Army Air Spec Ops
MH-47G Upgrades

ADM William H. McRaven
Commander
U.S. Special Operations Command
MacDill AFB, FL

GMV 1.1 Contest Cranks Up

Handheld Translators: Has their time arrived?
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Commander
U.S. Special Operations Command

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Cover: U.S. Army soldiers FAST rope from a CV-22 Osprey aircraft during Emerald Warrior, Hurlbut Field, FL, 29 February 2012. The primary purpose of Emerald Warrior is to exercise special operations components in urban and irregular warfare settings to support combatant commanders in theater campaigns. (Staff Sgt. Tony R. Ritter)

Above: Coalition Special Operations Forces wait for a U.S. Army MH-47G Chinook helicopter to land so they can extract a high-value target during the opening ceremony for exercise Jackal Stone in Drawski, Poland. (Sgt. Eric J. Glassey)
In a recent interview with Foreign Affairs magazine, retired General Stanley McChrystal, former commander of Joint Special Operations Command, said, “If you look at the role I had in Iraq, it is sexy, it is satisfying, it is manly, it scratches an itch in the American culture that people like. But I was doing that as part of a wider effort in Iraq, and it was that wider effort that I took control of in Afghanistan.” The “wider effort” he referred to was working with conventional forces, aid workers, and local civilians to provide support and stability to conflict areas—to, he said, “take care of people, not just kill them” in order to win the war. As Special Operations Forces (SOF) become more widely used as they redeploy from Central Command, remembering the big picture will be crucial for policy makers in Washington and SOF strategists alike.

In a May edition exclusive to A&M, Admiral William H. McRaven, Commander, Special Operations Command (SOCOM), addresses procurement, budgetary, and human resources issues in a wide-ranging interview. In addition to updating us on SOF operations in Afghanistan, the Admiral reminds readers that managing elite warfighters requires a grounded perspective: He stresses the need for “professional dissent” to help officers “voice contradictory opinions” and emphasizes the importance of preserving the force through training, family support, and logistics. From a tactical platforms vantage point, take a look at how the new Ground Mobility Vehicle, all-terrain vehicles, and handheld translators can shape today’s conflicts in both combat and stability operations.

Also this issue, A&M is proud to profile three SOF commands. On the Army Air front, Army Special Operations Aviation Command (ARSOAC) head BG Clayton Hutmacher discusses his command’s role in serving SOF and maintaining a healthy edge over America’s enemies. We also run down the upgrades on the ARSOAC’s heavy lifter, the MH-47G. On the Air Force and Marine Corps sides of the house, readers can learn about the latest initiatives and program objectives—ranging from precision strike to civil affairs—driving these critical air and amphibious operators.

Looking to C4ISR integration from both SOF and conventional points of view, Army PEO for Integration, Electronic Warfare, and Sensors (PEO IEW&S) is working to maintain tactical dominance in joint communications and the EW space, as delineated by COL Joseph Dupont, PM EW. In this issue’s Program Spotlight, DoD’s Distributed Common Ground System – Army (DCGS-A) is enabling rapid distributed intelligence, surveillance, and reconnaissance (ISR) planning, ISR management, sensor control, and tasking for joint combat operations.

On a reverent note, we conclude our SOF issue with a tribute to the late SSG Christopher Neal Piper, 1st Battalion, 7th Special Forces Group (Airborne).

Also, we’ve revamped the magazine with informative sidebars and dynamic layouts, just a few of the ways we’re enhancing Armor & Mobility. We hope you enjoy our new look as much as we enjoyed creating this issue.

As always, feel free to contact us with questions or concerns. Thanks for your readership!

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A DHS TECHNOLOGIES COMPANY
The Special Operations Command is in the process of selecting a lighter, faster, more transportable Ground Mobility Vehicle. We sat down with two manufacturers to discuss their products.

By George Jagels, TDM Editor

Replacing a Workhorse is never an easy process, and so it goes for the Ground Mobility Vehicle (GMV) 1.1 competition. The Draft Request for Proposal appeared in April 2012; unsurprisingly, a lot of companies were interested. As the DoD begins budget reductions while winding down the war in Afghanistan, a seven-year Indefinite Delivery/Indefinite Quantity (IDIQ) contract worth $400 to 670 million is quite desirable.

And we’re finally down to the wire. SOCOM is expected to pick the vehicle—of which it is set to acquire approximately 1,300—this month.

SOCOM wants to improve on its current GMV model in a number of ways. While it has served our operators reliably, the GMV 1.0 “has become too heavy and too large,” SOCOM commander ADM William H. McRaven told A&M. “In fact, it cannot be transported internally by a CH/MH-47 and be combat-ready upon landing.” The new model will be capable of firing its primary weapons within one minute of offloading from the big SOF helos.

After getting off the chopper, the new GMV will be able to carry at least six operators—four primary passengers and space for two more. They will spend most of their travels, according to SOCOM, on secondary roads and trails and be able to traverse 250 miles on a three-quarter tank of gas (multi-fuel capability is desired).

And finally, a vehicle needs to be able to transport internally developing technologies for Light Tactical Vehicle fleets so those vehicles will outperform the threat in automotive performance as well as survivability,” he said. “Those technologies have been incorporated and substantiated in the GMV 1.1.” Adams noted that there is an unquantifiable but important gain to working with a company “whose DNA includes 70 plus years of developing and delivering light tactical vehicles to [its] DoD customers.”

Technically, faster speeds and more efficient fuel use over difficult terrain help set AM General’s GMV 1.1 apart, Adams claimed. The vehicle weighs approximately 5,000 pounds at the curb; though to the naked eye the vehicle looks identical to a Humvee, it is actually a bit sleeker. The vehicle can carry up to seven soldiers and reach speeds of 80 mph.

The Tactical Truck Upgraded

Navistar, with partners Indigen Armor and SAIC, has been hard at work for the past year on its entrant in the GMV 1.1 competition. A completely enclosed vehicle with the appearance of a civilian crew cab pickup truck, the Special Operations Tactical Vehicle, the manufacturer says, can nevertheless meet SOCOM’s demands. Indeed, claims Lauren McFarland, corporate communications manager at Navistar, “Compared to its competitors, Navistar’s vehicle is able to meet the maximum payload requirements across the spectrum of armored and unarmored configurations.”

McFarland had her own take on logistics: “Since the GMV 1.1 shares 80 percent commonality with the Indigen Non-Standard Tactical Truck, SOCOM can meet two major requirements with one platform, drastically reducing their program and system investment for provisionning, spare parts, and [logistics] support.”

As no vehicle program remains static, McFarland noted that her company’s GMV 1.1 entrant can easily grow and change. “The vehicle’s high payload [and] excess engine and electrical capacity provide room for capability improvements in armor, weapons, and C4ISR technology,” she said.

In size and weight, AM General and Navistar’s vehicles are quite similar. With a top speed of 85 mph off road and a curb weight of 6,700 pounds, both models are fast and light. Clearly, other factors will come into play as SOCOM distinguishes between them and their competitors.

Looking Ahead

With selections and field evaluations slated for this time next year, the competition is fierce. Five other major companies—Oshkosh, Lockheed Martin, Northrop Grumman/BAE, HDT Global, and General Dynamics—also hope to produce the next GMV. For the losers, there might be a consolation prize: Foreign vehicle sales, particularly in the Middle East and Pacific Rim, should pick up some of the slack from declining U.S. and NATO budgets. We will see.

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AM General’s GMV 1.1 sets a new standard for a modular, lightweight, fuel-efficient CH/47 MH-47 internally-transportable rapid-response vehicle. With its high-component commonality with the GMV 1.0 and AM General’s global network of support, training and logistics, the GMV 1.1 is the affordable low-risk solution for future fighting forces.
Tanks are the quintessential combat vehicles, but big isn’t the only way to go on the battlefield. SOCOM employs a varied fleet of small vehicles capable of transporting its warriors over any terrain.

By George Jagels, TDM Editor

**The DoD fields some of the** most capable and deadly armored vehicles in the world, able to traverse diverse terrain and defeat well-trained opponents. The Abrams Tank and Bradley Fighting Vehicle were built to fight major engagements against the Soviet Union, and though they are still quite useful today, their large size, weight, and maintenance needs render them inappropriate for certain scenarios. For missions demanding more finesse, these shiny, expensive, and large martial “Cadillacs” must stay at home. An Abrams tank, after all, is not quite a paragon of subtlety.

Even medium and lighter heavy platforms such as the HMMV, Ground Mobility Vehicle (GMV), and Mine Resistant Ambushed Protected (MRAP) vehicle were built mainly to drive on roads and survive explosives. They might be too bulky or noticeable for clandestine operations. Occasionally, warfighters require what civilians think of as recreational vehicles—and we’re not talking about the Winnebago.

All-terrain vehicles (ATVs) are particularly valuable to Special Operations Forces, who often work quickly, quietly, and with a minimal logistics tail. Infiltration and exfiltration on rotary and fixed-wing aircraft, for example, might be most easily accomplished when the cargo is small and light. SOF specialize in long missions in austere conditions partly because they do not need constant resupply to stay effective. Moreover, the ability to easily travel off road can make up for a lack of armor (as roadside bombs are aptly named).

In these ways, among others, a variety of all-terrain vehicles have filled a crucial niche in the family of Special Operations vehicles (FOSOV) and in the military’s fleet as a whole.

**ATVs: Not Just for the Weekend**

Often used by farmers and hunters, SOCOM purchases traditional “quads” and modifies them. It seems that the commercial-off-the-shelf (COTS) model will not change: Last year, SOF Warrior announced that it will replace its aging fleet—a typical vehicle lasts for three years—with new COTS models. In FY 14, SOF components will be able to purchase their own vehicles to match their
Ceradyne Vehicle Armor Systems, in response to the Army’s MECV-S requirement, is integrating an advanced Spaceframe design for upgrading the crew cab of the HMMWV. The lighter weight frame provides increased rollover protection, bottom blast protection, enhanced vehicle performance, and accommodates scalable protective armor options based on mission requirements for reliable crew protection.

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Can-Am, owned by Bombardier, recently released a new version of its Outlander XT-P ATV. The vehicle, according to Can-Am, is “equipped with front and rear FOX Infinity HPG piggyback dual-speed compression adjustable shocks, [giving] riders the flexibility of tuning the suspension to fit the terrain and riding style.” The Outlander, which features an upgraded lighting system and tows 1,300 pounds, contains a hefty 976 cc engine.

LTATVs: Side-by-side in Combat

The Lightweight Tactical ATV (LTATV) resembles a traditional vehicle more so than the ATV, as it is larger, equipped with a roll cage, and has more cargo capacity. Pictures of it might bring to mind another recreational vehicle—the dune buggy—but the LTATV is deadly serious: These small, agile, armed, and durable platforms have so impressed SOCOM that they have an inventory of 651, with about 170 currently fielded. The LTATV fills combat and logistical support roles as well as aids in casualty evacuation. As of last year, SOCOM plans on acquiring nearly 300 of them annually.

With comparable engine size (most LTATV engines displace between 750 and 875 cc), LTATVs also share similar future requirements with their smaller counterparts: They must fit into a CH-47 and V-22, have a 150-mile range, and operate at 10,000 feet and in a 160-degree temperature range. SOCOM is aiming for a two-seat weight of 1,000 pounds and a four-seat weight of 1,800 with a payload of 1,000 and 1,500 pounds, respectively. As with the ATV program, some of these requirements have already been met.
SOCOM selected the Teryx in 2009 as its principal LTATV. Made by Kawasaki and popular with its SOF operators, the Teryx can travel up to 48 mph on its 750 cc engine, flip a U-turn in a 14-foot radius, and weighs less than 1,500 pounds. With a mounted belt-fed machine gun and the ability to hump 500 pounds, one cannot question its utility. It also sports a four-point shoulder harness, four-wheel drive, run-flat tires, and infrared headlamp filters. And—as with all LTATVs—the Teryx fits into SOF aircraft.

All Terrain Vehicle Corporation produces the Prowler, which CEO Amos Deacon claims “is the fastest, most powerful, and the only turbo-charged heavy fuel (diesel/JP8)-powered vehicle available in its class.” He says it has the highest payload-to-weight ratio of its counterparts. According to Deacon, ATV Corp has been a pioneer in the light vehicle sector: “[Our company] introduced rack and pinion steering, automotive controls, rollover operator protection systems (ROPS), and run-flat tires back in 1998.” Originally used for communications and reconnaissance, the Prowler has evolved into a more lethal platform, with options from anti-armor missile launchers and Gatling mini-guns to laser targeting test beds for target location and laser designation. Transportability, Deacon notes, nicely complements the Prowler’s power and armament: It is already being backed into and driven out, mission-ready, from V-22 Ospreys.

RP Advanced Mobile Systems designs and upfits a family of fast-response LTATVs: StrikeCommander, StrikeMaverick, and SCC2. The StrikeCommander’s most attractive attribute, according to RPAMS, is its navigation ability. Through an automotive-style rear differential system and a powertrain that provides a sufficient power-to-weight ratio, says Chief Technical Officer Terry Wilmeth, “the StrikeCommander can negotiate complex terrain and maintain mobility at gross vehicle weight across all types of environments.” To gain a tactical edge, RPAMS integrated an advanced programmable suspension to “open the maneuver space.” Wilmeth also noted that the company’s designs consider SOF operators’ direct needs, which results in constantly evolving vehicle systems. Having developed its own fatigue-mitigation LTATV seats, SOF run-flat tires, PowerExtenders, and multi-modal payload modules, RPAMS claims it can quickly match the SOF tempo.

Polaris Defense produces a popular LTATV called the MRZR, which comes in two- and four-seat models capable of carrying one and two litters, respectively. “Unlike most others, Polaris Defense designs, develops, and manufactures products for the military as the OEM,” says company Manager of Advanced Mobility Platforms Jed Leonard. “Thus, our vehicles are seamlessly developed, tested, manufactured, fielded, and supported to ensure performance and reliability.” Leonard cited the low center of gravity, night operation capability, ease of air transport, and mission versatility as ways with which the MRZRs models differentiate themselves from the competition. “The unique cargo system,” he notes, “allows for modular kitting of fuel containers, spare tires, litters, rearward facing seats, 500 pounds of gear, etcetera, as needed by the users.”

John Deere’s M-Gator has been a favorite of the DoD for a number of years, and the company recently introduced the Gator RSX 850i (two seats) and XUV 825i S4 (four seats) to compete in the LTATV area (though Deere prefers the term Utility Vehicle). The RSX 850i reaches a top speed of 53 mph with its twin cylinder 62-HP engine. To Mark Bodell, Military Utility Vehicles manager at John Deere, the company’s global presence is itself an advantage: “Our products can be supported around the globe with an unmatched parts and service infrastructure. This worldwide parts distribution network sets John Deere apart from the competition and provides an excellent fit with military usage.”

Looking Ahead
Regardless of ongoing budget uncertainty and further defense spending cuts, innovation continues in other ways not specified by the DoD. RPAMS and Polaris are working to improve and replace current run-flat tire systems. ATV Corp is looking into hybrid propulsion systems. Meanwhile, John Deere is exploring the possibilities for autonomous vehicles, having already introduced the optionally manned R-Gator in 2005.

Individual and light military vehicles like the ATV and LTATV have cemented their place as part of the force. With their versatility, transportability, and reasonable cost, SOF operators will find them valuable in both the campaigns of today and tomorrow, and the private sector is poised to respond to SOCOM requests for lighter, faster, more capable vehicles. While neither awe-inspiring in their sophistication nor imposing in size, these small vehicles pass the test of utility with flying colors.

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As can be inferred from the hundreds of millions spent on interpretation services in Afghanistan (some of which have been extremely suspect), breaking down the language barrier is critically important. It is easy to imagine, for example, a foot patrol in Afghanistan failing to extract valuable intelligence from locals due to communication difficulties. Or picture medical personnel endlessly gesturing or asking simple questions to an illiterate patient. Handheld translators could help the U.S. military articulate both its tactical needs as well as further its public affairs goals.

Despite a substantial reduction in government funding for machine translation efforts since 1966, attempts to remove the human element from translation have progressed, albeit slowly, in the private sector. Machines have a difficult time understanding the meaning of words, and encoding all the rules necessary for translating one language to another presents a gargantuan task, one which not only results in numerous grammatical errors but takes an enormous amount of time. The recent development of statistical methods has helped improve grammar while opening up the potential for more language pairs to appear on any one device. One can now speak English into a device and quickly (or even simultaneously) receive a Chinese translation (even, in the case of Microsoft, with one’s own tone of voice).

As the private sector clears technical hurdles, the military—which has hitherto demurred from incorporating handheld language translators into the force—might reconsider these devices. It has good reason to do so: For one, it is time-consuming to teach languages, particularly those not similar to English. The Defense Language Institute in Monterey, CA, is rightfully world renown, but even its intensive program in Pashto requires 64 weeks of school for basic fluency. While U.S. Army Special Operations Command teaches its soldiers basic language proficiency and cultural awareness for the areas in which they are deployed, surely there are situations when babel overcomes patience. Furthermore, translator services require billions in outlays and increasingly rely on contractors rather than servicemembers. In 2010, one of these contractors was accused of fudging language test results and sending unqualified interpreters to Afghanistan.

How can these problems be solved? Not easily, but there is an “app for that.” Quite a few, actually.
The Industry Talks Back

DARPA, which has initiated machine translation programs in the past, launched its Broad Operational Language Translation (BOLT) program in 2011 to “[attempt] to create new techniques for automated translation and linguistic analysis that can be applied to the informal genres of text and speech common in online and in-person communication.” The Army has been working on its own program—the Machine Foreign Language Translation System (MLTS), which seeks to develop, field, and sustain a basic foreign language speech and text translation capability—for many years. Though there have been limited fieldings of handheld translators, both the Army and Marine Special Operations commands chose not to integrate them into the force after testing some years ago. The commercial market, however, has since pushed the technology even further.

SpeechGear, a Minnesota-based company that released its first bi-directional translation program in 2005, makes an integrated suite of translation products called “Compadre” that includes a module capable of simultaneously translating conversations and speech, another to interpret Microsoft Office files, a viewer that allows original and translated documents to be shown side-by-side, and a program that permits users to add their own unique terminology, such as acronyms, to the translation suite. CEO Robert Palmquist said “the result is an effective communication tool that clients can tailor to their needs.”

Since the Iraq War, ECTACO of Long Island City, NY, has worked intermittently with NATO, the DoD, and various U.S. government agencies. The company’s GI-5 translator has seen service in the Middle East and Afghanistan. This summer, ECTACO plans to release a new model that Account Executive Robert Arbelo says will be “more sleek and user friendly” than the current version.

Founded in March 2010, SpeechTrans moved quickly into the machine translation market: CEO John Frei and COO Yan Auerbach demonstrated their smartphone translation technology at the Pentagon in December 2010. Auerbach claims the DoD was impressed and encouraged the company to submit a proposal for the BOLT program. The contract was eventually awarded to IBM. Nevertheless, he says, “We had military applications in mind from the get-go,” and SpeechTrans still hopes to enter the defense market with smartphone apps, a unique landline translation system, and desktop applications that are all integrated into its application program interface (API).

BBN Technologies, a subsidiary of Raytheon since 2009, has a storied history: The company was founded after an MIT professor won a contract to design the acoustics for the UN General Assembly Hall. Later, the company helped pioneer ARPANET. A participant in the BOLT program, BBN is developing TransTalk, a machine translator that supports Pashto, Dari, Iraqi Arabic, Malay, and Farsi.

To be effective, a handheld translator must be capable of quick or simultaneous speech-to-speech translation. This is the fastest way to communicate with illiterate individuals—and the most difficult system to create. Packages to accomplish this come in all shapes and sizes: hardware built specifically for translation, software designed for smartphones, and computer- and tablet-friendly software. Current commercial technology is generally inexpensive, requiring few device add-ons.

Unlike models less than a decade old, new programs and devices appearing on the market must contain multiple language pairs. Devices and software available to individual consumers are now able to translate at least a handful of languages, and some programs are speech-to-speech capable in just under forty. Seemingly unlimited, these options range from Dari to Mandarin to French Canadian. And there’s no need to speak only the “Queen’s English” or High German: New translation software can understand a myriad of dialects, accents, and idioms.

Interpreting the Gray Areas

Translation devices have long since moved beyond direct interpretation. While statistical methods that use algorithms require more computing power, they can understand language subtleties machines often missed. “[Our newer items] take a sentence or paragraph as a whole before running the translation,” said ECTACO’s Arbelo. “Old equipment would merely transcribe word by word to form a sentence without taking context into consideration.”

Improved technology also permits an auto-learning process that increases the product’s database the more it is used. According to Auerbach, SpeechTrans uses a “hybrid model [that is] licensed to companies such as Hewlett-Packard. This hybrid engine has statistical and translation memory functionality. We store all the idioms within the translation memory database and have a patent pending algorithm [that] is constantly running to improve the accuracy.” The company’s smartphone app supports speech-to-speech translation in 37 languages and dialects, including three dialects of Arabic.

In a similar vein, Prem Natarajan, Head of Speech, Language, and Multimedia Technologies at BBN, calls his company’s approach a “hybrid that combines statistical learning with syntactic (a sophisticated form of rule-based) techniques so that we can use prior information about language structure in combination with the information we learn ‘statistically’ from the available training data.” BBN’s experimental research includes semantics-based efforts that target the meaning of the sentences to be translated.

SpeechGear has supplemented the statistical model—which translates grammar with remarkable precision—with a rule-based engine designed to ensure clarity of meaning. A pure rule-based or pure-statistical base approach, Palmquist contends, has flaws. The way to make a system that truly works is to combine these capabilities in a manner in which the meaning is always retained. Palmquist describes the company’s speech-to-speech program, Compadre: Interact, as “a serious number cruncher that smartphones do not have enough processing power to run,” but he notes that SpeechGear does have software that “allows up to 250 smartphones to easily connect to the laptop or tablet that is running
the translation program—that way you can view and hear the translations directly on your smartphone(s)."

How close is machine translation to replicating natural conversation? The accuracy rates indicate that these programs might “arrive” in the near future. Auerbach claims his company’s iPhone app can achieve an 85 to 90 percent speech-to-speech accuracy rate. ECTACO’s Arbelo says that its systems can work with 97 percent accuracy in most settings. Other companies boast similar numbers. While this is a vast improvement over previous efforts—DARPA’s TransTac program wrapped up in 2011 with about an 80 percent accuracy rate—the gains are tenuous: One mistranslated word may change the entire meaning of the sentence—think “The insurgents were here” versus “The insurgents are here”—so the goal remains getting to 100 percent.

One way to prevent miscommunications is use of other functions commonly found on translation devices. Text-to-text, text-to-speech, and speech-to-text translation can remove some ambiguity. For simple commands or often-used phrases, many translators feature a kind of “speed dial” that allows the user to speak a phrase by tapping the screen, clicking a button or voicing a command. SpeechGear’s products do this with “Keywords,” “Term Expansions,” and “Favorites Lists.” ECTACO’s C-pen scans text directly into a device for text or audio translation. SpeechTrans has even developed an optical character recognition capability that translates images in 154 languages captured with a camera phone in less than 10 minutes (though the accuracy depends on the clarity of the text).

**Ready for the Field?**

Because the soldier’s, Marine’s, or special operator’s load sometimes reaches one hundred pounds, even a lightweight addition (particularly of a battery-powered device) calls for prudent consideration. Handheld translators are remarkable in theory, and it seems they are closer and closer to having the necessary durability and utility to gain a place on the soldier’s back.

Ease of use will be a factor. As Natarajan wonders, “[Will warfighters] have to read a screen to use the system, or can they keep their eyes on the person they are communicating with? Is the system so simple they can be trained to use it in 10 minutes or less? If these points are not addressed, the best technology will wind up being left at home for the … next mission.” None of the aforementioned systems—including BBN’s TransTalk—require lengthy training sessions.

New translation devices can be as rugged as computers, tablets, and smartphones—which is to say, very sturdy. As the private sector has moved toward software installed on consumer devices, there is no shortage of ways to protect electronics. ECTACO’s new SpeechGuard, developed specifically for government use in 2004, will be a waterproof Android device.

Operating in austere environments will always be a procurement requirement. U.S. forces will find themselves off the grid frequently, and these are the times when accurate language translation would be particularly valuable. Both SpeechGear and SpeechTrans devices usually operate from a cloud, but both can work without Internet access. The InterPrePhone by Speech Trans allows users to call from any phone and automatically have their speech translated. “The InterPrePhone really revolutionizes the communication platform in different languages because when you don’t have a smartphone with a 3G or wireless connection, the next best thing is a landline,” says Auerbach. “Our technology allows someone to pick up a landline anywhere in the world and understand someone speaking a different language without a human interpreter on the line.”

BBN Technologies and ECTACO’s devices need neither a cell signal nor an Internet connection to operate at full capacity: They can be updated whenever the user can get online. Both companies have also developed a walkie-talkie-like feature that permits two-way communication between users. “BBN has developed a two-phone configuration in which …[a] bluetooth connection between the phones is used to pass information back and forth,” Natarajan says. “That capability would directly enable private peer-to-peer communication. In that sense, it would be like a walkie-talkie, but the two [users] would need to be within 40 feet of each other. Future versions could support longer distances by using other network connection mechanisms.”

These devices are also able to gather as well as impart information. SpeechGear’s Compadre Suite maintains a transcript and voice recording of interviews conducted with it, while ECTACO sports a language teacher application that allows recording, file transfer, and playback to help the users develop their own skills. In June, SpeechGear will be releasing a language learning product that allows users to focus on situations most relevant to them (such as checkpoint operations and medical triage).

**Looking Ahead**

Efforts are underway to improve handheld language translators even more. Yan Auerbach is confident while acknowledging potential challenges: “The most difficult part of what we do is translating idioms such as ‘This is cool’ where a direct translation can mean ‘This is cold.’” Both SpeechTrans and SpeechGear told Armor & Mobility that they are working towards solutions to include alternate translation results and user feedback to improve accuracy.

Though the commercial market offers many procurement options, the DoD is not idle: BBN tells us that the MFLTS speech-to-speech application on an off-the-shelf Android device currently runs on the NettWarrior handheld platform and is scheduled for deployment in 2014. With the private sector and government working separately and in concert on machine translation, soon warfighters with minimal language training will be able to carry an interpreter in their pocket, making communication with the target population more precise and, therefore, more successful.

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By George Jagels, TDM Editor

Special operators must be able to work deep inside hostile territory for both brief, intense missions and longer deployments. While these highly trained ground troops have pulled off remarkable feats in counterterrorism and low-intensity conflict, their mission is highly dependent on air assets. Whether for resupply or quick insertion and extraction, rotary aircraft play an essential role in special operations all over the world (not to mention their contribution to the mystique of the force). Stood up in 2011, the Army Special Operations Aviation Command (ARSOAC) is an aviation force with the equivalent expertise to the ground troops it serves.

Currently led by BG Clayton M. Hutmacher, ARSOAC was created in part to better represent Army Special Operations (USASOC) aviation needs and requirements as operational tempos increase. Hutmacher describes his position as “[the] responsibility to maintain an aviation force adequately manned, trained, and equipped to accomplish our assigned mission...” As the resourcing headquarters and the USASOC aviation staff proponent, Hutmacher’s command “coordinates and synchronizes U.S. Army SOF aviation efforts to generate and enable the world’s premier Special Operations capability.” This job requires balancing short-, medium-, and long-term requirements to ensure special operators have the best air assets possible.

ARSOAC’s largest unit is the 160th Special Operations Aviation Regiment (Airborne) (SOAR (A)). With direct roots going back to the aftermath of the failed 1980 hostage rescue attempt in Iran (“Desert One”), the “Night Stalkers” have engaged continuously in operations since October 2001. Today, more than 3,000 soldiers and more than 200 aircraft make up the 160th SOAR (see sidebar). But for ARSOAC, it’s about more than just helicopters. The command is also comprised of a Systems Integration Management Office, a Special Operations Aviation Training Battalion, the USASOC Flight Detachment that includes fixed-winged aircraft, and an Unmanned Aircraft Systems Division standing up a Gray Eagle company to be task organized under the 160th.

This extensive list of advanced equipment might distract from ARSOAC’s principal mission, which, as Hutmacher says, is to maintain “ARSOA’s comparative advantage over our nation’s adversaries ... to support the SOF Operator on the ground.” This support exists in a wide range of capabilities. The command’s assets are capable of everything from enabling extended ground force missions to surgical strike to assisting the development of allied-nation rotary wing capabilities, all within the most extreme operational environments. Such
aptitude means that the 160th SOAR operates at a very high operational tempo. This is in part managed by assistance from joint SOF partners, the materiel development community, the acquisition and force management leadership, and the Army Aviation Branch. Such collaboration, according to Hutmacher, can help identify gaps in capability, doctrine, organization, training, materiel, leadership, education, personnel, and facilities, leading to the implementation of rapid solutions to meet warfighter requirements.

Many consider SOF to be a cost-effective way of augmenting national security in an era of budget reductions, and President Obama’s FY 2014 budget reflected this view: Special Operations Command (SOCOM) outlays increased while overall defense spending fell by tens of billions annually. But this might not forever be the case nor will new funding necessarily flow to aviation. For example, the fiscal year 2013 SOCOM budget of $10.409 billion was 0.6 percent lower than the year before.

Hutmacher speaks of both intelligent use of resources and tough choices: “We... will work diligently to minimize the impact of [budget] cuts while still maintaining a trained and ready force. We will continue to reinvigorate existing capabilities, develop new capabilities for a changing environment, and adapt processes to reflect the broader range of requirements. As the DoD implements budgetary guidance, the Special Operations community will have to balance that demand with available resources to achieve U.S. strategic goals and objectives.”

The “Night Stalkers” have engaged continuously in operations since October 2001.

How SOAR Flies

Each of the 160th SOAR’s four battalions is composed of light, medium, and heavy helicopters, all highly modified to meet the unit’s unique mission requirements.

• Currently, First Battalion has one AH-6 Little Bird helicopter company, one MH-6 Little Bird helicopter company, one company of MH-60 Black Hawk helicopters, and one company of MH-60 Defense Armed Penetrator (DAP) Black Hawk helicopters.

• Second, Third, and Fourth battalions each have two MH-47 Chinook helicopter companies and one MH-60 Black Hawk helicopter company.

• Each battalion also has a headquarters and maintenance company.

The U.S. Army Special Operations Command developed a Special Forces variant of the trusted CH-47 Chinook vertical lift platform that addresses critical mission needs.

By Kevin Hunter, A&M Editor

The MH-47E was the father of the MH-47G, so the two helicopter models are very similar, particularly in terms of aircraft structure and glass cockpit functionality. The Army’s elite Special Forces aviation regiment, the 160th Special Operations Aviation Regiment (Airborne) (SOAR (A)), sent its last E model back to Boeing for induction on the G modification line in March 2010, but the aircraft’s genesis began almost a decade before. Since taking delivery of the first MH-47G in May 2004, the aircraft has proven to be an incredibly versatile combat platform. With superb performance, large internal cargo capacity, and extended range, it can accomplish the full spectrum of missions.

As the MH-47G has seen continuous use in combat, lessons learned have driven numerous improvements. These include the addition of enhanced survivability systems—such as the infrared exhaust suppressor (IES) and aircraft occupant ballistic protection system (AOBPS)—and software survivability upgrades, which include the suite of infrared countermeasures (SIRFC) and the hostile fire indicating (HFI) system. The lightweight composite AOBPS has replaced the heavier steel protective panels and has already earned an exceptional reputation due to marked successes on the battlefield.

Additionally, modifications and an increase in fleet size are currently being worked at the program office. “The short-term program focus is on completing fleet wide integration of a new digital advanced flight control system (DAFCS) and production of eight new machined framed aircraft,” commented COL Patrick Mason, Program Manager. He added, “Platform enhancements to several mission equipment programs, common to both the MH-47G and MH-60M, are also being executed. These mission systems, coupled with DAFCS, provide an even more robust capability for the SOA formation and their ability to act with precision, lethality, and survivability.”

A New Standard

The primary differences between the MH-47G and the CH-47F are the larger main fuel tanks, aerial refueling capability, sensors adding increased situational awareness and terrain-following capability, and greatly enhanced pilot-to-vehicle interface. The fuel tanks allow the MH-47G to fly roughly two more hours prior to refueling, and they open more cabin space without the need for internal extended-range fuel tanks. An aerial refueling probe ensures the MH-47G does not need to land to continue a lengthy mission. Although such a mission requires an external asset (tanker), it offers the ground force commander a significant advantage over the CH-47F when operating in and around denied territory where ground refueling is not an option.

The onboard sensors include the electro-optical system (EOS) and APQ-174B multi-mode radar (MMR). The EOS incorporates a sensor-fusing capability in which FLIR and day TV can be combined to present an extremely clear picture to the pilot. The MMR looks ahead and provides a visual report to the pilots on the multi-functional display of impending impact with terrain at low altitude, even when the pilot cannot see outside of the aircraft. These sensors offer the MH-47G crew the capability to safely and confidently in adverse weather conditions that would typically require mission cancellation.
Enhanced for Spec Ops

The MH-47G is uniquely capable of accomplishing the following missions:

1. Single-ship high-altitude/high gross weight infil/exfil of friendly forces. For example, a single-ship (low signature) exfil of 20 customers at 10,000 feet pressure altitude in marginal weather is only possible using the MH-47G.

2. High-payload terrain following flight in degraded visual conditions. MH-47G crews, for instance, routinely conduct task force (TF) flight while loaded with 20-plus troops and other mission equipment in a degraded visual environment (DVE) en route to a target.

3. Overwater night-vision goggle extraction of personnel. Even though other aircraft may reach a survivor many miles offshore in DVE conditions, the MH-47G has a vastly superior digital flight control system. This allows the crew to hover hands-free in both the vertical and lateral position to conduct quick hoist operations without the pilots having visual reference outside the aircraft.

4. Mass casualty evacuation. The MH-47G is the only aircraft in the Army that can incorporate a flying medical suite in conjunction with an assault platform. It is capable of transporting 10 or more litter-borne casualties in one lift.

5. Extended-range Combat Search and Rescue (CSAR). The MH-47G is the only Army aircraft that can carry enough onboard fuel to fly for durations of eight hours or longer on a single tank. With full main and extended-range tanks installed in the cabin, the aircraft may remain airborne without refueling for up to 10 hours at cruise speed if carrying only a CSAR element and their equipment.

Lastly, the SOA DAFCS, though based on the CH-47F system, is tailored for heavy assault missions. Improvements over previous platform capability offer the pilot variable aircraft stability at the touch of a button; he or she is able to choose the desired aircraft response to flight control inputs based on the mission and whatever profile the aircraft is in at that moment (to include air refueling). "DAFCS provides significantly improved stability and reduced pilot workload throughout the flight but in particular during assault landings in degraded visual environments, such as the dusty environments of Afghanistan," said COL Mason. "Our ability to leverage the Army’s CH-47F DAFCS program and closely team with the operational aviators produced a huge success," COL Mason continued. "We were able to rapidly modify, test, and field this advanced flight control system in less than two years." The technology has been so impactful that the MH-47G installation schedule was accelerated to meet the needs of the 160th SOAR.

The Evolution Continues

The strategy behind the future development of the MH-47G, according to COL Mason, involves two distinct lines of effort. “First, we must ensure continued platform viability,” he said. “As the MH-47G fleet continues to age, unscheduled airframe maintenance will increase. We must aggressively address and mitigate anything that reduces operational availability.”

Addressing the viability of mission systems, the program manager added, “We will continue to evolve those systems with a focus on increasing crew situational awareness, improved network connectivity, and enhanced survivability to defeat emerging threats.”

The second line of effort involves “renewing” the airframe and increasing the available crew load. COL Mason: “As the MH-47G is essentially a remanufactured CH-47B/C/D, they represent the oldest Chinook fleet in the Army. At some point, new airframes will be required, and we naturally want to incorporate the latest machining technologies, similar to what has been done on the CH-47F and currently for the new MH-47G aircraft. [Also], we are working closely with the Army on their CH-47F Block II.

While still in its infancy, this program will integrate a new high-performance composite rotor blade while actively seeking an improved engine and assessing drivetrain and other performance upgrades.”

Some future key enhancements include the Advanced Parallel Actuator System (APAS), which will provide pilots “tactile” queuing and optimized torque management. When the APAS system is incorporated into the flight controls, the MH-47G will be the only Army helicopter to employ a flight control system with tactile feedback to the pilot—the flight controls will “push back” against the pilot’s hand before exceeding an aircraft limit. “We can then take full advantage of the aircraft envelope while ensuring the safety of the aircrew and ground forces,” indicated COL Mason. The PM Office is also integrating the modern machined fuselage technology of the CH-47F to replace the venerable but aging fuselages of the MH-47G fleet. It is intended that these developments will provide both increased reliability and critical commonality for sustainment.

Finally, the MH-47G will be the first rotary wing aircraft with an integrated DVE system. This system, currently in development, will offer greatly enhanced situational awareness during close-earth operations without any visual reference outside the aircraft in all phases of flight. COL Mason commented, “When you combine new airframes and technology from the CH-47F Block II program and then apply our unique mission equipment suite, the ‘future’ MH-47 will have all the attributes necessary to meet the new requirements of Special Operations Aviation.”

More info: soc.mil
The U.S. Marine Corps Special Operations Command, headquartered in Camp Lejeune, N.C., remains a key force projector for SOCOM’s global mission.

By Major Jeffrey Landis, MARSOC

The Marine Special Operations Command (MARSOC), founded just over seven years ago, has seen many changes during our evolution into an integral member of the SOCOM team. We have demonstrated our agility by adjusting quickly to the needs of combatant commanders and USSOCOM while engaging in combat operations in Afghanistan and other actions around the world. These efforts are a testament to our people and our organization.

We are often asked what is special about MARSOC. The answer gets at our essential nature. To quote our current SOCOM commander, “What [makes] MARSOC special… are [its] Marines.” That is our ethos, the common fabric we all came from and continue to represent today: Marines are who we are; special operations are what we do.

Mission Ready, Contingency Adaptable

Like any agile, successful organization, we continue to grow and change. Operationally, one thing that makes us unique is our ability to task-organize units with intrinsic enabling capability 180 days prior to deployment. This creates a tightly knit, combat-effective unit before deploying. Our ability to build a highly efficient integrated structure capable of exercising networked command and control (C2) from the Special Operations Task Force to the Marine Special Operations Company to the Marine Special Operations Team is a core strength.

This C2 network has been effective across a vast area in Afghanistan, and those operations have included other SOF units as well. Deploying tactical formations that are fully enabled with intelligence, logistics, communications, EOD, and other features is one of the distinguishing attributes of MARSOC. These units have proven a great asset in the current fight in Afghanistan, and we are confident they will prove valuable in other expansive areas such as Africa and the Pacific.

While our focus to date has been predominantly on operations in Afghanistan, we have, like other SOF components, also been conducting operations in many other parts of the world. Those efforts are routinely performed in small but well-connected and networked teams. Since our inception, MARSOC has conducted 153 operational deployments to 18 countries; we have over 550 Marines and sailors deployed today. This past year, MARSOC has continued to work, train, educate, and fight alongside our SOF brethren and our partner forces abroad. We continue to learn from...
each other and share ideas to not only make each of our organizations better but to provide improved commonality in the operational environment.

Outside Afghanistan, MARSOC has focused on training missions with partner-nation training forces, assisting in counter-narcoterrorism efforts, and providing subject-matter expertise. MARSOC will continue to work with USSOCOM and Theatre Special Operations Command (TSOC) commanders to anticipate where SOF will be needed, particularly with regard to important regional persistent SOF engagements and crisis response capability unique to SOF.

MARSOC will also step up its efforts to develop our littoral SOF capability, committing to interoperability exercises with both Naval Special Warfare Command (WARCOM) and the Marine Corps’ afloat air-ground task forces (MAGTFs).

A SOF-reliant World

SOF are in high demand right now, and we don’t think that is going to change much in the years ahead. These units have been and continue to be a focus of effort in the Long War, and there is a growing consensus that they are well suited to the challenges of irregular warfare. SOF can certainly fight on a kinetic level, but we also can use finesse and cultural understanding to win the non-kinetic fight. Adaptive and flexible, we can still knock down doors.

Investing in the skills of our Marines will be critical to work effectively in our current and (likely) future strategic environment. MARSOC plans to focus on conflict prevention actions by providing persistent SOF engagement with partner-nation forces in key sub-regions. MARSOC teams will be tasked with forging relationships that cross national boundaries and cultural barriers in order to promote long-term stability. Since MARSOC has limited capacity, it is important for us to hone in on key sub-regions—such as areas of Africa and the Pacific Rim—and develop expertise in those areas so we can have the best impact for the combatant commander. Part of that focus requires investment in key language training and cultural awareness. By developing Marines who can eliminate such barriers, we can become a force of sub-regional experts who can very effectively work by, with, and through the native population.

We are prepared to adapt and modify according to evolving mission requirements to meet the future needs of Special Operations in accordance with Admiral McRaven’s guidance to “globalize SOF.” Without addressing specifics, MARSOC expects that future SOF demands will change qualitatively—
that is, MARSOC will have to modify its training, organization, and employment to adjust to these new missions and locations. We’ll need to be intellectually and organizationally flexible so we can quickly retool our forces to support rapidly developing situations. Our unique, inherent enabling capabilities—communications, combat service support, and intelligence, for example—make us very agile, and we can task-organize to meet a wide array of authorities and mission requirements. We think a forward-deployed Marine Special Operations Company can bring a very effective and efficient capability to a TSOC, providing subregional C4I while conducting distributed SOF engagement operations and maintaining the capability to aggregate for more directed, specific crisis response.

Onward and Upward

MARSOC will continue to increase our contribution to overall SOF capacity as we grow to our full end strength in FY 16. Though over the past several years we have been focused on the requirements of the current fight, we remain very cognizant of the future requirements of the post-OEF world. MARSOC has been heavily involved in the discussions with the TSOCs on future plans, especially as they relate to persistent SOF engagement. Certainly MARSOC will be part of the overall DoD “Pacific Pivot” and deploy forces into PACOM. Additionally, we project that we will become much more heavily engaged in AFRICOM. While we cannot address the specifics of these engagements, we can say that we will maintain a robust, forward-deployed presence in those theaters with fully enabled forces capable of both partner-nation engagement and crisis response. The lessons we have learned in Afghanistan about the power of fully enabled SOF (with robust C2, intelligence, logistics, etc.) will still be relevant in the post-OEF world.

We anticipate that Marine Special Operations Forces will be able to provide a persistent, agile capability with a subregional focus to a key area of that theater. We will also develop our maritime capability with an eye toward littoral SOF employment options. For example, we are beginning to look very closely at where we might be best postured for collaboration with both Naval Special Warfare and Marine forces afloat. We are also exploring which littoral SOF capabilities we should develop to provide the Geographic Combatant Command and TSOC commander the capability they need from their SOF Marines. We believe our maritime capability will be very valuable in the future.

More info: marsoc.usmc.mil
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Despite budget and troop drawdowns, the consensus is that SOF will find themselves quite busy in the foreseeable future. That said, their remarkable abilities are neither innate nor inexhaustible. Training, medical care, and family life might not make the cut in action movies, but they are an essential part of keeping SOF effective and adaptable, as are education initiatives and devolving responsibility to the lowest possible level. Without sustainment and proper planning, an oft-used force, no matter how elite, will wear down. ADM McRaven’s priorities shed light on how a renowned leader manages his force in an era of persistent conflict.

ADM McRaven was interviewed by A&M Editor Kevin Hunter.

A&M: What priorities have you established for the command?

ADM McRaven: Afghanistan is the first priority I have listed. Last year, we united all of SOF operations under one organization, the Special Operations Joint Task Force (SOJTF) – Afghanistan, that directly supports the International Security Assistance Force (ISAF). The results of this have been excellent, providing first Gen. [John R.] Allen and now Gen. [Joseph F.] Dunford a clear, direct line to his SOF component. The SOCOM staff and the components are now working on how to sustain that organization for the long-term. That means providing the best people with the right skills to replace those currently on the ground.
The next major priority is to find a way to better support the Theater Special Operations Commands (TSOCs). The TSOCs serve as the Geographic Combatant Commander’s (GCC) SOF sub-unified command. They are the center of gravity for SOF in each area of operations.

Historically, we have not resourced the TSOCs adequately to perform their mission. So, we are looking at ways to provide them with more people, more funding, and ultimately more capability. Most of this concept is still in the planning and coordination phase. However, in terms of the personnel, both SOCOM and the components are cutting from their core to provide the additional manpower. Ultimately, this initiative is about putting increased and improved SOF capability into the hands of the GCCs.

The priority that underpins all other initiatives and is therefore my top priority is preservation of the force and its families. It is truly one of the initiatives I want to complete prior to leaving command.

We have made a lot progress. We have contracted 64 behavioral health providers—clinical psychologists, licensed clinical social workers, nurse case managers, and psychological technicians. That number will grow to 128 over the next five years. Currently, there are approximately 100 Human Performance Program personnel, comprised of physical therapists, performance dietitians, strength and conditioning coaches, athletic trainers, and sport psychologists, working with our SOF operators. Their number will grow to over 250. This is one of our key operator-centric programs that is designed to enhance physical and mental conditioning, assist in injury prevention, and help our men and women maintain peak performance throughout a 20-to-30-year career. This goal is accomplished through a holistic prehabilitative intensive physical training program involving focused strength and conditioning, performance nutrition, and physical therapy comparable to those of professional sports organizations.

Additionally, our family support professionals and chaplains are performing admirably across the SOF enterprise. All of them are located at the unit level both in the U.S. and overseas, and they are focused on supporting our warriors in a variety of ways. The clinical psychologists and licensed clinical social workers are providing a wide range of support, including preventive practices such as building resilience skills; marital and family integration; aiding adjustment to pre- and post-deployment situations; and normalizing SOF operators deployment experiences.

They are also providing treatment for our operators when warranted and managing individuals at high risk for a wide range of harmful behaviors, including suicide. Additionally, we contracted with the American Academy of Suicidology to provide training to the newly acquired behavioral health contractors and our existing medical and spiritual personnel. This is designed to help with the assessment and identification of high-risk individuals.

Furthermore, we recently awarded a command-wide contract that will allow for centralized management and standardization of resilience operations. This contract allows us to better plan, program, and budget future capabilities such as the brick-and-mortar human performance and resiliency facilities that our components just validated.

Finally, we continue to work closely with the services to leverage their support networks. We have accumulated a number of best practices from all of them. Overall, we are trying readiness to the health of the force in order to ensure we have the appropriate level of support for our force and families deserve. Currently, the services have some authority to do this through their O&M monies. I would like to have a similar authority for family programs that we see as necessary to improve the readiness of the SOF force.

To maintain a world-class special operations capability, we need to address these issues now.

Besides the Preservation of the Force and Families initiative, we have also stood up the Force Management and Development Directorate (FMD). FMD was established to help me manage, train, and educate our SOF professionals so that we are postured for the future. This applies both to identifying and preparing SOF to fill the SOJTF and the TSOCs as well as to the need to better educate the force. Overall, the upshot should be finding opportunities for post-graduate education, placing our senior and emerging leaders in critical developmental positions, and, most important, sustaining our ability to solve problems and think critically. FMD performs other tasks such as developing our doctrine and coordinating training and exercises. However, I mainly want it to help me find innovative ways to have the best-educated force in the DoD.

Another goal for the headquarters is to improve our support to the warfighter. Overall, I think we do a pretty good job supporting our warfighters, especially in terms of funding and acquiring equipment. However, I think we are a bit too bureaucratic in our processes and can do better.

To achieve this goal, we need to improve how we conduct day-to-day business. We need to improve how we communicate with one another, and we need to truly adopt innovative processes and foster a working environment that is based on trust.

If we can get people to communicate more effectively—either personally or through technology—we can increase our understanding of a problem and decrease the amount of time it takes to solve it. We need to encourage what I refer to as “professional dissent” so that people in the command can voice informed, contradictory opinions. In terms of innovation, we need to look at our processes and figure out where we can reduce bureaucracy. To build trust, we need to empower our people to make decisions at the lowest level. Only then can we speed up the rate at which our processes move.

The priority that underpins all other initiatives and is therefore my top priority is preservation of the force and its families. It is truly one of the initiatives I want to complete prior to leaving command.
Changing the culture of an organization isn’t simple. However, the alternative is stagnation, and I believe that our men and women in harm’s way deserve better.

I hope to have all of these elements in place within the next year.

**A&M: How have mandated defense spending cuts affected the command?**

**ADM McRaven:** The final outcome of the potential 2013 reductions is yet to unfold. I can say that the full impact of sequestration will affect how we train, equip, and prepare the force to meet its requirements.

Another major concern of ours is how much the services will be cut, especially in terms of the support elements or, for us, service-provided capabilities that we depend on everyday. A key part of our success is directly attributed to these capabilities, no matter if they are rotary-wing lift-, transport aircraft-, or sea-based platforms. Our capability in some parts of the world would be severely limited without their help.

Looking into the future, I think the force will be deployed as much if not more. I say this because we believe the last 11 years of combat has suppressed GCC demand for SOF outside of CENTCOM. Put another way, the stated requirements for SOF in other regions have been reduced because the GCCs knew they could not be resourced. In the future, we think the aggregation of these demands will be just as high as what we have seen over the last decade. If you look at the Secretary of Defense’s Strategic Guidance, it is pretty clear the United States will need to depend on agile, small, and cost-effective capabilities that can counter terrorist threats or work closely...
with our allies and partners to help them build capacity to provide for their own defense. I believe we are well postured and prepared for this mission, and I think we will be just as busy in the future as we are now.

**A&M: SOCOM is planning to develop and acquire the Ground Mobility Vehicle (GMV) 1.1. Can you tell us how the program is progressing and what improvements in capabilities this will provide to special operators?**

**ADM McRaven:** We are moving forward with industry to replace the SOF GMV, which has been our workhorse in both Iraq and Afghanistan. And while it has reliably served our operators in both areas, it has become too heavy and too large. In fact, it cannot be transported internally by a CH/MH-47 and be combat-ready upon landing. Therefore, last April we started looking for its replacement: the GMV 1.1. With the GMV 1.1, we are going back to our original requirements for a vehicle that is light and small enough to be internally transported by the MH-47 along with its SOF operators. Ultimately, this will give us the ability to infiltrate or exfiltrate from denied areas while providing our operators the speed and mobility of a vehicle they might need on the ground. We plan to award the contract soon, and we hope to have initial vehicles for evaluation sometime next year.

**A&M: In recent years, there have been improvements in sniper rifles and their accessories. How do you assess the current state of sniper rifle technology, and what further advancements would you like to see achieved?**

**ADM McRaven:** I would argue that our work with sniper systems over the past 10 years has been almost revolutionary. Twenty-five or so years ago, we started with the .300 Win Mag, a great system that was hampered only by its ancillary equipment—sights, suppressors, and ammunition. However, with the ever-increasing need for standoff and long-range precision fire in the past decade, I think we have made dramatic strides to fully capture the potential of the system. Thanks to industry, our acquirers, and some dedicated operators, we now have systems that can routinely—and precisely—engage their targets out to 1,500 meters. This was unheard of when I was a SEAL team commander.

Ultimately though, I still think there is room for improvement—and the operators agree. So, I have asked our SORDAC to look at the next series of improvements that will allow the sniper to better compensate for wind changes at a distance, reduce his signature after an engagement, and effectively engage targets at even further distances. Based on past improvements, I think we will get there.
A&M: In small-boat capabilities and submersibles for littoral and riverine areas, what is the current state of technology, and what is the status of programs to bring new technologies and platforms to special operators?

ADM McRaven: We have a lot of work going on with our surface and submersible platforms. We still continue to rely on the rigid-hull inflatable boat and the Special Operations Craft as our principal platforms for open water and riverine transport, respectively. These will slowly be phased out as we field the medium-, heavy-, and assault version of the new Combatant Craft. Each of these platforms incorporates low observable lines and improved situational awareness measures, and they use composites and alloy materials that improve the speed, range, payload, and longevity of the platform. Additionally, we are considering advances in weapons technology that will help stabilize the crew-served weapons systems and increase their lethality. Finally, we are closely looking at how to mitigate vibration and shock to the operator. This may seem like a creature comfort, but I assure you it is not. Spend four to five hours on one of these boats in choppy waters and you will see that it affects you pretty severely.

We have refocused our undersea portfolio on the development of a commercially designed and constructed small submersible that will allow us to lock-in/lock-out. Overall, the driving force behind this is that the program must be affordable. By working with industry and using commercial standards, we think we can have a Dry Combat Submersible program in place by 2016.

As for the wet submersibles, we are in the process of developing the Shallow Water Combat Submersible – Block 1. Designed to eventually replace the MK 8 Mod 1 SEAL Delivery Vehicle, the Block 1 will be able to operate from current dry deck shelters or other maritime platforms—including large surface ships—all of which give the operator the flexibility to choose the host platform.

A&M: Are there any final thoughts you would like to leave us with?

ADM McRaven: I guess what I want to leave you and anyone who reads this interview with is that nothing I have talked about today or that we have accomplished in the past would be possible without the dedication and hard work of the men and women of USSOCOM. They are phenomenal! I’ve had the opportunity to see them in action around the globe. They never fail to inspire me, and I am humbled and grateful for the privilege to lead them.

More info: socom.mil
Future Tech

Digital Imaging Gains Versatility

Recent advancements in complementary metal oxide semiconductor (CMOS) technology have improved low-light digital imaging, meaning that small CMOS cameras can now operate 24 hours a day in static surveillance, man-portable, and vehicle settings—without necessarily adding to weight or power draw. Advanced CMOS-based cameras are adapted to operate in both bright and low-light conditions, unlike traditional photon detectors which only work well under the latter. Standard plug-and-play interfaces allow these cameras to connect to computers and other devices for continual C4ISR assessment across most lighting situations.

The NOCTURN by PHOTONIS is one example of an advanced digital low-light CMOS camera. Equipped with high resolution (SXGA) and high frame rates (100fps), these cameras operate equally well in full daylight and in starlight (10 mlx). Large 9.7µm2 pixels maximize photon collection, providing quantum efficiency greater than 60 percent at 600 nm. Additionally, NOCTURN furnishes excellent spectral response from 400 to 1100nm (NIR). Depending on the model chosen, additional features may also include on-board electronic controls for automatic gain, image correction, and image enhancement.

More info: photonis.com

L-Com Introduces Temp-Resistant Containers

L-com, Inc., a designer and manufacturer of wired and wireless connectivity products, has released two new lines of weatherproof industrial enclosures constructed from molded halogen free, self-extinguishing fiberglass reinforced polyester (FRP). Both lines come in up to eight sizes with various mounting plate options and are well suited to corrosive environments of up to 302°F (150°C).

The NBC series weatherproof enclosures feature removable gasketed lids secured to the base by four stainless steel captive screws. Since the lids do not swing open, they are ideal for applications that require limited access to the enclosure's contents. The NBN series weatherproof enclosures feature gasketed lids that swing open on two non-metallic hinges and, like the NBC, are closed by two stainless steel captive screws. Both units are UL listed, NEMA 4x / IP66-11 rated, and can be purchased with blank non-metallic or aluminum mounting plates.

“These enclosures are designed for use in extremely harsh environments such as mines, hydraulic or pneumatic control installations, and petrochemical refineries,” said Patrick Pesa, Director of Product Development. “They are made to endure … abuse and keep the sensitive electronics inside safe.”

More info: dfallon@l-com.com

It was designed NightWarrior for easy integration into a variety of applications, including small electro-optical payloads and tactical UAS/UAV sensor systems.

More info: L-3.com

Flame-Retardant Mesh

XGO, a Berry-compliant base layer manufacturer, will be adding a new line of flame-retardant (FR) mesh to its 2013 collection. The new fabric features increased breathability and stretch as a result of the mesh construction.

“The evolution of the FR mesh is a direct result of … [warfighters telling us] they needed something that would breathe and provide some air permeability under their other protective pieces,” says Sherry Lyons, Director of Global Sales for XGO. “While it meets the U.S. military/Natick standards for FR, it also wicks and allows the flow of air for increased comfort.”

The new fabric will initially be offered in a short- and long-sleeve top, boxer brief, and neck pipe.

More info: jacqueline.wazir@proxgo.com

A New Player in Vehicle Armor

The U.S. Army’s Tank and Automotive Command (TACOM) selected Fidelity Technologies to provide B-Kit, add-on armor (AoS) for its family of heavy tactical vehicles. Under the terms of the five-year contract, Fidelity will supply accessory armor for the HEMTT A4, PLS A1, HEMTT A4 TAM, and M915A5 vehicles. With B-Kit armor, vehicles can operate with increased crew protection during periods when threat levels are higher. The contract’s total value over the ordering period could potentially exceed $200 million. Fidelity’s Military and Aerospace division is well known for power-related equipment and will be entering a new market after beating out major firms.

Over the last several years, the Army has initiated and implemented what is known as the Long Term Armor Strategy (LTAS). This concept provides modular armor protection for vehicles that can vary dependent upon threat levels. The B-Kit consists of both transparent armor and opaque armor and provides a higher level of protection for the troops. They can be readily stored, applied or removed by troops.
in the field per mission requirements.
According to Fidelity, full-scale production will commence in the third quarter of 2013 and will create employment opportunities in manufacturing and technical positions at its Reading, PA, facility.

More info: fidelitytechnologies.com

CERDEC Releases Combat Vehicle Identification App
Soldiers and civilians can now test their knowledge of U.S. and foreign combat vehicles in a free Android application released in February. ROC-V, which stands for Recognition of Combatants - Vehicles, was developed by the U.S. Army Communications-Electronics Research, Development, and Engineering Center’s Night Vision and Electronic Sensors Directorate (CERDEC NVESD) at Fort Belvoir, VA, in collaboration with TRADOC Capability Manager Brigade Combat Team - Mission Command.

Based on the directorate’s ROC-V computer-based training software, ROC-V teaches soldiers to identify over 80 combat vehicles using visual cues. The purpose of the training is fratricide avoidance. CERDEC NVESD’s Modeling and Simulation Division has been working closely with the U.S. Army and Marine Corps for over 16 years to ensure the training effectiveness of ROC-V.

“This app means a soldier can train anytime, anywhere,” said John O’Connor, NVESD ROC-V project lead. “More importantly, it’s fun. If a soldier has a little spare time, he can pull up this app and train in a relaxing but challenging environment.” Once the app is downloaded, it requires no internet connection to be played.

More info: www.cerdec.army.mil

AMPV Program Update
The long process of replacing the Army’s fleet of M113 armored personnel carriers, which have seen service for over fifty years, took a cautious step forward in late March when TACOM released its draft request for proposal (RFP) for the Armored Multi-Purpose Vehicle (AMPV). The new vehicle is supposed to improve force protection—particularly mine resistance—interoperability, and reliability over its aging predecessor without being too expensive. To keep initial costs down, the Army will award the development contract to a single company.

With the end of large-scale counterinsurgency operations in Iraq and Afghanistan, the Army seems focused on upgrading or replacing its armored vehicle fleet (see, for example, the Ground Combat Vehicle) and wants to buy 2,907 AMPVs. The vehicle will come in five variants: Mission Command, Medical Treatment, Medical Evacuation, General Purpose, and Mortar Carrier. Though the figures released in TACOM’s draft RFP did not take into account sequestration, the Army would like to spend $65 million in FY 14 on the initial phase of the project and ramp up to over $1 billion in purchases from FY 18-20 during low rate production.

More info: www.tacom.army.mil

Chemring EOD Launches New Disruptor to Reduce Soldier Burden
Chemring EOD, part of the Chemring Group, has launched a light, rugged disruptor for the defeat of improvised explosive devices (IEDs).

Designed with the aim of reducing soldier burden, the new WASP water-jet disruptor weighs less than 1 kg when fully loaded and is ready to use. For Explosive Ordnance Disposal (EOD) team members on dismounted patrol, this offers a 2-kg weight saving compared to the current in-service Pigstick disruptor. WASP can also be easily carried and operated by a single person, making it ideally suited to both dismounted Special Forces and conventional EOD.

Despite its reduced size and weight, WASP offers comparable performance to larger disruptors such as the Pigstick. Since it uses the same water-jet technology that users are familiar with, adoption of WASP requires minimal training.

More info: www.chemringeod.com

Raytheon Delivers First SM-6 from Advanced Missile Plant
Raytheon’s new, state-of-the-art missile factory in Huntsville, AL, has delivered its first Standard Missile-6, a ship defense weapon that will soon be able to attack ballistic missiles as well.

The U.S. Navy took ownership of the SM-6 round at a ceremony on 28 February at the new $75 million, 70,000-square-foot facility in Huntsville’s Redstone Arsenal.

The Standard Missile-6 defends naval vessels against fixed- and rotary-wing aircraft, unmanned aerial vehicles, and cruise missiles. By 2015, Raytheon plans to upgrade the SM-6 to also provide protection against ballistic missiles in their final phase of flight, making it the only missile capable of enhanced anti-air warfare, over-the-horizon interception, and ballistic missile defense.

The weapon is a game changer for naval warfighters when it comes to defending the fleet, said Dr. Taylor Lawrence, president of Raytheon Missile Systems.

“Our state-of-the-art production facility in Huntsville will play a significant role in delivering this asset to the U.S. Navy on time and on budget for years to come,” said Lawrence.

More info: raytheon.com
Strategic Leadership

By PEO IEW&S

The Program Executive Office Intelligence, Electronic Warfare, and Sensors (PEO IEW&S) mission is to provide affordable, world-class sensor and electronic warfare capabilities, enabling rapid situational understanding and decisive actions. PEO IEW&S products can be used for targeting, situational awareness, force protection, and reconnaissance, surveillance, and target acquisition (RSTA).

These critical systems are integrated into the network’s layers and enable persistent surveillance, allowing the joint- and coalition warfighter to control time, space, and the environment while greatly enhancing survivability and lethality.

PEO IEW&S rapidly transforms requirements and validated field requests into reality and supports critical current operations including counter-improvised explosive devices (IEDs); aviation platform survivability; persistent ISR; and the Integrated Intelligence Architecture. By working closely with their C4ISR partners at Communications-Electronics Research, Development, and Engineering Center (CERDEC) and Communications-Electronics Command (CECOM), the PEO is able to facilitate the development, fielding, and sustainment of critical systems.

The PEO is responsible for a multi-billion-dollar portfolio consisting of a combination of more than 100 Programs of Record and quick reaction capabilities. Addressing soldiers’ needs and providing them with capabilities in the most effective and financially responsible manner is paramount to organization’s success.

IEW&S programs have played a significant role in a large array of missions. Among the major areas in which the organization’s systems are involved include efforts with the Distributed Common Ground System – Army (DCGS-A), a dedicated avenue for ingesting, fusing, analyzing, and disseminating information throughout the Army and associated defense agencies, which is now available through a tactical cloud.

These systems are integrated with other intelligence assets into a system of systems architecture that provides ISR, force protection and RSTA collection capabilities, data repositories, services, and exploitation capabilities across coalition boundaries. Fielded assets range from airborne and ground sensors to the network connectivity and analyst tools used to exploit the large amounts of collected information.

Additionally, PEO IEW&S fields a host of force protection systems to include the Base Expeditionary Target and Surveillance Systems – Combined (BETSS-C), which provides day and night sensor coverage and an ability to use sensors collaboratively and cooperatively in support of both defensive and offensive operations.

The PEO has fielded a number of notable devices. Many soldiers are familiar with the counter-RCIED jammers that protect them from remote-controlled IEDs. Also, aircraft survivability equipment—which will soon include the common infrared countermeasure system—safeguards aircrew and passengers by providing an envelope of protection from many threats.

Headquartered at Aberdeen Proving Ground, MD, the organization has a presence at Ft. Belvoir, VA, Redstone Army Arsenal, AL, and Los Angeles AFB, CA. From these locations it also manages the fielding of a multitude of aerial and ground sensors with systems such as the future Enhanced Medium Altitude Reconnaissance Surveillance System, which provides simultaneous multi-sensor capability, and the Prophet Enhanced, which provides relevant ground SIGINT and EW capabilities to warfighters.
Can the DoD dominate the electromagnetic spectrum the same way it does armored combat? To unpack this vast, ever-changing domain, Armor & Mobility discussed winning “the war you can’t see” with the Army’s point man on electronic warfare.

A&M: Please discuss PM EW’s mission and role as part of PEO IEW&S, U.S. Army.

COL Dupont: As the Project Manager for Electronic Warfare, I am the Army’s centralized acquisition manager for ground SIGINT and electronic warfare (EW) systems supporting multiple Army Centers of Excellence (Mission Command, Intelligence, Signal, and Fires). My mission is to provide the warfighter the most effective and relevant ground SIGINT and electronic warfare systems in a timely, cost-effective, and sustainable manner. This includes responsibility for the materiel development, acquisition, fielding, and life cycle sustainment for the Army’s required capabilities.

The three tenets of EW include electronic attack, electronic warfare support, and electronic protect. Each of these functions has multiple pieces of equipment that we have developed and fielded in support of operations worldwide. The most well-known system is our Counter Radio-Controlled Improvised Explosive Device Electronic Warfare system, commonly referred to as CREW. This piece of equipment alone has saved more U.S. and Coalition lives than any other system fielded in support of combat operations. We also field a system called Prophet that serves as the Army’s tactical ground-based SIGINT and geolocation system. These two systems are only two of about 18 capabilities that PM EW provides to the warfighter.

A&M: In light of current budget constraints, please speak to PM EW’s primary focus for current technology application and integration.

COL Dupont: A priority for the Army is to transition capabilities effectively as we draw down from current operations and reset for the future. Specifically, we need to examine what we have already fielded to the Army and make a determination if that is worth keeping and if it is aligned with future requirements. Many of these capabilities were acquired quickly to fill an immediate need, but not necessarily with the required forethought for sustainment and long-term evolution. They represent proven capabilities that warfighters needed, but looking forward, perhaps the capability can be folded into other Programs of Record (PORs) for long-term functionality and increased efficiencies. We plan on leveraging our current systems and maintaining relevancies wherever possible and appropriate. However, we need to go beyond the capabilities we have today.

The Army recognizes that we need more EW capabilities and that we cannot be caught short again. The vision for future Army EW is the Integrated Electronic Warfare System (IEWS) that will allow us freedom of maneuver in the electromagnetic spectrum (EMS). The EMS, which includes microwaves, infrared light, ultraviolet light, X-rays, and gamma rays, is important because it spans all warfighting domains: land, sea, air, and space. Some argue that the EMS should be a domain in and of itself, where others argue that cyberspace is a unique domain.

The first program within IEWS already has an approved Capability Development Document called the Electronic Warfare Planning & Management Tool (EWPMT). EWPMT will allow our Electronic Warfare Officers (EWOs) the ability to plan, synchronize, and manage EW assets. With this tool available, the S3 (operations), S2 (intelligence), and S6 (communications) can more effectively support the maneuver commanders executing missions through the use of the EMS. The initial fielding of EWPMT will be in FY 15.

Second, we are developing the Multi-Function Electronic Warfare (MFEW) System, which will focus on providing a system of systems to deliver offensive/defensive electronic attack (O/DEA) and electronic warfare support (ES) capabilities to the Army. These capabilities will reside on multiple platforms such as airborne, fixed-site, mounted, and dismounted. OEA’s main objective is to deny, degrade, deceive, disrupt, and defeat the enemy’s command and control. We are looking at FY 18-19 for the initial fielding of the MFEW capabilities.

The final leg of IEWS is Defensive Electronic Attack (DEA), now known as CREW. Due to advances in technology and the rapid adoption of commerical systems, we are continuously looking at how we can address future DEA challenges. Two ways we are handling this in the near term are through technology insertions and bridging strategies, at least until we reach the full IEWS vision and possibly incorporate this capability into MFEW.

In light of sequestration, these efforts will leverage investments previously made by the Army and Navy to reduce technology risk and
lower expenses while maintaining relevancy and mitigating end-of-life issues. Further, I am looking across the EW portfolio to integrate technologies into our PORs where at all possible. This too reduces the costs associated with pre-planned product improvement and modernization efforts.

A&M: From a joint EW perspective, please speak to PM EW’s focus on maximizing Army asset capabilities while sharing information to heighten overall national defense.

COL Dupont: OSD directed the transfer of JCREW Executive Agency and Single Manager Authority from the Navy to the Army. This major responsibility brings with it a requirement for cross-service information sharing, requirements definition, and capability development. As we continue to mature technologies and capabilities under the larger IEWS umbrella, we will automatically make them available for JCREW DEA purposes. In addition, we will be transitioning as much of the JCREW technology as feasible with regard to the IEWS effort. Initially, we are working with the Navy to define an open architecture and standards for the CREW/DEA systems. With a defined architecture, we will ensure systems in the future are compatible; with open standards, we will promote competition across the many vendors who have the industrial know-how to build these systems. We recently signed a Memorandum of Agreement (MOA) with our sister Navy PM office, PMS-408. The MOA highlights the importance of the sharing of information and cross fertilization of ideas and investments.

We are also continually interfacing with the USMC because of a similar (although operationally distinct) ground mission, and we work with the Joint Electronic Warfare Center (JEWC) and the other services to develop a joint architecture and data standards for continued planning and deconfliction in the EMS. Finally, our growing relationships with SOCOM and other niche operations represent future opportunities to share information and maximize capabilities for national defense.

As just one specific example, on one recent Quick Reaction Capability (QRC) effort the Army leveraged the Marine Corps Systems Planning Engineering and Evaluation Device (SPEED) program to deliver our EWOs an initial EW planning capability. Modifications were made using Army dollars to provide both the Army and Marine Corps with significantly enhanced capabilities at a fraction of what it would have cost either service to develop on its own.

A&M: How is PM EW working to promote partnering with industry in delivering more effective and efficient know-how to the warfighter?

COL Dupont: We will not succeed without strong industrial base partnerships. Open system architectures are essential and will ensure maximum competitive advantage for the U.S. government, while at the same time allowing for the best of the breed to rise from within the private sector. Several of our more complex issues are being accomplished via a consortium approach that is open to industry, academia, joint services, and government labs. The warfighter or end user is also critical. We have found that the engineers and program managers from industry often get more out of the opportunity to interact with the end user than we could ever explain in a request for proposal (RFP). This forum also allows for a much clearer understanding of the requirements from everyone’s perspective.

As part of our IEWS program, we continue to host industry outreach days to solicit thoughts and ideas from industry while promoting competition. Feedback from these events proved vital to the formulation of our EWPMT Acquisition Strategy. As a specific example, we have included a Public Private Partnership component to the EWPMT Acquisition and are very excited to explore that aspect once the contract is awarded this summer.

A&M: What are some of the key challenges you see facing PM EW?

The Army cannot afford to find itself at war without a strong cadre of EW leaders and EWOs again.

COL Dupont: I would say that—other than budget constraints and fiscal uncertainties—it would be our ability to keep up with technology. For us, staying current with the commercial market, which is already broad and developing rapidly, is a challenge. As we all know, the Joint Capabilities Integration Development System (JCIDS) is not

known as a rapid acquisition process. Avoiding duplication of efforts with other services and providing opportunities to insert technology will remain high priorities.

Keeping the Army EW professional relevant is a top concern of mine. As the Army continues to graduate EWOs, we must be able to provide materiel capability with ample training opportunities, or skills will perish. Career advancement for EWS is critical to preserve hard-won knowledge sets and to grow senior leaders with EW skills. The Army cannot afford to find itself at war without a strong cadre of EW leaders and EWOs again.

As we move forward to provide better EW systems to the warfighter, size, weight, and power are continuing challenges we face as the Army continues to modernize its fleet of vehicles. We look to the Victory Architecture to help provide opportunities for savings in these areas.

Finally, any modern discussion of EW must at least mention cyber operations. Cyberspace partially uses the EMS in the form of wireless networks, so there is an overlap or perhaps dovetailing of cyber operations into EW activities (and vice versa). EW and cyber are distinct, though they are growing closer all the time. As the Army regains control of the spectrum and mastery of EW, cyber doctrine and operations will continue to mature. They will both contribute to the Army’s warfighting edge. This represents challenges and opportunities, and it is truly an exciting time to be part of Army EW-, spectrum-, and cyber operations.

More info: peoiews.apg.army.mil
he Distributed Common Ground System – Army (DCGS-A) is the Army’s intelligence system that gathers, analyzes, and shares significant amounts of information, enhances soldier situational awareness, and improves the commander’s ability to protect the force. DCGS-A is the globally networked flagship intelligence warfighting system that supports continuous intelligence Tasking, Processing, Analysis, Exploitation, and Dissemination operations—from peace through war.

DCGS-A provides actionable intelligence support at every echelon. It ingests data from every sensor—from space-based sensors to the soldier-as-a-sensor—and fuses that data together in a common relevant product that is compliant with the Defense Intelligence Information Enterprise (DI2E), Intelligence Community (IC), and Joint Information Enterprise standards.

Collecting information from more than 600 data sources, DCGS-A provides sensor ingest and processing, exploitation, and dissemination/distribution of information; and support for weather, terrain, geospatial analysis, imagery exploitation (including full motion video), link analysis, visualization, and target development and nomination.

“DCGS-A allows us to analyze massive amounts of data quickly and has changed the way intelligence analysts are doing their jobs,” said Col. Charlie Wells, Project Manager for DCGS-A.

“Analysts are spending less time creating and sifting through queries and spending more time getting the answers they need to support the commander.”

Successfully fielded, the DCGS-A is used every day by soldiers in Afghanistan and around the world to support current operations and counter emerging threats. It also supports the Army analyst across the full spectrum of military operations that require intelligence for major combat operations and stability operations.

DCGS-A works with small and large partners as well as government and academic laboratories to incorporate best-of-breed, cutting-edge capabilities into the program.

“Our team is comprised of over 40 industry partners, each contributing to DCGS-A’s cutting edge capabilities. The Army and industry are working together to provide innovative technologies to continuously improve system function, performance, and user experience. The open architectural framework of cloud technology allows for the broadest range of partners [in] industry, academia, and government,” said Wells.

DCGS-A cloud technology is 100 percent web browser-based, substantially reduces fielding and sustainment costs, and enables broader access to DCGS-A data and analytics. This cloud technology leverages the current IC cloud computing system architecture and ensures that capabilities are interoperable.

“The integration of cloud technology has enabled us to build a more advanced tool that soldiers can easily understand and utilize information,” added Wells.

DCGS-A is leveraging this framework in support of the Command Post Computing Environment, which will collapse intelligence and operations systems into a common operational environment for tremendous benefit.

“DCGS-A contributes to the commander’s ability to frame the problem and visualize, analyze, and understand the threat; in effect, this enhances the commander’s capacity to execute mission command, synchronize fires and effects, rapidly shift battle focus, achieve situational awareness/situational understanding, and protect the force.”

More info: peoiews.apg.army.mil
AFSOC Air Commandos deliver specialized airpower to provide SOF mobility, intelligence support, forward presence, and engagement with coalition partners.

By Senior Airman Melanie Holochwost
Air Force Special Operations Command

Headquartered at Hurlburt Field, FL, U.S. Air Force Special Operations Command (AFSOC) was established 22 May 1990. As one of the 10 major Air Force commands, AFSOC is the Air Force component of U.S. Special Operations Command (USSOCOM). AFSOC’s flying units operate fixed and rotary-wing aircraft, including the CV-22B, AC-130, C-130, EC-130, MC-130, U-28A, C-145A, C-146A, and PC-12.

AFSOC’s roots date back to World War II. From that time, Air Commandos have been called upon for a wide assortment of missions no other group could accomplish. With the exception of just three years, Air Force Special Operators have been continuously involved in contingency operations since 1975.

The lessons learned in the early 1980s from Operation Rice Bowl in Iran and Urgent Fury in Grenada created a push for USSOCOM, which activated 16 April 1987. Just months before Desert Storm, AFSOC was formed as its air component. Desert Storm was AFSOC’s first opportunity to shine as an official Air Force command, and since then, AFSOC has been involved in more than 25 major operations both brief and lengthy.

With more than 18,000 active-duty, Reserve, Guard, and civilian personnel, AFSOC’s mission is to present combat-ready Special Operations Forces (SOF) to conduct and support global special operations missions. AFSOC’s Special Tactics (ST) squadrons combine combat controllers, special operations weathermen, tactical air control party airmen, and pararescuemen with sister services’ SOF to form versatile joint special operations teams. These highly trained and rapidly deployable airmen conduct global special operations missions including precision application of firepower and infiltration/exfiltration.

AFSOC Mission
Core missions of the 1st Special Operations Wing (SOW) at Hurlburt Field and the 27th SOW at Cannon Air Force Base, N.M., include agile combat support; precision application of firepower to infiltration, exfiltration, and resupply; refueling of special operations force operational elements; recovery operations; precision aerospace fires; specialized aerospace mobility; and specialized aerial refueling.
Hurlburt Field is also home to the 24th SOW, which provides ST forces for rapid global employment to enable airpower success, and the Air Force Special Operations Air Warfare Center (AFSOAWC), which organizes, trains, educates, and equips forces to conduct special operations missions. The 24th SOW is USSOCOM’s tactical air/ground integration force and AFSOC’s ground force to enable global access, precision strike, and personnel recovery operations. The AFSOAWC leads AFSOC’s irregular warfare activities, executes special operations tests and evaluations, and develops doctrine, tactics, techniques and procedures.

Overseas, the 352nd Special Operations Group (SOG) at Royal Air Force Mildenhall, U.K., and the 353rd SOG at Kadena Air Base, Japan, plan and execute specialized- and contingency operations using advanced aircraft, tactics, and air refueling techniques to infiltrate, exfiltrate, and resupply SOF. The 919th SOW at Duke Field, FL, is the only special operations wing in the Air Force Reserve. In wartime or a contingency, the 919th SOW reports to AFSOC, its gaining major command. The 193rd SOW at Middletown, PA, is the only airborne psychological operations broadcasting unit and is responsible for the EC-130J Commando Solo mission.

**Strategic Vision & Forward Initiatives**

AFSOC will always seek efficiencies and evaluate and improve capabilities it provides to combatant commanders. As AFSOC prepares for tomorrow’s challenges, it must shape a next-generation force that is balanced, agile, adaptive, smartly based, and capable of operating effectively in remote, austere, and non-permissive environments. To this end, AFSOC emphasizes its combat-winning core missions: specialized air mobility, precision strike, battlefield air operations, and ISR.

**Specialized Air Mobility: Improved SOF Agility**

As SOF assume greater responsibility to support overseas contingency operations, the demand for diverse, specialized air mobility capabilities will increase commensurately. Additionally, the expanding number of AFSOC aircraft requiring aerial refueling when mirrored against AFSOC’s aging tanker fleet highlights the need to recapitalize specialized air mobility aircraft. As AFSOC recapitalizes the MC-130 fleet, the command will explore modifications that extend range, enhance survivability, and reduce sustainment costs.

Ultimately, AFSOC intends to recapitalize the MC-130H/P fleets with the MC-130J Commando II to provide a commonly configured, multi-rolled aircraft capable of meeting worldwide mobility demands. Using an evolutionary model, AFSOC will improve the basic capability of the MC-130J with the addition of a terrain-following radar, mission networking, and significant enhancements in its self-protection and situational awareness suites. Moreover, the transformational CV-22 Osprey, when fully fielded, will allow AFSOC to conduct long-range infiltration and exfiltration of SOF to a precise location in one period of darkness. With this capability, the joint force commander can respond with greater confidence to the demands of a challenging and dynamic battle space.

**Precision Strike**

Precision Strike provides specialized capabilities to find, fix, finish, exploit, analyze, and disseminate (F3EAD) designated targets. Threats in the mid- and far-term highlight the need to recapitalize the entire AC-130 fleet with AC-130Js. The precision strike package is the centerpiece of AFSOC’s recapitalization effort, which is scalable to match the payload capabilities of its airframe. It provides weapons capable of little to no collateral damage and reduces the enemy’s ability to take refuge among civilian populations.

**Battlefield Operations: Improved Human Performance**

Battlefield airmen are the foundation for battlefield air operations. These airmen are trained and equipped to deliver highly specialized, combat-proven capabilities to integrate, synchronize, and control air and space assets to achieve tactical,
operational, and strategic objectives. To keep pace with operational demands, AFSOC will focus modernization efforts to advance secure mission networking, enhance situational awareness, modernize and miniaturize equipment and power sources, reduce size and weight, improve battlefield trauma care in austere conditions, improve targeting in complex terrain, and advance high-fidelity human performance training.

Intelligence, Surveillance, & Reconnaissance (ISR): Layered Sensors, Platforms, and Fusion Cells
ISR synchronizes and integrates sensors, assets, and processing and exploitation and dissemination in direct support of current and future SOF operations. Consisting of manned- and remotely piloted aircraft and distributed common ground systems, ISR produces detailed, specialized products tailored to the mission, customer, and pace of operations that deliver actionable intelligence to the SOF operator and a decisive advantage against our adversaries. Recently, AFSOC operated predominantly in a mature theater with secure bases; these conditions, however, are not necessarily assured in the future. SOF is more apt to be engaged in remote, austere, and non-permissive environments. These conditions—as well as exceedingly difficult collection environments such as those with triple canopy jungle foliage or extreme distances—require advancements in sensors, communications architectures, tactics, techniques, and procedures.

In the future, better adversarial capabilities and an unpredictable operating environment will require that AFSOC, USSOCOM, and the Air Force work in concert to develop and acquire new collection platforms. AFSOC will address emerging ISR capability and capacity challenges—as well as those looming in post-Afghanistan SOF-centric operations—with multipronged, total force solutions. Seeking integration with its allies’ ISR capabilities, AFSOC will utilize classic reserve associate unit relationships to accommodate growth.

Aviation Foreign Internal Defense
Aviation Foreign Internal Defense (AvFID) delivers SOF combat aviation advisors necessary to assess, train, advise, assist, and equip partner nation air forces. AvFID is conducted through persistent, periodic, or episodic engagements with partner nations that facilitate advanced aviation employment and other aviation-related functions such as security, airfield management, and aircraft maintenance. The overall objective of AvFID is to help develop secure, confident, reliable partner nation aviation forces who can successfully conduct operations with minimal to no direct U.S. involvement.

Agile Combat Support
Agile Combat Support (ACS) is the foundational and crosscutting core mission that fields, sustains, and protects Air Force Special Operations Forces and enables all AFSOC operational capabilities. Current, distributed operations combined with a shift to increased forward presence necessitate ACS pursue agile sustainment processes and total integration with operations. From fleet modernization to improved human performance programs, ACS must probe emerging capabilities to generate specialized airpower and deliver combat-winning effects. The need to physically, psychologically, spiritually, and emotionally reconstitute Air Commandos—veterans of over a decade of war—resulted in an over $100M investment in infrastructure. Human Performance Training Centers, Combat Fit facilities, and a Resiliency Center are the brick-and-mortar aspects of an all-encompassing Preservation of the Force and Family program directed toward improving the resiliency of Air Commandos and their families.
Command and Control
The USSOCOM commander designated AFSOC as the SOF proponent for joint air command and control (C2). As SOF engage adversaries in a variety of scenarios, traditional SOF C2 concepts are being challenged. At the heart of these challenges is the requirement to plan, enable, and conduct multiple, simultaneous, distributed, and enduring SOF operations. The requirement resulted in the development of the SOF Air Distributed Operations (SADO) model, which leverages new networking tools and employment strategies to address distributed operations challenges. Within SADO, the SOF Air Mission Suite facilitates rapid task organization and collaboration through common equipment and software and sharing of time-reliant mission information, allowing SOF to access information, develop plans, and operate effectively in any situation.

Military Information Support Operations
As part of the “hearts and minds” aspect of unconventional warfare, Military Information Support Operations (MISO) induce or reinforce foreign attitudes and behaviors to support U.S. goals. AFSOC plans to support near-term MISO airborne broadcast requirements by modifying EC-130Js with the Special Airborne Mission Installation and Response System (SABIR) and Fly Away Broadcast System (FABS). This roll-on/roll-off system provides radio and digital TV broadcasts and enables AFSOC to employ EC-130Js in a SOFFLEX role when airborne MISO broadcasts are not being tasked. As potential influence audiences continue to depart from the current standard media of analog AM/FM radio and television, AFSOC will develop, build, and deploy new MISO dissemination capabilities, which include the expansion to digital satellite, radio, and television broadcasts and next-generation communication devices.

Looking Ahead
A force of wide-ranging capabilities and extensive experience will always find a place in modern warfare. AFSOC’s active duty-, Reserve-, and National Guard personnel are rapidly deployable via their highly specialized aircraft and are uniquely trained to support everything from pararescue to precision strike to foreign military assistance. It is not enough, however, to rest on these capabilities and achievements. AFSOC must ensure that high-tempo operations are efficiently networked to provide maximum combat power in the widest possible area while simultaneously improving ISR capabilities that will allow SOF to remain “one step ahead” of America’s adversaries.

More info: afsoc.af.mil
SSG Christopher Neal Piper
1961–2005

SSG Christopher Neal Piper joined the U.S. Army Special Forces in 1995, working with such units as the 20th Special Forces Group (Airborne); Headquarters, U.S. Army Special Operations Command; and the 1st Battalion, 7th Special Forces Group (Airborne). Always eager to volunteer for missions, he also spent time with Combat Applications Groups/JSOC as an 18E (communications support).

A native of Marblehead, MA, Piper was born on 20 December 1961. After completing high school in 1980, the gifted athlete—he was captain of his football team and a catcher on the baseball team—entered the Marine Corps, in which he served as a scout sniper and, later, a regimental scout sniper in Beirut, Lebanon.

Even at age 41, Piper’s athletic prowess never faltered: The master sniper and skilled carpenter aced his PT test with a 2-mile run time of 12:29, 97 push-ups, and 94 sit-ups. It’s not surprising that he could bench-press 400 pounds and perform one-armed pull-ups as well. He also received many awards and decorations throughout his career, including the Special Forces Tab and a Combat Infantryman Badge from his service in Afghanistan and Iraq.

During operations near Orgun-e, Afghanistan, Piper sustained wounds from an enemy IED that exploded near his ground mobility vehicle on 3 June 2005. He died two weeks later at Brooke Army Medical Center in San Antonio, TX.

Piper is survived by his wife, Connie; his children, Deirdre Margret and Christopher Thomas; and their mother, Colleen Egan-Piper. As his family attests, he was a very loving husband and father. His posthumous awards include the Purple Heart and the Afghanistan Campaign Medal.

—Nina Goodwine

Calendar of Events

May 14-16
SOFIC
Tampa, FL
ndia.org

May 15-16
Joint Warfighting Conference
Virginia Beach, VA
jointwarfighting.org

May 21-24
SAME Joint Engineering
San Diego, CA
same.org

May 28-31
Int’l Conf on Unmanned Aircraft Systems
Atlanta, GA
uasconferences.com

June 10-12
Mission Command Summit
Arlington, VA
missioncommandevent.com

July 29-31
Night Vision Systems
Washington, DC
nightvisionevent.com

July 31-Aug 1
Military Vehicles
Detroit, MI
militaryvehiclesexpo.com

Aug 12-25
AUVSI
Washington, DC
auvsishow.org

Air Shunt .............................................. C3
airshunt.com

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amgeneral.com

AUVSI .................................................. 35
auvisishow.org

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ceradyne.com

Dewey Electronics .................................. 25
deweyelectronics.com

DHS Technologies LLC ............................ 3
drash.com

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leupold.com

Lind Electronics ................................... 20
lindelectronics.com

Military Vehicles Expo & Conference .............. 17
militaryvehiclesexpo.com

Modern Day Marine ................................. 17
marinemilitaryexpos.com

Night Vision Systems ............................... 33
nightvisionevent.com

RAM Mounting Systems ............................ C4
ram-mount.com

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tacticaldefensemedia.com
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