



NATO UAV Operations

Capabilities and Obstructions to Effective Use

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The NATO Response Force (NRF) gives NATO a flexible force that can respond to any crisis in a timely manner. The force can be tailored to meet the specific requirements of the crisis with forces drawn from those allocated during planning. With the introduction of the NRF comes the cementing of the UAV as a fixture in future NATO operations.

NATO currently has requirements established for every NRF mission to deploy with UAVs. Italy, Canada, France, Spain, Turkey, and the Netherlands are designated as the NATO member nations responsible for bringing this new technology to the battlefield. Currently these countries all have Medium Altitude Long Endurance platforms capable of traditional Intelligence, Surveillance, Target Acquisition and Reconnaissance (ISTAR). The deployed NRF assets are tasked with the primary role of targeting. Specifically; they are the primary air assets for development of Time Sensitive Targets (TST). This is a role that UAVs have proven to be more than competent in filling. The Full Motion Video (FMV) provides the TST cell with a near real time picture of the battlefield and near instantaneous Battle Damage Assessment critical to Effects Based Operations. This allows for immediate determination of re-strike requirements as well as target prioritizations.

The Balkans was the proving ground for current NATO UAV operations. Hunter and Predator (RQ-1) made names for themselves providing surveillance of targets as well as BDA during strike operations. Other nations continue to operate UAVs in the Balkans including the German Luna and the French CL-89.



Many of the advances seen in sensors and UAV tactics over the decade following can be traced back to the Balkans operations.

Several of the UAVs were lost to AAA and SAMs during early operations in the Balkans. Many of the losses were attributed to use of redundant transit routes. Due to severe terrain and weather conditions along the southern border of Kosovo the British Army lost 29 UAV/sensors over some 270 missions, which was considered too high an attrition rate and led to the Phoenix Battalion being withdrawn from theatre. All this led to the increased study of Tactics, Techniques, and Procedures (TTPs) that were later implemented during operations in Iraq and Afghanistan.

Operational Potential

The ISAF, AMIS, and NTM-I missions have increased potential for use of UAVs to support Force Protection planning and operations. UAVs placed in pre-planned orbits over military installations enable the Ground Control Stations capability of quick response to any attack or security situation that may arise. The crew can tend to normal duties yet respond as if on a typical air alert status and quickly regain control of the orbiting UAV. If the installation is taking fire they can patrol the perimeter for possible launch sights or fleeing personnel. If counter battery radars are in place they can cross-cue to narrow their search area. They can also act as forward spotters for counter battery fires without putting additional friendly forces in danger. Hostile forces typically conduct offensive planning and staging during the hours of darkness where the additional day/night capability of the NATO UAVs makes them ideal for monitoring the security situation. We have seen all of these techniques employed and their usage can decrease hostile action by as much as one-third.

In ISAF and NTM-I there is a very specific mission where UAVs have proved especially useful and that is in the role of locating Improvised Explosive Devices (IED). IEDs are typically placed along highly traversed roadways and Lines of Communication. Their effective usage can create large gaps in critical Lines of Communication (LOC) and supply lines. The key to effective employment of UAVs in detection of IEDs is analyst training. Analysts who are competent in IED TTPs can look for specific signs, signatures and indicators of IED emplacement. Also the night capability of the UAV sensor allows monitoring of primary routes for enemy personnel preparing IED emplacements. Aerial monitoring can allow noting of trends that cannot be seen from ground level. Some of the trends seen during our time with UAVs are local vehicles avoiding certain points in the road or notable patterns in roadside terrain. If any possible emplacements are noted their location can be relayed to ground units for further investigation.



Convoy escort may prove another area where UAVs in NATO earn their keep regardless of the area or operations. UAVs have a unique capability to provide convoys with up to the second information on their desired path of movement. UAVs can relay information regarding chokepoints, possible enemy forces, road obstructions, traffic congestion, and possible IEDs to the convoy as it moves. This increases the decision making timeframe and the situational awareness of the convoy commander allowing for informed action to be taken. It is our experience that the greatest impact is when this information can be relayed directly to the force on the move from the UAV crew without delay through the use of UHF radios. Convoy escort can be done using relays from HQs units but significant time is lost and the near real time advantage is diminished or negated. UAVs have proven themselves extremely capable of performing this role during operations in Iraq and Afghanistan.

Combat Search and Rescue is yet another of the missions where UAVs can play an integral role. Their high loiter time allows them to conduct large area searches without refuelling and their day/night capability increases the coverage time of potential rescue areas and could provide critical information to assist personnel evading enemy forces. UAVs have potential to cross-cue with other aircraft engaged in the CSAR mission to maximize search efficiency. A UAV armed with a Laser Target Marker system can use this capability to mark crash sites, landing zones, or infil/exfil routes for rescue parties during night-time operations.

Finally, UAVs can provide a NATO force with a distinct advantage during urban combat operations.



Military Operations Other Than War have become the primary mission of today's military organizations and NATO is not exempt from this. UAVs provide up to the second battlespace awareness for the urban warfighter. This again is maximized through direct communications with the ground units themselves. UAVs can track and monitor street-to-street and building-to-building fighting giving a decided edge to NATO forces in direct coordination with the UAV crew.

NATO units receive information critical to protecting ground forces through spotting of enemy personnel. Thus, supplying the urban warfighter with information about the threats around the next corner and in doing so quite literally saving lives. NATO UAVs can readily be armed with the latest small diameter weapons resulting in reduced collateral damage risks when compared with traditional munitions. This makes the UAV an ideal candidate for urban Close Air Support and tactical support. Experience has shown us UAVs efficiency in hunting enemy mortar/RPG teams and spotting for friendly patrols.

UAV Challenges

There are two primary obstacles to maximize usage of UAVs within NATO operations. These are the issues of jointness and communications. NATO is currently working on Airspace Coordination rules for UAVs. This is a significant step in dealing with the complexities of the joint environment required for maximized operations but further steps need to be taken.

UAVs may be the asset requiring the largest joint effort in military organizations today. UAVs can operate in traditional ISR roles and work solely for the air component. UAVs can work force protection missions and work solely for the ground component. These types of missions allow for easy coordination and require little joint effort. The problems arise from tactical reconnaissance missions and the dynamic re-tasking of UAVs.

In tactical reconnaissance missions the UAV is typically assigned to the Air component but relies heavily on the Ground component to make the mission successful. The Ground component needs to stay actively engaged in the mission to ensure that they receive the target coverage they require. Being actively engaged allows the Ground element to direct attention to items of significance taking full advantage of the near real time nature of Full Motion Video. If the Ground component is not actively engaged then the full benefit of UAV coverage is marginalized.

UAVs lend themselves naturally to the concept of dynamic re-tasking, the quick shifting of the asset from one mission type to another due to changes in the battlespace. For example, a UAV may be executing a traditional ISR mission in a given area whilst NATO ground forces are suddenly engaged in the same area. At this point the UAV can be quickly re-tasked with a support role for those forces. This requires pre-planning of how the process will work to transfer the asset from the Air component to the Ground component. If the issue of dynamic re-tasking has not been coordinated in advance then there will be delays to the detriment of the warfighter.

The issue of communications is the other major challenge facing utilization of UAVs. The advantages of near real time video are obvious. However, this advantage is only fully realized if the communication architecture allows for the information to be quickly passed to the person who needs it. If the information has to work its way through a large organization or communications relays then those advantages are reduced or even negated. NATO must plan for and exercise with a communications plan in place to ensure that this advantage is maximized.

Finally, the one-crew concept is a growing issue that incorporates both the Joint and Communications issues. In our experience building a cohesive crew containing multiple personnel from varied backgrounds, which may or may not be collocated is a major issue. The pilot flies the aircraft and can grow frustrated when dealing with intelligence analysts driving the mission. The intelligence analyst can become frustrated when they are unable to meet their mission objectives due to the pilot or sensor being unresponsive to direction. There exist tensions between the ground forces personnel being overly directive during missions. To make the mission successful the crew (pilot, sensor operator, intelligence analyst, and ground forces representative) must gel as a cohesive unit and respect each other's role. This challenge is magnified by the time constraints as crews may only have minutes to work out the roles and responsibilities.

This is where communications is key and we have seen that direct voice communication is always better than computer chat or communications relays through HQs. Chat allows too much room for perceived verbal slights as people interpret the written word differently. Communications relays allow for the potential loss of pertinent information during from the ground forces involved and the UAV crew.

The UAV ushers in a new generation of warfighting with increased technological capabilities. NATO must work to utilize these capabilities to their fullest. In doing so NATO has an opportunity to leap forward as a leader in the use of UAVs. The NRF is the future of NATO and with it goes the future of the UAV in NATO. We must ensure that the NRF is successful and to do so learn from our own mistakes and the mistakes of others in utilizing UAVs.