

The Space Warfighting Domain

Is Marine Corps intelligence ready?

by LtCol Mark J. McDonald, USMCR

Space is integral to our way of life, our national security, and modern warfare. Although United States space systems historically maintained a technological advantage over our potential adversaries, those potential adversaries are now advancing their space capabilities and actively developing ways to deny our use of space in a crisis or conflict. It is imperative that the United States adapt its national security organizations, policies, doctrine, and capabilities to deter aggression and protect our interests.¹

Activity in space is accelerating globally. The commercial, civil, and military sectors are expanding both independently and in mutually beneficial partnerships to the standard group

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of earth’s orbital regimes and beyond. The outcome of this activity is designed to expand commercial markets, further exploration and discovery, advance scientific theory, and facilitate national security. In the latter case, what role has Marine Corps intelligence played in the space warfighting domain? Further, is Marine Corps intelligence via the Marine Corps Intelligence, Surveillance, and Reconnaissance Enterprise (MCISRE) sufficiently involved in space to carry out its fundamental roles as a

warfighting function? The questions posed are limited in scope to the intelligence warfighting function, but they cannot be viewed in isolation as they represent a small—but crucial—corner of an increasingly complex and interconnected warfighting domain.

Why Space Matters to Marines

Succinctly, space enables MAGTF operations. Satellites determine our location, guide our weapons, synchronize our timing, allow us to communicate and transport data, provide situational awareness across the electromagnetic spectrum to include imagery and signals, warn us of emerging and imminent threats, and inform us of current and predicted environmental conditions. Denial of space-based capabilities will obviously have a detrimental effect on MAGTF operational effectiveness. A thorough explanation of space dependencies can be found in the January 2019 edition of the *Marine Corps Gazette*, where authors Majors Joseph Horvath, Erika Teichert, and James Connolly provided a compelling overview of space and the Marine Corps in their article, “The Marine Space Support Team Concept: Tactical Space Operations Support to the MAGTF.”² Critically, the piece states,

The MAGTF of today does not understand how to take full advantage of space-based capabilities and is not prepared to operate in a denied, degraded, or disrupted space operating environment.³

Does this statement also apply to Marine Corps intelligence and the MCISRE?



Space enables MAGTF operations. (Photo by Sgt Ronald Spotswood.)

Strategic documents at every echelon of national security direct our capability development efforts toward conflict with near-peer adversaries. This introduces weapons and tactics with effective ranges from hundreds to thousands of miles. The *Marine Corps Operating Concept* (MOC) speaks to this reality by stating,

The deep-water ports and high-throughput airfields we once relied upon are also increasingly vulnerable to attacks with long-range fires. These challenges will only grow as competitors pursue concepts for holding our forces at bay at greater distances and denying our ability to maneuver⁴ in both littoral and landward areas.

While the “21st century MAGTF operates and fights at sea, from the sea, and ashore as an integrated part of the Naval force and the larger Combined/Joint force,”⁵ the de facto battlespace for a MAGTF now spans from traditional micro-terrain through hemispheric distances on the surface of the earth, and from subterranean and subsurface to geosynchronous orbit in altitude, across the entirety of the electromagnetic spectrum, and wherever computer code exists in cyberspace. This seems to be supported, at least in part, by the MOC:

Now, changes in the operating environment and adversary capabilities drive us to increase emphasis on maneuver in the cognitive dimension and expand our employment of combined arms to the domains of space and cyberspace.⁶

How aware are Marine Corps intelligence professionals of the extent of space domain capabilities, effects, and dependencies of both red and blue forces on the MAGTF, Navy and Marine Corps Team, and of the larger joint force given the expanded scale of current operational concepts exemplified in *Joint Concept for Access and Maneuver in the Global Commons*, (Washington, DC: October 2016); *Littoral Operations in a Contested Environment*, (Washington, DC: February 2017); and *Expeditionary Advanced Base Operations*, (Washington, DC: 2018)?

Teaching the Language of Space

“The Marine Space Support Team Concept” provided recommendations for establishing Marine space support teams to guide MAGTF commanders and their staffs through the broad range of space operations outlined in *Joint Publication 3-14 (JP 3-14)*, *Space Operations*. These teams will be essential in educating the commander and staff on space operations, trouble-shooting situations related to space-related capabilities, connecting staff organizations with space-related products and services (or providing products and services themselves depending on the level of training) that enhance mission accomplishment, and coordinating integrated space-related efforts amongst staff elements. This mission currently falls to a smattering of space officers, Space Operations Officer (8866s) and Space Operations Staff Officer (0540s), assigned throughout the Operating Forces and Supporting Establishment. One of the most important services provided by space officers is the ability to speak the language of space—meaning the terms and definitions of *JP 3-14* and Air Force lexicon—because the bulk of current space capabilities reside with the Air Force. Space officers translate this language to the operational culture and jargon of the MAGTF. However, the preponderance of Marine space cadre are versed in communications and do not necessarily consider MCISRE equities.

One of the most prominent space capabilities is space-based intelligence, surveillance, and reconnaissance (ISR). If the primary MOS of a space officer is intelligence (02XX), they are generally better acquainted with the range of capabilities that space-based ISR can provide to a MAGTF than a non-intelligence (02XX) space officer, just like communications officers have a much deeper affiliation with satellite communications and position navigation and timing capabilities. But how many 02XXs consider intelligence support from space operations? Are we leveraging space capabilities and existing tools to the maximum extent to support the MAGTF? Are we aware of our adversary’s space capabilities and partner-

ing with staff counterparts to mitigate or deny their capability to surveil the MAGTF envisioned by our joint, Naval, and Marine Corps concepts and threat assessments? How can we better receive and contribute to the joint force where space and Marine Corps intelligence intersect? How will we operate without access to space?

Battlespace Awareness, Intelligence Functions, and Space

Intelligence warfighting publications take an inclusive approach to warfighting domains by using the term “battlespace” instead of focusing on any one domain:

The environment, factors, and conditions that must be understood to successfully apply combat power, protect the force, or complete the mission. This includes the air, land, sea, space, and the included enemy and friendly forces; facilities; weather; terrain the electro-magnetic spectrum; and the information environment within the operational areas and areas of interest.⁷

However, current doctrinal intelligence publications are exceptionally old from a space domain perspective, and even the most recently updated examples are dated when the latest developments are considered. They are not irrelevant, as the traditional relationships between space-based intelligence capability providers are strong, well-developed, and ongoing. But Marine Corps intelligence, in particular, has generally partitioned its approach to space according to intelligence discipline (e.g., geospatial intelligence and signals intelligence). This statement is manifest by the embedding of Marine personnel at National Geospatial Agency, National Security Agency, and now National Reconnaissance Office, respectively. Technological advancements within these agencies coupled with wider advances and activity in the space warfighting domain and the strategic guidance to focus on peer adversaries necessitates that Marine Corps intelligence move beyond our traditional stance regarding space-based ISR. A framework already exists in our doctrinal intelligence operations, and being proactive in assisting

space officers in supporting other staff officers and deliberately applying our six intelligence functions toward the other space operations capabilities.

The six intelligence functions include: support to the commander's estimate of the situation, situation development, indications and warning, support to force protection, support to targeting, and support to combat assessment.⁸ Taking each in turn, potential space operations and space-related capabilities are considered hypothetically:

Support the commander's estimate of the situation. Intelligence is responsible for providing the commander an accurate view of the battlespace and the threat. Today's battlespace extends into space in a more significant way, and the area of interest for any deployed MAGTF is global when speaking of peers in general. Space is a domain where threats are enabled, originate from, operate in and from, and transit when they originate from other domains. Space needs to be better understood and considered from an intelligence preparation of the battlespace (IPB) context, including space weather and its effects as well as the orders of battle and capabilities of adversaries' space forces. Space officers and Army space support teams provide much of this information at combatant commands, Marine Corps Forces, and MEFs; but, IPB and joint preparation of the operational environment is an intelligence function and the space warfighting domain needs to be better understood inherently by intelligence Marines.

Develop the situation. Provide continuing knowledge of unfolding events to update the commander's understanding of the hostile situation (the basis for adjusting the plan). Space needs to be visualized as a layer in our common intelligence and operational pictures along with the other domains to provide the commander with a thorough understanding of the battlespace.

Provide indications and warnings. The area of interest for any MAGTF is global and now orbital in scope. The reach of threat ISR and anti-satellite weapons systems continues to grow, placing fundamental warfighting functions at risk. A space order of battle could be included



Loss of command and control will adversely impact MAGTF operations. (Photo by Sgt Ronald Spotswood.)

in MAGTF IPB products and a generic intelligence requirements handbook developed specifically for the space warfighting domain. This will include the aforementioned adversary space order of battle and priority intelligence requirements to monitor their activities that threaten MAGTF operations.

Provide support to force protection. It may be time for a renaissance of blue force denial and deception. A standard intelligence product could portray adversary space-based ISR and alert the commander to objects transiting the space domain, which could affect MAGTF operations. Signature management is a current challenge, and the ability for the force to survive will be determined on how well it is executed. An additional way to add persistence to ISR and force protection is to leverage the increased variety of commercial and coalition space-based systems beyond to watch our perimeter and locate threats beyond line-of-sight.

Support to targeting. Marine Corps intelligence could become further involved in development and expansion of targeting capabilities and align our gaps with emerging capabilities by incorporating them into training and exercises. Increasing manpower in this area can yield a large benefit for relatively minimal cost.

Support combat assessment. This function is also already a space-based capability, but with the significant increase in remote sensing satellites in the commercial and coalition realm, there may be more timely and redundant assets to assist battle damage assessment and speed decision for re-strike or prioritization of other targets.

Currently, a nascent MCISRE space community of practice has convened to consider these topics in context, but a more deliberate cross-functional working group may need to be developed to focus on space-related doctrine, organization, training, materiel, leadership and education, personnel, facilities and policy gaps and normalize Marine Corps intelligence's approach to the space warfighting domain.

Recommendations

There are several organizations with significant authorities regarding space in the Marine Corps. Current advocates identify the Deputy Commandant for Plans, Policies, and Operations as the advocate for space. The Deputy Commandant for Information (DC I) has equities as space is one of the information-related capabilities and simultaneously the DC I commands Marine Corps Forces Strategic Command. *Marine Corps Order 5300.43, Marine Corps*

Space Policy (Washington, DC: Headquarters Marine Corps, 2009) assigns the Director of Intelligence responsibility for space-based ISR and liaison with space-based ISR agencies. Under the DC I leadership with Director of Intelligence's support, the intelligence liaison position to National Reconnaissance Office was re-energized this year after having fallen vacant for the past seven years. A small but notable step as the HQMC is resourcing where we can best get after the future fight—where we can influence intelligence community and joint investments and keep our warfighters and Supporting Establishment informed.

The challenges are being managed, but an overall Marine Corps vision, true concept, or strategy for space does not yet exist—nor does a documented, consolidated stance toward the future of space as it relates to the MCISRE. The *Marine Corps Concept for Space Operations* (Washington, DC: Headquarters Marine Corps, October 2017) is an encyclopedic offering that reiterates the information contained in *JP 3-14* but does not state how the Marine Corps will operate related to space, nor does it provide a vision or roadmap toward future use or participation in the space warfighting domain. Space is being considered broadly in the next MC-

ISRE strategy, and the establishment of Marine Forces Space Command will likely play a part. In the interim, a cross-functional, cross-intelligence discipline team should be formed to consider updating the way Marine Corps intelligence and the MCISRE approach the space warfighting domain as it affects MAGTF operations. Partnering the MCISRE with the other Services who have more structure, responsibilities, investment, and have devoted more concerted thought toward space could assist us to better integrate intelligence and space into our culture and into mission sets as part of the joint force. Education—both general space operations and specific intelligence capability topics as an entry-level requirement for intelligence professionals—will likely spur the imaginations of the newest generation of Marines that may participate in a conflict overtly involving the space warfighting domain.

Conclusion

The designation of space as a warfighting domain is a recognition of the advances in technology as well as increased access to and activity within the physical domain. The designation also recognizes the threats to our terrestrial warfighting capabilities. An unchanging facet of Marine Corps intelligence doc-

trine is to provide battlespace awareness to the MAGTF to include threats to, in, transiting, and from the space domain. Education for intelligence professionals should expand beyond the traditional space-based ISR partition and into the other space operations capabilities listed in *JP 3-14*. Combining traditional intelligence tenets with the new domain and taking proactive steps to provide intelligence support to other aspects of space operations are short-term remedies all intelligence professionals can improve upon. Working within our profession and with other space stakeholders, a comprehensive Marine Corps strategy toward space could be initiated to realize the vision of our current operational concepts and win in the conflicts to come. Enabling the MCISRE with space doctrine will enable MAGTF operations.

Notes

1. President Donald Trump, *Space Policy Directive-4: Establishing A U.S. Space Force*, (Washington, DC: February 2019).
2. Joseph Horvath, Erika Teichert, and James Connolly, "The Marine Space Support Team Concept: Tactical Space Operations Support to the MAGTF," *Marine Corps Gazette*, (Quantico, VA: January 2019).
3. Ibid.
4. Headquarters Marine Corps, *Marine Corps Operating Concept: How an Expeditionary Force Operates in the 21st Century*, (Washington, DC: 2016).
5. Ibid.
6. Ibid.
7. Headquarters Marine Corps, *MCRP 2-10B.51, Imagery Intelligence*, (Washington, DC: 2004).
8. Headquarters Marine Corps, *MCWP 2-1, Intelligence Operations*, (Washington, DC: 2003).



Satellites have become indispensable to MAGTF units deployed around the world for training.
(Photo by PFC Dalton S Swanbeck.)

