COMBINING BFT AND UAS IN AFGHANISTAN

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and
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This article explains how Task Force Commando; 10th Mountain Division utilized both human factors and emerging technology to better utilize Unmanned Aircraft Systems throughout the Paktika Province on the 2013 deployment to Afghanistan's RC- East.

Early in their deployment it was apparent to LTC Jason Bridges, Task Force Gladiator commander that communication between Route Clearance Platoons and UAS operators was insufficient. Despite having FM retrains capabilities on the aircraft which allows for extended FM communications, UAS operators and ground patrol leaders often couldn't communicate via FM due to atmospheric and mountainous terrain conditions. The need for communications redundancy

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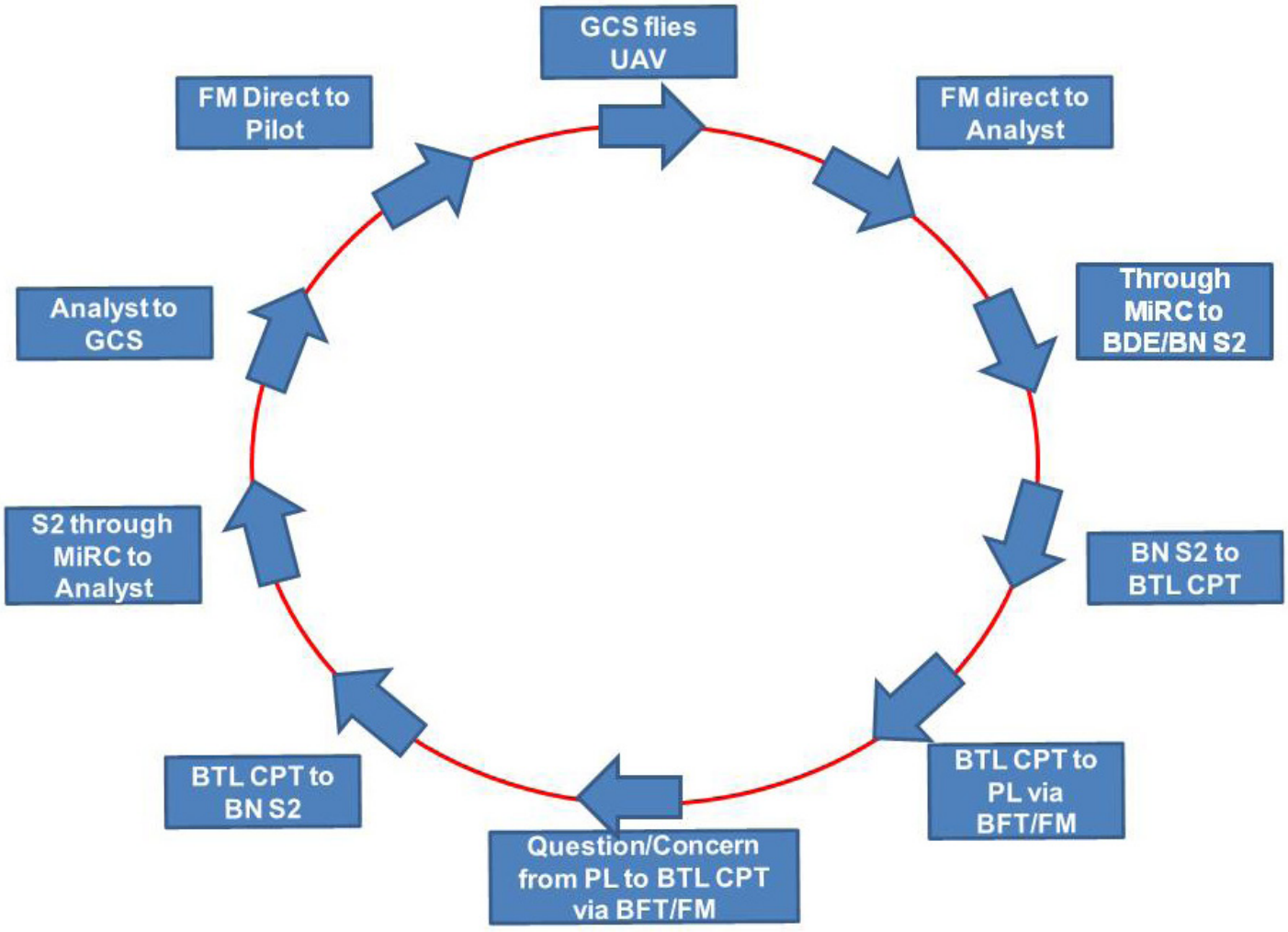

Figure 1-1 The Communication Cycle

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that enabled UAS operators and ground patrol leaders direct linkages became a necessity.

During a particular RCP, UAS was conducting over-watch with their RQ-7B Shadow Aircraft and identified a manmade road block at a choke point along a critical route. The UAS team determined it was a possible ambush location that the RCP was approaching.

However, without effective communication and situational awareness with the patrol, the ability to directly provide early warning to the patrol became convoluted as information went to the BDE and BN S2's and TOCs, and then to the patrol via BFT. Thankfully, there wasn't an ambush at the location but the situation clearly showed a need for better aerial intelligence, surveillance, reconnaissance and ground patrol integration.

TF Gladiator supports the brigade's intelligence collection by utilizing Shadow aircraft to conduct ISR and supply full motion video in order to provide advance warning of perceived and confirmed enemy threats. Similar to most brigades, our S2 section manages the allocation of UAS via the battle space owner's request. The TTP at the time in question was for the UAS operator to contact the analyst inside his CP in order to have the analyst send a message over MiRC Chat that is typically monitored only by the brigade and battalion S2s and BN or BDE TOC personnel. (see figure 1-1 for the entire communication cycle).

The UAS team contacted the brigade S2 Shop in order have the information relayed that an RCP could be heading towards a possible ambush and inquire as to how they can assist. By the time information was relayed to the RCP from the BSO TOC, the convoy had already safely passed the chokepoint.

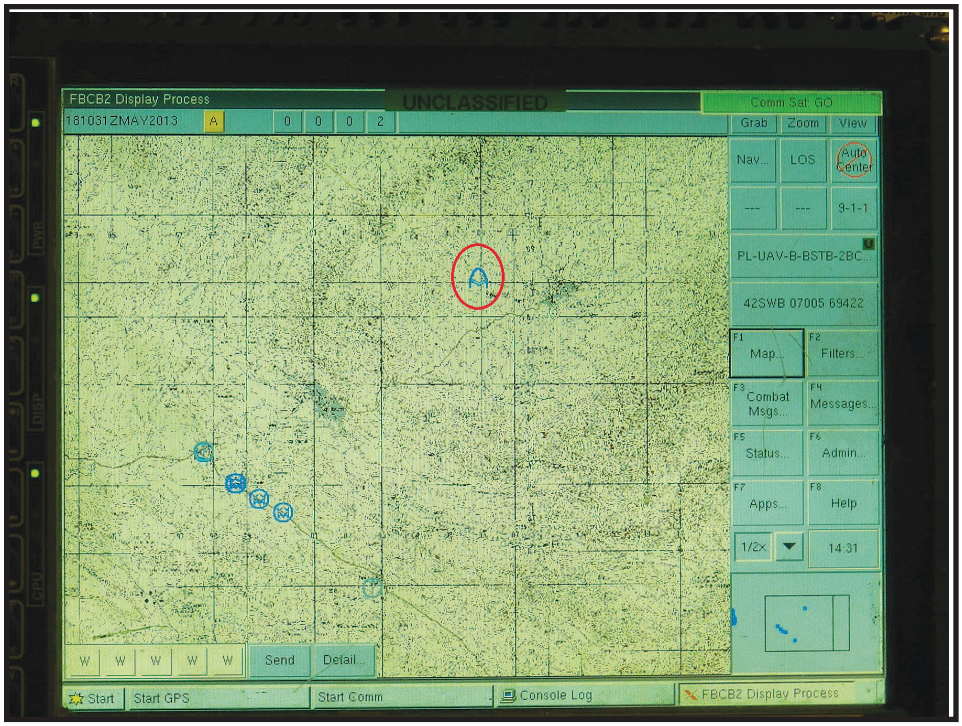

Figure 1-2 Unmanned Aircraft Systems icon displays with the aviation symbol on Blue Force Tracker.

1LT Derek Distenfield, TF Gladiator S6 and CW2 Dwight Phaneuf, UAS platoon leader conducted a "deep dive" for TF Gladiator and identified two aspects to increase communication between the UAS and Soldiers on the ground:

BFT and Radio Communications utilization.

Enhanced TTPs and Partnerships.

Blue Force Tracker has become the Army standard for commanders at all levels to maintain situational awareness of the battlefield. With the right equipment and technical instructions it can be useful for UAS operations as well.

TF Gladiator was able to acquire the necessary modified TOC kit laptop (AAI part number is 38900-42050-10) that fits inside the Ground Control Station that control the Shadow aircraft in order to allow for the displaying of the UAS icon on the BFT (see figure 1-2). This allows for convoys and TOC commanders to be aware of the exact location of the shadow aircraft. TF Gladiators are the only unit in Afghanistan displaying UAS on the BFT.

Because the GCS has been pre-wired for BFT the laptop was easy to install once delivered via the PM. However, without an issued TM, published instructions or any other unit using the equipment it took a few days of trial an error and discovery learning to get the system fully mission capable. (Annex 1 is the user manual. Annex 2 is the checklist of TF Gladiator proposed changes to installing the system).

UAS teams can increase their situational awareness using BFT to identify exactly where the vehicle patrols are located on the ground. UAS operators are no longer seeing just a grid location to a patrol, but are now seeing the location on a BFT map. Another important function BFT provides is two way text messaging. TF Gladiators are currently the only UAS Operators in theater that have direct communication with the patrols on the ground via BFT messaging, allowing for more effective operations throughout Paktika Province.

The Distributed Tactical Communication System Radio is a push to talk Satellite Radio that can be effectively utilized in the mountainous terrain of eastern Afghanistan. In addition to long range communication, the DTCS radio has an icon that is displayed on the BFT (see figure 1-3. This is especially valuable for vehicle patrols and UAS operators alike.

When our dismounted route clearance teams utilize DTCS Radios, mounted leaders and UAS operators know exactly where the Soldiers are located. Leaders can now request and direct UAS coverage for specific situations and dismounted operations to support both mounted and dismounted route clearance elements. Additionally, TF Gladiator UAS operators can easily locate the DTCS icon and fly directly over head or in the vicinity of a location to best support the combat patrols.

TF Gladiator received the Combat Repay Program system prior to deployment and was able to utilize it during our Division Field Exercise, (Mountain Peak), at Fort Drum. The FM relay system works by placing an AN/PRC 152 Harris Radio inside the wing of the aircraft (see figure 1-5). This allows Soldiers on the ground to communicate directly to the aircraft which then sends the FM signal t o the UAS Ground Control Station.

Harris Radios are not, unfortunately, an Army program of record which prohibits training and resources from being allocated to the Soldiers that use them. Additionally, TMs are not always readily available either in theater or garrison. Early in the deployment this caused some difficulties for TF Gladiators utilizing the asset. Soldiers and leaders were not aware that the radio relay frequency had to have at least 20 percent separation. This was easily solved by providing the UAS platoon a frequency that was around 58.00 and was much higher than the maneuver elements frequency that operated in the 38.00 range.

UAS Operators and Soldiers on the ground were able to communicate directly via the CRP relay package up to 50 miles away when the UAS was flying over head, a significant improvement to the less than 10 KM range without CRP.

Once TF Gladiator developed two methods for UAS and Soldiers on the ground to communicate it was only natural to look at how and when information should be delivered. The best technology can only be effective if Soldiers on the ground are the beneficiaries.

Our TF stresses a two pronged approach that enables both the Soldiers on the ground and the Brigade's ISR efforts. This approach calls for UAS Soldiers to simultaneously report PIRs directly to Brigade and to the Soldiers on the ground ensuring leaders have the information they need to make successful decisions (see figure 1-6).

This approach requires direct interaction between UAS Operators and maneuver Soldiers. Conversations and sync sessions were facilitated

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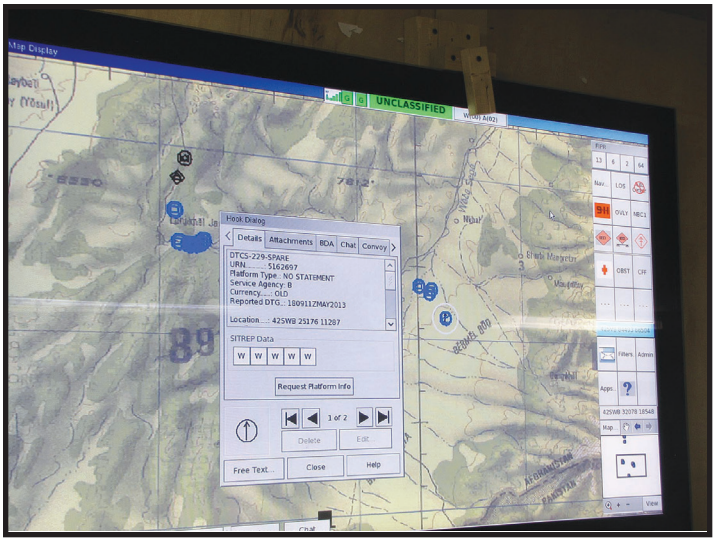

Figure 1-3 Distributed Tactical Communication System radio displays as the Infantry/machine gunner icon on Blue Force Tracker.

Figure 1-5 AN/PRC 152 Harris Radio inside the wing of the aircraft.

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by 1LT Distenfield to ensure that UAS Soldiers understood the maneuver units PIRs and other information. It is equally important that ground patrols understand the capabilities and limitations of the aircraft. Partnership was further enhanced when UAS Soldiers attended an RCP rock drill followed by active participation in a ground route clearance patrol giving an important perspective to Soldiers that would typically not leave the FOB.

Results

Since TF Gladiator has instituted enhanced communication platforms and procedures, patrols have been provided enhanced ISR coverage. Route clearance patrols are advised well in advance prior to reaching potential IED or ambush locations, allowing for enhanced situational awareness and insurgent defeat. The information dissemination is streamlined and provides enough time for a patrol leader to take appropriate action.

Other results that have had a significant impact on the mission include the following:

UAS enabled real time mortar registration. During one mission UAS operators were able to communicate with the mortar team that an ineffective round had been fired. UAS sent a text message on BFT advising of the situation which enabled additional effective rounds to be fired.

Supported Airspace Control Authority, UAS operator used BFT to confirm an unidentified aircraft's position and maneuver above it to avoid and confirm it was a "friendly."

Deconfliction of airspace with JTAC using enhanced communication via CRP and/or BFT graphical showing the Shadows position allowed for UAS to stay on-station during CAS missions.

While monitoring their FM/CRP Radio during a mission, UAS heard that a PTDS Aerostat had broken loose. Exercising initiative, the UAS operator immediately followed the Aerostat communicating with the Soldiers on the ground facilitating an ANA recovery of the sensitive asset.

The DTCS icon on BFT allows UAS operators to quickly indentify where dismounted Soldiers are located allowing for better ISR coverage and enemy deterrence.

Recommendations

Based on TF Gladiator's results, it is recommended that all UAS Platoons are provided a BFT platform in order to better communicate with Soldiers on the ground providing enhanced service and relevance to warfighters on the ground. Specific recommendations include:

The BFT designed to go inside the UAS shelter came with no instruction manual and training. If it became a program of record and an MTOE item, it could be effectively utilized Army wide.

DTCS Radios that produce an icon with their geographic location on BFT has been effective. Radios that produce BFT icons should continue to be fielded both in theater and in garrison as an MTOE item in order to be utilized for operations involving dismounts and UAS.

1LT Derek Distenfield *started his Army Career September of 2006 as a private serving as an Air Traffic Controller with the 1/58 Airfield Operation Battalion stationed at Fort Rucker, Ala. Following completion of Officer Candidate School, in July of 2008 1LT Distenfield was commissioned as a Signal Officer. He has served in Kuwait, Iraq and Afghanistan twice. He currently serves as TF Gladiator S6 in Paktika Province, Afghanistan.*

CW2 Dwight Phaneuf *started his Army Career May*

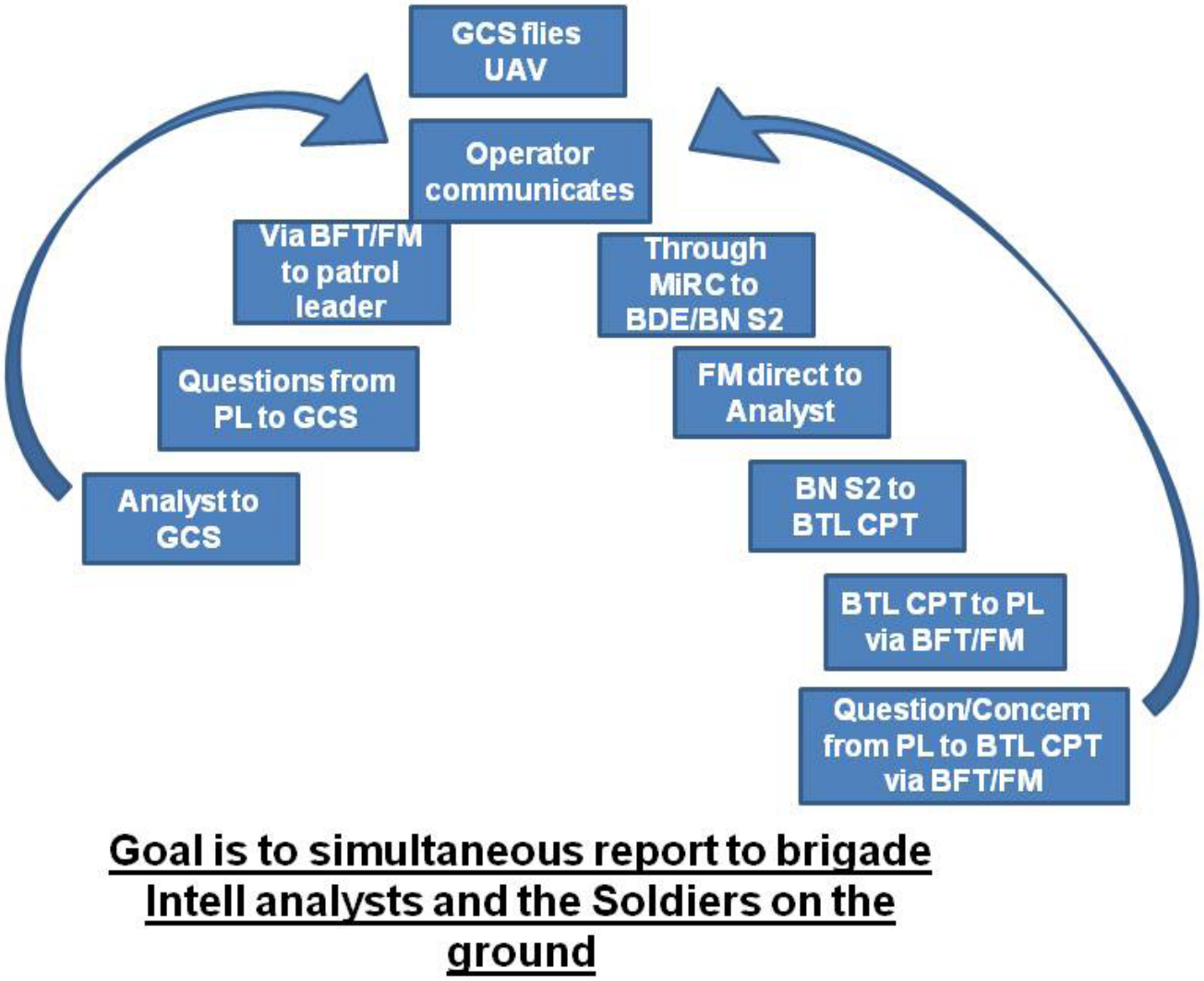

Figure 1-6 Providing Soldiers and the brigade the information needed to make operations effective.

1990 as a private serving UH-1 crew chief in the U.S. Army Reserves. He continued his service for the past 20 years from private to sergeant first class to chief warrant officer two in three aviation MOS's. His duties have taken him around the world with assignments in Germany, Japan, Alaska and multiple state side locations. His deployments to Bosnia, Kuwait, and Iraq exposed him to the many missions the Army utilizes to maintain peace worldwide. He currently serves as UAS platoon leader for TF Gladiator in Paktika Province, Afghanistan.

Acronym QuickScan

BDE - Brigade
BFT - Blue Force Tracker
BN - Battalion
BSO - Battle Space Owner
CRP - Crew Relay Package
DTCS - Distributed Tactical Communication System
EW - Electronic Warfare
FOB - Forward Operating Base
FM - Frequency Modulation
GCS - Ground Control Station
MIRC Chat - Military Intelligence Readiness Command Chat
MOS - Military Occupation Specialty
PTDS - Persistent Threat Detection System
RCP - Route Clearance Platoon
TF - Task Force
TM - Technical Manual
TOC - Tactical Operations Center
TTP - Tactics Techniques and Procedures
UAS - Unmanned Aircraft Systems