

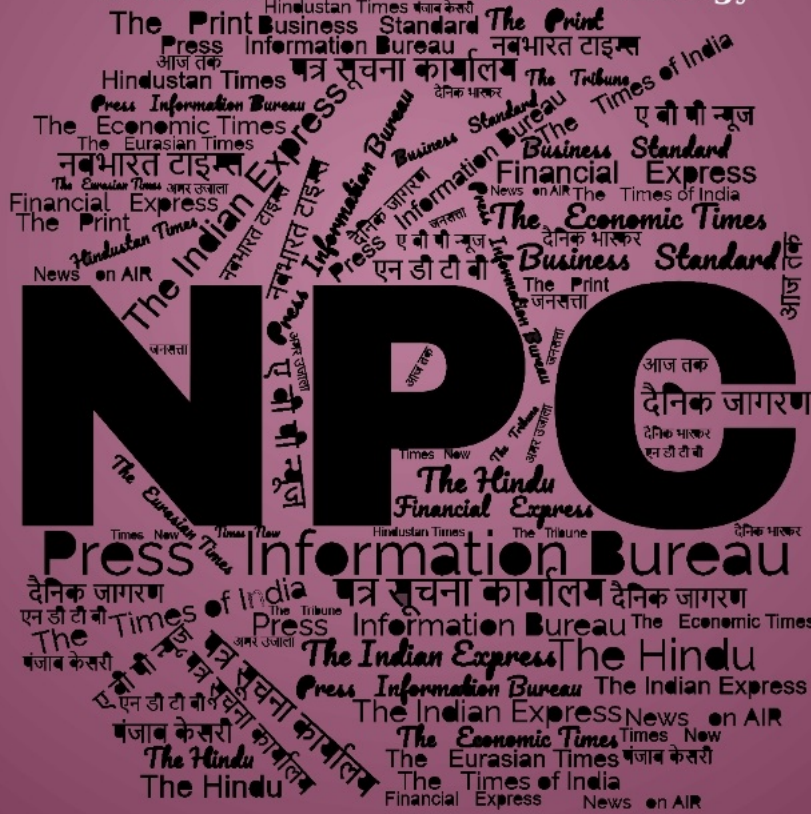
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Defence News

Defence Strategic: National/International



**Press Information Bureau
Government of India**

Ministry of Defence

Wed, 23 Oct 2024

ICG implements preventive measures in view of Cyclone Dana's likely landfall along West Bengal & Odisha coasts

Vessels & aircraft strategically positioned; Weather warnings & safety advisories being broadcast; Disaster relief teams on standby

As Cyclone Dana is forecast to make landfall on October 24-25, 2024 along the coasts of West Bengal and Odisha, Indian Coast Guard (ICG) Region (North-East) has implemented a series of preventive measures to safeguard lives and property at sea. The ICG has been closely monitoring the situation and has taken proactive steps to ensure preparedness for dealing with any emergency arising from the cyclone's impact.

ICG has tasked ships, aircraft and Remote Operating Stations at West Bengal and Odisha to broadcast regular weather warnings and safety advisories to fishermen and mariners. These alerts are being transmitted continuously to all fishing vessels, urging them to return to shore immediately and seek safe shelter.

The ICG has mobilised its vessels and aircraft, positioning them strategically to respond swiftly to any emergency situation at sea. Additionally, ICG personnel are working in coordination with local administrations and disaster management authorities to ensure a coordinated and effective response.

Fishing communities along the coastline have been informed through various channels, including village heads, to avoid venturing into the sea until the cyclone passes. The ICG is on high alert, with its dedicated disaster relief teams and assets ready to provide assistance, rescue & relief operations.

<https://pib.gov.in/PressReleasePage.aspx?PRID=2067301>

Peace on border our priority: Modi, Xi after first bilateral in 5 years

Taking the first step to revive bilateral ties frozen ever since Chinese incursions in eastern Ladakh over four and a half years ago triggered a military standoff along the Line of Actual Control, Prime Minister Narendra Modi and President Xi Jinping held talks Wednesday and underlined that “maintaining peace on border should be our priority” and “mutual trust, mutual respect and mutual sensitivity should be the basis of our ties”.

While both Modi and Xi emphasised the “importance of properly handling differences and disputes”, Xi also called for “more communication and cooperation” and said “people in our two countries and the international community are paying great attention to our meeting”.

Meeting in Russia’s Kazan on the sidelines of the BRICS Summit, the two leaders welcomed the agreement between their countries on patrolling along the LAC as part of a process they hope will eventually lead to disengagement and de-escalation. Foreign Secretary Vikram Misri said Special Representatives on the India-China boundary question will meet at an early date – NSA Ajit Doval and Chinese counterpart Wang Yi last met in December 2019, months before the Chinese incursions.

The Ministry of External Affairs, in a statement, said “the relevant dialogue mechanisms at the level of Foreign Ministers and other officials will also be utilised to stabilise and rebuild bilateral relations”. In other words, bilateral diplomatic and political conversations should resume. Prime Minister Modi, in a post on X, said, “Met President Xi Jinping on the sidelines of the Kazan BRICS Summit. India-China relations are important for the people of our countries, and for regional and global peace and stability. Mutual trust, mutual respect and mutual sensitivity will guide bilateral relations.”

At the start of the meeting, Modi said, “We welcome the agreements that we have reached over the border. Maintaining peace and tranquillity over the border should remain our priority, and mutual trust, mutual respect and mutual sensitivity should remain the basis of our relationship. I am confident that we will hold talks with an open heart and our discussions will be constructive.”

At the meeting, President Xi said, “Mr Prime Minister, it’s my great pleasure to meet you in Kazan. It’s the first time for us to have a formal meeting in five years’ time. Both, the people in our two countries and the international community, are paying great attention to our meeting. China and India are both ancient civilisations, major developing countries, and important members of the Global South. We are both at a crucial phase in our respective modernisation endeavours.”

“It best serves the fundamental interests of our two countries... For both sides, to keep to the trend of history and the right direction of our bilateral relations, it’s important for both sides to have more communication and cooperation, properly handle differences and disagreements, and to facilitate each other’s pursuit of development aspirations. It’s also important for both sides to shoulder our international responsibility, set an example for boosting the strength and unity of developing countries, and to contribute to promoting multi-polarisation and democracy in international relations,” he said.

The MEA said, “Welcoming the recent agreement for complete disengagement and resolution of issues that arose in 2020 in the India-China border areas, Prime Minister Modi underscored the

importance of properly handling differences and disputes and not allowing them to disturb peace and tranquillity.”

It said the two leaders “agreed” that the “Special Representatives on the India-China boundary question will meet at an early date to oversee the management of peace and tranquillity in border areas and to explore a fair, reasonable and mutually acceptable solution to the boundary question”.

“The two leaders affirmed that stable, predictable and amicable bilateral relations between India and China, as two neighbours and the two largest nations on Earth, will have a positive impact on regional and global peace and prosperity. It will also contribute to a multi-polar Asia and a multi-polar world. The leaders underlined the need to progress bilateral relations from a strategic and long-term perspective, enhance strategic communication and explore cooperation to address developmental challenges,” the MEA said.

Misri, while briefing reporters, said this was the first proper bilateral meeting at the delegation-level in nearly five years, the last one being on the sidelines of the BRICS Summit in Brasilia in November 2019. “This meeting happened close on the heels of the disengagement and patrolling agreement and the resolution of the issues that arose in India-China border areas in 2020... The two leaders welcomed the agreement reached between the two sides through sustained dialogue over the last several weeks in diplomatic as well as military channels.”

Prime Minister Modi, Misri said, “underscored the importance of not allowing differences on boundary-related matters to disturb peace and tranquillity on our borders. And in this context, the two leaders said the Special Representatives on the India-China boundary question have a critical role to play in the resolution of the boundary question and for the maintenance of peace and tranquillity in the border areas. Accordingly, they instructed the Special Representatives to meet at an early date and to continue their efforts... We hope to schedule the next round of the SR-level talks at an appropriate time.”

“The leaders also reviewed the state of bilateral relations from a strategic and long-term perspective. They were of the view that stable bilateral relations between India and China... will have a positive impact on regional and global peace and prosperity, and stressed that with maturity and wisdom and by showing mutual respect for each other’s sensitivities, interests, concerns and aspirations.”

“The two countries can have a peaceful, stable and beneficial bilateral relationship, as we have maintained during the last four years. The restoration of peace and tranquillity in the border areas will create space for returning us towards the path of normalisation of our bilateral relations,” he said.

He said “officials will now take the next steps to discuss enhancing strategic communication and stabilising bilateral relations by utilising the relevant official bilateral dialog mechanisms, including at the level of our respective Foreign Ministers”.

He said “the two leaders also briefly reviewed regional and international developments of mutual concern and interest. They agreed to maintain close communication in this regard. Naturally, they also had a very productive exchange on BRICS and the potential for India and China to enhance cooperation on this particular platform.”

Prime Minister Modi, Misri said, also assured India’s support to China’s SCO presidency next year in 2025.

<https://indianexpress.com/article/india/pm-modi-xi-jinping-hold-first-bilateral-talks-in-5-years-9635036/>

Navy Chief Admiral Tripathi visits National Defence college UAE, focus on strengthening ties

Indian Navy Chief Admiral Dinesh K Tripathi during his visit to the National Defence College, UAE, interacted with the Commandant, Brig Gen Staff Saeed Hassan M. Al Yammahi, faculty and Staff on Tuesday. During the visit, the Indian Navy chief was given an overview of organisation and course structure at NDC UAE.

He highlighted opportunities for mutual learning and experience sharing between the institutions of higher learning in India and the UAE. Admiral Tripathi also reiterated the requirement to enhance training cooperation as well as Subject Matter Expert Exchange between the training establishments of the two countries, said the Indian Navy.

Adm Dinesh K Tripathi also met H E Matar Salem Ali Al Dhaheri, Under Secretary of the Ministry of Defence. "As part of the ongoing visit to UAE, Adm Dinesh K Tripathi, CNS met H.E. Matar Salem Ali Al Dhaheri, Under Secretary of the Ministry of Defence, UAE, marking a significant step in deepening defence ties and fostering a robust strategic partnership towards enhancing maritime security in the region.

Discussions focussed on the growing India -UAE relations advancing IndiaUAE defence collaboration with a focus on maritime opportunities, capacity building, information sharing, training exchanges, and enhancing interoperability. CNS also impressed upon the need for both navies to collaborate in the field of niche technologies and defence industry opportunities," the Indian navy posted on X.

Meanwhile, on Tuesday, the Indian navy warmly welcomed the submarine, accompanied by the rescue tug Alatau, as part of a business call from the Russian Navy's Pacific Fleet. This visit has underscored the strong maritime cooperation between the two nations.

On Monday, the Russian embassy in India on its official website said that a detachment of ships of the Russian Navy's Pacific Fleet arrived on a business call at the port of Kochi.

<https://economictimes.indiatimes.com/news/defence/navy-chief-admiral-tripathi-visits-national-defence-college-uae-focus-on-strengthening-ties/articleshow/114489723.cms>

Germany gives India special status for military purchase approvals

Germany has accorded a special status to India, so that approvals for military purchases can be accelerated, German Ambassador Philipp Ackermann said on Wednesday, adding that the German seller is awaiting the Indian government to complete its decision making processes with regard to the P-75I submarine deal. The multi-billion dollar deal will top the agenda during this week's visit

to India by German Chancellor Olaf Scholz, and also over the weekend when Spanish Prime Minister Pedro Sanchez is due to visit.

Germany's TKMS (Thyssenkrupp Marine Systems) and Navantia of Spain, are the two contenders in the fray to sell six advanced conventional submarines to the Indian Navy under Project-75I, in a deal estimated at over ₹43,000 crore. Having completed field evaluation trials, the bids are now under evaluation for technical compliance.

Speedy approvals

“The German defence industry is mostly privatised. It's basically a private business, but we are very clearly committed to make these deals possible. So if the Indian armed forces want to buy something from German companies, what you have now is a focus paper in the German Cabinet that is looking very, very favourably at these purchases, and that means that approval time is much accelerated,” the German envoy said at a press conference ahead of the Chancellor's visit.

In the past, although about 95% of India's requests for military purchases were granted, it took some time, Mr. Ackermann said, adding that the process would now be expedited by the special status for India. He observed that in the past, Indian officials came to Germany or met their German counterparts with a long list of requests; that list is now empty as the requests have been granted, he said.

Regarding the submarine deal, Mr. Ackermann said that it was now up to the Indian government to take a decision. The German government has made it very clear that it is “very supportive” and will be ready to engage formally in this deal. “But an in-principle decision has to be taken before entering,” he said, terming it a heavy decision, because a lot of money is involved.

Evaluation trials

While an Indian Navy team visited the TKMS shipyard in March for field evaluation trials, the evaluation of Navantia's offer was conducted at the end of June. Defence officials said that the staff evaluation of the field trials was still underway.

The design offered by TKMS, which has partnered with Mazagon Dock Shipbuilders Limited (MDL), is based on its highly successful Class 214 submarine as well as Class 212CD. Navantia, which has tied up with Larsen & Toubro, has offered a submarine based on its new S80 class of submarines, the first of which was launched in 2021 and was commissioned into the Spanish Navy as S-81 'Isaac Peral' in November 2023.

Submarine endurance

The key determinant, however, to qualify for P-75I is the Air Independent Propulsion (AIP) system, which enhances the endurance of a submarine, with a requirement that it should be operationally proven. Germany has demonstrated an operationally proven AIP, though it falls slightly short of the endurance requirements, officials said.

Navantia, on the other hand, demonstrated an AIP fitted in a submarine which was operating on the surface and not while submerged, promising to demonstrate its submerged performance in due course. Since the beginning of this year, Germany has simplified licensing requirements for the sale of military equipment to India as required under its Federal Office for Economic Affairs and Export Control, and has even granted a small arms license to India.

<https://www.thehindu.com/news/national/germany-gives-india-special-status-for-military-purchase-approvals/article68788008.ece>

Defence Ministry applauds SMEs for boosting indigenisation efforts in Defence production

The Defence Ministry has commended the contribution of India's small and medium enterprises (SMEs) in bolstering India's self-reliance in defence production.

At a vendor-buyer interaction in Chennai on Wednesday, additional director general of Quality Assurance, A Govardhan, stressed the importance of quality consciousness in their production process and lauded the contribution of the small industries in indigenisation in defence production.

Brigadier Rajneesh Bhatnagar outlined the simplified registration processes and incentives designed for small and medium industries. Dr Raj Subramaniam from IIT Madras Research Park encouraged tech innovators, emphasising the success of incubated startups. Over 100 SMEs attended the vendor-buyer interaction.

<https://www.thehindu.com/news/cities/chennai/defence-ministry-applauds-smes-for-boosting-indigenisation-efforts-in-defence-production/article68788583.ece>

The Statesman

Indian Army to host Chanakya Defence Dialogue aimed at growth through comprehensive security

The Indian Army is gearing up to host the second edition of its flagship international seminar, Chanakya Defence Dialogue, on October 24-25, 2024, at the Manekshaw Centre in New Delhi.

Themed "Drivers in Nation Building: Fuelling Growth through Comprehensive Security", this prominent event aims to foster critical discussions on integrating security dynamics into both national and international policymaking, with the goal of developing visionary strategies for sustainable and inclusive growth.

Over the two-day seminar, an esteemed group of policymakers, strategic thinkers, academics, defence personnel, veterans, scientists, and domain experts from India and around the globe will gather, featuring notable speakers from the United States, Russia, Israel, and Sri Lanka. The dialogue will focus on India's strategic pathways toward Viksit Bharat @2047, emphasising the role of comprehensive security in national development.

Defence Minister Rajnath Singh will inaugurate the event and launch the Indian Army's Green Initiative 1.0 and Digitisation of IA 1.0. He will deliver a keynote address on "India's Vision for Development and Security," highlighting the importance of comprehensive security in achieving the vision for 2047. General Upendra Dwivedi, Chief of the Army Staff, will also speak, detailing the Indian Army's significant contributions to nation-building, particularly initiatives aligned with Atmanirbhar Bharat.

The Chanakya Defence Dialogue will feature six expert-led sessions, each addressing critical facets of comprehensive security. The first session, “Geopolitical Dynamics: Navigating the International Coliseum,” will explore the shifting geopolitical landscape and the complexities of strategic partnerships. The second session, “Economic Development Strategies & National Security Imperatives,” will investigate the interconnection between economic development and national security, emphasizing a resilient economy’s role in maintaining defense strength.

The third session, “Environmental Sustainability: Balancing Growth with Ecological Concerns”, will discuss the need to harmonise economic growth with environmental sustainability. The fourth session, “Social Cohesion and Inclusive Growth: Pillars of a Secure Nation,” will focus on the significance of social unity and inclusive growth in enhancing national security.

The fifth session, “Blurring Frontiers: The Convergence of Technology & Security”, will examine how emerging technologies can be integrated into national security frameworks. The final session, “Groundbreakers: Shaping Land Warfare, Reflections for the Indian Army,” will address the future of land warfare and how the Indian Army can adopt advanced technologies to improve battlefield readiness.

<https://www.thestatesman.com/india/indian-army-to-host-chanakya-defence-dialogue-aimed-at-growth-through-comprehensive-security-1503356902.html>

ThePrint

Wed, 23 Oct 2024

Rs 1,194 cr contracts signed during first 2 editions of Swavlamban summit, says vice chief of Navy

The Indian Navy set 2,000 challenges for industries at the first two editions of its innovation and indigenisation summit, Swavlamban, in 2022 and 2023, followed up by the government granting the Acceptance of Necessity (AoN) for 22 projects, estimated at Rs 2,200 crore, Vice Chief of Naval Staff Krishna Swaminathan has said. Of the 22, 13 eventually led to acquisition contracts, worth Rs 1,194 crore.

Swaminathan revealed this at the curtain-raiser of the third edition of Swavlamban, which will be held in Delhi on the theme of ‘Strength and Power through Innovation and Indigenisation’ on 28 and 29 October.

Talking about why the summit is important, the vice chief of Navy said, “The Navy started its journey of indigenisation over six decades ago. Swavlamban is an expression of aspiration as a navy to become completely self-reliant. We want to innovate and to indigenise and, through indigenisation, become self-reliant. Swavlamban is an event which gives expression to our aspirations.”

Another interactive session is on the theme, ‘Boosting Innovation Ecosystem and Indigenous Defence Ecosystem’. A third session will focus on developing indigenous combat potential and indigenisation of shipbuilding, the role of startups and micro, small, and medium enterprises, and design and development by the defence industrial sector.

A senior officer at the curtain-raiser discussed the benefits indigenous shipbuilding brings to the country. Quoting a Federation of Indian Chambers of Commerce & Industry (FICCI) study, he said

more than 10,000 MSMEs benefitted through the aircraft carrier project alone. INS Vikrant is India's first indigenous aircraft carrier, and he said that cost-wise, nearly 55-60 percent of the money went to the Indian industries.

"One of the good things about indigenous shipbuilding is that it triggers a lot of national growth, employment, and investment in various ancillary sectors," Swaminathan said.

Responding to a question by ThePrint, the vice chief of Navy further spoke about the indigenous content in ships. "Broadly, any combat platform is a collection of capabilities. We have found a convenient method of classifying it under 'float, move and fight component'. While the float component is everything, which makes it survive on the surface, the move is the propulsion, and the fight is the equipment and sensors," Swaminathan said.

Under the Indian Navy's shipbuilding efforts much of the float and move component is made in India, the vice chief of Navy added. "With every single shipbuilding project, our indigenisation content is going upwards."

"We are already a very formidable navy...but we want to build next-generation, cutting-edge, state-of-the-art systems," he added.

Through the summit, the Indian Navy aims to engage with industry partners, academia, policy-makers and other stakeholders to boost self-reliance in different sectors. Like every year, the summit will feature domain-specific seminars and interactive sessions this time.

One of the sessions, 'Future Warfare and Emerging Technologies', will discuss autonomous platforms and their impact on warfare, 'smart' materials, and quantum navigation and sensing.

In one of the Indian Navy's latest ships, the indigenous content went up to 90 percent, Swaminathan revealed. Furthermore, the Navy has now set up two task forces, headed by rear admirals, to acquire the next generation of technologies.

<https://theprint.in/defence/rs-1194-cr-contracts-signed-during-first-2-editions-of-swavlamban-summit-says-vice-chief-of-navy/2324690/>

THE ECONOMIC TIMES

Wed, 23 Oct 2024

US Defence Secretary Austin confirms North Korea sent troops to Russia

US Defence Secretary Lloyd Austin said there is evidence that North Korea has sent troops to Russia on Monday, and South Korea's spy chief told lawmakers that 3,000 North Korean troops are in the country receiving training on drones and other equipment before being deployed to battlefields in Ukraine.

Austin told reporters Wednesday "What exactly they are doing? Left to be seen. These are things that we need to sort out," according to a video posted by the Washington Post. If the troops join the war in Ukraine on Russia's side, it will be "a very, very serious issue," Austin said, adding it would have an impact in Europe and in the Indo-Pacific region.

South Korean intelligence first publicized reports that the Russian navy had taken 1,500 North Korean special warfare troops to Russia last week, while Ukrainian President Volodymyr

Zelensky had earlier said his government had intelligence that 10,000 North Korea soldiers were being prepared to join the invading Russian forces.

The US and NATO had not previously formally confirmed North Korea's reported troop dispatch, but have warned of the danger of such a development if true. Russia and North Korea have so far denied the troop movements.

<https://economictimes.indiatimes.com/news/defence/us-defence-secretary-austin-confirms-north-korea-sent-troops-to-russia/articleshow/114509038.cms?from=mdr>

THE ECONOMIC TIMES

Wed, 23 Oct 2024

Israel deploys THAAD, while Iran prepares its own game-changing air defence

The conflict between Israel and Iran has reached new levels of intensity, with direct drone and missile attacks from Iran in both April and October this year. These attacks, combined with ongoing assaults by the Iran-backed Hezbollah militia, have targeted key Israeli cities such as Tel Aviv and Haifa.

The situation escalated further on October 19 when a drone struck Israeli Prime Minister Benjamin Netanyahu's private residence in Caesarea, although no injuries were reported. Hezbollah, based in Lebanon and considered a proxy of Iran, has launched multiple rocket, drone, and missile attacks on Israel, intensifying the already fraught regional situation. The attacks by Hezbollah have primarily focused on major Israeli urban centers, increasing fears of an all-out conflict between Israel and its adversaries.

Israel's Desire for Retaliation Against Iran Grows

In response to these continued assaults, Israel has been planning its retaliation against Iran. Leaked U.S. intelligence documents have revealed that Israel had drawn up blueprints for an attack on Iran, reportedly targeting eastern Iran near the Iraq border.

However, these plans were delayed due to a security breach. According to the reports, Israel had selected advanced missiles and projectiles for the mission, capable of overcoming air defence systems, including Iran's defences and systems like Israel's own Iron Dome, David's Sling, Arrow, and the U.S.-operated THAAD system.

"Israel is seething with the burning desire for revenge on Iran and it seems like it will carry out strikes towards the eastern part, adjoining Iraq's border," reports suggest, pointing toward a likely escalation in military action. U.S.

Deploys THAAD to Israel to Bolster defence

In response to the rising threat, the U.S. has stepped up its support for Israel. U.S. defence Secretary Lloyd Austin confirmed that the Terminal High Altitude Area defence (THAAD) system has been deployed to Israel to strengthen the country's air defence capabilities. THAAD is an advanced anti-ballistic missile system designed to intercept threats during their terminal phase.

"The THAAD system is in place," Austin said, speaking to reporters before arriving in Ukraine. He added, "We have the ability to put it into operation very quickly and we're on pace with our expectations."

However, Austin did not confirm whether the system was fully operational at the time. President Joe Biden also expressed support for the deployment, stating that the THAAD, along with about 100 U.S. soldiers, was meant to help defend Israel following the attacks. Biden highlighted the importance of protecting Israel from further missile threats, especially after Iran fired more than 180 missiles at Israel on October 1.

Biden Urges Caution Amid Israeli Retaliation Plans

Despite the deployment of THAAD, the U.S. has urged Israel to exercise restraint in its response. President Biden has voiced concerns about a potential Israeli attack on Iran, particularly against Iran's nuclear sites or critical energy infrastructure, fearing that such actions could ignite a broader war across the Middle East.

Answering reporters' questions, Biden said he had "a good understanding" of when and how Israel might strike Iran but also noted that there was an opportunity to reduce tensions. "We're going to do—continue to do—everything we can to dial down the tensions," Austin said, adding, "At the end of the day, that's an Israeli decision."

Iran's Air defence System 'Armaan' Ready to Defend Against Israeli Strikes

While Israel prepares for a possible military response, Iran has been developing its own defence systems to counter any potential attacks. Satellite imagery has revealed that Iran's new air defence system, known as "Armaan," is fully operational. This system is said to be capable of intercepting missiles and drones at a range of 180 kilometers and can engage six targets simultaneously at distances between 120 and 180 kilometers.

Armaan is seen as a critical component of Iran's broader defence strategy, with experts suggesting that it could disrupt any Israeli missile strikes. Apart from Armaan, Iran has several other air defence systems, including Bavar 373, Khordad 15, Talaash 4, Kamin-2 (also known as Mersad 16), and Zoubin. Together, these systems form a robust defence network aimed at protecting Iranian territory from Israeli and other foreign attacks.

U.S. Seeks De-escalation as Conflict Escalates

Despite the growing military preparations on both sides, the U.S. continues to push for a peaceful resolution to the conflict. defence Secretary Austin expressed the U.S.'s desire to prevent further escalation, stating, "We're going to do—continue to do—everything we can ... to dial down the tensions and hopefully get both parties to begin to de-escalate."

However, with Hezbollah's continued rocket and drone attacks and Israel's determination to retaliate, the conflict shows no signs of easing. The situation remains precarious, with both nations' military capabilities ready for potential further conflict.

<https://economictimes.indiatimes.com/news/defence/israel-deploys-thaad-while-iran-prepares-its-own-game-changing-air-defence/articleshow/114510418.cms>

THE TIMES OF INDIA

Thu, 24 Oct 2024

Chaser eyes Target: ISRO set for pioneering space docking trial

The Indian Space Research Organisation (ISRO) is preparing to launch its first space docking experiment by the end of Dec for the mission of getting India into the elite three-nation club that has this advanced technology.

Space docking involves precise connection of two spacecraft, whether manned or unmanned, allowing those to operate as a single unit for critical tasks such as refuelling, repair, and crew exchange.

Only the US, Russia, and China have this capability. Isro's Space Docking Experiment (SPADEX) will use two 400-kilogram satellites, 'Chaser' and 'Target', both developed at a private company.

K V Sriram, director of Isro's Laboratory for Electro-Optics Systems (LEOS) in Bengaluru, said: "The satellites are designed to be launched from a single PSLV-class vehicle and to dock at an altitude of about 700 kilometres."

He said it on Wednesday during an international conference at the CSIO (Central Scientific Instruments Organisation) in Chandigarh,.

Geostationary satellites are costly and have a typical lifespan of 8 to 10 years until their propulsion units run out of fuel, even though the other onboard systems remain functional.

The Isro scientist said: "Space docking technology will enable the replacement of propulsion units, allowing these satellites to remain operational for several more years."

<https://timesofindia.indiatimes.com/city/chandigarh/isros-groundbreaking-space-docking-trial-to-place-india-among-space-superpowers/articleshow/114522855.cms>

THE TIMES OF INDIA

Thu, 24 Oct 2024

ISRO's Gaganyaan astronauts to be trained with NASA and SpaceX support

NASA recently provided Indian astronaut Shubhanshu Shukla, part of the Gaganyaan program, with a hands-on experience on SpaceX's Dragon spacecraft. The endeavor represents an important international collaboration in space, joining the United States with NASA, SpaceX, and India with the Indian Space Research Organisation.

Training at the headquarters for SpaceX serves not only as a significant step forward for India's human spaceflight program but also increases the bond between these space-faring nations.

Comprehensive training

Shubanshu Shukla and his Ax-4 crew members were put through full-scale training at the SpaceX headquarters. Measurements and even tests under pressurized suits were carried out to ensure not only the astronaut's safety and comfort during flight but also to prepare them for any rigors of the very complex system and procedures of Dragon spacecraft.

The program takes the astronauts through realtime, all-rounded exposure to extremely tough systems and procedures back in the Dragon.

Introduction to Dragon

While visiting, Dragon spacecraft was introduced to the crew. The spacecraft is designed for crewed missions to the ISS. It's integrally connected with the Ax-4 mission, which aims to provide private citizens and researchers access to the ISS. Such an introduction covered information including in-depth capabilities of the craft, features, and safety protocols.

Mission preparation

Shubanshu Shukla is scheduled to spend close to ten days aboard the ISS during the Ax-4 mission and will carry out a variety of scientific experiments and research work. Training at SpaceX is held in high regard, as it familiarizes the crew with the internal machinery and activities of the spacecraft, thus making them well-prepared for the journey. Such a period of mission preparation involves simulations from routine operations to emergency responses that will build the competence of the crew.

Shubanshu Shukla and his fellow colleagues would be trained practically on the Dragon spacecraft, the controls, and the systems used to operate them. Their practical training would be vital for their success in the mission. In addition, it would allow them to build confidence in handling real situations that may arise in space.

The hands-on training includes simulating the processes of docking, undocking, and maneuvering the spacecraft, which was a real-space operation experience for the astronauts. Such training forms the most essential requirement for the guarantee of efficient handling of the spacecraft as well as quick response in case of any contingency by the crew. The mission scheduled to launch in spring 2025.

<https://timesofindia.indiatimes.com/etimes/trending/isros-gaganyaan-astronauts-to-be-trained-with-nasa-and-spacex-support/articleshow/114503327.cms>



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NASA unveils new telescope to study gravitational waves in space

The US National Aeronautics and Space Administration (Nasa) unveiled a newly developed prototype of a telescope that can be used to study gravitational waves in outer space.

The telescope was built as part of a joint mission with the European Space Agency (ESA) called Laser Interferometer Space Antenna (LISA). The main objective of the LISA mission is to study gravitational waves by putting three spacecrafts into the Earth's orbit and positioning them in a triangular format with 1.6 million miles on each side.

Each of the three spacecrafts will carry two telescopes to detect infrared laser beams from the other spacecraft. Researchers expect to detect a gravitational wave when one of the three spacecrafts alter their characteristic pattern.

"The primary mirror is coated in gold to better reflect the infrared lasers and to reduce heat loss from a surface exposed to cold space since the telescope will operate best when close to room temperature," Nasa said on its website.

"The prototype is made entirely from an amber-colored glass-ceramic called Zerodur, manufactured by Schott in Mainz, Germany. The material is widely used for telescope mirrors and other applications requiring high precision because its shape changes very little over a wide range of temperatures," it added.

The mission is scheduled for take-off by 2030.

What are gravitational waves?

First discovered by Albert Einstein in 1916, gravitational waves are known to be created due to two black holes colliding with each other. In 2016, the Laser Interferometer Gravitational-wave Observatory (LIGO) Scientific Collaboration comprising National Science Foundation, Caltech, and MIT researchers detected the first gravitational waves ever, proving Einstein's theory right.

By detecting and studying gravitational waves, scientists hope to enhance humanity's understanding of the universe and less-explored phenomena such as black holes and the Big Bang that may not be easy to analyse using other tools, Nasa said.

<https://indianexpress.com/article/technology/science/nasa-unveils-new-telescope-to-study-gravitational-waves-in-space-9634801/>

