



# THE AIR-GROUND LITTORAL AND GREAT POWER CONFLICT

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The air-ground littoral has emerged as key terrain and may prove decisive in the wars the Joint force is likely to fight in the near future. The democratization of airpower—typified by inexpensive unmanned systems—has enabled this emergence, and the complexity of the problem has been compounded by an erosion of Jointness within the force. The air-ground littoral affects the land component most acutely. While this is a Joint problem which demands a Joint solution, the Army should take the lead in comprehensively framing the problem for the Joint force and establishing what multidomain contributions will be needed from the other components.

In the year prior to Russia's conventional invasion of Ukraine, an unconventional analysis identified the so-called air littoral, making remarkably accurate predictions of the contest in the upper tier of the ground domain.<sup>1</sup> The analysis determined that rapidly changing technologies—specifically, low-cost uncrewed aerial vehicles—enabled virtually anyone with the wherewithal to take advantage of airpower in combat. The profusion of these technologies offers a direct challenge to American concepts of warfare and the military's ability to characterize and understand the operating environment. As predicted, the battlespace of today is witnessing the emergence of a new asymmetric seam between the air and ground domains, the air-ground littoral.

The proffered potential solutions to many of the challenges and consequences that this new asymmetry has had on warfare in the modern era are important.<sup>2</sup> Yet despite the conflict in Ukraine validating many of these assumptions, the combat services have largely ignored recommendations to change their perception of combat within the air-ground littoral, codify this changed understanding via renewed interservice agreements, and pursue conceptual rather than exclusively technological solutions to the problem.

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1. Matthew Beinart, "Army Brings out New Tech to Use Lower-Tier of Air Domain to Close Joint Kill Chain at EDGE21 Demo," *Defense Daily*, May 17, 2021, <https://www.defensedaily.com/>.

2. Maximilian K. Bremer and Kelly A. Grieco, "The Air Littoral: Another Look," *Parameters* 51, no. 4 (Winter 2021–22), <https://doi.org/>.

As predicted, these inexpensive technologies have transformed the “coastline of the air” into a contested zone, and belligerents now “vie for control of the air littoral.”<sup>3</sup> The compressed size of the air-ground littoral, a relatively narrow area bounded by the Earth’s surface and vertical obstructions, complicates reaction times and responsive maneuvers for manned, fixed-wing flight operations within this volume. As forecasted, Russia would exploit this region to enable offensive operations and deny its use by Ukraine. The compressed size of the littoral confers a “home-court advantage” to potential defenders, amplifying the idea that the defense enjoys some inherent advantages over offense in this domain. This is also exemplified in Israel’s recent denial of a massed air attack by Iran.<sup>4</sup> Essentially, it was theorized that the speed of conflict enabled by exploitation of the air-ground littoral would be too fast to be addressed by the 72-hour air tasking model used by the Joint force.<sup>5</sup> Combat operations in Ukraine bear out this hypothesis, with constant demonstrations of rapid, tactical targeting enabled by persistence in the air-ground littoral.<sup>6</sup>

Other analyses have addressed the emerging relevance of the air-ground littoral as well.<sup>7</sup> For instance, a 2023 assessment supports many of the same conclusions but offers a differing perspective on the characteristics of the region, stating that it is “easier to attack through the air-ground littoral than to defend against attack from it.”<sup>8</sup>

This article echoes and amplifies the concepts articulated by these military theorists to promote the idea that the liminal space between the air and ground is key terrain. This article will also make interim recommendations and suggest long-term changes to law, policy, and procedures to address this and other emerging asymmetries. Confronting the dangers inherent within the air-ground littoral will require a reconceptualization of how the Department of Defense conceives of Joint and multidomain combined arms maneuver and will challenge its understanding of the “utility of force” within the air domain.<sup>9</sup> The impact of the air-ground littoral will be felt most acutely in the ground domain, where land force commanders will contend with threats in

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3. Bremer and Grieco, 72, 71.

4. Bremer and Grieco, 73; and C. Todd Lopez, “Israel, U.S., Partners Neutralize Iranian Airborne Attacks,” US Department of Defense (DoD), April 16, 2024, <https://www.defense.gov/>.

5. Bremer and Grieco.

6. Todd A. Schmidt, “The Russia-Ukraine Conflict Laboratory Observations Informing IAMD,” *Military Review* 22 (March 2024), <https://www.armyupress.army.mil/>.

7. T. X. Hammes, “The Future of Warfare: Small, Many, Smart vs. Few & Exquisite?,” *War on the Rocks*, July 16, 2014), <https://warontherocks.com/>; and Clay Bartels, Tim Tormey, and Jon Hendrickson, “Multidomain Operations and Close Air Support,” *Military Review* (March–April 2017), <https://www.armyupress.army.mil/>.

8. Jim E. Rainey and James K. Greer, “This is Your Army: Land Warfare and the Air-Ground Littoral,” *Army Aviation* 71, no. 12 (December 31, 2023): 16.

9. Rupert Smith, *The Utility of Force: The Art of War in the Modern World* (London: Penguin Books, 2005).

both the horizontal and vertical planes. This “spherical challenge” presents an asymmetric problem that the Joint force has thus far left to the services to resolve.<sup>10</sup>

## The Air-Ground Littoral and Erosion of Jointness

There is no term of reference in Joint doctrine for the *air littoral*, the *atmospheric littoral*, or the *air-ground littoral*; each of these terms has been used interchangeably and generally aligns with the perspective of the originator’s component. The seminal definition of the air littoral, offered by scholars affiliated with the Air Force, was extrapolated from Joint terminology that describes the more familiar maritime littoral. The vertical limit of this region is 10,000 feet; the volume below this altitude to the Earth’s surface, “which must be controlled to support land and maritime operations and can be defended from the air or the surface,” is the air-ground littoral.<sup>11</sup>

The Army has unofficially used “lower tier of the air domain” and “upper tier of the ground domain,” but it has finally settled on the phrase “air-ground littoral” to describe this region; while a doctrinal definition remains elusive, one study suggests that the Army would generally consider the air-ground littoral service ceiling to be lower, probably closer to 5,000 feet.<sup>12</sup> This is an example of Miles’ Law—“*Where you stand depends on where you sit*”—and demonstrates why the air-ground littoral is a Joint problem; it exists on a seam between force component regions of responsibility.<sup>13</sup> This article prefers to use the term air-ground littoral to identify this space.

No service has direct responsibility for the air-ground littoral; it is a shared problem of the Joint force. This is a consequence of decisions made 75 years ago in southern Florida. The Key West agreement, a colloquialism applied to the more ponderously titled “Functions of the Armed Forces and the Joint Chiefs of Staff” paper, outlined each service’s mutual responsibilities within the air domain. This agreement improved the Joint force by codifying roles and responsibilities between the services and reduced service friction. This reduced friction meant less competition for relevancy and resourcing.<sup>14</sup> A relevant feature of this agreement regarding the air-ground littoral is the apportionment of responsibilities between the Army and Air Force for air defense.

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10. Kobi Barak, “The Sky Is No Longer the Limit: The Need for a Ground Forces UAV Fleet and Multidimensional Warfare Capabilities,” *Dado Center Journal* 11–12 (2017): 40, qtd. in Bremer and Grieco, “Air Littoral,” 75.

11. Bremer and Grieco, 68.

12. Beinart, “Army Brings out New Tech”; Kerensa Crum, “CCDC Aviation, Missile Center Highlights Forward-Launched UAS Technology,” US Army (website), March 30, 2020, <https://www.army.mil/>; and Jules Hurst, “Small Unmanned Aerial Systems and Tactical Air Control,” *Air & Space Power Journal* 33, no. 1 (2019), <https://www.airuniversity.af.edu/>.

13. Rufus E. Miles, “The Origin and Meaning of Miles’ Law,” *Public Administration Review* 38, no. 5 (1978): 399, <https://doi.org/>; and Rainey and Greer, “This is Your Army.”

14. John T. Correll, “A New Look at Roles and Missions,” *Air & Space Forces Magazine*, November 1, 2008, <https://www.airandspaceforces.com/>.

Inconveniently, this new competitive arena—the air littoral or air-ground littoral—emerged just as the dissolution of Joint Forces Command and politically induced resource constraints drove insularity between the services. This pivot toward insularity followed a peak period of Jointness, which reached its apogee in 2011, coinciding roughly with the death of Osama bin Laden. An Army analysis elaborating on the dissolution of Joint Forces Command argues that circumstance alone drove the erosion of Jointness.<sup>15</sup> This insularity, driven by resource scarcity that compounded service paranoias centered on “relevance,” drove the services to prioritize the requirements of their domain over those of the Joint force.<sup>16</sup>

The Joint force fights in all domains but wins war on land. The Air Force tends to ignore this reality and has continued to prioritize every function of airpower except those most essential to fight and win wars on land: close air support and interdiction.<sup>17</sup> The Navy and Marine Corps have not avoided parochialism, insularity, and a fight for relevancy in the years since 2011 either. The commandant of the Marine Corps recently provoked controversy by task organizing primarily against a single threat actor.<sup>18</sup> The Navy has chased seemingly service-centered concerns as well, a prominent example being the struggling littoral combat ship.<sup>19</sup>

The loss of Jointness compounds the problem of service responsibility. In 1991, Operation Desert Storm validated the shared doctrinal approach of AirLand Battle and the intent of the Goldwater-Nichols Act.<sup>20</sup> The act granted necessary authorities to enable Joint force commanders while placing statutory constraints on the services to limit the worst aspects of these rivalries. The doctrine oriented and aligned the Joint force to the war it expected to fight. The guidance of these interrelated concepts informed the force design of the post-Cold War Joint force, which emphasized crisis response and global reach, tasks for which a Joint theater commander would command an integrated force task organized against a specific problem.

The Joint force was well-postured for a tailored response after the 9/11 attacks. Drawing upon the strengths of the individual services, it was committed to action with spectacular success in Afghanistan. Two years later, a considerably larger and

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15. Mark Hirschinger, “The Disestablishment of U.S. Joint Force Command: A Step Backward in ‘Jointness’” (master’s thesis, Joint Advanced Warfighting School, Joint Forces Staff College, Norfolk, VA, 2021).

16. Dan Grazier, “Documents Show Air Force Leaders Shirking Their Close Air Support Responsibilities,” POGO: Project on Government Oversight, February 1, 2023, <https://www.pogo.org/>.

17. Chris Gordon, “Air Force Must Rethink How to Achieve Air Superiority, Chief Says,” *Air & Space Forces Magazine*, February 29, 2024, <https://www.airandspaceforces.com/>; and Mike Pietrucha, “The Five-Ring Circus: How Airpower Enthusiasts Forgot about Interdiction,” *War on the Rocks*, September 29, 2015, <https://warontherocks.com/>.

18. David Vergun, “Marine Corps’ Force Design Is Focused on Pacing Challenge from China,” DoD, July 2, 2024, <https://www.defense.gov/>.

19. Joaquin Sapien, “The Inside Story of How the Navy Spent Billions on the ‘Little Crappy Ship,’” ProPublica, September 7, 2023, <https://www.propublica.org/>.

20. David E. Johnson, “Shared Problems: The Lessons of AirLand Battle and the 31 Initiatives for Multi-Domain Battle,” RAND Corporation *Perspective* (April 2018), <https://www.rand.org/>.

more conventional force package was assembled to achieve the same form of nearly instantaneous success against the Baathist regime of Iraq. For almost a decade, the Joint force enabled active combat in both theaters, all while committing force and action to various minor global conflicts. It did this while simultaneously delivering humanitarian aid, maintaining freedom of navigation of the ocean, defending the neutrality of space, disrupting Somali pirates, and deterring adversaries in Europe, Asia, and the Middle East.

Nevertheless, the military reached the peak of this integration, Jointness, after the success of the May 2011 Operation Neptune Spear and the death of bin Laden, the primary object of the Afghan campaign. As key mission objectives in the war on terror were achieved, formerly meek adversaries—Russia and China—were asserting themselves once again in a manner contrary to American interests. This relative normalization of force requirements coincided with the initial stages of the return to great power competition, and each service renewed consideration of its inequities in a service-specific light rather than with a focus on the future needs of the Joint force. The reemergence of interservice rivalry has chipped away at gains made in Jointness and how the services conceive of their specific contributions to the Joint force's needs.

An example of service parochialism is the Air Force's continued embrace of airpower theory despite ample evidence that it has failed in its promises.<sup>21</sup> Strategic airpower, enabled by blue sky dominance, has not lived up to its promise of victory through airpower alone. Airpower theory has long been enculturated despite its failure, driving the Air Force's priorities and operating concepts. Retired Air Force Colonel Phillip Meilinger's *Ten Propositions regarding Airpower* is an essential reading for those seeking to understand the cultural drivers of this phenomenon.<sup>22</sup>

Unfortunately for airpower purists, several of Meilinger's assumptions have been disproved, or at least challenged, in the modern era.<sup>23</sup> This is not the first-time organizational culture and a focus on outdated theories have prompted a service to move in a strategic direction contrary to the needs of the Joint force.<sup>24</sup> The essential point is not that domain-specific theories are invalid. It is that they should be continuously tested and revalidated and should focus on Joint outcomes rather than a given service's contributions to the Joint fight.

Military services also tend to conceive of tasks and problems in the context of "worst case" and "most likely." Yet this methodology fails in a multipolar world with democratized airpower. Rather than be hobbled by the worst-case/most-likely binary,

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21. T. X. Hammes, "Independent Long-Range Strike: A Failed Theory," *War on the Rocks*, June 8, 2015, <https://warontherocks.com/>; and Chris Gordon, "Allvin: Drones, New Technology Driving 'Reinvention' of Airpower and USAF," *Air & Space Forces Magazine*, February 14, 2024, <https://www.airandspaceforces.com/>.

22. Phillip S. Meilinger, *Ten Propositions regarding Air Power* (Maxwell AFB, AL: Air University Press, 2015), <https://www.airuniversity.af.edu/>.

23. Maximilian K. Bremer and Kelly A. Grieco, "Assumption Testing: Airpower Is Inherently Offensive, Assumption #5," Stimson Center, January 25, 2023, <https://www.stimson.org/>.

24. Harlan Ullman, "Mahan's Illusory Command of the Seas," *Proceedings* 147, no. 6 (June 2021), <https://www.usni.org/>.

the services should focus on Joint outcomes through a realistic versus unrealistic lens. It is realistic to believe the United States will have an armed conventional confrontation with China; it is unrealistic to think America would seek unlimited ends in such a conflict. Demonstrating the will and ability to seek unlimited ends provided an acceptable level of deterrence during the Cold War against a single adversary. The complexity of the modern operating environment with multipolar threats has rendered old ideas on deterrence moot. Planning for unrealistic ends promotes insularity in developing ways, the result of which are service-oriented means that do not serve the needs of the Joint force.

## **The Army's Role in the Joint Force**

Culturally, the Army does not conceive of itself as an enabler of the Joint force. It conceives of itself as the Joint force. The conception is rational as the Army is enormous and has capabilities in all the warfighting domains. The Army controls the second-largest air force in the world and almost half as many watercraft as the US Navy. The Army's Reserve component is larger than the Marine Corps. The Total Army dwarfs the second and third largest services, larger than the combined end strengths of the Air Force and the Navy. The immense size of the force corresponds with an equally large mission set; after all, it is the service responsible for the domain in which the Joint force fights and wins war.

Yet as with the Air Force, the Army has made decisions seemingly out of step with the Joint force's needs. Commander of US Southern Command General Laura Richardson's assessment of the Army's decision to cancel its Future Attack Reconnaissance Aircraft program is an excellent example.<sup>25</sup> As a combatant commander, Richardson determined that the program's cancellation would result in operational opportunity costs either unperceived or unanticipated by the Army. For this matter, the Army determined that what it has learned "from the battlefield—especially Ukraine—that aerial reconnaissance has fundamentally changed."<sup>26</sup> It was the opinion of Army senior leaders that the ubiquitousness and apparent utility of small and inexpensive unmanned systems had changed the very nature of modern warfare, analogous to the disruptions caused by the introduction of the machine gun just before World War I.

Two key ideas should be learned from this interchange of concepts and requirements. First, at least one combatant commander perceived a requirement that Army Aviation be capable of "expanded maneuver from sanctuary, including strategic self-deployment," the ability to "operate in contested logistics environments," and "pierce

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25. Laura Heckmann, "FARA Cancellation Leaves Unfilled Gaps," *National Defense Magazine*, April 25, 2024, <https://www.nationaldefensemagazine.org/>.

26. US Army Public Affairs, "Army Announces Aviation Investment Rebalance," US Army, February 8, 2024, <https://www.army.mil/>; and see also David Barno and Nora Bensahel, "Drones, the Air Littoral, and the Looming Irrelevance of the U.S. Air Force," *War on the Rocks*, March 7, 2024, <https://warontherocks.com/>.

the [anti-access/area denial] bubbles.”<sup>27</sup> Whether or not the Army erred in its decision to cancel its Future Attack Reconnaissance Aircraft program is outside the scope of this analysis, but what is within its scope is that the Army did not have the full endorsement of Joint force commanders, with potentially imminent operational requirements, when it made this decision. This friction between the services and operational components will likely increase as requirements outpace resources.

Despite the breadth of mission and scale of its force, the Army is concerned about its relevancy as are the other services. General Eric Shinseki, former Army chief of staff, famously admonished his commanders, “If you don’t like change, you are going to like irrelevance even less.”<sup>28</sup> Given the pivot to the Indo-Pacific, the Army’s concern for its relevance reinforced the development of operational concepts that would make the Army more relevant in a theater whose primary feature is water. These concepts presume that the Joint force will most likely be called upon to prevent a *fait accompli*—in other words, to thwart a People’s Liberation Army invasion of the island of Taiwan. The Army views long-range weapons as its primary plausible contribution to this fight.

## Great Power Conflict in the Near Future

The lack of Joint focus and devolution to overt parochialism create an opportunity for the services to focus inwardly on the requirements of their specific domain. The services tend to concentrate on the most dangerous possibility and look to acquire the tools and capabilities to fight and win within their domain against the most dangerous threat. In today’s era, this is decidedly the pacing threat—the People’s Republic of China. China has rapidly increased its capabilities in all warfighting domains and presents a formidable adversary in a conventional, regional conflict.

China understands the American method of warfare is expeditionary and has tailored its regional defenses to blunt this methodology. Colloquially referred to as anti-access/area denial, this is the “bubble” that Richardson perceives she will need to pierce in future wars.<sup>29</sup> The general rightly suggests the Joint force must be capable of operating within the envelope of threat systems, as the military is likely to fight wars in the future where these systems—like al-Qaida terrorists—enjoy relative sanctuary and operational security in an area the military is either unable or unwilling to molest. Air superiority is a preferable condition in any conflict, but it may not be achievable. Even if air superiority was feasible, the cost to achieve it may exceed the operational value it would create.

The cost of air superiority against a great power peer would be high, particularly if the United States is engaged in conventional action against said adversary in their own

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27. Heckmann, “FARA Cancellation.”

28. Barno and Bensahel, “Drones.”

29. Heckmann, “FARA Cancellation.”

territory. It is also unlikely the Joint force will find itself in a conventional war, pursuing unlimited ends against a nuclear-enabled peer threat.<sup>30</sup>

“Unlimited ends” is a military euphemism for seeking the overthrow of the enemy government and broadly infers both military conquest and long-term occupation. While pursuing these ends is not altogether impossible, then, it is more likely that the political ends sought by the Joint force would be limited. The US military can and should pursue air superiority capabilities against near-peer and weaker adversaries. Still, there should be careful consideration of the wars the United States is likely to fight as the military considers what capabilities would be essential to dominate conventional warfare with a peer adversary.

The enemy informs the types of wars the military is likely to fight. The United States and the collective West recognize peace as the normal state of existence, whereas Russia views warfare as a continuous spectrum. Russia, for instance, has stated it is in a state of “war with the West.” This rhetoric is not anecdotal and provides insight into the means Russia would use to achieve its goals.<sup>31</sup> Senior decisionmakers should recognize that just as the ends the United States is willing to fight for are shifting, so are those of its adversaries, and as ends shift, so do the means. For instance, Russia’s attack on Ukraine has as much to do with demography as it does territory—the people are the primary objects of war.<sup>32</sup> Shifting ends result in shifting means, influencing the wars the United States is likely to fight.

The persistent threat to use tactical nuclear weapons is an example of the shifting means observed in modern great power competitions. Russia’s rhetoric regarding the use of tactical nuclear weapons has effectively deterred the United States from providing certain weapons or authorizing their use against strategic targets. If the United States were to engage in direct conflict with Russia, a primary aim would be to manage the conflict below the nuclear threshold. America’s adversaries’ competing and interrelated aim is to keep the United States below the conventional level of armed conflict. Russia, for years, exercised a strategy of patiently eroding American, Ally, and partner will before its full invasion of Ukraine; there are observable similarities in China’s approach to Taiwan and the South China Sea as well.

The services and the Joint force need to be realistic about the types of wars the military will fight. Against peer adversaries, the Joint force is just as likely to be committed to defensive action as offensive action. Offensive action, when required, will be politically and operationally hindered and limited to conventional means. These strategic restraints demand operational concepts intended to deny the enemy’s strategy.<sup>33</sup> In a Ukraine-like scenario this means the Joint force must destroy the enemy army in the

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30. Julian S. Corbett, *Some Principles of Maritime Strategy* (Annapolis, MD: Naval Institute Press, 1988).

31. Arsalan Bilal, “Hybrid Warfare – New Threats, Complexity, and ‘Trust’ as the Antidote,” *NATO Review*, November 30, 2021, <https://www.nato.int/>.

32. Brian M. Jenkins, “Consequences of the War in Ukraine: A Bleak Outlook for Russia,” *RAND* (blog), February 28, 2023, <https://www.rand.org/>.

33. Sun Tzu, *The Art of War*, trans. Yuan Shibing (Hertfordshire, UK: Wordsworth Editions, 1993).



field.<sup>34</sup> In a Taiwan scenario, the Joint force would need to integrate a comprehensive air denial strategy, to include denial in the air-ground littoral, to complement action in the maritime domain intended to blunt and deny China sea control. In both scenarios, the wars will be fought in all domains but won in the land domain.

The air-ground littoral will likely prove decisive in these types of conflicts. In a European scenario, the United States will enjoy critical advantages in the air domain over friendly territory. These advantages erode as one approaches the Russian border. The aerial borders of the Russian state are well-monitored and defended in depth by a complex, interlocking system of defenses described as the “Snow Dome.”<sup>35</sup> This strategic system, perhaps existing more in concept than function, integrates early warning with advanced ground-based air defenses and ground-control intercept coordinated fighter aircraft.<sup>36</sup>

In an ideal conflict, the Joint force would generate sufficient combat power to disaggregate and suppress this integrated air defense system (IADS) before committing to ground maneuver; but in the wars the military is likely to fight, vital system elements will operate from relative sanctuary. The strategic IADS can integrate with the tactical IADS, supporting the tactical defenses of the Russian fires complex and fielded forces. This enables comprehensive air defense overwatch from the position of relative sanctuary for Russian forces engaged in combat operations near their border. This threat-in-being will likely result in continuous disruption to friendly air supremacy in the blue skies; it will also provide sufficient opportunity to exploit the air-ground littoral.

A rough approximation of these conditions can be visualized in the contemporary Ukrainian environment by inverting the actors’ perspectives. Ukraine rapidly integrated Western and former Soviet air defense technology. It enabled it with a national, smartphone-powered network of visual observers to form a highly effective air denial force operating primarily in the air-ground littoral. This force effectively denied Russian Air Force (VKS) operations over most of Ukraine until the development of glide bomb tactics. This mobile force obliged the aggressor to operate from sanctuary, severely limiting the effectiveness of VKS operations.

Russia could have similar successes in denying the full utility of the air domain to Western air forces as it has capabilities analogous to the Ukrainians, with better integration methods.<sup>37</sup> Given the ability to operate strategic and long-range tactical systems from sanctuary, the Russians would have the most significant impact on the

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34. Carl von Clausewitz, *On War*, ed. and trans. Michael Howard and Peter Paret (1989; repr., Princeton: Princeton University Press, 2008).

35. *Russian Tactics*, Army Techniques Publication 7-100.1 (Washington, DC: Headquarters, Department of the Army, 2024), <https://armypubs.army.mil/>.

36. Tom Balmforth and Max Hunder, “Small Uncrewed Ukrainian Plane Likely Used in Attack Deep inside Russia - Experts,” Reuters, April 4, 2024, <https://www.reuters.com/>.

37. Maximilian K. Bremer and Kelly A. Grieco, “In Denial about Denial: Why Ukraine’s Air Success Should Worry the West,” *War on the Rocks*, June 15, 2022, <https://warontherocks.com/>.

middle and upper echelons of the air domain, drawing airpower away to conduct counter-air and suppression activities.

The air-ground littoral is open for exploitation if fighter aircraft are encumbered with air superiority tasks. Rotary-wing aviation is essential in this domain as its mission profiles largely mitigate the maneuverability concerns fighter aircraft face in the air-ground littoral's compressed space. Drones are an indispensable exponent of persistence and presence, two of the critical capabilities enabled through the dominance of this domain.

For the Russians, drone operations are secondary only to their artillery operations, which mutually reinforce one another. The Russian system of warfare tolerates conditions of relative parity to exploit the air-ground littoral. Conditions have allowed for a return of VKS operations, but these are shaping operations using standoff and are not a demonstration of blue-sky dominance. Ukraine proved that a relatively weak power can disrupt a blue-sky force with a highly mobile threat, particularly if it opposes a qualitatively challenged or risk-averse air force like the VKS. This conflict also proves that blue sky dominance is not an essential condition before exploiting the air-ground littoral for tactical advantage.

Parity in the air-ground littoral is advantageous for Russia's concept of operation. It will be fighting from well-defended positions, making it harder to target successfully. The Joint force must assemble; Russia will exploit the air-ground littoral to find the US military's assembly areas. Expeditionary forces are more subject to interdiction than will be the Russian army, operating on interior lines. The Russians will try to use their well-honed integration of unmanned spotters into their fires complex to interdict logistics. They will hunt exquisite capabilities, which the US military will struggle to hide.

The land component needs to be relatively close in order to use attack aviation and most artillery effectively; closing is the only way to destroy Russia's offensive warfighting capabilities. The land component lacks long-range surface-to-air missile systems that can successfully challenge Russian air-ground littoral operations at range, and Russian strategic air defenses will also make disrupting airborne standoff attacks a challenge. A potential counterargument to this analysis is that Russia, in a war with NATO, would be on the offensive rather than on defense and therefore be more exposed and subject to attack and not retain these advantages in the littoral seam. It is more likely, however, that Russia would seize a limited objective and quickly consolidate gains and transition to the defense.<sup>38</sup>

## **The Decisive Nature of Land Warfare**

The Joint force needs to be realistic about the types of wars it is likely to fight. Particularly against a peer adversary, the Joint force will "fight tonight"—with resources already nearby or rapidly delivered to the battlefield. The Joint force will fight while

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38. Michael Kofman, "Getting the Fait Accompli Problem Right in U.S. Strategy," *War on the Rocks*, November 3, 2020, <https://warontherocks.com/>.

underway as it builds combat power rather than deploying, consolidating, and then employing as it has in wars past. In such scenarios, the destruction of the enemy's army—its ability to prosecute offensive warfare—should be the priority of the Joint force for the foreseeable future. Great power competition and multipolarity have changed the ends for which the United States is willing to fight; it is not likely to seek unlimited ends in a confrontation with a peer. Similarly, how the military fights would be constrained by geopolitical and operational realities.

One likely end for which the military would fight a great power would be to restore the status quo ante bellum by removing a well-defended force from friendly or Allied territory. Another likely war of the near future is a fight to prevent a change to the status quo. For analogy, the conditions in contemporary Ukraine describe the former, and Taiwan is exemplified in the latter. In both types of conflict, decisionmakers should assume that the great power aggressor will retain critical operational advantages.

Adversary air defense and surveillance systems will be able to operate from relative sanctuary due to constraints on war escalation placed against the Joint force. These adversarial forces will enjoy interior lines of communication for resupply, and their industrial bases will remain largely intact throughout the conflict. Simultaneously, friendly forces will operate under conditions of persistent threat on a transparent battlefield, which will impose unanticipated operational dilemmas on the Joint force's ability to generate mass and conduct maneuver warfare in the offense or defense.

Control of the air-ground littoral is essential for maneuver warfare in modern conditions. It is preferable, but optional, however, to have blue-sky air superiority to conduct maneuver operations. The ability to provide air superiority was already in doubt, challenged by advanced air defense systems and aerospace forces designed to present a symmetrical challenge within this domain.<sup>39</sup> Despite acknowledgements to the contrary in modern doctrine, the United States has had "big blue sky" dominance for so long that it is likely hard for Joint force commanders to even conceive of operating without these conditions. In any regard, the United States has not fought without air dominance since the Korean War.<sup>40</sup>

Land commanders commit tactical actions and seek to converge combined arms effects from multiple domains to achieve operational objectives. Every action the land component makes furthers this concept. Land force commanders at the division level and below view aerospace force contributions to land warfare through a somewhat simplified lens: interdiction and close air support.<sup>41</sup> The first disrupts the enemy army's ability to mobilize, maneuver, and sustain itself. The second either disrupts the enemy's operational maneuver or enables friendly offensive maneuver. Astute commanders will realize that aerospace forces are essential for Joint airspace management, intelligence

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39. Chris Gordon, "Air Force."

40. Walker Mills, Dylan Phillips-Levine, and Trevor Phillips-Levine, "Air Supremacy Lost: An Imminent Danger for Ground Troops," *Proceedings* 146, no. 12 (December 2020), <https://www.usni.org/>.

41. John Q. Bolton, "Precedent and Rationale for an Army Fixed-Wing Ground Attack Aircraft," *Military Review* 96, no. 3 (May 1, 2016).

gathering, and electronic warfare, but the priority will always be interdiction and close air support.

When fighting on the offense, land component commanders need to find, fix, and finish the opposing military force; this commander has key expectations of the air component. The first is to suppress the tactical IADS and deny the enemy an opportunity to understand the air situation comprehensively. These tactical actions create the noise and clutter that provide a protective umbrella for land component aviation force employment in the lowest reaches of the air domain. The land commander also needs the aerospace forces to interdict enemy sustainment in its rear area and mass fires against the enemy artillery complex. Aerospace forces provide critical functions to the Joint force's concept of maneuver, particularly against an adversary adept at fighting from prepared positional defenses.

Land component requirements for the defense are harder to contemplate. American warfighting strategy hinges on the superiority of the offense, and defensive-oriented systems like ground-based air defenses are secondary considerations to Army force designers. One analysis predicts what was observed during Iran's recent failed attack on Israel: aerospace forces can be an essential component for defensive action.<sup>42</sup> Aerospace forces on defense provide a valuable augmentation to ground-based air defenses and enable flexibility in providing defense in depth and volume.<sup>43</sup> On defense, aerospace forces are force multipliers that can rapidly move force and sustainment to the points of need on the battlefield and disrupt the enemy attempts to mass and blunt enemy attacks.

Land commanders should consider the potential of the air component as part of an integrated counterstrategy to enemy loitering munition and drone operations in the air-ground littoral, whether on the offense or the defense. The compressed battlespace and sheer volume of air vehicles within the air-ground littoral suggest an emerging requirement for "total domain awareness," or air-ground battle management, to center understanding and integrate effects from all domains at the echelon of action.

Warfare in this domain, under conditions in which the US military is likely to fight, requires a new way of conceptualizing the direct support activities of aerospace forces. Operational commanders prioritize air interdiction, but tactical commanders are most concerned with close air support. Close air support, primarily considered a fixed-wing mission, provides fire superiority to tactical operations in deliberate or hasty contexts. This is closely linked with close air attack, a rotary-wing mission requiring less direct coordination with the supported element.<sup>44</sup>

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42. *Israel-Iran April 2024: UK and International Response* (London, UK: Commons Library, 2024), <https://commonslibrary.parliament.uk/>; and James Gregory and Adam Durbin, "RAF Fighter Jets Shot Down Iran Drones, Rishi Sunak Says," BBC, April 14, 2024, <https://www.bbc.com/>.

43. Bremer and Grieco, "Air Littoral."

44. Bartels, Tormey, and Hendrickson, "Multidomain Operations."

## Recommendations

The US military will likely fight wars against a peer- or near-peer threat for limited ends. The return of great power competition will likely deter further neoliberal adventurism or wars of choice, which essentially characterized the post-Cold War era. The ends of a peer conflict are likely to be focused on a return to the status quo ante bellum or fought defensively to prevent a *fait accompli*. Wars to restore the status quo will ideally be short, but they will assuredly be intense.<sup>45</sup> These wars will involve combat and defensive operations in all domains but will be won in the land domain. The traditional theater of combat operations will extend globally as the Joint force's logistics, communications, and communication lines are at risk. America's adversaries will retain critical advantages such as interior lines of communication and combat operations generated from relative sanctuary.

The air-ground littoral is a Joint problem but affects the land domain most acutely. For this reason, the Army has *de facto* ownership of the problem of the air-ground littoral. As the land component, the Army needs to articulate this domain's impact on combined arms operations and how these effects will challenge Joint force priorities. The Army should take the lead in comprehensively framing the problem, setting the terms of reference and terminology used to conduct operations within this environment, and establishing what multidomain contributions will be needed from the other services. The Army should articulate its requirements in this arena to the Joint force and seek to convince the Air Force, as the component responsible for the air domain, to live up to its requirement to provide area defense as initially envisioned during the negotiations that culminated in Key West almost a century ago.

The Army's concerns regarding the air-ground littoral need to be framed against realistic problems, the types of wars the military is likely to fight, and the necessary force structure developed within the Joint force to address these concerns. To be successful, the Army will need to change the way it conceives of its warfighting domain; the service will need to inculcate the concept of visualizing the battlespace with "a third dimension, that of vertical space, to conceive of both the air and land domains as volumes" and convert to a "concept of air control that accounts for time, planar distance, and altitude."<sup>46</sup> Alternatively, the Army could adopt and adapt the concept of tactical air control proposed in 2019 by one Army strategist who recommends differentiated air superiority responsibilities below and above 5,000 feet.<sup>47</sup>

These interim solutions, focused on the immediate needs of the land component, tailored to the wars the Joint force is likely to fight, and led by the Army, should not be the end of this discussion. As a host of theorists have noted, the emergence of new zones of competition in warfare often provides asymmetric advantages to US

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45. David Barno and Nora Bensahel, "Learning from Real Wars: Gaza and Ukraine," *War on the Rocks*, December 6, 2023, <https://warontherocks.com/>.

46. Bremer and Grieco, "Air Littoral," 68.

47. Hurst, "Small Unmanned Aerial Systems."

adversaries, who more rapidly adapt to these new domains to exploit positions of relative parity or advantage against the United States. The exploitability of this domain by adversaries ranging from nuclear-armed peer threats to stateless terrorists brings new risk to the American concept of Joint warfare. The time has come for a renewed Key West agreement to frame this issue, identify other liminal or emergent domains of concern, and levy service-specific responsibilities as appropriate. A new deal, however, should not be the sole end state.

Beyond service-level agreements within the Joint community, there is also the need for executive and congressional action. Former President Donald Trump's creation of the Space Force in 2019 further compressed the Air Force's operating domain. The service's focus on blue-sky air superiority and strategic attack capabilities has ceded responsibility for the air-ground littoral to the Army.<sup>48</sup> Does the Joint force require an air component that only owns some of the domain, some of the time? Does the land component need its own air branch, or can the Joint force be better designed and integrated?

The first hypothetical question amplifies the suggestions of retired Army General David Barno, who recently observed that this salami-slicing of domain responsibilities has made the Air Force irrelevant as a service.<sup>49</sup> The second stems from a conversation with an uncredited senior adviser for this article, who believes "Army Aviation is a failed state" and should be absorbed into the Air Force. All options should be considered as law, and policymakers should consider the future structure and functions of tomorrow's fighting force.<sup>50</sup>

The air-ground littoral is potentially decisive terrain that rests on a seam of capability and responsibility within the service components. Dominance of this key terrain will be critical in the wars of the near future, and it will require comprehensive input and effort from the Joint force. In the short term, the Army should take the lead and proactively frame this problem, advocate for the necessary resources, develop applicable concepts, and identify and address capability gaps within this region. Æ

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48. Rachel Cohen, "Air Force Looks to Cut Nearly 50% of Tactical Air Control Party Jobs," *Air Force Times*, April 14, 2023, <https://www.airforcetimes.com/>; and Victoria Leoni and Kyle Rempfer, "A-10 vs. F-35 Close-Air Support 'Fly Off' Shrouded in Secrecy," *Air Force Times*, July 17, 2018, <https://www.airforcetimes.com/>.

49. Barno and Bensahel, "Drones."

50. Bolton, "Precedent and Rationale."

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