

# CONTROL OF THE AIR LITTORAL BY LAND FORCES: A DOCTRINAL MISSTEP

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*Future warfare is all about air, space and sub-surface domains.*

*The conventional land and sea domains will be restricted to holding territories.*

– Author

## INTRODUCTION

Warfare is an inherently complex and serious business that cannot be conceptualised or executed on the flawed premise of the primacy of a single warfighting arm. The long standing assertion that ‘the nature of warfare remains the same, while its character evolves with time’ warrants nuanced deliberation, structured reasoning and a contextually grounded understanding, especially in the light of a few Western narratives being built on the topic of the *air littoral*. As expected, like others, this term has also been picked up by some land warfare enthusiasts trying to embed it into the Indian context.

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In this regard, the proposition of delineating fixed geographical limits under the construct of the air littoral and advocating for its control under a land forces-led command structure<sup>1</sup> reflects a myopic view, with borrowed and ill-conceived unprofessional arguments. Such a construct<sup>2</sup> not only risks diluting the core integrated Airspace Management (ASM) but also contravenes the doctrinal imperatives of jointness and integration across the Services by diluting the basic tenets of air power.

This approach appears counter-productive and potentially regressive in the context of contemporary and future warfare, especially when the Indian armed forces are making concerted efforts to overcome legacy challenges and institutional frictions in pursuit of a genuinely integrated battle management architecture.

Essentially, the stated narratives focus on two distinct issues of defining the term '*air littoral*' and the concept of its '*control by the land forces*.' This paper aims to highlight the drawbacks in the philosophy behind the control of the air littoral, using source-based, conceptual and contextual arguments. It will also underscore the critical importance of ASM in the Tactical Battle Area (TBA) and why it must continue to remain under the control of the Indian Air Force (IAF) within the integrated battle management framework.

### **AIR LITTORAL: A CONCEPTUAL MISFIT**

Militarily, the term '*maritime littoral*' is broadly defined worldwide as "the portion of land and sea adjacent to the coast that is susceptible to influence or control from the sea and to influence or control of the sea from the land." Operationally, this zone demands specialised capabilities such as amphibious operations, coastal defence, mine counter-measures and the

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1. Maximilian K Bremer and Kelly A. Grieco, "The Air Littoral: Another Look," *Parameters*, 51, no. 4, 2021m pp. 67-80, doi:10.55540/0031-1723.3092, United States Army War College Press. <https://press.armywarcollege.edu/parameters/vol51/iss4/7/>. Accessed on August 6, 2025.
  2. David Barno and Nora Bensahel "Drones, the Air Littoral, and the Looming Irrelevance of the US Air Force," *War on the Rocks*, March 7, 2024, <https://warontherocks.com/2024/03/drones-the-air-littoral-and-the-looming-irrelevance-of-the-u-s-air-force/> Accessed on August 6, 2025.

integration of naval gunfire and air support with land operations through an integrated tri-Services mechanism.

Drawing a simile with this, a few academics have coined the term air littoral, though it does not appear in any doctrinal publications globally. In reality, air littoral is an inconsiderate borrowing from Western narratives and lacks conceptual validity.<sup>3</sup>

In the air domain, there is no equivalent physical or geographical feature. Airspace is a continuous, three-dimensional medium defined by altitude, range and threat environment. It is not in any case, defined by fixed boundaries like a shoreline. Both Indian and global air doctrines already classify airspace by altitude bands (very low, low, medium, high, etc.), threat environment (permissive, contested, denied) and mission type (counter-air, coordinated operations, air defence, etc).

The proposed concept of air littoral adds no doctrinal clarity. Rather, it risks creating artificial silos and confusion over Command and Control (C2) responsibilities. The low altitude fight is not a distinct 'special zone' requiring separate Service ownership, as envisaged by land warfare enthusiasts. It is simply a segment of airspace within the Joint Air Defence System managed through layered Air Defence (AD) systems, Counter-Unmanned Aerial System (CUAS) measures, Close Air Support (CAS) and rotary wing operations through the Joint Air Defence Centre (JADC) under the centralised command of the Integrated Air Command and Control System (IACCS).

Furthermore, the Indian Armed Forces Joint Doctrine, the IAF Doctrine and the Joint Services Study Group (JSSG) documents make no reference to the air littoral as an independent operational construct. Likewise, leading air forces such as the United States Air Force (USAF), Royal Air Force (RAF) and People's Liberation Army Air Force (PLAAF) do not recognise the term in their doctrinal lexicon. It just remains an academic expression without operational relevance.

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3. "Control of Air Littoral by Land Forces: A Key Battle Imperative", an Indian narrative in circulation. Accessed on July 31, 2025.

## SOURCE-BASED ARGUMENTS

### *Borrowed Western Narrative: Not Suited for the Indian Context*

The core argument of the air littoral is largely based on foreign doctrinal experimentation and recent conflict-specific adaptations (e.g. Ukraine, Israel, USA) from some foreign literature. These examples emerge from unique geopolitical, technological and command structure environments. Attempting to replicate these foreign constructs, especially regarding the C2 of the air littoral without contextual adaptation, amounts to simply force-fitting foreign models into India's vastly different strategic, organisational, and doctrinal ecosystems.

India's battle management philosophy is shaped by the following realities:

- India is not expeditionary in nature, like the US or North Atlantic Treaty Organisation (NATO).
- Joint operations are driven by sovereign geographical imperatives, not global force projection requirements.

Within this framework:

- India already operates under established joint doctrines and procedures governing air-land cooperation, including the so-called air littoral zone in the form of the TBA.
- The JSSG is the master document which unambiguously brings out the detailed coordination and operating procedures for all aerial platforms in the highly contested and congested TBA.

## REVIEWING FOREIGN LITERATURE

Foreign literature on the subject is largely academic or opinion-based and cannot be applied to the Indian context either selectively or in entirety without due consideration of India's doctrinal outlook, geography and capabilities. In most cases, the Indian Joint Doctrine and the IAF's existing capabilities already address the stated vulnerabilities, thereby negating the case for creating a new concept of an 'air littoral'.

Various doctrines and documents such as the Indian Armed Forces Joint Doctrine (2017), IAF Doctrine (2012, 2022), JSSG and the précis of Staff and War Colleges categorically negate the validity of this borrowed construct in its entirety. The following Table 1, however, brings out opposing statements from Western literature itself, thereby validating the inadequacies of these arguments.

**Table 1: Air Power Doctrinal Stand Against Imported Quotes**

Sl. No.	Imported Quotes for Borrowed Argument (Slide no/Ref/Quote)	Air Power Doctrinal Stand (Ref/Quote)
	<p><b>Ref: Parameters 51(4), US Army War College</b>  <i>"Close battle now includes not only the area in front but also the area above."</i><sup>4</sup></p>	<p><b>Air Power in Joint Operations: Air Force Doctrine Publication 3-0, Operations:</b>  <i>"The air domain is the atmosphere, beginning at the Earth's surface and extending to the altitude where its effects upon operations become negligible."</i><sup>5</sup></p>
	<p><b>Ref: Parameters 51(4), US Army War College</b>  <i>"The Air Space generally located below 10,000 ft is defined as the area from the Coord Alt to the Earth's surface, which Must be Controlled to Sp Land and Maritime Ops and can be supported and defended from the air and / or the surface."</i><sup>6</sup></p>	<p>In the Indian context, there is a defined vertical limit below which the JADC controls the airspace. Above that defined limit, the IACCS exercises complete command and control. A buffer zone is also demarcated for smooth transition. This demarcation resolves all the issues even with the proliferation of small drones.</p>
	<p><b>Ref: War on the Rocks Blog</b>  <i>"Units that lose control over Air Littoral will be vulnerable."</i><sup>7</sup></p>	<p>The unit stated here is the Control and Reporting (C&amp;R) C2 centre in the TBA. It is not to be mistaken with army firing units.</p>

4. Bremer and Grieco, n. 1.

5. Air Power in Joint Operations: Air Force Doctrine Publication 3-0, Operations (AFDP3.0) [https://www.doctrine.af.mil/Portals/61/documents/AFDP\\_3-0/AFDP3-0Operations.pdf](https://www.doctrine.af.mil/Portals/61/documents/AFDP_3-0/AFDP3-0Operations.pdf) Accessed on August 5, 2025.

6. Bremer and Grieco, n. 1.

7. Barno and Bensahel, n. 2.

	<p><b>Ref: USAF Air &amp; Space Power Journal (2016)</b>  <i>"With blue skies, AF becomes less responsive to land forces."</i><sup>8</sup></p>	<p><b>Air Power in Joint Operations: Air Force Doctrine Publication 3-0, Operations:</b>          Being responsive does not mean to be seen. <i>"Air power can create effects across multiple targets without occupying terrain or remaining in proximity to areas of operation to create effects upon targets."</i><sup>9</sup></p>
	<p><b>Ref: Grieco &amp; Bremer (2021)</b>  <i>"Low-altitude threats doctrinally neglected."</i><sup>10</sup></p>	<p><b>Air Power in Joint Operations: Air Force Doctrine Publication 3-0, Operations:</b>  <i>"Due to air power's inherent flexibility, it can seamlessly transition between mission sets, while simultaneously exploiting the principles of mass and maneuver."</i><sup>11</sup></p>
	<p><b>Ref: Barry Posen: Command of the Commons</b>  <i>"High-density Air Littoral is an aerial minefield."</i><sup>12</sup></p>	<p>A high-density air littoral is not an aerial minefield but a dynamic, controllable, and exploitable battle space. The Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) networks, joint airspace management, Identification of Friend or Foe (IFF) and layered air defence procedures ensure real-time deconfliction between friendly forces, while allowing precision engagement of adversaries.</p>

8. *Air and Space Power Journal*, vol. 30, no. 2, Summer 2016, <https://apps.dtic.mil/sti/tr/pdf/AD1018276.pdf>. Accessed on August 20, 2025.

9. n. 5.

10. Bremer and Grieco, n. 1.

11. n. 5.

12. Posen Barry, "Command of the Commons: The Military Foundation of U.S. Hegemony," Summer 2003, Harvard Kennedy School, Belfer Centre for Science and International Affairs, <https://www.belfercenter.org/publication/command-commons-military-foundation-us-hegemony>. Accessed on August 6, 2025.

	<p><b>Ref: AFTTP 3-2.86 (USAF)</b>  <i>"AF must extend Ops Centres to Coy level."</i><sup>13</sup></p>	<p><b>IACCS Overview, BEL 2019:</b>  <i>"The IACCS links radars, sensors, and shooters from national to unit level, enabling engagement control without duplicating C2 nodes at every echelon."</i><sup>14</sup></p>
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Source: *Compiled by the author.*

Interestingly, the air littoral concept mentioned in the above-referred documents has been notably downplayed by the USAF air power practitioner Lieutenant Colonel Grant Georgulis in his article "Drone Hype and Air Power Amnesia", published in the *Air & Space Forces Magazine* on July 25, 2025.<sup>15</sup>

The aforesaid paper presents several arguments which seem to accord considerable emphasis to the perceived impact of drones on land warfare. The bottom line is that the loosely used term 'drones' for Unmanned Aircraft System (UAS), now being projected as a revolution in land warfare had already evolved within air forces at least two decades ago. Consequently, the Tactics, Techniques, and Procedures (TTPs), including ASM in the TBA, have long been in practice. The devastating effect of such technology was widely witnessed during Operation Sindoor in May 2025.<sup>16</sup>

In the Indian context, particularly for drones of nuisance value (e.g. swarm drones), a chain of CUAS systems with both soft and hard kill capabilities

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13. Air Force Doctrine Publication 3-03, Counterland Operations, [https://www.doctrine.af.mil/Portals/61/documents/AFDP\\_3-03/3-03-AFDP-COUNTERLAND.pdf](https://www.doctrine.af.mil/Portals/61/documents/AFDP_3-03/3-03-AFDP-COUNTERLAND.pdf). Accessed on August 5, 2025.

14. "India's Integrated Air Command and Control System (IACCS): A NCW Milestone", ANALYSIS, IndraStra Global, October 5, 2015, <https://indrastra.medium.com/analysis-india-s-integrated-air-command-control-system-iaccs-a-ncw-milestone-e1f4fea09f2b>. Accessed on August 12, 2025.

15. Grant Georgulis. "Drone Hype and Airpower Amnesia", *Air & Space Forces Magazine*, July 25, 2025, <https://www.airandspaceforces.com/article/drone-hype-and-airpower-amnesia/>. Accessed on August 6, 2025.

16. "Operation Sindoor: The Rise of Aatmanirbhar Innovation in National Security: India's Growing Technological Self-Reliance", Press Information Bureau, New Delhi, May 14, 2025, <https://www.pib.gov.in/PressReleasePage.aspx?PRID=2128746#:~:text=Loitering%20munitions%20also%20known%20as,minutes%2C%20demonstrating%20India's%20technological%20edge>. Accessed on August 18, 2025.

**The wide variety of UAS spread over the flight envelope in terms of height and speed of operation makes any separate structure redundant.**

already operates under the *centralised command* of the IACCS with *decentralised execution*, with full operational freedom meeting the requirements of the Indian Army (IA), thereby eliminating the need for a separate structure. Further, the wide variety of UAS spread over the flight envelope in terms of height and speed of operation makes any separate

structure redundant. However, it requires further strengthening and has to be both a joint and integrated effort.

Notably, NATO's Joint Air Power Strategy of June 26, 2018, negates all the aforesaid imported quotes. Also, the USAF Doctrine Publication 3-0, Operations, published in January 22, 2025, provides a self-explanatory paragraph on 'Fires' and 'Air Space Control.' An excerpt is given below:

The fire's function is supported by the air power tenets of synergistic effects and concentration as air power masses and maneuvers to surprise adversaries by creating effects at the times and locations of the JFC's choosing. USAF contributions to fires are primarily captured in AFDP 3-01, Counter Air Operations, AFDP 3-03, Counter Land Operations, AFDP 3-04, Counter Sea Operations, AFDP 3-12, Cyberspace Operations, AFDP 3-14, Air Force Space Support, AFDP 3-70, Strategic Attack, and AFDP 3-72, Nuclear Operations. In addition, for long-range fires considerations, see AFDP 3-52, Airspace Control, and AFDP 3-60, Targeting.

## **THE FALLACY OF DRAWING LESSONS FROM UKRAINE**

The literature has also tried to draw inferences from Ukraine as a template for battlefield air control which is rather problematic.

- Open Source Intelligence (OSINT) indicates that Ukraine operates under a 'weapons free' environment characterised by minimal restrictions on engagement within contested zones, primarily because the protracted conflict has not manifested as a classical air war in the conventional sense.

- Indian Rules of Engagement (RsOE) are more controlled, disciplined and politically calibrated. Airspace is a regulated battlespace, especially given the proximity to nuclear thresholds with both adversaries and escalation management.
  - Drawing conclusions from a unique war zone with permissive engagement and applying them to a structured Indian context or TBA is operationally dangerous, with a flawed foundation.
  - Operation Sindoor has clearly reminded that joint and integrated warfare is the only key to success in the Indian context.<sup>17</sup>
- While land operations form its core, air operations, conducted by both manned and unmanned platforms are an integral component of the TBA.**

## CONCEPTUAL AND CONTEXTUAL ARGUMENTS IN THE INDIAN CONTEXT

### *Understanding the Tactical Battle Area (TBA)*

The TBA refers to a geographically defined zone of military operations that is dynamically flexible and horizontally fluid. While land operations form its core, air operations, conducted by both manned and unmanned platforms are an integral component of the TBA. These flying platforms vary significantly in speed, ranging from slow movers to high-speed and very high-speed systems and operate across a wide vertical envelope, from terrain hugging altitudes to high altitude flight levels, thus, making it Multi-Level, Multi-Domain (MLMD) warfare.

Given this multi-layered tactical environment, all aerial platforms within the TBA operate under a complex, multi-level threat scenario, often from friendly weapon systems. To prevent fratricide and ensure the optimal employment of the most suitable weapon systems, a designated authority must regulate the use of the airspace. This function is known as Airspace

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17. Ibid.

Management (ASM). This aims to provide freedom of action to all operators through defined and dynamic procedures while avoiding fratricide and simultaneously denying the use of the air medium to the enemy.

In the Indian context, the responsibility of AD of the country lies with the IAF as mandated by the Union War Book. The Control and Reporting (C&R) element of the IAF as the designated authority through the IACCS exercises the entire airspace management 24×7×365, be it during peace-time, war-time or No War, No Peace (NWNP).

With the advancement of technology and the availability of longer-range weapon systems, it has been necessary to reassess vertical boundaries within the TBA. As a result, this was revised once in late 2000. However, such reassessment must not infringe upon the operational freedom of other combat elements within the same space in increasing the vertical limits manifold, as envisaged in the said concept. It is to be ensured that C2 continues to be centralised, irrespective of the number of users in the TBA.

The proposal to allocate a vertical limit of coordinating altitude of 3 km (10,000 ft) exclusively to the land forces<sup>18</sup> is a tall claim, lacking not only operational rationale but also conceptual and contextual application.

### ***Conceptual Divergence vs Conceptual Overreach***

The proponents of *air littoral* who claim the concept to be the so-called '*conceptual divergence*' with air forces, is less an innovative doctrinal breakthrough and more a case of '*conceptual overreach*' under a borrowed maritime metaphor that has no intrinsic significance in the air domain.

The contribution of UAS to warfare is substantial and complementary but not transformational. Drones can observe, harass or even sting, but they cannot control. Air power is characterised by control of the airspace, strategic reach and decisive impact.

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18. n. 3.

In the Indian context, the divergence between the needs of land and air forces has already been doctrinally resolved in existing joint documents and related Standard Operating Procedures (SOPs) through integrated C2, layered engagement and shared situational awareness via the IACCS. By ignoring these established mechanisms and importing a non-doctrinal term like air littoral, the argument is creating an artificial fault line between the Services where the joint doctrine already provides the solution.

Therefore, the assertion of the air littoral as a key imperative needs correction in the light of established doctrinal considerations. A few of the critical questions that merit introspection by the land forces are mentioned below:

- What is the rationale for setting a vertical limit of 3 km (10,000 ft)? Are only guns, artillery, AD guns, and Unmanned Aerial Vehicles (UAVs) intended to operate below this altitude?
- Will the land forces not also be controlling the short, medium and long range Surface-to-Air Guided Weapons (SAGWs) of army units deployed in the TBA or in adjacent areas falling within their engagement ranges?
- Will Special Heliborne Operations (SHBOs) be restricted to altitudes above 3 km, and would that be tactically and doctrinally viable?
- Will fighter aircraft be permitted to ingress and egress within the TBA only above the 3 km ceiling?
- How will the land forces ensure that fighter aircraft can switch from subsonic to supersonic speeds and change altitude rapidly during Beyond Visual Range (BVR) hot/cold patterns, in order to optimise missile performance while remaining outside enemy radar coverage within the 3 km altitude band?
- The IAF inventory of 4.5 generation aircraft achieves optimal engine performance at around 3 km altitude, while deep-penetration aircraft require even lower altitudes for maximum effect. How would the land forces effectively control and coordinate the operations of such aircraft?
- What mechanisms will ensure effective deconfliction of multi-domain operations, particularly in high-threat and high-tempo scenarios?

**These few questions out of many underscore the need for a balanced and integrated approach to airspace control, rather than adopting vertical limitations and seeking command and control that risk operational friction and tactical incoherence, affecting strategic outcomes.**

- Would interdiction missions under coordinated air operations be excluded from the TBA or fall under land forces control within it?
- How will air-landed and air assault operations transition between outside and inside the TBA?
- What measures will protect aircraft operating within the TBA from aerial threats and stand-off weapons originating outside this envelope?
- What would be the implications for air operations near forward airfields or

Advanced Landing Grounds (ALGs), often located within, or adjacent to, the TBA?

- How will land forces manage the airspace across the International Border (IB), Line of Control (LoC), Line of Actual Control (LAC), and the rest of the sectors during peace-time, war-time and in the NWNP scenarios near/adjacent to/within the TBA?

These few questions out of many underscore the need for a balanced and integrated approach to airspace control, rather than adopting vertical limitations and seeking command and control that risk operational friction and tactical incoherence, affecting strategic outcomes.

#### **LACK OF DOCTRINAL MERIT**

In another work, the notion of an “*air-surface littoral*”<sup>19</sup> has been introduced. This reflects a divergence in the understanding of doctrinal nuances related to integrated operations in the TBA. The following arguments indicate that

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19. Abhishek Singh, “The Air-Surface Littoral: Tomorrows Kurukshetra (Battleground)”, Centre for Joint Warfare Studies, March 4, 2025, <https://cenjows.in/the-air-surface-littoral-tomorrows-kurukshetra-battleground/>. Accessed on August 9, 2025.

the proposed construct of an air littoral or air-surface littoral does not align with established doctrinal principles.

- A joint document on the subject exists at both the joint level and Service specific level.
- It clearly defines the roles and responsibility, C2 structures and deconfliction procedures in the TBA.
- There is no doctrinal void *per se*, only the need for adherence is missing.
- There is a need to trust the process and adhere to the joint document for better interoperability, strengthening air-ground coordination mechanisms, and not command takeover or army ownership.
- Elevating a threat perception into an argument for army-led control of the airspace dilutes the very purpose of jointness which is meant to synergise, not override, the inter-Service roles.
- Unity of command is essential to ensure optimal employment and freedom of action for all weapon systems (land or air, manned or unmanned, across multiple operational levels) in the TBA.
- The fundamental doctrinal tenet of *centralised command, distributed control and decentralised execution* remains non-negotiable and sacrosanct for implementing dynamic ASM within the TBA.
- The stated joint document stands as one of the most comprehensive operational documents for integrated battle management. However, its utility remains under-leveraged due to limited understanding and non-ratification by the land forces.

**Elevating a threat perception into an argument for army-led control of the airspace dilutes the very purpose of jointness which is meant to synergise, not override, the inter-Service roles.**

## **THE AIR LITTORAL IS NOT ABOUT CONTROL BUT EFFICIENCY AND SAFETY ISSUES**

Though the term air littoral is undefined, it is inherently a shared battlespace—not one that must be ‘controlled’ solely by one Service. While the

army is the primary user in the TBA, especially with the advent of drone swarms and loitering munitions, this does not logically lead to the army 'owning or leading' the air littoral. This remains applicable globally.

Instead, the existing and time-tested JADC structure needs to be further strengthened by trained manpower and digital communication from the land forces for both voice and data in the Indian context. The very fact that most of the air domain threats to the land forces now emerge from the low altitude envelope makes it more imperative for the IA to be familiar with the nuances of air power and its utilisation in MLMD warfare. It needs to be internalised that the IAF undertakes:

- Generation of the integrated air picture through feeding by army and navy networks (digital/manual) as well.
- Building up of the Recognised Air Situation Picture (RASP) in congested airspace through sensor fusion, real-time data links, and air deconfliction.
- Battlefield air strike coordination and execution.
- Control of air traffic, deconfliction and dynamic management of weapon fire areas/zones.
- Instead of displacing the IAF, the army integration can be enhanced through:
  - Empowered Ground Liaison Officers (GLOs) and embedded Tactical Air Centres (TACs) with enhanced operational training.
  - Need-based shared access to the IAF's Intelligence, Surveillance, Reconnaissance (ISR) and C2 pictures.
  - Creating/strengthening joint battle planning cells at Corps Headquarters (HQ) through effective implementation of procedures in the Corps Area Control Centre (CACC).
  - Integration with the proposed Drone Airspace Management Cells (DASM) at air bases.
- Immediate operationalisation of Akashteer at the unit level and seamless integration into the IACCS architecture.

- To ensure fratricide-free airspace management, enhance war-footing training of Indian Army operators in C&R digital reporting and in executing orders received from the IACCS.
- Participation of IA troops in the realistic tactical and operation exercise/ war-gaming in the TBA.

### **TRUST IN THE JOINT PROCESS IS THE REAL NEED**

A recurring theme in such arguments is the perceived trust deficit concerning timely decision-making, execution of orders, responsiveness and communication latency. These concerns, however, can be effectively mitigated, if the Indian Army acknowledges that '*unity of command*' is a non-negotiable principle in the regulation of the airspace, especially in an environment where a diverse range of aerial platforms (manned-unmanned, slow-fast and hypersonic) operate simultaneously.

The land forces' apprehensions regarding responsiveness are best addressed by the Tactical Air Centres (TACs), Forward Area Controllers (FACs), and enhanced IA-IAF integration at the lower echelons which need to be further institutionalised, not bypassed. Also, the land forces coercing the concepts of 'persistent presence' and 'under command' must be examined within the bounds of available technology, capability and survivability, which the air force is best equipped to manage for effective integrated battle management.

### **OPERATION SINDOOR: A CONTEXTUAL REALITY CHECK**

Future warfare is increasingly shifting its centre of gravity towards the air, space and sub-surface domains where speed, precision, stealth and information dominance are decisive. As technology redefines the character of conflict, these domains offer strategic advantages far beyond the physical occupation of land or sea. Air and space provide unparalleled reach, surveillance and rapid strike capabilities while sub-surface operations ensure stealth, survivability and disruption of critical infrastructure.

**The essence of future war lies in mastering the intangibles such as electromagnetic spectrum, cyber space, orbital dominance and deep sea superiority where control equates to deterrence, denial and domination.**

In contrast, the traditional land and maritime domains are progressively being relegated to roles focussed on holding ground and securing strategic chokepoints rather than initiating or shaping the battle. This statement is not an off-the-cuff remark but requires serious, impartial, and futuristic professional brainstorming that rises above the arguments of structures, notions of victory, etc. The essence of future

war lies in mastering the intangibles such as electromagnetic spectrum, cyber space, orbital dominance and deep sea superiority where control equates to deterrence, denial and domination.

Operation Sindoor, with clearly defined conflict termination criteria, has redefined this argument within the Indian context. The punitive impact delivered through the medium of air achieved in less than 30 minutes during each wave of targeting has reaffirmed that contemporary conflicts are increasingly being shaped in the vertical dimensions rather than solely on the ground.

While the primacy of the land and maritime domains remains undisputed, it is time to acknowledge a significant shift. The traditional roles are reversing, with air power now taking a decisive lead, and the surface forces assuming more supportive functions in shaping and concluding conflicts.

Before advocating for the control of air littorals, it is important to recall the operational realities witnessed during Op Sindoor. The air operations were orchestrated in a manner that enabled tactical freedom of action for all types of weapon systems (manned, unmanned aircraft and surface weapons) based on real-time threat assessments and the required response. However, classical airspace management, wherein both aircraft and surface-based weapons operate with full freedom, remained limited.

The prevalence of mass unarmed drone saturation, often deployed as a nuisance and harassment wave, necessitated prioritising surface-based weapon engagement in most scenarios. Fighter aircraft were, thus, employed primarily for offensive missions and maintaining AD watch beyond the effective envelope of surface-based weapons. This operational arrangement dictated by situational constraints cannot be misconstrued as a precedent for reshaping or rewriting an air littoral doctrine under the primacy of the Indian Army.

**In fact, it needs to be internalised by all the forces that such smooth conduct of operations could take place only because of unity of command with the principle of *centralised command, distributed control and decentralised execution* through the IACCS of the IAF.**

Op Sindoor demonstrated the IAF's operational acumen and responsiveness to an unprecedented situation. A robust joint AD and CUAS grid was rapidly put in place, utilising existing procedures and coordination arrangements to excellent effect.

The operation was conducted with *de-novo* operating procedures for the first time while dealing with such scenarios that already exist in the joint operating mechanism. It is just a matter of how best and timely it is orchestrated. The forward looking planning and careful planning facilitated unproblematic utilisation of available platforms, networks and procedures.

The success highlighted the power of jointness, agility and innovation within real-time battlefield scenarios. Notably, the operation also produced valuable lessons and the process of consolidating tactics, techniques and procedures continues to be an ongoing effort to improve future readiness.

In fact, it needs to be internalised by all the forces that such smooth conduct of operations could take place only because of unity of command with the principle of *centralised command, distributed control and decentralised execution* through the IACCS of the IAF.

## CONCLUSION

In contemporary and future warfare, technology plays, and will play, a pivotal role in shaping capabilities, enabling new forms of engagement and offering enhanced situational awareness. However, the formulation of military doctrine must remain a product of strategic foresight, operational logic and historical military wisdom and not of reactionary impulses triggered by emerging technologies under the trap of 'technological panic.'

The discourse advocating for the creation of new C2 structures redefining air domain boundaries, ostensibly to accommodate unmanned systems and slow movers, risks distorting the fundamental principles of joint warfare.

The proposal to give the land forces command over the air littoral is an agenda-based conceptual overreach, based on foreign models, false doctrinal gaps and misapplied conflict lessons. Building the narrative of control of the air littoral is operationally risky and counter-productive, leading to mass fratricide scenarios. Rather than questioning the IAF's primacy in airspace management and gaining control of the airspace by the IA, the efforts must focus on the following:

- Airspace remains centrally controlled for safety, deconfliction and tactical flexibility for achieving operational and strategic effects.
- Land-air synergy is achieved through joint training, empowered liaison and procedural reforms not structural domination.
- Strengthening of joint structures for air-ground integration.
- Joint planning and execution of operational fires.
- Avoiding doctrinal fragmentation in pursuit of temporary tactical convenience.
- Operationalisation of Akashteer and enmeshing into the IACCS without any more delays.
- The army to devise and revise the ground tactics in view of emerging technological challenges in multi-domain scenarios.