मई
May
2024

खंड/Vol. : 49 अंक/Issue : 93
21/05/2024

समाचार पत्रों से चयित 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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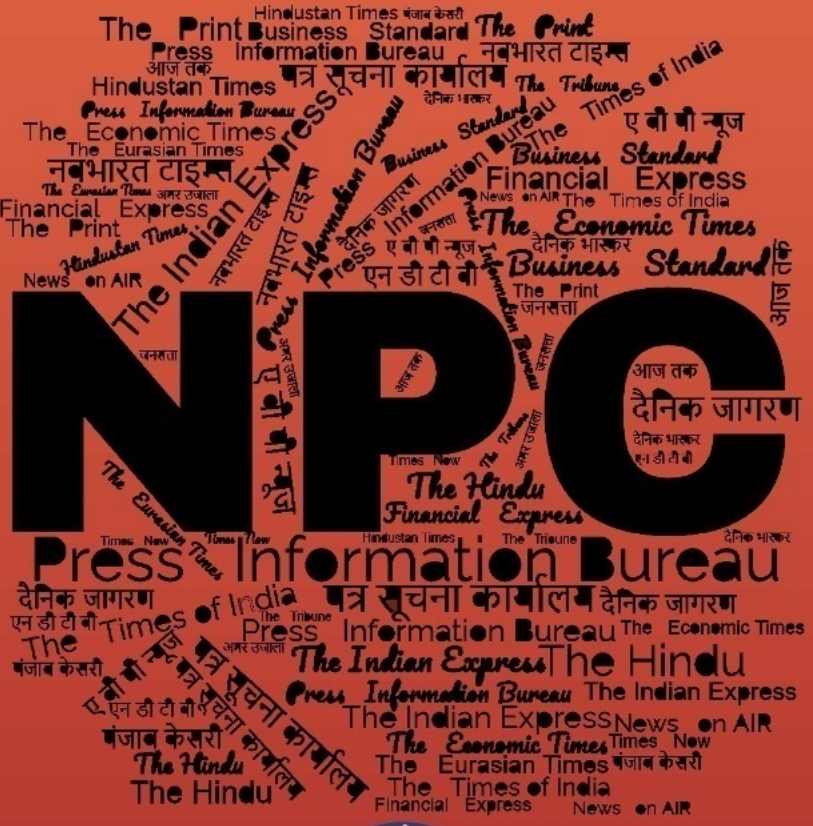

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नवभारत टाइम्स

Mon, 20 May 2024

चीन के कट्टर दुश्मन के घर पहुंचे 3 भारतीय युद्धपोत, दक्षिण चीन सागर में नौसेना का शक्ति प्रदर्शन

भारतीय नौसेना के तीन जंगी जहाज इन दिनों चीन की नाक के नीचे दक्षिण चीन सागर में गश्त लगा रहे हैं। इन जहाजों ने सिंगापुर के बाद अब चीन के सबसे बड़े दुश्मन मुल्क फिलीपींस में डेरा डाला है। भारतीय युद्धपोतों का फिलीपींस में जोरदार स्वागत किया गया है।

फिलीपींस की नौसेना ने भारतीय नौसेना के सम्मान में एक समारोह का भी आयोजन किया है। फिलिपींस और चीन में इन दिनों दक्षिण चीन सागर में स्थित द्वीपों को लेकर तनाव चरम पर है। दोनों देशों की नौसेनाएं कई बार आमने-सामने आ चुकी हैं। विशेषज्ञों को आशंका है कि फिलीपींस और चीन के बीच मौजूदा हालात युद्ध तक जा सकते हैं।

भारतीय नौसेना ने क्या कहा

भारतीय नौसेना ने सोशल मीडिया एक्स पर एक पोस्ट में लिखा, "लंबे समय से चली आ रही मित्रता और समुद्री सहयोग को और मजबूत करने की दिशा में भारतीय नौसेना के जहाज आईएनएस दिल्ली, आईएनएस शक्ति और आईएनएस किल्टन 19 मई 2024 को फिलीपींस के मनीला पहुंचे।

जहाजों का फिलीपींस नेवी द्वारा गर्मजोशी से स्वागत किया गया। यह दौरा दक्षिण चीन सागर में भारतीय नौसेना के पूर्वी बेड़े के ऑपरेशन तैनाती का हिस्सा है। यात्रा के दौरान, दोनों नौसेनाओं के कर्मी विषय वस्तु विशेषज्ञ आदान-प्रदान, खेल कार्यक्रम, क्रॉस-डेक दौरे, सांस्कृतिक दौरे और सहयोगी सामुदायिक आउटरीच कार्यक्रमों सहित पेशेवर बातचीत की विस्तृत श्रृंखला में शामिल होंगे। जहाज फिलिपींस नौसेना के साथ मैरिटाइम पार्टनरशिप एक्सरसाइज (MPX) में भी भाग लेंगे।"

चीन के भड़कने की आशंका

विश्लेषकों का कहना है कि भारतीय नौसेना के युद्धपोतों की दक्षिण चीन सागर में तैनाती से चीन भड़क सकता है। उन्होंने चीन के आक्रामक प्रतिक्रिया की आशंका भी जताई।

भारतीय नौसेना के प्रवक्ता कमांडर विवेक मधवाल ने उस समय कहा था कि भारतीय गाइडेड मिसाइल विध्वंसक आईएनएस दिल्ली, बेड़े के टैंकर आईएनएस शक्ति और पनडुब्बी शिकारी आईएनएस किल्टन "दोस्ती और सहयोग" को मजबूत करने के लिए 6 मई को सिंगापुर पहुंचे थे। इसके बाद आईएनएस किल्टन वियतनाम के कैम रैन खाड़ी के लिए रवाना हुआ, और वियतनामी नौसेना के साथ आदान-प्रदान और संयुक्त

समुद्री अभ्यास के लिए 12 मई को पहुंचा। उसी दिन, आईएनएस दिल्ली और आईएनएस शक्ति समुद्री अभ्यास में भाग लेने के लिए मलेशिया के कोटा किनाबालु पहुंचे।

https://navbharattimes.indiatimes.com/world/china/indian-navy-ships-ins-delhi-ins-shakti-ins-kiltan-arrived-at-manila-philippines-amid-tension-with-china/articleshow/110277182.cms

THE ECONOMIC TIMES

Mon, 20 May 2024

Indian Navy's Eastern Fleet Ships arrive in Manila to participate in Maritime Partnership Exercise

Indian Navy ships INS Delhi, INS Shakti and INS Kiltan arrived in Manila, Philippines, to further strengthen the longstanding friendship and maritime cooperation between the two countries.

The ships were accorded a warm welcome by the Philippines Navy.

Moreover, the visit is part of the Operational Deployment of the Indian Navy's Eastern Fleet to the South China Sea.

During the visit, personnel from both navies will engage in a wide range of professional interactions, including Subject Matter Expert Exchange (SMEE), sports fixtures, cross-deck visits, cultural visits, and collaborative community outreach programmes.

During the visit, the ships will also participate in a Maritime Partnership Exercise (MPX) with the Philippine Navy.

Tensions between China and the Philippines have escalated over the Scarborough Shoal as Manila has taken a more assertive approach in disputed areas.

Approximately 220 kilometres off the coast of the Philippines and within its exclusive economic zone (EEZ), the shoal is a traditional fishing ground used by multiple nations and located close to important shipping channels. Under the United Nations Convention on the Law of the Sea (UNCLOS), an EEZ extends about 370 km from a country's coast.

China has claimed almost the entire South China Sea rejecting claims from other nations, including the Philippines, and an international ruling that states that these claims have no legal basis, according to an Al Jazeera report. Brunei, Malaysia, and Vietnam also claim the parts of the sea.

India and the Philippines formally established diplomatic relations in November 1949, shortly after both countries gained independence. The relations between the two countries have been cordial and muted.

Indian Navy and Coast Guard ships regularly visit the Philippines. The participation of officers of the armed forces of both countries in various specialized training courses in each other's countries has intensified as have visits by National Defence College delegations.

https://economictimes.indiatimes.com/news/defence/indian-navys-eastern-fleet-ships-arrive-in-manila-to-participate-in-maritime-partnership-exercise/articleshow/110268554.cms?from=mdr

THE HINDU

Mon, 20 May 2024

Agniveers are not just soldiers but also leaders, innovators, and defenders of India's sovereignty, says Chief of Defence Staff

General Anil Chauhan, Chief of Defence Staff (CDS), visited the Maratha Light Infantry Regimental Centre in Belagavi on Monday, to interact with Agniveers who will be joining the Army soon.

In hs address, General Chauhan underscored the purpose of a military service and its pivotal role within the military framework. He said that Agniveers were not just soldiers but also leaders, innovators, and defenders of the nation's sovereignty.

Focusing on the evolving nature of warfare, he underscored the complexity and unpredictability of future conflicts to include cyber warfare, Artificial Intelligence, and asymmetric threats.

He also spoke about technology integration and continuous learning, and mentioned that in addition to keeping in touch with the latest advancements, there is also a need to showcase innovative approach towards combat.

He further expressed his gratitude for the commitment by Agniveers by choosing the Armed Forces as a profession and acknowledged the personal challenges faced by the soldiers and their families, and the hardships they endure while operating in challenging environments.

He said that despite the challenges, the Agniveers will find their journey immensely rewarding and their each step would lead to their personal growth and a deep sense of pride in serving the nation.

The CDS lauded the MLIRC and the team of instructors for creating a conducive environment for training and ensuring that the best of the training is being imparted to the Agniveers.

He also emphasised the critical role of professional instructors in shaping the future of the armed forces. He emphasised that the quality of training directly impacted the operational readiness and urged to be honest towards it.

General Chauhan extended his best wishes to the Agniveers for their future endeavours. He encouraged them to continue striving for excellence, to uphold the values of integrity and honour, and to serve as role models to their peers.

He also stressed upon the importance of remaining steadfast in their commitment to nation building and to make a positive impact, said a release.

https://www.thehindu.com/news/national/karnataka/agniveers-are-not-just-soldiers-but-also-leaders-innovators-and-defenders-of-indias-sovereignty-says-chief-of-defence-staff/article68196229.ece/amp/

THE HINDU

Mon, 20 May 2024

India's submarine project battles hurdle amid rising China, Pakistan pressures

India's most critical submarine programme Project 75 (India), or P75(I), is running into fresh delays owing to challenges faced by potential foreign vendors in meeting a key criteria. While initial interest from German firm ThyssenKrupp Marine Systems (TKMS) gave the project a thrust, another contender, Navantia of Spain, is encountering obstacles in fulfilling the criteria, particularly the 'proven AIP (air-independent propulsion)' clause.

Under the Rs 43,000 crore P75(I), India aims to build six advanced conventional submarines, equipped with better sensors and weapons and AIP, through a joint venture. The JV requires the Indian bidder to have a technology partnership with a foreign collaborator.

AIP allows a submarine to remain underwater longer, making it more difficult to detect. Conventional diesel submarines, on the contrary, have to emerge out of water to charge their batteries. The AIP clause demands a certain level of technology, currently possessed only by German submarines. Navantia has been working to master this technology.

To ensure fairness and avoid legal hurdles arising from a single vendor situation, the Indian government may delay acquisition until Navantia develops the AIP technology, thereby maintaining a level-playing field among the contenders. Navantia's struggle to meet the AIP criteria is therefore a significant obstacle to P75(I). At the same time, a debate has ensued over the relevance of AIP technology since advancements in lithium-ion battery technology may potentially offer submarines superior underwater endurance in the future.

P75(I) has strategic implications, especially considering China's growing submarine presence in the Indian Ocean Region and Pakistan's accelerated acquisition of these warships. The urgency for India to modernise its submarine fleet is evident as its current fleet is ageing and depleting.

The Indian Navy's fleet of attack submarinesâ€"all diesel-poweredâ€"has come down from 21 in the 1980s to just 16 at present. Only eight are battle-ready at any given time, as half of the fleet undergoes mid-life upgrades and is 30 years old. P75(I)'s success will enhance the India Navy's underwater capabilities and support the country's strategic defence objectives against regional threats.

P75(I), initiated in the late 1990s, has been through lots of ups and downs. It entered a critical phase in June last year when TKMS tied up with the Mumbai-based Mazagon Dock Shipbuilders Limited (MDL) while L&T joined hands with Navantia to build these submarines. Eventually, TKMS and Navantia submitted bids, the deadline for which saw several extensions before finally culminating in July 2023.

P75(I) ran into rough weather due to the Indian Navy's specifications, which weren't amenable to submarine manufacturers. TKMS, Navantia, Daewoo of South Korea, Rosoboronexport/Rubin Design Bureau from Russia and the Naval Group of France were in the race initially.

Last month, an Indian Navy team did field evaluation trials of German submarines. Now, Navantia is hosting an Indian team for field evaluation trials of its submarine, but this is happening in the absence of proven AIP as the Spanish firm is expected to acquire this prowess by the end of the year.

For now, TKMS, which has the backing of the German government, appears to be the frontrunner in grabbing the P75(I) contract. Earlier this year, TKMS and MDL signed a memorandum of understanding (MoU) to collaborate on building submarines under P75(I). It marked Germany's return to submarine manufacturing for India four decades after a submarine contract with Howaldtswerke-Deutsche Werft (HDW) had got mired in a corruption scandal.

German shipbuilding company HDW had developed four Shishumar-class diesel-electric submarines for the Indian Navy. The firm built the first two submarines in Kiel, Germany; the remaining two were built by MDSL in Mumbai between 1986 and 1994. Subsequently, HDW was blacklisted in India due to allegations of massive kickbacks in the deal. In 2004, HDW was purchased by TKMS. Eventually, the blacklist tag was lifted by the Indian government after a request from the Indian Navy.

German chancellor Olaf Scholz's Social Democratic Party-led government has been highly conscious of India's growing global stature and has been making strategic moves into the Indian defence market with an aim to expand its presence and reduce India's high dependency on Russian arms. Only last month, the German government lifted restrictions on small arms sales to India.

About P75(I), TKMS believes that more than just a procurement of submarines for the Indian Navy, the project stipulates that the warship design be also transferred to India. TKMS added that the submarine for India would be built by MDL and its design will belong to India. P75(I) will, therefore, be an Indian submarine, with MDL being the main contractor and TKMS doing a complete transfer of technology to India.

TKMS claimed the design being offered to the Indian Navy is a derivative of the HDW class 214, which is in service with navies worldwide. It is adapted to fulfil the challenging P75(I) requirements and also incorporates several advanced design characteristics. Without disclosing its specific features, TKMS stated that it is no secret that the firm is a forerunner in submarine stealth technology and the only provider of a sea-proven fuel cell AIP system, which dramatically increases the range at which a submarine can remain undetected. Germany and several other major navies have been using this system for over 20 years.

"Unlike other submarines, the German-designed boats have never had to go back to Germany for refits. So, in addition to the proven AIP technology and other features of the submarine itself, it is the industrial partnership with MDL and the enabling of self-reliance that set us apart," a senior TKMS representative told INDIA TODAY.

Naval experts say that at a time China has been frequently deploying its conventional and nuclear submarines in the Indian Ocean Region under the pretext of anti-piracy missions, the Indian Navy's underwater capabilities need to be ramped up urgently. While China, with over 65 submarines, is the biggest threat, even the smaller navy of Pakistan appears to be racing ahead of India with faster acquisitions.

Last month, China launched the first of eight Hangor-class submarines for Pakistan's navy at a Wuhan shipyard. The remaining four submarines will be built at Pakistan's Karachi Shipyard & Engineering Works Ltd under a transfer-of-technology agreement. The Pakistan Navy plans to add the submarines to its fleet by 2028.

https://www.indiatoday.in/amp/india-today-insight/story/indias-submarine-project-battles-hurdle-amid-rising-china-pakistan-pressures-2541577-2024-05-20

The EurAsian Times

Mon, 20 May 2024

Indian Rafale "Scares" China's J-20; PLAAF Deployed 5 Stealth Fighters To Counter 1 Indian Aircraft – IAF Chief

During the interview on May 19, Bhadauria emphasized the strategic importance of the Rafale fighter jets, describing them as the "strongest weapon system in the inventory" at the time.

He recounted how the arrival of the first Rafale prompted China to station four J-20 fighters in response. As the number of Rafales in India's arsenal increased to four, China ramped up its deployment to 20 J-20s, resulting in a ratio of five J-20s deployed by Beijing to counter each Rafale.

The J-20, regarded as China's most advanced fighter aircraft, was a direct countermeasure to the Rafale's capabilities. "The Chinese knew what we could do," Bhadauria remarked, indicating the Indian Air Force's high level of preparedness.

Bhadauria also mentioned the term "salami slicing," a tactic attributed to China's gradual encroachment on Indian territory. He recalled the challenges faced before the Rafale acquisition, noting that prior efforts to procure these advanced jets had been unsuccessful until a government-to-government contract facilitated their purchase.

While Bhadauria did not specify the exact locations and times of these deployments, previous reports indicated that in the months following the Galwan clash, China positioned J-20s near the Indian border at the Hotan Airbase in Xinjiang province.

This move came in response to the perceived threat posed by India's Rafale jets, which had begun conducting night flying exercises in the mountainous terrain of Himachal Pradesh shortly after their induction.

Despite attempts to downplay the deployment in Chinese media, the move's significance was not lost on international observers, who recognized its implications for regional stability.

Acknowledging the J-20's long-range capabilities, Chinese media justified the deployment as routine training exercises to enhance operational readiness. However, the strategic positioning of these aircraft near India's borders highlighted China's assertive posture in the region.

Since then, China has intensified its military presence at the Hotan Air Base, stationing a diverse pack of fighter jets and drones to bolster its defensive capabilities.

In June 2022, EurAsian Times revealed a substantial buildup, with the People's Liberation Army Air Force (PLAAF) deploying around two dozen frontline combat aircraft, including the J-11 and J-20 stealth fighters.

5:1 Deployment Against IAF Rafale Fighters

The disclosure by the former Indian Air Force chief has reignited the longstanding debate surrounding India's Rafale fighter jets and China's J-20 stealth aircraft.

The revelation that China deployed 20 J-20s to counter just four Rafales has especially sparked discussions regarding the comparative capabilities of these advanced war machines, both touted as crown jewels by their respective air forces.

This deployment ratio not only underscores the Rafale's perceived potency as a formidable adversary but also prompts inquiries into the efficacy and confidence in the J-20's ability to neutralize the Rafale threat.

While Chinese authorities have regularly lauded the J-20's capabilities, claiming it can counter American F-35s and F-22s, many experts persist in their skepticism regarding its true combat prowess.

On the other hand, Indian military officials and experts have placed the Rafale on equal footing with the J-20, citing its operational track record and superior performance.

For instance, in 2020, IAF Air Marshal (Retd) Raghunath Nambiar argued, "Rafale is the best aircraft in the sky at this time. To compare it with what Pakistan has, like F-16 & JF-17, wouldn't be anything serious. If you had to compare Rafale against Chengdu J-20, I think Rafale stands head & shoulders above them."

There are clear reasons behind such confident statements. One significant factor is that although the J-20s have been marketed as fifth-generation stealth jets, their primary limitation lies in their lack of proven combat experience.

In contrast, the French Rafale has been operational for almost 25 years, participating in military campaigns in Afghanistan, Libya, Mali, and Syria, where it was engaged in ground strike missions.

While these operations may not exclusively involve air-to-air combat, they demonstrate the Rafale's capability as a combat-ready aircraft—a distinction that cannot yet be attributed to the J-20. Retired IAF Air Marshal Anil Chopra echoed these sentiments, suggesting that the J-20 may not live up to its billing as a fifth-generation stealth jet.

He highlighted concerns regarding the J-20's engine, radar, and electronic warfare suite, pointing to instances of new engine development issues and doubts about its overall performance under combat conditions.

Chopra also noted the extensive customization of Indian Air Force Rafale aircraft. These India-specific modifications enhance the aircraft's capabilities in the region.

Meanwhile, Beijing is aware of the debate surrounding the untested status of the J-20 in real combat scenarios, which remains a noteworthy point of contention.

In a bid to possibly showcase its capabilities and address skepticism, particularly during the heightened discourse comparing the J-20 and Rafale in 2020, Beijing conducted a simulation where the J-20, also known as the Mighty Dragon, was pitted against the Indian Air Force's Dassault Rafale fighter.

As anticipated, in a simulated scenario possibly orchestrated to showcase the prowess of the J-20 Mighty Dragon, the outcome favored the Chinese aircraft. Chinese media claimed that J-20 successfully neutralized 17 Rafales during the simulation.

https://www.eurasiantimes.com/rafale-scare-for-china-plaaf-deployed-5-j-20-stealth/amp/

नवभारत टाइम्स

Mon, 20 May 2024

देश के दुश्मनों को मात देगा रूसी एयर डिफेंस सिस्टम, जानें इगला-एस की खासियत

भारतीय सेना को जल्द ही रूस से शॉर्ट रेंज एयर डिफेंस सिस्टम इगला-एस (Igla-S) मिलना शुरू हो जाएगा। इस महीने के अंत तक या अगले महीने की शुरुआत में यह मिलेगा। इसमें लगातार देरी हो रही थी और सेना की एयर डिफेंस की जरूरतें पूरी करने के लिए यह जरूरी है। Igla-S एयर डिफेंस सिस्टम के लिए पिछले साल कॉन्ट्रैक्ट किया गया था। यह कॉन्ट्रैक्ट इमरजेंसी प्रॉक्योरमेंट को तहत हुआ था। इन्हें रूस की कंपनी से लेकर भारत में ही असेंबल किया जाना है।

असेंबल करने का काम अडानी डिफेंस सिस्टम्स एंड टेक्नॉलजी लिमिटेड करेगी। पिछले साल सेना ने 48 Igla-S लॉन्चर, 100 मिसाइल, 48 नाइट साइट और एक मिसाइल टेस्टिंग सेंटर का कॉन्ट्रैक्ट किया था। यह कॉन्ट्रैक्ट करीब 260 करोड़ का है। जिसकी डिलिवरी इस महीने के आखिर से होना शुरू होगी।

मिसाइल को इंपोर्ट किया जाएगा और साइट्स, लॉन्चर, बैटरी जैसे कुछ पार्ट को भारत में ही बनाकर यहां असेंबल किया जाएगा। इगला-एस को कंधे पर रखकर फायर किया जाता है। इसके अलावा सेना को जल्द ही इस्राइली Hermes-900 ड्रोन मिलने हैं। दो ड्रोन में से पहला ड्रोन अगले महीने मिल जाएगा। ये मीडियम एल्टीट्यूट लॉन्ग एंड्योरेंस अनमेन्ड एरियल वीकल है। इसे भी भारत में ही असेंबल किया जा रहा है।

खासियत :

इग्ला-एस को विशेष रूप से कम उड़ान वाले विमानों को नीचे मार गिराने के लिए डिजाइन किया गया है। यह ड्रोन और क्रूज मिसाइलों जैसे हवाई लक्ष्यों की पहचान और उन्हें बेअसर कर सकता है। इसे भारत में ही असेंबल किया जाना है।

https://navbharattimes.indiatimes.com/india/igla-s-air-defence-system-russia-technology-indian-army-challenge-to-china-pakistan/articleshow/110260887.cms

THE TIMES OF INDIA

Tue, 21 May 2024

Aim long range

Good news: the army has started receiving the AK 203 assault rifle produced under an Indo-Russian JV at UP's Korwa in Amethi district, 27,000 units have been delivered so far. Not-so-good news: questions remain about the indigenisation process. The rifles as of today have 25% indigenisation. So, most of the platform is simply being assembled here. True, the contractual terms envisage a phased scaling up of indigenisation to 100%. But the history of development of assault rifles in India leaves one unsure.

Not shooting straight

The AK 203 is supposed to replace the indigenous INSAS rifles inducted in the 1990s. INSAS had several flaws. A multi-calibre assault rifle tender failed to obtain the requisite weapon and was scrapped in 2015. Thereafter, the army tried to source a rifle from the erstwhile Ordnance Factory Board, but that too failed. It was then that the JV for AK 203 was conceptualised to provide over 6.1 lakh rifles under a ₹5,000cr contract.

Delays and snags

But production for the AK 203 was delayed due to costing, payment and sanctions on Russian entities like Rosoboronexport, which is part of the AK 203 JV. This led to supply chain snags. The delays forced govt to go for urgent purchase of 72, 000 American SIG 716 rifles, even though such imports had been banned under the Positive Indigenisation List.

A long haul

These snags need to be addressed. Indigenisation of defence production, a strategic objective, will also have immense spillover effects for civilian sectors. Think US's military-industrial complex and the web of arms manufactures and technology providers. This is why govt must hand-hold defence indigenisation for the long haul, just as initial govt investments made India a major global automobile ancillaries player, accounting for 2.3% of India's GDP. For self-sufficiency, strategic autonomy and reducing defence import bills, GOI's domestic defence production push must continue.

https://timesofindia.indiatimes.com/blogs/toi-editorials/aim-long-range/?source=app&frmapp=yes

Science & Technology News

INDIA TODAY

Mon, 20 May 2024

India's AstroSat makes unusual discovery around black hole in deep space

AstroSat, India's first dedicated multi-wavelength space observatory, has made a significant discovery regarding the black hole binary source Swift J1727.8-1613.

A team of astrophysicists from U R Rao Satellite Centre (URSC), along with collaborators from IIT Guwahati, University of Mumbai, and Tata Institute of Fundamental Research (TIFR), reported this finding in the Monthly Notices of the Royal Astronomical Society (MNRAS).

A black hole is a region in space where the gravitational pull is so strong that nothing, not even light, can escape from it. This intense gravitational field is created when a massive star collapses under its own gravity at the end of its life cycle.

In the black hole X-ray binary system (BH-XRB), a black hole and its companion star are gravitationally bound.

The black hole pulls matter from its companion, forming a bright accretion disk. As this matter heats up, it emits high-energy X-rays, which help scientists detect and study these black holes.

Swift J1727.8-1613, discovered on August 24, 2023, by the Swift/BAT, is one such binary black hole. It quickly became one of the brightest sources, with an X-ray peak value of about 7 Crab units.AstroSat first observed it on September 2, 2023, and continued to monitor it until September 14, 2023.

WHAT DID ASTROSAT FIND?

The study using AstroSat discovered unusual behavior in high-energy X-rays from the black hole Swift J1727.8-1613 during a rare outburst.

This behaviour, called 'aperiodic modulation,' caused X-rays to show a repeating pattern known as Quasi-periodic Oscillations (QPO). This is the first time such a pattern has been observed in this system.

Over a week, the frequency of these QPOs changed from 1.4 times per second to 2.6 times per second, a unique observation in black hole studies.

These high-energy X-rays are created when lower-energy light from the disk around the black hole interacts with very hot electrons. During AstroSat's observations, most of the X-rays from Swift J1727.8-1613 were produced this way. The study showed that these X-rays' changing pattern led to the observed QPOs.

QPOs are essential for understanding black holes. They help scientists learn about the strong gravitational forces and how matter behaves around black holes by studying the variations in X-ray light.

The team used AstroSat's Large Area X-ray Proportional Counter (LAXPC), which has excellent time resolution and a large area for collecting photons, to study these QPOs at higher energies. They also used data from the NICER instrument on the International Space Station (ISS) to get a complete picture of the source's energy output.

https://www.indiatoday.in/science/story/indias-astrosat-makes-unusual-discovery-around-black-hole-in-deep-space-2541637-2024-05-20