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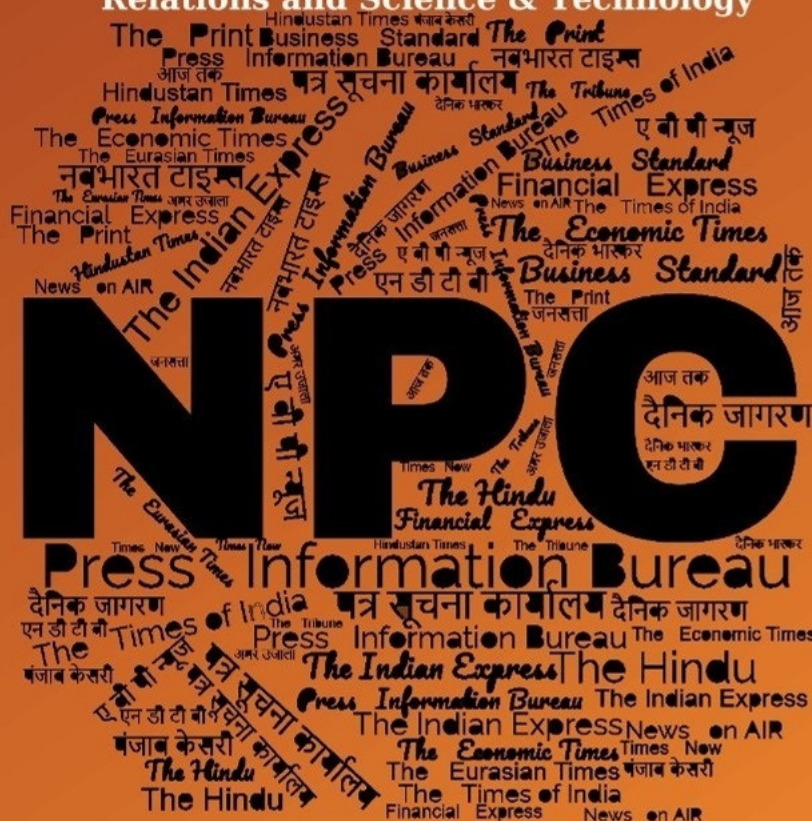
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# समाचार पत्रों से चयनित अंश Newspapers Clippings

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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# Defence News

## भारत को 113 तेजस मार्क-1ए इंजन देगा अमेरिका

Source: Punjab Kesari, Dt. 09 Nov 2025

हिंदुस्तान एयरोनॉटिक्स लिमिटेड (एचएएल) ने शुक्रवार को अमेरिकी कंपनी जीई एयरोस्पेस के साथ एक



बड़ा समझौता किया। इसके तहत एचएएल तेजस लड़ाकू विमान कार्यक्रम के लिए 113 नए जेट इंजन खरीदेगा। भारत-अमेरिका संबंधों में हाल ही में तनाव और अमेरिकी सरकार की ओर से भारतीय सामान पर 50% टैरिफ लगाए जाने के बावजूद यह सौदा फाइनल किया गया है। समझौते के अनुसार, जीई के एफ404-जीई-आईएन20 इंजन की सप्लाई 2027 से शुरू होगी और 2032 तक पूरी हो जाएगी। अधिकारियों के मुताबिक, इस डील की कीमत लगभग 1 अरब डॉलर यानी करीब 8,870 करोड़ रुपये है।

\*

## HAL inks \$1-billion fighter engine deal with GE

Source: Hindustan Times, Dt. 09 Nov 2025

Plane maker Hindustan Aeronautics Limited (HAL) on Friday announced that it has signed a deal with US engine maker GE Aerospace for 113 F404-IN20 engines to power the 97 additional light combat aircraft (LCA Mk-1A) ordered by the defence ministry to boost the air force's readiness.

The deal, estimated to be worth \$1 billion, includes a support package for the execution of the programme. The engine deliveries would take place between 2027 to 2032, HAL said in a statement on X.

The new engine contract comes a month-and-a-half after the defence ministry signed a ₹62,370-crore deal with HAL to buy 97 more LCA Mk-1As for the IAF which is wrestling with a worrying

shortage of fighter jets. The delivery of these aircraft will begin in 2027-28 and be wrapped up over six years. The aircraft ordered in September include 68 fighter jets and 29 twin-seat trainers.

This was the second contract for the LCA Mk-1As --- the defence ministry ordered 83 LCA Mk-1As for ₹48,000 crore in February 2021 to shore up the Indian Air Force's fighter fleet. To be sure, none of the fighters ordered four years back has been delivered yet. The IAF could get the delivery of the first of the 83 jets already ordered in the coming months.

The LCA Mk-1As will replace the IAF's MiG-21 fighter jets. The IAF, the world's fourth largest airforce, retired the last of its iconic MiG-21 fighter jets in September, bringing the curtain down on a 62-year journey. The IAF is concerned about the current pace of the LCA Mk-1A programme because of the possible risks a delay in the induction of new fighters could pose to its combat effectiveness.

The LCA Mk-1A programme (83 aircraft) was earlier hampered by the delay in supply of F404-IN20 engines. The delivery of engines for the first order has now stabilised. GE Aerospace has already delivered a few engines, and another 20 units are expected next year as the US firm has fixed supply chain bottlenecks. The engine maker has also said it will deliver more than 20 engines per year from 2027.

The first of the 83 LCA Mk-1As on order will be delivered after the completion of weapon trials. The first aircraft was to be delivered in March 2024 under the 2021 order.

In October, defence minister Rajnath Singh inaugurated new production lines of the LCA Mk-1 and the HTT-40 basic trainer in Nashik to meet the air force's growing needs. HAL can build 16 Mk-1As every year in Bengaluru, and the Nashik production line will help it ramp production to a total of 24 jets. HAL is also negotiating with GE Aerospace another deal for the joint production of F414 engines in India for the more advanced LCA Mk-2 programme. The deal will involve 80% transfer of technology and is also estimated to be worth around \$1 billion.

In his Independence Day address, Prime Minister Narendra Modi made a strong case for building jet engines in the country, putting the spotlight on a striking technology gap and stressing that self-reliance is the linchpin of India's efforts towards becoming a developed nation by 2047.

"I urge India's young scientists, talented youth, engineers, professionals and all government departments that we should have our own jet engines for our Made-in-India fighter jets," he said at the time, adding that developing jet engines will ensure future defence technology is entirely home-grown.

<https://www.hindustantimes.com/india-news/hal-inks-1-billion-fighter-engine-deal-with-ge-101762541303367.html>

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## Exercise Trishul in full swing across western sector, Arabian Sea

*Source: Hindustan Times, Dt. 09 Nov 2025*

The tri-services exercise Trishul is in full swing in the country's western sector and the Arabian Sea, and will culminate next week with large-scale amphibious drills off the Saurashtra coast, officials aware of the matter said on Saturday.

The two-week exercise, which began on October 30, aims to test the military's operational readiness and strengthen synergy among the three services and other organisations. It involves tens of thousands of soldiers, fighter jets, warships, submarines, tanks, artillery guns and several other weapons and systems.

Different elements of the overarching exercise are unfolding in a series of drills being conducted across Rajasthan, Gujarat and the Arabian Sea, the officials said, asking not to be named. A joint exercise in the Kutch sector, involving the Army, Navy, Air Force, Coast Guard and the Border Security Force, is rehearsing integrated operational capability in close coordination with the civil administration, reflecting a military-civil fusion approach to national security, said one of the officials.



*It involves tens of thousands of soldiers, fighter jets, warships, submarines, tanks, artillery guns and several other weapons and systems.*

In Rajasthan, the Army's Southern Command formations are carrying out integrated manoeuvres to validate combined arms operations, mobility, and joint fire integration under realistic conditions, said another official. "The training will culminate in a mega combat exercise validating precision targeting and multi-domain coordination, reaffirming the Army's commitment to transformation through rigorous training and operational validation."

This is the first major military exercise being held after the four-day confrontation with Pakistan in May under Operation Sindoor, which marked New Delhi's direct military response to the April 22 Pahalgam terror attack in which 26 people were killed. India launched the operation in the early hours of May 7 and struck terror and military installations in Pakistan and Pakistan-occupied Kashmir (PoK).

Exercise Trishul began with mission-focused validations to strengthen integrated readiness across multiple domains, said the first official. "Covering electronic warfare, cyber, drone and counter-drone operations, intelligence, surveillance and reconnaissance, as well as air defence control and reporting, the exercise reaffirms tri-service preparedness to dominate both virtual and physical domains through seamless land, sea and air integration for coordinated action," he said.

The final phase of the exercise will culminate with amphibious drills off the Saurashtra coast, featuring beach landing operations and validating full-spectrum land-sea-air integration, underscoring the Indian military's ability to project power across multiple domains, the officials

added. The exercise involves the Western Naval Command, South Western Air Command and the Army's Western Command.

The exercise area also covers the Sir Creek sector separating Gujarat from Pakistan's Sindh province. On October 2, defence minister Rajnath Singh warned Islamabad of an overwhelming response if it attempted any mischief in the Sir Creek sector, his comments coming against the backdrop of Pakistan shoring up military infrastructure near the disputed area. The response, he had said, would be strong enough to alter the history and geography of the region, putting the spotlight on the 96-km disputed maritime strip on which both sides last held talks more than 13 years ago.

<https://www.hindustantimes.com/india-news/exercise-trishul-in-full-swing-across-western-sector-arabian-sea-101762597769583.html>

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## चिकन नेक के पास एयर शो से उड़ी दुश्मन की नींद

Source: Dainik Jagran, Dt. 10 Nov 2025

गुवाहाटी, प्रेड्र: भारतीय वायुसेना की 93वीं वर्षगांठ पर लांचित घाट पर ब्रह्मपुत्र नदी के ऊपर रविवार को भव्य एयर शो 'फ्लाईड डिस्प्ले 2025' का आयोजन किया गया। इस मौके पर वायुसेना के तेजस और राफेल जैसे आधुनिक विमानों और हेलिकाप्टरों ने 25 अलग-अलग फार्मेशन में उड़ान भरी। वायुसेना की सूर्यकिरण एयरोबेटिक टीम और सारंग हेलिकाप्टरों ने इस मौके पर हैरतअंगेज करतब दिखाकर लोगों को रोमांचित कर दिया। असम के मुख्यमंत्री हिमंत बिस्व सरमा ने कहा कि इस एयर शो से देश के दुश्मनों को सख्त संदेश मिला है। माना जा रहा है कि चीन को सख्त संदेश देने के लिए इस भव्य एयर शो का आयोजन किया गया। एक्स पर एक पोस्ट में सीएम सरमा ने लिखा कि पूर्वोत्तर में पहली बार आयोजित हुए



वायुसेना दिवस की 93वीं वर्षगांठ के दौरान उड़ान भरते लड़ाकू विमान एसयू-30 ●

इस एयर शो के जरिये वायुसेना ने चिकन नेक गलियारे के पास अपनी ताकत, कौशल और भावना का शानदार प्रदर्शन कर दुश्मनों की नींद उड़ा दी है।

वायुसेना के प्रदर्शन में राफेल, सुखोई-30, मिग-29, मिराज,

### 'चिकन नेक' के नाम से जाना जाता है 'सिलिगुड़ी कारिडोर'

उत्तर बंगाल के सिलिगुड़ी में स्थित संकरे गलियारे को 'सिलिगुड़ी कारिडोर' या 'चिकन नेक' के नाम से जाना जाता है। यह भारत के मुख्य भूभाग को उत्तर-पूर्व के सात राज्यों से जोड़ता है। सबसे संकीर्ण हिस्से में इसकी चौड़ाई मात्र 20 किलोमीटर है। इस गलियारे की विशेषता यह है कि यह नेपाल, भूटान और बांग्लादेश- तीनों देशों की सीमाओं के बिल्कुल करीब है।

जगुआर, आइएल-78 रिफ्यूलर, सी-17 ग्लोबमास्टर, एंटोनोव एएन-32, सी-130 हर्कुलिस विमानों और अपाचे, एमआइ-17 और एडवांस्ड लाइट हेलिकाप्टर- एमके1 जैसे हेलिकाप्टरों ने हिस्सा लिया। इस एयरशो में कुल 75 विमानों ने हिस्सा

लिया। लंबे समय बाद वायुसेना की सारंग टीम ने भी इस आयोजन में हिस्सा लिया। इस मौके पर वायुसेना अध्यक्ष एयर मार्शल एपी सिंह, एयर आफिसर कमांडिंग इन चीफ आफ ईस्टर्न कमांड, एयर मार्शल सूरत सिंह व अन्य वायुसेना अधिकारी मौजूद थे। रक्षा पीआरओ लेफ्टिनेंट कर्नल महेंद्र रावत ने बताया कि ये पहली बार है कि वायु सेना ने पूर्वोत्तर में एयर शो किया।

स्वदेशी तेजस पर जमी रहीं सबकी निगाहें : एयर शो में देश में विकसित तेजस- मार्क1ए विमान पर सभी की निगाहें टिकी रहीं। इसे एचएएल ने तैयार किया है, जिसमें 65% तक स्वदेशी उपकरण इस्तेमाल किए गए हैं। तेजस मार्क-1ए एक सीट और एक जेट इंजन वाला चौथी पीढ़ी का विमान है। यह मुश्किल हालात में भी टारगेट भेद सकता है।

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# IAF's Rafale, Sukhoi & Tejas in flypast over Brahmaputra

Source: The Asian Age, Dt. 10 Nov 2025

**PAWAN BALI**  
with bureau inputs  
GUWAHATI/ NEW DELHI,  
NOV. 9

The Indian Air Force's frontline fighter jets — Rafale, Su-30 MKI, Mirage 2000, and Tejas — on Sunday roared in the skies over the majestic Brahmaputra river at Lachit Ghat, in Guwahati, as part of the flypast to celebrate its 93rd anniversary. In a separate development, the Indian Navy's warship *INS Sahyadri* is at the US naval base Guam for participation in the multilateral Exercise Malabar-2025, which kicks off on Monday.

The Sarang helicopter and Hawk aircraft teams enthralled people who had lined all along the Brahmaputra shore to witness them perform their aerobatic air display. This is the first time that the Air Force Day flypast was held in Guwahati. The selection of Assam for the flypast is also seen as strategic messaging in the face of growing closeness between Pakistan and Bangladesh.

Around 25 formations



The Indian Air Force's Sarang helicopters perform manoeuvres during an air show marking the 93rd anniversary celebrations at Lachit Ghat over the Brahmaputra in Guwahati on Sunday.

— PTI

**ASSAM CM Himanta Biswa Sarma and Air Force Chief Air Chief Marshal A.P. Singh were among the dignitaries who were present during the flypast**

with around 58 aircraft, which included fighters as well as transport aircraft and helicopters were in the flypast at the Lachit Ghat in Guwahati.

The fighter jets flew from their respective

bases to perform over the Brahmaputra river. Rafale and Su-30 MKI, who led the attacks on two terrorists and 11 Pakistan Air Force bases during Operation Sindoor, flew together with Mirage 2000 in Barak formation.

The French twin-engine multirole Rafale aircraft also flew solely in Haati formation, ending it with a vertical Charlie manoeuvre.

The

■ Turn to Page 4

## ■ Continued from Page 1

indigenous LCA Tejas flew in Dikhow formation. The MiG-29, Harvard and AEW&C were also part of the flypast.

The Air Force's helicopters, including the attack helicopters Apache, Mi-17, and ALH Mk1, also enthralled the audience. The transport aircraft C-295, C-130 and An-32 showed their presence during the airshow. This year, while the Air Force Day parade was held in Hindon airbase on October 8, the traditional flypast of frontline fighter jets of the Air Force and aerial display of the Air Force Day celebrations were held in Guwahati on Sunday. Assam CM Himanta Biswa Sarma and Air Force Chief Air Chief Marshal A.P. Singh were among the dignitaries who were present during the flypast.

"I am so happy that the Air Force selected Guwahati for observing the annual celebration. Guwahati has never seen this kind of spectacular presentation. I am grateful. It will motivate our youngsters to join the Air Force," said the Assam chief minister.

Later, in a post on X, Mr Sarma said that from being nearly abandoned during the 1962 war to sending such a powerful message of aerial dominance, the Northeast has come a long way under the visionary leadership of Prime Minister Narendra Modi.

"The Northeast's first ever air show was indeed a breathtaking show of strength, skill & spirit. Your overwhelming support for Bharat's Air Warriors – so close to the Chicken Neck and four international borders – will give sleepless nights to enemies inside and outside the country," he posted. Meanwhile, amidst question marks over the Quad's future after US President Donald Trump's election, the alliance countries' naval exercise Malabar will kick off on Monday in Guam in the Northern Pacific.

The four-nation Quad naval exercise Malabar, involving India, the US, Australia and Japan, will be held from November 10 to November 18. The harbour phase of the exercise will be held from November 10 to November 12 and the sea phase from November 13 to November 17.

The Indian Navy's warship *INS Sahyadri* is at Guam for participation in the multilateral Exercise Malabar-2025. The indigenously designed and constructed *INS Sahyadri* is a guided missile stealth frigate. The harbour phase of Exercise Malabar-2025 will feature operational planning and discussions, alignment on communication protocols, familiarisation visits between participating nations, and sports fixtures. Following the harbour phase, all participating units will proceed for the sea phase, wherein ships and aircraft will take part in naval drills, focusing on joint fleet operations, anti-submarine warfare, gunnery serials and flying operations.

The Malabar series of maritime exercises commenced in 1992 as a bilateral Indian-US naval exercise and has grown in stature over the years to include four prominent navies in the Pacific and Indian Ocean regions.

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## Redeployment to surveillance: Army prepares for sixth winter in Ladakh

**Source: *The Indian Express*, Dt. 09 Nov 2025**

Disengagement of Indian and Chinese troops in Depsang and Demchok was completed in November 2024, days after leaders of the two countries held talks in Russia's Kazan. There was also agreement on resumption of patrols. But the trust deficit remains, as do troops on either side of LAC. The Army's plans for the harsh winter in eastern Ladakh include redeployment of troops along the Line of Actual Control (LAC) — it may involve temporary reduction of soldiers in the higher reaches isolated by snow — with adequate reserves in depth areas, completion of the geo-tagging of key features along the LAC and strengthening of the surveillance infrastructure.

Despite disengaging from the friction points along the LAC following an understanding with the Chinese in October 2024, troops are yet to de-escalate from the Ladakh region. The Army continues to be heavily deployed in eastern Ladakh, making this the sixth consecutive winter deployment in the region since 2020. Chinese troops also continue to be deployed in similar strength across the LAC.

According to sources, the LAC has been calm and incident-free this year following a series of confidence-building measures and strict control by the commanders at all levels to avoid clashes

between troops. Over the next few months, the Army will be implementing its winter posture, as part of which there is likely to be redeployment of troops stationed in a few forward posts to platoon and company locations in the vicinity. Sources said the leave percentage of troops stationed in the region will also see some changes to ensure more troop density in summer.

Additionally, India continues to strengthen its surveillance infrastructure along the LAC to ensure most areas are covered. As reported by The Indian Express, a comprehensive surveillance network will be used to extensively monitor the LAC and surrounding areas round the clock – it has been established with the long-term objective of reducing additional patrolling effort. Disengagement of Indian and Chinese troops in Depsang and Demchok was completed in November 2024, days after leaders of the two countries held talks in Russia's Kazan. There was also agreement on resumption of patrols. But the trust deficit remains, as do troops on either side of LAC.

According to sources, domination of the border using the latest surveillance devices will continue through the winter, and would be backed by large-scale use of drones and winter air surveillance sorties by helicopters and limited coordinated patrols when required. Sources said that geotagging of specific key features along the LAC, which began earlier this year, has mostly been completed. Local commanders will verify this after the winter ends. Established patrolling points, key features and landmarks are being geotagged to help demarcate the LAC clearly, aiding easier identification of disputed areas for future talks and to enable smoother patrolling by Indian troops. The Army had raised a division for the sector, of which two brigades continue to serve as reserves. Additionally, the Rashtriya Rifles is currently deployed in eastern Ladakh.

Last week, India and China held the 23rd round of military talks at the Chushul-Moldo meeting point, a year after both sides agreed to disengage from the legacy friction points along the LAC. It was decided to continue the use of "existing mechanisms to resolve any ground issues along the border to maintain stability".

<https://indianexpress.com/article/india/redeployment-to-surveillance-army-prepares-for-sixth-winter-in-ladakh-10354360/>

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## समुद्र सर्वेक्षण क्षमता बढ़ाने के लिए INS 'इक्षक' नौसेना में शामिल

*Source: Dainik Jagran, Dt. 08 Nov 2025*



कोच्चि में आईएनएस इक्षक को नौसेना में शामिल किए जाने के दौरान नौसेना प्रमुख एडमिरल दिनेश के त्रिपाठी और वाइस एडमिरल समीर सक्सेना (इनसेट में बाएं) ● प्रेटर

कोच्चि, एएनआइ : तीसरा स्वदेशी सर्वेक्षण पोत आइएनएस 'इक्षक' कोच्चि नौसैनिक अड्डे पर एक औपचारिक समारोह में भारतीय नौसेना में शामिल किया गया। आइएनएस 'इक्षक' भारतीय नौसेना की समुद्री और जलीय क्षमताओं को बढ़ाने की दृढ़ प्रतिबद्धता को दर्शाता है। आधुनिक हाइड्रोग्राफिक, ओशनोग्राफिक सिस्टम, हेलीकाप्टर से लैस यह जहाज अद्वितीय परिचालन बहुपरकता प्रदान करता है, जो सर्वे वेसल और मानवतावादी सहायता व आपदा

राहत (एचएडीआर) संचालन के लिए एक प्लेटफार्म के रूप में कार्य करता है। आवश्यकता पड़ने पर जहाज अस्पताल के रूप में भी कार्य कर सकता है।

कमांडिंग अफसर कैप्टन त्रिभुवन सिंह ने जहाज के कमीशनिंग वारंट के पठन से की। इक्षक पहला 'सर्वे वेसल लार्ज' (एसवीएल) है जिसे समर्पित महिला आवास के साथ डिजाइन किया गया है। इसका समावेश भारत की जल सर्वेक्षण क्षमता और स्वदेशी जहाज निर्माण क्षमता को बढ़ाता है।

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## 'धरती और समुद्री शक्ति में हम चीन को भी चुनौती देने में सक्षम'

Source: Dainik Jagran, Dt. 10 Nov 2025

सुमेश ठाकुर • जागरण

चंडीगढ़ : चीफ आफ डिफेंस स्टाफ (सीडीएस) अनिल चौहान ने कहा कि भारत की धरती और समुद्री शक्ति पाकिस्तान की तुलना में अधिक मजबूत है और हम चीन को भी चुनौती देने में सक्षम हैं। उन्होंने यह बात रविवार को चंडीगढ़ लेक क्लब सेक्टर-पांच में आयोजित नौवें मिलिट्री लिटरेचर फेस्टिवल के दौरान कही। उन्होंने भारत की भौगोलिक स्थिति को महाद्वीपीय और समुद्री शक्ति के रूप में वर्णित किया। 20वीं सदी की भू-राजनीतिक घटनाओं का उल्लेख करते उन्होंने कहा कि विभाजन और चीन के साथ युद्ध ने हमें महाद्वीपीय दृष्टिकोण अपनाने के लिए मजबूर किया।



मिलिट्री लिटरेचर फेस्टिवल को संबोधित करते सीडीएस अनिल चौहान • जागरण

सीडीएस ने भारत की सीमा सुरक्षा के संदर्भ में हिमालय की भूमिका को रेखांकित किया, जो उत्तर व पूर्वोत्तर भारत में सुरक्षा प्रदान करता है। वहीं, हम दक्षिण की समुद्री शक्ति से हम कई परिस्थितियों को नियंत्रित कर सकते हैं। अभी अमेरिका का ध्यान इंडो-पैसिफिक क्षेत्र पर है, जिसका मुख्य उद्देश्य भारत को नियंत्रण में लेना है, जो संभव नहीं है।

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## चीन, पाक और बांग्लादेश गठजोड़ से उत्पन्न चुनौतियों पर गंभीर मंथन

Source: Dainik Jagran, Dt. 10 Nov 2025

राज्य ब्यूरो, जागरण • कोलकाता : सेना की पूर्वी कमान ने समकालीन उभरते सुरक्षा खतरों की गहराई से समीक्षा व भारत की रक्षा तैयारी को और मजबूत बनाने के उद्देश्य से शनिवार को कोलकाता स्थित मुख्यालय में चाइना अध्ययन पर एक दिवसीय सेमिनार का आयोजन किया। सेमिनार में सशस्त्र बलों, केंद्रीय सशस्त्र पुलिस बलों, रक्षा विशेषज्ञों, विद्वानों और विभिन्न थिंक टैंकों ने भाग लिया। अधिकारियों ने बताया कि संगोष्ठी में सभी प्रतिभागियों ने भारत के उत्तर-पूर्वी क्षेत्र की सुरक्षा स्थिति और चीन-पाकिस्तान-बांग्लादेश के बढ़ते गठजोड़ से उत्पन्न चुनौतियों व खतरे पर गंभीर मंथन किया।

पूर्वी कमान मुख्यालय के बयान में



- पूर्वी कमान मुख्यालय में रक्षा तैयारी को मजबूत बनाने पर चर्चा
- सशस्त्र व केंद्रीय बल, थिंक टैंकों व रक्षा विशेषज्ञों ने लिया भाग

बताया गया कि संगोष्ठी में राजदूत गौतम बंबावाले, रीवा गांगुली दास, दिलीप सिन्हा और एम. जयदेवा जैसे अनुभवी विशेषज्ञों ने विचार साझा किए। समापन भाषण में पूर्वी कमान के प्रमुख (जनरल आफिसर कमांडिंग-इन-चीफ) लेफ्टिनेंट जनरल रामचंद्र तिवारी ने भारत की रणनीतिक तत्परता को और धारदार बनाने की आवश्यकता पर जोर दिया।

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## Defence ministry to double DPSU R&D spend to Rs 32,766 crore in 5 years

Source: The Tribune, Dt. 09 Nov 2025

The Ministry of Defence plans to double the pace of research and development (R&D) to be carried out by Defence Public Sector Undertakings (DPSUs). R&D is needed to master new technologies for indigenous military equipment. A sum of Rs 32,766 crore is proposed to be spent over the next five years only on R&D. The DPSUs manufacture planes, tanks, helicopters, electronic parts, missiles, artillery guns, ammunition, warships, rifles, radars and sensors.

The matter will be discussed on Monday when Defence Minister Rajnath Singh will undertake an annual performance review of the 16 DPSUs. After the review, a compilation of R&D projects carried out in the last 10 years and the plan for the next five years will be released.

In addition, the new R&D Manual of the aviation company Hindustan Aeronautics Limited (HAL) providing flexibility, speed, risk assessment and allocation in R&D projects will be unveiled. Over the last 10 years, a total sum of Rs 30,952 crore has been invested in R&D by the 16 DPSUs. All

DPSUs have prepared their fresh R&D roadmap for the next five years. "The pace of R&D is now proposed to be doubled with projected expenditure of Rs 32,766 crore over the next five years," the MoD said.

The Ministry of Defence said on Saturday that the year 2025 has been declared the 'Year of Reforms', underscoring the importance of developing new technology by DPSUs and the need for enhancing exports and indigenisation. The DPSUs have been asked to increase their investment and manpower for R&D.

While most of the R&D investment over the last 10 years was made by older DPSUs, notably HAL, Bharat Electronics Limited, and Bharat Dynamics Limited, the thrust on R&D is now spread across all DPSUs. In the next five years, the seven new DPSUs formed upon corporatisation of the Ordnance Factory Board will invest over Rs 3,000 crore for R&D, while defence shipyards have planned an investment of over Rs 1,300 crore. The minister will also release a report on renewable energy titled 'Swayam'. This report is the first-ever attempt made under the aegis of the Department of Defence Production to compile the energy-efficiency practices of all 16 DPSUs.

The performance of DPSUs in 2024-25 has been commendable, the MoD said. The total turnover stood at Rs 1.08 lakh crore, up 15.4 per cent from that in 2023-24. The DPSUs recorded a cumulative profit after tax in 2024-25 of Rs 20,021 crore, registering a growth of 19.5 per cent over the previous year. Remarkably, in 2024-25, DPSUs achieved an increase of 51 per cent in exports over the previous financial year. The event will witness felicitation of various DPSUs for their notable achievements in different areas and the exchange of significant MoUs.

<https://www.tribuneindia.com/news/defence/defence-ministry-to-double-dpsu-rd-spend-to-rs-32766-crore-in-5-years/>

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## Delhi, Moscow eye key defence deals during Putin visit in December

**Source: The Tribune, Dt. 08 Nov 2025**

India and Russia are at the cusp of deciding multiple military equipment deals that would coincide with the expected visit of Russian President Vladimir Putin to India next month. Several deals and agreements are under active discussion between New Delhi and Moscow, including on expanding the range of the BrahMos missiles, fighter jet upgrades, additions to air defence missiles S-400 and possibly making the new stealth jet, Sukhoi-57E, in India.

India is looking at the procurement of missiles to strengthen its air defence capabilities. Several S-400 missiles were fired during Operation Sindoor (May 7-10) to bring down enemy missiles and planes. The two countries are discussing a comprehensive defence agreement, including expanded logistics cooperation such as reciprocal access to each nation's military bases and support facilities.

The Indian Air Force is considering an upgrade for Sukhoi-30 MKI fighter jets for the modernisation and enhancement of its existing fleet. The upgrade programme aims at improving combat capabilities, including radars, avionics, weapons systems and survivability, of these frontline fighters. This upgrade will extend the operational life of the jet while improving its lethality and survivability in modern combat scenarios.

Sukhoi-57E is a Russian fifth-generation fighter aircraft. A Russian delegation from Sukhoi Design Bureau recently assessed HAL's key facilities, including the Nashik division (final assembly for Sukhoi-30 MKI), Koraput (engine production) and Kasaragod (avionics), and shared a report confirming HAL's readiness for full-scale production, if India accepts Russia's proposal. The Su-57 is a stealth jet and was in India for Aero India show in February this year. The HAL is preparing its own detailed analysis of investments needed in infrastructure, technology upgrades, R&D, human resources and supply chain enhancements to enable local production of the MoD okays the Su-57E.

Separately, last month a memorandum of understanding (MoU) was signed between the HAL and Russia's United Aircraft Corporation (UAC), a sanctioned entity. New Delhi has historically maintained defence and aerospace ties with Russia, notably through licensed production of Su-30MKI fighter jets and T-90 tanks. The HAL-UAC partnership revives India's dormant passenger aircraft manufacturing sector. President Putin's visit to India is expected next month. It is likely to witness announcement of major agreements and strengthening of military-technical ties.

<https://www.tribuneindia.com/news/india/delhi-moscow-eye-key-defence-deals-during-putin-visit-in-december/>

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## **Grounded dreams: Why India's quest for a home-grown jet engine still can't take off**

**-by G Mohan Kumar, former Defence Secretary**

**Source: The Economic Times, Dt. 09 Nov 2025**

Despite India's efforts to achieve self-reliance in defence manufacturing, the development of an indigenous aero-engine with home-grown technology seems to be an elusive dream. India has achieved milestones in areas like space research, gaining entry into an exclusive group of countries. But we are still struggling to enter the group of countries possessing the aero-engine technology for defence purposes.

Aero-engines are among the most closely-held technologies and it will be naive to expect other nations to pass on the technology to us. As a nation aspiring to be a technology leader, acquiring the capability to manufacture jet engines should be one of India's foremost missions. The Hindustan Aeronautics Ltd (HAL) has been manufacturing jet engines under Russian licence for MiG and Sukhoi30 aircraft but even reverse engineering has been beyond its reach. HAL only processes critical parts imported from Russia to assemble the engines.

It is in this context that reports about a collaboration between the Defence Research and Development Organisation (DRDO) and the French aerospace company Safran evokes some interest. Reports suggest that DRDO is seeking the approval of a co-development project with Safran at a cost \$2.5 billion. It is reported that there will be 100% technology transfer and that the IPR will stay with DRDO. It is likely that DRDO would seek the approval of the cabinet committee on security. However, many questions remain.

It was more than a decade ago that the ambitious Kaveri engine project of DRDO came to a halt because of its failure to develop critical technologies needed to build the engine.

Against the targeted 90-110 Kilo Newtons (KN) of thrust, the Kaveri engine could achieve only around 60 KN. The reason was that the 'hot parts' of the engine, like compressors and turbines which needed ultra-high-performance alloys and material, were beyond our capability. After reaching a dead-end, there was hardly any effort to develop the material either internally or in collaboration with the private sector.

It needs to be explained how agencies like the Defence Metallurgical Research Laboratory (DMRL) of DRDO could not intensify the research and why India's premier institutions were not tapped to develop the technologies. Considerable time has been lost. After the Rafale deal inked in 2016, an effort was made to use off-sets to source the technology from Safran. But the effort failed and now, after several years, a collaboration at a substantial cost has been attempted diluting true self-reliance. This is another example of defence research taking a 'business as usual' approach without being mission-oriented.

An aero-engine project needs to mobilise the best talent in the country to focus on the technology gaps. The few successful engine manufacturers in the world must be using plenty of Indian talent and it is strange that we cannot hire the best Indian talent available for this mission.

There may be a desperate need to develop a high-thrust jet engine for the much-delayed Advanced Medium Combat Aircraft (AMCA) project. Agencies like DRDO are meant to advance India's quest for self-reliance by closing technology gaps and enabling the defence industrial ecosystem to manufacture world-class products. Self-reliance is the key to strategic independence at a time when the world order is disrupted by tariff wars and the transactionalism of powerful countries like the US, proving strategic partnerships to be unreliable. An organisation tasked with promoting self-reliance in defence cannot be seen to latch on to foreign companies at a considerable cost for developing critical technologies.

Recent reports suggest the GTRE (Gas Turbine Research Establishment) of DRDO may revive the Kaveri project independent of its collaboration with Safran. The desirability of this may have to be evaluated in light of its track record. A much better option may be to rope in the private sector. The development of a jet engine calls for innovation and manufacturing excellence. The private sector has the leadership, talent and resources for such a mission. The defence technology could be adapted for civilian purposes also. In the long run, Indian companies could hope to enter the exclusive club of jet engine manufacturers. A consortium of companies could be tasked with this responsibility and the government should fund the project. The consortium should pick up the threads from the Kaveri project and bring it to completion within a time frame.

The failure of DRDO in the Kaveri project and its inability to develop critical technologies needed for its success is yet another indication that all is not well with its monopolistic research model. Although the government is conscious of this, the reform process initiated for DRDO has made little headway because of internal resistance. During his Independence day address, the prime minister had promised deep reforms. DRDO reforms need to be placed high on his agenda.

<https://economictimes.indiatimes.com/news/defence/grounded-dreams-why-indias-quest-for-a-home-grown-jet-engine-still-cant-take-off/articleshow/125191330.cms>

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# Report: Why China ramps up missile production to deter US in any war

Source: Hindustan Times, Dt. 08 Nov 2025

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**NEW DELHI/BEIJING:** China is rapidly expanding its missile production sites as part of its plan to deter the US military in any conflict in the Asia Pacific region, a CNN analysis of satellite images and maps has revealed.

As per the analysis, more than 60% of 136 facilities related to missile production or the military's rocket force, which controls China's nuclear weapons, showed signs of expansion in satellite images.

The sites, including factories as well as research and testing centers, have expanded by over 2 million square metres between early 2020 and late 2025. "New towers, bunkers and berms consistent with weapons development have cropped up in satellite imagery of these growing sites. In some cases, missile parts can even be seen in the images," the analysis found.

Experts say that China is ramping up missile production as the projectiles are likely to play a key role in any attack on Taiwan, the self-governing island that Beijing claims as part of its territory.

In September, China unveiled a range of missiles at a military parade to mark the 80th anniversary of the end of World War II. Among the nuclear-capable missiles seen was the DF-61, a new intercontinental ballistic missile which can be fired from a mobile launching platform. Details on its



DF-61 missiles being displayed to mark 80 years since Japan's defeat in WWII at an event in Beijing, China on Sept 3. BLOOMBERG

capabilities are scant, but its predecessor has a range of more than 12,000 kilometres and can carry multiple warheads. It also debuted the newest variant of the silo-based DF-5, the DF-5C, whose range has been estimated at 20,000 kilometres.

Also featured were the JL-1 air-launched long-range missile and the JL-3 sea-launched missile, both of which are also nuclear-capable, the Associated Press reported. The parade showcased for the first time the YJ-15, YJ-17, YJ-19 and YJ-20 anti-ship missiles, all capable of operating at long ranges. It also displayed missiles meant to intercept incoming anti-ship missiles, including the HQ-16C and HQ10A, and presented the aircraft-carrier version of the J-35 stealth multirole fighter for the first time.

## CHINA'S THIRD AIRCRAFT CARRIER ENTERS SERVICE

**BEIJING:** China's third aircraft carrier entered service this week, state media said on Friday, marking a key milestone in President Xi Jinping's drive to modernise the military. The Fujian joins China's fleet as Beijing projects its maritime power against the US and others in the region, with flashpoints including territorial disputes in South China Sea and persisting claims over Taiwan.

The latest aircraft carrier is equipped with an electromagnetic aircraft launch system (EMALS) — something that previously only the USS Gerald R. Ford possessed. AFP

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## India always 1<sup>st</sup> responder in the Indian Ocean

Source: *Hindustan Times*, Dt. 10 Nov 2025

**CHANDIGARH:** Chief of Defence Staff General Anil Chauhan on Sunday highlighted that the struggle for global power that was once aimed at geographical control ranging from the land to the skies has now expanded to space as well as into the cyberspace and the cognitive domain.

Further, he said India a continental and a maritime power enjoys a predominant position in the Indian Ocean region, and hence, it is “always the first responder and preferred partner of choice for any other country.”

Gen Chauhan was addressing the 9th Military Literature Festival 2025, themed ‘Heartland and Rimland powers in a Multi-domain Warfare and India’ on its second day in Chandigarh.

Citing from Tim Marshall’s ‘Prisoners and Geography’, he emphasised that a nation’s location and its geographic characteristics determine its ability to project power and provide strategic options, regardless of size.

“If you look at the geopolitical events of the 20th century, India’s partition, the coming of Pakistan, our war with China, forced India to have a continental kind of an outlook. But if you have a look at India’s geography, I think it says that India is both a continental and a maritime power... So India enjoys a predominant position in the Indian Ocean region, and hence, we are always the first responder and

preferred partner of choice for any other country...” he said.

“Over a century the struggle for global power has been an essence for struggle of control of geography. The seas, the continents, the skies and if you look at today’s contact, it extends towards space, cyberspace and the cognitive domain. The location of nation states and its clinical geography determines enmity to project path and provide strategic options beyond its size,” General Chauhan said.

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## Wildlife board panel clears 12 key defence projects in Ladakh

Source: *The Indian Express*, Dt. 08 Nov 2025

THE STANDING committee of the National Board for Wildlife (SC-NBWL) has recommended approval for 12 key defence projects in Ladakh, of which, Defence Ministry has said, some are necessary for “high level of operational preparedness” in the context of “increasing assertiveness of People’s Liberation Army (PLA)”.

The panel is chaired by Union Environment Minister Bhupender Yadav. The projects, including a training node at Tara, an artillery battery in Leh, two formation ammunition storage facilities (FASF), a brigade HQ at Chushul, Leh and border outposts of Indo-Tibetan at Qazi Langar near Depsang, have been approved across Changthang Cold Desert Sanctuary and Karakoram Wildlife Sanctuary, according to the minutes of the panel’s October 29 meeting.

Additionally, it also approved construction of an Army camp in Leh and a proposal to construct a 158-m span permanent Pinjoli bridge on the Balipara-Charduar-Tawang Road in Arunachal Pradesh’s Eaglenest Wildlife Sanctuary. For establishing a training node area at Tara in Ladakh, the Defence Ministry submitted that the responsibility of a CIF (U) — Counter Insurgency Force — extends from Pangong Tso to Mount Gya, while formation headquarters are located at second stage and majority units are deployed at an altitude of 15,000 feet and above.

“The increasing assertiveness of the People’s Liberation Army (PLA) in the region necessitates a high level of operational preparedness,” the Defence Ministry submitted. “In this context, the

availability of dedicated training infrastructure, encompassing both indoor and outdoor facilities at Super High Altitude Areas — i.e. around 15,000 feet elevation — is essential to facilitate regular and realistic training for troops while maintaining their operational presence in the AoR (area of responsibility),” it said. The proposed training site is located adjacent to Tara Battalion and is part of Chushul sub-sector.

The latest round of approvals are in line with a push to ramp up infrastructure near the LAC in the aftermath of the 2020 Galwan clash with China that claimed the lives of 20 Indian Army personnel. The Centre has ramped up construction of strategically important defence projects in Ladakh’s eastern sector since the 2020 Galwan clashes. Earlier, the SC-NBWL cleared projects such as a forward aviation base, facilities to house missiles, five key road stretches, including one on the alternate road to Daulat Beg Oldie. The objective of these projects is to improve operational readiness and speed up troop mobilisation.

The ministry noted that even as the Deputy Conservator of Forest and Chief Wildlife Warden recommended the training node proposal, the conditions prescribed were general in nature and no specific wildlife mitigation plan was provided. The cold desert ecosystem, it noted, supported rare and endangered species.

The two FASF at Tsogetsalu in Changthang sanctuary and in Karakoram sanctuary will require 24.2 hectares and 47.1 hectares of sanctuary land. The Changthang Wildlife Sanctuary is home to Tibetan wolf, wild yak, bharal, wild dog, snow leopard, brown bear and marmot while the Karakoram Wildlife Sanctuary is home to Tibetan antelope, shapo, wild yak, bharal, leopards, Himalayan mouse and lynx.

The Union Environment Ministry said in its comments on the FASF proposals that utmost caution must be exercised to minimise ecological impacts in the fragile cold desert ecosystem in Changthang sanctuary.

Another key proposal that received a nod was use of 40 hectares of Changthang sanctuary for establishment of a brigade headquarters at Chushul. “Since the units under command of Headquarters 142 Infantry Brigade are already deployed along the LAC, it is crucial for the Brigade Headquarters to be deployed in the vicinity of the LAC for better command and control. Therefore, it is essential to acquire land at Chushul for construction of assets for deployment of Headquarters 142 Infantry brigade,” the Ministry said.

<https://indianexpress.com/article/india/wildlife-board-panel-clears-12-key-defence-projects-in-ladakh-10352782/>

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## India's Strategic Edge is in the Indian Ocean: CDS

Source: *The Statesman*, Dt. 10 Nov 2025

UNITED NEWS OF INDIA  
Chandigarh, 9 November

Chief of Defence Staff (CDS) General Anil Chauhan on Sunday underlined India's growing maritime significance, stating that the country's future lies in the seas due to its central position in the Indian Ocean region. Speaking at the 'Military Literature Festival' in Chandigarh, he said India has emerged as a preferred partner and first responder for many nations in times of crisis.

Gen. Chauhan noted that while India possesses both land and maritime strength, its expansion on land remains geographically limited. "We cannot move westwards because of Afghanistan, northwards due to China, and the east remains constrained by the internal conflicts in Myanmar," he explained.

He emphasised that the Indian Ocean has now become the world's most vital maritime route, connecting Asian manufacturing hubs, Middle Eastern oil exporters, and African markets. "Nearly 80



per cent of global oil trade and one-third of sea-borne goods pass through these waters," he added.

Comparing India and China, the CDS observed that China wields power both on land and at sea, with access to the Pacific Ocean through the East and South China Seas.

"Its development is concentrated along the coast, making it a 'Rimland Power,'" he said.

General Chauhan pointed out that India's geographical and strategic position makes it a stabilising force in the Indo-Pacific politically steady, militarily capable, and potentially influential in reshaping the global power balance.

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## Science & Technology News

### Aditya-L1 gets a close look at eruptions from the sun

Source: *The Hindu*, Dt. 10 Nov 2025

Using the Visible Emission Line Coronagraph (VELC) payload onboard India's first dedicated space based solar mission, Aditya-L1, scientists at the Indian Institute of Astrophysics (IIA) along with NASA have collaborated to estimate the crucial parameters of a coronal mass ejection (CME), very close to its lift-off from the Sun. Scientists associated with the project said that these are the very first spectroscopic observations of a CME in the visible wavelength range. They said that the

unique spectroscopic observations with the VELC has let them study the CMEs very close to the Sun's visible surface itself, for the first time.

"In addition, it provides a sustained view of the Sun for 24 hours everyday because of being at the Sun-Earth Lagrangian L1 location where the Sun never sets," they said. Taking advantage of these factors, Dr. V. Muthupriyal (VELC Project Scientist) and her colleagues in the VELC payload operations centre at the IIA estimated the electron density, energy, mass, temperature and speed of a CME very close to the Sun.

Senior Professor at IIA and principal investigator of the VELC project, Prof. R. Ramesh, told The Hindu that the observations are by far the closest to the Sun where spectroscopic observations of a CME in the visible wavelength range have been obtained with a space coronagraph. His team calculated that there are about 370 million electrons per cubic centimetre in the CME observed with the VELC. The corresponding number for the non-CME corona near the Sun is much lesser, in the range 10 - 100 million electrons per cubic centimetre.

"The CME energy in the present case is approximately  $9.4 \times 10^{21}$  joules. For example, the yield of the atomic bombs (nicknamed "Little Boy" and "Fat Man") used on Hiroshima and Nagasaki are about  $6.3 \times 10^{13}$  joules, and  $8.8 \times 10^{13}$  joules, respectively. The mass in the CME is nearly 270 million tons. For comparison, the mass of the iceberg that sank the Titanic is estimated to be 1.5 million tons. The initial speed of the CME is 264 km/sec. The CME temperature is 1.8 million degrees on the Kelvin scale," Prof. Ramesh said.

He also added that though there are observations of CMEs at comparatively larger distances from the Sun, with instruments other than the VELC, an understanding of the parameters of a CME in relation to how much is lost from the Sun during a CME per se is crucial, and the unique near-Sun spectroscopic observations with the VELC is precisely providing us the necessary data. Prof. Ramesh added that with the Sun nearing the maximum activity phase of the current sunspot cycle 25 and with the VELC now stabilised in its operations, more massive and energetic eruptions from the Sun are expected to be observed with the VELC in the coming months.

<https://www.thehindu.com/sci-tech/science/aditya-l1-ii-a-nasa-collaborate-to-record-spectroscopic-observations-of-a-cme-in-visible-wavelength-range-for-very-first-time/article70258711.ece>

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## इसरो को चंद्रयान-2 ऑर्बिटर से एडवांस डेटा मिला

**Source: Punjab Kesari, Dt. 09 Nov 2025**

नई दिल्ली, (पंजाब केसरी): भारतीय अंतरिक्ष अनुसंधान संगठन (इसरो) ने शनिवार को चंद्रयान-2 ऑर्बिटर से एडवांस डेटा प्रोडक्ट्स प्राप्त करने की जानकारी दी। इसमें चंद्रमा के पोलर रीजन के फिजिकल और डाइइलेक्ट्रिक प्रॉपर्टीज पर नए पैरामीटर्स भी शामिल हैं। इसरो का कहना है कि यह भविष्य में ग्लोबल एक्सप्लोरेशन की दिशा में एक बड़ा डेवलपमेंट है। संगठन ने अपने

सोशल मीडिया प्लेटफॉर्म एक्स पर एक पोस्ट में लिखा, इसरो को चंद्रयान-2 ऑर्बिटर से एडवांस डेटा प्रोडक्ट्स प्राप्त हुए हैं, जो कि लूनर पोलर रीजन को लेकर गहरी समझ के लिए बेहद महत्वपूर्ण हैं। इसरो ने आगे बताया कि इसमें चंद्रमा के सतह की फिजिकल और डाइइलेक्ट्रिक प्रॉपर्टीज को लेकर जानकारी देने वाले महत्वपूर्ण पैरामीटर्स शामिल हैं। संगठन ने कहा, यह चंद्रमा को लेकर भविष्य के ग्लोबल एक्सप्लोरेशन की दिशा में भारत का एक बहुत बड़ा योगदान होगा।

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## Chandrayaan-2 data helps ISRO study moon's poles

Source: *The Pioneer*, Dt. 09 Nov 2025

ISRO on Saturday said it has collected advanced data from the Chandrayaan-2 lunar orbiter to gain a deeper understanding of the Moon's polar regions, including parameters describing the physical and dielectric properties of its surface. This is India's major value addition towards future global exploration of the Moon, it said.

According to an ISRO statement, the Chandrayaan-2 Orbiter has been in orbit around the Moon since 2019 and has been providing high-quality data. One of the payloads, the Dual Frequency Synthetic Aperture Radar (DFSAR), is the first instrument that has mapped the Moon using the L-band in full-polarimetric mode and in the highest resolution (25m/pixel).

This advanced radar mode sends and receives signals in both vertical and horizontal directions, making it ideal for studying surface properties, it said. The space agency said that since its launch, about 1,400 radar datasets have been collected and processed to create polarimetric mosaics of the north and south polar regions (80 to 90 degrees latitude) of the Moon.

"Using the datasets, scientists from the Space Applications Centre (SAC), Ahmedabad, have developed advanced data products on the potential presence of water-ice, surface roughness, as well as an important electrical property, namely the dielectric constant, which describes features like density and porosity of the Moon's surface," it said.

The algorithm for analysing the full-polarimetric data has been developed, and the data products have been generated indigenously by ISRO, the space agency said. ISRO said these advanced data products are significant in view of gathering first-order information about the Moon's polar regions. Such regions are expected to have preserved the early chemical conditions of the solar system, which are important clues to explain several facets of the evolution of planetary bodies.

"This kind of ready-to-use data product on lunar polar regions has always been sought after, because it will provide holistic information to characterise the polar regions for future lunar exploration. These products complement hyperspectral data in studying the distribution of minerals on the Moon," it stated.

The space agency said the polar mosaics include key radar parameters that reveal the physical and electrical (dielectric) characteristics of the Moon's surface and subsurface. "The derived Polar Mosaic products (Level 3C) are released for users and are freely available on the Indian Space Science Data Centre (ISSDC) PRADAN website," it added.

<https://www.dailypioneer.com/2025/india/chandrayaan2-data-helps-isro-study-moons-poles.html>

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