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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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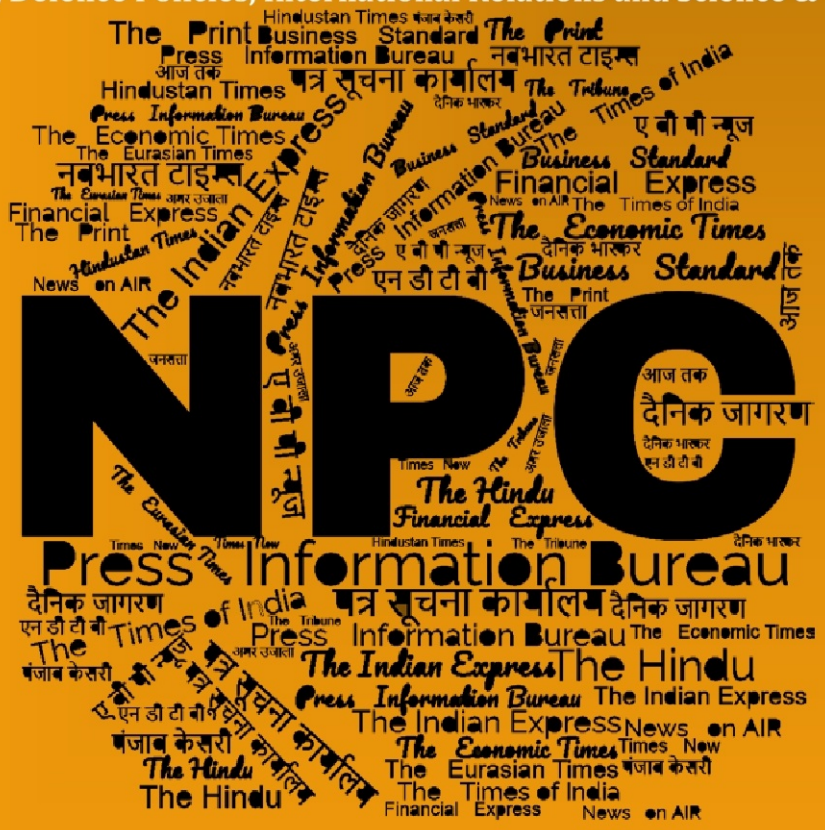

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भारतीय नौसेना और डीआरडीओ को मिली बड़ी कामयाबी, एंटी-शिप मिसाइल का किया सफल परीक्षण

Source: Amar Ujala, Dt. 26 Feb 2025,
URL: https://www.amarujala.com/india-news/indian-navy-and-drdo-got-big-achievement-successfully-tested-anti-ship-missile-2025-02-26

भारत ने अपनी तरह की पहली नेवल एंटी शिप मिसाइल का सफल परीक्षण किया है। रक्षा अनुसंधान संगठन (डीआरडीओ) और नौसेना ने संयुक्त रूप से मंगलवार को ओडिशा के चांदीपुर स्थित एकीकृत परीक्षण रेंज से नेवल एंटी शिप मिसाइल (एनएएसएम–एसआर) का परीक्षण किया। रक्षा मंत्री राजनाथ सिंह ने नौसेना और डीआरडीओ को इसके लिए बधाई दी है।

रक्षा मंत्रालय की ओर से जारी बयान में कहा गया कि यह अपनी तरह की पहली नेवल एंटी शिप मिसाइल है, जिसे डीआरडीओ ने विकसित किया है। डीआरडीओ ने सोशल मीडिया पर इसका एक वीडियो साझा करते हुए लिखा, परीक्षणों से मिसाइल की मैन–इन–लूप फीचर्स में महारत हासिल की गई है। इसकी अधिकतम सीमा पर समुद्र–स्किमिंग मोड में एक छोटे जहाज के लक्ष्य पर सीधा प्रहार किया गया। परीक्षण के दौरान मिसाइल ने एक छोटे जहाज को सीधे निशाना बनाते हुए उसके खिलाफ जबर्दस्त प्रभावी हमला किया, जो कि मिसाइल की सटीकता और शक्तिशाली रेंज का प्रमाण है। यह एक मध्यम दूरी तक मार करने की क्षमता वाली मिसाइल है।

नौसेना के लिए मील का पत्थर

रक्षा मंत्रालय ने कहा, नौसेना के लिए यह परीक्षण महत्वपूर्ण मील का पत्थर है, क्योंकि इस मिसाइल की क्षमता ने यह साबित किया है कि यह किसी भी दुश्मन की जहाजी ताकत को प्रभावी तरीके से नष्ट करने में सक्षम है। एनएएसएम–एसआर मिसाइल भारतीय नौसेना के बेड़े में एक मजबूत हथियार के रूप में जुड़ने के लिए तैयार है।

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DRDO, Navy test indigenous helicopter-launched anti-ship missile with 'man-in-loop'

Source: The Indian Express, Dt. 27 Feb 2025,
URL: https://indianexpress.com/article/cities/pune/drdo-navy-test-indigenous-helicopter-launched-anti-ship-missile-with-man-in-loop-9858259/

Defence Research and Development Organisation (DRDO) and Indian Navy carried out successful flight-trials of indigenously developed helicopter launcher Naval Anti-Ship missile Short Range (NASM-SR) from Integrated Test Range (ITR) at Chandipur off the coast of Odisha on Tuesday. The trials demonstrated the missile's capability against ship targets while launched from the Indian Navy's Seaking 42B Helicopter.

The Ministry of Defence said on Wednesday that the trials have proven the missile's Man-in-Loop feature which implies the role of a human operator in the decision-making process during the missile's operation by intervening, controlling, or overriding automated systems in certain stages of flight. The indigenous missile primarily aims to replace another foreign origin anti-ship missile which has been in use by the Indian Navy for its Seaking helicopters.

MoD has said that the missile scored a direct hit on a small ship target at its maximum range in sea-skimming mode which means flight of the missile very close to sea surface to primarily avoid detection. The missile uses an indigenously developed Imaging Infra-Red Seeker for terminal guidance. The mission also has demonstrated the high bandwidth two way data link system, which is used to transmit the seeker live images back to the pilot for in-flight retargeting.

The missile was launched in Bearing-only Lock-on after launch mode with several targets in close vicinity for selecting one among them. A bearing-only lock-on implies that the missile is initially given just the broad direction of the target and not its specifics. “The missile initially locked on to a large target within a specified zone of search and during the terminal phase, the pilot selected a smaller hidden target resulting in its being hit with pinpoint accuracy,” read a press statement from the MoD.

“The missile uses an indigenous Fiber Optic Gyroscope-based Inertial Navigation System and Radio Altimeter for its Mid-course guidance, an Integrated avionics module, Electro-Mechanical actuators for Aerodynamic and Jet vane control, thermal batteries and Printed Circuit Board warhead. It uses solid propulsion with an in-line ejectable booster and a long-burn sustainer. The trials have met all the mission objectives,” the statement read.

The missile has a maximum range of a little over 50 km.The missile is developed by different labs of DRDO including Hyderabad based Research Centre Imarat and Defence Research and Development Laboratory, Pune based High Energy Materials Research Laboratory and Chandigarh based Terminal Ballistics Research Laboratory. The missiles are currently being produced by development and production partners with the help of MSME’s, start-ups and other production partners. The maiden flight test of the missile was conducted in May 2022.

Defence Minister Rajnath Singh has congratulated DRDO, Indian Navy and the industries for the successful flight tests. The tests for Man-in-Loop features is unique as it gives the capability of in-flight retargeting, the MoD press statement quoted Singh as saying. DRDO Chairman DRDO Dr Samir V Kamat also congratulated the entire DRDO team, users and the industry partners.

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Defence News

Defence Strategic: National/International

CDS Gen Anil Chauhan emphasizes need for Synergised Air & Naval Operations at the seminar on Enhancing Combat Power in the Indian Ocean Region

Source: Press Information Bureau, Dt. 25 Feb 2025,
URL: https://pib.gov.in/PressReleasePage.aspx?PRID=2106207

Headquarters Southern Air Command, in collaboration with the Centre for Air Power Studies (CAPS), hosted a seminar on ”Synergising Air and Naval Forces: Enhancing Combat Power in the Indian Ocean Region” on 25 February 2025. General Anil Chauhan, Chief of Defence Staff (CDS), was the Chief Guest for the Seminar and was accompanied by Air Marshal SP Dharkar, Vice Chief of the Air Staff.

In his address, the Chief of Defence Staff underscored the critical need for preparedness and vigilance in the evolving global security scenario. He emphasised that India’s unique geographical location in the Indian Ocean Region makes the maritime domain a pivotal area of strategic interest. Highlighting the importance of joint force projection, he stressed that the integration of air and naval power is essential for safeguarding national interests and ensuring deterrence in the region. He further elaborated on how technological advancements, strategic partnerships, and joint operational exercises will play a crucial role in enhancing India’s defence posture. Air Marshal SP Dharkar in his Keynote Address highlighted the importance of real-time intelligence sharing and seamless coordination between the Indian navy and the Indian air Force to address emerging threats in the region.

The Seminar featured two sessions that brought together senior officers, both serving and retired, from Headquarters Integrated Defence Staff,, Headquarters Southern Air Command, Indian Army, Indian Navy and CAPS. Participants deliberated on synergising maritime air operations and enhancing combat power, offering valuable insights and perspectives on strengthening joint operational capabilities. The discussions encompassed modern air-sea battle strategies, the role of unmanned systems in maritime security, and the impact of evolving geopolitical dynamics on defense preparedness. Experts also provided recommendations on optimizing force readiness and resource allocation to maintain a strategic advantage in the IOR.

The event reaffirmed the commitment of the Indian Armed Forces towards fostering inter-service cooperation and advancing India’s strategic posture in the Indian Ocean Region. It also served as a platform for defence professionals to exchange ideas and best practices aimed at ensuring robust maritime security. The seminar concluded with a consensus on the need for continued

collaboration, sustained modernization, and an unwavering focus on capability enhancement to meet future security challenges effectively.

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Indian Army Procures Critical CBRN Defence Equipment

Source: Press Information Bureau, Dt. 26 Feb 2025,
URL: https://pib.gov.in/PressReleasePage.aspx?PRID=2106362

Indian Army has signed a contract on 25 February 2025 for procurement of 223 Automatic Chemical Agent Detection and Alarm (ACADA) systems with M/s L&T Ltd at a cost of Rs 80.43 Cr, under the Buy Indian (IDDM) category. This will give a significant boost to the GoI's Atamnirbharta drive since more than 80% of the components and sub-systems of the equipment will be sourced locally.

ACADA has been designed and developed by DRDO's Defence Research and Development Establishment, Gwalior and marks a significant milestone in the nation's indigenisation initiative in the niche CBRN domain.

The ACADA system is used to detect chemical warfare agents (CWA) and programmed toxic industrial chemicals (TICs) by sampling the air from the environment. It works on the principle of Ion Mobility Spectrometry (IMS) and contains two highly sensitive IMS cells for continuous detection and simultaneous monitoring of harmful/ toxic substances. Induction of ACADA in the field units will substantially enhance Indian Army's defensive CBRN capability for operations, as also for peacetime, especially for responding to disaster relief situations related to industrial accidents.

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India, Japan kickstart two-week mega wargame

Source: The Economic Times, Dt. 25 Feb 2025,
URL: https://economictimes.indiatimes.com/news/defence/india-japan-kickstart-two-week-mega-wargame/articleshow/118558847.cms

Armies of India and Japan have kickstarted a mega two-week wargame at a Japanese military base in the foothills of Mount Fuji in line with the overall aim to bolster bilateral defence ties. The sixth edition of the 'Dharma Guardian' exercise that began on Monday is set to include an "expanded" range of activities that will reflect the growing defence cooperation between India and Japan, the Indian Army said.

The wargame at the East Fuji training area is taking place amid mounting concerns in India and Japan over China's increasing military muscle-flexing in the Indo-Pacific region.

This significant exercise marks a "major milestone" as it is being conducted at an enhanced scale, with the participation of troops expanded to a company-strength level for the first time, the Indian Army said in a statement.

The opening ceremony of the wargame was graced by India's Ambassador to Japan Sibi George, and Lt Gen Toriumi Seiji, the Commanding General of the Japan Ground Self-Defence Force's First Division.

The joint drills will involve counter-terror operations in urban terrain, a critical area of operational focus given the contemporary security landscape, the statement said.

It said the troops will also rehearse activities conducted during United Nations peacekeeping operations, simulating real-world situations where multinational forces must collaborate effectively in complex environments.

This collaboration aims to improve both forces' ability to respond swiftly and effectively during operations, the Indian Army said.

"As the exercise progresses, the participating forces will engage in a series of tactical drills, exchanging knowledge and expertise, while building lasting ties of friendship and trust," it said.

"The culmination of the exercise will see the two armies further solidifying their commitment to peace, security, and stability in the region," it added.

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Rajnath highlights new threats at sea

Source: Hindustan Times, Dt. 26 Feb 2025,
URL: https://www.hindustantimes.com/india-news/rajnath-highlights-new-threats-at-sea-101740509528146.html

Defence minister Rajnath Singh on Tuesday put the spotlight on emerging unconventional threats at sea including cyber-attacks, data breach, signal jamming, radar disruption and GPS spoofing, asking the navy and the coast guard to stay alert to the challenges stemming from swift technological advancements.

“These challenges are in addition to conventional threats. The coast guard must stay vigilant to tackle both types of threats,” Singh said at the Indian Coast Guard’s 18th investiture ceremony.

“For years, all of you have stayed alert to eliminating the conventional threats. But as times change, we are now facing challenges of a different kind. In this era of technological advancement, we are facing challenges that are unconventional.”

Singh presented 32 medals to coast guard personnel for their gallantry and distinguished service.

In his speech, he touched upon the coast guard’s transformation into “a formidable, trustworthy and one of the most efficient marine forces in the world.”

“India is surrounded by seas on three sides and its coastline is vast. The nation’s security faces two types of threats. The first is war which is dealt with by the armed forces, and the second includes the challenges of piracy, terrorism, infiltration, smuggling and illegal fishing for which the marine forces, especially coast guard, are always alert,” he said.

Over the past year, the coast guard has seized 14 boats and apprehended 115 pirates, seized drugs worth ₹37,000 crore, and saved around 170 lives in a raft of rescue operations.

Singh said that the vision of a secure and prosperous India can only be realised if its security apparatus is robust, adding that the government was committed to strengthening the capabilities of the coast guard.

"The coast guard has been allocated ₹9,676 crore for the financial year 2025-26, which is 26.5% more than the previous year's budget. It is a crucial step towards modernising the coast guard. Also, the procurement of 14 fast patrol vessels, six air cushion vehicles, 22 interceptor boats, six next-generation offshore patrol vessels and 18 next generation fast patrol vessels has been approved to make the coast guard stronger," he added.

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Army chief Gen Dwivedi visits Airbus' helicopter facility in France

Source: Hindustan Times, Dt. 26 Feb 2025,
URL: https://www.hindustantimes.com/india-news/army-chief-gen-dwivedi-visits-airbus-helicopter-facility-in-france-101740576937605.html

Army chief General Upendra Dwivedi visited Airbus' Marignane helicopter facility near Marseille in France and was briefed on cutting-edge aviation technology, defence systems and aerospace engineering, the army said on Wednesday.

"This visit underscores the Indian Army's commitment to leveraging global aerospace innovations to enhance operational capabilities and strengthen defence preparedness, especially in the rotary wing aviation," the army wrote on X.

Dwivedi reached France on February 24 on a four-day official visit that seeks to deepen defence cooperation between the two countries -- a key element of overall bilateral strategic relationship -- and explore new avenues of cooperation.

The Marignane facility produces a range of civil and military helicopters, including the H125 that is set to be assembled in India soon. Airbus Helicopters has shortlisted four locations in the country to set up a production line for H125 helicopters in partnership with Tata Advanced Systems Limited (TASL), the fourth such facility in the world and a shot in the arm for the government's wide-ranging Make-in-India campaign.

The final assessment of sites in Uttar Pradesh, Gujarat, Andhra Pradesh and Karnataka is underway and an announcement is expected soon on where the single-engine helicopter will be assembled as the two firms target to roll the first H125 out of an Indian facility next year.

The final assembly line (FAL) in India will be the first for a civil helicopter in the private sector and will initially produce 10 H125s a year, with production being ramped up as orders grow. Airbus Helicopters has projected a demand for 500 light helicopters of the H125 class in the country and south Asia during the next 20 years.

The partnership between Airbus Helicopters and TASL to assemble the H125 helicopters in the country was announced in January 2024 during talks between Prime Minister Narendra Modi and French President Emmanuel Macron. These helicopters are currently produced only in France, the US and Brazil.

The 2.8-tonne helicopter can carry up to six passengers, fly at a maximum altitude of 23,000 feet, has a range of 630 km and a top speed of 250 kmph. The roles it is suited for include commercial transport, law enforcement, emergency medical services, disaster management, offshore industry and firefighting.

This will be the second FAL to be set up in India by Airbus. It is jointly executing a ₹21,935-crore project with TASL to equip the Indian Air Force (IAF) with 56 C-295 aircraft to modernise its transport fleet, including 16 in fly-away condition.

Airbus has already delivered several C-295s to the IAF and the last of the 16 fly-away aircraft is expected to join the fleet by August 2025. The first Made-in-India C-295 will roll out of the Vadodara facility in September 2026 and the remaining 39 by August 2031.

On Tuesday, Dwivedi was briefed on the French Army's modernisation programme, called Scorpion, and the mission and role of the French Land Command's 3rd Division based in Marseille. On February 27, he will visit the Neuve Chapelle Indian War Memorial to pay tributes to men who fell in World War I. This will be followed by a talk at the Ecole de Guerre, the French Joint Staff College.

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Gen Dwivedi briefed on French Army's modernisation drive

Source: Hindustan Times, Dt. 26 Feb 2025,
URL: https://www.hindustantimes.com/india-news/gen-dwivedi-briefed-on-french-army-s-modernisation-drive-101740509890955.html

Indian Army chief General Upendra Dwivedi on Tuesday visited Marseille where he was briefed on the French Army's modernisation programme, called Scorpion, and the mission and role of the French Land Command's 3rd Division based there, officials aware of the matter said.

Launched a decade ago, the Scorpion programme seeks to modernise the French Army's combat capabilities with new platforms. Dwivedi, who began his four-day official visit on January 24, was also briefed on the ongoing training cooperation between the two armies, the officials said. The visit seeks to deepen defence cooperation between the two countries --- a key element of overall bilateral relationship --- and explore new avenues of cooperation.

The army chief will visit Carpiagne on Wednesday to witness live firing exercises. On February 27, he will visit the Neuve Chapelle Indian War Memorial to pay tributes to men who fell in World War I. This will be followed by a talk at the École de Guerre, the French Joint Staff College, where Dwivedi is expected to highlight the evolving nature of warfare and India's strategic vision, the army earlier said on the eve of the visit.

The visit comes in the backdrop of Prime Minister Narendra Modi's visit to France on February 10-12. India and France then launched a joint road map for developing safe, secure and trustworthy artificial intelligence (AI) as Modi and President Emmanuel Macron explored ways to ramp up cooperation in science and innovation under the bilateral strategic partnership.

Also, India is all set to sign two separate deals with France for 26 new Rafale-M fighter jets for aircraft carrier INS Vikrant, and three more Scorpene-class submarines to sharpen the navy's combat capabilities.

The deal for the Rafale-M twin-engine deck-based fighters, built for sustained combat operations at sea, is estimated to be worth around ₹50,000 crore. The Rafale-M is being imported as an interim measure to meet the navy's requirements until India develops its own twin-engine deck-based fighter.

The additional Scorpene-class submarines, to be built at Mazagon Dock Shipbuilders Limited (MDL) in Mumbai, will strengthen the country's maritime posture in the Indian Ocean Region where the challenges include China's carefully calculated power play for influence and defending the rules-based international order.

MDL has already built six Kalvari-class (Scorpene) diesel-electric attack submarines with technology transfer from the French firm, Naval Group, under a ₹23,562-crore programme called Project 75.

Last year, India and France agreed to a new roadmap for defence industrial cooperation to identify opportunities for partnership in the sector including co-designing, co-development and co-production of military hardware.

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HAL signs MoU with BEML for strategic collaboration in learning, development

Source: The Economic Times, Dt. 25 Feb 2025,
URL: https://economictimes.indiatimes.com/news/defence/hal-signs-mou-with-beml-for-strategic-collaboration-in-learning-development/articleshow/118558606.cms

Hindustan Aeronautics Limited on Tuesday said that it has signed an MoU with BEML Ltd to collaborate on leadership and technical training programmes aimed at skill development and professional excellence. As part of this strategic collaboration, the HAL Management Academy will design and deliver induction training, middle and senior management training, specialised workshops, and certification programmes in key areas such as six sigma, quality, reliability, data analytics, and industry 4.0, the company stated.

The partnership will also facilitate industrial visits, knowledge-sharing sessions, joint conferences, internships, and project-based learning opportunities for BEML professionals, according to a release.

This MoU represents a significant step towards fostering industry-academia collaboration, strengthening India's defence manufacturing ecosystem, and equipping professionals with cutting-edge knowledge and skills, it added.

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Iran Navy's warships on goodwill and training visit to Mumbai

Source: The Economic Times, Dt. 26 Feb 2025,
URL: https://economictimes.indiatimes.com/news/defence/iran-navys-warships-on-goodwill-and-training-visit-to-mumbai/articleshow/118575400.cms

Two Iranian warships are currently on a goodwill and training visit to Mumbai, in a step towards enhanced cooperation in the maritime domain and strengthening mutual friendship, the Indian Navy said on Wednesday. On Tuesday, the Mission Commander and the Commanding Officers of the two ships, IRIS Boushehr and IRIS Lavan, called on Rear Admiral Vidyadhar Harke, Chief Staff Officer (Operations) at Headquarters Western Naval Command.

The flotilla, carrying nearly 220 officer cadets, is on a training mission in the Indian Ocean. The ships were accorded a warm welcome by the Indian Navy with band in attendance.

The deployment is led by Captain Mohammad Saberi as Mission Commander, with Senior Captain Seyed Ali Madani commanding the Lavan and Commander Hamed Bahramian commanding the Boushehr, the Indian Navy said.

"The Iranian Navy's training flotilla, comprising IRIS Boushehr and IRIS Lavan, is on a goodwill and training visit to Mumbai from February 25 to 28, 2025," it said.

Several activities have been planned to strengthen Navy-to-Navy interactions, including sports and training visits to the Naval Dockyard for officer cadets.

Reflecting the strong diplomatic ties between the two countries, the Indian Navy recently undertook medical evacuation of a trainee officer from the IRIS Boushehr at sea.

At around 3 am on February 20, a request for medical assistance was received and swiftly acted upon by the Indian Navy and the Indian Coast Guard.

The officer cadet was evacuated from IRIS Boushehr, admitted to INHS Asvini, provided prompt medical care, and discharged to the Iranian ship upon its arrival at the port on Tuesday, the Navy said.

Over the years, cooperation between India and Iran has grown in various defence-related fields.

The visit by the Iranian ships further strengthens mutual friendship and is a significant step towards enhanced Navy-to-Navy cooperation in the maritime domain, the Navy said.

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Women peacekeepers from 35 nations unite in New Delhi to share experiences, promote dialogue

Source: The Week, Dt. 25 Feb 2025,
URL: https://www.theweek.in/news/defence/2025/02/25/women-peacekeepers-from-35-nations-unite-in-new-delhi-to-share-experiences-promote-dialogue.html

Women peacekeepers from 35 countries are participating in a two-day event titled ‘Conference on Women Peacekeepers from the Global South’ at the Manekshaw Centre in New Delhi. The conference, organised by the ministry of external affairs in collaboration with the ministry of defence, aims to enhance the role of women in UN peacekeeping by fostering dialogue, sharing experiences, and improving collaboration among the countries of the Global South.

During the two-day conference, various sessions on topics such as 'Addressing Sexual Exploitation and Abuse', 'Technology in Peacekeeping: Can We Do Better?', 'Role of Women Peacekeepers', 'Opportunities for Collaboration in Training and Capacity Building in the Global South', 'Promoting Regional Cooperation in Peacekeeping: The Global South Context' are being held. In his opening remarks on Monday, Vice Chief of Army Staff (VCOAS) Lt Gen N.S. Raja Subramani hailed the exceptional service and commitment of women peacekeepers to ensuring global peace and security.

“The women peacekeepers have broken the stereotypes, shattered barriers, and rose above challenges to become leaders and protectors of their nation and also in the communities, where they have been engaged in for peacekeeping," he said. He observed that as a key partner in the Global South, India brings forth a wealth of experience, resources and expertise to the table, contributing to the collective effort of developing nations. The defence ministry, in a release said, the conference reaffirms India's leadership in promoting inclusive and effective peacekeeping operations, underscoring the nation's commitment to gender equality and the vital role women play in global security and peace efforts. "Through collaborative discussions and actionable strategies, the conference will enhance the understanding of the role of women peacekeepers and increase their impact on future missions," the ministry added.

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India’s Last Imported Warship 'Tamal' Set For June Commissioning As The Stealth Frigate Enters Final Trials In Russia: Report

Source: Swarajya, Dt. 26 Feb 2025,
URL: https://swarajyamag.com/news-brief/indias-last-imported-warship-tamal-set-for-june-commissioning-as-the-stealth-frigate-enters-final-trials-in-russia-report

The Indian Navy crew designated to operate Tamal, the stealth frigate under construction in Russia, arrived in Saint Petersburg last week in preparation for the warship’s commissioning, expected in early June, reported The Hindu.

This event holds significance as 'Tamal' will be the last warship to be commissioned outside India, marking a transition as the country now designs and builds its own warships.

Crew Training and Trials

A 200-member commissioning crew landed in Saint Petersburg nearly 10 days ago to undergo training ahead of the ship's final trials. After completing the training phase, the team will shift to Kaliningrad, where Tamal will undergo a series of trials leading up to its commissioning, The Hindu reported citing official sources.

The stealth frigate is being built as part of a 2016 Inter-Governmental Agreement between India and Russia for four follow-on frigates. Under the agreement, two ships were to be directly procured from Russia, while the remaining two were to be built in India by Goa Shipyard Ltd. (GSL) under a technology transfer arrangement.

A $1-billion deal was signed for the two frigates imported from Russia. Tamal has completed manufacturer trials and is now undergoing State Committee Trials, after which it will proceed to delivery acceptance trials—a crucial phase comprising both harbour and sea trials lasting approximately 45 to 50 days. The ship's weapons will also be tested before it is deemed ready for commissioning.

Follow-On Frigates Under the Agreement

The first ship built in Russia under the agreement, INS Tushil, was commissioned on 9 December 2024, in Kaliningrad in the presence of Defence Minister Rajnath Singh. It reached its homeport in Karwar on 14 February 2025, after covering 12,500 nautical miles and visiting eight countries across three continents.

For the two Indian-built frigates, Goa Shipyard Ltd. (GSL) signed a $500-million agreement with Rosoboronexport of Russia in 2018 for materials, design, and technical assistance. The contract for their construction was finalised between the Defence Ministry and GSL in January 2019.

The first Indian-built frigate was launched into the water last year, and the second is expected to be launched in the next few months. According to officials cited in the report, GSL remains on track to deliver the first ship in 2026, with the second following six months later.

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Iran accelerates production of near weapons-grade uranium, IAEA says, as tensions with US ratchet up

Source: The Economic Times, Dt. 26 Feb 2025,
URL: https://economictimes.indiatimes.com/news/defence/iran-accelerates-production-of-near-weapons-grade-uranium-un-nuclear-watchdog-iaea/articleshow/118582347.cms

Iran has accelerated its production of near weapons-grade uranium as tensions between Tehran and Washington rise after the election of U.S. President Donald Trump, a report by the United Nations' nuclear watchdog seen by The Associated Press on Wednesday showed.

The report by the Vienna-based International Atomic Energy Agency said that as of Feb. 8, Iran has 274.8 kilograms (605.8 pounds) of uranium enriched up to 60%. That's an increase of 92.5 kilograms (203.9 pounds) since the IAEA's last report in November.

That material is a short, technical step away from weapons-grade levels of 90%.

A report in November 2024 put the stockpile at 182.3 kilograms (401.9 pounds). It had 164.7 kilograms (363.1 pounds) last August.

"The significantly increased production and accumulation of high enriched uranium by Iran, the only non-nuclear weapon State to produce such nuclear material, is of serious concern," the confidential report stated. According to the IAEA, approximately 42 kilograms of 60% enriched uranium is theoretically enough to produce one atomic bomb, if enriched further to 90%.

The IAEA also estimated in its quarterly report that as of Feb. 8, Iran's overall stockpile of enriched uranium stands at 8,294.4 kilograms (18,286 pounds), which represents an increase of 1,690.0 kilograms (3725.8 pounds) since the last report in November.

Trump administration warns TehranThe Trump administration said Iran must be prevented from acquiring nuclear weapons.

"President Trump has put the Iran Regime on notice by reimposing Maximum Pressure and is committed to ensuring the regime never gets a nuclear weapon. He has also made clear he is open to talks with Iran to come to an agreement that fully addresses the outstanding issues between our two countries," National Security Council spokesperson Brian Hughes said.

Trump's first term in office was marked by a particularly troubled period in relations with Tehran. In 2018 he unilaterally withdrew the U.S. from Iran's nuclear deal with world powers, leading to sanctions hobbling the economy, and ordered the killing of the country's top general.

Under the original 2015 nuclear deal, Iran was allowed to enrich uranium only up to 3.67% purity and maintain a stockpile of uranium of 300 kilograms.

Iran's accelerated production of near weapons-grade uranium puts more pressure on Trump as he's repeatedly said he's open to negotiations with the Islamic Republic while also increasingly targeting Iran's oil sales with sanctions as part of his reimposed "maximum pressure" policy.

Iran's Supreme Leader Ayatollah Ali Khamenei, who has final say on all state matters, in a speech in August opened the door to talks with the U.S., saying there is "no harm" in engaging with the "enemy."

However, more recently he tempered that, saying that negotiations with America "are not intelligent, wise or honorable" after Trump floated nuclear talks with Tehran.

IAEA inspectors banned as Iran begins operating more centrifugesIran has maintained its nuclear program is for peaceful purposes only, but IAEA Director General Rafael Mariano Grossi has previously warned that Tehran has enough uranium enriched to near-weapons-grade levels to make "several" nuclear bombs if it chose to do so.

Iranian officials have increasingly suggested Tehran could pursue an atomic bomb. U.S. intelligence agencies assess that Iran has yet to begin a weapons program, but has “undertaken activities that better position it to produce a nuclear device, if it chooses to do so.”

The IAEA already warned last December that Iran was poised to “quite dramatically” increase its stockpile of near weapons-grade uranium as it has started operating cascades of advanced centrifuges. That move came as a response to the Board of Governors at the IAEA passing a resolution condemning Iran for failing to cooperate fully with the agency. In the past, Iran has repeatedly responded to the board's resolutions by further enhancing its nuclear program.

Wednesday’s report also said that Iran has also not reconsidered its September 2023 decision to ban some of the agency’s most experienced inspectors from monitoring its nuclear program.

“The Director General deeply regrets that Iran, despite having indicated a willingness to consider accepting the designation of four additional experienced Agency inspectors, did not accept their designations,” the report said.

Unanswered questions remain, despite 2023 dealAdditionally, the report says that “no progress was made towards resolving the outstanding safeguards issues in relations to Varamin and Turquzabad,” the two locations in Iran where the nuclear watchdog has questions about the origin and location of man-made uranium particles found there.

The report also said that Grossi held telephone discussions with Iranian Foreign Minister Abbas Araghchi at the beginning of this year, during which he “reiterated his readiness to work with Iran to resume implementation" of a deal the agency and Tehran agreed two years ago.

The Joint Statement included a pledge by Iran to resolve issues around Varamin and Turquzabad where inspectors have questions about possible undeclared nuclear activity, and to allow the IAEA to “implement further appropriate verification and monitoring activities.”

“Foreign Minister Araghchi indicated Iran’s preparedness to cooperate with the Agency and raised the possibility of the Director General visiting Tehran again,” the report said. The IAEA report also said the agency verified that Tehran had increased the number of operating cascades of advanced centrifuges, powerful machines that spin rapidly to enrich uranium. Cascades are clusters of centrifuges.

The report said Iran had increased the number of IR-6 centrifuges by 5 to a total of 7 at its underground nuclear plant at Fordo. The nuclear watchdog also verified that Iran had increased the number of operating cascades of IR-2m centrifuges by 12 to a total of 27 at its underground nuclear plant in Natanz.

Under the original 2015 nuclear deal, Iran was allowed to enrich uranium to only 3.67% with a limited number of its first-generation centrifuges at the underground Natanz Fuel Enrichment Plant only. The more advanced model of centrifuges that Iran is using now enrich uranium at a much faster pace than the baseline IR-1 centrifuges.

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Science & Technology News

Nasa's PUNCH mission to image sun's atmosphere, track origins of solar winds

Source: The Indian Express, Dt. 26 Feb 2025,
URL: https://indianexpress.com/article/technology/science/nasas-punch-mission-sun-atmosphere-solar-winds-9855328/

Nasa is gearing up for a new and first-of-its-kind solar mission that will closely observe the solar atmosphere and reconstruct the formation, trace origins, and map the evolution of solar winds and Coronal Mass Ejections (CMEs), both of which influence space weather.

The Polarimetry to Unify the Corona and Heliosphere (PUNCH) mission will be launched by SpaceX on February 28. PUNCH will be a constellation of four, suitcase-sized satellites each weighing about 64 kg sent to the Low Earth Orbit (LEO). The expected mission life is two years.It is the first time that a solar mission has been specifically designed to make use of the polarisation of light to measure the corona and solar wind, that too, in 3D.

Information on space weather and its predictions are vital as any anomaly in space weather can have adverse, direct effects on Earth's satellite-based communication services, derail GPS-based navigation, cripple power grid operations, and more.

"The measurements from PUNCH will provide scientists with new information which could lead to more accurate predictions about the arrival of space weather events on Earth and impact on humanity's robotic explorers in space," the National Aeronautics and Space Administration said in its release.

With its wide field of view, PUNCH will use the four onboard cameras to continuously image the sun's corona or simply the outer atmosphere. These high-resolution images will help physicists stitch together a 3D image that will help solar astronomers get a detailed view of the structure of the solar wind, and understand the sun's atmosphere transition to solar wind and the overall forces that act in the corona.

According to the US space agency, PUNCH will have three Wide Field Imager (WFI) and one Narrow Field Imager onboard. Once every four minutes, each of the four cameras will capture three raw images using different polarising filters. In addition, each camera will capture an unpolarised image once every eight minutes.

When electrons, scattered sunlight and the waves of light align, it is this polarised light that PUNCH will measure using polarising filters, enabling scientists to look into the inner solar system.

"We will be able to see where the CMEs and solar winds are formed, how they evolve and get accelerated, try to pin down on the forces or energies that help them gain speeds and ultimately, how they evolve through the interplanetary space. All this is important for timely prediction of

space weather," said Dibyendu Nandi, solar physicist, Indian Institute of Science Education and Research, Kolkata.

Unlike previous missions to study the sun, particularly its corona, PUNCH's four-camera setup will operate as a single, virtual instrument to generate large-scale imagery data, making it a unique information-loaded 3D image of the solar corona.

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Three things to know about SPHEREx, NASA's new space telescope

Source: The Indian Express, Dt. 26 Feb 2025,
URL: https://indianexpress.com/article/explained/explained-sci-tech/spherex-nasa-space-telescope-9858063/

National Aeronautics and Space Administration (NASA) is tentatively scheduled to launch its new megaphone-shaped space telescope on Friday (February 28) aboard a SpaceX Falcon 9 rocket from Vandenberg Space Force Base in California. During its short two-year mission, the observatory will help better understand things about the formation of the universe, the growth of all galaxies across cosmic history, and the location of water and life-forming molecules in the Milky Way galaxy.

Here are three things that you need to know about the new space telescope, called Spectro-Photometer for the History of the Universe, Epoch of Reionization and Ices Explorer (SPHEREx)

SPHEREx Observatory at Astrotech Corporation Facility at Vandenberg Space Force Base.

SPHEREx will map the universe while detecting two kinds of cosmic light, optical and infrared. While the human eye can see optical light, infrared light is invisible to it. That is an issue when it comes to studying the cosmos as it is the infrared light that contains information about the farthest reaches of space, the stars being born, and the details of galactic structures. To overcome this problem, scientists use specialised cameras and telescopes to study infrared which has a heat signature. One such instrument is the James Webb Space Telescope (JWST) whose speciality is infrared and it helps show things in the universe that have remained hidden so far. Notably, the Hubble Space Telescope's speciality is optical, not infrared light.

While JWST is great at observing highly localised regions of the universe, SPHEREx will image the entire sky as seen from Earth.

Nicky Fox, associate administrator for NASA's Science Mission Directorate, told Space.com, "We are literally mapping the entire celestial sky in 102 infrared colours for the first time in humanity's history, and we will see that every six months… This has not been done before on this level of colour resolution for our old sky maps."

Will shed light on a cosmic phenomenon called inflation

One of the primary aims of SPHEREx will be to measure something called cosmic inflation. It refers to a period which took place around 14 billion years ago, during which the universe expanded faster than the speed of light for a fraction of a second. Scientists suggest that inflation explains many aspects of the universe such as its flatness, or lack of curvature, on the largest scales. However, cosmic inflation remains poorly understood. SPHEREx can help change that. The telescope will use spectroscopic images to measure the 3D positions of about 450 million galaxies across cosmic history.

"Astronomers will then create a picture of the cosmos not just in position but in time. This, plus a lot of statistics and mathematics, will let the SPHEREx team test different theories of inflation," according to a report in The Conversation.

Will explore the Milky Way galaxy to identify water- and life-forming molecules

SPHEREx will identify water- and life-forming molecules, also known as biogenic molecules (such as carbon, hydrogen, and oxygen), in the Milky Way galaxy, where the Earth is located. These molecules are frozen in icy particles which are located in some of the coldest parts of the galaxy. For life to form on Earth, the biogenic molecules would have to somehow travel from these regions to the planet. However, scientists are yet to know exactly how this process happened.

The new telescope will help resolve the mystery as it will provide a complete census of the icy biogenic molecules in the Milky Way galaxy. SPHEREx will locate these molecules not only in this galaxy but also in nearby systems.

"Once we know where they all are, we can determine the necessary conditions to form biogenic molecules in space. In turn, this can tell us about a crucial step in how life came to be," according to The Conversation report.

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