

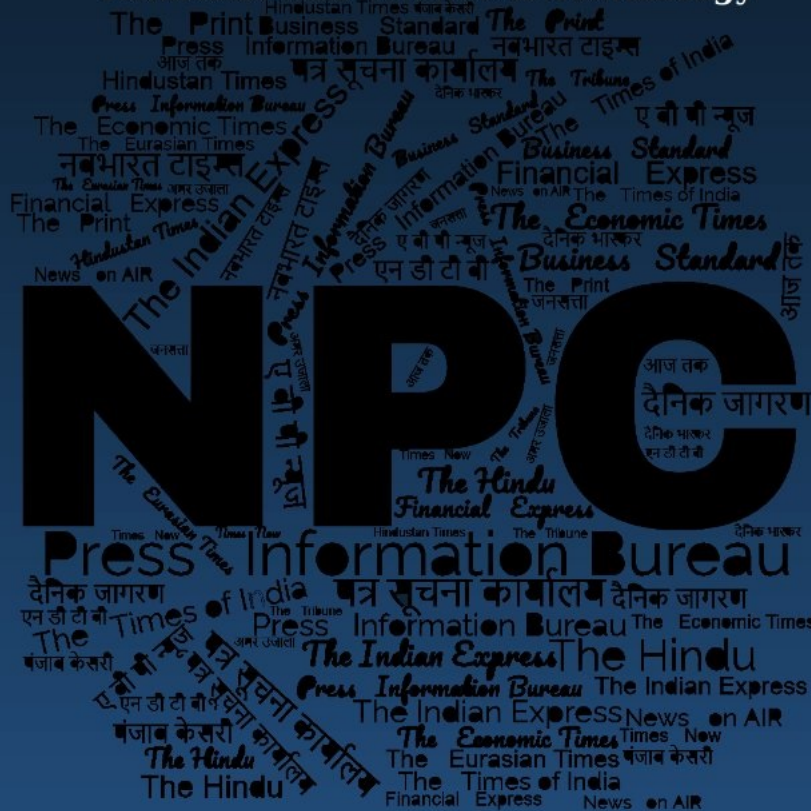
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**Press Information Bureau
Government of India**

Ministry of Defence

Mon, 29 April 2024

Launch of 6th Ammunition cum Torpedo cum Missile Barge, LSAM 20 (Yard 130)

The launch of 'Ammunition Cum Torpedo Cum Missile Barge, LSAM 20 (Yard 130)', 6th Barge of 11 x ACTCM Barge Project, built by MSME Shipyard, M/s Suryadipta Projects Pvt Ltd, Thane for Indian Navy, was undertaken on 29 Apr 24 at M/s Suryadipta Project Pvt. Ltd. (launch site of M/s SPPL). The launching Ceremony was presided over by Shri Madhusudan Bhui, INAS, GM NAD (Karanja).

The contract for building 11 x ACTCM Barge was signed between MoD and M/s Suryadipta Projects Pvt Ltd, Thane on 05 Mar 21. The availability of these Barges would provide impetus to operational commitments of *IN* by facilitating Transportation, Embarkation and Disembarkation of articles/ ammunition to *IN* Ships both alongside jetties and at outer harbours.

These Barges are indigenously designed and built under relevant Naval Rules and Regulation of Indian Register of Shipping. The model testing of the Barge during the design stage was undertaken at the Naval Science and Technological Laboratory, Visakhapatnam. These Barges are proud flag bearers of Make in India initiative of Government of India (GoI).

<https://pib.gov.in/PressReleasePage.aspx?PRID=2019109>

The Tribune

Mon, 29 April 2024

4 years after standoff with China, Indian Army shares LAC pics

A set of four pictures was posted on X by the 14 Corps on April 26 with the caption, "The braves of the Fire and Fury Corps standing tall and strong at super high-altitude locations in Ladakh".

Sources said one of the images was of the southern edge of the Depsang at a place called “Bottleneck” in the Raki Nallah valley. The name Bottleneck is derived from the narrow valley that leads across a mountain range. India and China have dug in their heels and stayed put at their respective locations.

The pictures are of a senior military commander from Leh visiting the troops. “Super high altitude” is defined as a location that is in excess of an altitude of 15,000 ft or above. Depsang is part of what the Army defines as Sub-Sector North, where civilian traffic is not allowed north of the village of Shayok near Darbuk.

Talks between India and China are deadlocked over the pending resolution of disputes at Depsang, a 972 sq km plateau where the two sides have an issue over troop positions, especially at Bottleneck on the eastern edge of Depsang.

India has already suggested to China that a graded three-step process is needed to ease the standoff. The first is disengagement of troops within close proximity of each other in grey zones along the LAC and getting back to positions as on April 2020.

The next two steps — de-escalation and de-induction — will entail pulling back troops and equipment to the pre-April 2020 levels. Till that is agreed upon and complied with, it cannot be assumed to be business as usual and Indian troops intend to remain at the LAC.

India and China have conducted 21 rounds of military commander-level talks. There has been disengagement of troops at certain locations.

Defence Minister Rajnath Singh, while referring to the ongoing round of talks to ease tensions along the LAC, had on Sunday said, “India is no longer weakWe should wait for the outcome of the talks. However, I want to assure the countrymen that India has not bowed down anywhere, nor will it ever bow down”.

<https://www.tribuneindia.com/news/india/4-years-after-standoff-army-shares-lac-pics-616188>



Mon, 29 April 2024

All you need to know about Pakistan’s Hangor class submarines, built by China

The first Hangor class submarine, built by China for Pakistan, was launched on April 26 at a Wuhan shipyard. This was the first of eight submarines of this class that the Pakistan Navy is set to induct into its fleet by 2028. Here is all you need to know.

Basic characteristics

The Hangor-class, an export variant of the Chinese Type 039A Yuan class, is a diesel-electric attack submarine, named after the now decommissioned PNS Hangor, which famously sank Indian frigate INS Khukri during the 1971 war.

“Diesel-electric” refers to the mode of propulsion — diesel engines power the submarine when surfaced or snorkelling (as they need air to operate), while a battery, charged by the diesel engine, allows the vessel to operate while submerged. The Hangor-class boasts four diesel engines. It is also equipped with an air independent propulsion (AIP) system, which significantly increases the submarines’ endurance underwater.

Attack submarines are specifically designed for sinking other submarines or surface vessels using torpedoes, or in modern times, cruise missiles. The Hangor-class has six 21 inch torpedo tubes, and capabilities to launch anti-ship missiles, as well as the Babur-3 subsonic cruise missile, which has a range of 450 km.

Comparison with India’s Kalavari class

Pakistan’s Hangor class is the direct counterpart of India’s Kalavari class of submarines, based on the French Scorpene-class. India currently operates six Kalavari class submarines, with three more set to be inducted into service by the early 2030s.

In terms of size, the Hangor class is significantly bigger than the Kalavari class, which displaces 1,775 tons and is 67.5 m long. The Hangor class, on the other hand, has a displacement of 2,800 tons, is 76 m in length, 8.4 m in width (at its widest point), and has a draught (depth of the vessel below the waterline) of 6.2 m when on the surface.

While this probably means that the crew of the Pakistani submarines would lead (slightly) more comfortable lives, in shallow, littoral waters, this is a major drawback, with Kalavari class being much more manoeuvrable. The Pakistani submarine has a reported top speed of 20 knots (37 kmph), same as its independent counterpart.

The Kalavari class, like the Hangor class, runs on diesel-electric propulsion. However, the models India currently operates do not come with built-in AIP. This means that in terms of underwater endurance, the Hangor class potentially has an edge on the Kalavari class.

This matters because submarines’ USP is their ability to be stealthy — much of which comes from their capability of remaining underwater for extended periods of time. Conventional diesel-electric submarines need to surface to recharge their batteries after a few days (2-5, depending on the battery used), making them detectable to enemy radar and exhaust fumes sensors. An AIP system can increase submarines’ underwater endurance manifold (upwards of 15-20 days). The Indian Navy is currently in the process of installing an indigenously developed AIP system to its Kalavari class submarines.

In terms of armament, the Kalavari class carries six 21 inch, German-made torpedoes, and missile systems such as French Exocet anti-ship missiles, and MICA anti-air missiles. This is likely superior, and more battle tested than Hangor’s armament. Both submarines do not have vertical launch systems (like the ones in India’s nuclear Arihant class), which would allow it to carry bigger cruise missiles like the Brahmos-NG.

Both submarine classes carry state of the art sensor suites, although details of Hangor's capabilities in this regard are not out in public.

<https://indianexpress.com/article/explained/explained-sci-tech/pakistan-hangor-class-submarines-9297350/>



Mon, 29 April 2024

Strengthening India-Czech Relations: A Comprehensive Look at Trade, Military, and Space Cooperation

India's relationship with the European Union (EU), particularly with countries like the Czech Republic, is crucial for mutual interests.

“Negotiating a Free Trade Agreement (FTA) has been complex due to the vastness and diversity of both India and the EU. Despite challenges, the shared goal of fostering free and safe trade drives ongoing negotiations,” says Dr Eliska Zigova, Ambassador of the Czech Republic in an exclusive interaction with Financial Express Online.

India-EU FTA

Talking about the India-EU FTA getting delayed, the Czech envoy says: “The FTA negotiations between India and the EU represent a strategic imperative for both parties. Despite geographical and cultural differences, the shared objective of fostering free and safe trade underscores the significance of these negotiations.

The complexity of the negotiations arises from the diverse interests and viewpoints of the 28 EU member states and the 28 states and 8 territories of India. However, both sides remain committed to reaching a mutually beneficial agreement.”

Adding, “The negotiation process has been protracted, with multiple rounds of discussions taking place. Each round presents unique challenges as various contentious issues require careful deliberation and consensus-building. From trade tariffs to regulatory standards, the negotiations cover a wide range of economic sectors, reflecting the complexity of modern trade agreements. However, each round shows both sides are willing to work-out points of dispute and move forward.”

While progress has been made, frustrations linger on both sides due to perceived delays and differing priorities, she states. However, the EU's meticulous approach to negotiation reflects its commitment to ensuring a robust and enduring agreement that caters to the interests of all stakeholders. “The eventual signing of the FTA will mark a significant milestone in India-EU relations, paving the way for increased economic cooperation and prosperity,” she says.

India-Czech Military Cooperation

Moving beyond trade, military cooperation between India and EU member states, such as the Czech Republic, holds immense potential for bolstering defence capabilities and fostering regional security. According to Dr Zigova “The discussion on military cooperation is underpinned by concerns related to data security, particularly in the context of defence technology transfer.

The Czech Republic, having undergone a transition from Soviet-era dependence, is keen to collaborate with India in defence modernization efforts. Proposals for offering spare parts, technologies and expertise to enhance existing defence equipment underscore the commitment of both sides to strengthening military ties.”

In her view, despite bureaucratic challenges and sensitivities surrounding defence cooperation, there is a shared recognition of the geopolitical importance of the Indo-Pacific region and India being the crucial partner and force in this region. As India seeks to diversify its defence partnerships and modernize its armed forces, collaborations with EU member states assume greater significance.

Space Cooperation

According to her as far as space cooperation is concerned, India and the EU share common interests in areas such as artificial intelligence, satellite technology, and surveillance capabilities. Collaborative projects in these domains not only facilitate knowledge exchange but also contribute to scientific advancement and innovation.”

Recent initiatives, such as hosting Indian space companies and signing strategic partnerships in science and technology, underscore the growing convergence of interests between India and the Czech Republic. A group of scientists from the Indian Space Research Organisation had visited the European Space Agency to understand more about monitoring military know-how and other related technologies.

According to the Czech envoy, later this year in September, a group of companies will visit ISRO. The potential for joint ventures and research collaborations holds promise for the future of space exploration and technology development. Earlier this year, Financial Express Online reported that Prime Minister Narendra Modi and Prime Minister Narendra Modi and Czech Prime Minister Petr Fiala agreed to elevate India-Czechia relations in innovative sectors to a Strategic Partnership on Innovation. In his address at the Vibrant Gujarat Summit, Czech PM Fiala highlighted the vast potential for Czech-Indian collaboration, and focus on long-term strategic investment underscored the importance of Artificial Intelligence Research, electromobility, and semiconductors in driving high-tech industries.

India-Czech Relations

While negotiations for an FTA continue to evolve, the prospects for deepening military and space cooperation remain promising. By capitalizing on shared interests and fostering mutual trust, India and the Czech Republic can build a stronger foundation for enduring partnership and collaboration in the years to come.

<https://www.financialexpress.com/business/defence-exclusive-strengthening-india-czech-relations-a-comprehensive-look-at-trade-military-and-space-cooperation-3471497/>

China winning LAC infra war against India? Here's what latest reports indicate

Although India and China have not faced off militarily in the four years since the infamous LAC flare-up that claimed lives on both sides, infrastructure building by the PLA has been going on at full tilt along the mountainous border, ToI reported on April 29. The Chinese side has also continued to dual-use 'Xiaokang' villages, bolster military positions and deploy more fighter jets at its bases in LAC's vicinity, the report by Rajat Pandit said.

Images from satellites, intelligence reports, and other inputs indicate that there is ongoing Chinese activity in all three sectors of the 3,488-km LAC, which stretches from Ladakh to Arunachal Pradesh, defence and security establishment sources told the newspaper.

China, for example, has recently finished building a road from the northern part of Samzungling to the Galwan Valley. This road provides the PLA with a 15-km shorter alternative route to quickly deploy troops in the region. A buffer zone without patrols was established around Patrolling Point-14 in Galwan Valley, three weeks after a violent confrontation where 20 Indian soldiers and an unspecified number of Chinese troops lost their lives on June 15, 2020. The Chinese army has been reportedly enhancing military and transportation facilities behind the buffer zones on both sides of Pangong Tso.

This includes the Kailash range and Gogra-Hot Springs, all of which are predominantly located in regions that India claims as its own territory. The PLA has been concentrating on improving the last-mile connectivity by building roads, bridges, tunnels, and helipads to reach its forward positions. Additionally, they are constructing new bunkers, camps, underground shelters, artillery positions, radar sites, and ammunition dumps in other areas along the LAC. According to various reports, India has also continued to match China with "mirror military deployments".

The newspaper had reported earlier that the Indian side has also majorly shored up infrastructure and capability development along the frontier. Significantly, China has cut down its disadvantages in likely air combat caused by high-altitude terrain limitations by deploying more fighters, bombers, reconnaissance aircraft, and drones.

This was achieved by upgrading its airfields such as Hotan, Kashgar, Gargunsa, Shigatse, Bangda, Nyingchi, and Hoping with new and longer runways, reinforced shelters, and storage facilities for fuel and ammunition.

As per latest info cited by ToI, two new JH-7A fighter-bombers and three Y-20 heavy-lift aircraft, along with others, have been stationed at Hotan in Xinjiang. These are in addition to the almost 50 J-11 and J-7 fighters, five Y-8 and Y-7 transport aircraft, and KJ-500 AEW&C (airborne early-warning and control) aircraft stationed at the location.

<https://economictimes.indiatimes.com/news/defence/china-winning-lac-infra-war-against-india-heres-what-latest-reports-indicate/articleshow/109680306.cms?from=mdr>

ISRO to test Gaganyaan Parachutes by Dropping Module from Chopper

The Indian Space Research Organisation (ISRO) is likely to undertake an important test under the Gaganyaan mission to check the parachute system of the crew module in the next few days, according to officials in know of the matter. The Integrated Air Drop Test (IADT) will see a Chinook helicopter dropping the crew module from a height of around 4-5 km.

“The test is likely to be conducted in the next two or three days. The first IADT will test the parachute system under nominal conditions, meaning it will mimic the process of splashdown of the crew module when both parachutes open in a timely manner,” the official said.

This will be the first in a series of IADT to test the parachute system under off-nominal conditions such as one parachute not opening, both parachutes not opening, or delayed deployment of the parachutes.

After the splashdown of the crew module—the module that will seat the three Indian astronauts — another helicopter will locate the crew module. The Navy will then recover the crew module and bring it to the Chennai coast, according to officials.

The splashdown and recovery of the crew module is also an important step, especially since the crew module turned upside down during the first test vehicle mission last October. The space agency will also undertake test vehicle missions— where a single stage rocket carries the modules several kilometres in space to test all systems —before the first unmanned mission. “This is uncharted territory. We do not know how many such tests will be needed. It will depend on findings from these tests,” said the official.

The crew module will be the pressurised cabin which will carry the three astronauts to space and back.

While the current tests are only with the crew module, for the actual flight, the crew module will be attached with a service module that will house all support systems such as the propulsion system.

<https://indianexpress.com/article/technology/science/isro-to-test-gaganyaan-parachutes-by-dropping-module-from-chopper-9297883/>

ISRO releases ISSAR 2023 Report on Vulnerability of Space Assets to Collisions

ISRO has released a report assessing the vulnerability of its assets in outer space to environmental hazards such as natural objects like asteroids as well as artificial space objects, to ensure safe and sustainable space operations, Releasing the Indian Space Situational Assessment Report (ISSAR) 2023, ISRO Chairman S Somanath said, "Space Situational Awareness (SSA) is a must in outer space."

According to the report, about 1,37,565 close approach alerts were received from USSPACECOM. Also, a total of 3,033 alerts for close approaches within the distance of one kilometre were deduced by the ISRO satellites. The report also identified 2,700 close approaches with other operational satellites within 5 kilometres. On certain occasions, coordination was carried out with other international agencies like SpaceX and EUMETSAT.

However, none of the close approaches were critical enough to warrant a collision avoidance manual, the report stated. The report was compiled by ISRO System for Safe and Sustainable Space Operations Management on April 2, 2024, according to a press release issued by ISRO. The report stated that ISRO regularly carries out analysis through IS4OM/ISTRAC to predict close approaches by other space objects to Indian space assets.

In case of any critical close approach, collision avoidance manuals (CAM) are carried out to safeguard the operational spacecraft, it added. The consolidated data for 2023 indicates a steady growth in the space object population, as reflected by the maximum number of on-orbit payload deployments with maximum number of launches in 2023, it further said.

ISRO System for Safe and Sustainable Operations Management has been operational since 2022, and its objective is to improve compliance with internationally recognised guidelines on the long term sustainability of outer space activities, the press release issued by ISRO stated.

The space agency is an active participant in many international fora such as the Inter-Agency Debris Coordination Committee (IADC) with 13 space agencies, the International Academy of Astronautics space debris working group, International Astronautical Federation space traffic management working group, International Organization for Standardization space debris working group and UN-COPUOS scientific and technical sub-committee for discussing space debris issues, related studies and the long-term sustainability of outer space activities. Incidentally India is the chair of the UN working group on the long-term sustainability of outer space activities. ISRO as the chair of the IADC for 2023- 24 had hosted the 42nd annual IADC meet in April.

<https://economictimes.indiatimes.com/news/science/isro-releases-issar-2023-report-on-vulnerability-of-space-assets-to-collisions/articleshow/109700558.cms>

Why Chandrayaan-3 lift-off was delayed by 4 seconds? ‘Close approach risk,’ reveals ISRO new report

Chandrayaan-3, India's moon mission, was delayed by four seconds during launch-off to avoid potential collisions with debris objects and satellites, the Indian Space Research Organisation (ISRO) revealed in a recent report.

“For LVM3-M4/ Chandrayaan-3, the nominal lift-off had to be delayed by 4 seconds based on COLA analysis to avoid close approaches between a debris object and the injected satellites in their orbital phase due to overlapping operational altitudes,” the space agency said in a blog post on Friday.

S Somanath, chairperson of ISRO, unveiled the Indian Space Situational Assessment Report (ISSAR) for 2023, an annual overview of the space situation, prepared by ISRO's System for Safe and Sustainable Space Operations Management (IS4OM) earlier this month.

The report highlighted the vulnerability of space assets to various environmental risks, such as asteroids, comets, meteoroids, and artificial space objects. It stressed continuous awareness for assessing close approaches of satellites and launch vehicles, predicting atmospheric re-entry, and studying the evolution of space objects.

The report added no close approaches were detected safe lift-off of launch vehicles. added close approaches were detected as safe

Post-launch, ISRO confirmed that there were no detected close approaches with other space objects during the Chandrayaan-3 mission and the Earth-bound phase of Aditya-L1.

Chandrayaan-3: India's moonshot

India's lunar mission, Chandrayaan 3, embarked on its journey from the ISRO's Satish Dhawan Space Centre in Sriharikota on July 14. Approximately a month later, on August 23, the Vikram lander, accompanied by the Pragyan Rover, successfully landed on the moon.

This made India the first nation to land near the lunar South Pole and only the fourth to achieve a controlled lunar landing.

After 10 days of exploration on the lunar surface, both the lander and rover entered a dormant state. The propulsion module remained in the lunar orbit which it had attained after separating from the lander.

Indian Space Situational Assessment Report 2023 | Top points

- A total of 127 Indian satellites were launched from the inception of the Indian space programme until December 31, 2023.
- The Indian government owns 22 operational satellites in Low Earth Orbit (LEO) and 29 in Geosynchronous Earth Orbit (GEO) as of December 31, 2023.

- Three active Indian deep space missions by the end of 2023: Chandrayaan-2 Orbiter, Aditya-L1, and Chandrayaan-3 Propulsion Module.
- By the end of 2023, 21 Indian satellites had re-entered the atmosphere, with 8 re-entries occurring in 2023 alone. Megha-tropiques-1 underwent controlled re-entry in 2023.
- 82 rocket bodies from Indian launches were placed in orbit till 2023, with 52 debris from PSLV-C3 still in orbit by the end of 2023. Thirty-five intact rocket bodies re-entered Earth's atmosphere till 2023 end, with five re-entries in 2023.
- All seven launches by ISRO in 2023 were successful, including SSLV-D2/EOS7, LVM3-M3/ONEWEB_II, PSLV-C55/TeLEOS-2, GSLV-F12 NVS-01, LVM3-M4/Chandrayaan-3, PSLV-C56/DS-SAR, and PSLV-C57/Aditya L-1. This resulted in the placement of 5 Indian satellites, 46 foreign satellites, and eight rocket bodies (including POEM-2) in their intended orbits.

<https://www.hindustantimes.com/india-news/why-chandrayaan-3-lift-off-was-delayed-by-4-seconds-close-approach-risk-reveals-isro-new-report-101714380471372.html>

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