



# CONTENTS

S. No.	TITLE	Page No.
<b>DRDO News</b>		<b>1-2</b>
<b>DRDO Technology News</b>		<b>1-2</b>
1.	DURGA 2: India's Very Own Laser Weapon Being Developed by DRDO could be Tested soon	<i>ABP News</i> 1
<b>Defence News</b>		<b>2-8</b>
<b>Defence Strategic: National/International</b>		<b>2-8</b>
2.	IAF Showcases its Weapons Arsenal, Firepower at Pokhran	<i>The Hindu</i> 2
3.	As Army Upgrades Firepower in Eastern Arunachal, Chinook Heavy-lift Helicopter Becomes a “Game Changer”	<i>The Hindu</i> 3
4.	Defence Ministry Clears Proposals worth ₹84,560 Crore	<i>Business Line</i> 4
5.	Indian Navy to Carry out Major Twin Aircraft Carrier Operations Off West Coast in March	<i>The Economic Times</i> 5
6.	IAF’s Sarang Team Lined up for Flying Displays at Singapore Airshow ’24	<i>The Pioneer</i> 6
7.	भारतीय नौसेना का सैन्य अभ्यास मिलन-24 आज से:51 देशों के 35 वॉरशिप विशाखापत्तनम पहुंचे; पहली बार INS विक्रांत और विक्रमादित्य साथ नजर आएंगे	दैनिक भास्कर 7
8.	Recce Aircraft to Anti-tank Mines: Green Light to Big-ticket Purchases	<i>The Indian Express</i> 8
<b>Science &amp; Technology News</b>		<b>8-10</b>
9.	‘Naughty Boy’ Tamed: ISRO’s GSLV Injects Weather Satellite into Orbit	<i>The Indian Express</i> 8
10.	धरती, समुद्र, पर्यावरण पर एक साथ रखेगा नजर, ISRO का ये सैटेलाइट बनेगा संकटमोचक	नवभारत टाइम्स 9
11.	अंतरिक्ष से वापस लाया गया उपग्रह कार्टोसेट	जागरण 10



Sun, 18 Feb 2024

### **DURGA 2: India's Very Own Laser Weapon Being Developed by DRDO could be Tested soon**

Military powers who have deployed or were left behind in developing or acquiring expensive anti-missile or anti-drone systems are now engaged in a serious race to develop and deploy the next generation of laser weapon systems that can neutralise any missile or fighter aircraft or drone high in the sky or even within enemy airspace. From big powers like the United States or China to countries like Turkey, Iran or for even Pakistan, all are reported to have advanced or initiated work on the highly challenging laser weapon systems to make their skies unimpregnable. The laser laboratory of India's Defence Research and Development Organisation (DRDO) is also reported to have been working on such highly complex laser weapon systems for the last two decades, and is now reported to have achieved a fairly advanced stage of testing a real prototype of a laser weapon that can even destroy a ballistic missile.

Though the Indian defence establishment has maintained strict silence over the programme, its progress was first discussed in the US strategic circles. Later, several credible reports emerged that the DRDO Laser Laboratory was likely to test a prototype in 2023. Though the year passed without any murmur from the defence establishment, scientists are reported to be working hard to test the prototype of the laser weapon system in the first half of this year. For the layman, a directed energy weapon damages or destroys its target using focussed energy by means of laser, microwave or particle beams. Such a weapon system can protect vital defence infrastructure from missile or air attack. Directed energy weapons, also called laser weapons, if developed and deployed operationally, can neutralise any drone or ballistic missile attacks from the skies or even at the originating location as it can travel at the speed of the light. It can deflect the path of the missiles and can even destroy a fighter aircraft. The present generation of anti-aircraft or anti-missile systems are not considered fool-proof but the laser weapon promises to have 100 percent kill probability. In fact, the laser weapon will prove to be a game-changer in military realm, and hence the DRDO is devoting its energy on this dream project. Some details of the laser weapon, dubbed DURGA-2 (Directionally Unrestricted Ray Gun Array), was first revealed in the US Defence News magazine almost three years ago. Indian strategic circles are abuzz with the possibility of India deploying the laser system, which can destroy any ballistic or cruise missile launched by China or Pakistan.

The Chinese or Pakistani ballistic missiles pose greatest threat to Indian security. Though India has contracted with Russia for five S-400 anti-missile systems costing USD 5.25 billion to prevent incoming missiles from falling over Indian territory, it cannot guarantee the destruction of each and every missile directed at Indian metros. The laser weapon can also annihilate the enemy civilian or

military radar and electronic warfare systems, which will render all enemy missile establishments useless.

The US defence media reported in 2021, the Laser Science and Technology Centre (LSTC) at New Delhi is working on this next generation laser defensive and offensive systems. This laboratory is developing and improving various laser generation techniques using solid state and fibre and chemical lasers for defensive fibre and chemical lasers for defensive and offensive use. The laser laboratory is the lead centre for this highly classified DURGA-2 project, which has been allotted \$100 million by the government. The DURGA-2 Is planned to be integrated with land, sea and air based platforms. The LSTC is reported to have succeeded in developing a 25KW laser that can target a ballistic missile during its terminal phase at a maximum distance of 5 km. The laser experts are working to enhance this range to 100 km or beyond. Earlier, in 2017, the DRDO had tested a 1 kw laser system mounted on a truck at a DRDO facility in Chitradurga, which was able to hit a target at a distance of 250 metre. The biggest challenge is to provide adequate power to the system for the high power laser weapons.

<https://news.abplive.com/india-at-2047/durga-2-all-about-laser-weapon-being-developed-by-drdo-abpp-1665463>

## Defence News

## Defence Strategic: National/International

THE  HINDU

Sun, 18 Feb 2024

### IAF Showcases its Weapons Arsenal, Firepower at Pokhran

The Pokhran range near Jaisalmer reverberated with thunderous explosions and applause as the latest platforms of the Indian Air Force (IAF), the Rafale jet, the Apache attack helicopter, and the indigenous Prachand light combat helicopter, along with legacy platforms, demonstrated their capability and firepower at the demonstration exercise 'Vayu Shakti' on February 17. "During the display, approximately 50 tonnes of ordnance was dropped in a short span of two hours over an area of two square km. The event truly showcased IAFs offensive lethality and precision targeting capability," the IAF said in a statement. Chief of Defence Staff General Anil Chauhan was the chief guest.

The event began after 5 p.m. with three Chetak helicopters trooping the National Flag and the Air Force ensign, flying past the grandstand with the National Anthem playing in the background. This was followed by a sonic boom created by a Rafale aircraft. Two Jaguar aircraft flying at low levels followed the Rafale, taking high fidelity reconnaissance images of the area. The demonstration was carried out in light, dusk, and night conditions with simulations.

A Rafale fighter engaged an aerial target with the MICA multi-mission air-to-air missiles, while the indigenous Light combat Aircraft fired the Russian R-73 Beyond Visual Range (BVR) missile. In

February 2019, Wing Commander Abhinandan Varthaman shot down a Pakistani F16 jet with an R-73 fired from his Mig-21 before he was shot down and ejected in Pakistan Occupied Kashmir. The Apaches fired Hellfire missiles and rockets while Prachand fired rockets. The Vayu Shakti exercise has been regular platform for the IAF to demonstrate the full spectrum of capabilities. However, the previous edition was held in 2019.

This year, the exercise saw participation by 121 aircraft. Other participating aircraft included the Mirage-2000, Sukhoi-30 MKI, Jaguar, Hawk, C-130J, Chinook, Apache, Mi-17, and the Advanced Light Helicopter. Indigenous surface-to-air weapon systems Akash and Samar tracked and shot down mock enemy aircraft. Over two hours, the IAF showcased its capability to deliver weapons with long range, precision capability as well as conventional weapons, on target, while operating from multiple air bases. A couple of the targets missed, which officials said would have worked in the case of a real target as the proximity fuse would ignite destroying the target. The Apache attack helicopter demonstrated its firepower in this event for the first time, engaging targets with Hellfire air-to-ground guided missiles, while Mi-17 helicopters engaged ground targets with rockets. In another first, IAF Chinook helicopters demonstrated rapid deployment of combat assets by airlifting the Army's M-777 Ultra-Light Howitzers in an underslung mode, which later destroyed simulated enemy targets on the ground. Combat support operations by transport aircraft included a 'containerised delivery system' drop by a C-17 heavy-lift aircraft, and an assault landing by a C-130J carrying IAF Special Forces, Garuds. In joint operations of the Army and the IAF, weaponised version of Advanced Light Helicopters Mk-IV destroyed simulated enemy targets with rockets and guns. Special operations by the IAF transport and helicopter fleets, involving Garuds and Indian Army elements were also on display. As the sun set and darkness descended, Garuds inserted by Mi-17 helicopters carried out an 'urban intervention' in anti-terror/insurgency operations aimed at clearing hideouts of terrorists. Unmanned Aerial Vehicles carried out bomb damage assessment of all targets, which was live-streamed to the operations centre and to the audience. Usually, at least once a year, all squadrons of the IAF head for Pokhran, located near Jaisalmar, to practice delivery of their lethal weapons. The IAF has 36 Rafale jets procured under a €7.87 billion Inter-Governmental Agreement (IGA) with France, which also have 13 India Specific Enhancements (ISE), including Israeli helmet-mounted displays, radar warning receivers, low-band jammers, and infra-red search and tracking systems, among others. The Rafale is armed with the Meteor BVR missile, considered a gamechanger in the region, with a range of over 150 km; MICA multi-mission air-to-air missiles; SCALP long-range stand-off attack air-to-ground missile; and the HAMMER (Highly Agile Modular Munition Extended Range) medium-range air-to-ground missiles.

<https://www.thehindu.com/news/national/iaf-showcases-its-weapons-arsenal-firepower-at-vayu-shakti/article67858209.ece>

**THE  HINDU**

*Mon, 19 Feb 2024*

## **As Army Upgrades Firepower in Eastern Arunachal, Chinook Heavy-lift Helicopter Becomes a “Game Changer”**

After strengthening defences as well as firepower in the Tawang sector of Arunachal Pradesh, the Army has now beefed up its combat potential along the Line of Actual Control (LAC) in the rest of the State with the induction of its entire range of arsenal from the latest firearms to M777 ultra light howitzers. The CH-47F(I) Chinook heavy-lift helicopters have become a “game changer” in terms

of their ability to lift heavy loads, including the M777s, and reach remote posts that are air maintained. All helipads constructed or under construction in the last few years in Arunachal are to Chinook specifications. “All seven valleys have been connected with Chinook-specific helipads to ensure aerial connectivity,” an Army source said. Between 2020 and 2023, nine helipads were constructed and six more under construction in the Army’s 3 Corps area. “Of these, five helipads of Chinook standards were constructed and three more are under construction in the districts of Lohit, Anjaw and Dibang,” an officer said during a visit to the area last week. “The Chinook has been a game changer with the amount of loads it can carry across valleys especially given the uneven terrain and thick forest cover here,” the officer added. Adding to this, the M777 gives significant flexibility in employment options for long range fire power as it can be transported underslung the Chinook. The M777 it weights four tonnes. Last week, an Army unit operating the M777s and the 105mm Indian field guns showcased a drill on the operation of the howitzers to a small group of journalists visiting the area near the LAC in eastern Arunachal Pradesh. In the last few years, a range of new generation equipment ranging from SIG-716 rifles, Negev light machine guns, Sako TRG-42 sniper rifles and a range of tactical drones have been inducted. “A range of new generation equipment has been inducted for augmentation and upgradation of communication infrastructure. This includes satellite terminals for remote and forward areas, man portable communication terminals for smooth and seamless communication to forward areas,” another Army source stated. Another demonstration was of a platoon of Ghatak commandos of the Army in full combat gear being briefed before they embarked on a long range patrol which can range from seven to 30 days.

<https://www.thehindu.com/news/national/as-army-upgrades-firepower-in-eastern-arunachal-chinook-heavy-lift-helicopter-becomes-a-game-changer/article67861144.ece>

## THE HINDU BusinessLine

Sat, 17 Feb 2024

### **Defence Ministry Clears Proposals worth ₹84,560 Crore**

The approvals accorded by the DAC, which is chaired by Defence Minister Rajnath Singh, lay special emphasis on the procurement of various equipment from Indian vendors, the Defence Ministry said. The DAC has accorded AoN under the Buy Indian-Indigenously Designed Developed and Manufactured (IDDM) category for procurement of a new generation of anti-tank mines having seismic sensors and provision of remote deactivation with additional safety features, it added.

Operational efficiency : In order to enhance operational efficiency and domination in the tactical battle area for engaging targets that are beyond visual line of sight by the mechanised forces, the AoN under Buy (Indian-IDDM) category has been accorded for procurement of Canister Launched Anti-Armour Loiter Munition System.

The AoN also has been accorded for procurement of Air Defence Tactical Control Radar under Buy (Indian-IDDM) category to strengthen Air Defence Systems, especially capabilities to detect slow, small and low-flying targets as well as surveillance, detection and tracking of different targets. To enhance surveillance and interdiction capabilities of the Indian Navy and the Indian Coast Guard (ICG), the AoN for procurement of medium range maritime reconnaissance and multi-mission maritime aircraft, through the Buy and Make category, has been granted.

'one step ahead' Besides, to keep the Indian Naval ships one step ahead of the threats posed by adversaries, the AoN under the Buy (Indian) category has been accorded for procurement of Active Towed Array Sonar having capabilities to operate at low frequencies and various depths for long range detections of adversary submarines. "The AoN has also been accorded for procurement of Heavy Weight Torpedoes for enhancing attacking capabilities of Kalvari Class submarines. The AoN for sustainment support through Follow On Support (FOS) and Repair Replenishment support through Follow On Supply Support (FOSS) for 24 MH60R aircraft under Foreign Military Sale route with the US Government has also been accorded," the Ministry said.

The DAC accorded AoN for procurement of Flight Refueller Aircraft for enhancing the operational capabilities and reach of the Indian Air Force. The AoN under Buy (Indian-IDD) category for procurement of Software Defined Radios for the ICG has also been granted. This will fulfill the requirement of the ICG for having high-speed communication with secure networking capability for seamless information exchange between the ICG and the Indian Navy units.

To create a friendly defence start-up ecosystem and promote procurement of Advanced technologies from start-ups and MSMEs developed under the Innovations for Defence Excellence (iDEX) and Technology Development Fund schemes, the DAC has approved amendments in the Defence Acquisition Procedure (DAP) 2020 w.r.t. benchmarking and cost computation, payment schedule, procurement quantity etc.

This will provide the much-needed incentive along with a supportive business environment for the start-ups and MSMEs under iDEX and TDF schemes, truly in the spirit of 'Ease of Doing Business'.

<https://www.thehindubusinessline.com/news/defence-ministry-clears-proposals-worth-84560-crore/article67853616.ece>

# THE ECONOMIC TIMES

Mon, 19 Feb 2024

## Indian Navy to Carry out Major Twin Aircraft Carrier Operations Off West Coast in March

The Indian Navy is going to carry out major operations involving the fleets of both of its aircraft carriers off the west coast in the next ten days, Admiral R Hari Kumar said on Sunday.

In an exclusive interaction with ANI, he said both aircraft carriers, including the INS Vikramaditya and made-in-India INS Vikrant, would be present in Vishakhapatnam during the 'Exercise Milan' but the twin carrier operations would be seen only after 10 days.

He further said on completion of Exercise Milan, "the carriers as well as the escort ships will all go to the western seaboard. We are going to integrate them".

"The tempo of operation is quite high in the western seaboard right now because 10 of our ships are deployed for anti-drone measures and another 3-4 ships are deployed for anti-piracy operations, which is unprecedented. This wasn't the case earlier," the Navy chief said.

<https://economictimes.indiatimes.com/news/defence/indian-navy-to-carry-out-major-twin-aircraft-carrier-operations-off-west-coast-in-march/articleshow/107798250.cms>

## IAF's Sarang Team Lined up for Flying Displays at Singapore Airshow '24

The Indian Air Force's Sarang aerobatic team is all set to showcase its spectacular aerobatics manoeuvres at the Singapore Airshow 2024 being held here next week. The five-day mega gathering from February 20-25 at the Changi Exhibition Centre will witness over 1,000 participating companies from more than 50 countries and regions, organisers Experia said on Sunday.

A team of 71 personnel of the Indian Air Force's (IAF) Sarang Helicopter Display Team will participate in the mega event with five Advanced Light Helicopters (ALH) also known as 'Dhruv'. The 'Dhruv' helicopter, designed and conceived by Hindustan Aeronautics Limited, is an all-weather, multi-mission capable helicopter. It features rigid, hingeless rotors making it highly manoeuvrable and suitable for military roles.

The variant of ALH flown by the Sarang team is ALH MK-I. The other variants are ALH MK-II, and ALH MK-III and the latest variant is ALH MK-IV, an armed version, said the Defence Ministry in announcing the IAF participation at the Singapore show. The Sarang Helicopter Display Team was formed in 2003 and it is noteworthy that their very first international public performance was in 2004, at the Asian Aerospace Show in Singapore itself.

Initially formed and raised as a three-helicopter formation, the Sarang team now boasts of a thrilling five-helicopter display and has performed over 1,200 displays at more than 385 venues all around the globe. This year's lineup is extensive, with 90 per cent of the top 20 global aviation companies in attendance; including well-known exhibitors such as Airbus, AVIC, BAE Systems, Boeing, Bombardier, COMAC, Dassault, GE Aerospace, General Dynamics, Honeywell, L3Harris, Leonardo, Lockheed Martin, Northrop Grumman, Rolls-Royce, RTX, Safran, ST Engineering, Textron Aviation, and Thales; making the event a truly global gathering. Moreover, there will be 16 country pavilions, which include China, the Czech Republic and Korea being there for the first time. Experia Managing Director Leck Chet Lam said, "As the aviation sector returns with a strong growth trajectory, the global platform and vibrant marketplace that Singapore Airshow offers will be critical as the industry seeks the solutions, ideas and partners that will help it navigate the challenges ahead.

"With over 1,000 participating companies and more than 50,000 trade visitors expected, we've been mindful to ensure that our programming also offers attendees the opportunity to engage with industry thought leaders in key discussions and to that end our AeroForum series has been curated to delve into the areas of advanced air mobility, sustainability as well as international co-operation," he said. AeroForum, Singapore Airshow's thought-leadership platform, will anchor the event's commitment to sustainability, diving deep into the industry's most pressing issues.

In collaboration with renowned consultancy McKinsey & Company, the Sustainable Aviation Forum brings together two panels of experts including business leads from Airbus, Boeing, Cathay Pacific and Neste to explore the challenges and opportunities of achieving net-zero emissions in the skies.

<https://www.dailypioneer.com/2024/world/iaf---s-sarang-team-lined-up-for-flying-displays-at-singapore-airshow----24.html>



## भारतीय नौसेना का सैन्य अभ्यास मिलन-24 आज से: 51 देशों के 35 वॉरशिप विशाखापत्तनम पहुंचे; पहली बार INS विक्रांत और विक्रमादित्य साथ नजर आएंगे

भारतीय नौसेना आज से विशाखापत्तनम में सबसे बड़े सैन्य अभ्यास मिलन-24 की शुरुआत कर रही है। इसमें 51 देशों की नौसेनाएं शामिल हो रही हैं। जिनके 35 प्रमुख वॉरशिप और 50 एयरक्राफ्ट मिलन-24 में शामिल होने भारत पहुंच चुके हैं। मिलन-24 का यह 12वां एडीशन है, जो 27 फरवरी तक चलेगा। नौसेना ने इसे ट्रिपल C (सौहार्द, सामंजस्य, सहयोग) की थीम दी है। मिलन-24 हर दो साल में होने वाला सैन्य युद्धाभ्यास है, जो 1995 में केवल चार देशों के साथ शुरू हुआ था।

मिलन-24 में अमेरिका, ऑस्ट्रेलिया, जापान, वियतनाम, थाईलैंड के अलावा मालदीव, यूके, मलेशिया, कनाडा, स्पेन, जर्मनी, इटली, दक्षिण कोरिया, बांग्लादेश, इंडोनेशिया, म्यांमार, इराक, ब्राजील और यमन भी अपने प्रतिनिधि भेज चुके हैं।

### पहले जानिए भारतीय नौसेना किस-किस का प्रदर्शन करेगी...

भारतीय नौसेना INS विक्रमादित्य और INS विक्रांत के साथ कम से कम 30 जंगी पोत लेकर उतरेगी। युद्धाभ्यास का नाम 'मल्टी लेटरल नेवल एक्सरसाइज- मिलन-2024'

### मिलन-24 के दौरान सी फेज में 4 दिन लहरों पर होगा प्रदर्शन

51 देशों की नौसेनाओं के प्रतिनिधियों की चर्चा के बीच, 24 फरवरी से 27 फरवरी तक मिलन-24 के दौरान सी फेज का आयोजन होगा। यह वह समय है, जब नौसेनाएं समंदर की लहरों पर करतब दिखाती हैं।

अरब सागर के कमर्शियल कॉरिडोर पर हाल ही में हुए ड्रोन हमलों ने दुनिया की चिंता बढ़ा दी है। मिलन युद्धाभ्यास में नौसेनाएं ड्रोन हमलों से बचने का अभ्यास करेंगी और पायरेसी के खिलाफ नेवी ऑपरेशन्स को भी डिजाइन करेंगी।

मौजूदा तनाव के बीच शामिल होगी मालदीव की नौसेना : मालदीव ने लेफ्टिनेंट कर्नल यूसुफ निशार के नेतृत्व में अपनी नौसेना टुकड़ी भेजने का फैसला किया है। मालदीव ने मिलन-24 में हिस्सा लेने का फैसला तब किया, जब दोनों देशों की हाई लेवल कोर कमेटी ने दो बार मीटिंग की। जिनमें इस पर चर्चा की गई। रिपोर्ट्स के मुताबिक मालदीव-भारत के बीच तीसरी हाईलेवल मीटिंग फरवरी के आखिरी हफ्ते में होगी। रक्षा मंत्री राजनाथ सिंह मार्च में मिनिक्ॉय जाएंगे। जहां वे INS जटायु का उद्घाटन करेंगे।

### भारत-मालदीव के बीच क्यों उठा विवाद

दोनों देशों के बीच तनाव तो तब से चल रहा है, जब 9 सितंबर 2023 को मालदीव के राष्ट्रपति चुनाव में चीन समर्थक मोहम्मद मोइज़ू की जीत हुई। उनके सत्ता में आते ही मालदीव ने 'इंडिया आउट' की नीति लागू कर दी। मोइज़ू ने भारत से अपने सैनिकों को वापस बुलाने को कह दिया। 2018 में चीन समर्थक राष्ट्रपति अब्दुल्ला यामीन के समय मालदीव ने MILAN नौसैनिक अभ्यास में भाग लेने के भारत के न्योते को इनकार कर दिया था। उस वक्त मालदीव पूरी तरह से बीजिंग के प्रभाव में था।

<https://www.bhaskar.com/national/news/multilateral-naval-exercise-milan-24-indian-navy-news-updates-132604378.html>

## Recce Aircraft to Anti-tank Mines: Green Light to Big-ticket Purchases

The Defence Acquisition Council (DAC) Friday cleared a series of big-ticket procurements worth Rs 84,560 crore for the armed forces including 15 maritime reconnaissance and multi-mission maritime aircraft for the Navy and the Coast Guard as well as six flight refueller aircraft for the IAF and new generation anti-tank mines for the Army. The DAC, headed by Defence Minister Rajnath Singh, is among the top bodies for clearing major capital acquisitions for defence. The Acceptance of Necessity (AoN) is the first step in the long Defence procurement process. The grant of AoN does not always lead to a final order. Sources said these 15 maritime reconnaissance aircraft will be the marine versions of the C-295 medium lift tactical aircraft inducted by the IAF last year. Of the 15, nine will be for the Navy and six for the Coast Guard. A senior official said that once inducted, the aircraft will be a major addition to the existing P-8I maritime surveillance aircraft used by the forces for surveillance patrols and interdiction, and will significantly augment the capability of the forces. “They will be configured accordingly with indigenously designed and manufactured sensors,” the official said. Another major acquisition cleared was that of midair refuellers for the IAF. These will be procured in addition to another tanker which the IAF would take on lease from interested global vendors to meet its training needs in the interim. When inducted, the refuellers would fill a critical capability gap in the IAF’s inventory and would prove to be a vital strategic asset and a force multiplier as they will allow fighter jets to stay airborne longer. Currently, the IAF operates a fleet of six Russian Ilyushin-78 tankers procured in 2003-04, but at any given time only three-four are serviceable. Last year, state-owned Hindustan Aeronautics Limited (HAL) also signed an agreement with Israel Aerospace Industries (IAI) to convert Boeing 767 passenger aircraft into tankers in India. Proposals to procure active towed array sonar with capabilities to operate at low frequencies and various depths for long range detection of adversary submarines, heavy weight torpedoes for enhancing the attacking capabilities of the Navy’s Kalvari Class submarines have also been cleared by the DAC. Proposals for follow on support (FOS) and repair replenishment support through follow on supply support (FOSS) for 24 MH-60R helicopters under the Foreign Military Sale route with the US government have also been shown the green light.

<https://indianexpress.com/article/india/recce-aircraft-to-anti-tank-mines-green-light-to-big-ticket-purchases-9165851/>

### Science & Technology News

## ‘Naughty Boy’ Tamed: ISRO’s GSLV Injects Weather Satellite into Orbit

The “naughty boy” may just have come of age. The Indian Space Research Organisation’s (ISRO) GSLV rocket, known for its relatively spotty record, placed a weather satellite in precise orbit on

Saturday in a textbook launch, recording its second straight success after an August 2021 setback and giving India's space agency a boost ahead of the launch of a joint Earth-observing mission with NASA. The relief was palpable among top ISRO officials after the INSAT-3DS launch. "The naughty boy has now matured as a very obedient and disciplined boy. GSLV has also become a robust vehicle for ISRO," said mission director Tomy Joseph. GSLV stands for Geosynchronous Satellite Launch Vehicle. Chairperson S Somanath, too, said: "With this mission, our confidence in GSLV is (even more) high. The next mission of GSLV is going to be NISAR. This gives us greater confidence to take on NISAR soon." NISAR, being developed jointly by NASA and ISRO, will study changes to ice sheets, glaciers and sea ice brought about by climate change. Not only was Saturday's launch a textbook one, the GSLV also carried an additional 50 kg to a 2,800-km higher orbit, increasing the life of the satellite by three months, said Director of UR Rao Satellite Centre M Sankaran. Not only was Saturday's launch a textbook one, the GSLV also carried an additional 50 kg to a 2,800-km higher orbit, increasing the life of the satellite by three months, said Director of UR Rao Satellite Centre M Sankaran.

<https://indianexpress.com/article/technology/science/isro-meteorological-satellite-insat-3ds-naughty-boy-rocket-9166812/>

## नवभारत टाइम्स

Sun, 18 Feb 2024

### धरती, समुद्र, पर्यावरण पर एक साथ रखेगा नजर, ISRO का ये सैटलाइट बनेगा संकटमोचक

क्लाइमेट चेंज की बढ़ती समस्याओं के बीच इसरो का नया सैटलाइट INSAT-3DS आपदा प्रबंधन के लिए बड़ी सफलता मानी जा रहा है। यह कृषि के लिए भी काफी मददगार साबित होगा। सूखे और बारिश के कहर की सटीक जानकारी इसकी वजह से मिल सकेगी। मौसम वैज्ञानिकों के अनुसार, यह सैटलाइट ऑर्बिट में स्थापित होने के बाद भारतीय मौसम विभाग के साथ-साथ नैशनल इंस्टिट्यूट ऑफ ओशन टेक्नॉलजी और मौसम पूर्वानुमान केंद्र को भी डेटा देगा। मौसम वैज्ञानिक इस पर 24 घंटे नजर बनाए रखेंगे। यह सैटलाइट धरती की सतह के साथ समुद्र और पर्यावरण पर अलग-अलग स्पेक्ट्रल वेवलेंथ के जरिए एक साथ नजर रख सकेगा। ऐसे में मौसम संबंधी किसी भी बदलाव की जानकारी तुरंत मिल सकेगी और राहत के कदम समय रहते उठाए जा सकेंगे। इस सैटलाइट के जरिए समुद्री विक्षोभों की स्थिति पर आसानी से नजर रखी जा सकेगी। हवाओं और बादलों की स्थिति पर भी नजर रहेगी। इनसैट-3 सीरीज के सैटलाइट में छह अलग-अलग तरह के जियोस्टेशनरी सैटलाइट्स हैं। ये सातवां सैटलाइट लॉन्च हुआ है। इनसैट सीरीज के पहले सभी सैटलाइट साल 2000 से 2004 के बीच लॉन्च किए गए थे। इनसे संचार, टीवी ब्रॉडकास्ट और मौसम संबंधी जानकारियां मिल रही थीं। क्या हुआ?

ISRO ने सैटलाइट INSAT-3DS को लॉन्च किया। इसे GSLV-F14 रॉकेट लेकर गया। यह 19 मिनट 13 सेकंड में 37000 किलोमीटर ऊंचाई पर धरती के ऊपरी ऑर्बिट में पहुंचा और सैटलाइट को सफलतापूर्वक स्पेस में छोड़ा।

#### कब हुआ?

सैटलाइट लॉन्च श्रीहरिकोटा के सतीश धवन स्पेस सेंटर से शाम 5.35 बजे हुआ।

#### कैसे अलग पिछली सैटलाइट से?

INSAT-3DS भारत का तीसरी पीढ़ी का मौसम सैटलाइट है। यह धरती और महासागर की सतहों की निगरानी के लिए डिजाइन किया गया है। INSAT-3DS पहले से स्पेस में मौजूद INSAT-3D और INSAT-3DS सैटलाइट्स के साथ मौसम संबंधी सेवाओं को और बेहतर बनाएगा। यह 6-चैनल इमेजर और 19-चैनल साउंडर के जरिए मौसम से

जुड़ी सटीक जानकारी देगा। इमेजर पेलोड, साउंडर पेलोड, डेटा रिले ट्रांसपोंडर और सर्च एंड रेस्क्यू ट्रांसपोंडर का इस्तेमाल बादल, कोहरे, बारिश, बर्फ और उसकी गहराई, आग, धुएं, जमीन और समंदरों पर स्टडी के लिए किया जाएगा।

### कौन-सा मिशन?

1 जनवरी 2024 को PSLV-C58/EXPOSAT मिशन की लॉन्चिंग के बाद 2024 में इसरो का यह दूसरा मिशन है। यह INSAT-3D सीरीज की 7 वीं उड़ान है। इस सीरीज का आखिरी सैटेलाइट INSAT-3DR 2016 में लॉन्च की गई थी।

[https://navbharattimes.indiatimes.com/india/isro-weather-satellite-insat-3ds-launch/articleshow/107787524.cms#google\\_vignette](https://navbharattimes.indiatimes.com/india/isro-weather-satellite-insat-3ds-launch/articleshow/107787524.cms#google_vignette)



Sat, 17 Feb 2024

## अंतरिक्ष से वापस लाया गया उपग्रह कार्टोसेट

भारतीय अंतरिक्ष अनुसंधान संगठन (इसरो) ने अंतरिक्ष कचरे की समस्या के समाधान की दिशा में बड़ी कामयाबी हासिल करते हुए उपग्रह कार्टोसेटको सफलतापूर्वक 2 अंतरिक्ष से धरती के वातावरण में वापस लाया। 17 साल पहले लांच किया गया कार्टोसेट-2 हाई रिजाल्यूशन इमेजिंग उपग्रहों की दूसरी पीढ़ी का उपग्रह था। यह 2019 से निष्क्रिय था। सामान्य तौर पर कार्टोसेट 2 को डी-ऑर्बिट में पहुंचने में लगभग 30 साल लगते। लेकिन इसरो ने बचे हुए ईंधन का उपयोग करके इसे गिराने का विकल्प चुना इसरो ने अंतरिक्ष के शांतिपूर्ण उपयोग पर संयुक्त राष्ट्र समिति और इंटर एजेंसी स्पेस डेब्रिस कार्डिनेशन कमेटी (आइएडीसी) जैसे संगठनों की सिफारिशों के अनुसार अंतरिक्ष के कचरे से उपग्रहों के टकराने के जोखिमों को कम करने के साथ ही कार्टोसेट-2 का सुरक्षित निपटान किया है। इसरो के अधिकारी ने कहा कि कार्टोसेट 2 ने 14 फरवरी को भारतीय समयानुसार दोपहर 3.48 बजे हिंद महासागर के ऊपर से पृथ्वी के वायुमंडल में प्रवेश किया। आशंका है कि या तो यह जल गया होगा या इसका बचा हुआ हिस्सा समुद्र में गिर गया होगा, जिसे हम ढूँढ नहीं पाएंगे। इसरो ने कार्टोसेट-2 को 10 जनवरी 2007 को लांच किया था। लांचिंग के समय इसका वजन 680 किलोग्राम था। यह उपग्रह 635 किमी की ऊंचाई पर कार्य कर रहा था। 2019 तक इस उपग्रह ने हाई रिजाल्यूशन तस्वीरें मुहैया कराईं। कार्टोसेट-2 को 10 जनवरी, 2007 को किया गया था लांचअंतरिक्ष में मलबे को कम करने के प्रयासों के तहत उठाया कदम

### आज लांच होगा इनसेट- 3 डीएस

मौसम संबंधी उपग्रह इनसेट-उडीएस के प्रक्षेपण की उल्टी गिनती शुरू हो गई है। इसरो ने शुक्रवार को कहा कि जियोसिंक्रोनस सैटेलाइट लांच व्हीकल (जीएसएलवी) - एफ 14 शनिवार शाम 5.35 बजे श्रीहरिकोटा के सतीश धवन अंतरिक्ष केंद्र से इनसेट-3 डीएस के साथ उड़ान भरेगा। इनसेट-3 डीएस मौसम का बेहतर पूर्वानुमान और आपदा संबंधी चेतावनी देने में मदद करेगा। यह भूस्थैतिक कक्षा में स्थापित किए जाने वाले तीसरी पीढ़ी के मौसम उपग्रह का मिशन है। इसे मौसम संबंधी अवलोकन करने, मौसम की भविष्यवाणी और आपदा चेतावनी के लिए भूमि और महासागर सतहों की निगरानी करने के लिए डिजाइन किया गया है। जीएसएलवी शक्तिशाली राकेट है, जो भारी उपग्रहों को अंतरिक्ष में अधिक ऊंचाई तक ले जाने में सक्षम है।

<https://www.jagran.com/stories/newspaper/Dainik-Jagran/1708148871202>

