Warheads on Foreheads

By Anna Mulrine

USAF photo

The USAF-led combined air and space operations center is helping craft an "airman's view" of counterinsurgency warfare.

The facility is located somewhere in the Persian Gulf region. Within the confines of US Central Command's combined air and space operations center (CAOC), scores of flat screen monitors project a stream of images that have been beamed back to Earth from aircraft patrolling in the skies above Iraq and Afghanistan.

Airmen here most closely watch the videos of US and allied forces under enemy fire. Such videos depict "troops in contact"—TICs, for short.

It is a TIC, in fact, that on this day occupies the attention of Lt. Gen. Gary L. North, the commander of US Air Forces Central and combined air forces in the Middle East. "The ground commander has said that we have troops in contact," said North, commenting as the video images flash across the monitors. He added, "We need [airpower] overhead, right now."

This is a common declaration within the CAOC, which is housed in a nondescript dun-colored building squirreled away on a remote base in a Mideast state that does not wish to be identified. There, scores of analysts pore over real-time intelligence from US and NATO sources, trying to piece together facts into an accurate view of reality "out there."

The CAOC has many missions, and this is among the most important. Troops that find themselves under fire in Iraq will see air support in 10 minutes, on average. In Afghanistan, the average elapsed time is 12 minutes. Times are

In CAOCs such as the one pictured at left in an undisclosed location, analysts pore over real-time data provided by US and NATO manned and unmanned intelligence resources.

USAF photo by MSgt. Andy Dunaway

Six JDAMs released from a B-1B on March 10 take out an al Qaeda torture compound and prison in Zenbaraniyah, Iraq. The CAOC makes these operations possible.

down from 15 and 20 minutes, respectively, last year.

At a bank of computer terminals, in the high-ceilinged, low-light room, the Air Force coordinates air strikes, disseminates incoming intelligence, and orchestrates the delivery of a massive and steady stream of supplies for troops on the ground.

The CAOC is responsible for an area that sprawls across roughly 4,000 miles—about the distance between Anchorage, Alaska, and Key West, Fla. It is here that the Air Force is working hard to develop an "airman's view" of counterinsurgency. This view is based on precision attack and intelligence, both of which depend heavily on unmanned aerial vehicles.

UAVs—Predators, Global Hawks, Reapers, and more—deliver what CAOC denizens refer to as "persistent stare."

Attacks on the insurgents—officers call it "putting warheads on foreheads"—are now a major focus of the Air Force and a prime mission for armed Predator and Reaper unmanned aircraft.

"What we're doing in a counterinsurgency war is looking for individuals and small groups," said Lt. Col. Walt Manwill, chief of combat operations here. "To do that, we have to find them, and make sure they are who we think they are."

The center painstakingly plans its combat strikes, calculating the size of bomb fragments and distances they travel from the strike sites. To do this, they use detailed maps and video footage, calculating the potential for human casualties as well as property damage. Here, analysts wear 3-D glasses to read maps that help them calculate the precise heights of palm trees and the walls of compounds, to help determine potential collateral damage.

USAF photo by SSgt. Jeremy T. Lock

Stepping Up To the Task

Air Force personnel continuously look for ways to be more accurate. In Iraq, insurgents would shoot mortars and quickly make their getaways in cars moving at 50 to 70 miles per hour, so bombs were missing their targets.

"We decided that we've got to have a weapon that can hit something moving pretty fast," said North. "We were tired of dropping a weapon that [fell] short." In just eight months, the Air Force developed a new type of bomb, the laser and satellite guided Joint Direct Attack Munition, and put it into the field in Iraq.

Some recent advances in the counterinsurgency war are decidedly low tech. Until recently, for example, the Air Force's smallest bomb weighed 500 pounds and carried some 190 pounds of explosives. The Air Force

A combat controller returns to his teammates after a firing exercise for Operation Enduring Freedom.

USAF photo by MSgt. Andy Dunaway

A-10 Thunderbolts, such as this one over the Afghanistan countryside, are heavy-hitting force protectors for ground personnel.

began pouring concrete into the nose of the bomb, leaving less than 30 pounds of explosives, mainly in the tail. That shortens the range of flying bomb fragments by as much as one-third, reducing the chances of injuring bystanders.

The Air Force is also using longer bomb fuses. Delaying an explosion by just a few milliseconds can mean that the bomb gets buried deeper into the ground before exploding, buffering its force.

"We know how far the frag pattern goes on every weapon," said Col. Gary L. Crowder, commander of the Air Force's 609th Air and Space Operations Center. "We know how far they go if I blow it up in the air, or 10 feet underground."

This spring, the air and space operations center oversaw use of a modified bomb with a delayed fuse dropped into the middle of a two-lane road "with houses on either side," said Crowder. After the bomb exploded, "there was no damage to the houses. ... That's the type of thing that gives commanders more choices, without the risk of collateral damage."

One of the innovations early in the war came from a staff sergeant who screwed a piece of wood onto a Predator frame and wrapped it with wire to make an antenna so his AC-130 gunship could receive the Predator's video feed. "So when his gunship shows up, he knows, 'This is a mosque,' and 'These are bad guys,'" said Crowder.

North added, "The absolute worst thing that could ever happen is to injure a noncombatant, or to kill a friendly in a fratricide."

North points to the killing in 2006 of al Qaeda leader Abu Musab al-Zarqawi in Iraq as the "perfect" example of how the CAOC's operations and intelligence sides come together. The tracking of Zarqawi took the military months, spent working to "piece together the intelligence to know exactly where he was in a building, in a date palm grove, to put two 500-pound bombs right on him," said North.

"That's the A-10"

The promise and the problems associated with the air war were on display at the CAOC recently.

As grainy intelligence video rolled, officers silently observed the course of an Iraqi flatbed truck carrying passengers who were, they said, insurgents from outside of Baghdad. They reached this conclusion, in part, because a UAV had detected that the big gun on the flatbed was emitting infrared traces of heat, suggesting it had recently been fired.

The truck rolled to a stop. Nearby, a handful of locals strolled through the area. "Here you have three people who have just been shooting Americans," noted Crowder, pointing at the truck on the screen. "But there"—he points at the locals—"you have innocent people. The question now is, how do you engage, when, and under what circumstances?"

In this case, the question answered itself. The locals walked away to what proved to be a safe distance. The insurgents piled out of the truck and headed to a nearby tree line.

"There they are, giving themselves high fives for shooting Americans," said Crowder. "Aaand"—a brief pause, followed by a bright flash—"that's the A-10."

The powerful ground attack fighter is nowhere visible on the screen, but its effect is evident. The insurgents vanish in a burst of light, as does their flatbed truck.

Today, North added, the focus is on identifying and disrupting the terrorist networks. The Air Force's ability here "is getting better every day." To explain things, North resorted to a basketball analogy. "Sometimes we're playing zone defense, and sometimes we're playing man-to-man," North said. The latter approach is particularly helpful when US forces "know exactly who we want to get out of the network, because if you take that single person out, the entire network will fold."

Increasingly, the Air Force is turning to the MQ-9 Reaper UAV to help keep the insurgent heads down as the US troop surge tapers off and ground troops begin to head home. The Reaper has been flying in Afghanistan for just over a year, and in Iraq only since July.

While the MQ-1 Predator has a ceiling of about 25,000 feet, carries two laser guided Hellfire missiles, and can travel 135 miles per hour, the Reaper can fly twice as high, almost twice as fast, and carry eight times more weaponry, including two 500-pound GBU-12 laser guided bombs. It also has a range of more than 3,600 miles, compared to the Predator's 450 miles.

"We're not going to buy any more MQ-1s, or Predators, because they're small, they have finite legs for endurance, and the only weapons they can carry are the Hellfire," said North.

These UAVs are in highest demand over Iraq and Afghanistan, for good reason. They are effective in both the reconnaissance and strike missions. They can remain on station for long periods and track individuals for many hours at a time.

USAF, in just a bit more than one year, has more than doubled the number of ISR platforms it operates in the US Central Command area of operations. "You can see right here," North said, pointing to the monitors. "That's how many are up right now. They allow us to persistently sit over an area of interest, develop intelligence for future operations, or allow us to get a [positive identification]," he added. "Our intelligence fuses all the way down to that point of execution."

It was more than a year ago, North said, that AFCENT challenged its planners to increase the intelligence take while using the same number of airplanes—in other words, do it better and smarter. The CAOC has since doubled its intake of full-motion video.

"If I give you a screen shot out of the movie 'Godfather,' can you tell me what it's about?" Crowder asks rhetorically.

"But if I show you the movie, you can. It's a huge difference."

Other intel is also pouring in. On the high-flying U-2 spyplanes, for example, USAF has added two and sometimes three data-collection pods. This "just sucks up all of these signals—including bad guys talking on their radios," said Crowder.

He went on, "If you have a convoy driving up the road, and the Taliban is talking on the radios, that information goes up to the U-2s and back to the United States where we have interpreters listening to the information full-time, and translating it in real time."

The information then goes back to the U-2 via satellite, which then conveys the data back to the guys on the ground. It's sometimes possible to geo-locate the signal, making it relatively easy for aircraft to find and attack enemy positions.

The trick is "taking intelligence and then focusing it like a power hose to whoever needs it at that time," Crowder said.

The Air Force has exponentially increased the number of Predator combat air patrols flown each day to meet the ever-expanding demand. Still, fielding enough qualified UAV pilots is an ongoing challenge. "Every time we graduate a couple of classes, ... every time we think we're getting to a reasonable manning level where people could get some time off, they say, 'Look here's another CAP,' and we go right back to being undermanned again," said Col. Trey Turner, commander of the 451st Expeditionary Group. Turner added that he has pilots who work 12 hours on, and 12 hours off for 120 days on a seven-days-a-week basis.

Currently the Air Force recruits pilots to fly Predators and Reapers for a three-year permanent change of station assignment.

"The problem with this is that you have a crew for three years, at the same time you're trying to grow capability," he said. "So every three years we're losing guys back to their normal weapons system. That's been one of the real challenges."

Turner went on to say that, for some pilots, "it's possible that they may not ever go back to their F-16s." The pilot's expectation, however, was that he would put in a UAV tour then go back to his previous aircraft. "That's a tough fix," he added, "a leadership challenge."

Manning is vital, Turner said, for defeating the counterinsurgency because the Predator and Reaper provide "a true asymmetric [weapon] that the enemy cannot defeat. There's nothing they can do to defeat the fact that we're watching them 24 hours a day, seven days a week."

USAF photo by SrA. Julianne Showalter

An MQ-9 Reaper takes off on a mission from Joint Base Balad, Iraq. The unmanned aircraft can carry precision weapons, including two 500-pound laser guided bombs.

Armed and Watching

Among the 50 or so troops analyzing intelligence on the floor of the operations center, one finds a military lawyer on hand around the clock. If there is a question about the legality of a strike, particularly when it endangers civilians, a lawyer will interpret and explain the Law of Armed Conflict, the international treaties that prohibit the intentional targeting of noncombatants and require militaries to minimize risks to civilians.

"The guys on the ground are always concerned about somebody second-guessing them when they're getting shot at," said Col. Bill Carranza, the chief JAG officer within the CAOC. "My job is to give them options."

In counterinsurgency wars, the line between civilians and insurgents gets blurry, since insurgents and noncombatants live side by side. As a result, said Manwill, the chief of combat operations, rules-of-engagement questions abound. Having someone standing by to consult on legal issues, he added, gives commanders a useful check on their options.

One of the little-known CAOC missions is tracking and identifying every aircraft that flies over Iraq and Afghanistan, including commercial airline traffic.

"If they're not squawking the right code, we don't know who they are. If we don't, we will intercept them," said Crowder.

This is particularly important in Afghanistan, where the sale of overflight rights to commercial aircraft companies has turned into one of the country's largest sources of legal income. (The largest illegal source is sale of opium.)

In Iraq, concern centers more on a possible 9/11-style aviation attack; the worry is that a terrorist will crash an airplane into the US Embassy in Baghdad, devastating the Green Zone, or into one of the major mosques. "We watch that very carefully," said Crowder.

Crowder pointed out that, in 90 percent of the missions flown, USAF fighters and bombers do not drop a bomb or otherwise commit an act of force against an adversary. What they provide is "armed overwatch"—in other words, they furnish direct links to ground commanders to allow them to "see" what's going on around them.

For some time, every fighter has possessed a sophisticated downlink that passes full-motion video from its targeting pod to receivers on the ground and in the air. This past summer, the same kind of pod and downlink was installed on every bomber in the theater.

"I'm always tweaking the system," said North. "We're not doing things today the way we did a month ago," he added. "I'm changing things every day."

And there is little room for error. As Crowder said, "The mission is so complex and so different from anything the Air Force has ever done." ■

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