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समाचार पत्रों से चयनित अंश

Newspapers Clippings

डीआरडीओ समुदाय को डीआरडीओ प्रौद्योगिकियों, रक्षा प्रौद्योगिकियों, रक्षा नीतियों, अंतर्राष्ट्रीय संबंधों और विज्ञान एवं प्रौद्योगिकी की नूतन जानकारी से अवगत कराने हेतु दैनिक सेवा

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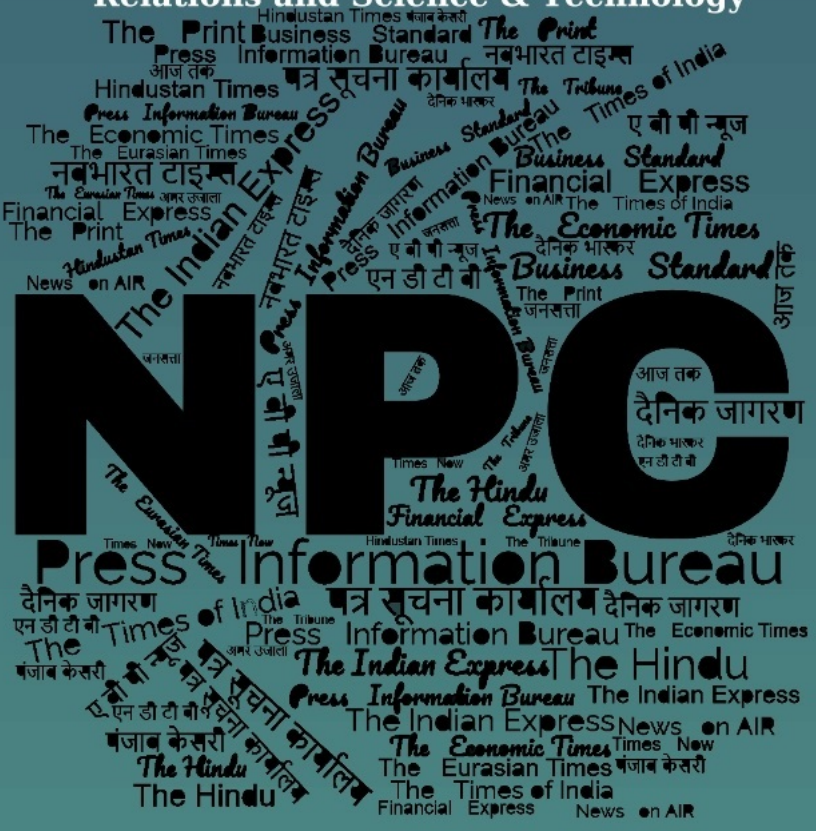

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आकाश मिसाइल के एडवांस्ड वर्जन का हुआ सफल परीक्षण

Source: Dainik Jagran, Dt. 25 Dec 2025

जल्द ही सेना में शामिल होंगी स्वदेशी आकाश-एनजी मिसाइलें

जासं, बालेश्वर: रक्षा अनुसंधान एवं विकास संगठन (डीआरडीओ) ने 'नेक्स्ट जेनरेशन आकाश मिसाइल सिस्टम' यानी आकाश-एनजी के यूजर इवैल्यूएशन ट्रायल्स को सफलतापूर्वक पूरा कर लिया है। ओडिशा के चांदीपुर स्थित इंटीग्रेटेड टेस्ट रेंज में हुए परीक्षणों में मिसाइल ने सभी मानकों को पूरा किया। इन परीक्षणों के साथ ही यह अत्याधुनिक मिसाइल सिस्टम अब भारतीय सेना और वायु सेना में शामिल होने के लिए तैयार है। रक्षा मंत्री राजनाथ सिंह ने इस मिसाइल के सफल परीक्षण पर डीआरडीओ, वायु सेना को बधाई दी है। अगर इसे पाकिस्तान या चीन की सीमाओं के पास तैनात किया जाता है तो यह 70-80 किलोमीटर की रेंज में आने वाले हवाई लक्ष्यों को नष्ट कर सकती है।

मालूम हो कि पुरानी आकाश मिसाइल ने आपरेशन सिंदूर के दौरान पाकिस्तान के हवाई हमलों को नाकाम करने में महत्वपूर्ण भूमिका निभाई थी। अब आकाश-एनजी इससे भी ज्यादा शक्तिशाली तरीके से यह काम करेगी।

मिसाइल परीक्षण का दृश्य● स्रोतः डीआरडीओ

- नई पीढ़ी की मिसाइल ने विभिन्न दूरी और ऊंचाई पर हवाई लक्ष्यों को सफलतापूर्वक भेदा
- रक्षा मंत्री राजनाथ सिंह ने इस मिसाइल के सफल परीक्षण पर डीआरडीओ, सेना को बधाई दी

आकाश-एनजी एक डिफेंसिव सिस्टम है, जो आने वाले हवाई खतरों (जैसे दुश्मन के विमान, मिसाइल या ड्रोन) को रोकने के लिए डिजाइन की गई है। यह भारत की वायु सीमाओं की सुरक्षा को सुदृढ़ करेगी। मिसाइल पुरानी आकाश मिसाइल का एडवांस वर्जन है, जो हाई-स्पीड और तेज हवाई खतरों को मार गिराने के लिए तैयार की गई है।

डीआरडीओ ने कहा कि यह सिस्टम सभी पीएसक्यूआर (परफार्मेंस एंड सेफ्टी क्वालिटेटिव रिक्वायरमेंट्स) को पूरा करता है। परीक्षणों के दौरान आकाश-एनजी ने विभिन्न ऊंचाई और दूरी पर हवाई लक्ष्यों को सफलतापूर्वक इंटरसेप्ट किया। इसमें बहुत कम ऊंचाई वाले निकट लक्ष्य और लंबी दूरी के ज्यादा ऊंचाई वाले लक्ष्य शामिल थे। मिसाइल ने हाई-स्पीड, कम रडार सिग्नेचर वाले लक्ष्यों को भी नष्ट किया। सतह से हवा में मार करने वाली मध्यम दूरी की यह मिसाइल पूर्ण स्वदेशी है।

यह फाइटर जेट, हेलिकाप्टर, ड्रोन, क्रूज मिसाइल और एयर-टू-सर्फेस मिसाइल जैसे खतरों का मुकाबला कर सकती है। यह सिस्टम भारत की 'आत्मनिर्भर भारत' पहल का हिस्सा है, जो आयात पर निर्भरता कम करेगा।

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Akash upgrade set yo boost air defence

Source: The Tribune, Dt. 25 Dec 2025

The Indian air defence system, which played a major role during Operation Sindoor, is set for an upgrade with the Akash-NG missile. Ready for induction, these missiles can target enemy threats at very low-altitude and longer ranges. The Defence Research and Development Organisation (DRDO) has successfully completed the 'user evaluation trials' for the next generation Akash-NG system, with the latest test conducted last evening.

Describing new features of the missile, the Ministry of Defence said during the trials, the missiles successfully intercepted aerial targets at different range and altitude, including the near-boundary, low-altitude and long range, high-altitude scenarios".

The Akash-NG missile can target enemy at low altitude, longer range

The Akash NG improves upon the Akash missile that has an operational range of up to 30 km. The NG version has a range of up to 70 km and much smaller ground system footprint, making it tougher for enemy to track it through satellite imagery.

Akash-NG, equipped with indigenous radio frequency seeker and propelled by solid rocket motor, is a potent system for ensuring air defence against different types of aerial threats. All the systems and sub-systems are indigenous, including the multi function radar (MFR), command and control unit, and missile Launch vehicle (MLV). It is designed to intercept high manoeuvring aerial threats that have low radar cross section (RCS).

Defence Minister Rajnath Singh has complimented the DRDO, Air Force and industry on successful completion of the user evaluation trials of the Akash-NG missiles.

https://www.tribuneindia.com/news/india/akash-upgrade-set-to-boost-indias-air-defence-system/

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Akash-NG completes user evaluation trials: What are these tests — and why are they significant?

Source: The Indian Express, Dt. 25 Dec 2025

Defence Research and Development Organisation (DRDO) has successfully completed the user evaluation trials (UET) of Akash-New Generation, also called Akash-NG, missile system, paving the way for its induction into the Indian Air Force (IAF). Here is a look at the features of Akash-NG and its developmental journey.

The development of the Akash missile system

The development of the Akash, a short to medium range surface-to-air missile, was started by DRDO in the late 1980s as part of the Integrated Guided Missile Development Programme led by

Dr APJ Abdul Kalam. Following the developmental trials in the 1990s and early 2000s, extensive user trials were conducted by the IAF and the Indian Army.

Named after the Sanskrit word for sky, Akash symbolises the deterrence in the air. It is primarily designed to provide air defence cover to the vulnerable areas and critical installations. The Akash weapon system can simultaneously engage multiple targets in group mode or in autonomous mode. It features built-in electronic counter-counter measures (ECCM), which means it has onboard mechanisms that can counter electronic systems that deceive detection systems.

Akash was inducted into the IAF in 2014, and into the Indian Army the next year. Both the IAF and the Army currently operate multiple squadrons and groups of missiles, respectively. The DRDO has said the Akash missile has 96% indigenous components.

In December 2020, the Cabinet approved the Akash missile for exports after many friendly foreign countries showed interest in it during various international exhibitions. The export version of Akash will be different from those in service with the Indian Armed Forces.

The journey of Akash-NG

The initial version of the Akash has an operational range of 27 to 30 kilometres and a flight altitude of around 18 kilometres. The Akash-NG system has been developed with better deployability compared to other similar systems with a canisterised launcher and a much smaller ground system footprint. The beginning of the development of Akash-NG coincides with the time when the earlier version was being inducted in the IAF and the Indian Army in the mid-2010s.

Akash-NG is primarily designed for the IAF with an aim of intercepting high manoeuvring aerial threats that have low radar cross section (RCS), which is the electromagnetic signature of an airborne object. Besides improved effectiveness against low electromagnetic signature threats, the NG version features a range of up to 70 kilometres, a sleeker and lighter profile, and a much smaller ground system footprint. Akash-NG contains an indigenously developed radio frequency seeker, launcher, multi-function radar, and command, control and communication system.

Being canisterised, the Akash-NG missiles are stored and operated from specially designed sealed containers. The controlled internal environment of the canister not only simplifies transportation

and storage but also significantly enhances the missile's shelf life and operational readiness. The DRDO has also developed another version of Akash, Akash Prime, which has the same range as that of the earlier version but has a crucial new addition of an indigenous active Radio Frequency (RF) seeker for improved accuracy to hit the aerial targets.

The user evaluation trials & their significance

The maiden test of the Akash-NG missile was conducted on January 25, 2021, from the Integrated Test Range off the coast of Odisha. On January 12, 2024, a successful flight test was conducted against a high-speed unmanned aerial target at very low altitude, paving the way for its user trials.

User evaluation trials of the Akash-NG missile on Tuesday (December 23) successfully met provisional staff qualitative requirements (PSQR). During the trials, the missiles successfully intercepted aerial targets at different ranges and altitudes, including the near-boundary-low-altitude and long-range, high altitude scenarios. Akash-NG, equipped with an indigenous RF seeker and propelled by a solid rocket motor, successfully neutralised different types of aerial threats

All the systems and subsystems, including the multi-function radar (MFR), command and control unit, missile launch vehicle (MLV), etc., have been designed by various laboratories of DRDO with the help of Indian industries. The trials were witnessed by senior scientists of DRDO and user representatives from the IAF. The development cycle of systems from DRDO broadly consists of three phases: developmental trials, user-assisted trials in various conditions, and user evaluation trials (UETs). The successful UET clears the way for the induction of the system, and an acceptance of necessity (AoN) is issued by the user, which, in Akash-NG's case, is the IAF.

https://indianexpress.com/article/explained/akash-ng-user-evaluation-trials-10436826/

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India nears sea-based nuclear triad as K-4 missile clears key test

Source: Hindustan Times, Dt. 26 Dec 2025

India is set for the final operational validation of its sea-based nuclear triad with its 3500-km-range K-4 submarine launched nuclear ballistic missile requiring a few more test-firings before being inducted into the country's nuclear arsenal operated by tri-services Strategic Forces Command (SFC). **DRDO** tested the K-4 missile, launched from Indian nuclear powered ballistic missile (SSBN) INS Arighaat, in the Bay of Bengal on December 23.

While the Modi government normally does not speak about the country's nuclear platforms and missiles, HT learns that the test-firing of K-4 missiles was delayed from the previous schedule of December 1-3 as a Chinese Ocean Mineral Resources Vessel was sighted 115 nautical miles on the southern edge of the navigation area on December 3. This Chinese vessel, however, did not have any missile tracking equipment on-board.

Although Chinese research vessels " Shi Yan 6, Shen Yi Hao and Lan Hai" were present in the Indian Ocean Region last month, a Luyang III destroyer (the only one currently), a Jiangkai II frigate and a Fuchi class tanker, all part of the 48th anti-piracy escort force, were off the Gulf of Aden.

Even though the K-4 missile requires a couple of more test-firings before induction, India is all set to commission INS Aridhaman, the third SSBN in Arihant class, in the first quarter of 2026. On October 16, Defence Minister Rajnath Singh launched S4*, the last of Arihant class SSBNs, which may be commissioned in the Indian SFC towards the end of decade. Barring INS Arihant, which carries on 750-km range K-15 nuclear missiles, all others in this class carry K-4 missiles. The next class of SSBNs will be around 10,000 tonnes and will carry K-5 missiles with a range more than 5,000km.

In the meantime, India has signed on to acquire the Akula class nuclear powered conventionally armed attack submarine (SSN) from Russia latest by 2028. While Russia has recently offered India another SSN on lease, the Modi government has cleared the Indian Navy's plan to construct two SSNs under "Make in India" on October 9. The SSNs hold advantage over diesel powered attack submarines (SSKs) as they have unlimited range and are constrained only by food supplies, crew fatigue and maintenance. The SSNs carry more torpedoes and missiles and do not have to surface for charging batteries. The only advantage of SSKs is that they are very quiet as compared to SSNs and SSBNs and can be used for surprise attacks.

At present China and Turkey are supplying guided missiles frigates to Pakistan with Turkey upgrading Islamabad's submarines and Beijing supplying new Yuan class submarines. Under the circumstances, India has strategic threats both in Arabian Sea as well as the larger Indian Ocean Region with Chinese aircraft carrier led patrols expected in 2026 after the commissioning of the latest Fujian heavy carrier. The Chinese carrier based pilots and platforms have also shown rapid learning skills and pose a threat to the Indo-Pacific. The only counter to surface threats in the Indian Ocean Region are Indian SSBNs and SSNs as onlya sea based deterrent has survivability and second-strike capability.

https://www.hindustantimes.com/india-news/india-nears-sea-based-nuclear-triad-as-k-4-missile-clears-key-test-101766660631044.html

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Defence News

India test fires 3,500-km missile from nuclear submarine

Source: The Times of India, Dt. 25 Dec 2025

India tested an intermediate-range ballistic missile called K-4, which is designed to hit targets 3,500-km away, from the nuclear-powered submarine INS Arighaat in the Bay of Bengal on Tuesday. There was no official word from the defence ministry on the missile test conducted off the coast of Visakhapatnam from the 6,000-tonne INS Arighaat, which is operated by the tri-service strategic forces command. Sources, however, confirmed the missile was the solid-fuelled K-4, which can carry a two-tonne nuclear payload and is critical for India to strengthen the sea leg of its nuclear weapons triad.

"A comprehensive analysis will determine whether Tuesday's test actually met all laid down technical parameters and mission objectives or revealed some shortcomings. It usually takes several tests for ballistic missiles, especially those launched from submarines, to achieve full operational status," a source said.

After multiple trials from undersea platforms in the shape of submersible pontoons over the last several years, the two-stage K-4 missile was tested for the first time from INS Arighaat in Nov last year. INS Arighaat, the country's second nuclear-powered submarine with nuclear-tipped ballistic missiles (called SSBN in naval parlance), was commissioned on Aug 29 last year.

Her forerunner INS Arihant, which became fully operational in 2018, can carry only the 750-km range K-15 missiles. India will commission its third SSBN as INS Aridhaman in the first quarter of 2026 and the fourth in 2027-28 under the secretive over Rs 90,000 crore ATV (advanced technology vessel) programme launched decades ago. These two SSBNs are slightly larger, with a displacement of 7,000 tonnes each, than the first two 6,000-tonne ones.

There is also the plan to eventually build 13,500-tonne SSBNs, with much more powerful 190 MW pressurised light-water reactors instead of the existing 83 MW ones on the first four submarines.

India's existing SSBNs, of course, are less than half the size of the ones with the US, China and Russia. The operational deployment of K-4 missiles, which will be followed by the K-5 and K-6 missiles in the 5,000 to 6,000-km range class, will somewhat help India narrow the huge gap with countries like the US, Russia and China, which have a range of intercontinental ballistic missiles (ICBMs).

The first two legs of India's nuclear triad are much more robust, with the land-based ballistic missiles led by the Agni-5 with a strike range of over 5,000 km and fighters like Rafales, Sukhoi-30MKIs and Mirage-2000s capable of delivering nuclear gravity bombs. The SSBNs, however, impart India's deterrence posture with much more credibility because they are considered the most secure, survivable and potent platforms for retaliatory strikes in line with the country's "no first-use" policy.

https://timesofindia.indiatimes.com/india/india-test-fires-3500-km-missile-from-nuclear-submarine/articleshow/126167025.cms

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Military plans to add raft of weapons next year to bolster combat readiness

Source: Hindustan Times, Dt. 26 Dec 2025

The Indian military is on course to bolster its combat readiness with the induction of a raft of weapons and systems next year, including fighter jets, warships, an indigenous nuclear-powered ballistic missile submarine, locally made transport planes, basic trainers, missiles, long-range rockets and different types of loitering munitions, people aware of the matter said on Thursday.

The key platforms that will enter service include the light combat aircraft (LCA Mk-1A), nuclear-powered ballistic missile submarine Aridaman, some Project 17A stealth frigates, India-made C-295 transport aircraft, Akash next-generation surface-to-air missiles, and drones for intelligence, surveillance and reconnaissance (ISR), the people said.

The induction of the delayed LCA Mk-1A is among the most awaited ones. Hindustan Aeronautics Limited (HAL) plans to deliver at least five LCA Mk-1As to the Indian Air Force by the end of financial year 2025-26; the target revised from 10 fighter jets that the state-run plane maker was hoping to deliver under an earlier timeline.

The IAF has so far placed two separate orders for a total of 180 LCA Mk-1As with a combined value of ₹1.1 lakh crore to shore up its fighter fleet, with the first contract for 83 jets inked in February 2021, followed by a second one for 97 fighters in September 2025. To be sure, not a single plane has been delivered thus far, and the first aircraft under the 2021 order was to be delivered in March 2024.

Another key commissioning in early 2026 will be that of the nuclear-powered ballistic missile submarine, Aridaman; it will be the navy's third Arihant-class submarine, and will serve as an undetectable launch platform for missiles armed with nuclear warheads. A fourth SSBN codenamed S-4* will enter service in 2027. SSBN stands for ship submersible ballistic nuclear or nuclear-powered ballistic missile submarines.

The navy commissioned its second indigenous SSBN, INS Arighaat, at Visakhapatnam in August 2024, strengthening India's nuclear triad or ability to launch strategic weapons from land, sea and air. The United States, Russia, the United Kingdom, France and China are the only other countries that can deliver nuclear warheads from a submarine.

India's first indigenous SSBN, the 6,000-tonne INS Arihant, was commissioned nine years ago and it successfully completed its first deterrence patrol in 2018, with Prime Minister Narendra Modi then triumphantly announcing that the success of the submarine "gives a fitting response to those who indulge in nuclear blackmail."

The IAF will induct its first India-made C-295 transport aircraft next year under a ₹21,935-crore contract being jointly executed by Airbus and Tata Advanced Systems Limited. The defence ministry inked this contract with Airbus Defence and Space for 56 planes in September 2021. The European aircraft maker has already delivered 16 planes in fly-away condition, while the rest are being assembled in India at a Tata facility in Gujarat's Vadodara city.

The first made-in-India C-295 will roll out of the Vadodara facility in September 2026 and the remaining 39 by August 2031.

The Project 17A stealth frigates Taragiri, Mahendragiri, Dunagiri and Vindhyagiri will be commissioned into the navy by August-September 2026. The ₹45,000-crore P-17A (Nilgiri class) is a follow-on of the Shivalik-class (P-17) stealth frigates and represents a significant upgrade over the previous warships. Three P-17A stealth frigates are already in service.

The navy is working on becoming fully self-reliant by 2047 when India celebrates 100 years of independence. Around 60 warships are under construction at various Indian shipyards.

https://www.hindustantimes.com/india-news/military-plans-to-add-raft-of-weapons-next-year-to-bolster-combat-readiness-101766689078019.html

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How Op Sindoor shaped triservices' synergy

Source: The Tribune, Dt. 25 Dec 2025

Operation Sindoor during India and Pakistan's four-day skirmish from May 7 to 10 this year not just defined a modern battle, but triggered a change in architecture of the Army and spurred an addition of technology in the Navy and the Air Force (IAF). In retaliation to the killing of 26 tourists by Pakistan-trained terrorists in J&K's Pahalgam, Operation Sindoor was launched on May 7 by targeting terrorist camps in Pakistan. Featuring operations across land, air, and sea, the operation demonstrated a seamless synergy between the Indian Army, Air Force and Navy.

The subsequent changes in the armed forces have been witnessed on multiple fronts, including on war-fighting and new equipment, as the nature of war has gravitated towards swift targeted strikes, while simultaneously launching multiple drones, missiles and jets.

Army restructuring as tech took centre stage

As the Army's new approach focuses on creating rapid-response fighting formations, its structure has undergone a first change in decades and now aligns war-fighting architecture towards greater use of technology. All the 385 infantry battalions now have a specialised drone unit called 'Ashni', enabling precision strikes.

Five Bhairav Battalions have been created as light commando units, capable of rapid, high-impact missions along the borders. These battalions have specialised troops designed for surprise attacks, cross-border raids, disruptive operations and advanced reconnaissance. The creation of 'Rudra' brigades is another change. These integrate fighting components like infantry, mechanised infantry, armoured units, artillery, special forces and unmanned aerial systems.

Countering airborne threats became key to success

Central to Operation Sindoor's success was the Integrated Air Command and Control System (IACCS) of the IAF, which facilitated real-time identification of airborne threats and aided in interception by directing firepower. The Army's air defence units worked in tandem and were instrumental in countering waves of drones and loitering munitions launched by Pakistan. On the other hand, destruction of Pakistan's air defence radars by the Indian Air Force was a crucial factor, which resulted in as many as 13 Pakistan air force bases getting hit on May 10.

IAF looks to expand its fleet of fighter jets

The Indian Air Force's strikes during the skirmish displayed 'precision', however, the force has set its sights to bring in sweeping changes for expansion. Of these, the most significant one is the

proposal to increase the IAF's authorised fighter squadron strength from the long-standing 42 squadrons to 50 or higher, needed for a simultaneous two-front war with China and Pakistan. Additional fighter jets will be a key factor for implementing this proposal. To start with, the Ministry of Defence has ordered 97 additional Tejas Mark1A jets. The IAF has pitched for 114 more Rafale jets via government-to-government route with France.

The IAF and MoD are also backing the production of Advanced Medium Combat Aircraft (AMCA) and working to accelerate the manufacturing of the Tejas Mark2 jets. A project is also on to make the IACCS even more robust. A newer air defence missile, Akash-NG, is being fast-tracked, while indigenous air defence systems are being added to protect airbases, logistics nodes and critical infrastructure.

Navy updates doctrine, adds 'no war, no peace' category

The Navy also played a critical role in asserting maritime dominance during Operation Sindoor. It deployed its carrier battle group (CBG), which is equipped with MiG-29K fighter jets and airborne early warning helicopters. The CBG maintained a powerful air defence shield that prevented hostile aerial incursions, especially from the Karachi coast.

After Operation Sindoor, the Navy updated its doctrine and listed 'no war, no peace' as distinct operational category between peace and full conflict, reflecting a military operation short of an all-out war, without crossing into total war or territorial acquisition. The doctrine explicitly integrates tactics for grey-zone competition, hybrid warfare and irregular warfare. The Navy is also accelerating the making of warships, adding to its fleet of maritime reconnaissance aircraft, utility helicopters and ship-borne drones. Post-Operation Sindoor, the Navy has accelerated development and deployment of autonomous boats.

Joint military doctrines for modernisation, integration

The office of the Chief of Defence Staff (CDS) released six joint doctrines in two phases across August and September, representing a major thrust toward modernisation and force integration. These include doctrines on cyberspace operations; amphibious operations; special forces operations; airborne and heliborne operations; joint military space doctrine; and multi-domain operations. The last one covers integrated employment across land, sea, air, space, cyber and cognitive domains. In a way it integrates military as well as non-military national capabilities.

https://www.tribuneindia.com/news/india/how-op-sindoor-changed-architecture-of-armed-forces/

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China using LAC disengagement to reset India ties, curb U.S. alignment, says report

Source: The Hindu, Dt. 25 Dec 2025

China is attempting to leverage the disengagement from remaining standoff sites along the Line of Actual Control (LAC) to ease tensions and stabilise its relationship with India, a U.S. Department of War report said on Wednesday (December 24, 2025). The report further notes that China has likely explored potential options for bases in several countries, including Bangladesh, Pakistan, Sri Lanka, and other regions, underscoring its growing strategic reach.

The October 2024 agreement, the report notes, may be part of a broader Chinese strategy to prevent deeper strategic alignment between New Delhi and Washington. China's expanding military footprint in South Asia has also drawn attention. According to the report, Beijing has delivered 36 J-10C fighter aircraft to Pakistan in two separate orders over the past five years, along with four frigates.

It further reads that the announcement by the Indian leadership came just two days before a meeting between Chinese President Xi Jinping and Prime Minister Narendra Modi on the sidelines of the BRICS summit, signalling a calibrated diplomatic thaw after years of military and political strain. The Xi-Modi interaction marked the beginning of monthly high-level engagements between the two countries. These discussions have focused on border management mechanisms, and explored steps to stabilise broader bilateral ties, including the resumption of direct flights, visa facilitation, and exchange initiatives for academics and journalists.

China is likely attempting to leverage the reduction in tensions along LAC to stabilise relations with India and prevent further deepening of U.S.-India strategic ties, the report states. However, India is believed to remain cautious, viewing Beijing's overtures through the lens of past actions and unresolved disputes. Persistent mutual distrust and multiple strategic irritants are expected to continue constraining the relationship.

Meanwhile, China's leadership has broadened the scope of what it terms its "core interests", extending it beyond Taiwan to include sovereignty claims in the South China Sea, the Senkaku islands, and India's northeastern State of Arunachal Pradesh — an assertion that continues to be strongly rejected by New Delhi, the report further reads.

https://www.thehindu.com/news/national/china-probably-seeks-to-capitalise-on-decreased-tension-along-lac-to-stabilise-ties-with-india-us-report/article70433397.ece

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China planning bases in India vicinity: US report

Source: The Tribune, Dt. 25 Dec 2025

China has been "actively planning" to establish additional military facilities to support its naval and air operations in several countries in India's neighbourhood, says an annual report of the US Department of War. The report, titled "Military and Security Developments Involving the People's Republic of China-2025" and presented to the US Congress, was released today. It also mentions that Beijing has been "probably seeking to prevent deepening of US-India ties and itself helping Pakistan with latest fighter jets".

The report also hints at Chinese help to Pakistan around Operation Sindoor. "Before May 2025, China delivered 20 units of its J-10C fighter jet to Pakistan as part of two previous orders totalling 36 planes since 2020," it says.

And in what could alarm analysts in India, the People's Liberation Army (PLA) of China is actively considering and planning for additional military facilities to support naval and air projection. China is likely considering bases in Bangladesh, Myanmar, Indonesia and Sri Lanka. It already has one in Pakistan at Gwadar on the Arabian Sea coast.

Also, China's desire to have bases abroad extends to Angola, Cuba, Equatorial Guinea, Kenya, Mozambique, Namibia, Nigeria, Papua New Guinea, Seychelles, Solomon Islands, Tajikistan,

Thailand, Tanzania, United Arab Emirates and Vanuatu, says the report. From the Indian perspective, the bases in Kenya, Tanzania, Mozambique and Seychelles are vital due to their location in the Indian Ocean Region.

The report says the PLA is probably most interested in military access along the sea lines of communication in the Malacca Strait, located east of India and the Strait of Hormuz (in Persian Gulf) and other areas in Africa and the West Asia.

On the India-China relationship, the report assesses that "China probably seeks to capitalise on decreased tension along the Line of Actual Control to stabilise bilateral relations and prevent the deepening of US-India ties". India probably remains sceptical of China's actions and motives. Continued mutual distrust and other irritants almost certainly limit the bilateral relationship, says the report.

On China's growing military exports, the report says Beijing offers three combat aircraft for export, including the fifth generation FC-31 and the fourth generation J-10C multirole combat aircraft. China and Pakistan co-produce the JF-17 light combat aircraft.

In addition to manned aircraft, China has supplied armed UAVs 'Caihong' and 'Wing Loong' to Pakistan, Myanmar, Algeria, Egypt, Ethiopia, Indonesia, Iraq, Morocco, Serbia and the UAE. During the next five years, China would probably grow its naval export market, adding to a customer base that currently includes Bangladesh, Malaysia, Pakistan and Thailand, the report adds.

https://www.tribuneindia.com/news/top-headlines/china-planning-bases-in-india-vicinity-us-report/

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Science & Technology News

6100 किलो का अमेरिकन सैटेलाइट हुआ लॉन्च, इसरो ने रचा इतिहास

Source: Punjab Kesari, Dt. 25 Dec 2025

पंजाब केसरी/श्रीहरिकोटा

क्रिसमस की पूर्व संध्या पर एक ऐतिहासिक मिशन के तहत भारतीय अंतरिक्ष अनुसंधान संगठन (इसरो) के सबसे भारी प्रक्षेपण यान 'एलवीएम-3 एम-6' ने एक अमेरिकी संचार उपग्रह को उसकी निर्धारित कक्षा में बुधवार को सफलतापूर्वक स्थापित कर दिया।इसरो ने बताया कि प्रक्षेपण यान एलवीएम-3 एम-6 ने 'ब्लूबर्ड ब्लॉक-2' उपग्रह को उसकी निर्धारित कक्षा में सफलतापूर्वक स्थापित किया।'ब्लूबर्ड ब्लॉक-2' मिशन का उद्देश्य उपग्रह के जरिए सीधे मोबाइल कनेक्टिविटी

ब्लूबर्ड 2 क्यों है खास?

ब्लूबर्ड ब्लॉक-2 को विश्वभर में स्मार्टफोन को सीधे हाई-स्पीड सेलुलर ब्रॉडबैंड प्रदान करने के लिए डिजाइन किया गया है।इस उपग्रह में 223 वर्ग मीटर का विशाल फेज्ड-एरे एंटीना लगा है, जो इसे अब तक एलईओ में तैनात किया गया सबसे बड़ा वाणिज्यिक संचार उपग्रह बनाता है।ब्लूबर्ड ब्लॉक-2 की मदद से स्मार्टफोन वाणिज्यिक और सरकारी दोनों उद्देश्यों के लिए सीधे उपग्रहों से जुड़ सकेंगे।यह नेटवर्क दुनिया भर में कहीं भी 4G और 5G वॉयस और वीडियो कॉल, मैसेजिंग, स्ट्रीमिंग और डेटा सेवाओं को सपोर्ट करेगा।

उपलब्ध कराना है।यह नेटवर्क कहीं भी, कभी भी, सभी के लिए 4जी और 5जी वॉयस-वीडियो कॉल, संदेश, स्ट्रीमिंग और डेटा सेवाएं उपलब्ध कराएगा। प्रक्षेपण यान एलवीएम-3

एम-6 को 'बाहुबली' के नाम से भी जाना जाता है। यह मिशन 'न्यूस्पेस इंडिया लिमिटेड' (एनएसआईएल) और अमेरिका स्थित एएसटी स्पेसमोबाइल के बीच हुए वाणिज्यिक समझौते के तहत संचालित किया गया। एनएसआईएल, इसरो की वाणिज्यिक इकाई है।चौबीस घंटे की उल्टी गिनती पूरी होने के बाद दो एस-200 ठोस बूस्टर से युक्त 43.5 मीटर लंबा यान चेन्नई से लगभग 135 किलोमीटर पूर्व स्थित इस अंतरिक्ष केंद्र के दूसरे प्रक्षेपण 'पैड' से सुबह रवाना हुआ। करीब 15 मिनट की उड़ान के बाद 'ब्लूबर्ड ब्लॉक-2' प्रक्षेपण यान से अलग हो गया।

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ISRO sends largest commercial communications satellite to orbit

Source: The Hindu, Dt. 25 Dec 2025

The Indian Space Research Organisation's (ISRO) Launch Vehicle Mark 3 (LVM3) on Wednesday (December 24, 2025) morning successfully placed the BlueBird Block-2 satellite in low earth orbit. At 8.55 a.m., the LVM3 lifted off from the second launch pad of the Satish Dhawan Space Centre in Sriharikota and 15 minutes later placed the satellite in the intended orbit. ISRO accomplished two milestones with this mission as it was able to deploy the largest commercial communications satellite in low earth orbit and also the BlueBird Block-2 satellite became the heaviest payload (6,100 kgs.) to be launched by LVM3 from Indian soil.

"LVM 3 Bahubali rocket M6 launch vehicle has successfully and precisely injected the BlueBird Block-2 communication satellite in the intended orbit. This is the first dedicated commercial launch for a customer from the USA," ISRO Chairman Dr. V. Narayanan said. Dr. Narayanan added that this is the heaviest satellite ever lifted from Indian soil using an Indian launcher.

"I am extremely happy to announce the performance of the orbit that we have got is less than two kilometers. This is one of the best performances of any launch vehicle in the global arena. With this mission India has successfully launched 434 satellites for 34 countries," Dr. Narayanan added.

"Powered by India's youth, our space programme is getting more advanced and impactful. With LVM3 demonstrating reliable heavy-lift performance, we are strengthening the foundations for future missions such as Gaganyaan, expanding commercial launch services and deepening global partnerships. This increased capability and boost to self-reliance are wonderful for the coming generations," Prime Minister Narendra Modi posted on X.

The BlueBird Block-2 communication satellite is developed by AST SpaceMobile, USA and is part of a next generation of BlueBird Block-2 communication satellites, designed to provide space-based cellular broadband connectivity directly to standard mobile smartphones.

"BlueBird block-2 mission is part of a global LEO constellation to provide direct-to-mobile connectivity through satellite . This constellation will enable 4G and 5G voice and video calls, texts, streaming, and data for everyone, everywhere, at all times. It features a 223m² phased array,

making it the largest commercial communications satellite ever deployed into low Earth orbit," ISRO said.

ISRO launching the LVM3-M6 rocket with the BlueBird Block-2 mission on December 24, 2025.

Dr. Narayanan said that the LVM3-M6 mission was the 104th launch from Sriharikota and also the ninth successful mission of the LVM-3 launch vehicle and the third dedicated commercial mission demonstrating its 100% reliability. "As all of you recall we had the LVM-3 launch just last month on November 2, 2025. This is also the first time we have a back to back mission of LVM 3 within just 52 days. It is a great achievement and a great target achieved as per the vision of our honorable prime minister of India. This was not an easy task considering the enormous efforts required because it requires very close coordination among various teams at different ISRO centers," Dr. Narayanan said.

https://www.thehindu.com/sci-tech/science/isro-bluebird-block-2-mission-rocket-launch-december-24-2025/article70432346.ece

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India's coming of age in space

Source: The Pioneer, Dt. 25 Dec 2025

If there is one Indian institution that has consistently delivered excellence and steadily raised benchmarks, it is ISRO. What began as a modest space agency has today evolved into one of the world's most respected space organisations, bringing pride to the nation and tangible benefits to every Indian. From accurate weather forecasting and disaster management to communication and surveillance, ISRO's contributions quietly underpin daily life.

Its journey has been all the more remarkable because space research and development is an unforgiving arena, fraught with technological risks and setbacks at every stage-challenges that ISRO has repeatedly met with resilience, innovation, and resolve.

With the successful launch of BlueBird Block-2 aboard the LVM3-M6-aptly nicknamed Baahubali-the Indian Space Research Organisation has once again reaffirmed its place among the world's serious space powers. Lifting off from Sriharikota with a 6,100-kg payload, the heaviest ever placed into Low Earth Orbit by an Indian rocket, the mission marks not merely a technical triumph but a decisive moment in India's evolving space journey-from capability to credibility.

The significance of the launch lies as much in what was carried as in who carried it. BlueBird Block-2, developed by US-based AST SpaceMobile, was launched under a commercial agreement facilitated by ISRO's commercial arm, NewSpace India Ltd. What is important here is not only the feat but also the trust and respect the Indian space agency commands across the world. That a foreign private entity entrusted its most ambitious next-generation communication satellite to an Indian launcher speaks volumes about the capabilities of ISRO. Indeed, ISRO has matured into a reliable service provider and a money-spinner.

The LVM3 rocket itself stands as a symbol of ISRO's quiet maturation. Standing 43.5 metres tall and powered by indigenous cryogenic technology, it is a dependable heavy-lift vehicle capable of complex commercial and strategic missions. From Chandrayaan-2 and Chandrayaan-3 to LVM3, it has demonstrated consistency-an attribute that matters as much as innovation in the unforgiving realm of space.

Commercial launches translate into revenue and strengthen India's strategic autonomy by ensuring that critical launch capabilities remain sovereign. As Prime Minister Narendra Modi noted, the mission reflects the spirit of Aatmanirbhar Bharat-self-reliance anchored not in isolation, but in global competitiveness.

ISRO's growing technological depth also finds resonance beyond civilian space. The recent successful test launch of an indigenous missile system-enabled by advances in guidance, propulsion, and tracking technologies developed with ISRO's support-highlights the agency's broader contribution to national security. While ISRO has been pivotal in strengthening India's growth and strategic capabilities, satellites launched by ISRO power weather forecasting, disaster management, navigation, agriculture, telecommunications, and education across India, quietly improving the lives of every Indian citizen.

https://dailypioneer.com/news/india-s-coming-of-age-in-space

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After year of successes, ISRO set for big leaps

Source: The Indian Express, Dt. 26 Dec 2025

The Indian Space Research Organisation (ISRO) closed out the year with the successful launch of the LVM3-M6 mission in which it deployed a 6,100-kg commercial satellite, Bluebird Block-2, into low-earth orbit. It was the heaviest payload carried by an Indian rocket. Commercial satellite launches, even from other countries, have become routine for the ISRO, having put as many as 434 foreign satellites into space till now belonging to 34 different countries.

The important thing about Wednesday's launch, however, was the demonstration of yet another new capability by the ISRO, to launch very heavy satellites, weighing six tonnes or more. Over the last few years, each of ISRO's launches has involved the demonstration of a new technology or capability. Individually, they might only represent incremental progress, but together they show the steady evolution of the ISRO into one of the world's most powerful space agencies.

At the start of the year, the ISRO demonstrated its ability to dock and undock two satellites in space in the SpaDeX mission, an ability that is vital to its ambitions to set up a space station of its own and send more sophisticated lunar and other missions. That was followed by the long-awaited NISAR mission in July, the first of its kind, a joint India-US space mission, in which the satellite was a novelty.

It was a unique satellite that carried two Synthetic Aperture Radars of different frequencies designed to work together to produce the most detailed images of Earth ever captured from space. Then came the LVM3-M5 mission in November in which the ISRO placed the 4,400-kg CMS-03 satellite to geosynchronous orbit. It was the heaviest payload that the ISRO has put in the faraway orbit. So the last two launches have been about demonstrating the capability to carry very heavy satellites, to the low-earth orbit or even the geosynchronous orbit.

The upcoming missions, too, are all meant to be special in one way or another, for the rocket or the satellites. The ISRO is targeting at least six more launches before March next year. If that happens, it would be the busiest three-month period in its history. The most keenly awaited of these is, of course, the first of the three planned uncrewed flights of the Gaganyaan human spaceflight programme, which is supposed to carry a humanoid robot.

https://indianexpress.com/article/opinion/editorials/after-year-of-successes-isro-set-for-big-leaps-10439210/

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DST institute signs MoU for collaborative technology development for strategic and high-performance engineering applications

Source: Press Information Bureau, Dt. 24 Dec 2025

A new Memorandum of Understanding (MoU) between an autonomous institute of the Department of Science and Technology (DST) and industry will help collaborative development and demonstration for technologies related to advanced manufacturing and materials technologies relevant to strategic and high-performance engineering applications.

The MoU was signed between the International Advanced Research Centre for Powder Metallurgy and New Materials (ARCI), an autonomous research and development centre under the Department of Science and Technology (DST), Government of India, and Raghu Vamsi Machine Tools Pvt. Limited, Hyderabad.

The MoU establishes a structured framework for cooperation between the two organisations, enabling joint efforts in technology development, product demonstration, and application-oriented research, along with effective utilisation of ARCI's specialised facilities under the Government Owned Company Operated (GOCO) model. The collaboration also encompasses intellectual property generation, knowledge transfer, and mechanisms to facilitate the transition of research outputs towards industrial deployment.

The scope of collaboration covers advanced manufacturing and surface engineering domains, including laser-based processes, additive manufacturing, precision machining, high-performance materials processing, and associated testing and evaluation activities. These areas will be pursued

based on mutual interest and evolving requirements, with flexibility to expand the scope as the collaboration progresses.

The partnership reflects a shared commitment to strengthen industry–R&D linkages and enhance indigenous technological capabilities. By combining ARCI's research expertise with industry-driven application and manufacturing perspectives, the collaboration aims to support the development of reliable, scalable, and industry-ready solutions, contributing to India's objectives of self-reliance in advanced manufacturing and strategic technology sectors.

https://www.pib.gov.in/PressReleasePage.aspx?PRID=2208125&reg=3&lang=1

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The Tribune
The Statesman
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The Hindu
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Hindustan Times
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