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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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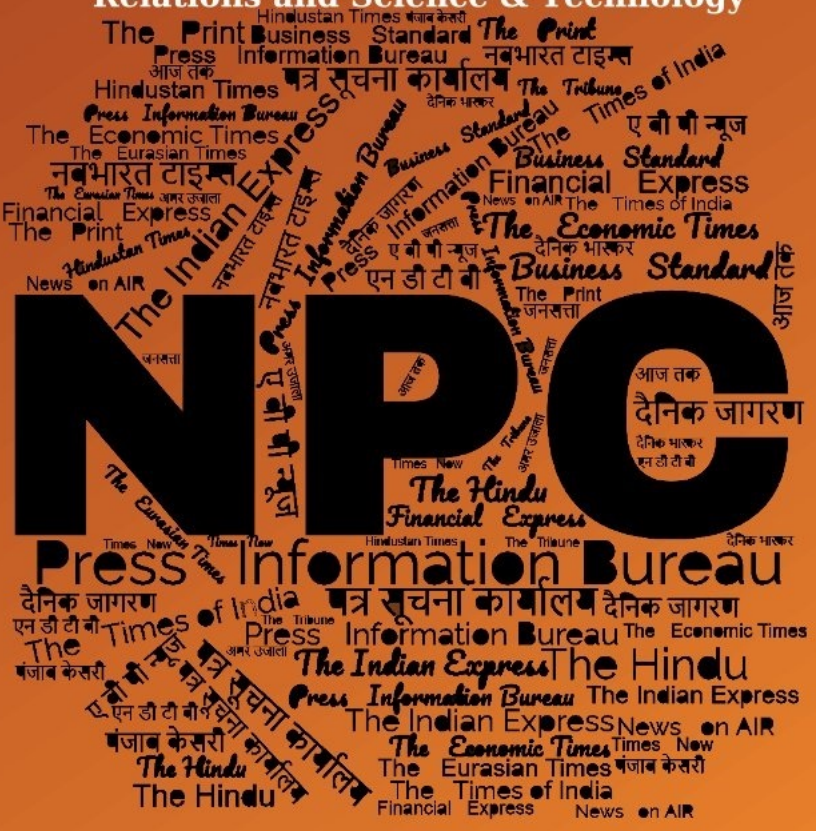

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Tue, 14 Nov 2023

Raksha Mantri Shri Rajnath Singh to attend 10th ASEAN Defence Ministers' Meeting-Plus in Jakarta, Indonesia on November 16, 2023

Raksha Mantri Shri Rajnath Singh will pay an official visit to Indonesian capital Jakarta from November 16 to 17, 2023 to attend the 10th ASEAN Defence Ministers' Meeting-Plus (ADMM-Plus). During the meeting, which will take place on November 16, the Raksha Mantri will address the forum on regional and international security issues. Indonesia is hosting the meeting as it is the chair of ADMM-Plus.

On the sidelines of the ADMM-Plus, Shri Rajnath Singh will hold bilateral meetings with the Defence Ministers of the participating countries and discuss defence cooperation matters to further strengthen mutually-beneficial engagements.

The ADMM is the highest defence consultative and cooperative mechanism in ASEAN. The ADMM-Plus is a platform for the ASEAN member states (Brunei, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand, Vietnam) and its eight Dialogue Partners (India, US, China, Russia, Japan, South Korea, Australia and New Zealand) to strengthen security and defence cooperation.

India became the dialogue partner of the ASEAN in 1992 and the inaugural ADMM-Plus was convened in Hanoi, Vietnam on October 12, 2010. Since 2017, the ADMM-Plus Ministers have been meeting annually to bolster the cooperation amongst the ASEAN and the Plus countries.

The ADMM-Plus progresses practical cooperation amongst member countries through seven Experts Working Groups (EWGs) namely Maritime Security, Military Medicine, Cyber Security, Peacekeeping Operations, Counter Terrorism, Humanitarian Mine Action and Humanitarian Assistance & Disaster Relief (HADR).

During the 10th ADMM-Plus, the next set of co-chairs for the cycle 2024-2027 would also be announced. In the present cycle from 2021-2024, India is co-chairing EWG on HADR along with Indonesia.

https://pib.gov.in/PressReleasePage.aspx?PRID=1976783

Press Information Bureau
Government of India

Ministry of Defence

Tue, 14 Nov 2023

The Indo-Pacific Regional Dialogue 2023 (IPRD-2023)

The annual apex-level international conference of the Indian Navy – the Indo-Pacific Regional Dialogue (IPRD) – will be held in New Delhi from 15 to 17 November 2023. The event will include a Keynote Address by Shri Jagdeep Dhankhar, the Hon'ble Vice President of India on 15 Nov 23, and a series of Special Addresses by Union Ministers and senior officers of the Government of India, designed to provide overarching guidance to the deliberations of this mega conference. The IPRD follows hard on the heels of the Goa Maritime Conclave 2023, which had been conducted by the Indian Navy from 29 to 31 Oct 2023 in Goa. In terms of conceptual positioning, the Goa Maritime Conclave seeks to project the Indian Navy's cooperative engagement at the strategic-operational level, by providing a forum for the Chiefs-of-Navy and Heads of Maritime Agencies in the Indian Ocean Region.

The IPRD, on the other hand, is the principal manifestation of the Navy's international engagement at the strategic-level, addressing 'holistic' maritime security issues across the Indo-Pacific. The first two editions of IPRD were held in 2018 and 2019 respectively at New Delhi. IPRD 2020 was cancelled due to the Covid-19 outbreak. The third edition of IPRD was held in 2021 in online mode and the fourth edition was conducted, reverting to a physical format, at New Delhi in 2022.

The National Maritime Foundation (NMF) is the Indian Navy's knowledge partner and chief organiser of each edition of the IPRD, which aims to review various maritime trends within the Indo-Pacific region, the regional opportunities and challenges that arise therefrom, and foster the exchange of solution-oriented dialogue amongst key stakeholders.

Theme of IPRD-2023

The overarching theme of IPRD-2023 is *"*Geopolitical Impacts upon Indo-Pacific Maritime Trade and Connectivity"**.** This year's edition of the IPRD builds upon the previous one, which focussed upon 'Operationalising the Indo-Pacific Oceans Initiative (IPOI)', by specifically addressing the 'Trade, Connectivity and Maritime Transport' pillar of the IPOI. Both 'Trade' and 'Maritime Transport' are, of course, segments of maritime connectivity. The Hon'ble Prime Minister of India, Shri Narendra Modi, had espoused the principle of "responsible maritime connectivity" in his remarks at the UNSC high-level open debate on "Enhancing Maritime Security:

A Case for International Cooperation" on 09 August 2021, in which he specifically emphasised three key aspects in marine infrastructure creation, namely, the physical sustainability of such projects, the absorption capacity of the countries where such infrastructure is proposed to be developed, and appropriate global norms and standards for the creation of marine infrastructure**.** However, geopolitical disturbances, wherever they might occur, pose significant maritime challenges, including adverse impacts upon trade and maritime connectivity. These challenges have been evident in the events that have occurred in recent years — from the COVID-19 pandemic to the maritime manifestations of the rash of escalating tensions, as also armed conflicts, that are breaking-out across a world increasingly embroiled in geopolitical contestations.

Therefore, IPRD-2023 will, through the agency of a series of globally renowned subject-matter experts and eminent speakers, explore geopolitical impacts upon Indo-Pacific maritime trade and connectivity through six professional sessions spread over a three-day period. The sessions are:

(1) Nodes of Maritime Connectivity;
(2) China's Impact vis-à-vis Maritime Connectivity across the Indo-Pacific;
(3) Maritime Connectivity through Shipping and Trade;
(4) Maritime Connectivity through Shipping and Trade (Part 2);
(5) Private Industry in the Safety and Security of Indo-Pacific Maritime Trade and Shipping; and
(6) Maintaining a Rules-based, Safe, and Secure Indo-Pacific.

Practitioners and domain-experts from within the Government of India, Indian defence industry, and Indian academia will also enrich the conference by their presence and contributions. International participation in IPRD 2023 will be through eminent speakers from 16 countries, who are expected to offer diverse regional perspectives on the subject, as also through the presence of representatives of the various embassies and high commissions in New Delhi. As with previous editions of the IPRD, participation of the vibrant student community and scholars, eminent citizens, military practitioners, members of the diplomatic corps, and think-tanks from India and abroad will add effervescence to this event.

https://pib.gov.in/PressReleasePage.aspx?PRID=1976790

Press Information Bureau
Government of India

Ministry of Defence

Tue, 14 Nov 2023

AatmaNirbhar Air Arm of Indian Navy Seminar-2023

The Southern Naval Command, Kochi, is hosting a two day seminar, themed 'AatmaNirbhar Air Arm of the Indian Navy 2023', from 13-14 Nov 23. The event is being conducted under the aegis of Headquarters Naval Aviation. Admiral R Hari Kumar, Chief of the Naval Staff presided over the seminar as Chief Guest.

In his keynote address on 13 Nov 23, the CNS emphasised the need for a self-reliant approach to meet the challenges in the maritime domain. He stated that the Gol's initiative of AatmaNirbharBharat underlines its potential application to the Indian Naval Aviation sector.

The current strides taken towards the localisation of various spares and critical components towards aircraft manufacturing within the country has gathered pace and the potential of the Indian industry has been encouraging.

He highlighted the importance of flight safety and reduction of aircraft accidents by enforcing stringent checks and revisiting the SOPs. Insightful papers were presented by the Subject Matter Experts and eminent panelists focusing on in-depth analysis and strategies to foster innovation.

The seminar served as platform in bringing various experts in the field of aviation under one platform with the aim of looking at ways of leveraging the contemporary technology to revamp the indigenisation process. It holds significance since it was a unique effort on looking at the ways to gain self-reliance in Naval aviation in keeping with the clarion call of AatmaNirbharBharat.

The occasion also marked the presentation of awards to various naval squadrons and flights for their remarkable performance. The CNS awarded on the spot commendation to Cdr Abhishek Tomar, Defence civilians Gitesh Shenoy MCM(AR) and Joseph Tom CM (AR) who contributed towards indigenisation efforts resulting in optimum exploitation of Seaking helicopters in keeping with the truest sense of AatmaNirbharBharat.

https://pib.gov.in/PressReleasePage.aspx?PRID=1976877

Press Information Bureau
Government of India

Ministry of Defence

Tue, 14 Nov 2023

Indian Navy's Gunnery Symposium 2023

The Gunnery Symposium 2023 was conducted at INS Dronacharya, the Navy's Center for Excellence in Gunnery and Missile Warfare under the aegis of Headquarters Southern Naval Command on 13 & 14 Nov 23.

The Symposium is a significant event conducted once in every three years providing a platform for experts from the Gunnery field to present their research papers on matters related to future technologies and operational exploitation of sensors. The event was marked with the presence of Adm R Hari Kumar, Chief of the Naval Staff as the Chief Guest who is also a Gunnery Specialist. In addition, VAdm MA Hampiholi, Flag Officer Commanding-in-Chief, Southern Naval Command and several senior officers and Gunnery specialists from the Indian Navy's Fleets and frontline ships also attended the symposium.

The governing theme for this year's Symposium was 'Emerging Technologies in Gunnery and Missile Warfare' and several papers were presented by the eminent panelists. Next-Gen Missions and Technologies, Modern Navy's quest for niche technologies and Training for a Future-Proof Force were some of the topics discussed during the symposium. A 'Compendium of Papers' presented during the symposium was also released.

The event is being hosted as part of centennial celebrations of Late Admiral R L Pereira (Retd) former CNS who was himself a proud Gunner.

https://pib.gov.in/PressReleasePage.aspx?PRID=1976966

THE TIMES OF INDIA

Wed, 15 Nov 2023

Russia to Supply Improved Variant of Man-Portable Missile System

Russia on Tuesday said it will supply Igla-S man-portable air defence missile system (MANPADS), which can be fired by an individual or a crew to bring down incoming hostile aircraft, to the Indian armed forces through licenced production by an Indian private company. "We've already signed the corresponding document and now, together with an Indian private firm, we are organising the production of Igla-S MANPADS in India," said Russian arms exports agency Rosoboronexport chief Alexander Mikheyev, as per agency reports from Moscow.

The Indian armed forces already have the older versions of Igla missile systems. The Igla-S is an improved variant with a longer interception range of up to 6-km. Russian officials did not specify which Indian company would be involved in the production of Igla-S MANPADS or when it would start. Indian defence establishment sources, however, said contracts have been inked with Adani Defence for Igla-S systems under emergency procurements provision. "Adani Defence will produce the short-range air defence missiles in India," a source said.

Under emergency powers delegated to the armed forces by the defence ministry after the multiple Chinese intrusions into eastern Ladakh in April-May 2020, the first three tranches of the emergency procurements also saw direct deals with countries like Russia, Israel and France, in addition to domestic sources.

The fourth and last tranche from September 2022 to September 2023 was reserved for procurements only from domestic manufacturers, as earlier reported by TOI. India remains in the strategically-vulnerable position of being the world's largest arms importer, accounting for 11% of the total global imports in 2018-22, with Russia still being its largest supplier.

https://timesofindia.indiatimes.com/india/russia-to-supply-improved-variant-of-man-portable-missile-system/articleshow/105217771.cms?from=mdr

THE TIMES OF INDIA

Tue, 14 Nov 2023

Nirbhay Class Long-Range Cruise Missiles to be Part in all Three Defence Forces' Arsenal

In a significant boost to the firepower of the defence forces, all three defence forces will now have long-range cruise missiles of the Nirbhay class in their arsenal to strike targets at ranges of over 1,000 Km range. The Nirbhay class long-range cruise missiles are being developed by the Defence Research and Development Organisation (DRDO) indigenously and are sub-sonic in speed. "The government is considering a proposal of a service to induct Nirbhay class cruise missiles. The consideration is at an advanced stage and once cleared, it will mean that all three forces will have the capability to use subsonic cruise missiles to strike targets," defence sources told ANI.

The government had given clearance to induct the missile in the inventory of the other two services about two years ago. The subsonic Nirbhay class cruise missiles along with the supersonic BrahMos cruise missiles will be a deadly combination in the forces' arsenal and will give options to the commanders in times of conflict. The missiles would also be part of the rocket force that is being created by the Indian defence forces in a stepwise manner.

The forces are also looking at the option of inducting medium-range ballistic missiles for use in conventional roles. The defence forces in recent times have been given clearance to induct the Pralay ballistic missiles in significant numbers for being used in conventional roles in the rocket force being created by them. As per the sources, the different forces will have these ballistic missiles along with cruise missiles in their inventory and once that process is over, they might form an integrated force to create a separate wing.

The defence forces have also got a major boost in the form of the enhanced range of BrahMos cruise missiles as their ranges have been increased significantly. A longrange test of the cruise missiles is also due to be held in the near future.

https://timesofindia.indiatimes.com/india/nirbhay-class-long-range-cruise-missiles-to-be-part-in-all-three-defence-forces-arsenal/articleshow/105214057.cms?from=mdr

#SWARAJYA

Tue, 14 Nov 2023

India's 'Zorawar' Light Tank, Designed for Operations on China Border, to be Ready this Month for Trials in December

India's indigenously designed and developed light tank, tentatively named Zorawar, is likely to be ready for trials by the end of this month, a report in the Economic Times says.

The tank, designed for operations in high-altitude regions, primarily on the border with China in response to its armored deployments, is expected to exhibit superior mobility and firepower compared to its Chinese counterpart, the Type 15 tank.

The tank will undergo a series of trials in December, the report adds. Developed in record time, the 25-tonne category light tank addresses the need for increased mobility in extreme altitudes, a crucial factor in the context of escalating tensions in eastern Ladakh in 2020. China's deployment of light armor in high-altitude locations prompted the rapid development of the Indian tank, which has been designed with a unique chassis, dispelling earlier reports that it might utilize the K9 Vajra self-propelled gun chassis.

The tank, featuring a 105 mm gun manufactured by John Cockerill, is set to undergo trials in December after receiving approval for development in April 2022. The Defence Research and Development Organisation DRDO collaborated with Larsen and Toubro L&T for this project, aiming to equip the Indian military with a highly mobile and accurate firepower platform. Contrary to initial speculation, the tank is an entirely new design, showcasing indigenous technological prowess.

The 105 mm gun, a critical component, is likely to be produced in India for serial production of the tanks. The design incorporates active protection against incoming attacks and includes an integrated Unmanned Aerial Vehicle UAV to enhance battlefield visibility, a crucial feature for operations in challenging terrains.

The Zorawar tank is specifically tasked to operate in all terrains, ranging from high-altitude areas to island territories, and is designed to be air transportable for rapid deployment.

The tank's capabilities are expected to outshine the Chinese Type 15 tanks, providing the Indian military with a strategic edge in the region.

https://swarajyamag.com/defence/indias-zorawar-light-tank-designed-for-operations-on-china-border-to-be-ready-this-months-for-trials-in-december

Tue, 14 Nov 2023

Russia, India discussing Joint Production of Aircraft Weapons

Russia's state-controlled arms exporter Rosoboronexport is discussing with Indian enterprises the joint production of aircraft weapons for the Indian Air Force, Russia's RIA state news agency reporter early on Tuesday. "Rosoboronexport is working with Indian private and public enterprises to organise joint production of aviation weapons and integrate them into the existing aviation fleet in India," RIA cited Rosoboronexport's General Director Alexander Mikheyev as saying.

No details were provided about which Indian companies would be involved or when potential production would start. Russia continues to be India's largest arms supplier with its share of Indian de-

fence imports at 45% in 2022, according to this year's report from the Stockholm International Peace Research Institute (SIPRI).

Mikheyev said that Rosoboronexport and Indian partners has provided the Indian Ministry of Defence with Su-30MKI fighter jets, tanks, armoured vehicles, and shells. India and Russia have also started at the beginning of the year joint production of the AK-203 Kalashnikov assault rifles.

https://www.reuters.com/business/aerospace-defense/russia-india-discussing-joint-production-aircraft-weapons-ria-news-agency-2023-11-14/

Newsweek

Tue, 14 Nov 2023

Russian Navy wades into US-China-India Turf War

Russian warships are in the Indian Ocean this week as Moscow looks to bolster its relations with Bangladesh and Myanmar, two nations in the throes of anti-democratic shifts where the Kremlin is eyeing new economic and political opportunities.

Anti-submarine warfare ships Admiral Tributs and Admiral Panteleyev—both of the Russian Pacific Fleet—and the tanker Pechenga docked at the Bangladeshi port of Chittagong in the Bay of Bengal this weekend, days after joint Russia-Myanmar naval drills concluded in the nearby Andaman Sea.

Combined, the two events may hint at Moscow's future ambition in the Indian Ocean region, a strategic nexus through which run lucrative trade routes, including the majority of Chinese oil imports. Here, Beijing, Washington, D.C., and New Delhi are all vying for influence, in what Sri Lankan President Ranil Wickremesinghe has described as a "big power rivalry."

Moscow hailed last week's Andaman Sea drills as "the first Russian-Myanmar naval exercise in modern history." The maritime war games underscore long-time military ties between the Kremlin and Myanmar's authoritarian junta, which is currently engaged in a fierce civil conflict with a range of rebel groups following the military's 2021 coup.

The naval arrival in Chittagong, meanwhile, was lauded by the Russian embassy in Dhaka as a "huge milestone for Russia-Bangladesh relations," and the first such visit in 50 years. Dhaka has been building closer ties with Moscow in recent years, partially in response to growing Western—and primarily American—pressure over the undermining of the country's democratic processes.

Newsweek has contacted the Russian Foreign Ministry by email to request comment.

Russia is seeking to bolster its strong historic ties with the "Global South" amid its disastrous war in Ukraine. Isolated from lucrative Western markets and choked—though not entirely—of key consumer, technology, and industrial imports, Moscow is on the lookout for new opportunities, particularly in anti-democratic nations.

"Russian interest in the region is growing because of the Western sanctions, first of all, and Russia needs new needs new markets for its goods," Oleg Ignatov, the Crisis Group think tank's senior Russia analyst, told Newsweek.

"When the European and Western countries imposed sanctions, Russia rebuilt its trade ties. They established new trade routes and ties with countries from Asia, first of all, and also with countries like Turkey and the Gulf countries. Sanctions changed Russian trade hugely."

Such economic incentives can largely explain Moscow's Bangladesh outreach, Ignatov said. Russia is already financing 90 percent of a $12.65 billion project to build Bangladesh's first nuclear power plant in Rooppur, in the center of the country. Bangladesh received the first shipment of Russian uranium fuel for the facility in October.

Moscow's Myanmar ties are primarily military, Ignatov explained, based "solely on military technical cooperation." The junta ruling in Naypyidaw has long been a prime customer for Russian weapons. Kremlin backing for the authoritarian government has helped it hold power despite a fierce pro-democracy insurgency. "Myanmar needs Russia because it doesn't want to be isolated," Ignatov said, "and they also need an alternative to China in the region."

U.S. State Department Counselor Derek Chollet complained in March that "continued military support for the junta is unacceptable" and "destabilizing," adding: "It's not only a problem for Myanmar, it's a problem for this region."

Russia may be honing its ambitions in the Indian Ocean region, but it will not be able to compete with the U.S., China, or India for the foreseeable future. Russia has no regional military bases, and even Myanmar military ruler Min Aung Hlaing stressed during his visit to Moscow last year that a Russian naval base is not on the cards. "It's not possible for Russia, it doesn't have such resources," Ignatov said. "They are more interested in the Mediterranean than this region."

Even if Moscow did have the capacity, expanding its Indian Ocean footprint would risk upsetting two potential future superpowers in China and India.

"Russia has a balance with China within this region," Ignatov said. "It understands that it's a region where China has its own interest, and it doesn't want to compete with China." Broadly, he added, Moscow is more concerned about U.S. presence in Japan closer to its own borders.

Beijing, meanwhile, will be looking to out-compete its Indian and American rivals in the region, particularly as Washington and New Delhi embark of a nascent era of enhanced military cooperation that includes this year's agreement for U.S. Navy ships to use Indian ports.

https://www.newsweek.com/russian-navy-wades-us-china-india-turf-war-indian-ocean-bangladesh-myanmar-1843571

Press Information Bureau
Government of India

Ministry of Defence

Tue, 14 Nov 2023

Inspire Faculty fellow decodes molecular mechanism behind intriguing green alga surviving in extreme conditions like saline-soda lakes

A young researcher has divulged the secret of how one of the smallest green algae called Picocystis Salinarum survives the harshest of conditions by resorting to physiological adaptation to highly saline-alkaline/hyperosmotic conditions. This may pave the way for a promising future candidate for biotechnological applications like microalgal bioproducts and increasing salt tolerance in plants.

Carbonates are of great interest to geoscientists, biologists, and climatologists due to their significance in the global carbon cycle. The process of biologically converting inorganic carbon into organic carbon, known as carbon fixation, is widely recognized as the paramount biogeochemical transformation on our planet.

Dr Jyoti Singh, an Inspire Faculty Fellow of the Department of Science and Technology (DST) who is passionate about extremophiles, explored microbial life, with a particular focus on photosynthetic cyanobacteria and microalgae thriving in carbonate dominated environments such as carbonate rocks and soda lakes. These microorganisms, incredibly versatile, hold the key to address critical questions pertaining to biogeochemistry, microbial diversity, evolution of life, astrobiology, environmental sustainability, biotechnology and beyond.

What intrigued the Faculty from the Department of Earth Sciences, Pondicherry University was the mystery behind the capability of one organism called P. salinarum found in hypersaline soda lake Sambhar, Rajasthan, to survive extreme environments. Though the alga had been widely found in saline-soda lakes around the world, it was spotted for the first time in India only in the Sambhar Lake.

Delving into the mystery of the resilience of P. salinarum, she along with her team probed the molecular mechanisms of adaptation in such polyextreme conditions. This they carried out through studying the changes in protein abundances through a high-throughput label-free quantitation based quantitative proteomics method.

Their team provided the first insights into the proteome of extremophilic alga P. salinarum revealing its tailored regulatory mechanisms for osmotic adaptation and proliferation in polyextreme conditions in soda lakes unraveling the basis of resilience in this not so known organism. The

unique organism apparently enhances photosynthesis and ATP synthesis along with chaperone proteins as key response to high salinity-alkalinity. Enhanced photosynthetic activity exhibited by P. salinarum in highly saline-alkaline condition is noteworthy as photosynthesis is suppressed under hyperosmotic conditions in most photosynthetic organisms.

This discovery published in Frontiers in Microbiology (Section Extreme Microbiology) positions P. salinarum as a promising candidate for biotechnological applications and as a model organism for deciphering the molecular mechanisms of osmotic adaptation. The team has also harnessed the unique characteristics of this microalga for bicarbonate-based integrated carbon capture and biomass production. Research by this Inspire Faculty Fellow could help further development of sustainable and resource-efficient biotechnological processes.

https://pib.gov.in/PressReleasePage.aspx?PRID=1976837

THE NEW INDIAN EXPRESS

Wed, 15 Nov 2023

NASA, ISRO gearing up to launch Joint Space Mission to map Globe every 12 days

The NASA-ISRO Synthetic Aperture Radar (NISAR) is set to be launched in the first quarter of 2024 after a few tests, particularly those related to vibration, NASA officials have said.

"ISRO is projecting the first quarter of next year. So, I mean, that's ready," NASA NISAR Project Manager Phil Barela said during a media interaction here on Wednesday.

He is expecting the launch of NISAR (spelt as 'Naisar') "not earlier than January" from the Satish Dhawan Space Centre at Sriharikota aboard the ISRO Geosynchronous Satellite Launch Vehicle Mark-II.

The mission, which has three-year duration, aims to survey all of Earth's land and ice-covered surfaces every 12 days. This will start after a 90-day satellite commissioning period.

Regarding the key tests that are pending to be undertaken, Barela said, "The vibration testing that's underway, but there's a whole slew of performance tests that we need to do." Battery and simulation tests have to be done to make sure that the system works fine, he said.

"We'll be doing performance testing on the radars and various spacecraft electronics. So, a lot of testing remains but the big environments test, the only one remaining now, is vibration," Barela said.

NASA Jet Propulsion Laboratory Director Dr Laurie Leshin said the NISAR project is "better than anything that was flown in the past".

"While there are datasets from past missions that can form sort of a baseline, this is a new level of capability that we will have with NISAR," she had told reporters on Tuesday.

"If it's working very well, we will almost certainly extend that mission to get that longer baseline. It is a very important thing to see the Earth change on multi-year timescales. This is what we are looking for," Leshin had said.

According to ISRO, NISAR is a Low Earth Orbit (LEO) observatory being jointly developed by it and NASA.

NISAR will map the entire globe in 12 days and provide spatially and temporally consistent data for understanding changes in the Earth's ecosystems, ice mass, vegetation biomass, sea level rise, ground water and natural hazards, including earthquakes, tsunamis, volcanoes and landslides.

In a handout, NASA said the project aims to understand the dynamics of carbon storage and uptake in wooded, agricultural, wetland and permafrost ecosystems and the response of ice sheets to climate change, the interaction of sea ice and climate, and impacts on sea level rise worldwide.

NISAR will have Synthetic Aperture Radar Instrument (SAR), L-band SAR, S-band SAR and Antenna reflector.

According to NASA, the onboard instruments can even see a minor change of even one centimetre from space.

The SUV-size satellite has a mass of roughly 2,800 kg, which will be powered by two solar arrays providing about four kilowatts of power.

The six feet tall ‘spacecraft bus' will contain the command and communication systems for the instrument payload, which houses the two SAR instruments. The ‘bus' will also support the radar antenna reflector and its boom.There is enough fuel aboard to support at least five years of operations,” the handout said.

https://www.newindianexpress.com/nation/2023/nov/15/nasa-isro-gearing-up-to-launch-joint-space-mission-to-map-globe-every-12-days-2633076.html

Business Standard

Tue, 14 Nov 2023

ISRO invites Innovative Ideas, Robotic Rover Designs from Student Community

Isro has invited from the youth innovative ideas and designs of robotic rovers for future missions through conducting a space challenge.

After the successful landing of Chandrayaan-3 Vikram on the lunar surface and the exploration near the southern pole of the moon, Isro said it is gearing up for future robotic exploration missions to the moon and other celestial bodies.

The national space agency headquartered here said it is committed to creating unique opportunities for academia and industry to participate in technology development activities commensurate with organisational objectives.

"In line with this vision, U R Rao Satellite Centre (URSC)/Isro solicits from the youth of India, innovative ideas and designs of robotic rovers for future missions through the conduct of a space robotics challenge with an objective to provide development opportunities in space robotics to the participating entities and to leverage the creative thinking among the youth of our nation for Isro interplanetary missions," it said/ To provide an opportunity for students in the area of space robotics, "Isro Robotics Challenge-URSC 2024 (IRoC-U 2024)" will be organised with a tagline of "Let's build a space robot".

The challenge consists of an engineering project where the institutional teams build robots to compete in an extra-terrestrial-inspired arena, performing tasks based on the real-life challenges faced by space robotics.

"This is an invitation for the student community for the design and realisation of a 'Wheeled/Legged Rover' encompassing the development of complete hardware and software. The solutions provided by the students in IRoC-U 2024 have a greater chance of getting incorporated into Isro's future interplanetary robotics missions," an Isro statement said.

The objectives of the challenge are: to provide a standardised platform for exploring the area of space robotics; to develop a deeper understanding of space robotics and its applications among the student community, and to co-develop (students and Isro) future technologies needed in the area of space robotics.

The final onsite competition to perform the required tasks is planned to be conducted on URSC Bengaluru campus in August 2024, it was stated.

https://www.business-standard.com/india-news/isro-invites-innovative-ideas-robotic-rover-designs-from-student-community-123111400555_1.html