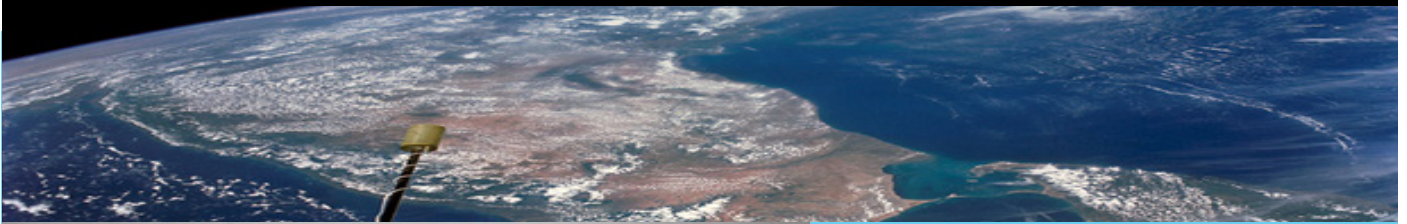




**CENTRE FOR AEROSPACE POWER
AND STRATEGIC STUDIES (CAPSS)**
Forum for National Security Studies (FNSS)

AEROSPACE NEWSLETTER



On September 21, 2026, the Centre for Aerospace Power and Strategic Studies (CAPSS) completed 25 years. The Centre was established in 2001 as Centre for Air Power Studies (CAPS) by Air Commodore Jasjit Singh AVSM, VrC, VM (Retd) as an autonomous defence research and analysis body. On July 25, 2025, the Centre was rechristened as CAPSS, reflecting its expanded scope of work in the domain of aerospace and strategic studies.

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“Let us all resolve to make India not only self-reliant in the field of aerospace technology but also a global leader.”

*- Shri Rajnath Singh
Honourable Minister of Defence for India*

<https://www.pib.gov.in/PressReleaseIframePage.aspx?PRID=2312215&lang=2®=48>

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Opinions and Analysis

Targeting to Win: Operation Mole Cricket 19 and the Principle of Calculated Risk

LTC Philip J. McCormick | 22 September 2026



Current U.S. Air Force targeting doctrine (AFDP 3-60, Targeting) outlines five principles that govern the mechanics of the targeting cycle: objectives-based, effects-based, interdisciplinary, systematic, and estimative. However, this framework fails to capture the most consequential judgment a commander makes in conflict: the deliberate acceptance of uncertainty when employing novel or adapted capabilities. Through a historical case study of the Israeli Air Force's Operation Mole Cricket 19 in the Bekaa Valley in 1982, the article argues for the formal adoption of a sixth targeting principle: calculated risk. While the Israeli Air Force successfully applied the five existing principles to dismantle a dense Syrian integrated air defence system, their lopsided victory ultimately relied on the willingness to execute an unproven, newly integrated sensor-to-shooter network.

Source: Small Wars Journal

Read more: <https://smallwarsjournal.com/2026/09/22/targeting-to-win/>

The Drone War – 2022 to 2026

10 August 2026



Drones will not win the war in Ukraine single-handedly, but like the machine guns, tanks and aircraft of World War 1 and then World War 2, they will be part of a type of technology that will be forever associated with the war. Ukraine is leading in drone innovation and diverse arsenal of combat-proven airborne, ground-based and sea-based drones. Where did they come from? What is their history?.

Source: Modern Warfare

Read more: <https://modernwarfare.substack.com/p/the-drone-war-2022-to-2026>

Dassault Says AI Algorithms are Ready for Future Rafale Fighter Upgrades

Aaron Spray | 23 September 2026



Dassault announced that it has flight-tested “two new sovereign AI algorithms” on its flagship Rafale fighter jet. One of the AI algorithms was developed by Rafale’s engineers, and the second was developed in collaboration with the French contractor Thales and its corAlx subsidiary. The effort is part of a broader Dassault initiative to integrate controlled and supervised AI in the cockpit of the fighter serving the pilot.

Source: Aerospace Global News

Read more: <https://aerospacglobalnews.com/news/dassault-rafale-f5-ai-upgrades/>

From Shahed to Geran: How Russia Continues to Reinvent the One-Way Attack Drone

Kateryna Bondar and Nicole Errera | 04 September 2026



The defining challenge posed by Russia’s Geran program is the speed at which Russia can learn and adapt. Since acquiring the original Shahed design, Russia has treated the Geran as a continuously evolving platform, rapidly modifying its navigation, communications, payloads, propulsion, and tactics in response to changing Ukrainian defences. Improvised modifications are tested in combat, successful solutions are standardised and scaled, and unsuccessful experiments are quickly discarded. This creates a continuous adaptation cycle in which battlefield feedback drives production decisions at a cadence measured in weeks rather than years. The Geran therefore illustrates a broader shift in modern weapons development: Advantage increasingly depends not on building the most advanced system at the outset, but on maintaining the organisational and industrial capacity to continuously iterate a system after it has entered combat. The central question is whether the United States is structured to compete with this model of rapid wartime adaptation.

Source: Center for Strategic & International Studies (CSIS)

Read more: <https://www.csis.org/analysis/shahed-geran-how-russia-continues-reinvent-one-way-attack-drone>

The Role of the Indian Air Force in Enhancing Military Diplomacy Across Oceans: Insights from Exercise Pitch Black 2026

Wg Cdr Vikas Kalyani and Prof (Dr) Vijay Khare | 04 August 2026



The IAF's recent participation in Exercise Pitch Black 2026, a biennial multinational air combat exercise hosted by the Royal Australian Air Force (RAAF), provides a timely and analytically rich case study. This marks the IAF's fourth participation (after 2018, 2022, and 2024) in this exercise from July 20 to August 07, 2026, with a contingent of four Rafale fighters, two C-17 strategic airlifters, and over 120 personnel. The transit via Indonesia, which involved mid-air refuelling by an IL-78 operating from Juanda Airport in Surabaya, further underscores the IAF's overseas operational capacity and diplomatic engagement with key IOR partners. The article argues that the IAF's role in enhancing Indian military diplomacy across oceans is both doctrinally strengthened and operationally demonstrated through exercises, HADR missions, and strategic airlift operations. Using Pitch Black 2026 as a contemporary anchor, the analysis situates the IAF's maritime diplomacy within a broader historical and theoretical framework, drawing on the IAF's latest doctrine, historical

precedents like Operation Cactus (1988) and recent HADR missions and multinational exercises.

Source: Source: Centre for Aerospace Power and Strategic Studies (CAPSS)

Read more: <https://capssindia.org/the-role-of-the-indian-air-force-in-enhancing-military-diplomacy-across-oceans-insights-from-exercise-pitch-black-2026/>

Air Power

Two Patrons, One Strategy: Pakistan's Air Power Transformation

Rahul Rawat and Pragyan Agnihotri | 06 August 2026



The Pakistan Air Force (PAF) pursues a strategic 'dual-patron, dual-track' approach through its engagement with the United States Air Force (USAF) and the People's Liberation Army Air Force (PLAAF). By combining North Atlantic Treaty Organization (NATO)-style professionalism and platform proficiency with China's 'system-of-systems' doctrine, it seeks to recalibrate the regional balance against India. While the USAF provided the technical foundations through the F-16 programme, US security restrictions often limit tactical transparency in Western exercises. In contrast,

the “Shaheen” exercise series with the PIAAF offers a transformative environment for mastering beyond-visual-range (BVR) combat and electronic warfare. The PAF has pursued a parallel engagement with its two patrons across capabilities, training, and doctrine, resulting in a uniquely networked architecture tailored to counter India.

Source: Observer Research Foundation

Read more: <https://www.orfonline.org/expert-speak/two-patrons-one-strategy-pakistan-s-air-power-transformation>

Pakistan's Shopping Spree: New Weapons, New Allies and New Risks

Gp Capt VP Naik, VM | 09 September 2026



Post Op Sindoor, Pakistan's response has been characterised by a noticeable acceleration in defence expenditure, an expansion of its conventional missile architecture, renewed emphasis on air power, interest in fifth-generation fighters and airborne early warning, greater incorporation of unmanned systems, and the creation of a dedicated Army Rocket Force Command (ARFC). Alongside

this military response have emerged a new strategic layer comprising deeper defence, industrial and security ties with China and Türkiye, and, importantly, the Makkah Joint Defence Agreement (MJDA) with Saudi Arabia and Türkiye. The result is not simply a larger and more modern Pakistani military. It is the beginning of an entirely different military architecture. The critical question for India, therefore, is not what Pakistan is buying, but what military system it is trying to build.

Source: Centre for Aerospace Power and Strategic Studies (CAPSS)

Read more: <https://capssindia.org/pakistans-shopping-spree-new-weapons-new-allies-new-risks/>

Air Denied Not Defeated: Iran's Contested Strategy Against Epic Fury and Roaring Lion

Air Vice Marshal Prashant Mohan, VM (Retd) | 10 September 2026



Operations Epic Fury and Roaring Lion began on February 28, 2026. Their opening wave struck roughly 500 targets in Iran within twenty-four hours. By United States Central Command's (CENTCOM) own account, the campaign eventually struck upward of 11,000 targets across roughly 13,000 combat sorties. The Israeli Air Force separately logged over 10,800 strikes across 8,500 operational sorties.

By mid-August, six months in, Iran's enrichment stockpile remained intact and inaccessible to inspectors. The Strait of Hormuz remained closed to ordinary commerce.

The paper asks a narrower question: did Iran's conduct under Operation True Promise IV amount to a coherent strategy? If so, do the concepts most often used to describe it—air denial and mosaic defence—actually fit the record? Are they distinct and sometimes contradictory propositions, or retrospective labels applied to improvisation? The paper closes on India. A materially dominant coalition could not convert tactical execution into strategic closure. A materially inferior adversary inflicted sustained cost regardless. What should that teach Indian planners about setting goals, defining victory, and choosing ways and means against a comparably resilient adversary?.

Source: Centre for Aerospace Power and Strategic Studies (CAPSS)

Read more: <https://capssindia.org/air-denial-mosaic-defence-operation-true-promise-iv/>

Windows of Superiority: Control of the Air in Near-Peer Conflict

Air Marshal Manish Khanna (Retd) | 02 September 2026



Control of the air remains fundamental to the effective employment of military power. It gives one's own forces freedom of action while limiting that available to an adversary. The principle is enduring. What requires examination is how such control may increasingly have to be achieved and exploited between near-peer competitors. This is not an argument for a new degree of control. Existing doctrine already recognises that control may be limited in time and space. The United States (US) Air Force doctrine notes that the required degree may be local or mission-specific and that counter-air operations should produce it at the times and places chosen by the commander. North Atlantic Treaty Organization's (NATO) Joint Air Power Strategy likewise defines control of the air as the degree of freedom needed to exploit the domain, achieved at a certain place and/or time.

The Indian Air Force's (IAF) Basic Doctrine makes a similar point. It distinguishes air supremacy, air superiority and a favourable air situation (FAS), the last being limited in time and space yet sufficient for specific operations. Its illustrative example is especially relevant: Suppression of Enemy Air Defences (SEAD), airfield attacks and offensive sweeps could

create sufficient local control to permit an armoured breakout at the desired time. The contemporary question, therefore, is not whether local and temporal control is doctrinally valid. It is how campaign design should create, exploit and shift such conditions against a capable opponent.

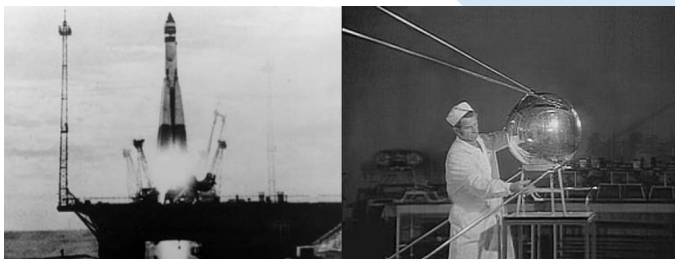
Source: Centre for Aerospace Power and Strategic Studies (CAPSS)

Read more: <https://capssindia.org/windows-of-superiority-control-of-the-air-in-near-peer-conflict/>

Space

Rocket Equation 101: Revealing our Moon's Value as a Launchpad

Jatan Mehta | 17 August 2026



The global race to the Moon is driven largely by its potential resources, including water ice, oxygen-rich soil, and valuable metals, which could enable in-situ resource utilisation, local manufacturing, and the production of rocket fuel. The long-term vision is to create a self-sustaining lunar economy that reduces dependence on Earth and transforms the Moon into a strategic launchpad for deeper Solar System exploration, benefiting from its weaker gravity and lower launch-energy requirements. While this vision remains uncertain and raises important ethical, economic, and governance questions, it is grounded in physical reality rather than speculation. Unlike some proposed space-based infrastructure concepts, the

idea of the Moon serving as a hub for future space operations is strongly supported by the fundamental laws of physics, making it a compelling foundation for humanity's long-term expansion beyond Earth.

Source: jatan.space

Read more: <https://jatan.space/the-moon-as-a-rocket-platform/>

The Ground Station Gap: Why Arctic Space Power Runs Through Norway

Vegard Henriksen | 28 August 2026



Over the past few decades, the Arctic has warmed nearly four times faster than the global average in some areas, making the region more accessible and strategically significant as melting ice opens new shipping routes and resource opportunities. This has intensified competition, particularly from Russia and China. Russia has expanded its Arctic military and infrastructure footprint to secure the Northern Sea Route (NSR), operating numerous airbases, radar stations, ports, and the world's largest icebreaker fleet, while China has advanced its Polar Silk Road initiative, expanded Arctic research facilities, and increased icebreaker deployments. Both countries increasingly rely on space-based capabilities—including reconnaissance, communications, navigation,

and monitoring satellites—to support their Arctic ambitions, recognizing that control of the region is closely linked to access to and protection of space assets. As Arctic activity grows, competition is extending into the space domain, where satellites and the high-latitude ground infrastructure that supports them have become critical strategic enablers. In this context, Norway's unique network of Arctic launch sites, ground stations, and radar facilities offers capabilities that the United States currently lacks, making deeper U.S.-Norway cooperation under the Supplementary Defense Cooperation Agreement (SDCA) is increasingly important for sustaining American operations in the Arctic.

Source: Small Wars Journal

Read more: <https://smallwarsjournal.com/2026/08/27/arctic-space-power/>

Governing India's Commercial Space AGE

Dr. Shrawani Shagun | 07 September 2026



On July 18, 2026, Skyroot Aerospace's Vikram-1 lifted off from the First Launch Pad at the Satish Dhawan Space Centre, Sriharikota, and reached a 450-kilometre orbit roughly fifteen minutes later. The mission made Skyroot the first private Indian company to place a payload in orbit from Indian soil, and made India

only the third country, after the United States and China, to possess private orbital launch capability. Yet, Vikram-1's significance lies less in the vehicle than in the system that produced it. Although Vikram-1 was privately designed and built, its launch depended substantially on public infrastructure and institutional support: Indian Space Research Organisation (ISRO) provided testing, trajectory validation, launch-pad integration, and range safety, while Indian National Space Promotion and Authorisation Centre coordinated authorisation. Skyroot entered the mission backed by a USD 60 million round co-led by Sherpalo Ventures and GIC that valued the company at over USD 1.1 billion, making it India's first space technology unicorn.

Source: Centre for Aerospace Power and Strategic Studies (CAPSS)

Read more: https://capssindia.org/wp-content/uploads/2026/09/CAPSS_IB_SS_7_9_26-1.pdf

BRICS and Space: Engaging Divergent Powers

Group Captain (Dr.) Ajey Lele (Retd.) | 04 August 2026



While BRICS increasingly recognises space as a critical domain for economic development, technological advancement, and global governance, the grouping remains divided by differing strategic interests, capabilities, and international alignments. Although members support cooperation through initiatives such as the BRICS Remote Sensing Satellite

Constellation (RSSC), sustainable space activities, and the peaceful use of outer space, significant differences persist over issues such as space security, anti-satellite capabilities, lunar exploration frameworks, and global space governance. The article highlights that some BRICS members participate in the U.S.-led Artemis Accords while others support the China-Russia-led International Lunar Research Station (ILRS), reflecting competing visions for the future of space. Against this backdrop, India's proposal for a BRICS Space Council is presented as an important mechanism to bridge these divergences, deepen collaboration in areas such as Earth observation, disaster management, data sharing, and commercial space activities, and gradually build a common BRICS voice on space security, sustainability, and governance.

Source: IDSA

Read more: <https://idsa.in/publisher/comments/brics-and-space-engaging-divergent-powers>

America must be able to Restore its Space Power at War Speed

RADM (Ret.) Mark Montgomery and Emerson Overell | 21 September 2026

The article argues that the United States can no longer rely solely on having superior satellites to maintain its advantage in space; instead, it must develop the ability to rapidly restore and reconstitute space capabilities during wartime. As China expands both its space infrastructure and counter-space arsenal, including anti-satellite weapons, jammers, lasers, and a growing satellite network, the resilience of American space power will depend on responsive launch systems, dispersed infrastructure, commercial partnerships, and allied cooperation. Drawing

on recent U.S. Space Force responsive-launch exercises such as VICTUS NOX and VICTUS HAZE, the article contends that future space superiority will be determined not by making every satellite invulnerable, but by ensuring that disrupted capabilities can be replaced within hours or days. To achieve this, Washington must expand launch capacity, reduce dependence on a few launch sites, integrate commercial providers, and leverage allied initiatives such as NATO's STARLIFT and DARC programs, creating a resilient and rapidly recoverable space architecture capable of sustaining military operations during conflict.

Source: Foundation For Defense of Democracies

Read more: <https://www.fdd.org/analysis/2026/09/21/america-must-be-able-to-restore-its-space-power-at-war-speed/>

Aerospace Industry

Mukesh Ambani's Reliance and Rolls-Royce Team Up to chase India's Indigenous AMCA Fighter Engine

14 August 2026



Reliance Industries and Rolls-Royce have announced a partnership to pursue the development of an indigenous combat engine for India's Advanced Medium Combat Aircraft (AMCA), marking a significant step in New Delhi's effort to achieve self-reliance in one of the most challenging areas of aerospace technology. The collaboration proposes establishing an aerospace gas-turbine ecosystem in India that combines Rolls-Royce's propulsion expertise with Reliance's manufacturing capabilities, positioning the consortium as a contender in India's search for a high-thrust engine for its fifth-generation fighter programme.

Source: India Sentinels

Read more: <https://www.indiasentinels.com/defence-industry/private/mukesh-ambanis-reliance-and-rolls-royce-team-up-to-chase-indias-indigenous-amca-fighter-engine-7560>

Beyond Runways: Bharat Forge and Flying Whales Sign MoU for Heavy-Lift Airships

Aayush Parekh | 14 August 2026



What if the Indian Air Force (IAF) and the Indian Army could airlift tons of supplies and weaponry to remote, high-altitude outposts without a runway? Now it seems possible after India's Bharat Forge signed a Memorandum of Understanding (MoU) with the French-Canadian aerospace joint venture Flying Whales. The MoU was signed during the Farnborough International Air Show 2026 in the United Kingdom (UK) on July 22, 2026, and both parties have agreed to jointly develop and manufacture advanced heavy-lift airships in India. Such giant aircraft could transform Indian defence logistics and mobility.

The article addresses the capability gap in India's defence logistics architecture: the absence of a heavy-lift platform capable of delivering oversized and heavy payloads to

mountainous, border, and disaster-affected areas without dependence on runways or extensive ground infrastructure. The collaboration between Bharat Forge and Flying Whales represents a decisive step toward building an indigenous airship ecosystem in India, aligned with the Government of India's Make in India initiative.

Source: Centre for Aerospace Power and Strategic Studies (CAPSS)

Read more: <https://capssindia.org/beyond-runways-bharat-forge-and-flying-whales-sign-mou-for-heavy-lift-airships/>

GB2 takes flight: Can a Purpose-Built US Aircraft Change Aerial Firefighting?

Jay Menon | 26 September 2026



Game Aerospace has flown its GB2 firefighting aircraft for the first time, moving a clean-sheet US design into flight testing as the company seeks to offer an alternative to the agricultural aircraft widely used for single-engine aerial firefighting. The prototype flew from Louise Thaden Field in Bentonville, Arkansas, with Game Aerospace co-founder and chief executive Philipp Steinbach at the controls. Game said the aircraft performed as expected and completed all evaluations planned for the initial flight. The milestone clears the way for a broader flight-test programme as the company works towards US Federal Aviation Administration certification and production.

The GB2 has been designed from the outset for aerial firefighting. Game describes it as the first purpose-built firefighting aircraft developed in the United States, rather than an existing aircraft subsequently adapted for the role. That distinction is central to the programme. Single-engine airtankers, or SEATs, operating in the US include aircraft such as the Air Tractor AT-802, which has its roots in agricultural aviation and has been adapted for firefighting.

Source: Aerospace Global News

Read more: <https://aerospaceglobalnews.com/news/gb2-firefighting-aircraft-first-flight/>

HAL Expects 12 more GEF404 Engines by December to Accelerate Tejas Mk1A Fighter Jet Schedule

Raj Basu | 29 September 2026



Hindustan Aeronautics Limited (HAL) expects the delivery of an additional 12 GE F404 engines by December 2026, a development that could significantly accelerate Tejas Mk1A production after prolonged delays caused by engine shortages. The development highlights how the success of India's flagship indigenous fighter programme remains closely tied to the timely availability of imported propulsion systems, underscoring the strategic importance of aero-engine self-reliance for India's defence aerospace sector.

Source: DEFENCE.IN

Read more: <https://defence.in/threads/hal-expects-12-more-ge-f404-engines-by-december-to-accelerate-tejas-mk1a-fighter-jet-schedule.18795/>

“Air Power is not only fascinating subject, but its theory and practice also constitute a very demanding profession, and even a lifetime’s study and devotion is inadequate to unravel its mystique or fully understand its imperatives.”

– [Air Commodore Jasjit Singh, AVSM, VrC, VM](#)



The Centre for Aerospace Power and Strategic Studies (CAPSS) is an independent, non-profit think tank that undertakes and promotes policy-related research, study and discussion on defence and military issues, trends and developments in air power and space for civil and military purposes, as also related issues of national security. The Centre is headed by Air Marshal Nagesh Kapoor, SYSM PVSM, AVSM, VM (Retd).

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