Overcoming Capability Gaps in the Space Domain: Force Multipliers in Army Combat Aviation Brigades

By MAJ David A. Beaumont

n the long haul, our safety as a nation may depend on our achieving 'Space Superiority.' Several decades from now, the important battles may not be sea battles or air battles, but space battles..." -Gen. Bernard Schreiver, "Space Superiority" speech at the first Astronautics Symposium, California, 1957.

This quote underscores the critical role of space-based assets in modern warfare, emphasizing the urgency and significance of our mission.

Space Enabler (3Y)

Space is a warfighting domain, and the U.S. military relies heavily on spacebased assets to perform its missions in today's technologically advanced military. Space is the ultimate high ground; space-based assets allow U.S. forces to move with precision, communicate with forces anywhere on Earth, see the battlefield with clarity, and defend the homeland and forces abroad. Our adversaries understand our reliance on these assets, are aware of the U.S. military's use of space-enabled equipment, and will try to disrupt those assets. The Army must ensure enough personnel possess the expertise, training, and experience to meet current and future national security space needs. To this end, the U.S. Army established the Army Space Personnel Development Office, or ASPDO, which manages Army personnel attendance at the foundational professional development space courses.

The U.S. Army, "the largest user of space-based capabilities" in the military, formalized an Army space cadre that consists of officers, enlisted, and civilian personnel (Center for Army Lessons Learned, 2023, p. viii). The additional skill identifier (ASI) 3Y, Space Enabler, identifies personnel with specialized skills and experience in space operations. This designation reflects the increasing recognition of the critical role that space and spacebased systems play in the future of Army warfare. To remain competitive in the evolving space domain, it is essential for personnel to continually enhance their technical expertise, engage in advanced training, and stay updated on emerging technologies and strategies from strategic levels of thinking down to the tactical force. Collaboration with other military branches and civilian agencies can also foster innovation and ensure readiness to meet the challenges of space warfare. The Office of the Chief of Space and Missile Defense (OCSMD) aligns training and education requirements to operational needs and career professional development. It conducts strategic planning, ensuring cadre billets are identified, created, and tracked to support space-related missions. The OCSMD manages the processing and awarding of the 3Y ASI and Space Badge progression. The Army does not have an enlisted, WO, or civilian space career field. However, OCSMD tracks Army personnel serving in space operations billets, and these cadre members can also attend space training courses that support their professional development.

Space Enablers in Combat Aviation Brigades (CAB)

I believe that intelligence and fires professionals in conventional CABs should be designated as 3Y Space Enablers. Their role is to enhance operational capabilities, decision-making, and force multiplication significantly. These professionals have access to space-based intelligence assets, such as satellite imagery and reconnaissance data, which provide real-time, high-fidelity information critical for anticipating enemy movements, identifying threats, and planning effective operations. Their designation as 3Y Space Enablers ensures they receive the necessary training on space-based programs and capabilities to leverage assets at echelon, fostering better coordination with other units and future-proofing military operations as warfare extends into the space domain. Their understanding and use of spacebased data will be crucial for providing accurate and timely intelligence, ultimately enhancing mission success and resilience.

Combat aviation brigades often lack organic signals intelligence (SIGINT) and rarely receive electronic warfare (EW) personnel, necessitating intelligence analysts (35Fs) to act as information collection managers. The Intelligence Warfighting Function (IWfF) plays a crucial role in addressing these shortfalls to fill capability gaps. The IWfF is responsible for coordinating and integrating intelligence and EW into the brigade's operations. Combat



Figure 1. 101 CAB intelligence architecture (Erb, 2024).

aviation brigade military intelligence (MI) Soldiers use Fusion Analysis and Development Effort (FADE)/Multi-INT Spatial-Temporal (MIST) to analyze SIGINT data, enabling 35Fs to build a comprehensive enemy air defense picture, which is crucial to aviator survivability (California Analysis Center, Inc., 2020). Regardless of whether CABs have EW Soldiers on their modified table of organization and equipment (MTOE), 35-series personnel should receive proper training on using Global Navigation Satellite System (GNSS) Operational Awareness Tool (GOAT) and FADE to track effects on the operational environment (Space-Based Positioning Navigation & Timing, 2024). These intelligence programs and software are critical to providing aviators with relevant and actionable information, ultimately leading to mission success and a safe return home (Figure 1).

Intelligence Architecture

Combat aviation brigade space enablers are essential to integrate with and protect air and ground maneuver forces from hostile threats using space-based capabilities, facilitating deep sensing and enabling movement and maneuver. Space professionals play a crucial role in enhancing understanding and integrating joint and coalition space capabilities into operational strategies. The National Geospatial-Intelligence Agency (NGA) and the National Reconnaissance Office (NRO) are key players in this domain, providing cloud-based solutions critical to the Department of Defense (DoD) and the Intelligence Community. These solutions enable real-time intelligence gathering and ensure robust situational awareness and operational planning in an evolving space domain. For example, the 101st Airborne Division, Fort Campbell, Kentucky, has effectively employed Command and Control Fused Information Exchange, or C2FIX, programs like Starshield, "a militarized version of SpaceX's Starlink internet satellites" (Erwin, 2024) for transport and utilized the Tactical Server Infrastructure at the division level through a flat domain to enhance communication and operational effectiveness on today's battlefield. Command and Control Fused Information Exchange takes the entirety of the network portfolio and condenses it to the basics of what a maneuver commander needs to improve decision-making and facilitate seamless communication and collaboration among units during operations. A Tactical Server Infrastructure refers to a network of servers and associated hardware deployed in a military or operational environment, designed to operate in challenging conditions, providing reliable access to information, applications, and services for tactical units. Additionally, it houses the local

SharePoint, Command Post Computing Environment, and Data Distribution Service. At present, the DoD "currently buys Starlink's commercial internet service but in the future it also plans to acquire more than 100 'Starshield' satellites that would be government-owned" (Erwin, 2024).

All-Source Intelligence Officer Justification

All-Source Intelligence Officers (35A) utilize space-based intelligence, surveillance, and reconnaissance to enable the core MI competency of Intelligence Preparation of the Operational Environment (IPOE). Combat aviation brigade MI officers work closely with spacebased intelligence assets such as FADE/ MIST, NRO overhead systems (NOS), formerly known as national technical means imagery, and the Global Broadcast System (GBS). These systems and other SIGINT and geospatial intelligence (GEOINT) platforms are essential for producing robust IPOE products. Providing the best intelligence possible increases efficiency and survivability for aviators, aircraft, and supporting Soldiers. Aviators rely on terrestrial and space weather reports from the S2 officer (intelligence operations and security) during operations to anticipate global positioning system and satellite communications (SATCOM) effects. The CAB operates the MQ-1C Gray Eagle unmanned aircraft system, providing the entire division with an organic ground movement target indicator capability. Although the MTOE authorizes an information collection manager, MI officers often assume this role at their respective echelons, using various spacebased assets to inform commanders and pilots. Brigade S2 officers will also manage, train, and employ geospatial imagery analysts (35G) and 12Y sections.

All-Source Intelligence Analyst Justification

All-Source Intelligence Analysts (35F) provide weekly global graphic intelligence summaries In the absence of SIGINT/EW personnel, 35Fs analyze enemy-integrated air defense systems using FADE/MIST,



SPC Tyler Marcoux and SPC Dadrian Black (101 CAB S2 35F All-Source Intelligence Analysts) set up the One System Remote Video Terminal to pull feed from the MC-1C Gray Eagle. U.S. Army photo provided by the author.

maintain the area of operations awareness with Bodhi,1 assess electromagnetic interference effects on aircraft with GOAT, and establish air orders of battle with the data fusion tool, Thresher. Given the CAB's need for organic collection assets, 35Fs must request support from higher echelons to answer the commander's priority intelligence requirements. Collection can be obtained using space-based capabilities, such as NOS imagery and coordination with echelon collectors. Bodhi, FADE, and Thresher-all programs of record throughout the DoD's Intelligence Communityare critical for building situational awareness and enabling collaboration.

All-Source Intelligence Technician Justification

The All-Source Intelligence Technician (350F) is the senior intelligence analyst and

subject matter expert (SME) on all intelligence disciplines and programs. They are responsible for intelligence analysis and synchronization across multiple echelons. The 350Fs integrate information from all sources, including the CAB's organic GEOINT cell and analyst cell, into finished analytical products for the brigade. As experts in intelligence systems integration, they fuse multiple intelligence disciplines across all domains and are expected to be SMEs on space-based programs. They train, coach, mentor, and execute information collection with 35As, 35Fs, 35Gs, and 12Ys using tools identified previously.

Geospatial Intelligence Imagery Analyst Justification

Geospatial Intelligence Imagery Analysts (35G) play a critical role in visualizing the operational environ-

ment by delivering a range of essential products, including infrastructure imagery, tactical equipment identification, overhead persistent infrared (OPIR) data, and helicopter landing zone (HLZ) information. These products are generated through space operational software and systems used throughout the DoD Intelligence Community, such as iSpy (web-based, image-viewing application), the Geospatial Intelligence Search and Retrieval Program (GSR), Map of the World, and Web-based Information Dominant Warfare (WIDOW). The GBS antenna is instrumental in receiving data from these systems, which is then processed and disseminated to lower echelons. iSpy and GSR, maintained by NGA, are comprehensive repositories of space-based imagery accessible via the Non-classified Internet Protocol Router Network, Secure Internet Protocol Router Network, and Joint Worldwide Intelligence Communications System networks. Similarly, Map of the World offers a broad collection of GEOINT data, including spacebased imagery, terrain data, and maps. Web-based Information Dominant Warfare is utilized to analyze OPIR data, with the GBS antenna playing a critical role in supporting high-volume data operations.

Geospatial Engineer Justification

Geospatial Engineers (12Y) are pivotal in enhancing situational awareness and operational planning by utilizing satellite imagery and elevation data to provide commanders with precise terrain analysis. They leverage data such as Digital Terrain Elevation Data and commercial satellite imagery to produce critical products for both wartime and peacetime operations. These products include detailed HLZs, 3D fly-throughs, lineof-sight analyses, and change detection reports. GlobalVO[™] (Global Vertical Obstruction Data), a new program incorporating satellite imagery and artificial intelligence, significantly advances these capabilities by rapidly identifying patterns associated with vertical obstacles and annotating them across large areas

¹ "Bodhi is an application that the National Reconnaissance Office developed for visualization, collaboration, and presentation" (Fanitzi et al., n.d.)

Intelligence Academy (Deployed)				
EXECUTION Mission All 101CAB intelligence person attend the intelligence academy SEP 2024 to enhance intelligen competency through MI program software to have a better under of the Common Intelligence Pic (CIP) and operational awareness	nel y 23-27 ice ms and standing ture ss	antir		Resource Familiarity SIPR Tutorial IMoM FADE MIST AIDP MAVEN SiSPY NGA/NGIC/NRO GWS OSRVT
Intent Provide a prescriptive process standardize the certification of Intelligence Soldiers across the CAB Military Intelligence Enterp End State: All 35-series in 101 CAB are tra programs of record for CIP and operational awareness	to 101 prise ained in		ArcGIS	Guest Speakers • DESTINY 6 • DESTINY 7 • DESTINY 8 • DESTINY 2 • AMSO • FSO • GEOINT • EAB Collection
 SIPR Tutorial Intellink IntelDocs Location of Strategic read books and GRINTSUMs POC: CPT Whitmarsh 	 FADE / MIST General overview of SIGINT collection of IADS TS class at DIV by G2 SIGINT POC: CPT Whitmarsh and G2 SIGINT 	 AIDP General overview of common intelligence picture POC: CW2 Erb 	 MAVEN Overview taught by Palantir Representative during 9-13 SEPT. 	 GEOINT Capabilities iSPY PED analysis POC: SFC Coppney
DAY 1	DAY 2	DAY 3	DAY 4	DAY 5
CMD Team D2 AMSO SPs ISTA Instructors? SIPR Tutorial	SIPR Tutorial (Continued) Intelligence Support to Aviation FADE/MIST Tutorial – CPT Whitmarsh/2LT Ledgerwood EMI – GOAT/COGNOS – 2LT Ledgerwood/ SSG EW	Bodhi Tutorial – CPT Meeks iSPY Tutorial – CPL Laws AIDP Tutorial – CW2 Erb	Palantir Maven Refresher/Retrain - ALL Intelligence Support to Targeting – CW2 Velasco	Debriefing Aviation Collection – AMSO Destiny Intelligence TTPs/SOPs
1 Rendezvous with Destiny				

Figure 2. 101 CAB intelligence academy (Beaumont, 2024).

(Foundation Stack AI, 2024). This tool allows for more efficient and comprehensive terrain analysis, crucial for planning and executing operations. 12Ys utilize these data to recommend optimal routes and HLZs based on the terrain's slope and other features, which is essential for rotary-wing and ground vehicle operations. By integrating their analyses with the 35Fs, 12Ys can illustrate how terrain affects troop movement and operational effectiveness for the opposing force. Furthermore, 3D fly-throughs offer a digital preview of the area of operations before physical deployment, enhancing mission planning. Line-of-sight analysis, using digital surface models (3D representation of Earth's surface) and elevation data, helps determine visibility constraints within the environment. At the same time, change detection provides insights into temporal variations, which can be invaluable for post-disaster humanitarian operations.

Targeting Officer and Fire Support Officer Justification

The CAB is authorized one Targeting Officer (131A) who plays a pivotal role in space operations. They conduct vital targeting analysis of space-based assets such as space stations, satellites, and enemy space systems—a responsibility that underscores the importance of their role. They are also instrumental in information collection while identifying enemy spacebased communication platforms and other potential threats in space. The 131A's ability to identify, coordinate, engage, and collect battle damage assessment of enemy space capabilities is unmatched within the CAB, further highlighting their unique contribution. The role of the 131A in space operations is crucial for protecting and enhancing the effectiveness of space-

based assets, a fact that should not be underestimated. The nomination of the Brigade Fire Support Officer (13A) and Brigade Assistant Fire Support Officer (13A), as a point of redundancy within the Brigade Fire Support Element, would enable a seamless integration of intelligence collection in space-based operations with the Fires Enterprise in the CAB. This is a testament to the Targeting Officer's strategic thinking and planning. Fire Support Officers work extensively within the targeting process at brigade and higher echelons and work with the MI community to conduct space-based targeting analysis and identification of space-based enemy assets. This aids capabilities to use national technical space-based means to detect and target adversary terrestrial capabilities, further underlining the Targeting Officer's comprehensive role.



From Left to Right: CPT Jeffrey Whitmarsh (101 CAB AS2), CPL Joshua Laws and CPL Donovan Espitia (101 CAB 35G Geospatial Intelligence Imagery Analysts), and MAJ David Beaumont (101 CAB S2), were awarded the Army Basic Space Operations Badge. U.S. Army photo provided by the author.

Conclusion

Receiving space training is invaluable for enabling CABs to fully utilize space-based intelligence, surveillance, and reconnaissance capabilities, which are critical for modern warfare in all domains (Figure 2). Space training prepares Intelligence and Fires professionals to anticipate and mitigate the effects of space weather on GPS and SATCOM, which is crucial for mission planning and execution. Despite the absence of organic SIGINT and EW personnel and

equipment, integrating advanced intelligence systems and the expertise of the Intelligence and Fires WfF are essential for CABs. These roles and capabilities ensure CABs can leverage space-based and other intelligence assets to create a comprehensive intelligence and operational picture, enhancing situational awareness, operational efficiency, and the survivability of aviators and support personnel. By utilizing tools such as FADE/MIST, Bodhi, GOAT, and Thresher, Intelligence and Fires professionals within CABs can provide actionable intelligence, mitigate risks, and support mission success.

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Biography:

MAJ David Beaumont is the Brigade S2 in 101st CAB. His previous experience includes Resident Command and General Staff College; Commander, Company A, 304th MI Battalion; MI Captains Career Course Small Group Leader and Instructor; Battalion S2 for 1st Battalion, 27th Infantry Regiment (WOLFHOUNDS); MI Company Commander for 2D Infantry Brigade Combat Team, 25th Infantry Division; Battalion S2 for the 1st Battalion, 94th Field Artillery Regiment (High Mobility Artillery Rocket System), 17th Field Artillery Brigade.



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