

THE LARGEST BEYOND VISUAL RANGE (BVR) AIR BATTLE OPERATION BUNYANUM MARSOOS: MAY 2025

*Farhat Hussain Khan**

Abstract

The May 2025 India-Pakistan conflict marked a significant development in contemporary Beyond-Visual-Range (BVR) warfare, combining advanced fighters, long-range missiles, electronic warfare, airborne surveillance, data links and networked command and control. The research paper examines the conflict with emphasis on the aerial engagement between the two nuclear-armed rivals. Initially, it reflects on the operational lessons from the 2019 Swift Retort episode. Subsequently, it analyses the recent four-day India-Pakistan conflict of 2025 to draw key findings. Building upon the subsequent adaptations of both air forces, the paper demonstrates that operational outcomes in air warfare are independent of numerical superiority alone. Instead, the effectiveness of an air force is intertwined with sensor fusion, kill chain speed, electronic warfare and escalation management. Using a qualitative approach, the analysis draws on news, published content and reports for the research. The study asserts that modern airpower can generate operational paralysis through decisional disruption. Hence, the conflict underscores the growing significance of integrated multi-domain operations, institutional learning and swift decision-making in high-intensity air warfare.

Keywords: Pakistan, India, Air Battle, Beyond Visual Range, Operation Bunyanum Marsoos.

Introduction

The May 2025 air conflict between India and Pakistan marked a watershed moment in the employment of airpower. The dynamics of this largest Beyond Visual Range (BVR) engagement in history are subject of research and analysis by

*Farhat Hussain Khan is a retired PAF Air Marshal who has served on various command and staff appointments including Advisor to caretaker PM on Aviation Vice Chief of Air Staff, Pakistan Air Force, President of Centre of Aerospace Security Studies an Islamabad based think tank and Chairman Pakistan Aeronautical Complex Kamra. He is co-author of books, History of PAF 2014-2023, The Milestones and The Aviation City. The author can be reached at farhat512@gmail.com.

air power enthusiasts and strategists the world over.¹ The loss of 06 high-tech fighters and a UAV to the offensive strike of the Indian Air Force (IAF) against Pakistan, in the first few minutes, changed the dynamics of the entire four-day conflict and compelled the IAF to retreat its air assets to deeper bases; a severe embarrassment for the fourth-largest air force in the world. This paper analyses the air conflict in the backdrop of the geopolitical environment and the politico-military objectives of the BJP government.

This paper argues that the principal explanation for Pakistan Air Force's (PAF) performance during the opening aerial engagement cannot be reduced to aircraft numbers, individual fighter platforms or missile range alone. Rather, the available evidence indicates that the more consequential factor was the ability to integrate sensors, airborne and ground-based command-and-control, electronic warfare, long-range weapons and fighter formations into a comparatively rapid kill chain. The resulting advantage was therefore principally systemic: the capacity to detect, identify, prioritise, communicate and engage targets within a compressed decision cycle. The article further argues that this initial tactical advantage produced operational consequences by forcing the IAF to reassess its tactics and subsequently modify the manner in which it employed airpower.

The analytical contribution of the article is thus two-fold. First, it uses the contrast between the February 2019 crisis and the May 2025 conflict to examine institutional learning and adaptation by the two air forces. Second, it proposes that temporary operational paralysis in contemporary air warfare may emerge not only through the cumulative physical destruction of an opponent's forces, but also through sudden disruption of its decision cycle and tactical assumptions,

Global Environment

The global order prevailing in 2025 could be described as chaotic and unstable, gradually shifting from a bipolar to a unipolar. The change marked the subtle decline of US dominance, influenced by emerging powers such as China, Russia, and to a lesser extent, India. These countries are instrumental in challenging the post-WWII norms that banked on US leadership in global affairs. The environment saw China expanding its influence through enterprises like the Belt and Road Initiative (BRI) and strengthening its military, aiming to rival the United States. Russia was similarly discounting established international rules, as seen in its actions in Ukraine, which initially threatened global stability. India, fuelled by

its growing economy and burgeoning population, was also claiming to be rising regional power.

Other states such as Brazil, Türkiye, and countries in the Gulf were positioning themselves as middle powers, seeking regional and global influence. These states were changing traditional power dynamics through strategic partnerships that prioritized their own economic, energy, and security needs over old alliances. This trend showed a desire to reduce reliance on any single global power. Overall, the emerging global order in 2025 reflected a move away from American dominance, as new powers asserted their influence and challenged established norms, leading to a more complex geopolitical landscape. The scenario has been accentuated after the recent US-Israel war with Iran on the latter emerging as a significant player in the Middle East strategic map.

The fledgling new order also saw an increase in unilateralism, with national interests often clashing with international norms. Conflicts around the world, such as the Ukraine war and violence in some Middle Eastern countries, demonstrated a failure to abide by international humanitarian laws. The weakening of international institutions signified military power often dictating political outcomes, pushing some countries to justify aggressive actions as self-defence or national interest. Very frequently, national interests clashed with international norms, conventions, and multilateral frameworks. This trend could be seen all across the globe, from the Russia-Ukraine war to the Israeli attacks on Gaza, Lebanon, Yemen, Iran and Qatar, showing utter disregard for International Laws.²

For this research paper, the wider geopolitical environment is relevant primarily in relation to South Asia. A similar trend could be observed in South Asia, wherein India was spearheading the realpolitik wave, vying to fulfil its interests under the guise of counter-terrorism.³ In South Asia, the most populous region in the world, tensions among nuclear-armed states, like India and Pakistan, had traditionally complicated global security. Historical conflicts, especially over Kashmir, had already made the region a focal point for major powers like the US and China, both trying to expand their influence through economic and military engagement. India's desire to be a regional security provider had led to disputes with almost all its neighbours. Responding to India's assertiveness, smaller countries formed alliances with larger powers, such as China, to counter Indian influence. Events like the US withdrawal from Afghanistan, the growing rivalry

between the US and China, and ongoing border disputes complicated the quest and India's ambitions for regional leadership.

The US withdrawal from Afghanistan signified a shift in its focus toward containing China and a diminishing influence in South Asia. The US saw India as a key ally and "Net Security Provider" due to its economic size, military strength, and historical rivalry with China. In turn, Pakistan had strengthened ties with China, receiving military hardware and participating in significant economic projects like the China-Pakistan Economic Corridor (CPEC). Often, the intricate relationship between India and China is marked by mistrust, dating back to colonial times, especially concerning border disputes stemming from the McMahon Line. Tensions escalated when India granted asylum to the Dalai Lama and Tibetan exiles, viewed by China as interference in its internal affairs.

The fabric of South Asian stability remains dotted with stains of Indian attempts to assert herself as a dominant regional power. From interference in the domestic politics of smaller neighbours to propping up politically-aligned regimes, covert Indian actions have been foiled time and again. In recent history, on the Kinetic front, India attempted to engage with Chinese troops on the Northern border. This engagement was met with a stern response from China resulting in negotiations to reach a settlement.

Indian attitude towards Pakistan remained one of hostility and mistrust. With various potential flash points between the two nuclear-armed neighbours, kinetic miscalculation by India could auger grave consequences for the entire region. Knowing this reality well, time and again, India planned to undertake provocative kinetic actions against Pakistan, knowing that these excursions would be met with a stern response from its nuclear-armed neighbour.

Pulwama Episode

Before dilating on the May 2025 conflict, it would be prudent to discuss the events and military escalation of 2019. Ever since regaining power in 2014, PM Modi-led Indian government had ramped up its anti-Pakistan rhetoric. Up to 2016, the BJP resorted to verbal assaults with allegations levelled periodically.⁴ In 2016, the Indian forces staged the so-called "Surgical Strikes".⁵ This was more of a Bollywood-style narrative, firmly denied by Pakistan. However, the contested narrative that got increased coverage in the Indian media did provide political mileage to BJP. The controversial incident set a precedent of increased pressure on the BJP to retaliate

basically to set a “new norm” to call shots on Pakistan at its will. Meanwhile, the Kashmiri freedom struggle continued simmering despite the presence of thousands of Indian troops in the valley and the forceful suppression of the Kashmiris.

On 14 February 2019, Adil Ahmed Dar, a young Kashmiri, carried out a suicide attack on an Indian convoy transporting Central Reserve Police Force (CRPF) personnel along the Srinagar Highway in Indian Occupied Jammu and Kashmir (IIOJK), resulting in the deaths of 40 paramilitary soldiers.⁶ The incident was a glaring intelligence failure, as acknowledged later by Satya Pal Malik, the **Governor of IIOJK** at the time of the Pulwama attack, pointing to the deep-rooted problem in Kashmir.

However, as anticipated, the Indian government in a matter of hours blamed Pakistan for the attack. Despite Pakistan’s contention of providing any evidence, and holding a joint investigation, the Modi government hurriedly adopted an overtly confrontational stance and escalated its aggressive posture, sparking a military standoff. On 26 February 2019, the IAF conducted an airstrike on Balakot, under the pretext of targeting a terrorist camp/training centre, however, the munitions fell harmlessly in the open jungle, failing to hit any intended target⁷. In her efforts to set the ‘new norm’ it was for the first time since the 1971 war that the IAF not only violated the LOC but also targeted positions across the international border.

In response to the Indian attack, on 27 February 2019, PAF launched a well-planned and coordinated retaliatory operation named ‘Swift Retort.’ The striking PAF aircraft successfully dropped bombs against military installations deep across the LOC while remaining inside Pakistan’s border. In line with the strategy of deterrence, demonstrating resolve and capability while avoiding escalation, the targets were initially locked prior to weapon release. However, before the impact, the bombs were intentionally steered away from the original aim point and dropped in close proximity to the target purposefully to control the escalation ladder but aimed at sending a clear message of capability, operational proficiency and resolve of the PAF. The video of locked targets and the impacts was released to the media. The fog of conflict further compounded the confusion on the Indian side, when an IAF MiG-21 strayed inside Pakistani territory was swiftly shot down. Another SU-30 aiming to target PAF aircraft was also shot down, however, the wreckage fell inside Indian territory. During the broad daylight operations, blinded by PAF electronic

countermeasures (ECMs), Indian air defences committed fratricide by shooting a friendly MI-17 helicopter resulting in 06 casualties.⁸

The pilot of the ill-fated MiG-21, Wing Commander (Wg Cdr) Abhinandan Varthaman, who had ejected, was taken into custody. The episode was a diplomatic setback for India and the Modi-led BJP government, which lost its pilot inside the Pakistani borders. Despite the tensions on both sides, Pakistan exercised prudence and repatriated the captured pilot to India as a sign of goodwill. However, to hide its embarrassment, the Modi government constructed a story of Wg Cdr Abhinandan shooting down a PAF F-16 before his Mig-21 was targeted.⁹ Abhinandan was later awarded the gallantry award of Vir Chakra for his “heroics”.¹⁰ It is worth noting that all four air-to-air missiles of Abhinandan’s aircraft were open to scrutiny by international observers and are displayed in the PAF museum. In parallel, the US side and the F-16 manufacturer Lockheed Martin did not acknowledge any F-16 loss.

The Modi regime actively used the false narrative of Pulwama to drum up voting fervour, openly appealing for electoral support in the name of people killed in the Pulwama attack. The campaign proved a success and helped the BJP win the 2019 elections. In the aftermath of the Balakot strike and PAF’s operation Swift Retort, one of the most interesting statements made by PM Modi, while addressing a political rally, was that ‘if we had Rafales, Abhinandan would not have been shot down”. While it was a half-hearted attempt to hide the military embarrassment caused by the IAF failures, it was also half-cooked consolation to the then demoralised IAF. Nevertheless, the highly sought-after Rafale deal was fast-tracked and the much awaited aircraft were inducted in IAF in Sept, 2020¹². IAF, on its part, failed to help her government achieve her objectives of setting the “new norm”. On the other hand, PAF’s swift and decisive response successfully re-established Pakistan’s strategy of deterrence through the effective employment of Air Power while controlling the escalation ladder. The importance of the 2019 episode lies in the operational lessons generated on both sides of the border.

IAF-PAF: A Comparison

The interwar period from February 2019 to May 2025 saw significant airpower development by both air forces. The IAF underwent a phase of focused modernization and doctrinal refinement driven by lessons from earlier operational shortcomings. A key development was the induction of 36 French Rafales, significantly enhancing BVR combat capability through advanced avionics and

long-range munitions, alongside upgrades to the Su-30MKI fleet and progress on the indigenous HAL Tejas. The IAF also strengthened its integrated air defence architecture with systems such as the S-400, improving detection, tracking, and interception capabilities. Simultaneously, there was a marked shift towards the development of network-centric warfare, with enhanced reliance on AWACS, UAVs, and satellite-based ISR to improve situational awareness and decision-making. Precision strike capability was bolstered through the integration of stand-off weapons, including the air-launched BrahMos missile and SCALP systems, enabling deep-strike options with reduced exposure. These developments reflected IAF's transition towards a more technologically integrated, long-range precision-oriented capability designed for effective offensive and defensive superiority.¹³

In the period following the 2019 to May 2025 conflict, the PAF undertook a focused and coherent transformation centred on rapid capability enhancement, integration, and indigenisation. A defining development was the induction and swift operationalisation of the J-10C, equipped with advanced AESA radar and PL-15 long-range air-to-air Missile, significantly strengthening beyond-visual-range (BVR) combat profile. The platform was integrated into frontline units in record time, reflecting high levels of organisational agility and training efficiency. Alongside this, the PAF continued to leverage and upgrade the JF-17 Thunder fleet, particularly the Block III variant, enhancing indigenous capability with improved avionics, sensors, and weapons integration and non-kinetic warfare capability.

This evolution was also observed by military aviation expert, Alan Warnes, during his visit to Pakistan. He concluded that the service has emerged as a full-spectrum, multi-domain force, capable of deterring, responding and prevailing in future wars.¹⁴

A central driver of this transformation was the vision of the PAF leadership, Air Chief Marshal Zaheer Ahmad Babar Sidhu, who prioritised seamless integration across operational domains. PAF accelerated progress toward a network-centric force, linking airborne assets, ground-based air defences, and ISR platforms into a cohesive operational architecture. Emphasis on indigenisation led to expanded roles for domestic industry in avionics, munitions, and maintenance support, reducing reliance on external suppliers. Training regimes were further refined to lay emphasise on multi-domain operations, rapid decision-making and high-intensity conflict scenarios.

Additionally, the PAF enhanced its EW capabilities, situational awareness, and command-and-control structures, ensuring effective coordination during complex operations. The leadership's focus on integration, technological adaptation, and doctrinal clarity enabled the PAF to operate as a unified and responsive force. Collectively, these measures were instrumental in shaping the PAF as a unified well-integrated force with comprehensively fused systems for both soft and hard kill through a multi-domain operations ready to meet national politico-military objectives.

What Led to May 25

On the afternoon of 22 April 2025, gunmen opened fire on a group of tourists in Baisaran, Pahalgam, in IIOJK, approximately 200 km from the Line of Control (LoC). The attack resulted in the killing of 26 individuals, including one Nepali, an Indian Christian, and a local Muslim¹⁵. A First Information Report (FIR) was filed 10 minutes later at the local Pahalgam Police Station, located 5.8 kms (approximately a 23-minute drive) away from the site of the crime. The FIR filers claimed that the perpetrators were 'unknown cross-border terrorists' acting at the 'behest of foreign handlers'.¹⁶ The quick accusation indicated a premeditated and scripted response to the incident. This was followed by typical actions from the Indian play book. War hysteria was ramped up by the Modi regime, amply fuelled by almost rabid reporting by the Indian media. The news of an imminent attack was met with an even stronger warning from Pakistan¹⁷. The days leading up to the Indo-Pak conflict of May 2025 were punctuated by calls from the international community to ease tensions. These appeals and Pakistan's offer for a joint investigation fell on deaf ears. Similar to 2019, the IAF initiated hostilities without any military provocation by Pakistan. As mentioned earlier, following the advancements and modernisation of both airforces, the 2025 conflict unfolded in a technologically sophisticated and contested regional environment.

The Conflict

In the first attack, the IAF targeted 06 civilian buildings across multiple Pakistani cities and the LOC, plunging the whole region in crisis¹⁸. The targets included mosques, madrassas, schools, and homes, resulting in the killing of 31 civilians,¹⁹ injuries to 46 and destruction of infrastructure. A combination of standoff weapons through IAF and artillery shells were used to hit the targets under the pretext of destroying alleged "terrorist camps" inside Pakistan.

The IAF offensive comprised 72 aircraft, across a 400 km front along the Indo-Pak border.²⁰ The strike package included Rafales, Su-30 MKIs, Mig-29s and Mirage 2000 aircraft. These combat jets were distributed in eight formations, spread across the battle zone of the Eastern border area. Each strike package comprised 08 aircraft, which included 04 SU30 MKI's, 02 Rafales and 02 Mirage 2000's flying in roles of strike, escorts and sweep teams.²¹

In response, upon confirmation of hostile intent, the PAF rapidly mounted a resolute air defence response. A total of 42 PAF aircraft adequately reinforced by the support element, went up in the air.²² Real-time coordination between airborne controllers and ground stations ensured that by the time the IAF formations approached launch ranges, close to the border, they could be targeted. PAF thus aimed to engage aggressively and decisively. PAF's strength lay in its real-time sensor fusion, centralised battle management, and aggressive intercept tactics. Opposing them, the IAF relied on numbers, technologically diverse platforms - expecting that the surprise factor, superior weapon ranges and numbers would dictate the fight. Instead, the engagement highlighted that in modern air war, doctrine, integration, and decision-speed are as decisive as platforms or missiles. In a swift move the PAF fighters shot down 07 (06 fighter and a UAV) IAF aircraft, an unprecedented feat in modern aerial BVR combat.

Besides combat proficiency, integration and centralized command another unique feature of this aerial engagement was the display and employment of diverse technologies, doctrines and operational philosophies of Pakistani, Chinese, American, Swedish, Indian, French, Israeli, and Russian origin. The engagements spanned a 400 km battle space beside the Pakistan-India border, from ground level up to 50,000 feet. The presence of 114 high-tech aircraft sharply manoeuvring to avoid BVR shots and rapidly changing altitude was highly challenging.²³ The IAF was surprised by the overwhelming response of the PAF.²⁴ Getting shot down deep inside your own well-defended territory was surely not the intended game plan for the IAF, that must have come well-planned through their own way. PAF's PL-15's hit their targets from 160-190 km of range, a total surprise for the IAF. The Rafales and all other interceptors, on the other hand, could not target any PAF aircraft.

The downing of 07 IAF aircraft was a severe, unexpected blow for the IAF that sent a wave of paralysis amongst her civil-military leadership. As the word spread and the world acknowledged PAF kills, discussions arose about PAF's game plan and the Kill Chain, which enabled her to beat its numerically superior

adversary.²⁵ During those 52 minutes of air combat, PAF, despite numerical inferiority, completely dominated the airspace and achieved cognitive superiority. Within 20 minutes of the air strike, Indian DGMO hastened to call his Pakistani counterpart, asking him not to retaliate. The shooting down of IAF aircraft including 04 Rafales, was a disastrous setback. As a result, the IAF did not fly for the next 36 Hours. The Paralysis of the Indian politico-military leadership was the most prominent outcome right on the 1st day of the May 2025 Air conflict, that shaped the course and tempo of the conflict.

The air conflict between the IAF and the PAF was unique in many ways. For the first time in history, an unprecedented 114 aircraft from both sides were engaged in battle for 52 minutes. All aircraft involved carried beyond-visual-range (BVR) missiles. All 07 striking aircraft were shot down inside their own territory. This was the first clash of Chinese and French hi-tech technologies. PAF's controlled and calibrated response resulted in complete dominance of the airspace, resulting in a strategic shock for the IAF and indeed India.

As the air conflict of 2025 unfolded, numerous strands of IAF's Air Strategy could be inferred. These include believing in applying force in large numbers to saturate responses and employing a heavy air-to-air element to protect and mask striking aircraft. Another factor was the employment of multiple packages along multiple thrust lines to cause decision dilemma and attacking ground targets past midnight using long-range stand-off weapons staying within its own territory to avoid losses.

PAF's resolute and aggressive response to IAF's aggression not only shocked the IAF, but also drew the attention of the international audience in general and military observers in particular. Since Air Strategy and Operational plans are not public documents. Therefore, analysis of PAF response is based on observations made during the conflict and its ensuing results. PAF response and employment strategy can be analysed by discussing various stages and markers. In February 2019, IAF employed "Hit and Run" tactics with strike aircraft remaining within its own territory, avoiding major losses. Practising similar tactics in March, 25 resulted into catastrophic losses. While the IAF may have learnt the wrong lessons, PAF had learnt theirs well and was better prepared this time around. As was the case in 2019 (Pulwama incident in IIOJ&K, followed by ramped-up rhetoric), following the Pahalgam incident, Indian leadership started a similar pattern of blame and revenge statements. Right from April 22 (the date of the Pahalgam

incident), PAF had heightened its readiness and observation of the IAF moves. As witnessed on the night of the air battle, PAF was ready and gave a befitting response to the IAF.

Air power is inherently offensive in nature; even in a defensive role, optimal outcomes are often achieved through offensive employment. PAF's aggressive employment strategy marked a clear departure from a traditional air defence mindset, effectively redefining conventional approaches. The response underscored the critical importance of multi-domain synergy, achieved through the integration of air, space, cyber, command & control and electronic warfare capabilities. In the years preceding the conflict, the PAF had deliberately focused on developing and acquiring niche technologies to complement existing assets and enable seamless operational integration.²⁶ This preparation culminated in the effective execution of multi-domain operations, which not only blunted the offensive efforts of the IAF but also significantly degraded its operational effectiveness for an extended period. The coordinated employment of both hard-kill and soft-kill measures further maximized PAF's combat potential, demonstrating a sophisticated and integrated approach to modern air warfare.

The IAF employed 72 Aircraft during the operation, attempting to saturate PAF's response options. PAF however, converted this challenge into an opportunity of target rich environment. By employing 42 aircraft with long-range BVR, having years of training behind and supported by force multipliers, PAF carefully targeted IAF's high-tech elements including the Rafale. PAF Air Chief's direction to his crew "I want Rafale irrespective", was so well engraved in the hearts and minds of all air warriors of PAF that they achieved the desired objective. Identification of targets in a high-density area also speaks of the integration of data, a necessity at the command-and-control centres that enabled PAF to establish a real-time kill chain for which the IAF was not prepared. The shock and awe caused due to the losses of hi-tech aircraft had devastating effects on the IAF command. IAF remained grounded for the next two days. This brief but decisive aerial engagement marked a critical moment in the history of aerial warfare, compelling a re-examination of the Strategic Paralysis framework itself. PAF's actions demonstrated that paralysis in modern air warfare is no longer induced solely through cumulative pressure, but can also be triggered instantaneously through 'decisional gridlock', 'operational disorientation', and 'sudden strategic attrition'.

SSM/Drone Employment

Having suffered a major operational setback, with IAF effectively out of the equation in a state of frustration the Indian side switched over to drone and SSM warfare as an alternative, India launched a tri-phased UAV offensive employing coordinated swarming tactics. Although this episode marked the first wartime employment of drones by both countries, the scale and nature of usage remained controlled.

India initially launched around 03 dozen Harop killer drones at multiple target locations in Punjab and Sindh.²⁷ These drones loitered over the urban centres. Meanwhile, the debris of multiple Israeli-origin Harop drones shot down / flamed out (ran out of fuel) were collected from different locations in Pakistan. Most drones failed to accomplish ISR and penetration tasks and fell in densely populated urban centres, causing damage to public property and, to some level harassment of the public.

On the evening of 08th May, the Indian forces launched 48 drones inside Pakistani territory.²⁸ The wave spanned the time from the evening of 08th May and continued during the daytime of 09th May. The exact targets of the drones could not be accurately verified. The flight patterns, however, indicated India's apparent strategy of disproportionate targeting of military and civilian infrastructure. The drone exchanges between India and Pakistan during the May 2025 conflict contributed to a gradual but unmistakable escalation. Instead of achieving any objective, the failed drone attacks nudged India toward the next rung of the escalation ladder, raising the risks of a widening conflict and diminishing prospects for rapid de-escalation.²⁹ In response, Pakistan launched massive drone swarms against numerous targets inside India in the early hours of May 10.³⁰ These drones enabled Pakistan to pursue a cost-effective and proportionate response to India while maintaining control over the escalation ladder. Having failed to achieve any significant effects from employment of drones, on the night of 9th May 2025, after midnight India escalated the conflict to the next ladder by using Brahmos cruise missile against PAF Base, Nur Khan and PAF Base, Bholari. The attack on a maintenance hangar caused some damage but it made no significant damage at Nur Khan, for its proximity to the Capital and Military HQs of three services, the attack on Nur Khan was highly sensitive. PAF responded to these attacks through aggressive employment of Anti-Radiation Missile capability against employment / storage sites of S-400 and Brahmos missiles at Pathankot in the North and Bhuj in South. Devastating effects of PAF attack not only silenced these high-tech weapons

but also compelled India leadership to approach the US leadership with a request to intervene for achieving ceasefire on 10 May 2025.

Analysis

The successful conduct of Air Operations by the PAF changed how India and Pakistan interact militarily. Pakistan not only defended the national airspace but also showed a strong ability to deter a technologically advanced opponent. PAF's use of Multi-Domain Operations showcased its capabilities and accuracy throughout the conflict. The supposed strengths of the Rafale jets and S-400 systems were challenged, revealing weaknesses that were thought to be nonexistent. PAF's attacks also highlighted the weak points of India's military infrastructure deep within its territory. By using planes, air defense, drones, and cyber tactics together, Pakistan disrupted India's plans to become a regional power and to fight without crossing nuclear boundaries. PAF's cyber operations against civil and military sectors successfully incapacitated India's power, fuel supply, communication and rail/road networks sending shock waves through India's digital landscape. PAF's reported advantage resulted from a combination of network integration, preparedness, tactical surprise, electronic warfare and visionary leadership.

The conflict saw new equipment and tactics being used without sending ground troops into enemy territory. There are no reports of manned planes entering either side's airspace; instead, both sides relied on drones for surveillance, data collection, and cross-border strikes. The air conflict also brought into sharp focus the integrity and the ethos of both air forces. Before publicly announcing any aerial kill, the PAF followed a stringent verification process, relying on multi-source corroboration such as radar tracks, electronic signatures, mission debriefs, and ISR inputs. This layered scrutiny was intended to ensure that claims are credible, defensible, and aligned with professional military standards. In contrast, statements attributed to the IAF leadership four months after the conflict asserting victory and citing multiple opposing losses without publicly available evidence were viewed by analysts as lacking substantiation. Such narratives were interpreted by experts as possibly influenced by political pressures and the need to bolster IAF's sagging morale. Notably, these claims did not surface during periods of intense political scrutiny, including debates in the Parliament of India, where detailed disclosures might have been expected. This contrast has been cited in discussions on transparency, credibility and information management of the IAF.

In the aftermath of the air conflict, airpower enthusiasts and strategic analysts undertook a detailed examination of what was widely described as the largest BVR air battle in recent history. Particular attention focused on the losses suffered by the IAF during the opening phase, where multiple aircraft of all origins were downed. Analysts concentrated on the tactics employed by the PAF, highlighting its resolute leadership, emphasis on network-centric operations, integrated command and control, and disciplined execution under high-pressure conditions. The use of layered situational awareness, supported by airborne early warning assets and data-linked fighters, was assessed as a key factor in shaping the engagement.

A significant strand of analysis also examined the performance of Chinese-origin systems fielded by the PAF, particularly platforms such as the Chengdu J-10C and PL-15 BVR missiles. These systems were credited with enhancing engagement ranges and improving kill probability in BVR combat. While the Chinese technology i.e., J-10C aircraft, PL-15 BVR and Anti-Radiation Missile (ARM) made their impact against Western as well as Russian technologies. Professionalism and training standards of PAF pilots were widely applauded, with analysts pointing to coordinated tactics and effective EW support as force multipliers.

Beyond the battlefield, the episode was seen to have wider implications for the defence industry and strategic thinking. Market reactions reflected shifting perceptions, with scrutiny of platforms such as the Dassault Rafale coinciding with increased attention on Chinese aerospace capabilities. Consequently, the conflict prompted renewed debate on airpower doctrines, procurement priorities, and the evolving character of aerial warfare, leading many strategists to call for a reassessment of existing air strategies in a rapidly changing technological environment.

The aftermath of the conflict and IAF losses also saw India initiating an unprecedented surge in defence spending, reflecting a determined effort to address capability gaps and reinforce deterrence.³¹ Central to this push was the proposed acquisition of 114 Rafale fighters, alongside the continued induction and deployment of the S-400, aimed at replenishing inventory and strengthening the air defence shield. In addition, procurement efforts expanded across multiple domains, including upgrades to the Su-30MKI fleet, increased orders of the indigenous HAL Tejas Mk1A, and the acquisition of advanced UAVs and loitering munitions to enhance ISR and precision strike capabilities. Investments were also

directed toward electronic warfare systems, network-centric infrastructure, and missile programs such as the Brahmos missile.

This broad-based modernization drive, spanning airpower, air defence, and emerging technologies, is widely viewed by experts as one of the most ambitious defence spending phases in India's history. The spending also underscores a shift toward high-technology warfare and rapid force modernization, with emphasis on long-range precision, survivability, and integrated operations. Collectively, these measures signal India's intent to recalibrate its military posture and maintain a credible deterrent.

The broader significance of the May 2025 conflict is that operational disruption in modern air warfare may occur without the large-scale destruction of an adversary's forces. Unexpected losses, combined with uncertainty regarding weapon ranges and the opponent's kill chain, may compel commanders to reassess tactics and temporarily alter the operational landscape.

In summary, the May 2025 conflict represented a significant success for Pakistan, particularly the PAF, delivering favourable outcomes across tactical, operational, and broader strategic levels of warfare. With better training, advanced tactics, and effective strategies, PAF reestablished conventional deterrence, safeguarded the nation's sovereignty, and controlled the airspace as well as the escalation ladder. Pakistan's strategy was a well-planned and strong response, marked by flexibility and coordinated efforts. This measured approach showed Pakistan's ability to manage escalation during the conflict, which eventually led to a ceasefire. Post-conflict analysis and developments also point to the nature of a future conflict in the region that will see increased employment of aerospace assets, including aircraft, drones and SSMs operating in an intensely contested EW environment. In the meantime, PAF maintained its edge in controlling the airspace and retaining its first shot capability, significantly enhancing Pakistan's conventional deterrence.

Conclusion

PAF's aggressive style of leadership with quick decision making capacity was an important war-winning factor. Surprise achieved by PAF through security of its information about weapons, their capabilities / ranges was yet another war-winning factor in Bunyanum Marsoos. Air power continues to be an instrument of choice available to politico-military leadership to achieve objectives swiftly.

