नवंबर
Nov
2024

खंड/Vol. : 49 अंक/Issue : 215
21/11/2024

समाचार पत्रों के चयनित 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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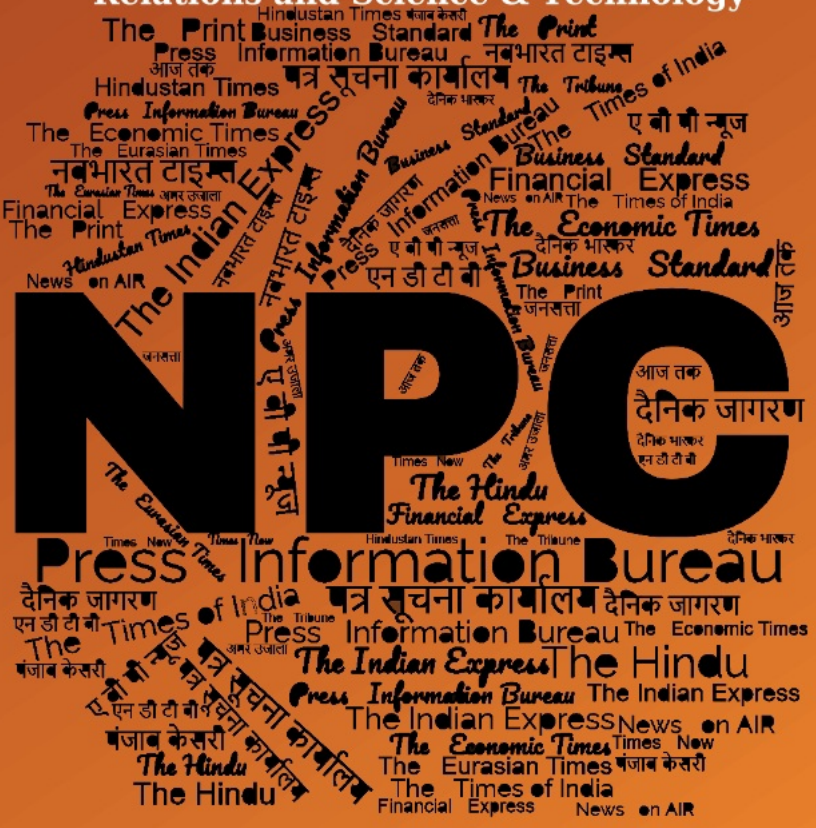

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DRDO News

नवभारत टाइम्स

Thurs, 21 Nov 2024

भारतीय सेना को जल्द मिलेगा स्वदेशी लाइट टैंक जोरावर, यूजर ट्रायल करेगी आर्मी, जानें क्या है खासियत

भारतीय सेना को जल्द ही यूजर ट्रायल के लिए पहला स्वदेशी लाइट टैंक जोरावर मिल जाएगा। सूत्रों के मुताबिक इसका आखिरी फील्ड ट्रायल 21 नवबंर से लद्दाख में होना है। इससे पहले मैदानी इलाके के साथ ही और रेगिस्तान में इसका ट्रायल हो चुका है। इन दोनों जगहों पर हुए ट्रायल में जोरावर सभी मानकों पर खरा उतरा।

जोरावर की खासियत

- **जोरावर को डीआरडीओ ने डिवेलप किया है। 25 टन है इसका वजह**
- **जोरावर में कई वेपन सिस्टम होंगे। मिसाइल के साथ ही मिलेगी मेन गन**
- **जोरावर में ड्रोन इंटीग्रेशन भी होगा, इससे दुश्मन पर लगातार रहेगी नजर**
- **ड्रोन की फीड सीधे टैंक में कमांडर के पास आएगी।**
- **भारतीय सेना तकरीबन 350 लाइट टैंक को लेने की तैयारी में है।**

सूत्रों के मुताबिक लद्दाख के न्योमा में जोरावर का ट्रायल 21 नवंबर से 15 दिसंबर तक किया जाएगा। टैंक के ट्रायल के दौरान इसकी फायर पावर, मोबिलिटी और प्रोटेक्शन के क्राइटेरिया में इसे परखा जाता है। सूत्रों के मुताबिक ये ट्रायल पूरे होने के बाद अगले साल जोरावर को यूजर ट्रायल के लिए भारतीय सेना को दिया जाएगा।

लाइट टैंक की क्यों जरूरत है

ईस्टर्न लद्दाख में एलएसी पर चीन के साथ हुए तनाव से यह सबक मिला कि सेना को लाइट टैंक की कितनी जरूरत है। जब चीन पैंगोग के उत्तरी किनारे में बहुत आगे तक बढ़ गया था तब भारतीय सेना ने चीन को चौंकाते हुए पैंगोग के दक्षिण किनारे की अहम चोटियों पर कब्जा कर लिया। यहां भारतीय सेना ने अपने टी-72 और टी-90 टैंक भी पहुंचा दिए। इससे चीन बैकफुट पर आया। फिर बातचीत की टेबल पर पैंगोग इलाके में पीछे हटने पर सहमति बनी।

हालांकि भारतीय सेना ने यहां जो टैंक पहुंचाए वे मुख्य तौर पर मैदानी और रेगिस्तान इलाके में ऑपरेशनल जरूरतों के लिए हैं। हाई एलटीट्यूट एरिया में इनकी अपनी कमियां हैं। यही कमियां इन टैकों में कच्छ के रण में भी दिखाई देगी। इसलिए भारतीय सेना को हाई एल्टीट्यूट और आईलैंड टेरिटरी के लिए लाइट टैंक जोरावर की जरूरत है।

चीन बॉर्डर पर मजबूती के लिए जरूरी

चीन के पास मिडियम और लाइट टैंक है। जिस तरह से चीन ने 2020 में एलएसी पर यथास्थिति बदलने की कोशिश की, वैसी कोशिश वह कभी भी कर सकता है। हालांकि अभी बातचीत के जरिए गतिरोध खत्म होने की दिशा में अहम कदम बढ़े हैं।लेकिन नॉर्दन बॉर्डर पर भारतीय सेना को मजबूती देने के लिए लाइट टैंक की जरूरत है। दुश्मन जहां पर है अगर उससे ज्यादा ऊंचाई पर भारतीय सेना के टैंक मौजूद होंगे तो दुश्मन कोई भी हरकत करने से बचेगा। लाइट टैंक भारतीय सेना को दुश्मन पर बढ़त देने के लिए जरूरी हैं।

https://navbharattimes.indiatimes.com/india/indian-army-will-soon-get-indigenous-light-tank-zorawar-for-user-trials/articleshow/115480275.cms

Defence News

Defence Strategic: National/International

Press Information Bureau
Government of India

Ministry of Defence

Wed, 20 Nov 2024

Raksha Mantri meets his Malaysian & Lao PDR counterparts on the sidelines of 11th ASEAN Defence Ministers' Meeting-Plus at Vientiane

In addition to his meeting with Chinese Defence Minister Admiral Dong Jun, Raksha Mantri Shri Rajnath Singh met his Malaysian counterpart Dato' Seri Mohamed Khaled Bin Nordin and the Defence Minister of Lao PDR General Chansamone Chanyalath in Vientiane on November 20, 2024, on the sidelines of 11th ASEAN Defence Ministers' Meeting (ADMM) Plus.

During the meeting with the Malaysian Defence Minister, both sides agreed to support each other's endeavours to arrive at meaningful outcomes to promote security and stability in the region. Both leaders looked forward to the conduct of Malaysia-India Defence Committee Meeting in the first quarter of 2025, wherein both sides will have detailed discussions on ways to further strengthen bilateral defence cooperation. India and Malaysia currently hold the co-chairmanship of ADMM Plus Expert Working Group on Counter Terrorism.

In his meeting with the Defence Minister of Lao PDR, Raksha Mantri complimented Lao PDR for its efficient and inclusive leadership as the Chair of ASEAN this year. He conveyed India's strong support for ASEAN's unity and centrality for promoting peace and prosperity in the Indo-Pacific region, and assured General Chansamone Chanyalath that India will continue to strengthen its ties with Lao PDR and ASEAN in all spheres.

Both sides appreciated the signing of revised MoU, which was exchanged during the visit of the Prime Minister to Laos recently. They concurred that it would go a long way in building stronger bonds and enhancing exchange in capacity and building spheres.

Raksha Mantri also graced an Indian Community event where he highlighted the progress India has made in various spheres in recent years. He dwelt upon the commitment of the government, led by Prime Minister Shri Narendra Modi, to make India 'Viksit Bharat' by 2047.

The 11th ADMM-Plus will be held in Vientiane on November 21, 2024. Shri Rajnath Singh will address the forum on regional & international security issues.ADMM-Plus is an annual meeting of the Defence Ministers of the ASEAN member states and its 8 dialogue partners (India, USA, China, Russia, Japan, South Korea, Australia and New Zealand) to strengthen security and defence cooperation.

https://pib.gov.in/PressReleasePage.aspx?PRID=2075209

Press Information Bureau
Government of India

Ministry of Defence

Wed, 20 Nov 2024

Raksha Mantri meets Chinese Defence Minister on the sidelines of 11th ASEAN Defence Ministers' Meeting-Plus at Vientiane, Lao PDR

Emphasises on greater trust & confidence building between the two sides through de-escalation

Amicable India-China relations would have positive implications for global peace & prosperity; Need to focus on cooperation rather that conflict: Shri Rajnath Singh

Raksha Mantri Shri Rajnath Singh met the Defence Minister of China Admiral Dong Jun in Vientiane, Lao PDR on November 20, 2024 on the sidelines of 11th ASEAN Defence Ministers' Meeting-Plus. This was the first meeting of the two Defence Ministers following the recent disengagement agreements, and the meeting of Prime Minister Shri Narendra Modi & Chinese President Mr Xi Jinping on the sidelines of BRICS summit.

Raksha Mantri highlighted the fact that amicable relations between India and China, the two largest nations in the world, would have positive implications for global peace and prosperity. Considering that both countries are and will continue to remain neighbours, he mentioned that "we need to focus on cooperation rather that conflict".
Shri Rajnath Singh called for reflecting on the lessons learnt from the unfortunate border clashes of 2020, take measures to prevent recurrence of such events and safeguard peace and tranquility along the India-China border. He emphasised and looked forward to greater trust and confidence building between the two sides through de-escalation. Both sides agreed to work together towards a roadmap for rebuilding mutual trust and understanding.

Earlier in the day, Raksha Mantri arrived at Vientiane on a three-day visit. He will attend the 11th ADMM-Plus on November 21, 2024 and address the forum on regional & international security issues.
https://pib.gov.in/PressReleasePage.aspx?PRID=2075182

Press Information Bureau
Government of India

Ministry of Defence

Wed, 20 Nov 2024

The 2nd India-Japan Joint Service Staff Talks conclude in New Delhi

2nd India-Japan Joint Service Staff Talks (JSST) between Headquarters, Integrated Defence Staff (HQ IDS) and the Joint Staff of Japan Self Defence Force (JSDF) concluded on November 20, 2024 in New Delhi. In recognition of the evolving dynamics of modern warfare, both countries expressed a shared commitment in fostering collaboration in space & cyber technologies as vital components of their defence partnerships.

The meeting was co-chaired by Assistant Chief of IDS Air Vice Marshal Prashant Mohan and Joint Staff of JSDF, Director General Defence Plans and Policy Department (J5) Major General Minamikawa Nobutaka.

The officials engaged in meaningful discussions on bolstering ongoing defence engagements and exploring new avenues for cooperation under the existing bilateral defence mechanisms. Both sides acknowledged the growing importance of India & Japan's partnerships in addressing emerging security challenges, safeguarding shared interests and upholding peace in the Indo-Pacific regions.

The JSST is a forum for advancing defence cooperation through regular & high level operational discussions between India and Japan. These meetings serve as a key platform for fostering close, professional collaboration between the armed forces of the two nations.

The JSST successfully reinforced the bilateral defence relationship between both sides pledging to build on the progress achieved and to meet regularly for further discussions. This commitment reflects the long term strategic partnership between the two nations, based on mutual trust, respect and shared values.

https://pib.gov.in/PressReleasePage.aspx?PRID=2075091

Press Information Bureau
Government of India

Ministry of Defence

Wed, 20 Nov 2024

GENERAL UPENDRA DWIVEDI, CHIEF OF ARMY STAFF EMBARKS ON A VISIT TO NEPAL

General Upendra Dwivedi, Chief of the Army Staff (COAS), departed on a visit to Nepal from 20th to 24th November 2024, marking a significant step in further bolstering the close defence cooperation between India and Nepal.

On 20th November 2024, General Upendra Dwivedi will interact with Mr Naveen Srivastava, Indian Ambassador to Nepal and would thereafter engage in an informal discussion with General Ashok Raj Sigdel, Chief of the Army Staff, Nepali Army at Shashi Bhawan.

On 21st November 2024, the COAS will be given a Guard of Honour at the Nepali Army HQ followed by an interaction with the COAS, Nepali Army. General Upendra Dwivedi will also be briefed by Director General Military Operations (DGMO), Nepali Army on issues of common interest. Thereafter, he will attend the Investiture Ceremony at Rashtrapati Bhawan, Shital Niwas, wherein as per unique tradition between Indian Army and Nepali Army, he will be conferred with the Honourary Rank of General of Nepali Army by the Right Hon'ble President of Nepal. The COAS would also call on the Right Hon'ble President of Nepal and engage in talks to further boost the defence partnership between India and Nepal. In the evening, he will attend a Banquet, hosted by the COAS, Nepali Army.

On 22nd November 2024, the COAS will address the student officers of Nepali Army Command and Staff Course, Shivapuri. During the day, General Upendra Dwivedi will call on Mr K P Sharma Oli, Hon'ble Prime Minster and Mr Manbir Rai, Hon'ble Defence Minister of Nepal and engage in talks on issues of mutual interests.

On 23rd November 2024, General Upendra Dwivedi will attend an Ex-Servicemen Rally at Pokhara, wherein the COAS will felicitate Veer Naris and Gallantry Awardees. During the Rally, he will also interact with the Indian Army veterans, who are in large numbers in Nepal. The COAS will visit Western Division HQ, Nepali Army and will be briefed in presence of General Officer Commanding, Western Division, Nepali Army. In the evening, the COAS will host a Banquet for dignitaries at Kathmandu. He will return to India on 24th November 2024.

The visit by General Upendra Dwivedi aims at strengthening military cooperation between militaries of India and Nepal, besides exploring new avenues of collaboration between the two nations.

https://pib.gov.in/PressReleasePage.aspx?PRID=2074988

THE ECONOMIC TIMES

Wed, 20 Nov 2024

Indian Army, Navy and Air Force conduct Poorvi Prahar exercise and demonstrate warfighting skills

In a significant display of military prowess, the Indian Army, Indian Navy, and Indian Air Force jointly conducted exercise 'Poorvi Prahar' over nine days, demonstrating their unmatched warfighting skills in nearreal combat scenarios. This comprehensive exercise validated the effectiveness of joint structures in intelligence gathering, surveillance, reconnaissance, rapid mobilization, deployment/redeployment, and operational logistics. The exercise highlighted the exceptional capabilities of the Indian Armed Forces as the units exhibited precision strike capabilities utilizing high-tech equipment to guarantee mission success

The exercise showcased the strength of integration amongst the services and the evolved civil-military fusion essential for ensuring victory in operations. Lt Gen RC Tiwari, UYSM, AVSM, SM, General Officer Commanding in Chief, Eastern Command, and Air Marshal IS Walia, AVSM, VM, Senior Staff Administrative Officer from Eastern Air Command actively participated in the exercise, witnessing offensive manoeuvres in mountainous terrain supported by cutting-edge weaponry and equipment.

Appreciating the clockwork precision exhibited by the participating troops, the Army Commander emphasized the importance of joint structures and mechanisms to enhance synergy among the Indian Army, Indian Navy, and Indian Air Force. Integrated joint operations were conducted across multiple domains for the first time on such a large scale in the Eastern Theatre. The exercise was a full-fledged display of the might of the Indian Armed Forces, featuring advanced weapons systems such as the M-777 Howitzer, the Navy's Maritime Patrol and Reconnaissance aircraft P-8I, swarm drones, First Person View (FPV) drones, and loitering munitions.

Additionally, the latest helicopters like the Chinook and Light Combat Helicopter Prachand were employed to enhance operational effectiveness. During Ex Poorvi Prahar, the Indian Armed Forces

demonstrated their unmatched combat capabilities by executing complex operations that incorporated air, land, and sea elements. The successful integration of third-dimensional warfare was adequately bolstered by new generation equipment, showcasing precision and efficiency in challenging terrain and dense Electronic Warfare environment.

The exercise also involved a tri-services combat free fall on an objective for the special forces. The exercise stands as a testament to India's commitment to maintaining a robust defence posture through synergy and integration among its armed forces. The successful execution of this joint exercise not only reinforces the operational readiness of the Indian Armed Forces but also assures the nation that we are prepared to address any security challenge that may arise in the future.

https://economictimes.indiatimes.com/news/defence/indian-army-navy-and-air-force-conduct-poorvi-prahar-exercise-and-demonstrate-warfighting-skills/articleshow/115441979.cms

THE ECONOMIC TIMES

Wed, 20 Nov 2024

Make capability building process more efficient: Rajnath Singh to IAF

IDefence Minister Rajnath Singh on Tuesday called for making the process of capability development of the Indian Air Force more efficient and effective. In an address at a conference of top commanders of the IAF, Singh commended the force for its dedication and professionalism in safeguarding the nation's sovereignty. He expressed confidence in the IAF's ability to adapt to evolving challenges and exhorted commanders and senior officials of the defence ministry to look at means to make the process of capability and capacity building more efficient and effective in line with India's national aims and aspirations, according to an official readout. The IAF commanders reviewed the national security challenges, especially the situation along the Line of Actual Control (LAC) with China.

At the commanders' conference, Singh was briefed on the operational capabilities of the IAF. The ongoing conference has witnessed in-depth discussions on key operational, administrative, and strategic issues.

Chief of Defence Staff Gen Anil Chauhan, Chief of the Army Staff Gen Upendra Dwivedi and Navy Chief Admiral Dinesh Kumar Tripathi also addressed the conference. The commanders' conference serves as a vital platform for the IAF's senior leadership to deliberate on challenges and strategise future actions to maintain operational excellence.

https://economictimes.indiatimes.com/news/defence/make-capability-building-process-more-efficient-rajnath-singh-to-iaf/articleshow/115459392.cms

THE ECONOMIC TIMES

Wed, 20 Nov 2024

India, China discuss next steps in ties following disengagement process in eastern Ladakh

External Affairs Minister S Jaishankar and his Chinese counterpart Wang Yi deliberated on the next steps in IndiaChina ties at a meeting in Rio de Janeiro, in the first high-level engagement since the militaries of the two sides disengaged from Demchok and Depsang in eastern Ladakh. Jaishankar and Wang held the delegation-level talks on the sidelines of the G20 Summit late on Monday. In a post on 'X', the external affairs minister said both sides noted the progress in the recent disengagement of the border areas and exchanged views on the next steps in the bilateral ties. It is learnt that both sides are in the process of reviving various dialogue mechanisms including the special representatives talks on the boundary question as decided at a meeting between Prime Minister Narendra Modi and Chinese President Xi Jinping in the Russian city of Kazan last month.

Days after the two sides reached an agreement on October 21 on disengagement in Demchok and Depsang, Indian and Chinese militaries completed the process marking a virtual end to over four-year standoff in the two friction points. The two sides also resumed patrolling activities in these areas after a gap of almost four-and-a-half years.

Days after the two sides reached an agreement on October 21 on disengagement in Demchok and Depsang, Indian and Chinese militaries completed the process marking a virtual end to over four-year standoff in the two friction points. The two sides also resumed patrolling activities in these areas after a gap of almost four-and-a-half years.

proceeded as planned," he said. "Our leaders have directed that the Foreign Ministers and the Special Representatives should meet at an early date. Some progress, some discussions have happened in that direction," he said. In the meeting, Jaishankar and Wang discussed the next steps. The external affairs minister also noted the importance of India-China ties in his remarks. "First of all let me say it is very good to meet on the sidelines of the G20. We saw each other recently on the sidelines of the BRICS as you noted. "And our contribution to both platforms was notable in shaping the eventual outcomes," he said. "But it was a reminder to us of the importance of our two countries in international politics. It was also an equally significant testimony of why our bilateral relations are so important," he added. People familiar with the latest developments in India-China relations said the Special Representative dialogue will be the next significant forward movement.

India's Special Representative for the dialogue is NSA Ajit Doval while the Chinese side is headed at the talks by Foreign Minister Wang. After the completion of disengagement, Indian and the Chinese militaries are carrying out one round of patrolling each in Depsang and Demchok, people familiar with the matter said. At the same time, they said the two sides have maintained their deployment of troops along the LAC and the focus now will be on de-escalation of the overall situation. Each side currently has around 50,000 to 60,000 troops along the LAC in the region. Talks at multiple levels are underway towards de-escalation, the people said. After India and China reached the agreement on October 21 for disengagement in Depsang and Demchok, Army Chief Gen Upendra Dwivedi said the Indian military is trying to restore "trust" and both sides will have to "reassure each other" to achieve this objective. Two days after the pact was sealed, Modi and Xi held talks in the Russian city of Kazan.

The two leaders endorsed the agreement on patrolling and disengagement and issued directions to revive various bilateral dialogue mechanisms, signalling attempts to normalise ties. In the nearly 50-minute meeting held on the sidelines of the BRICS summit, Modi underscored the importance of properly handling differences and disputes and not allowing them to disturb peace and tranquility in border areas. The prime minister said mutual trust, mutual respect and mutual sensitivity should remain the basis of the relations. India has been maintaining that its ties with China cannot be normal unless there is peace in the border areas. In an address at an event on Saturday in Delhi, Jaishankar said the disengagement part of the "problem" with China along the Line of Actual Control (LAC) in eastern Ladakh has been put to rest and the focus should now be on de-escalation. It is "reasonable" to expect some improvement in the relations following the final round of disengagement, he said but hesitated to say that there could be a reset of ties

The eastern Ladakh border standoff erupted on May 5, 2020, following a violent clash in the Pangong Lake area.

https://economictimes.indiatimes.com/news/defence/india-china-discuss-next-steps-in-ties-following-disengagement-process-in-eastern-ladakh/articleshow/115448884.cms

Wed, 20 Nov 2024

Production update of Sukhoi Su-30MKI fighter jets of Indian Navy: HAL set to revive Nashik plant

In what comes as a major boost to the defence manufacturing and operational capabilities of India, the state-run Hindustan Aeronautics Limited (HAL) is gearing up to revive its Nashik plant for the production of Sukhoi Su-30MKI fighter jets.

The Nashik facility of the HAL, originally established as a dedicated hub for the Su-30MKI, is resuming operations to meet the urgent production demands of this highly advanced, twin-engine, two-seat multi-role fighter aircraft.

The decision by HAL comes in the wake of the $1.3 billion contract approved in September 2023 for the manufacture of 12 new Su-30MKI aircraft. These aircraft are expected to replace those that the IAF lost in various accidents.

According to an IDRW report, HAL is expected to streamline the production of these 12 fighter jets over the next three years. The move will not only lead to enhanced naval capabilities but will also be a major push for self-reliance in defence.

Meanwhile, media reports also suggest that HAL is pushing for the proposal of the IAF to add as many as 72 Sukhoi Su-30MKI fighter jets to its fleets.

Developed through a collaboration between Sukhoi Design Bureau of Russia and HAL, Sukhoi Su-30MKI, a variant of the Russian-made Sukhoi Su-30, is specifically tailored to meet the demands of the IAF.

The aircraft, which is now a major part of the Indian Navy's defence capabilities, can reach speeds up to Mach 2 and has a combat range of 3,000 km, extendable to 8,000 km with in-flight refueling.

https://www.theweek.in/news/defence/2024/11/19/production-update-of-sukhoi-su-30mki-fighter-jets-of-indian-navy-hal-set-to-revive-nashik-plant.html

ANI
South Asia's Leading Multimedia News Agency

Thurs, 21 Nov 2024

CDS Anil Chauhan highlights "three key trends" reshaping future warfare

General Anil Chauhan, Chief of Defence Staff (CDS), addressed an audience at the International Centre on Wednesday, highlighting the transformative changes in modern warfare driven by technological advancements. Speaking at the C.D. Deshmukh Auditorium, he elaborated on the evolving nature of warfare and India's preparedness for future conflicts. CDS Chauhan identified three major technological trends reshaping future warfare: robotics and automation, celerity (speed and velocity), and the intelligentisation of warfare.

Warfare has always been a contest between humans. One may be better armed, equipped with superior body armour, a sword, a lance, or a modern rifle, or possess better mobility. Yet, at its core, combat has always been between human beings," he explained. He warned of an impending shift to human-machine warfare, stating, "We are at the cusp of a new era. While combat today remains between humans, tomorrow it could involve humans versus machines or even machines versus machines."

Discussing the second trend, 'celerity,' he noted advancements in hypersonics, drones, and orbital defence (/topic/defence) systems. "The second trend I've identified is celerity, which relates to velocity and speed. This is being driven by technologies like hypersonics--glide and cruise--fractional orbital systems capable of circling the globe, and stealth technologies. Small cross-section drones, often deployed in swarm formations, are becoming armed, invisible, inaudible, and undetectable--making them untargetable," he said. He further highlighted the third trend of "intelligentisation," focusing on the digitisation of the battlefield through artificial intelligence and other advanced technologies.

"The third change is the intelligentisation of warfare, encompassing artificial intelligence, machine learning, big data, large language models, supercomputing, and edge computing. The result is the pervasive digitisation of the battlefield," he said. Stressing the need for adaptability, he called for a "resilient and layered defence (/topic/defence)" system. "You could be targeted anywhere in the world, creating what can be termed as ultimate non-linearity in warfare. This paradigm shift demands a resilient, layered defence particularly in air defence (/topic/defence)," he added. CDS Chauhan also emphasised the importance of breaking away from the "catch-up game" with

advanced militaries. "We aim to enter the third revolution in military (/topic/military) affairs alongside the world's advanced militaries. Achieving this will require a shift in mindset and new thinking within the armed forces," he stated. He concluded by highlighting the shift from "net-centric warfare" to "data-centric warfare." "What we are witnessing is a gradual transition from netcentric warfare, which focused on information superiority, to data-centric warfare, where cognitive superiority in decision-making is paramount. The Chinese have described this as a move from information warfare to intelligent warfare, and from net-centric warfare to data-centric warfare," he said.

https://www.aninews.in/news/national/general-news/cds-anil-chauhan-highlights-three-key-trends-reshaping-future-warfare20241121034352/

Press Information Bureau
Government of India

Ministry of Science & Technology

Wed, 20 Nov 2024

Dr. Jitendra Singh announces soft launch of India's First Indigenous Antibiotic, Nafithromycin, to Combat Drug Resistance

New Antibiotic Offers 10x Efficacy with Just 3 Doses to Combat Drug-Resistant Pneumonia

In a ground breaking step for India's biotechnology sector, Union Minister Dr. Jitendra Singh today formally launched the first indigenous antibiotic "Nafithromycin" for resistant infections.

It is only after 2014, when Prime Minister Narendra Modi took over that our researchers received the right kind of support to explore their potential, said Dr Jitendra Singh and added that Modi's personal intervention has made the task far more easier now.

The antibiotic "Nafithromycin" has been developed with the support of "Biotechnology Industry Research Assistance Council" (BIRAC), a unit of the Department of Biotechnology and has been brought to market under the trade name "Miqnaf" by pharma company "Wolkardt". It is the country's first indigenously developed antibiotic aimed at tackling Antimicrobial Resistance (AMR).

This innovation is designed to treat Community-Acquired Bacterial Pneumonia (CABP), a severe illness caused by drug-resistant bacteria, which disproportionately affects vulnerable populations, including children and the elderly as well as immune compromised hosts like Patients with Diabetes, Cancers etc.

Dr. Jitendra Singh described the three-day treatment regimen of Nafithromycin as a game-changer in addressing drug-resistant pneumonia, a condition responsible for over two million deaths globally each year. India, which bears 23% of the world's community pneumonia burden, faces challenges with existing treatments, including widespread resistance to drugs like azithromycin. The new antibiotic, developed by Wockhardt with support from the Biotechnology Industry Research Assistance Council (BIRAC), is ten times more effective than current options and offers a safer, faster, and more tolerable solution for patients.

Nafithromycin's efficacy stands out as it targets both typical and atypical pathogens, offering a potent solution where no new antibiotic in this class has been developed worldwide for over three decades. Remarkably, it is ten times more effective than azithromycin and achieves comparable outcomes with just a three-day regimen, as validated by clinical trials. Beyond its efficacy, Nafithromycin boasts superior safety and tolerability. The antibiotic has minimal gastrointestinal

side effects, no significant drug interactions, and remains unaffected by food, making it a versatile option for patients.

Nafithromycin marks a historic breakthrough as the first new antibiotic in its class to be developed globally in over 30 years. This significant milestone comes at a time when antimicrobial resistance (AMR) is a growing global health crisis, with few new drugs entering the pipeline. The development of Nafithromycin is a testament to India's scientific advancement, offering a much-needed solution to combat multi-drug-resistant pathogens. Its innovative design, targeting both typical and atypical organisms and its ability to overcome existing resistance mechanisms, positions it as a beacon of hope in the fight against AMR, with the potential to save countless lives worldwide.

The development of Nafithromycin represents 14 years of dedicated research and an investment of ₹500 crores, with clinical trials spanning the U.S., Europe, and India. Supported by BIRAC under its Biotechnology Industry Partnership Program (BIPP), the initiative showcases the power of public-private collaboration in advancing healthcare innovation. Dr. Jitendra Singh highlighted that the drug is now awaiting final approval from the Central Drugs Standard Control Organization (CDSCO) for manufacturing and public use, marking a major leap forward in India's fight against AMR.

The Minister underscored the importance of addressing AMR, calling it a global crisis that prolongs illnesses and raises healthcare costs. He pointed to the critical role of innovation and collaboration in tackling this issue, emphasizing that the COVID-19 pandemic had significantly increased public awareness of biotechnology and it's potential. Dr. Jitendra Singh also urged the scientific community to leverage this momentum to drive further advancements in diagnostics, AMR surveillance, and new antibiotic research.

As World AMR Awareness Week shines a spotlight on the global challenge of antimicrobial resistance, Dr. Jitendra Singh rallied stakeholders from the government, pharmaceutical industry, and research institutions to work collectively in combating this threat. "Today's achievement reaffirms our commitment to addressing AMR and improving public health, while positioning India as a global leader in biotechnology innovation," he said.

Dr. Jitendra Singh also praised the collaborative efforts between the public and private sectors that made the development of Nafithromycin possible. He noted that this partnership model, which combines government support with private sector innovation, is key to driving India's leadership in biotechnology and pharmaceuticals. "The success of Nafithromycin is a testament to India's growing capability to develop homegrown solutions for pressing healthcare challenges," he stated.

The Minister highlighted the importance of sustained investment in research and development, particularly in the field of AMR. He emphasized that the government's proactive approach to fostering innovation, alongside its focus on strengthening the healthcare infrastructure, will play a crucial role in addressing the global AMR crisis. Dr. Jitendra Singh stressed the need for continued collaboration between research institutions, the pharmaceutical industry, and government bodies to ensure that India remains at the forefront of global efforts to combat drug-resistant infections.

In conclusion, Dr.Jitendra Singh expressed optimism about India's future in the battle against AMR. "This achievement not only marks a significant milestone in our fight against antimicrobial resistance but also paves the way for future breakthroughs in the development of life-saving medicines. We are committed to improving lives and building a healthier, more resilient future for all," he said. The soft launch of Nafithromycin serves as a powerful reminder of India's potential to lead the world in tackling one of the most pressing health threats of our time.

The event was attended by prominent leaders in the scientific community, including Dr. Rajesh S. Gokhale, Secretary, DBT and Chairman, BIRAC; Dr. Habil Khorakiwala, Chairman, Wockhardt; Dr. Jitendra Kumar, MD, BIRAC and Dr.Y.K.Gupta, President, AIIMS, Jammu. The launch of Nafithromycin signals India's determination to combat AMR and contribute meaningfully to global health.

https://pib.gov.in/PressReleasePage.aspx?PRID=2075174

Press Information Bureau
Government of India

Ministry of Science & Technology

Wed, 20 Nov 2024

New technology developed for unambiguous detection of HIV genome using tailored fluorogenic tests

Researchers have developed a technology for targeted better detection of HIV-genome derived G-Quadruplex (GQ), a four stranded unusual and characteristic DNA structure, using a fluorometric test, offering increased reliability of diagnosis. This diagnostic platform promises to significantly reduce false positives in HIV detection.

The human immunodeficiency virus type 1 (HIV-1), a retrovirus responsible for the acquired immunodeficiency syndrome (AIDS), remains a persistent global threat to human health. Widely used HIV diagnostics, may miss early infections and harbour risk of false positives due to cross-reactivity. Other clinical methods for early detection, are limited by reduced sensitivity and prolonged processing times, respectively.

Current nucleic acid-based diagnostics are prone to false positives due to the use of general DNA sensing probes that fail to distinguish between nonspecific and target amplicons. In this context, the identification and targeting of specific nucleic acid sequences can significantly reduce false positives. Therefore, the development of molecular probes that selectively recognize unique nucleic acid structures such as unusual GQ structures in pathogenic genome, offers significant advancement for development of precise diagnostic assays.

A team of scientists at Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR), has developed a novel diagnostic technology known as the GQ Topology-Targeted Reliable Conformational Polymorphism (GQ-RCP) platform. Initially designed for the fluorometric detection of pathogens like SARS-CoV-2, this versatile platform has now been successfully adapted for diagnosing HIV, reiterating its modular versatility.

Sumon Pratihar, Vasudhar Bhat S V, Krithi K. Bhagavath, Thimmaiah Govindaraju, from JNCASR, an autonomous institution of Department of Science and Technology, demonstrated the GQ topology targeted reliable detection of HIV-derived GQ DNA through a method called reverse transcription and amplification of a 176-nucleotide long genomic segment.

A critical aspect of the study published in Analytical Chemistry was the demonstration of a pH-mediated, facile, single-step quantitative transition of dsDNA into the GQ conformation, which

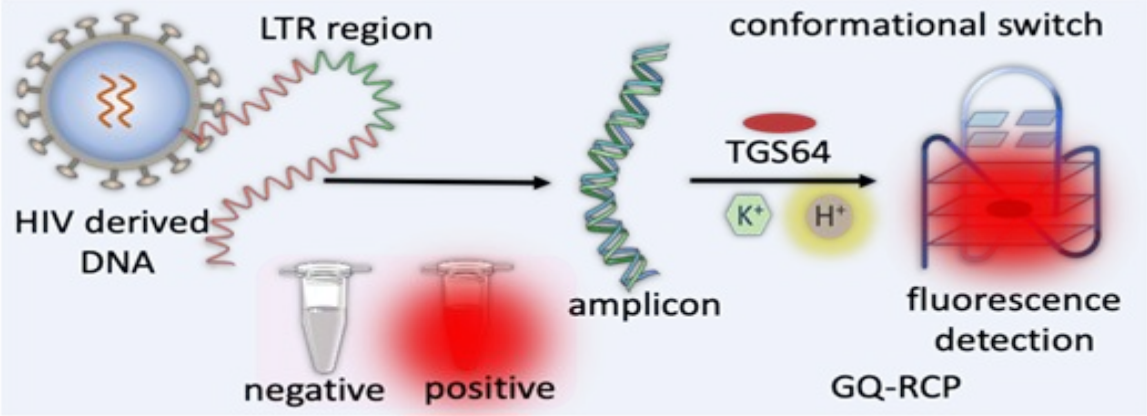
forms the target for detection with remarkable selectivity using a designed benzobisthiazole-based fluorescent probe (TGS64) and setting the stage for the establishment of a reliable diagnostic platform.

Unlike most other diagnostic assays developed in recent years, which rely on pre-existing principles for detection, this research introduces an entirely novel diagnostic platform based on specific and unusual nucleic acid–small molecule interactions identified during the course of the study.

This molecular detection platform can be integrated into existing nucleic acids based diagnostic platforms with increased reliability stemming from sequence specific recognition.

It could alleviate the challenge in existing amplification-based techniques, in discrimination of false-positive results arising from non-specific amplification and help achieve unambiguous detection of the target GQ (noncanonical nucleic acid conformation).

The GQ-RCP-based platform can be practically adopted for the detection of various DNA/RNA based pathogens including bacteria and viruses.



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THE ECONOMIC TIMES

Wed, 20 Nov 2024

If India can make rocket sensors, it can also make car sensors: ISRO chief Somanath

Bengaluru, ISRO Chairman S Somanath on Wednesday highlighted the need to manufacture car sensors domestically instead of relying on imports. Speaking at a session on space technology and defence during the Bengaluru Tech Summit, which also saw the launch of the Draft Karnataka Space Tech Policy, Somanath emphasised the importance of cost-effective production. He pointed

out that while India invests significantly in producing rocket sensors, the high production cost of car sensors makes domestic manufacturing less viable. "For car sensors, viability is achievable only if production costs are low and manufacturing is scaled up," he said.

Somanath called for greater industry collaboration to address this challenge and noted that policy interventions like those unveiled at the summit could provide a solution. He praised the 2020 space sector reforms and the Space Policy of 2023 for creating an ecosystem conducive to private sector growth.

There is a lot of interest in the sector. I hear from many aspiring to build the next SpaceX in India," he added. Highlighting progress, Somanath mentioned that five companies are currently building satellites, with many enhancing their capacity to develop subsystems for rockets and satellites. However, he identified a lack of major players and insufficient investment in upstream space capabilities as key challenges. "To address this, we are focusing on developing downstream capabilities, which can generate demand and eventually attract upstream investments. I believe this model will work well for the nation," he explained.

Somanath also stressed the role of technology transfer in enabling private sector participation, saying, "Many technologies developed within ISRO are now accessible to industries for further development into products, services, or software."

The session featured other notable speakers, including B K Das, Director General of the Defence Research Development Organisation (DRDO), and Anne Neuberger, Deputy National Security Advisor of the United States. Priyank Kharge, Karnataka's Minister for IT, Biotechnology, Science and Technology, and Ekroop Caur, Secretary to the Government, Department of Electronics, IT, and Biotechnology, also participated. Kharge stated that the draft policy envisions Karnataka capturing 50 per cent of the national space market and establishing itself as a global hub for space

https://economictimes.indiatimes.com/news/science/if-india-can-make-rocket-sensors-it-can-also-make-car-sensors-isro-chief-somanath/articleshow/115486627.cms

THE WEEK

Wed, 20 Nov 2024

5 stars emerge in NASA Space Apps Challenge: Kerala, Karnataka, Gujarat, Maharashtra, and Ladakh entries earn laurels

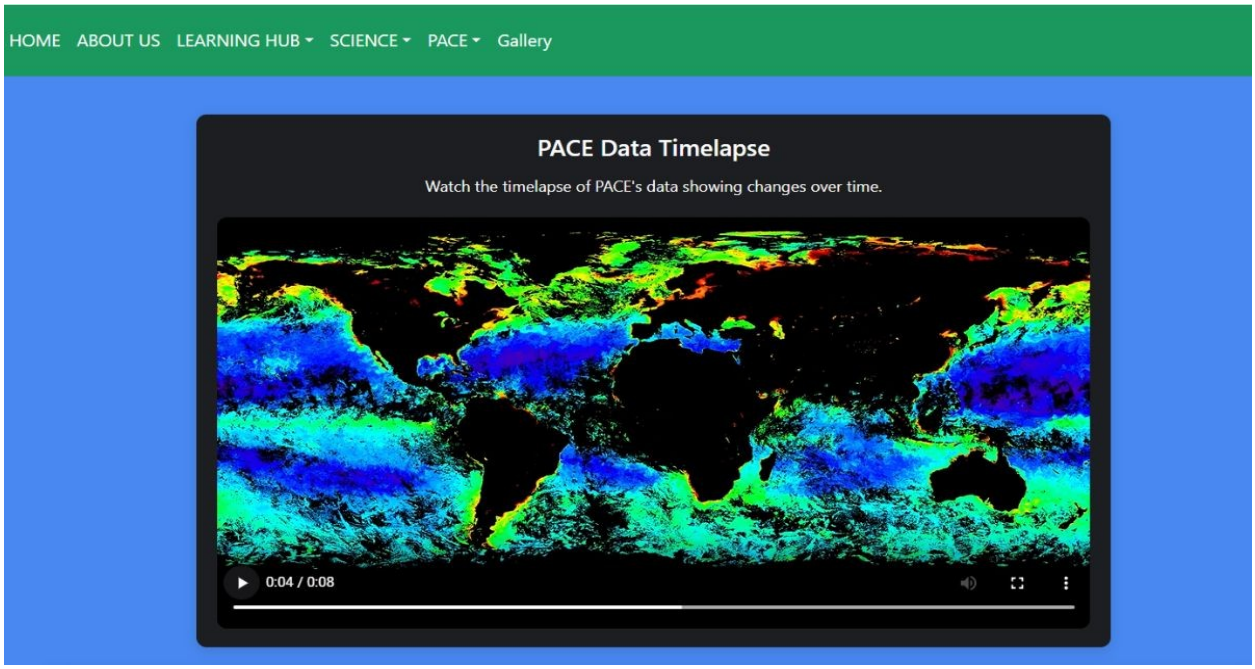
It is a five-star delight for India, as NASA announced the finalists and special mentions in their coveted Space Apps Challenge. Two teams of youngsters became finalists: Dark Mode from Harohalli village in Karnataka and EcoNet from the city of Nashik in Maharashtra. Winners are expected to be announced on January 16, 2025, according to NASA. Among the special mentions were three entries from India—from Space Odyssee from Kothamangalam town in Kerala, Phyto-makers from Ahmedabad city in Gujarat, and SR-Hub from Ladakh's capital city Leh. Nashik-based EcoNet comprised Snehal Sanap, Vedant Purkar, Sanchita Rajurkar, Piyush Satish Sanap, Gayatri Nilesh Duse, and Harshita Gandhi. Their project with the same name was an educational app engaging primary and middle school students in environmental science through a gamified learning environment. Dark Mode from the village, Harohalli, was a team formed by Manoja D, Rahul S, Aditya Srinivasan, Arya Prashanth, Aryan Choudhary, and Vilas CP. Their project, "Habitable Exo Planets (HEP)", was an algorithm that determines if any exoplanet is habitable or not exoplanets through astrophysical models and observations.

Forty projects among more than 940 nominees from around the world made it to the finals. With two Indian teams comprising young, bright minds from the country finding their places among the finalists, chances are that we might bag at least one among the top ten spots.

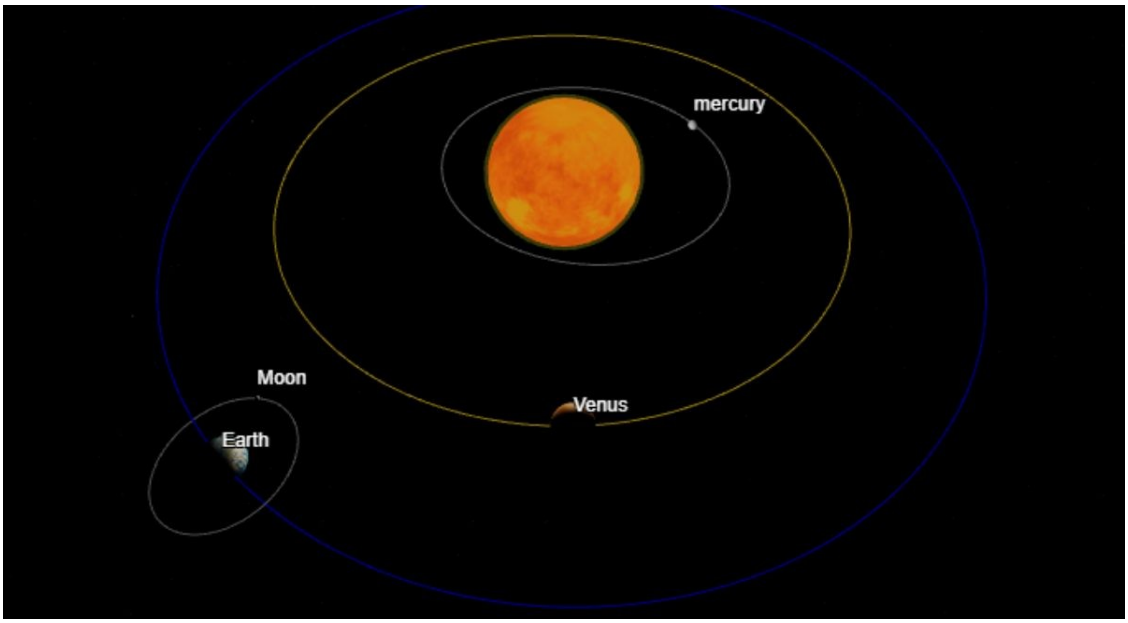
Honourable mentions that narrowly missed the finale Space Odyssee from Kothamangalam created their version of an "Orrery Web App" with a user-friendly interface to see the movement of celestial bodies. It opens to a visual representation of the solar system, and users can customise their view as they see how the planets orbit around the Sun. The app shows near-earth objects and potentially hazardous asteroids in a bid to raise awareness of the importance of space monitoring. The team comprised Azeem N, Alan Antony, Aswin Krishna, Anandhu Krishna P, Dhanay J, and Anandha Krishnan A. Manan Kapkar, Paraj Mehta, Shrey Parsania, Dhriti Sojitra, Shah Nevil Mitesh, and Kher Rudra were the Ahmedabad-based Phyto-makers, who designed a "PACE classroom environment"—complete with interactive quizzes and maps, engaging videos, and DIY

projects for learners who wanted to know more about space with data from the Plankton Aerosol Cloud Ocean Ecosystem (PACE) satellite.

The snowy mountains of Leh produced the team SR-Hub, with Girish Gaurav Sharma, Shabd Patel, Ajay Mokta, and Aarushi Saini as members. Their project was a web-based app with the same name that compared groundbased spectral data with Landsat satellite imagery. Users can select geographic areas, see corresponding Landsat Surface Reflectance (SR) data, and get timely notifications about Landsat satellite overpasses through WhatsApp or email.



From the app by Phyto-makers



From the app by Space Odyssee |

THE TIMES OF INDIA

Thurs, 21 Nov 2024

NASA's Curiosity rover uncovers rare sulphur stones on Mars through Gediz Vallis exploration

NASA's Curiosity rover has been exploring Mars since it landed on the Red Planet in 2012, providing vital data about its history, climate, and potential for life. Recently, the rover concluded its study of the Gediz Vallis channel, a region located on the slopes of Mount Sharp, and is now heading toward a new target called the boxwork formation. This exploration is a critical part of Curiosity's mission to understand how Mars transitioned from having a wetter, more habitable climate to the arid, dry conditions that dominate the planet today.

Gediz Vallis reveals clues about Mars' past climate and geology

Gediz Vallis is a channel or valley on Mars that reveals clues about the planet's past climate and geological processes.The valley's features suggest that water once flowed through this region, and scientists believe that it may have been formed by a combination of rivers, debris flows, and avalanches —a mix of wet and dry processes over time. This area is located on the slopes of Mount Sharp, a peak inside the Gale Crater, where the Curiosity rover has been operating for years. Mount Sharp itself has layers of ancient rocks that are key to understanding the evolution of Mars' climate, as they have preserved evidence of the planet's environmental changes over billions of years. Before leaving Gediz Vallis, Curiosity captured a 360-degree panorama of the landscape, providing a rich visual record of the region. These images help scientists study the terrain and features in detail, giving them further insights into the channel's formation and the processes that shaped it. By exploring areas like Gediz Vallis, Curiosity is helping researchers piece together how Mars evolved from a warm, potentially wetter world to the cold and dry planet it is now.

Sulphur-rich stones found by Curiosity provide clues to Mars' past

One of the most exciting findings during Curiosity's exploration of Gediz Vallis is the discovery of rare sulphur-rich stones. These stones are bright white in colour, and when Curiosity's wheels crushed them, they revealed yellow crystals inside. This discovery is significant because sulphur is a key element when studying planetary environments, and it can be indicative of past chemical processes, including potential signs of microbial life. What makes this discovery even more intriguing is that on Earth, sulphur is usually associated with volcanic activity or hot springs, where sulphur-rich compounds are commonly found due to hightemperature environments. However, Mount Sharp doesn't have volcanic features or hot springs—two things that are usually associated with sulphur on Earth. This raises a mystery for scientists: how did these sulphur-rich deposits form on Mars? Ashwin Vasavada, Curiosity's project scientist at NASA's Jet Propulsion Laboratory, described the discovery as a "fascinating mystery." Researchers are now analysing the data to determine the origins of these sulphur deposits. Possible explanations include chemical

reactions involving water and minerals, but scientists are still investigating all potential causes. The discovery could be a key piece of the puzzle in understanding Mars' history of water and its potential for supporting life in the distant past.

Gediz Vallis offers key insights into Mars' transition from water to desert

Mars is believed to have once had liquid water on its surface, with evidence suggesting that rivers, lakes, and possibly even oceans existed in the distant past. Over time, however, Mars transitioned into the cold, dry desert planet we see today. The exploration of regions like Gediz Vallis is essential for reconstructing this transition. Scientists have found features such as the “Pinnacle Ridge” mound, which show that the channel was influenced by both wet debris flows (flows of water-saturated material) and dry avalanches (dry, sandy, or rocky flows). The combination of these features indicates a dynamic environment where the climate may have shifted over time. The valley’s sediment layers suggest that water may have been more abundant in the past, but later, the climate changed, leading to dryer conditions and eventually turning Mars into the arid world we know now. By studying these features and the chemical composition of the soil and rocks, scientists are piecing together a timeline of Mars' climate history. Understanding this transition is crucial to determining if Mars could have supported microbial life in the past, and how life might have adapted to changing conditions on the planet.

Boxwork formation offers key insights into Mars' past water activity and life possibility

After finishing its study of Gediz Vallis, Curiosity is now heading to an intriguing geological feature called the boxwork formation. This region is characterised by mineral ridges that form a network resembling a spiderweb. The ridges stretch over a wide area—up to 20 kilometres—and scientists believe that they formed when minerals crystallised in fractures within the rock, possibly as water evaporated from the area. The boxwork formation presents a unique opportunity to study how water once interacted with Mars' geology. Researchers think that these formations might provide a snapshot of how water evaporated in Mars' ancient past, leaving behind mineral deposits

that could offer further clues about the planet’s environmental history. The boxwork region also holds significance because it may have been an environment where microbial life could have once existed. If water was present long enough and had the right chemical conditions, microbes might have been able to thrive. This is why studying formations like the boxwork is so important—scientists want to understand not only the planet's geological evolution but also its potential to support life.

Curiosity's journey across Mars reveals key discoveries

Since landing in 2012, Curiosity has travelled over 33 kilometres across Mars, making important discoveries about the planet's history, geology, and potential for life. The rover's primary mission is to explore Gale Crater and the surrounding regions, collecting data on Mars' habitability and helping scientists understand the planet's past environment. Curiosity's findings, such as the discovery of sulphur-rich stones and the detailed studies of Mars' climate history, are transforming our understanding of the Red Planet. With each new discovery, the rover brings humanity closer to understanding whether Mars ever had the conditions necessary for life, and if those conditions could have supported life forms in the past.

https://timesofindia.indiatimes.com/science/nasas-curiosity-rover-uncovers-rare-sulphur-stones-on-mars-through-gediz-vallis-exploration/articleshow/115498211.cms

Thurs, 21 Nov 2024

ISRO & ASA(Australian space agency) sign Implementing Arrangement for Gaganyaan

An Implementation Agreement (IA) was signed between Indian Space Research Organisation (ISRO) and Australian Space Agency (ASA) on November 20, 2024 for further strengthening cooperation in space activities between Australia and India. The IA enables cooperation between both space agencies on crew and crew module recovery for Gaganyaan missions. The IA was signed by Shri DK Singh, Director, HSFC on ISRO side at Bengaluru and Shri Jarrod Powell, General Manager, Space Capability Branch, on ASA side at Canberra.

ISRO has embarked on the Human Spaceflight ("Gaganyaan") programme with an objective of demonstrating human space flight capability to Low Earth Orbit in an Indian Crew Module with up to three crew members for up to three days and safely recovering them after the mission. The IA enables the Australian authorities to work with Indian authorities to ensure support for search and rescue of crew and recovery of crew module as part of contingency planning for ascent phase aborts near Australian waters.

India and Australia are enduring strategic partners and both space agencies are working closely and are committed to explore current and future collaboration activities. The signing of the IA is another step forward in the cooperation between Indian and Australian space agencies.

https://www.isro.gov.in/ISRO_ASA_sign_Gaganyaan.html#:~:text=The_IA_enables_cooperation between,on ASA side at Canberra.

Wed, 20 Nov 2024

Earth's Magnetic North Pole Could Move 660km Towards Russia: What You Need to Know

Earth's magnetic North Pole is on the move, and it's heading towards Russia faster than ever before. Scientists are keeping a close watch on this unusual shift, which could see the pole travel another 660 kilometers (410 miles) towards Siberia in the next ten years. But what's causing this movement, and what does it mean for us? speed has picked up significantly. From 1990 to 2005, the pole moved between 50 and 60 kilometers (31 to 37 miles) each year, according to a 2020 study. However, in the last five years, this pace has slowed to around 22 miles per year, which is still much faster than historical rates.

How Scientists Track the Pole

The British Geological Survey (BGS) and the US National Oceanic and Atmospheric Administration (NOAA) work together to monitor the magnetic North Pole. They update the World Magnetic Model (WMM) every five years, which is crucial for navigation

systems used by ships, planes, and even your smartphone's GPS. Dr. Ciaran Beggan from BGS explained that the pole's sudden changes make it harder to predict future movements accurately.

Why Is the Pole Moving?

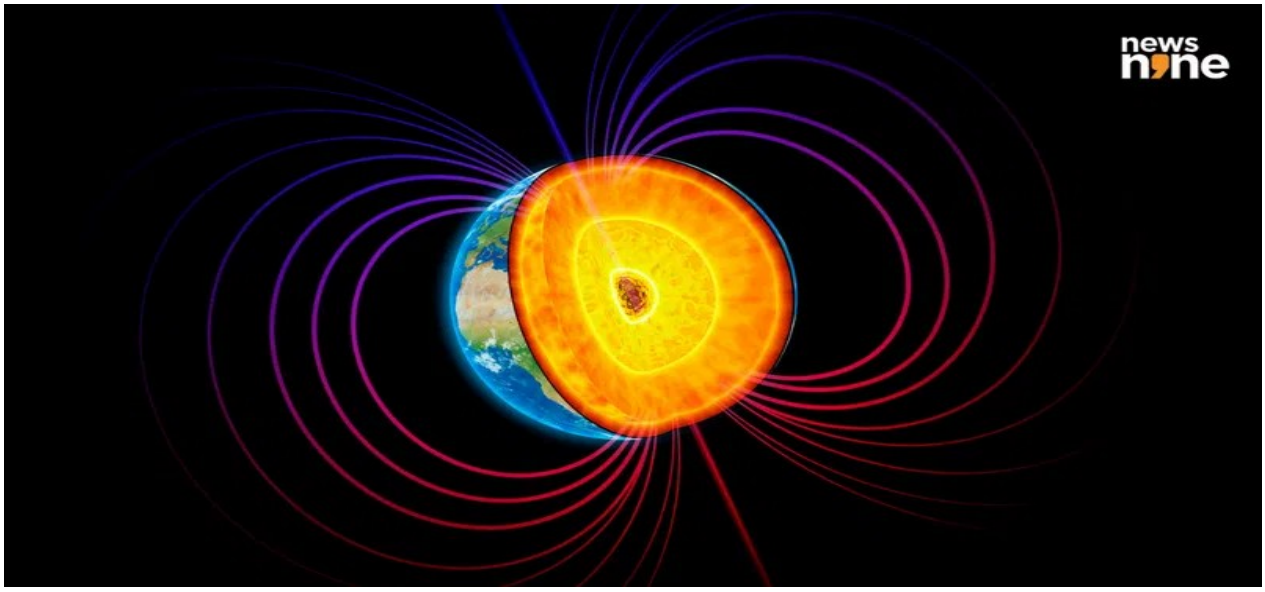
The movement of the magnetic North Pole is driven by changes in Earth's molten outer core. This liquid iron, swirling about 2,000 miles beneath the surface, generates the planet's magnetic field. Think of it like a giant pot of boiling tea – the heat causes the liquid to move, which in turn shifts the magnetic field. These movements are unpredictable and can cause the pole to drift unexpectedly.

What Does This Mean for Us?

You might wonder how this affects everyday life. Well, the shifting magnetic field plays a big role in navigation. Compasses rely on a stable magnetic field to point north accurately. With the pole moving so fast, navigation systems need frequent updates to stay precise. This is especially important for aviation and maritime industries to ensure safe travel. Moreover, the magnetic field protects us from harmful solar radiation. If the field weakens or changes drastically, it could lead to increased radiation exposure on Earth's surface, which might affect both living organisms and our technological systems.

Should We be Concerned?

While the current movement of the magnetic North Pole isn't a cause for immediate concern, it highlights the dynamic nature of our planet. Scientists continue to study these changes to better understand the Earth's magnetic behavior and to improve our navigation and safety systems.



https://www.news9live.com/science/scientists-alert-magnetic-north-pole-russia-2754915