Physics Lab Kossiakoff Center — Laurel, MD

#### **SECRET/NOFORN Classification Level**

Precision Strike in the New Strategic Environment at Home & Abroad

#### **PSTS-13 Showcases Five Hot Topics**

Intelligence Session
Cyber—Targeting Support
Air-Sea Battle Panel—Services' Perspectives
Hot Spots in North Africa—USAFRICOM's Overview
Nuclear Panel—Strategic Challenges & Nuclear Deterrence

#### **Other Riveting Critical Topics**

- National Strategy Challenges and Fiscal Realities
- Meeting Precision Strike Challenges and Opportunities
- S&T Challenges for the Asia-Pacific Region
- Sustaining U.S. Global Leadership
- Next Generation Air Dominance
- AARGM—Proven & Planned Support of Air Dominance & Precision Strike
- The Operational Kill Chain—J38 Targeting
- Geospatially Enabled Targeting Materials
- Distributed Targeting System on F/A-18 Super Hornet
- ISR Support in a Changing DoD Environment
- Digital Interoperability—Optimizing the Kill Chain
- Arming Current & Next Generation Aircraft—Counter A2AD
- New Precision Strike Capabilities for Global SOF Needs
- Future Joint Force Development
- Strategic Shift—Rebalancing to Asia & Defense Strategy Adjustments
- Precision Strike Bombers in the Pivot to the Pacific
- Electronic Warfare Challenges for the Asia-Pacific Region
- Integrated Intelligence for Precision Strike
- Testing Against Hard & Deeply Buried Targets
- Future Technologies for Hard & Deeply Buried Targets & WMD Defeat
- Technology Transfer for Conventional Prompt Global Strike
- Tomahawk Interoperability
- Strategic Posture for Regional Deterrence
- Conventional Prompt Global Strike & Its Special Roles
- U.S. Strategic Nuclear Perspective

#### **Special Award Ceremony**

5th Richard H. Johnson Technical Achievement Award

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If your company name is missing, please email: PSAchair@precisionstrike.org

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 quarterly. Please contact PSA Chair for Communication Earle "Rudy" Rudolph (earle.rudolph@mbdaus.com), if you would like to have an article included in The Precision Strike Digest.

#### IN THE NEXT ISSUE...

Precision Strike Technology Symposium (PSTS-13) Wrapup

### **Membership Application – Precision Strike Association**

The undersigned, desiring to support and cooperate in the activities of the Precision Strike Association, applies for Membership:

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