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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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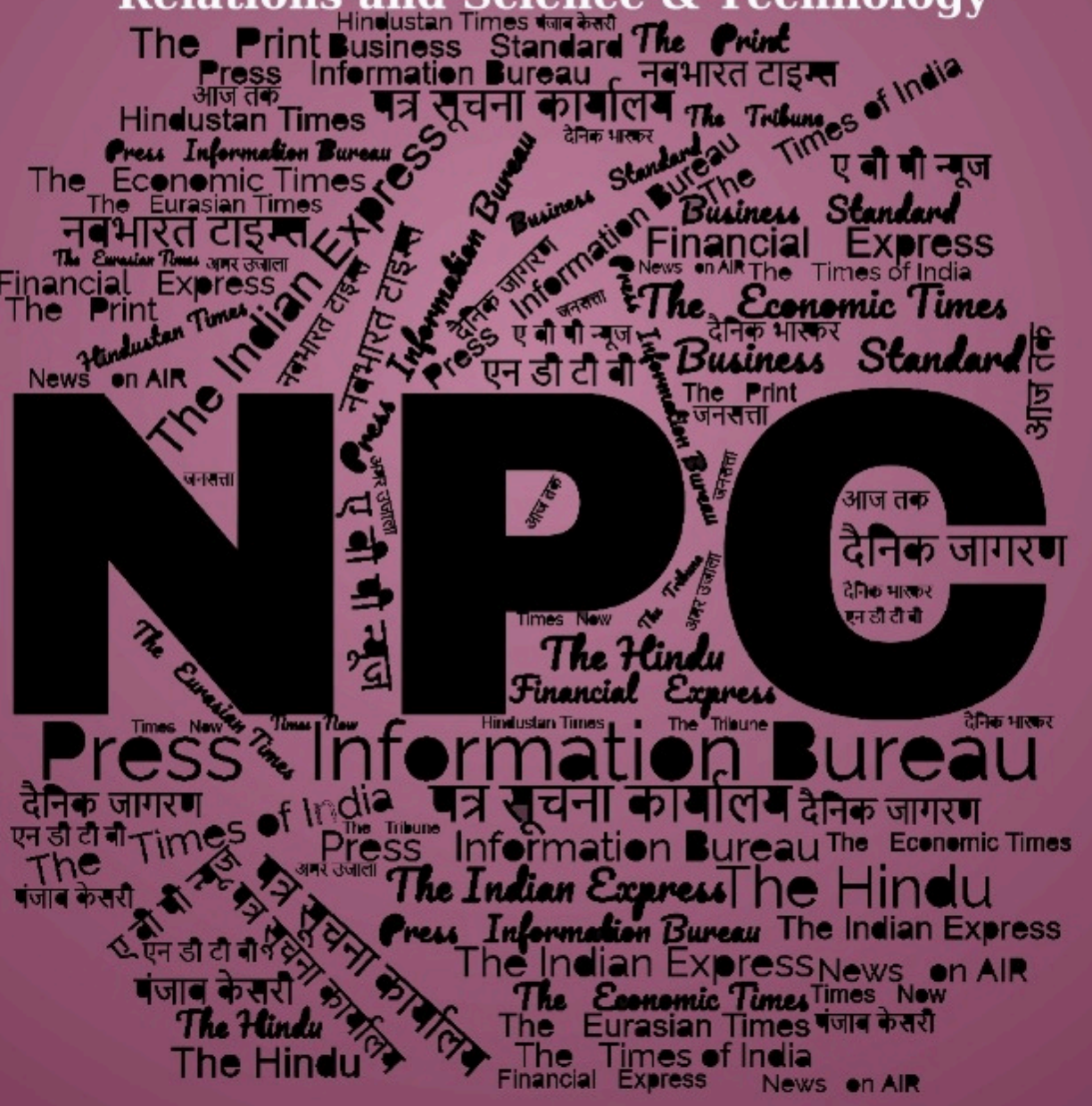

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Thurs, 17 Oct 2024

Framework & Guidelines to integrate Trustworthy AI into critical defence operations unveiled

AI is revolutionising modern warfare; Need to ensure that these systems are resilient to adversary attacks: CDS

Evaluating Trustworthy Artificial Intelligence (ETAI) Framework and Guidelines for the Armed Forces were launched by Chief of Defence Staff General Anil Chauhan and Secretary, Department of Defence R&D and Chairman DRDO Dr Samir V Kamat in New Delhi on October 17, 2024. The ETAI Framework and Guidelines mark a pivotal role in the country's approach to integrate Trustworthy AI into critical defence operations.

In his address, the Chief of Defence Staff underscored the urgent need to incorporate trustworthy AI, pointing out that recent global conflicts have demonstrated how AI is revolutionising modern warfare. He stressed that it is essential to ensure these systems not only work as intended but are also resilient to attacks from adversaries. He congratulated Scientific Analysis Group for developing the ETAI Framework and praised their efforts in advancing the trustworthiness of AI in defence applications.

The DRDO Chairman pointed out that reliability and robustness are no longer optional, but are essential to prevent mission failures and unintended consequences. He highlighted that AI applications are required to be reliable, robust, transparent and safe for the success of future operations.

Distinguished Scientist & Director General, Micro Electronic Devices, Computational Systems & Cyber Systems Smt Suma Varughese stated that the ETAI Framework is a risk-based assessment framework developed specifically for the defence sector. Its principles, criteria and measures are equally applicable to other sectors as well. She affirmed that DRDO will play a key role in implementing the framework and assured that all necessary support will be provided to ensure its success.

The ETAI Framework focuses on five broad principles: Reliability & Robustness, Safety & Security, Transparency, Fairness and Privacy. It further defines a comprehensive set of criteria for evaluating trustworthy AI. Complementing the framework, the ETAI Guidelines provide specific measures to be implemented in the AI pipeline to meet these criteria. The framework and guidelines offer developers & evaluators, a structured approach to build and assess Trustworthy AI.

https://pib.gov.in/PressReleasePage.aspx?PRID=2065847

Defence Strategic: National/International

THE ECONOMIC TIMES

Thu, 17 Oct 2024

GE Aerospace's LM2500 to power Indian Navy's next-generation missile vessel

GE Aerospace's LM2500, engineered for reliability and performance, has been chosen to power the Indian Navy's Next Generation Missile Vessels (NGMV) built by Cochin Shipyard Limited located in Kochi, India. Six LM2500 marine gas turbine engine kits will be delivered by GE Aerospace for assembly and test by Hindustan Aeronautics Limited (HAL) Industrial and Marine Gas Turbine Division in Bangalore, India, the GE Aerospace stated.

Additionally, GE Aerospace will be supplying its composite base and enclosure, and full complement of gas turbine auxiliary systems According to the release, these engines will power the

newest addition to the Indian Navy's fleet, described as a force multiplier for their naval capability. This selection further reinforces the LM2500's status as the unmatched leader in its class, a position earned through unwavering performance and an extensive global support network. The LM2500 isn't just powering the Indian Navy; it's the engine of choice for navies worldwide that demand the best. Over 714 vessels globally rely on GE Aerospace's marine gas turbines for their reliability and availability.

The Next Generation Missile Vessel is a new design for the Indian Navy that will reach a max speed of 35 knots and carry an impressive array of antisurface weapons.

The core of the NGMV propulsion system is the LM2500, a marine gas turbine engineered to unleash superior power while meeting stealth requirements. "The LM2500 gas turbine's proven power and reliability make it the ideal choice for the NGMV mission. We are proud to continue our collaboration with HAL to deliver this critical technology for India's maritime defence," said Amy Gowder, GE Aerospace Defense and Systems President and CEO.

GE Aerospace and HAL, India's premier public-sector aerospace company, have ties in both marine and aerospace defense dating back to 1986. HAL has assembled and tested all LM2500 gas turbines that currently power the Indian Navy's P17 and P17A frigates, as well as the IAC-1 Vikrant aircraft carrier. In 2023, GE Aerospace and HAL signed an MOU to explore expanding their capabilities to include assembly, inspection, and testing (AIT) of the LM500 marine gas turbine To date, GE Aerospace has delivered 24 marine gas turbine kits to HAL for the Indian Navy, demonstrating strong support for Make-InIndia initiatives.

"GE Aerospace has been our valued partner for several decades in marine applications and aerospace. For various Programs of the Indian Navy, HAL has partnered with GE Aerospace on the LM2500 Gas Turbine Engine. With addition of NGMV program, our partnership will further strengthen to greater heights," said Dr. D Sunil, Chairman and Managing Director, HAL. GE Aerospace's LM2500 gas turbine engines are poised to propel the Indian Navy into the future.

https://economictimes.indiatimes.com/news/defence/ge-aerospaces-lm2500-to-power-indian-navys-next-generation-missile-vessel/articleshow/114324278.cms

THE ECONOMIC TIMES

Thur, 17 Oct 2024

Defence Ministry considers establishing umbrella body for aircraft, drone, and weapon testing

The Defence Ministry is exploring the creation of a National Aerospace Testing Establishment (NATE) to oversee and streamline the testing and evaluation of all military aircraft, helicopters, drones, and airborne weapons, reported TOI. This proposed body aims to integrate various

agencies, including the armed forces, DRDO, and defence PSUs like Hindustan Aeronautics Limited (HAL), under a single entity, enhancing efficiency and reducing delays in project timelines.

NATE will provide a "synergistic approach" to flight-testing, which currently involves multiple organizations conducting time-consuming ground and airborne trials. By consolidating these efforts, NATE will not only streamline processes but also shorten the prototype development cycle, benefiting the growing private sector, MSMEs, and start-ups involved in military aviation.

As a single-window agency, NATE will engage with private industry from the design stage to product certification, making the process more cost-effective and accessible. It will also offer pre-design assessments and feasibility studies based on the armed forces' requirements, further reducing development time, as per the TOI report.

Spearheaded by the Indian Air Force (IAF), which runs the Aircraft and Systems Testing Establishment (ASTE) and the Air Force Test Pilots School (AFTPS) in Bengaluru, the NATE proposal has been submitted to the Ministry of Defence's Department of Military Affairs, led by Chief of Defence Staff General Anil Chauhan. The CDS visited ASTE-AFTPS earlier this year to review the progress of the initiative.

Countries like the UK and France have similar centralized flight-testing structures, and it is believed that establishing NATE will lead to better utilization of existing resources and a more integrated approach to aviation development in India. Given the specialized nature of flight-testing and the resource-intensive process it involves, NATE is expected to require significant investments in modern testing equipment, facilities, and human resources.

Additionally, NATE will serve as a repository of all flight-testing data and software related to aircraft, helicopters, drones, and weapons like surface-toair and air-to-air missiles. For instance, the flight-testing of modified Sukhoi30MKI fighters equipped with BrahMos supersonic cruise missiles required extensive trials before they were operationally deployed, showcasing the need for a unified testing body.

https://economictimes.indiatimes.com/news/defence/defence-ministry-considers-establishing-umbrella-body-for-aircraft-drone-and-weapon-testing/articleshow/114318096.cms

THE ECONOMIC TIMES

Wed, 16 Oct 2024

Larsen and Toubro launches multi-purpose vessel 'Samarthak' at Kattuppalli Shipyard

The first of the two multi-purpose vessels to be built for the Indian Navy, by engineering, procurement and construction major Larsen and Toubro was launched at the Kattupalli shipyard

here, the company said. The multi-purpose vessel INS 'Samarthak' measuring 107 metre long, 18.6 metre wide, has a displacement of over 3,750 tonne. It has been designed and constructed in-house by Larsen and Toubro, aligning to the Centre's 'Make in India' initiative and 'Atmanirbhar Vision'.

The President of the Navy Wives Welfare Association Shashi Tripathi formally launched the Vessel at the Kattupalli shipyard, in the presence of senior officials of the Navy including Controller of Warship Production and Acquisition Vice Admiral B Sivakumar, Assistant Controller Rear Admiral Sandeep Mehta, Flag Officer Commanding - Tamil Nadu and Puducherry Naval area Rear Admiral Ravi Kumar Dhingra and senior officials of Larsen and Toubro. Kattupalli Shipyard is located in Ennore about 45 kms north of Chennai.

The specialised vessel is capable to perform multi-role platforms and it would be conducting trials for the development of next generation weapons and sensors for the Navy. It would also perform launch and recovery of surface and aerial targets, maritime surveillance, patrolling, providing humanitarian assistance among others, Larsen and Toubro said in a company statement on Wednesday.

"The successful launch of the first MPV on schedule, notwithstanding geopolitical disruptions in supply chains, serves as a testament to Larsen and Toubro's commitment to national security, our in-house warship design capabilities and exceptional execution prowess," Larsen and Toubro, Precision Engineering and Systems, Senior Vice President and Head, AT Ramchandani said.

"We are committed to leveraging our strengths and innovative solutions to meet Indian Navy's aspirations, besides reaffirming our commitment to an 'Atmanirbhar Bharat' in defense manufacturing," he said. Besides the two multi-purpose vessels, Larsen and Toubro is also constructing three ships for cadet training, six other defence vessels for the Navy on publicprivate partnership model. The repair of the US Naval Ship 'Charles Drew' under a Master Ship Repair agreement with the US Navy, was also underway, the company said.

https://economictimes.indiatimes.com/news/defence/larsen-and-toubro-launches-multi-purpose-vessel-samarthak-at-kattuppalli-shipyard/articleshow/114283556.cms

Press Information Bureau
Government of India

Thurs, 17 Oct 2024

Department of Defence Production conducts 1,444 cleanliness drives under the Special Swachhta Campaign 4.0

In line with the month-long Swachhta Campaign 4.0, Department of Defence Production (DDP) with the main emphasis on instilling cleanliness practices and reducing delays in Defence Public Sector Undertakings (DPSUs) & attached offices, have conducted 1,444 cleanliness drives, up until October 16, 2024. By the mid-campaign, the Department has achieved following milestones:

•Reviewed 16,599 files/records and segregated it for weeding out

•Space of more than 3.80 Lakh sq. feet is freed by disposing approximately 1.5 lakh metric ton of scrap/unused items

•Revenue of more than Rs 6 crores earned by scrap disposal

•About 99 public grievances disposed

•A count of 82 public grievances appeals have been disposed

Equipped with precise objectives and a robust monitoring system, the department is striving to realise the goals set forth in Special Campaign 4.0. The progress of this initiative is being monitored at the highest level on a regular basis. Public consciousness about the campaign is being disseminated through an array of mediums including social media, banners, posters, and engaging painting competitions. Over 380 tweets tagged with #SpecialCampaign4.0 have been shared on X (twitter), to create awareness about the campaign.

https://pib.gov.in/PressReleasePage.aspx?PRID=2065701

The EurAsian Times

Wed, 16 Oct 2024

India-China Stand-Off Enters 5th Consecutive Winter; Indian Army Takes 'Civilian Help' To Hold Fort!

As the Indian Army troops prepare to be deployed for the fifth consecutive winter along the Line of Actual Control with China, the force faces the challenge of keeping the logistics line open at the forward bases in one of the most treacherous terrains.

To meet this challenge, the Indian Army is co-opting civil helicopters to reserve its helicopter fleet for more critical roles, like combat Since the violent clashes between the Indian and Chinese troops in the Galwan Valley in 2020, the Indian forces have been deployed in forward locations.

Despite ongoing negotiations, the 'trust deficit' between the two countries warranted the deployment of troops at these forward locations. With China building permanent defenses along the 3,488-kilometer-long LAC and the People's Liberation Army not planning to return to its peacetime locations, the Indian Army will assume its role as the first line of defense for the fifth consecutive winter. The protracted deployment has not only impacted the fatigue in the machine but has also pushed the Indian Army to change its posturing. In 2022, the Army changed the operational tasks of six of its Divisions from the Ladakh sector to Arunachal Pradesh and shifted their focus from the Pakistan front towards China.

Now, the Indian Army will contract civil aviation helicopters, public (Pawan Hans) and private, instead of the Indian Army's or Indian Air Force helicopters. The contract is to provide logistical support to the Army's posts along the northern and Western borders cut off during the winters. The contract is for one year to ensure the serviceability of 16 remote posts in the Jammu region and 28 posts in Kashmir and Ladakh. Indian Army officials have indicated that besides reducing costs, the

move is a strategic step “to preserve the service life of military helicopters for more critical roles in combat or emergency scenarios.”

The helicopters, provided under the contract, will operate from seven mounting bases in Ladakh, two in Kashmir, and one in the Jammu region, covering 44 posts. This step is seen as a decisive shift in how the Indian Army maintains its critical positions in high-altitude regions during the harsh winter months when these areas are otherwise inaccessible due to snow.

As per the contract, the civil aviation service provider will shoulder the entire load-carrying effort to sustain these posts. The helicopters will ferry food, fuel, medical supplies, and other essential items, ensuring that these high-altitude positions remain fully operational and well-supplied during winter.Plans are afoot to expand the model to other strategic regions, including Himachal Pradesh, Uttarakhand, and the Northeast.

The move is aimed at validating whether civil aviation infrastructure can be used by the military during conflict situations. The Army hopes that using civil aviation for logistics in the border regions will facilitate tourism in the region. Keeping an eye on China, the Indian Air Force is quietly upgrading its infrastructure at 20 air bases along the eastern border. It is not only adding hardened aircraft shelters and munition centers to carry out China-centric operations in case of an eventuality, but it is also constructing additional runways to offset the increased civilian traffic and to have a plan B should one of the runways be bombed by the enemy forces during the war.

For instance, a second runway is being constructed at the strategic Leh airbase in Ladakh, which has been the center point of several clashes between the Indian and Chinese military in the last few years. The base is critical for maintaining the Indian military’s operation along the Line of Actual Control with China and Siachen.Since the 2020 Galwan standoff, Beijing has been scaling up its air assets along the LAC. A recent image of Shigatse Air Base in China showed the deployment of China’s 5th-generation fighter jet, the Chengdu J-20 Mighty Dragon.

The Chinese infrastructure push has included the construction of new airbases, missile sites, roads, bridges, reinforced bunkers, underground facilities to protect military assets from aerial strikes, accommodation for soldiers, and ammunition depots.China’s bridge over the Pangong Lake in Ladakh is almost ready. It could soon be used to move men and material during a potential conflict.Pangong Tso is a lake in the Ladakh region. Two-thirds of it falls on China’s side of the Line of Actual Control (LAC). Since 2017, it has been a spot of clashes between Indian and Chinese troops.As tensions continued to simmer between the two countries, China built a new division-level headquarters and garrison in the region to support its troops posted at the lake. The headquarters was established in the territory claimed by India and built up over the encampments that came during the 2020 standoff.

Facing Two Enemies – China & The Weather

China has deployed two divisions of troops backed by rocket and missile regiments, while India has deployed troops in equal numbers at the LAC. The opening sentences of the 'Fighting in Ladakh' chapter of India's official History of The Conflict with China, 1962 (published three decades later) read: "The first problem faced by a soldier in Ladakh is survival, fighting the enemy comes next… The peculiar geography has a major impact on the fighting and its outcome".

In winter, some of the bases along the LAC have a maximum temperature of 3 degrees Celsius, while the lowest goes to -10 to -15 degrees Celsius. December and January will see -30 to -40 degrees and snow. As the official 1962 history highlighted: "Wind generally starts around mid-day and continues throughout thereafter", and the combined effect "can cause cold injuries similar to burn injuries" … "Touching metal with bare hands is hazardous".

If the temperatures don't kill you, the winds will. The wind chill situation is so bad that the tank barrels freeze, ammunition doesn't work, and equipment does not function. It is a horrible workplace as far as the Indian Army is concerned.

https://www.eurasiantimes.com/india-china-stand-off-enters-5th-consecutive/

THE HINDU

Fri 18 Oct 2024

Thiruvananthapuram observatory captures stunning images of rare comet C/2023 A3

A sighting of comet C/2023 A3 (Tsuchinshan–ATLAS) [the bright spot on the left of the frame from Thiruvananthapuram Astronomical Observatory on Thursday. Also seen is Omega Serpentis, a star in the Serpentis constellation.

The Kerala University-run Thiruvananthapuram Astronomical Observatory has successfully captured images of the bright comet C/2023 A3 (Tsuchinshan–ATLAS) since Wednesday, marking a significant milestone in the field of observational astronomy in the region.

The comet from the Oort cloud was discovered by the Purple Mountain Observatory in China on January 9, 2023, and later independently found by ATLAS South Africa on September 22, 2023. The comet became visible to the naked eye after passing perihelion on September 27 at a distance of just 0.39 AU from the sun.

Although the comet was closest to Earth on October 12, the inclement weather in Thiruvananthapuram hindered observations on that day.“The comet had remained elusive to our telescopes until last night,” R. Jayakrishnan, director of the observatory, said on Thursday.He credited the efforts of Rahul Dev, head of telescope operations, and research assistant C. Fazil for the sighting.

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Currently traversing the Orion constellation, C/2023 A3 is expected to remain observable for the next three days, weather permitting. As it moves away from the sun, its brightness will diminish, making this a fleeting opportunity for skywatchers, Prof. Jayakrishnan points out.

Though it has been described as the brightest comet in over a decade, it is not expected to reach the iconic brilliance of Comet Hale-Bopp, the ‘Great Comet’ which dazzled observers in 1997.

The observatory welcomes the public to view the comet during its open hours from 6 p.m., provided the skies are clear, allowing everyone to witness the celestial spectacle.

https://www.thehindu.com/sci-tech/science/thiruvananthapuram-observatory-captures-stunning-images-of-rare-comet-c2023-a3/article68765225.ece

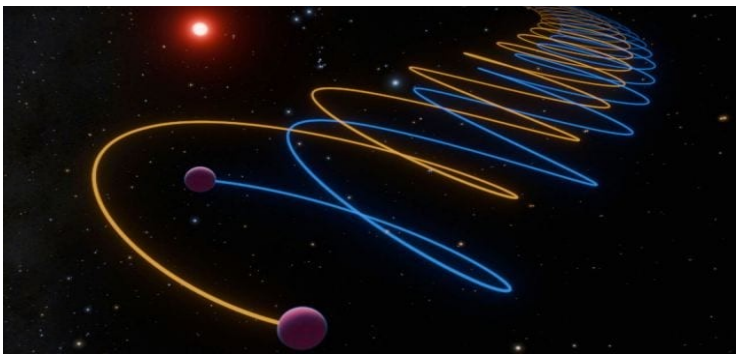
The Indian EXPRESS

Thu, 17 Oct 2024

A brown dwarf discovered 30 years ago is actually twins circling each other

A celestial object discovered decades ago is actually twins orbiting each other, a new study confirms. Scientists have puzzled over the object known as Gliese 229B, the first known brown dwarf discovered 30 years ago. Brown dwarfs are sometimes called failed stars because they're lighter than stars, but heavier than gas giant planets.

This object appeared too dim for its mass. Astronomers collected light and chemical clues using the Very Large Telescope in Chile and observed it's a duo circling close to each other. "It resolves a glaring discrepancy," said Kevin Luhman, an astronomer at Pennsylvania State. University who was not involved with the research.



This illustration provided by Caltech depicts the orbits of brown dwarf twins, Gliese 229Ba and Gliese 229Bb, with a separation only 16 times larger than the distance between Earth and the Moon. (Photo via AP)

The twins orbit a small star about 18 light-years away. A light-year is 5.8 trillion miles.Astronomers have spotted brown dwarf pairs before, but these two whip around at much closer range. They orbit each other every 12 days, less than the time it takes for the moon to circle the Earth.The research was published Wednesday in the journal Nature.The twins' discovery means there could be other lurking brown dwarfs with a hidden partner, said co-author Jerry Xuan of the California Institute of Technology.

https://indianexpress.com/article/technology/science/brown-dwarf-discovered-decades-ago-actually-twins-circling-9624039/

The Tribune

Fri, 18 Oct 2024

Nasa fixes Nisar mission: Reflector to be transported to Isro for launch in 2025

The Nasa-Isro Synthetic Aperture Radar (Nisar) mission, a groundbreaking collaboration between Nasa and the Indian Space Research Organisation (Isro), is now scheduled for launch in early 2025. Nasa has announced the completion of work on the crucial radar antenna reflector, a key component of the satellite.

The drum-shaped reflector, measuring approximately 39 feet (12 meters) in diameter, is one of Nasa's primary contributions to the joint mission. It plays a vital role in transmitting and receiving microwave signals, enabling Nisar to scan nearly all of Earth's land and ice surfaces twice every 12 days. Nasa plans to transport the reflector to an Isro facility in Bengaluru, India, before the end of this year. There, teams from Nasa's Jet Propulsion Laboratory and Isro will reintegrate it with the radar system.

The launch delay is primarily due to orbital constraints and the ongoing eclipse season, which extends through February 2025._During this period, the satellite would be exposed to alternating sunlight and shadows, causing temperature fluctuations that could adversely affect the deployment of Nisar's boom and radar antenna reflector. Once operational, Nisar will provide unprecedented data to help scientists monitor and respond to environmental changes and natural disasters.

The satellite's advanced radar imaging capabilities will offer critical insights into ecosystem disturbances, ice-sheet collapse, and natural hazards such as earthquakes and tsunamis.

This mission represents a significant milestone in space collaboration between the United States and India, combining the expertise and resources of both nations' space agencies. Nasa and Isro will work together to determine an official launch readiness date in the coming months.

https://www.indiatoday.in/amp/science/story/nasa-fixes-nisar-mission-reflector-to-be-transported-to-isro-for-launch-in-2025-2619028-2024-10-18

DNA
DAILY NEWS & ANALYSIS

Fri, 18 Oct 2024

Proba-3: ISRO to launch ESA Solar Eclipse Mission with precision satellites

The successful final test of the European Space Agency's (ESA's) path-breaking Proba-3 mission, scheduled to be launched by the Indian Space Research Organisation (ISRO) on its veteran PSLV-XL rocket in 2024, has now made it all ready to be shipped to the Satish Dhawan Space Centre in India later this month. Proba-3 is the ESA's maiden mission to usher in an era of future space projects requiring more than one satellite working in sync through an exercise called 'precision formation flying'. The two satellites of Proba-3, in coordination with each other, will maintain a pre-determined distance and alignment in space working as a large, composite structure.

Besides adding to the scientific knowledge of space engineers, the experiment will be an excellent test-bed for dual spacecraft to accurately maintain their respective positions in space by using several state-of-the-art technologies specially designed for the mission. It is meant to check out such technologies for formation flying and carry out different experiments related to the meeting, or docking, of two or more spacecraft.

'Formation flying'—a crucial part of this path-breaking scientific experiment—will involve two satellites working in tandem as a single unit, demonstrating how satellite systems can coordinate seamlessly in space. Both the satellites will jointly create a 144-metre-long solar coronagraph—a

cutting-edge instrument designed to study the Sun's faint outer atmosphere, or the corona, by blocking out the bright rays emanating from the surface of the Sun, so creating an artificial eclipse.

The Sun's intense brightness normally hides the indistinct corona. But the solar coronagraph will help scientists study it from further up close to the surface of the Sun than has been done before, which will, possibly, throw new light on solar activity. The instrument will help scientists study various activities, such as solar flares and coronal mass ejections—phenomena that, often, affect space weather and even influence Earth's environment—without having to wait for an eclipse.

The occulter spacecraft is a kind satellite that will create an artificial eclipse by positioning itself in front of the Sun and blocking, or 'occluding', interference from the intense solar rays, helping the other instruments on board—primarily, the coronagraph—to get a clearer view of the corona.

Both the 340-kg coronagraph spacecraft and the 200-kg occulter spacecraft will function in a high-Earth orbit, which will have a time span of 19.7 hours. At its farthest point, the orbit will touch 60,530 km and, at its nearest to Earth, 600 km. Communication from the mission will be relayed through an antenna that has been set up at Santa Maria in the Azores with its ground station in Redu, Belgium.

The Sun's Corona: A Glimpse During Solar Eclipses

Surprisingly, although the corona is the Sun's outermost layer and is far less dense than the Sun's inner layers, stretching millions of kilometres into space, it is much hotter than the surface of the Sun, with temperatures that ranging between 1 million and 3 million degrees Centigrade. This hot, thin plasma forms a faint glowing halo around the Sun, which becomes visible during a solar eclipse.

Why is the Corona Visible Only During an Eclipse?

The intense brightness of the Sun's surface, the photosphere, makes it impossible to observe the corona with the naked eye. However, during a solar eclipse, the Moon passes in front of the Sun and blocks its blinding light. This reveals the much dimmer corona, allowing us to observe it as a glowing halo around the darkened Sun. This visibility during an eclipse allows scientists to study one of the Sun's most mysterious and powerful layers.

https://www.dnaindia.com/viral/report-proba-3-isro-to-launch-esa-solar-eclipse-mission-with-precision-satellites-3113752