



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.

Major General Jeffrey A. Sorenson, USA Will Keynote Precision Strike Annual Programs Review

This year’s Precision Strike Annual Programs Review, scheduled for 18-19 April at the Marriott Crystal City, will highlight the Role of Precision Engagement in Asymmetric Warfare.

This important PSA review will focus on Sea Strike Systems, Joint Deep Strike Systems, and Precision Attack to Ensure Dominant Maneuvers. Additionally, two high-level panels—one on Acquisition and the other on Directed Energy Weapons—will cover essential aspects of precision engagement. Other key topics include Global Strike and Joint Space Requirements, International Programs (including Brimstone), Analysis of Current Joint Combat Operations in Afghanistan and Iraq, Role of Non-Lethal Weapons in the GWOT, and the Vision for Unmanned Aircraft Systems.

Two very prominent military leaders will keynote this popular two-day review. On opening day, the keynote address will be delivered by a distinguished military leader from the Joint Staff Directorate. Major General Jeffrey A. Sorenson, USA, will keynote the second day’s review and

bring us up to speed on the tough issues that the precision strike community should more intently focus to better support the Army’s role in the interdependent environment of an asymmetric battlefield.

Major General Sorenson, a graduate of the U.S. Military Academy, assumed duties as the Deputy for Acquisition and Systems Management to the Assistant Secretary of the Army (Acquisition, Logistics and Technology) in January 2004. His awards and decorations include being named the Army’s Project Manager of the Year in 1998.



Major General
Jeffrey A. Sorenson, USA

Prior to assuming his present duties, Major General Sorenson served in numerous acquisition assignments during the past 18 years at Army Headquarters and in various Field assignments.

Don’t miss this unique opportunity to interact and network directly with key acquisition leaders and warfighters. Please join Major General Sorenson and our tremendous slate of speakers, including a Joint Staff Directorate military leader, as they present insights and highlights related to a broad range of precision strike and unmanned systems. ■

IN THIS ISSUE

Chairman's Column



Reviewing the Results

It looks like the "perfect storm" has passed and

we can all sit back and review the results.

The Pentagon's military base realignment plan is a done deal with many commands and organizations setting their plans for closure, reduction in force or relocation. There were a few surprises and there are a few more details to be worked out, but for the most part, I think it is a pretty good plan. I believe the only major issue still on the table is what happens to the Navy's major airbase in Virginia Beach. This 'political football' is still rolling around at midfield waiting for a fumble recovery.

The Quadrennial Defense Review (QDR) is out and I don't see anything that would be considered a negative impact to our precision strike interests. We will concentrate on the global war on terrorism for the foreseeable future. And our efforts in the precision engagement arena will be needed and probably have increased focus over the next few years.

The QDR had very little impact on President Bush's FY07 defense budget request. There are a few changes that were made on the margins—but nothing dramatic. It will be worthy to note how the QDR impacts the POM08 buildup. I am sure significant planning and energy will go into this POM. It will be

very interesting to see what happens to the request and how the entire budget profile will look with a different U.S. president and a "new" Congress coming in 2007 and 2008. Nothing like a little change in the Nation's Capital.

Speaking of change, Dale Spencer

will be joining the PSA's Executive Committee as the new Chairperson for Communications. Dale works for Kaman Aerospace and is already a member of your Board of Directors. Dale steps up to the plate, to replace Bob Houser as the communications lead. Bob Houser is on a very special mission for Boeing and has to endure moving to San Diego. Unfortunately, he has had to resign from the PSA Board to concentrate on his new position. Bob, thanks for all you have done and good luck in the new endeavor!

For all of you who attended the Winter Roundtable in January, thank you. A first class event indeed! We received many positive reviews of this one. A very, very well done to Ginny Sniegon (PSA Event Chairperson), Captain Scott Swift, USN, Dick Rumpf, Paul Greenberg and Dawn Campbell for all of their efforts to make this a great session. Very special thanks to Dr. William J. Perry for making the trek cross-country to present the Perry Award to the Tactical Tomahawk Team.

The Annual Programs Review is scheduled for 18-19 April. The lineup of speakers is again first rate, the cost is very reasonable and we will conduct our membership meeting and announce our new Board of Directors. By the time you get this issue of the Precision Strike Digest you should have already received the election ballot. Please vote and attend the APR to learn the results.

That's the view from Wayne's World...

Wayne F. Savage
Chairman of the Board
Precision Strike Association

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Winter Roundtable 2006 Wrapup: Precision Requirements— New Policies Creating Innovative Opportunities

The Precision Strike Association held its Winter Roundtable on January 25, 2006 at the Crystal Forum, Arlington, Virginia.

Wayne Savage (PSA's Chairman of the Board) and Ginny Sniegon (PSA's Programs Chair) welcomed senior DoD and U.S. military officials and industry representatives to the popular unclassified forum, which this year previewed the recently released Quadrennial Defense Review (QDR) and discussed how new policies will affect precision strike weapons development and acquisition.

Meanwhile, PSA took time out to bestow the William J. Perry Award to the government-industry Tactical Tomahawk Team.

Barry Watts, senior fellow, Center for Strategic & Budgetary Assessments, led the day's slate of speakers, offering a fascinating historical perspective on the evolution of precision strike weaponry. Discussing six decades of guided weapons, he took the audience back in time to the Vietnam War era, then moved forward "going from transistors, to integrated circuits to microprocessors."

He said the earliest AIM-7 Sparrow air-to-air missiles incorporated hand-soldered circuitry that could not withstand harsh aircraft carrier operations. "They simply wouldn't work when needed, so much so, that Navy pilots relied almost exclusively on the shorter-range Sidewinder (AIM-9) heat-seeking missile... This issue, which we usually don't talk about, is central to subsequent production of solid-state Sparrow missiles that distinguished themselves in 1991's



Vice Admiral Marty M. Chanik, USN—Director for Force Structure, Resources and Assessment (J-8), The Joint Staff, Ginny Sniegon—PSA Programs Chair, Wayne Savage—PSA Chairman, Brigadier General James P. Hunt—Deputy Director Force Applications, Joint Staff, J8

Desert Storm."

But Watts said things have improved dramatically regarding precision strike weapons. "We have moved from a regime in which most weapons missed most of the time, to one in which most weapons hit or come close enough to destroy point targets most of the time... The U.S. military has a very robust precision strike capability and one not easily defeated," the defense analyst has concluded.

Terry J. Pudas, acting director, Office of Force Transformation, talked about precision strike and precision effects and the future security environment and challenges. He said the Global Positioning System (GPS) has "changed the battlefield and changed the world." Whereas it took 200 sorties per target during World War II, 50 sorties per target during the Vietnam War, and 1-2 sorties per target in Desert Storm, we now talk about the number of targets per sortie.

He also discussed a number of transformational weapons in development, including the "Stiletto", a new

military high-speed vessel especially valuable for shallow-water operations.

The experimental Stiletto is a shallow-water transport boat. More than 80 feet in length, the carbon-composite hull can move at more than 50 knots on the cushion of air its "M-hull" creates. The Stiletto offers a safer, more comfortable ride and is easily reconfigured to accommodate technological

advances and the military's needs. Stiletto was initiated in the DoD Transformation Office in association with U.S. Special Operations Command.

Colonel Pat Kelly, USA, then offered an overview of how a Quadrennial Defense Review (QDR) is conducted. Formally unveiled in early February, the 92-page report aims to shift military capabilities to fight terrorism while recognizing the continued need to defend against conventional threats.

The report was driven, managed and authored by senior leaders throughout the Pentagon, from Secretary of Defense Donald Rumsfeld, to Marine Gen. Peter Pace, chairman of the Joint Chiefs of Staff, to the service chiefs and secretaries to the combatant commanders. Kelly is no stranger to the QDR process, having worked on QDR (1997), QDR (2001) and the latest version.

Lt. Col. Jay Rouse, USA, Strategy Div., J-5 Strategic Plans & Policy

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Directorate, The Joint Staff, outlined the National Military Strategy (NMS), discussing the changing strategic environment and the relationship of the National Security Strategy, National Defense Strategy and NMS.

That environment includes a wider range of adversaries, more complex and distributed battlespace and technology diffusion and access. He says priorities include winning the war on terrorism, enhancing joint warfighting and transforming the force. Force transformation will require new force employment concepts, rapid prototyping and fielding and anticipating emerging challenges.

Vice Admiral Evan M. Chanik, USN, director for Force Structure, Resources and Assessment (J-8), The Joint Staff, discussed precision strike proficiency, sufficiency and the way ahead.

Increased proficiency includes lethal capability in adverse weather, smaller weapons for greater loadout capability, additional Joint Direct Attack Munition (JDAM) tail kits and fielding of the Small Diameter Bomb (SDB). Regarding sufficiency, Chanik said the challenge in the Munitions Requirement Process (MRP) is determining the right mix, considering surge capability, shelf life, budgetary issues and industrial base issues.

In addressing the Way Ahead, VADM Chanik stated that he is focusing on how to provide more visibility into warfighter capability gaps. He encouraged Defense Industry to help DoD focus on identified capability gaps and the solutions to those gaps for the future.

Maj. Gen. Charles N. Simpson, USAF, director for joint requirements and integration directorate (J-8), U.S. Joint Forces Command, spoke on joint command and control criticality to precision strike. "Today

we can kill things we can find. The question is can we find the things to kill?" He discussed from the Joint Forces perspective what is being developed "to enhance our ability to put the right effects at the right time on the head of the right individual."

A high-point of Winter Roundtable 2006 was the presentation of the PSA's tenth annual William J. Perry Award to the government/industry team that has delivered the Tactical Tomahawk to the Navy's precision weapons inventory.

The Perry Award recognizes public or private sector leadership or achievement that results in significant contributions to the development, introduction, or support of precision strike systems. Specifically, PSA honors the Tactical Tomahawk Team for their "superb" contribution that has led to "the strengthening of

program's success is the result of operators and the government and industry acquisition community program managers and engineers working together to develop and produce a smarter, more capable weapon. The TACTOM weapon provides more capability at a much lower cost than any previous long range cruise missile...By raising the standard for all other precision strike acquisition programs, the Tactical Tomahawk Team efficiently delivered needed capabilities to the combat commanders," the Perry Award Citation states.

This latest version of the Navy's surface- and submarine-launched precision strike standoff weapon incorporates innovative technologies to provide unprecedented operational capabilities while dramatically

reducing acquisition, operations and support costs. The new capabilities that Block IV Tomahawk brings to the Navy's sea strike capability are derived from the missile's two-way satellite data link that enables the missile to respond to changing battlefield conditions. The strike controller can "flex" the missile in flight to preprogrammed alternate targets or redirect it to a new target. This targeting flexibility includes the capability to loiter over the battlefield awaiting a more critical target.

The missile can also transmit battle damage indication imagery and missile health and status messages via the satellite data link. For the first time, firing platforms will have the capability



Presented to the Tactical Tomahawk Team: USN and Raytheon Company



Wayne Savage-PSA Chairman, Harry Schulte-VP Raytheon Missiles Systems, Captain Rick McQueen, USN, Keith Sanders, Dr. William J. Perry.

our national security by direct application of precision strike capabilities to DoD systems and/or to the enhancement of our industrial technology base for application to precision strike technology."

Tactical Tomahawk (TACTOM) is a conventional modification to the 34-year-old "strategic" Tomahawk. "The

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ty to plan and execute Global Positioning System-only missions. Block IV will also introduce an improved anti-jam GPS receiver for enhanced mission performance.

William J. Perry, a former secretary of defense, took time out of his busy schedule to cross the country to bestow the award named after him. He said the Tactical Tomahawk program has “promoted innovation in procurement” and shows that “jointness” works. Perry also stated that TACTOM showcases technology innovation while serving as “a potent force qualifier.” Said Perry: “PSA could not have picked a more worthy recipient.”

In accepting the award for the government team, David K. Sanders, the Navy’s deputy program executive officer for strike weapons, said “what’s good for the combatant is good for the taxpayer. It has been a job extremely well done. The Tactical Tomahawk Team really earned this award. They have set the standard for Navy programs of the future.”

Harry Schulte, vice president, Raytheon Missile Systems, said the TACTOM work “is as good a team effort as I’ve ever seen... The Tactical Tomahawk program reflects the transition and growth of Tomahawk from its original role as a long-range nuclear strike weapon to that of today’s combat weapon of choice for critical long range precision strike missions against high value, heavily defended targets.”

Named after the former U.S. defense chief and precision strike weapons advocate, others to have received the prestigious Perry Award include: Dr. Perry, the first recipient (1977); former Vice President Dan Quayle (1998); RADM Walter M. Locke, USN (Ret.) (1999); The Johns Hopkins University, Applied Physics Laboratory (2000); the NAVSTAR Global Positioning System Joint

Program Office (2001); Rep. James V. Hansen (R-UT) (2002); Terry Little, a well-respected acquisition reform pioneer (2003); the USAF/USN/Boeing JDAM Program Team (2004); and, U.S. warriors of Operation Enduring Freedom and Operation Iraqi Freedom (2005).

Those attending the afternoon session first heard from John Douglass, president of the Aerospace Industries Association, Richard E. Efford, senior professional staff member, House Defense Appropriations Subcommittee and Charles J. Houy, minority staff clerk, Senate Defense Appropriations Subcommittee. The congressional staffers discussed the key issues regarding the Pentagon’s Fiscal Year 2007 budget deliberations.

Douglass said aerospace sales hit a record level in 2005 as the industry’s three main sectors – civil aviation, defense, and space – all showed strength convergence. Sales increased by \$14 billion to reach a record industry-wide level of \$170 billion in 2005, an increase of 9.2 percent over 2004’s final sales number. The outlook for 2006 is solid, with 8.2 percent growth to \$184 billion. That would be another record year.

Military aircraft sales in 2005 increased seven percent to \$50 billion, missile sales rose four percent to \$15.3 billion, and space sales grew nearly four percent to \$37 billion. The sales for general aviation, helicopters, military aircraft, space, and related products and services are all new records.

Although elated with the numbers, Douglass is “a little uncertain as to where things will go in the future as per defense spending... There are a lot of issues that make predicting the future a little bit difficult.

(But) the future of precision strike is secure. I cannot see a scenario in which the military would move away from precision strike,” he added.

Michael B. Deitchman, head of air

warfare and weapons programs, Office of Naval Research, used his time to discuss ongoing research efforts and the relationship between sea strike and precision strike. “Tactical Tomahawk is working extremely well, but I see the Navy after Next, in 2020 and beyond, requiring supersonic and hypersonic capabilities applied to not only precision strike but also to shipboard defense, etc.”

Wrapping things up for the day was Chuck Riechers, chief of operations/technical advisor, OUSD (AT&L)/AS&C and OASD (NII)/C3 Policy, Programs & Space Policy, who offered an overview on the latest Unmanned Aerial Systems (UAS) Roadmap. While the FY07 military budget request restructures some UAS programs, Riechers said “the Department remains very committed to unmanned aerial systems.” ■



The UAS Roadmap includes Northrop Grumman’s MQ-5B Hunter UAV





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- 1 **Barry Watts**—Senior Fellow, Center for Strategic & Budgetary Assessments
- 2 **Captain Scott “Notso” Swift**, USN—OUSD(AT&L), Defense Systems
- 3 **Terry J. Pudas**—Acting Director, Force Transformation, Office of the Secretary of Defense
- 4 **Colonel Pat Kelly, USA**—Senior Army Advisor to the Under Secretary of Defense for Policy, QDR Integration Team
- 5 **Colonel Jay Rouse, USA**—Strategy Division, J-5 Strategic Plans and Policy Directorate, The Joint Staff
- 6 **Dick Rumpf**—President, Rumpf Associates Int'l, **Charles J. Houy**—SAC, **Richard E. Efford**—HAC Senior Professional Staff Member, **John Douglass**—President, AIA
- 7 **Vice Admiral Marty Chanik**, USN—Director for Force Structure, Resources and Assessment (J-8), The Joint Staff
- 8 **Major General Charles N. Simpson**, USAF—Director for Joint Requirements and Integration Directorate (J-8), U.S. Joint Forces Command
- 9 **Mr. Michael B. Deitchman**—Head, Air Warfare and Weapons Department, Office of Naval Research
- 10 **Chuck Riechers**—Chief of Operations/Technical Advisor, OUSD (AT&L)/AS&C and OASD (NII)/C3 Policy, Programs & Space Policy
- 11 **Dr. William J. Perry**—Former Secretary of Defense
- 12 **U.S. Navy Team: Doug Detwiler**, **Captain Rick McQueen**, USN, **Jackie Gill**, **Keith Sanders** and **Dr. William J. Perry**
- 13 **Keith Sanders**—Deputy PEO for Strike Weapons and Unmanned Aviation
- 14 **Harry Schulte**—Raytheon Company-Vice President, Raytheon Missiles Systems
- 15 **Raytheon Team: Phil Poehlman**, **Dave Stone**, **Troy Goertz**, **Mike Jarrett**, **Walt Rogers**, **Harry Schulte**, **Dr. William J. Perry**
- 16 **Bill Dalecky**—PSA Vice-Chair, **Dick Rumpf**—PSA Emeritus, **Ginny Sniegon**—PSA Programs Chair, **Dr. Bill Perry**—Former Secretary of Defense, **Wayne Savage**—PSA Chairman
- 17 **Tactical Tomahawk Team**
- 18 **RADM Walt Locke**, USN (Ret)—PSA Emeritus and **Dr. Bill Perry**—Former Secretary of Defense

Precision Strike Association
would like to thank

Raytheon

For Sponsoring the
**2006 Precision Strike
Winter Roundtable**

USAF Declares F-22A Operational

Langley AFB, VA – The Air Force’s most advanced weapon system is ready for combat, according to USAF officials.

In reaching initial operational capability, the F-22A Raptor has been certified ready for employment. Declaring the transformational fighter IOC means the Raptor’s proven capabilities are now available for use in combat around the globe and are supported by a properly trained and equipped force.

It also means the aircraft is qualified to perform homeland defense missions when required. In the words of Gen. Ronald E. Keys, Air Combat Command commander, “If we go to war tomorrow, the Raptor will go with us.”

“F-22A IOC means our warfighters



An F-22A Raptor takes off from Langley AFB during an Operation Noble Eagle mission. This historical event marked the first time the Raptor participated in a joint services operation.

now have an unprecedented lethal mix of air-to-air and air-to-ground capabilities at their disposal,” General Keys said. “The Raptor’s cutting edge technology brings us continued joint air dominance despite advancing enemy threats.”

Reaching the IOC milestone culminates a collaborative effort between various Air Force organizations and the service’s industry partners during the past 25 years.

“The F-22A fulfills a long quest to

bring fifth generation capabilities of stealth, supercruise and precision to the warfighter today and 30 years from today,” General Keys said. “Now that we have met our first promised milestone of a fully capable, multi-mission platform ready for combat, we are already focused on furthering our integrated tactics development, refining our deployability, and growing and training our force...We will conduct our first routine peacetime exercise deployment by taking 12 Raptors to Alaska in June for Northern Edge.”

Designed to ensure America’s air dominance for years to come, the F-22A will ensure U.S. Joint Forces’ freedom from attack and freedom to attack, even as our adversaries continue to advance their weapons and technologies.

“As I told (Air Force Chief of Staff) Gen. (T. Michael) Moseley, he and I have spent our lifetime executing, instructing, and providing air dominance for the Joint Force. Lamentably, we have never been privileged to hold a weapon like this in our hands. After reviewing our test results, seeing our operational deployment performance, and talking to the pilots that will go to war with it, I am confident that the F-22A joins the combat force at a far more mature and capable level than any of our previous great aircraft, and will take its rightful place in a long line of U.S. Air Force legends of the air,” General Keys said.

The first combat-ready Raptors are assigned to the 27th Fighter Squadron, one of three squadrons assigned to the 1st Fighter Wing.

The current 27th Fighter Squadron combat deployment capability with the F-22A is a 12-ship deployable package designed to execute air-to-air and air-

to-ground missions.

The 27th Fighter Squadron – the Air Force’s oldest fighter squadron – is now the first operational unit to fly the service’s newest fighter aircraft.

“This next generation fighter can now be employed by combatant com-



An F-22A Raptor stands ready to defend the United States.

manders and the national command authority for various missions both at home and in other areas of responsibility,” 1st Fighter Wing Commander Brig. Gen. Burton Field said.

The F-22A Raptor showed its capabilities when it flew its first two operational sorties over the United States in support of Operation Noble Eagle Jan. 21 and 22. The Raptor mission came one week after the 27th Fighter Squadron’s conversion.

Operation Noble Eagle provides air defense over the United States and Canada. Since the Sept. 11, 2001, attacks on the nation, North American Aerospace Defense Command fighters have responded to more than 2,000 air events over the two countries. ■

FY07 DoD Budget Request Reflects QDR

U.S. President Bush has sent a \$439.3 billion military budget to Capitol Hill. The Fiscal Year 2007 budget proposal, which includes recommendations of the recently completed Quadrennial Defense Review (QDR), represents a seven percent increase over the FY 2006 DoD budget.

The Pentagon's spending plan for FY07 reflects the intentions of the 92-page QDR, which among other things calls for an increase in special operations forces, accelerated procurement of unmanned aerial vehicles (UAVs), and development of a new long-range strike platform.

The QDR aims to shift military capabilities to fight terrorism and to meet nontraditional, asymmetric threats, while shaping a defense structure better able to support and speed up this reorientation.

At the same time, it recognizes the continued need to defend against conventional threats, conduct humanitarian missions at home and abroad, and help U.S. allies and partners develop their own defense capabilities.

The USAF's FY07 budget request establishes a dedicated special operations forces (SOF) unmanned aerial vehicle (UAV) squadron—Predator drones operated by Air Force Special Operations Command (AFSOC) that would be dedicated to irregular operations.

Whereas USAF Predators are currently based at Creech AFB, NV, and will be operated by the Air National Guard in the future, planning for the SOF UAV squadron is not final. The squadron will in the near term stand up in Nevada, but the U.S. Special Operations Command will



Navy VADM Marty Chanik (left), Joint Staff director of force structure, resources and assessment, and Ryan Henry, principal deputy undersecretary of defense for policy, speak with reporters at the Pentagon about the QDR.

determine the final basing.

Creation of the SOF UAV unit is part of the Pentagon's plan to increase procurement of UAVs, including Predators and Global Hawks, to "nearly double" UAV coverage. The USAF seeks \$752 million for six Global Hawks and a significant ramp up in MQ-1 production, from the seven in FY06 to 24 in FY07, plus two additional MQ-9 Predator B



Artists rendering of a Northrop Grumman X-47B operating from an aircraft carrier.

Hunter-Killer drones, worth a total of \$349 million.

Meanwhile, the Joint Unmanned Combat Air System (J-UCAS) program has been restructured, with

the Navy embarking on its own on carrier-based unmanned combat air vehicle effort. USAF funding earmarked for the J-UCAS effort has been realigned to other activities. The Air Force had planned on spending \$1.2 billion on J-UCAS over the current five-year defence plan (FYDP). Whether the program's Boeing X-45C and the Northrop Grumman X-47B will both survive is unknown.

The QDR calls for development of a new land-based, penetrating long-range strike capability to be fielded by 2018, reduction of the B-52 bomber force to 56 aircraft, and the gradual retirement of other older aircraft, such as the U-2 spy plane and the F-117A stealth fighter. USN Vice Admiral Evan Chanik, director, force structures, resources and assessment, the Joint Staff, said the F-117 is "getting long in the tooth."

Lt. Gen. Stephen G. Wood, the air force's deputy chief of staff for plans and programs, said "the ultimate goal is to transform the air force into a smaller, much more capable force for the joint warfighter."

Production of the F-22A Raptor air superiority fighter would be capped at 183 aircraft, with fabrication extending through 2010 to bridge the gap until production of the F-35 Joint Strike Fighter (JSF) begins. A multi-year acquisition contract would yield an additional 60 F-22As.

The Air Force plans to cap its C-17 transport fleet at 180 aircraft while modernizing 112 C-5 cargo aircraft. The FY07 budget calls for the last dozen C-17 Globemaster IIIs.

The budget also funds a new precision-guided conventional Trident missile capability. ■

Special Tactics Airmen Join the Navy

Aboard the USS ALABAMA –A fighter pilot has been shot down. He is injured and behind enemy lines. But he has established communications and is evading the enemy. Time is a critical factor. He needs to be rescued, and he needs to be rescued now.

Submerged off the coast lies 19,000 tons of stealth in the form of a submarine. The Ohio-class Trident ballistic missile submarine has been converted to carry Tomahawk conventional cruise missiles. It is also capable of supporting up to 60 special operations forces.

A team from a USAF special tactics squadron (STS) is stationed nearby. The team includes pararescuemen, who are trained emergency medical technicians capable of infiltrating any environment or combat zone to rescue personnel. They'll be joined by air traffic controllers and special operations weathermen.

On this mission the STS operators had to fly out on a Navy search and recovery helicopter to meet the submarine. They descend to the slippery deck by rope. The Airmen go below with their gear to set up for the rescue mission.

The submarine dives and moves closer to the shoreline where it surfaces. The STS team pulls all their gear and inflatable boat through a hatch, inflate their boat and zoom to the shore. The plan calls for recovering the downed pilot, treating his injuries and speeding back out to sea for a rendezvous with the sub.

It's scenarios like this that require cooperation between the services. It also requires practice to iron out the wrinkles in the process. That's where the USS Alabama stepped up to

provide a practice platform for the Air Force's 22nd and 23rd Special Tactics Squadrons from McChord AFB, WA, and Hurlburt Field, FL, respectively.

kinks in these brand-new tactics with us. Because of their outstanding professionalism, we were able to accomplish more than we had originally set up to do," the special operations air-



Special operations airmen launch an inflatable boat into the Pacific Ocean during an exercise, testing special operations infiltration and rescue tactics

The airmen spent a week aboard the Alabama practicing various scenarios in which their services would be required. The goal of the exercises was to test concepts being worked into the new mission for the submarines, such as the rescue scenario.

Another test conducted was the first launch and recovery of an unmanned aerial vehicle (UAV) from a submarine. A participant believes UAVs have a future aboard the SSGN class submarine. "The UAV is definitely another SOF asset that can be launched from this platform. We were able to identify some areas of improvement, which was the whole reason we were there," he said.

The Alabama's crew impressed the SOF operators with their professionalism. "It takes a very professional and patient crew to work through the

man stated.

The training tested capabilities, such as recovering inflatable boats on the submarine, and saved money by packing more training into the limited amount of time allotted.

As the Navy increases its activity close to shore, the ability to operate jointly with the other services will play a more dominant role in its future – a future the Air Force looks forward to being a part of.

"Our mission statement since 9-11 is to support the global war on terrorism. The SSGNs will enable us to train and mix with the other SOF operators to bring air power to the objective from a submarine," the special forces operator believes. ■

News Briefs

Air Force Staff Restructuring

The Air Force is retagging its staff directorates to bring them more in line with those of the other military services and joint commands so it can operate more effectively with them.

The so-called "A-staff" structure was introduced in Headquarters Air Force on Feb. 1, and all major Air Force commands will implement it by May 1, says USAF Brig. Gen. Keye Sabol, director of manpower, organization and resources.

The concept is similar to that already in place in the Army, Navy, Marine Corps, the Joint Staff and the combatant commands, dividing duties and responsibilities by functional areas, Sabol explained.

The new structure includes the six basic organizations that cross all service and command lines: A1 for manpower and personnel; A2, intelligence; A3, air, space and logistics operations; A4, logistics; A5, plans and requirements; and A6, communications. In addition, it includes A7 for installations and mission support; and A8 for strategic plans and programs.

Also, in an effort to elevate the visibility and application of lessons learned throughout the Air Force, planners are introducing a new A9 function: analysis, assessments and lessons learned.

The Air Staff and major commands may combine these functions where they determine it makes sense because of size or functionality, but will retain the A-staff numbering system when doing so, Sabol said.

These new A-staff designators will replace the "two letter system" that's been in place since 1970 and varies at different command levels

throughout the Air Force. For example, the logistics function at Headquarters Air Force is currently referred to as "IL," although different major commands refer to it as "LG" or other designations. ■

Laser Gunship Advances

Boeing has taken delivery of the aircraft for the Advanced Tactical Laser (ATL) program.

The C-130H transport, which belongs to the U.S. Air Force's 46th Test Wing, was handed over to Boeing in January. Boeing is modifying the aircraft to enable it to carry a high-energy chemical laser and battle management and beam control subsystems.

Boeing will begin flight testing the laser gunship this summer with all subsystems on board except the high-energy laser. A low-power surrogate laser will stand in for the kilowatt-class, high-energy laser.

The high-energy laser is being built in Albuquerque, NM, and is scheduled to achieve "first light" in ground tests this summer. By 2007, Boeing will install the device on the aircraft and fire it in-flight at mission-representative ground targets to demonstrate the military utility of high-energy lasers. The laser will be fired through an existing 50-inch-diameter hole in the aircraft's belly.

Boeing is developing the Advanced Tactical Laser through an Advanced Concept Technology Demonstration (ACTD) program. Following the 2007 tests, it is anticipated that DoD will approve starting ATL's full-scale development.

ATL can produce both lethal and non-lethal effects, supporting missions on the battlefield and in urban operations. It can destroy, damage or disable targets with little to no collateral damage.

The ATL is complementary to

the Airborne Laser (ABL), which Boeing is developing to destroy ballistic missiles in their boost phase of flight. ABL consists of a megawatt-class chemical laser mounted on a Boeing 747-400 freighter aircraft.

"ATL will do for air-to-ground combat what ABL will do for missile defense: revolutionize the battlefield," said Pat Shanahan, Boeing Missile Defense Systems vice president and general manager. "ATL will give the warfighter a speed-of-light, precision engagement capability and avoid the kind of collateral damage sometimes associated with such traditional weapons as bombs and missiles." ■

Improved 'Smart' Weapon for B-2 Stealth Bomber Demonstrated

Northrop Grumman and the U.S. Air Force have successfully demonstrated the integration of a munition on the B-2 stealth bomber that incorporates an improved, penetrating warhead with an upgraded guidance kit.

During the demonstration at the Utah Test and Training Range at Hill AFB, UT, a B-2 delivered a live GBU-28C/B bomb with a new BLU-122 warhead, destroying the target. The 5,000-pound GBU-28C/B is a follow-on to the EGBU-28B/B that was successfully integrated on the B-2 in 2003. Improvements to the GBU-28C/B allow it to penetrate the target more deeply. The BLU-122 warhead and the upgraded guidance kit were integrated by Raytheon Missile Systems.

As the B-2 prime contractor, Northrop Grumman is responsible for integrating weapons with the B-2 system. Northrop Grumman has now successfully completed the key objectives associated with a \$5.4 million contract awarded by the Air Force

See **News Briefs**, Continued on page 12

News Briefs, Continued from page 11 in February 2005 for GBU-28C/B integration.

“The demonstration represents another example of our commitment to maintain the B-2’s flexibility to employ a variety of advanced weapons,” said Mike Galaway, director of B-2 product development and delivery at Northrop Grumman’s Integrated Systems sector. “We also want to ensure that the nation’s No. 1 long-range strike asset remains the most versatile and lethal bomber in the inventory.” ■

BAE SYSTEMS Awarded Integrated Battle Command Contract

BAE Systems has been selected by the Defense Advanced Research Projects Agency (DARPA) for Phase 1 of the Integrated Battle Command (IBC) Program.

The IBC Program will provide military commanders a comprehensive suite of software decision support

tools. These tools will allow commanders and their staff to understand the Political, Military, Economic, Social, Information and Infrastructure (PMESII) effects of various potential courses of action that might be employed in a situation. IBC will leverage existing BAE Systems technologies in modeling and simulation, automated planning and visualization.

“The program will provide new tools to aid commanders in planning strategic effects-based campaigns,” said Dr. Nils R. Sandell, Jr., BAE Systems vice president and general manager for Advanced Information Technologies (AIT). “We are looking forward to working with DARPA, the Communications and Electronics Command (CECOM) and U.S. Joint Forces Command (JFCOM) to develop and demonstrate these new tools and transition them to our joint forces in the field.”

BAE Systems in Burlington, MA, received one of two competing

contracts -valued at \$3.5 million each - for Phase 1. Phase 2 will be competitively awarded to a single contractor at the conclusion of Phase 1 in June 2006. CECOM at Ft. Monmouth, NJ, is the contracting agent.

The IBC tools will be installed and evaluated at the U.S. JFCOM in Suffolk, VA, during Phase 1. ■

Flight Demo Sets Stage for Future Weapon Data Link Network

Two-way communications with a weapon after it's released from an aircraft is at the forefront of new weapons technology, and standards for it has become a priority.

Such standards were successfully implemented and demonstrated during a recent series of flight demonstrations at Eglin AFB, FL, for the Weapon Data Link Network (WDLN) Advanced Concept Technology Demonstration (ACTD).

The WDLN defines a standard way for aircrew, ground controllers or combined air operations centers to have two-way communications with network-enabled weapons after they're already in flight.

“This ACTD came about because Air Combat Command and the Navy were both looking for a capability to exchange information with in-flight weapons,” said Ron Taylor, lead engineer for the demonstration. “What we’ve done in this effort is develop the common messages and transactions that will govern that information exchange.”

As targets continue to move and change location, the ability to move along with them is vital.

“With the WDLN implementation, you can continue to provide new information to the weapon such as target updates, retargets or abort,” said Kevin Sura, flight demonstration integrated product team leader. “Additionally, this allows the weapon

PEOPLE

Donald C. Winter has been sworn in as the 74th secretary of the navy. Before joining the Bush administration, he served as a corporate vice president and president of Northrop Grumman's Mission Systems sector. Previously, Winter served as president and CEO of TRW Systems. From 1980 to 1982, he was with the Defense Advanced Research Projects Agency as program manager for space acquisition, tracking and pointing programs.

Army Lt. Gen. **Thomas R. Metz** has been nominated for assignment as deputy commanding general/chief of staff, U.S. Army Training and Doctrine Command, Fort Monroe, VA. Metz is currently serving as commanding general, III Corps and Fort Hood, TX.

USAF Maj. Gen. **Ronald F. Sams** will receive his third star when he takes over as the inspector general of the Air Force. He is currently the USAF's director of ISR.

USN RADM **Matthew G. Moffit** is being assigned as director, Fleet Readiness Division, N43, Office of the Chief of Naval Operations, Washington, D.C. Moffit is currently serving as commander, Naval Strike and Air Warfare Center, Fallon, NV. Moffitt will be replaced by RADM (selectee) **Mark T. Emerson** who is currently serving as commander, Strike Force Training Pacific, North Island, CA.

USN RADM (lower half) **Jeffrey A. Wieringer** is being assigned as director, Navy International Programs Office.

Robert L. DelBoca has been appointed sector vice president and general manager of Northrop Grumman's Defensive Systems Division.

to report its status to a controller as well as bomb hit indications by text or video.”

The ACTD is sponsored by the Joint Forces Command and was led by the Air Force and Navy along with participation by the Army. The combined team used a variety of weapons for simulated releases and used the new datalink message standards for each test.

“We looked at using existing messages because that would be a cheaper solution and easier to implement,” Taylor said. “But because we were looking to define this common standard not just for current weapons capabilities, but also for projected weapon capabilities and for future sensors, that drove us to new message implementations.”

After more than 140 runs across 12 official demonstration missions, the weapons confirmed their current information, reported their status and provided bomb hit indication information just as testers planned. ■

BAE Systems Enters Market for Ground-Based Laser Warning Sensors

Drawing on two decades of experience developing and producing laser warning solutions for military aircraft, BAE Systems has entered the market for ground-based laser warning sensors. The technology is designed to protect ground crews and vehicles by improving situational awareness and guarding against laser-designated and -guided weapons.

BAE Systems’ laser warning solutions provide reliable laser threat warning that can include threat-class identification and mid- to high-resolution angle-of-arrival data within milliseconds of laser illumination. The technology can detect very-low-energy threats at a safe distance while maintaining industry-leading

false-alarm rates.

Based on systems developed for aircraft and deployed on more than 1,500 Air Force, Navy, and Army helicopters and fixed-wing aircraft, the technology is about one-third the size and weight of competing systems and is about one-third the cost. ■

More Milestones for JASSM

The Joint Air-to-Surface Standoff Missile (JASSM) flight test program added two more successes to its record during recent tests conducted at White Sands Missile Range, NM.

The stealthy missile flew successful test flights at the missile range Jan. 25 from a B-1B Lancer and Jan. 27 from an F-16 Fighting Falcon. The missile’s record now stands at 11 successes out of 13 shots since January 2005, and an overall success rate of 33 out of 43 flights.

During the flight, the missiles accurately navigated planned waypoints and struck their intended targets successfully.

The continued development of the missile will add to the Air Force’s capabilities to execute operations accurately and safely. The missile is designed to destroy high-value, well-defended, fixed and re-locatable targets.

Within the Air Force, the JASSM has achieved initial operational capability on the B-1B and the B-52 Stratofortress, and is anticipated on the F-16 and B-2 Spirit by mid-March, Air Combat Command officials said.

The program is currently entering a test phase for the JASSM-Extended Range variant, which will allow a standoff range of two-and-a-half times greater than the current missile’s range.

Currently, the Air Force inventory contains more than 330 JASSMs and will increase to more than 4,700 mis-

siles by 2020, officials said. ■

Raytheon Delivers 2,000th JSOW

Raytheon has delivered the 2,000th Joint Standoff Weapon (JSOW). The firm is under contract with the Naval Air Systems Command to provide JSOW to the U.S. Navy, Marine Corps and Air Force. JSOW deliveries started in 1997. JSOW production will transition to Block II in 2006, which will

CALENDAR OF EVENTS

Annual Programs Review*

Date: April 18-19, 2006

Theme: Role of Precision Engagement in Asymmetric Warfare
Location: Marriott Crystal City - Potomac Ballroom, Arlington, VA

Summer PEO Forum*

Date: July 25-26, 2006

Theme: Integrated Joint Battlespace Management-Creating Desired Effects on the Battlefield

Keynote Speaker: Honorable Ken Krieg—Under Secretary of Defense for Acquisition, Technology and Logistics
Location: San Diego Marriott & Marina, San Diego, CA

Precision Strike Technology Symposium*

Date: October 17-19, 2006

Theme: Capabilities Required for Global Strike-Technology Implications for the Future

Keynote Speakers: Honorable Francis Harvey—Secretary of the Army & Frank Cappuccio—Executive VP & GM, Advanced Development Programs and Strategic Planning, Lockheed Martin
Location: Johns Hopkins University Applied Physics Laboratory, Kossiakoff Center—Laurel, MD

For more information on these events, check out our website: www.precisionstrike.org.

*Sponsorships and Exhibit Space Available

See **News Briefs**, Continued on page 14

News Briefs, Continued from page 13 significantly lower the unit price of the air-to-ground long-range standoff weapons. Raytheon and the U.S. Navy are also starting development of a Block III variant of JSOW, which will add moving target capability to JSOW by adding a weapons data link and other improvements. ■

Loitering Attack Missile Warhead Tested

NetFires LLC (Lockheed Martin/Raytheon) recently performed successful tests of the Non-Line-of-Sight - Launch System's Loitering Attack Missile (LAM) Multiple Explosively Formed Penetrator (MEFP) warhead. The tests showed the warhead's lethality against a wide variety of targets.

Aerojet-General designed and built the warhead that was integrated onto the LAM. The MEFP warhead allows the LAM to achieve a good balance for two key performance parameters, loiter time and lethality, by optimizing

fuel load with warhead size. The under seven-pound MEFP is configured to deliver 24 fragments in an expanding geometric pattern. ■

Network Centric LOAL Maverick in Test

Raytheon has successfully demonstrated the capability of the Maverick Lock-On-After-Launch (LOAL) program in a series of captive flight tests.

The LOAL Maverick flights, conducted by the 46th Test Wing's 40th Flight Test Squadron, Eglin AFB, FL, successfully evaluated the functionality and utility of the newest Maverick variant, which significantly expands the missile's capabilities and opportunities for use against stationary and moving targets.

"By successfully integrating a digital weapon data link, Global Positioning System/Inertial Navigation System and a UHF network data link radio, we offer the warfighter true plug-and-play integration," said Chuck Pinney, Maverick program director at Raytheon. "The LOAL Maverick utility evaluation program demonstrated the feasibility of using existing technology and the operational awareness data link network to significantly enhance the aircrew's situation awareness."

Implementing a command and video digital data link in the LOAL Maverick provides man-in-the-loop end-game control for precise attacks through and/or under weather against pre-planned fixed targets, stationary targets of opportunity and moving or relocatable targets. Missile launches are possible at significantly greater standoff ranges and altitudes, without requiring pilot line-of-sight to the target and ensuring compliance with today's employment rules of engagement.

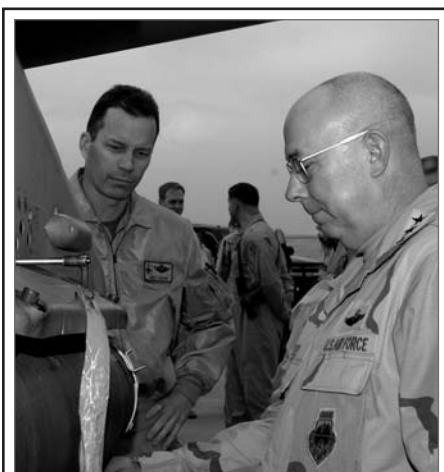
The concept also incorporates a network data link radio, which enables real-time target updates and machine-to-machine targeting from existing tactical networks. This feature of the net centric weapons concept enables attacks against moving/relocated targets, provides situational-awareness depiction of friendly forces and zones of exclusion, and provides endgame bomb hit indication imagery feedback to the command and control (C2) network.

Maverick is a precision, air-to-ground missile with launch-and-leave capability. The LOAL Maverick concept is envisioned as a potential upgrade or modification to the existing Maverick weapon system. The LOAL Maverick allows real-time data updates to and from the C2 network and provides situational-awareness depiction of friendly forces and zones of exclusion. ■

F-16 Ejection Rack in Development

Raytheon Company has been awarded a \$2.1 million contract by the USAF to design and develop an interface modification for the existing Triple Ejection Rack (TER-9A) to expand the munitions capability of the F-16 aircraft.

To provide this enhanced capability, the aircraft interface of the TER-9A will be modified to allow it to carry multiple smart weapons, including the Joint Direct Attack Munition, the Wind Corrected Munitions Dispenser, and the Miniature Air Launched Decoy, in addition to the conventional weapons it currently carries. ■



BALAD AIR BASE, Iraq -USAF Chief of Staff Gen. T. Michael Moseley examines a joint direct attack munition loaded on an F-16 Fighting Falcon with Lt. Col. Andrew Larson who is with the 332nd Expeditionary Fighter Squadron.

Mark your calendar for

PRECISION STRIKE ANNUAL PROGRAMS REVIEW

18-19 APRIL 2006

MARRIOTT CRYSTAL CITY-POTOMAC BALLROOM

Role of Precision Engagement in Asymmetric Warfare

As our nation continues to fight the Global War on Terrorism, we are challenged by an adaptive enemy and a battleground no longer defined with a linear front. Building on the huge improvements in Service interoperability demonstrated in Operations Iraqi Freedom and Enduring Freedom, senior leaders in each Service are challenged to leverage their shared technology to identify and engage targets using both lethal and non-lethal means. Please join us as prominent military and civilian Defense leaders address the role of precision engagement in asymmetric warfare.

Keynote Speakers

Joint Staff Directorate Speaker

Speaker Details Pending

Major General Jeffrey A. Sorenson, USA

Deputy for Acquisition & Systems Management
to the Assistant Secretary of the Army (AL&T)

Select Topics

Sea Strike Systems

Role of Non-Lethal Weapons in the GWOT

International Programs–United Kingdom & Australia

Directed Energy Weapons Panel–Industry Perspectives

Global Strike & Joint Space Requirements

Analysis of Current JT Combat Operations in Afghanistan & IRAQ

Joint Deep Strike Systems

Precision Attack to Ensure Dominant Maneuvers

Requirements Vision for Unmanned Aircraft Systems (UAS)

Precision Strike Acquisition Panel

In the next issue

Wrapup on PSA's Annual Programs Review 2006

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