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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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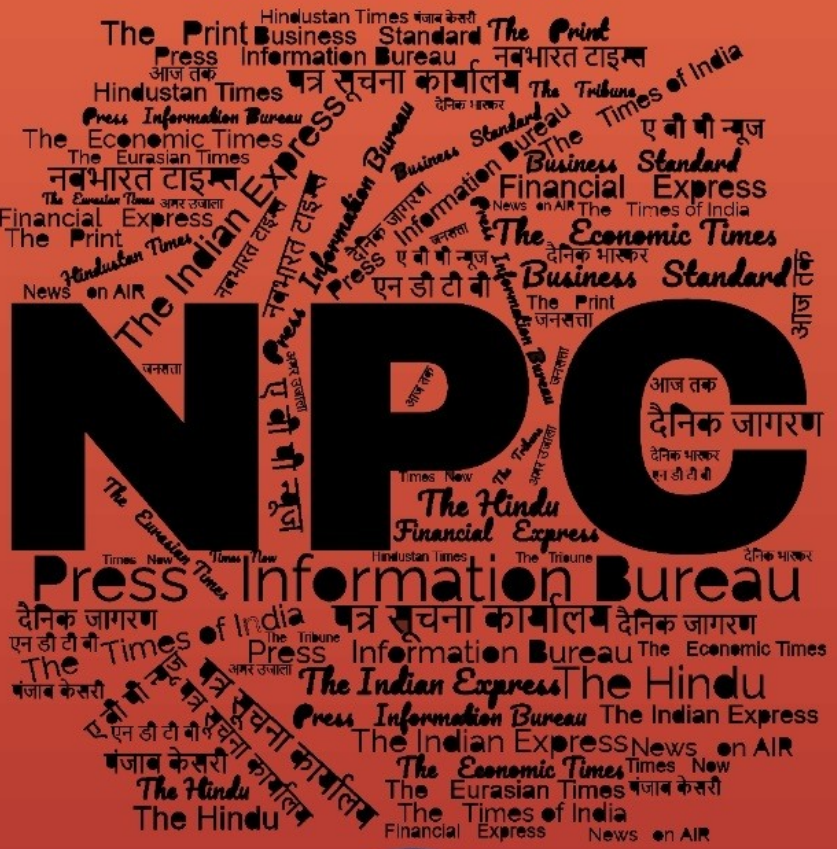

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Defence News

Defence Strategic: National/International

International Maritime Defence Exhibition (IMDEX) - 2025

Source: Press Information Bureau, Dt. 07 May 2025,
URL: https://pib.gov.in/PressReleasePage.aspx?PRID=2127494

Indian Naval Ship INS Kiltan arrived in Singapore to participate in IMDEX Asia 2025 at the Changi Exhibition Centre. The visit is part of the Indian Navy's operational deployment and underscores the robust maritime partnership between India and Singapore. During the stay, the ships' crew will engage in a series of bilateral/ multilateral activities, including professional exchanges with the Republic of Singapore Navy and other participating navies of IMDEX Asia 2025.

These engagements aim to strengthen naval cooperation, enhance interoperability, and promote mutual understanding between the two navies. Guided tours for school children, cross deck visits with participating Navies and curated visits for defence industries are planned to foster greater awareness of maritime security and India's naval heritage. The visit highlights the Indian Navy's commitment to regional security, stability, and the longstanding friendship between the two maritime partners India and Singapore.

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Through Operation Sindoor, India used its 'Right to Respond' to the attack on its soil: Raksha Mantri

Source: Press Information Bureau, Dt. 07 May 2025,
URL: https://pib.gov.in/PressReleasePage.aspx?PRID=2127561

"Through Operation Sindoor, India has used its 'Right to Respond' to the attack on its soil, and the Armed Forces scripted history by acting with precision, precaution & compassion to destroy the camps used to train terrorists in Pakistan and PoK," said Raksha Mantri Shri Rajnath Singh while addressing the 66th Raising Day event of Border Roads Organisation (BRO) at Manekshaw Centre, Delhi Cantt on May 07, 2025. Raksha Mantri asserted that, as per the plan, the targets were destroyed and no civilian population was harmed. He commended the Armed Forces by giving a befitting reply under the leadership of Prime Minister Shri Narendra Modi.

"The whole world has witnessed what our Armed Forces have done today. The action was carried out very thoughtfully and in a measured manner. It was limited only to the camps and other infrastructure used for training terrorists, with the aim of breaking their morale. I congratulate the Armed Forces on behalf of the whole country. I also congratulate Prime Minister Shri Narendra Modi for providing complete support to the forces," added Shri Rajnath Singh.

The event also witnessed the virtual dedication of 50 strategically-significant infrastructure projects of BRO – 30 bridges, 17 roads and three other works - to the nation by Raksha Mantri. These projects, constructed at a total cost of Rs 1,879 crore, are spread across six border States and two Union Territories – Jammu & Kashmir, Ladakh, Arunachal Pradesh, Himachal Pradesh, Sikkim, Mizoram, West Bengal & Rajasthan - reinforcing India's security, connectivity and development in remote regions. In the last two years alone, BRO has completed a record 161 infrastructure projects worth Rs 5,600 crore, including 111 projects last year. In the last four years, BRO has completed 456 infrastructure projects with a total expenditure of Rs 13,743 crore.

Shri Rajnath Singh exuded confidence that the projects e-inaugurated today will enhance connectivity, strengthen national security and promote economic prosperity of all these regions. "These projects will enhance defence preparedness and boost transportation, tourism & economic activity in these areas. These are not just infrastructure assets; they are pathways to a brighter future," he added.

Underlining the strategic importance of BRO's work, Raksha Mantri stated that modern defence capability depends not just on weaponry but also on the infrastructure that supports it. "You can have the fastest tank or the most advanced aircraft, but if they can't reach where they are needed on time, they serve no purpose. BRO plays a critical role in making sure our military is always ready and well-positioned," he said, commending BRO Karmayogis who work behind the scenes and contribute to national security.

Shri Rajnath Singh emphasised on the need to build new generation infrastructure for the Armed Forces in view of the current geopolitical scenario. BRO must ensure that the preparations are at war-level, he said.

Raksha Mantri reiterated the Government's commitment to ensure border area development, making special mention of Sela Tunnel which has become a symbol of this resolve to enhance connectivity in strategically-important areas. He highlighted the vision of Prime Minister Shri Narendra Modi to revitalise border villages, stating that initiatives like the Vibrant Villages Programme under which the Government is increasing connectivity by building about 35 kilometers of roads every day.

In his address, Director General Border Roads (DGBR) Lt Gen Raghu Srinivasan highlighted the growing national importance of BRO, stating that the organisation has emerged as the agency of choice for key central ministries for executing infrastructure projects in the most challenging terrains. He reaffirmed the BRO's commitment to the well-being and dignity of its workforce, including GREF personnel and Casual Paid Labourers.

Minister of Parliamentary Affairs and Minister of Minority Affairs Shri Kiran Rijiju, Minister of State (Independent Charge) Science & Technology; Earth Sciences, MoS PMO, PP/DoPT, Atomic Energy and Space Dr Jitendra Singh, Chief of the Army Staff Gen Upendra Dwivedi, Defence Secretary Shri Rajesh Kumar Singh and other senior officials of Ministry of Defence were present at the venue.

Himachal Pradesh Governor Shri Shiv Pratap Shukla, Arunachal Pradesh Governor Lt Gen Kaiwalya Trivikram Parnaik, Rajasthan Governor Shri Haribhau Kisanrao Bagde, Arunachal Pradesh Chief Minister Shri Pema Khandu, Mizoram Chief Minister Shri Lalduhoma, Jammu & Kashmir Lt Governor Shri Manoj Sinha, Lt Governor Ladakh Brig. (Dr) BD Mishra (Retd) joined the event virtually.

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25 minutes, 9 terror camps, 26 dead avenged! Inside India's precision strike on Pakistan terror hubs

Source: The Economic Times, Dt. 07 May 2025,
URL: https://economictimes.indiatimes.com/news/defence/25-minutes-9-terror-camps-26-dead-avenged-inside-indias-precision-strike-on-pakistan-terror-hubs/articleshow/120958516.cms

The Indian armed forces on Wednesday executed a retaliatory strike, codenamed 'Operation Sindoor', dismantling nine terrorist camps in Pakistan and Pakistan-occupied Kashmir (PoK).

The operation, carried out in a rapid 25-minute window between 1.05 am and 1.30 am, targeted terrorist infrastructure from where attacks against India have been planned and carried out, officials said. These sites were reportedly linked to Jaish-e-Mohammed (JeM) and Lashkar-e-Taiba (LeT), two groups often blamed for carrying out terror attacks in India.

Details of the operation were unveiled in a press briefing held in the national capital this afternoon, where foreign secretary Vikram Misri, Colonel Sofiya Qureshi, and Wing Commander Vyomika Singh addressed the nation.

India launched the series of targeted military strikes under Operation Sindoor, marking a significant response to the recent terror attack in Pahalgam that killed 26 civilians, mostly tourists. India had linked the fatal terrorist attack in Pahalgam in India's Kashmir to Pakistan but Islamabad had denied any connection.

Pakistan is a safe haven for terrorists

Vikram Misri, India's foreign secretary, said the "barbaric" Pahalgam terror attack that claimed 26 lives aimed to "undermine normalcy returning to Kashmir," making a firm response imperative. Vikram Misri said that Indian intelligence agencies had been monitoring terrorist activities and raised concerns regarding more terrorist attacks in India.

“Our intelligence indicated that further attacks against India are impending. Thus, compulsion, both to deter and prevent and hence earlier this morning, India exercised its right to respond to deter such more cross-border terrorism... Our actions were measured and non-escalatory, proportionate and responsible. They focused on dismantling terrorists' infrastructure,” he said.

Pakistan has a well-defined identity as a “haven for terrorists”, said Vikram Misri.

Misri said, “Banned international terrorists find it safe from being punished in this country. Pakistan is also known for deliberately misleading the world and international platforms.”

Terror camps where Ajmal Kasab and David Headley were trained have been taken down during the operation.

Why Operation Sindoor destroyed these nine camps in 25 minutes

Colonel Sofiya Qureshi provided a detailed breakdown of the targeted sites, presenting visual evidence of their destruction.

The nine terror camps targeted were:

1. Shawai Nallah Camp, Muzaffarabad (PoK): An LeT training facility linked to attacks in Sonamarg, Gulmarg in 2024, and the recent Pahalgam attack.
2. Muridke (Pakistan): A notorious camp where perpetrators of the 2008 Mumbai attacks, David Headley and Ajmal Kasab, received training.
3. Sarjal camp, Sialkot (Pakistan): Located 6 km inside Pakistan, this LeT camp trained terrorists involved in the killing of four J&K police personnel.
4. Markaz Ahle Hadith, Barnala (Bhimber, PoK): A crucial hub for weapons, IED, and jungle survival training.
5. Markaz Abbas, Kotli (PoK): Situated 13 km from the LoC, this LeT camp specialised in training 'fidayeen' suicide attackers.
6. Mehmoona Joya camp, Sialkot (Pakistan): A major Hizbul Mujahideen camp and a key control centre for terrorism in the Kathua-Jammu region, also implicated in the Pathankot air force base attack.

7. Markaz Subhan Allah, Bahawalpur (Pakistan): The headquarters of the Jaish-e-Mohammed.
8. Syedna Bilal camp. Muzaffarabad (PoK): A JeM staging area serving as a weapons depot, explosives storage, and jungle training centre.
9. Maskar Raheel Shahid Gulpur Camp, Kotli (PoK): Located 30 km from the LoC, this LeT camp was linked to the Poonch attack in 2023 and the pilgrimage bus attack in 2024.

One of the key targets of Operation Sindoor was Muridke, the headquarters of the terror group Lashkar-e-Taiba (LeT). Over the years, this location became a centre for training both children and young men to carry out terror attacks in India. On the surface, the Muridke seminary, known as Markaz, appears to be a religious and charitable organisation, but it actually serves as a front for terrorist training. It is also the base of LeT chief Hafiz Saeed. The seminary has had links to al Qaeda leader Osama bin Laden and has been connected to several major terror attacks in India, including the 26/11 Mumbai attack.

Air force used precision-guided weapons

Wing Commander Vyomika Singh highlighted the strategic rationale behind 'Operation Sindoor'. “Nine terror camps were targeted and destroyed” in direct retaliation for the Pahalgam attack, she stated. She further highlighted the extensive terror infrastructure maintained by Pakistan for three decades, comprising 21 recruitment and launch pad centres.

“The targets for Operation Sindoor were based on credible intelligence inputs and locations that were so selected to avoid damage to civilian infrastructure and loss of civilian lives,” Wing Commander Singh said.

The armed forces employed an array of weaponry, including SCALP cruise missiles, HAMMER precision-guided bombs, and advanced loitering munitions.

'Justice is served. Jai Hind!'

The first signal had come in a terse five-word post by the Indian Army on X (formerly Twitter): “Justice is served. Jai Hind!”. Accompanied by a video of military drills captioned “Ready to strike, trained to win,” it hinted at something major.

A brief statement followed, clarifying that no Pakistani military installations were targeted. “Our actions have been focused, measured, and non-escalatory,” it said, underscoring restraint and strategic precision.

India’s embassy in Washington released a detailed note citing “credible leads” linking Pakistan-based terrorists to the Pahalgam attack, seeking to shape global opinion and align key allies like the US.

India deployed Rafale fighter jets armed with SCALP cruise missiles and HAMMER bombs, optimised for deep-penetration and precision strikes.

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Operation Sindoor: Scalp cruise missiles, Hammer smart weapon used to hit target

Source: Hindustan Times, Dt. 07 May 2025,
URL: https://www.hindustantimes.com/india-news/operation-sindoor-scalp-cruise-missiles-hammer-smart-weapon-used-to-hit-targets-101746604360342.html

The Indian military carried out precision strikes on terror targets in Pakistan and Pakistan-occupied Kashmir (PoK) using niche technology weapons with careful selection of warheads that ensured no collateral damage, said Wing Commander Vyomika Singh, one of the two women officers who briefed the media on Operation Sindoor on Wednesday.

The 25-minute mission on Wednesday night, from 1.05 am to 1.30 am, was India's direct military response to the April 22 Pahalgam terror strike that killed 26 people.

The point of impact in each of the target was a specific building or a group of buildings, she said. Details of the military hardware used to strike the nine terrorist camps were not revealed at the briefing.

HT has learnt the weapons deployed included Scalp deep-strike cruise missiles that allow Rafale fighter pilots to attack ground targets from standoff ranges, the Hammer smart weapon system, guided bomb kits and M777 howitzers firing Excalibur munition. Loitering munitions were also used to strike the targets, officials aware of the matter said.

"All the targets were neutralised with clinical efficiency and the results reiterate the professionalism of the Indian armed forces in planning and execution of operations. No military establishments were targeted. There have been no reports of collateral damage so far," she said.

Hammer (Highly Agile Modular Munition Extended Range), integrated on the Rafale fighters, is an all-weather smart weapon of French origin that allows pilots to engage ground targets from a standoff range of up to 60 km.

The Hammer, consisting of a guidance kit and a range extension kit fitted on a standard bomb of the Mk80 series, is manufactured by French defence firm Safran. The Scalp missiles were likely used to strike targets farthest from the Line of Control, and Hammer to hit some of the closer ones. The target selection was done with due diligence, said Colonel Sofiya Qureshi, the other woman officer who shared granular details of Operation Sindoor with the media.

"The selection of targets for Operation Sindoor was based on credible intelligence inputs and role of these facilities in perpetrating terror activities. The locations were selected to avoid damage to civilian installations and loss of civilian lives," she said.

India's military carried out "measured, non-escalatory [and] proportionate" strikes on terrorist infrastructure in Pakistan and Pakistan-occupied Kashmir (PoK) to respond to the Pahalgam terror attack and to pre-empt and deter more cross-border assaults, foreign secretary Vikram Misri said on Wednesday.

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Science & Technology News

India to launch 52 spy satellites over next five years: INSPACe chairman

Source: The Economic Times, Dt. 07 May 2025,
URL: https://economictimes.indiatimes.com/news/science/india-to-launch-52-spy-satellites-over-next-five-years-inspace-chairman/articleshow/120969293.cms

India will put in orbit a constellation of 52 satellites over the next five years to step up space-based surveillance capabilities, Pawan Kumar Goenka, chairman, Indian National Space Promotion and Authorisation Centre (IN-SPACe) said on Wednesday. He said the move will see strong participation from the private sector.

Speaking to PTI on the sidelines of the Global Space Exploration Conference 2025 here, Goenka said, "We have fairly strong capabilities already. It is just that it needs constant enhancement."

He said the plan is intended at increasing surveillance capabilities of the defence sector.

"So far, this was primarily done by ISRO (Indian Space Research Organisation). We will bring in the private sector as we move forward," he said.

The satellites will help the Indian Army, Navy and Air Force track enemy movements, monitor borders, and improve real-time coordination during military operations.

"The private sector will deliver half of the 52 satellites, while the rest will be built by ISRO," said Goenka, who heads the space sector regulator and promoter.

Goenka, however, clarified that the decisions to further enhance the surveillance capabilities will have to be taken by the Union Home Ministry and the defence forces.

He said ISRO is also in the process of transferring the Small Satellite Launch Vehicle (SSLV) technology to the private sector.

The SSLV is developed to launch small satellites into low earth orbit at a shorter notice, a key capability required by the defence forces in times of emergencies. They are capable of launching satellites weighing 10-500 kilograms into a 500 kilometre circular orbit.

The design drivers of SSLV are low cost, low turnaround time, flexibility in accommodating multiple satellites, launch on demand feasibility, and minimal launch infrastructure requirements.

"The transfer of SSLV technology is imminent now," Goenka said, indicating that it may be announced over the next fortnight.vestment in both technology and curiosity.

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India's leap to the stars: Gaganyaan's TV-D2 and uncrewed flights pave the way

Source: The Week, Dt. 07 May 2025,
URL: https://www.theweek.in/news/sci-tech/2025/05/07/isro-gaganyaan-mission-tv-d2-uncrewed-flights-to-pave-the-way.html

India's Gaganyaan mission is a bold dream to send three astronauts into space, orbiting 400 km above Earth for three days before safely landing in Indian waters. Set for a crewed launch in 2027, this mission will make India the fourth nation with independent human spaceflight capability, joining the United States, Russia, and China. But before astronauts take flight, the Indian Space Research Organisation (ISRO) must ensure every system is perfect.

In 2025, the second test vehicle mission (TV-D2) and two uncrewed orbital flights (G1 and G2) will take place in 2026. These tests are the foundation of Gaganyaan, ensuring safety and success. They are not just technical steps but symbols of India's ambition and pride. Let's dive into what TV-D2 entails and why these tests matter so much.

The TV-D2 mission is all about testing the Crew Escape System (CES), a vital safety feature for astronauts. Think of it as an emergency lifeboat. If something goes wrong during the rocket's launch—like an engine failure or an explosion the CES quickly pulls the crew module (where astronauts sit) away from the rocket, carrying it to safety. The first test, TV-D1, conducted in October 2023, successfully showed that the CES could work at supersonic speeds, separating the crew module and landing it safely in the sea with parachutes. TV-D2, planned for later in 2025, takes this further by testing the CES under different, more challenging conditions.

So, what exactly will ISRO do in TV-D2? While exact details are not fully public? "TV-D2 is expected to simulate a launch emergency at a different point in the rocket's ascent, possibly at a higher altitude or speed, or under a specific failure scenario, like a booster malfunction. The test will involve launching a test vehicle a simplified rocket from the Satish Dhawan Space Centre in Sriharikota. This vehicle carries a crew module equipped with the CES. At a predetermined point, ISRO will trigger the CES to separate the module from the rocket. The system's powerful motors will fire, pulling the module away rapidly. Parachutes will then deploy to slow its descent, aiming for a safe splashdown in the Bay of Bengal. ISRO will monitor every second, checking if the CES activates correctly, separates cleanly, and lands the module safely. This ensures the system can handle various emergencies, protecting astronauts in real missions," explained space expert Girish Linganna.

The uncrewed orbital flights, G1 and G2, are equally crucial. G1, likely in 2026, will send a crew module into a 400 km orbit using the Human-Rated Launch Vehicle Mark-3 (HLVM3).

It tests the entire mission: launch, reaching orbit, surviving in space, reentering the Earth's atmosphere, and splashing down in the sea. A robot astronaut, Vyommitra, may be on board to mimic human tasks, checking life support systems like oxygen and temperature control.

G2 repeats these tests, possibly with added experiments, to confirm everything works perfectly. These flights are like full rehearsals, ensuring the crew module and rocket are ready for astronauts.

Why are these tests so important? Space is dangerous, and even a small error can be deadly. TV-D2 ensures the CES is a reliable escape route, ready for any launch mishap. G1 and G2 test the mission's core systems rocket, orbit, reentry, and recovery so ISRO can fix issues before humans fly. For example, if G1 shows a problem with the heat shield during reentry, ISRO can correct it for G2 and the crewed mission. These tests build confidence, proving India's technology is up to the challenge.

"The significance of these tests goes far beyond just checking boxes on a list. Human spaceflight is one of the most challenging and unforgiving endeavours. Every system must work perfectly, and every possible scenario must be anticipated and rehearsed. By conducting these uncrewed tests, ISRO can identify and fix any issues before risking human lives. These tests are also an opportunity to gather invaluable data, refine operational procedures, and build confidence among the mission team," explained Srimathy Kesan, founder and CEO of Space Kidz India.

Gaganyaan mission is a matter of national pride and strategic importance. With these tests, India is demonstrating its ability to develop complex spaceflight technologies independently, without relying on foreign partners. This not only boosts India's standing in the global space community but also opens up new possibilities for scientific research, international collaboration, and commercial opportunities in space.

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PM Modi unveils vision for India's space future at GLEX 2025, astronaut to ISS soon, Moon landing by 2040

Source: DD News, Dt. 07 May 2025,
URL: https://ddnews.gov.in/en/pm-modi-unveils-vision-for-indias-space-future-at-glex-2025-astronaut-to-iss-soon-moon-landing-by-2040/

Prime Minister Narendra Modi addressed the Global Conference on Space Exploration (GLEX) 2025 via video conferencing on Wednesday, highlighting India's evolving leadership in space technology and its commitment to global cooperation in advancing the frontiers of space exploration.

Welcoming delegates, astronauts, and scientists from around the world, the Prime Minister described space as "not merely a destination but a declaration of curiosity, courage, and collective progress." He spoke of India's extraordinary journey, from launching a small rocket in 1963 to becoming the first nation to land near the Moon's South Pole with Chandrayaan-3.

"Indian rockets carry more than payloads—they carry the dreams of 1.4 billion Indians," PM Modi said. He recounted key milestones in India's space program, including the 2014 Mars Orbiter Mission (Mangalyaan), which reached Mars on its first attempt and breakthroughs made by Chandrayaan-1 and Chandrayaan-2 in discovering lunar water and capturing high-resolution imagery of the Moon's surface.

The Prime Minister highlighted that India has successfully launched over 400 satellites for 34 countries, developed cryogenic engines in record time, and deployed 100 satellites in a single

mission. He celebrated India's latest achievement—docking two satellites in space this year, calling it a major stride toward future interstellar endeavors.

Reaffirming India's approach to space as a collaborative, rather than competitive, effort, Modi emphasized the need to explore space "for the benefit of humanity." He recalled India's regional cooperation in launching a satellite for South Asian nations and announced that the G20 Satellite Mission, initiated during India's G20 presidency, would become a key contribution to the Global South.

Looking ahead, the Prime Minister outlined India's ambitious roadmap in space exploration. He announced that an Indian astronaut would travel to the International Space Station in the coming weeks as part of a joint ISRO-NASA mission. He also confirmed the progress of India's first human spaceflight mission, Gaganyaan, and unveiled the vision to establish the Bharatiya Antariksha Station by 2035. By 2040, PM Modi said, an Indian astronaut would set foot on the Moon, with future missions to Mars and Venus also in sight.

Beyond exploration, the Prime Minister emphasized how space technology empowers governance and everyday life in India. He cited the use of satellites in issuing fishermen alerts, enhancing railway safety, advancing weather forecasting, and supporting the GatiShakti infrastructure platform. He noted that many of these space programs are led by women scientists, underscoring India's inclusive approach to scientific advancement.

Encouraging innovation, PM Modi spotlighted the role of India's burgeoning private space sector, which now includes over 250 startups engaged in areas such as satellite technology, propulsion systems, and remote imaging.

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Direct and clear objectives to collaborate with ISRO: ESA chief Josef Aschbacher

Source: The Indian Express, Dt. 08 May 2025,
URL: https://indianexpress.com/article/technology/science/direct-and-clear-objectives-to-collaborate-with-isro-esa-chief-josef-aschbacher-9989487/

The European Space Agency (ESA) now has direct and clearer objectives to work with India and is open to collaborating on bigger and unexplored areas of space, said Dr Josef Aschbacher, the ESA director general. On Wednesday, the Indian Space Research Organisation (ISRO) and ESA inked a Joint Statement of Intent on Human Space Exploration on the sidelines of the Global Space Exploration Conference (GLEX) – 2025.

Speaking to The Indian Express, Aschbacher said, "ESA is happy partnering with ISRO and we look forward to exploring large-scale space operations. It is a strong recognition both for ESA and ISRO to work together on a domain of space exploration. This is a complete new chapter in our relations."

While ISRO and ESA are yet to discuss the exact areas of collaboration, Wednesday's agreement will now pave the way for greater discussions between the two space agencies and the process for

which will get underway in the coming months. “ESA and ISRO have been collaborating for over 40 years. But we will jointly explore newer areas of space exploration together like never before,” the ISRO chairman, Dr. V Narayanan, said.

V Narayanan, chairman, ISRO and Josef Aschbacher, director general, ESA after signing of the Joint Statement of Intent in New Delhi on Wednesday

Two months ago, the ESA delegation visited India and held preliminary discussions. Collaborations are being keenly considered on India-proposed building of the Bharatiya Antariksha Station (BAS). India plans to build the space station by 2035. In a five-module design, the BAS-1 is scheduled for a launch in 2028. “Both India and ESA have ambitious space exploration programmes and we would identify areas that will complement and benefit each other. A lot can be done together,” the ESA chief Aschbacher said.

“Our respective teams will discuss and define concrete actions and areas to collaborate,” the ESA chief said. ESA is considering the utilisation of BAS once it is built and ready. It is also considering providing ISRO with cargo-delivery support in building the BAS.

The components of the Indian space station are planned to be sent into space as different segments and docked once in space. Earlier this year, ISRO successfully performed the docking and undocking of two satellites in its SpaDeX mission — a demonstration and a skill which will be essential for future space activities like building the BAS.

The ESA chief, Aschbacher, also said, “ESA is building a Low Earth Orbit (LEO) cargo return service vehicle, and who knows, it may, in future, turn into an astronaut carrying vehicle. This would be of great interest for India, which is planning to send its first human into space.” The two agencies will work out the working modalities, cost estimates, make best use of expertise available on either side and the governmental-level sanctions both in India and among the 23 ESA member states.

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China invites India to participate in International Lunar Research Station at GLEX 2025

Source: News Nine, Dt. 07 May 2025,
URL: https://www.news9live.com/science/china-invites-india-to-participate-in-international-lunar-research-station-at-glex-2025-2848991

At the 12th annual Global Space Exploration Summit (GLEX 2025) in Yashobhoomi at Dwarka, Weiren Wu, Director General of the Deep Space Exploration Laboratory (DSEL) and the architect of China's Chang'e lunar exploration programme said, "The Moon belongs to all human beings, therefore we welcome all the scientists in the world to participate. In the next 10 years we want to invite over 50 countries and international organisations, more than 500 academic institutions and more than 5,000 scientists to participate in the International Lunar Research Station. The cooperation can be in different ways, they can be scientific payloads that piggyback on missions, could be joint scientific data study, could be some collaborations on the systems or subsystems level, or equipment level. This cooperation is open to all the people of the world, so every country can apply to join this cooperation, so we invite all the countries, especially India to participate in this cooperation."

India is not one of the countries that are collaborating with China on the International Lunar Research Station (ILRS), a Moon Base that China intends to set up on the Moon with Russia being a major partner. China has onboarded a number of international partners, including Egypt, Belarus, Thailand and South Africa for the ILRS.

The Moon Base will be configured to work autonomously, supporting extended stays by spacefarers on the surface. The ILRS will be supported by constellations of navigation and communications satellite, with construction activity on the ground, outfitted with power generation and life support capabilities. China is also expected to use local material for construction, which NASA refers to as In-Situ Resource Utilisation (ISRU).

All spacefaring nations are headed to the South Pole of the Moon

The highlands around the south pole of the Moon contain craters, where the sunlight never reaches the floors. These crater bottoms are suspected to contain water ice at or close to the surface, which can be a valuable resource for space operations. Apart from providing oxygen for life support systems, water can be used to extract fuel for rockets.

Combined with the low-gravity of the Moon, fuel depots and launch infrastructure on the lunar surface is expected to provide low-cost access to Mars and the outer solar system. China is setting up the ILRS to rival USA's Artemis basecamp. India plans to land a human on the Moon by 2040, and construct its own Moon Base by 2047.

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