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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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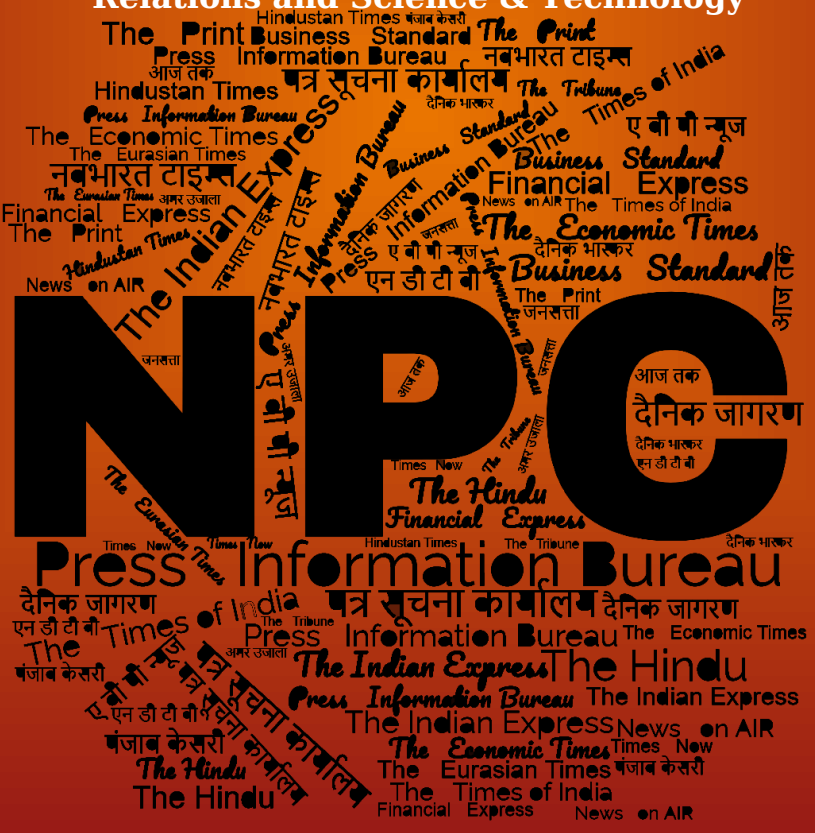

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Tue, 02 Jan 2024

Why Homegrown Akash Missile System is seen as India's Iron Dome

India's homegrown surface-to-air missile (SAM) system Akash is getting a lot of attention from other nations as they consider buying the advanced weapons platform. Developed by the Defence Research and Development Organisation (DRDO) and produced by Bharat Dynamics Ltd (BDL), Akash is a short-range SAM that can protect vulnerable areas and points from air attacks.

The DRDO has said India is the first nation that made a system capable of engaging four aerial targets at the same time at 25 km range by command guidance using a single firing unit.

Here are some key points about the Akash SAM, which is also being seen as India's "Iron Dome", the system used by Israel to intercept incoming rocket barrages.

- After Armenia, Brazil, and Egypt have shown interest on the Akash SAM.
- The Akash weapon system can engage multiple targets at the same time in a group or autonomous mode.
- Akash has built-in electronic counter-counter measures (ECCM) features, which can help the missile punch through enemy jamming and other methods of evasion.
- The entire Akash weapon system has been configured on mobile platforms. This makes it agile and nimble as it can be transported fast anywhere.
- The Akash mobile system also enhances its survivability by moving from one place to another after firing missiles and before the enemy can launch a counter-attack, mostly with anti-radiation missiles that home in on radar emissions.
- The Akash is in service with both the Indian Army and the Indian Air Force (IAF).
- Akash's comparison with Israel's Iron Dome comes from the fact that the Indian system, which is much larger than the Iron Dome missiles, can also intercept unmanned aerial vehicles (UAVs) and other types of smaller incoming projectiles, apart from helicopters and aircraft.
- The Akash system, however, is seen mainly for defence against bigger aerial threats like aircraft, than small rockets that the Iron Dome is mostly used to intercept.
- The Akash SAM can hit targets between 4.5 km to 25 km, with an effective altitude of 100 meters to 20 km.

- The missile is 5,870 mm long, has a diameter of 350 mm, and weighs 710 kg. It can be made fully automatic with a quick response time from target detection to kill. Its open-system architecture ensures adaptability to existing and futuristic air defence environments.

https://www.ndtv.com/india-news/explained-why-homegrown-akash-missile-system-is-seen-as-indias-iron-dome-4785731

Defence News

Defence Strategic: National/International

Press Information Bureau
Government of India

Ministry of Defence

Tue, 02 Jan 2024

INDIA - UAE Joint Military Exercise 'Desert Cyclone' Commences in Rajasthan

The UAE Land Forces contingent comprising 45 personnel arrived in India to participate in the 1st edition of the India - UAE Joint Military Exercise 'DESERT CYCLONE'. The Exercise is scheduled to be conducted in Mahajan, Rajasthan from 2nd to 15th January 2024. The UAE contingent is being represented by troops from the Zayed First Brigade. The Indian Army contingent comprising 45 personnel is being represented mainly by a Battalion from the Mechanised Infantry Regiment.

The aim of the Exercise is to enhance interoperability in Sub-conventional Operations including Fighting in Built-Up Area (FIBUA) in desert/ semi desert terrain under Chapter VII of the United Nations Charter on Peace Keeping Operations. The Exercise will enhance cooperation and interoperability between both the sides during Peace Keeping Operations.

Drills planned to be rehearsed during Exercise 'DESERT CYCLONE' include Establishment of a Joint Surveillance Centre, Cordon and Search Operation, Domination of Built-Up Area and Heliborne Operations. The Exercise will also foster collaborative partnership and help in sharing best practices between the two sides.

Exercise 'DESERT CYCLONE' signifies further strengthening of bonds of friendship and trust between India and the UAE. The Exercise aims to achieve shared security objectives and foster bilateral relations between two friendly nations.

https://pib.gov.in/PressReleasePage.aspx?PRID=1992404

Tue, 02 Jan 2024

AI-Powered Land Robots to Bolster the Army's Power in Tough Terrain: Learn about its Offensive and Defensive Potential

In a significant move to bolster the Indian Defence Force and reduce causalities along the border region, the Ministry of Defence has been making several strong moves, including the purchasing of state-of-the-art weapons. Taking another futuristic step, the Indian Armed Force has given the green signal for the induction of unmanned autonomous land robots powered by artificial intelligence (AI). These robotic guards will bolster India's guarding along border areas, especially in the rugged terrain of Rajasthan. This will ultimately help reduce the causalities of soldiers and revolutionised the Indian military landscape.

Advantage of land robots powered by AI

The use of Artificial Intelligence in land robots offers numerous advantages. The AI system ensures additional strength to the robots, making them capable of operating in hazardous environments. In addition, the robotic guards powered by AI perform heavy tasks with greater precision and speed. Moreover, these robotic guards will be capable enough to engage in combat situations. Their autonomous potential as robots allows them to make decisions instantly and change course on their own without human interference.

Offensive and defensive roles of robots

The Indian Army highlights multipal potential of these AI-powered robots. As per the defence sources, the robots could act as reconnaissance units, gathering intelligence and identifying enemy targets, making them highly suitable for offensive mode. The Army is also looking forward to deploying robotic arms to breach enemy's fortifications, neutralize suppressive fire, or even carry out targeted strikes. In defensive mode, these robots have been designed to act as sentries, patrolling borders and guarding important infrastructure, such as the weaponry of the Indian Armed Forces. Moreover, these robots are also suitable for mine detection and neutralisation, resulting in lowering the risk to human soldiers. The robotic soldiers will also be capable enough to provide first aid and medical assistance to injured people in remote areas. This will help save the lives of numerous soldiers and others injured in combat situation.

Drawbacks and advantage

Well, the creation and deployment of this self-driven equipment pose another set of challenges. Enhanced cyber security and researchers are required to use such sophisticated robots. Guaranteeing a smooth interface with current military systems is an important area that needs careful deliberation and development.

Though there are some challenges that come with the integration of AI-powered land robots, the advantages of such equipment are quite high. With the integration of such technologies, the Indian Army is looking forward to enhancing soldier safety, bolstering operational effectiveness and gaining a lead on the modern battlefield.

https://www.news9live.com/knowledge/ai-powered-land-robots-to-bolster-the-armys-power-in-tough-terrain-learn-about-its-offensive-and-defensive-potential-2393325

नवभारत टाइम्स

Wed, 03 Jan 2024

26 जनवरी परेड में पहली बार आर्मी, नेवी, एयरफोर्स का जॉइंट महिला दस्ता, स्वदेशी होगी बीटिंग रिट्रीट

इस बार बीटिंग रिट्रीट सेरेमनी पूरी तरह से स्वदेशी होगी। सूत्रों के मुताबिक बीटिंग रिट्रीट में जो भी धुनें बजाई जाएंगी वह स्वदेशी होंगी। इसके लिए धुनों को चयन कर लिया गया है। साथ ही गणतंत्र दिवस परेड में पहली बार इंडियन नेवी, एयरफोर्स और नेवी की महिला अग्निवीरों को जॉइंट दस्ता होगा। जिसे तीनों फोर्स की महिला ऑफिसर लीड करेंगी। पहली बार ट्राई सर्विस (आर्मी, नेवी, एयरफोर्स) दस्ता परेड में मार्च करेगा।

इस बार बीटिंग रिट्रीट में हर धुन स्वदेशी होगी

साल 2022 में बीटिंग रीट्रीट सेरेमनी से 'अबाइड विद मी' धुन को ड्रॉप किया गया था। 1950 से लेकर हर साल 29 जनवरी तक बीटिंग रिट्रीट समारोह में यह धुन बजाई जाती थी। इससे पहले 2020 में भी इसे हटाने की कोशिश की गई थी लेकिन विवाद होने के बाद तब इसे फिर शामिल कर दिया गया था। सूत्रों के मुताबिक इस बार बीटिंग रिट्रीट में हर धुन स्वदेशी होगी। इसमें ताकत वतन की हम से है..., कदम कदम बढ़ाए जा...., ऐ-मेरे वतन के लोगो...., फौलाद का जिगर...., शंखनाद... भागीरथी.... जैसी धुनें शामिल हैं। बीटिंग रिट्रीट सेना की बैरक में वापसी का प्रतीक है।

बीटिंग रिट्रीट में तीनों सेना की महिला अग्निवीरों का जॉइंट दस्ता

बीटिंग रिट्रीट से पहले गणतंत्र दिवस समारोह में पहली बार इंडियन आर्मी, एयरफोर्स और नेवी की महिला अग्निवीरों का जॉइंट दस्ता होगा। अब तक ट्राई सर्विस दस्ता यानी तीनों सेनाओं का जॉइंट दस्ता गणतंत्र दिवस परेड मे शामिल नहीं हुआ है। पहली बार ट्राई सर्विस दस्ता होगा। सूत्रों के मुताबिक इसे इंडियन आर्मी की महिला ऑफिसर लीड करेंगी। उनके पीछे तीन दस्ते आर्मी की महिला अग्निवीर, नेवी की महिला अग्निवीर और एयरफोर्स की महिला अग्निवीर का दस्ता समानांतर (पैरलर) मार्च करेगा। इनकी अगुवाई इन फोर्स की ही महिला अधिकारी करेंगी। तीन सेनाओं की परेड करने की स्टाइल में भी फर्क है इसलिए आर्मी, नेवी और एयरफोर्स की महिला अग्निवीर गणतंत्र दिवस परेड के लिए अपनी मार्चिंग स्किल को भी फाइन ट्यून कर रही हैं ताकि कदम से कदम मिलाकर कर्तव्य पथ पर मार्च कर सकें।

महिला सेलर्स की भी भर्ती शुरू

इंडियन नेवी में अग्निपथ स्कीम लागू होने के साथ ही अग्निवीर के तौर पर महिला सेलर्स की भी भर्ती शुरू हुई। नेवी के अग्निवीर के पहले बैच में 2600 अग्निवीर थे, इसमें 273 महिला अग्निवीर भी शामिल थी। इंडियन एयरफोर्स में अग्निवीर के पहले बैच में महिलाएं नहीं थी लेकिन दूसरे बैच में 153 महिला अग्निवीर थी जो पिछले महीने ही पासआउट हुई हैं। तीसरे बैच की ट्रेनिंग चल रही है और इसमें भी महिलाएं हैं। इंडियन आर्मी में 2019 से महिलाओं की सैनिक के तौर पर भी भर्ती शुरू हुई। महिलाएं कोर ऑफ मिलिट्री पुलिस में सैनिक के तौर पर तैनात हैं। अग्निपथ स्कीम लागू होने के साथ ही अग्निवीर के तौर पर महिलाएं कोर ऑफ मिलिट्री पुलिस में भर्ती हो रही हैं।

https://navbharattimes.indiatimes.com/india/first-time-on-republic-day-joint-women-squad-of-army-navy-and-air-force/articleshow/106498107.cms

The Tribune

Wed, 03 Jan 2024

Anti-drone Tech to Fortify Border Security in 6 Mths

The government is close to finalising anti-drone technology for deployment across borders, especially the International Border with Pakistan in Punjab and the Line of Control in Jammu and Kashmir.

Official sources on Tuesday said trials were underway and the deployment could happen in six months.

“We are very near to finalising the anti-drone technology for deployment all along the border. Three types of trials are underway. We have to decide whether to deploy these independently or in combination. The deployment is estimated in six months,” top government sources said with drone incursions across the border on the rise. Only in December last year, the Border Security Force which guards the International Border said it had shot down 100 Pakistani drones engaged in smuggling narcotics, arms and ammunition into India through 2023.

Previously, the BSF reported 268 drone sightings in 2022 as against 49 in 2020 and 109 in 2021. The government is conscious of the rapid emergence of drones as Pakistan’s preferred tool in the border conflict with India.

“Memories of the June 27, 2021, drone attack on the Indian Air Force Station in Jammu are still fresh when two low-intensity explosions were reported. One caused minor damage to the roof of the building and the other exploded in the open. Low-flying drones were used in the attack to drop two improvised explosive devices.

“Drone sightings in Punjab are also on the rise and we can increasingly observe the potential of drones for attacks in military and civilian areas as well as their use in carrying narcotics, small arms and fake currency. All this warrants anti-drone technology deployment,” official sources said, adding that counter-unmanned aircraft systems (C-UAS) technology can neutralise drones in two ways — by blocking communication lines or by downing the drone itself.

In the wake of the Israel-Hamas war, drone attacks led by Iran-backed Houthi rebels in the Red Sea have also escalated. Only a week ago, drone attacks damaged a commercial merchant ship in the Arabian Sea leading to Defence Minister Rajnath Singh’s dare that India would find the perpetrators of the attack from the depths of the sea.

https://www.tribuneindia.com/news/india/anti-drone-tech-to-fortify-border-security-in-6-mths-577760

Hindustan Times

Wed, 03 Jan 2024

‘India-China Ties must be Based on Realism’: FM Jaishankar

India should deal with China on the basis of “realism” and bilateral relations should be based on mutual understandings in respect, sensitivity and interest, external affairs minister S Jaishankar has said in an assessment of New Delhi’s approach to engage with Beijing. Jaishankar lauded Prime Minister Narendra Modi for his pragmatic approach towards China in an interview with ANI to

mark the release of his new book “Why Bharat Matters”. He criticised the approach towards China during the tenure of former prime minister Jawaharlal Nehru.

“I argue for dealing with China from a basis of realism – that strain of realism, which I feel strains all the way from [former home minister] Sardar [Vallabhbhai] Patel to Narendra Modi. That is the strain of realism which I feel should allow us to have a certain approach,” he said.

“I would say the Modi government has been very much more…in conformity with a strain of realism, which originated from Sardar Patel.”

Jaishankar’s remarks came against the backdrop of a military standoff between India and China on the Line of Actual Control (LAC) that is set to enter its fourth year and has taken ties to an all-time low. India has insisted China should restore normalcy on the LAC in order to normalise the overall bilateral relationship.

Jaishankar highlighted the difference of opinion between India’s first home minister, Sardar Patel, and the first prime minister, Jawaharlal Nehru, on China. “Even when it came...to the UN Security Council seat, it’s not my case that we should have necessarily taken the seat, it’s a different debate, but to say that we should first let China – China’s interest should come first, it’s a very peculiar statement to make,” he said, referring to the process for entry into the UN Security Council in past decades.

He added, “I pose the issue in this manner, if you look at the last 75 plus years of our foreign policy, they have a strain of realism about China and a strain of idealism, romanticism, non-realism. It begins right from day one, there is a sharp difference of opinion [on] how to respond to China between Nehru and Sardar Patel.”

Jaishankar dwelt on the “Chindia policy”, promoted by Congress leader Jairam Ramesh almost a decade ago to project the joint rise of China and India, and said, “The alternative strain, which starts from Nehru’s first [China] policy – first let China take the seat [at the UN Security Council], then we will see for India. From [this] first policy, it ends up as Chindia policy.”

India’s current engagement with China is less about making a pivot and more about constructing a relationship based on the three mutuals of respect, sensitivity and interest, and it will be very difficult for bilateral relations to progress if this mutuality is not recognised, he said.

“Today, part of our problem is [that] because in 2020, agreements were disregarded and the mutuality on which this whole relationship is predicated has not been followed, we have the situation. So, when you ask me where will it go, I would say a lot of it will depend on what is the Chinese policy,” he said.

The Indian side was eyeing a proposal to hold the Quad Summit on January 27 if Biden had agreed to be the chief guest at the Republic Day function. US Ambassador Eric Garcetti had said in September that Biden was invited to India for Republic Day by Modi on the sidelines of the G20 Summit in New Delhi.

Following Biden’s decision, French President Emmanuel Macron will be the chief guest for the Republic Day celebrations.

Jaishankar also criticised elements that talked about the slide of democracy indicators in India and said there is no need to take what appears in the foreign media at face value. He said one of the chapters in his new book refers to Modi feeling the need “for a new construct” after the BJP-led government came to power in 2014.

Asked about foreign media reports about an assertive India and sliding of democracy indicators, Jaishankar referred to the “democracy narrative” that is a “mind game”.

He said, “There are people who apparently feel more confident of their support outside India, and inside India, they get support from outside India. So, we have this constant barrage. We’ve had this from 2014, it increased up to 2019. I’m sure it will become very shrill as we lead up to the summer of 2024...”

He made it clear he wasn’t saying there is no room for improvement in India’s democracy. “I’m not saying we’re perfect...But I would say, please look at their motive and their agenda. They are not agenda-less, they are not motive-less, they are trying to push a certain line because they have a certain interest,” he said.

Jaishankar referred to the government’s initiatives to expand relations with countries in West Asia and said this was an area where Modi felt the need for a “new construct” after coming to power. India has an “extended zone” that includes Southeast Asia, West Asia, Central Asia and the Indian Ocean. “You look at the Gulf, it is a region so near us, so many Indians living there, so much oil imported from there...yet politically very, very neglected,” he said.

The United Arab Emirates (UAE) didn’t have a prime ministerial visit before Modi went there after a trip by former premier Indira Gandhi in 1981.

Describing India’s relations with Russia as “important and steady”, Jaishankar said these ties have proved beneficial. Responding to the Western media’s reaction to his visit to Russia and the camaraderie between Modi and Russian President Vladimir Putin, Jaishankar said, “I see no reason that people should take...what was happening other than at face value because we have always maintained that the Russia relationship is a very important one, very steady one.”

India has maintained a neutral stance on the Russia-Ukraine conflict and backed dialogue and diplomacy to resolve the issue.

In response to another question on Canada’s allegation about the potential involvement of Indian agents in the killing of Khalistani leader Hardeep Singh Nijjar, Jaishankar said Canadian politics has given space to Khalistani forces and this is not in the interest of either country.

“The issue at heart is the fact that in Canadian politics, these Khalistani forces have been given a lot of space and have been allowed to indulge in activities which are damaging to the relationship, clearly not in India’s interest, and not in Canada’s interest either. But unfortunately, that is the state of their politics,” he said.

Jaishankar also noted that India has made “irrelevant” Pakistan’s policy of using cross-border terrorism to force a bilateral dialogue and said New Delhi will not deal with the neighbour on terms whereby “the practice of terrorism is deemed as legitimate”.

India is not unwilling to deal with Pakistan but has made it clear that Islamabad has to create an environment free of terror and hostility for this. Referring to the government’s approach towards Pakistan, he said India won’t tolerate cross-border terror.

“What Pakistan was trying to do, not now but over multiple decades, was really to use cross-border terrorism to bring India to the table. That, in essence, was its core policy. We have made that irrelevant by not playing that game now,” he said.

Jaishankar underscored the significance of India’s G20 presidency in the adoption of the New Delhi Declaration, particularly amid polarisation on the Ukraine conflict and the concerns of the Global South. He said India brought everyone to the table at the G20, thanks to its relations with each country, amid speculation that the G20 members would fail to issue a joint statement.

“At the G20, not even 12 hours before the G20 declaration was finalised, there were people publicly predicting that we will fail...There was a North-South divide, there was the East-West polarisation, every country was pulling in a different direction and yet the fact was, eventually, we

got everybody to come to the table and I accept when they all came to the table, they deserve the credit," he said.

"The truth is they came to the table because everybody ultimately had relations with India. The other 19 countries said this matters for India, this is something which is right. The fact is everybody made a compromise and that is how it happened."

Jaishankar also mentioned India's growing stature at the global level and said in the past 10 years, the country has become more relevant and visible, and is "seen as influencing many more outcomes".

https://www.hindustantimes.com/india-news/indiachina-ties-must-be-based-on-realism-fm-jaishankar-101704257499924.html

bt | Business Today

Tue, 02 Jan 2024

BRICS Bloc Expands to Include Egypt, Ethiopia, Iran, Saudi Arabia, UAE

The BRICS bloc, comprising major emerging economies like India, Russia, and China, has expanded to include five new full members. These are Egypt, Ethiopia, Iran, Saudi Arabia, and the United Arab Emirates.

This expansion comes amidst a backdrop of Western dominance in global affairs. Russian President Vladimir Putin, as the presiding head of BRICS, confirmed the development.

Initially, Argentina was also set to join the bloc from January 1, following the approval of the summit's leaders. However, Argentina's President Javier Milei decided against it. Putin recognised the addition of new members as indicative of the growing influence and role of BRICS in international matters. He also noted the increasing number of supporters and countries sharing the bloc's principles.

These include sovereign equality, openness, consensus, and the aspiration for a multipolar international order and a fair global financial and trading system.

The BRICS bloc, which represents a quarter of the global economy, was established in September 2006. It was originally named BRIC and included Brazil, Russia, India, and China. South Africa joined in September 2010, leading to the bloc being renamed BRICS.

Putin stated that Russia's 2024 BRICS chairmanship will focus on fostering positive and constructive cooperation with all relevant countries. He also mentioned the possibility of introducing a new category of BRICS partner countries and that Russia would continue to advance all aspects of the BRICS partnership in three key areas: politics and security, economy and finance, and cultural and humanitarian contacts.

https://www.businesstoday.in/latest/world/story/brics-bloc-expands-to-include-egypt-ethiopia-iran-saudi-arabia-uae-411572-2024-01-02

नवभारत टाइम्स

Tue, 02 Jan 2024

पाकिस्तानी सेना को दोस्त चीन ने फिर लगाया करोड़ों का चूना, कबाड़ बना अवाक्स विमान, करना पड़ रहा रिटायर

पाकिस्तान की सेना को एक बार फिर से चीन ने बड़ा चूना लगाया है। यही वजह है कि पाकिस्तान की वायुसेना एक हैरान करने वाला कदम उठाते हुए इस साल अपने ZDK-03 कराकोरम ईगल एयरबॉर्न अर्ली वार्निंग एंड कंट्रोल एयरक्राफ्ट को रिटायर करने जा रही है। पाकिस्तान की वायुसेना अब हवाई निगरानी के लिए केवल स्वीडन की कंपनी साब के बनाए 2000 इरिए अवाक्स विमान पर भरोसा करेगी। अभी 10 साल पहले ही पाकिस्तान ने भारत के इजरायल से खरीदे अवाक्स विमानों से निपटने के लिए चीन से करोड़ों के 4 ZDK-03 कराकोरम एयरक्राफ्ट खरीदे थे जो बेकार निकल गए हैं। यही वजह है कि अब चीन के इन विमानों की क्षमता को लेकर सवाल उठ रहे हैं।

विशेषज्ञों के मुताबिक पाकिस्तान का ZDK-03 कराकोरम चीन के विमान शांक्सी वाई 8 पर आधारित है। इस वि मान की खरीद के बाद पाकिस्तानी वायुसेना और चीन दोनों ने ही इसकी क्षमता की जमकर शेखी बघारी थी। चीन और पाकिस्तान का दावा था कि इससे लंबी दूरी तक वे अपनी निगरानी को बढ़ा पाएंगे। पाकिस्तान ने भारत और अफगानिस्तान दोनों के मोर्चे पर निगरानी के लिए यह विमान खरीदा था जो अब बेकार निकल गया है।

चीन का अवाक्स विमान मात्र 8 साल में बेकार

चीन ने साल 2011 से 2015 के बीच में इन विमानों की आपूर्ति की थी। इस तरह से इन विमानों का सेवाकाल 10 साल से भी कम रहा। अचानक से इन विमानों को रिटायर करने के फैसले से चीन के विमानों की क्षमता और विश वसनीयता को लेकर एक बार फिर से सवालिया निशान लग गया है। बताया जा रहा है कि इन चीनी विमानों में तकनीकी दिक्कतें आ रही थीं और इसी वजह से इसे पाकिस्तान के एयर डिफेंस सिस्टम में शामिल नहीं किया जा सका।

ZDK-03 कराकोरम को लेकर रहस्यमय बात यह रही कि इन विमानों को 5 महीने पहले ही चीन भेजा गया था और दावा किया गया था कि उन्हें मिड लाइफ अपग्रेड करने के लिए भेजा गया है। वहीं जब ये विमान वापस आए तो उनमें न तो मुख्य रेडॉर था और न ही अन्य सेंसर थे। इसके बाद इन चीनी विमानों के भविष्य को लेकर सवाल उठने लगे थे। अब इन विमानों को जबरन रिटायर करने के बाद पाकिस्तान के पास स्वीडन की कंपनी साब का बनाया हुआ 2000 इरिए अवाक्स विमान है।

चीन का जेएफ 17 विमान भी निकला है कबाड़

स्वीडन का यह अवाक्स विमान पाकिस्तानी वायुसेना में काफी प्रभावी और विश्वसनीय माना जा रहा है। हालांकि इनकी संख्या काफी कम है जिससे पाकिस्तानी वायुसेना के निगरानी इलाके में काफी कमी आ सकती है। इससे पाकिस्तान को अफगान सीमा पर भी निगरानी में काफी समस्या आ सकती है जहां से अभी खतरा ज्यादा बना हुआ है। इससे पहले चीन ने पाकिस्तान को कई हथियार और सबमरीन दिए हैं जो बेकार निकल रहे हैं। चीन की तकनीक पर पाकिस्तान में बनाए हुए जेएफ-17 फाइटर जेट को म्यांमार कबाड़ बता चुका है। यही वजह है कि पाकिस्तानी सेना प्रमुख हथियारों के लिए अब अमेरिका समेत पश्चिमी देशों की शरण में फिर से पहुंच गए हैं।

https://navbharattimes.indiatimes.com/world/pakistan/pakistan-will-retire-its-china-made-obsolete-zdk-03-karakoram-eagle-airborne-early-warning-system-aircraft/articleshow/106473634.cms

JANES

Tue, 02 Jan 2024

South Korea Accelerates Low-altitude Missile Defence System Development

South Korea's Defense Acquisition Program Administration (DAPA) has accelerated the exploration and development of the low-altitude missile defence (LAMD) system – also known as the long-range artillery interception system – by a year, the agency said in a press release on 1 January.

According to DAPA, the system's exploration and development – originally scheduled for 2025 – has been accelerated to 2024 to counter North Korean long-range artillery.

South Korea's local military technology firm LIG Nex1 began developing the LAMD system in collaboration with the Agency for Defense Development (ADD) – a DAPA subsidiary – in early 2022.

DAPA said that the LAMD exploration and development was initially planned for three years beginning in 2022.

However, to complete the LAMD's exploration and development in 2024 – one year earlier than planned – the system's core technological development was finished in June 2023, DAPA added.

Further development and production will be carried out from 2025 to 2028, DAPA said.

According to the agency, a battery of the LAMD consists of a radar, an engagement control centre, a launcher, and an interceptor missile.

The system, test-fired for the first time in March 2022, is based on the Haegung Korean Surface-to-Air Anti-Missile (K-SAAM) system.

Janes earlier reported that the LAMD missile will be fitted with an active radar seeker for terminal guidance. The missile will be 165 mm in diameter and is envisaged to intercept targets up to 7 km away and at an altitude of 5 km.

https://www.janes.com/defence-news/news-detail/south-korea-accelerates-low-altitude-missile-defence-system-development

THE HINDU

Tue, 02 Jan 2024

Taiwan Claims Chinese Balloons Near its Territory

Two Chinese balloons were detected moving across the median line separating Taiwan from China, with one flying directly above the island, Taiwan's Ministry of National Defence said on January 2.

The balloons were seen crossing the median line over the Taiwan Strait — a sensitive waterway separating the island from China — late on Monday at two locations, one near the western city of Chiayi and another by Keelung in the north. An accompanying graphic released by the Ministry showed one balloon headed east directly above the island after appearing northwest of Chiayi on the western coast.

“They were at “the altitude of approximately 30,000 and 32,000 feet,” it said in a statement. “The balloons headed northeast and disappeared at 23:43 yesterday and 00:43 today,” the statement added.

The sightings of Chinese balloons began last month as the island’s pivotal presidential election on January 13 approaches. Taiwanese authorities have so far reported six incidents in December.

China’s Defence Ministry had earlier accused Taiwan’s government of deliberately “hyping up” a military threat from China for electoral gain ahead of elections.

Chinese balloons became a politically fraught topic in February last year when the U.S. shot down what it called a spy balloon over its territory, with Beijing saying the craft was a civilian airship blown off course.

https://www.thehindu.com/news/international/taiwan-detects-two-chinese-balloons-on-january-1/article67697602.ece

ANI
South Asia's Leading Multimedia News Agency

Tue, 02 Jan 2024

China Appoints New Defence Minister, but Opacity Reigns

Even as President Xi Jinping promised that Taiwan would be "reunified" with the mainland, China's newly appointed Defence minister was making himself comfortable in the office of his predecessor, who disappeared after being ensnared in a scandal.

After disappearing from public view in August, Li Shangfu was formally removed as Defence minister and as a CMC member on October 24. 2023, but no explanation has ever been given as to why.

Cue China's 14th defence minister, Admiral Dong Jun, who formerly commanded the People's Liberation Army Navy (PLAN). His ascension was announced by the Standing Committee on 29 December 2023.

Dong is not in the Central Military Commission (CMC) - the top body chaired by Xi that supervises all aspects of China's military - and significantly he is the first naval officer to become defence minister.

The role of the Defence minister is largely a ceremonial and diplomatic one, with no influence over the day-to-day affairs of the PLA. However, as a diplomat liaison, Dong will represent the PLA and CMC in interactions with foreign militaries.

Dr. Andrew Erickson, professor of Strategy at the China Maritime Studies Institute (CMSI) of the US Naval War College, said, "The breadth of Admiral Dong Jun's career makes him uniquely qualified to serve as defence minister, where he will represent the PLA at bilateral meetings and high-profile forums on the international stage. His navy and joint operational assignments enhance his ability to articulate and defend Chinese Communist Party (CCP) positions regarding the East China Sea and South China Sea disputes, and address PLA operations regarding the PLA's most pressing objective: Taiwan."

Dong's naval experience, including command of the Southern Theater Command that is responsible for the South China Sea region, reinforces China's prioritisation China on its illegal territorial claims there.

Dr. Erickson noted, "Joint and naval familiarity and credibility, together with Admiral Dong Jun's long track record and seasoned status as an international interlocutor, will be particularly helpful with messaging on CCP / PRC strategic goals - the focus of his new position."

Born in the port city of Yantai in Shandong Province in 1961, Dong began his naval career in 1978 to become a surface warfare officer. Dong was elevated to PLAN deputy commander in March 2021, before becoming its commander in August of that year.

Importantly, Dong is not on a US sanctions list as his predecessor was.

"Admiral Dong Jun's path-breaking career has made him one of the PLA 's most experienced joint commanders," Dr. Erickson said, adding, "with deep expertise regarding the operational level of warfare. He has international, joint and extensive naval experience in the Eastern and Southern Theater Commands, the two most important areas of unresolved PRC sovereignty claims now aggressively pursued under Xi."

" Taiwan's January 13, 2024, presidential election and the PLA response - while an Eastern Theater Command responsibility and role - will be one of Admiral Dong Jun's first tests on the international stage. While the nature of any PLA military response to the elections is unknown, Dong will be charged with representing the PLA response to foreign audiences. Through his actions, he will be charged with demonstrating to foreign and domestic audiences alike, the PRC's unwavering resolve to unify with Taiwan. Given the stakes for all concerned, Dong's time on centre stage will be closely scrutinized. But his navy and joint operational background, coupled with foreign engagement prowess, suggests he will be well prepared to address this challenge," the American academic added.

"Within the limits of his position, Dong is likely to advocate for more robust PLA joint integration - especially as it relates to PLA options for Taiwan - based on his experience overseeing PLA joint operations in the Eastern and Southern Theater Commands," the CMSI stated further.

He also has had extensive engagement with Russian and Pakistani counterparts.

There is no doubt that China needs a new defence minister, considering that it took an inexplicable four months to replace disgraced Li Shangfu.

Such a figure is needed to liaise with counterparts like US Defense Secretary Lloyd Austin, especially after Xi recently reestablished communications between the PLA and the USA.

Xi said earlier, "Corruption is the biggest cancer that harms the vitality and combat effectiveness of the party, and anti-corruption is the most thorough self-revolution."

One can only hope that Xi's pick for the new defence minister will be more discerning than previous candidates.

Mystery surrounds Wei Fenghe, the Defence minister before Li Shangfu, who also disappeared last year.

Interestingly, Wei was the first head of the PLA Rocket Force (PLARF), a branch of the Chinese military currently hit hardest by scandal.

Indeed, the Standing Committee of the National People's Congress (NPC) officially dismissed nine top generals from its legislature on 29 December 2023. No reason was given for their disqualification, but since NPC representatives enjoy immunity from arrest or criminal charges, stripping them of their roles is a necessary prerequisite to punishments being meted out.

Of the nine, five had connections with the PLARF. Specifically, those ousted included PLARF commander Li Yuchao; a PLARF deputy commander Li Chuanguang; former PLARF deputy commander Zhang Zhenzhong, who was most recently deputy chief of the Joint Staff Department;

Zhou Yaning, former commander of the PLARF from 2017-22; and Lu Hong, another member of the PLARF.

Incidentally, PLARF political commissar Liu Guangbin, who disappeared at the same time as Li Yuchao, was not on the CCP naughty list.

Much of this scandal seems connected to the procurement of weapons for the PLARF.

Also to fall from grace on 29 December were Ding Laihang, a former PLA Air Force (PLAAF) commander (2017-21); Zhang Yulin, former deputy director of the General Armament Department (the precursor to the present-day Equipment Development Department, or EDD); Rao Wenmin, a member of the EDD; and Ju Xinchun, navy commander of the Southern Theater Command since February 2023.

Two days earlier, the Chinese People's Political Consultative Conference voted to remove three high-ranking officials of the military-industrial complex: Liu Shiquan (chair of the board of China North Industries Group Corporation [Norinco]); Wu Yansheng (board member of the China Aerospace Science and Technology Corporation [CASC]); and Wang Changqing (an executive member of CASC).

It is likely that all three dealt with Li Shangfu at the time he led the EDD from September 2017 till October 2022.

What is stunning is the depth and breadth of corruption. Top leaders of the PLARF, PLAAF, EDD and the military industry are all implicated. One wonders how many more will eventually be ensnared.

Everyone knows the PLA and CCP are rampant with corruption, but even after such a prolonged anti-graft campaign, things seem as corrupt as ever.

Last time, Xi appointed a PLARF figure as Defence minister. But this time he turned elsewhere and seconded a naval officer instead. This surely reflects his mistrust of the current status of the PLARF, plus his desire for personal loyalty.

However, such a system based on fealty, rather than meritocracy, could eventually redound on Xi's head as the promotion system becomes more opaque and the risk of disgruntlement rises.

All these shenanigans underscore the opacity of China's military. No matter who the defence minister is, transparency is elusive.

Despite pumping billions of dollars into the PLA, the organization is ripe with corruption. The aura of the PLA as an effective and modern force has been punctured yet again by this latest round of dismissals, and there seems no end to the rot within.

Xi's crackdown on corruption has been ongoing for a decade already, and yet, worryingly, the PLA's highest leaders continue to be arrested. These are not just isolated bad apples, but rather symptoms of a deep-seated malaise.

Nor does it say much about the vetting process for key PLA leaders.

To be appointed directly by Xi, those promoted are supposed to be whiter than white. The fact that so many are thoroughly corrupt constitutes a humiliation for Xi.

It will take a considerable length of time for his trust in this key strategic force responsible for China's nuclear arsenal to rebound.

This is a rude awakening for Xi. He constantly exhorts the PLA to be ready to "fight and win battles", but it seems its leaders are more interested in personal gain. Surely this must deter Xi from taking any serious military action in the short term. How can he launch a campaign unless he has full confidence in his leaders and their ability to follow orders implicitly?

These replaced leaders once professed loyalty to the CCP and to Xi personally, but it turned out that their oaths meant nothing. Xi must rightly question the motives of others that remain. This must be particularly galling for Xi as he addresses his greatest potential achievement ever - colonizing or conquering Taiwan.

To call it reunification is a gross error, for the CCP has never ruled over Taiwan. In his televised New Year's address, Xi said, "China will surely be reunified, and all Chinese on both sides of the Taiwan Strait should be bound by a common sense of purpose."

His carefully calibrated remarks were stronger in tone than those issued the preceding year, for Taiwan will go to presidential and parliamentary polls on January 13.

China has likened the electoral process to a decision between war and peace, for it despises the current Democratic Progressive Party (DPP) that is likely to regain power. Beijing considers DPP frontrunner William Lai as a 'separatist' and 'destroyer of peace'.

It also accused Lai of being "the instigator of a potentially dangerous war in the Taiwan Strait".

However, it is China alone that is instigating a confrontation.

As 2023 drew to a close, Taiwan's government issued a summary of Chinese military intimidation, with more than 1,700 deliberately provocative flight incursions by the PLA into Taiwan's air defence identification zone last year.

With Admiral Dong Jun being elevated to defence minister, Xi filled the gap by appointing a replacement.

On 25 December 2023, Xi promoted Vice Admiral Hu Zhongming to admiral and appointed him commander of the PLAN. The fact that Dong Jun attended the ceremony indicated this was an orderly succession, unlike the jumbled mess of the PLARF in recent times.

The CMSI at the US Naval War College highlighted a number of relevant skills possessed by Admiral Hu. Possessing operational experience on both submarines and surface ships, this should help him promote coordination across domains.

He commanded the 2nd Submarine Base on Hainan Island, which has nuclear-powered attack submarines that operate in the South China Sea.

He was also a submarine commander till 2010, and has probably sailed these contested waters himself. "This confers significant real-world experience operating in contested waters and may

portend a vision to use the PLAN more aggressively in gray zone activities or even future conflict, although the commander's core responsibilities are to man, train and equip the force."

Hu spent the past two years as the PLAN Chief of Staff.

Prior to that, from December 2019 till December 2021, he commanded the Northern Theater Command Navy from his hometown of Qingdao.

He fuses the experience of theatre command, technical, exercise testing and operational knowledge. This will surely help him direct PLAN efforts to address shortcomings it faces amidst its rapid expansion.

As a submariner, he should be able to address PLAN weaknesses in undersea warfare.

He participated in the PLAN's first global circumnavigation and also led the Sino-Russian exercise Joint Sea 2017.

CMSI stated, "As tenth commander in the PLAN's 74-year history, Admiral Hu brings a broad organizational and functional background, as well as valuable technical and operational prowess to

a force whose surface fleet and anti-surface mission and missiles have burgeoned dramatically, but whose submarine leadership and training apparently still lag overall."

"Xi's selection of Admiral Hu Zhongming to lead the PLAN reflects his priority for PLA military commanders to have real-world operational experience, and follows a trend of PLAN leaders who bring credible warfighting capabilities to their leadership roles. Hu's operational experience will guide efforts to rapidly address identified shortcomings within the PLAN and to enhance its warfighting capabilities across all PLAN warfare domains and with other services," the CMSI stated further.

https://www.aninews.in/news/world/asia/china-appoints-new-defence-minister-but-opacity-reigns20240102121328/

Science & Technology News

Press Information Bureau
Government of India

Ministry of Science & Technology

Tue, 02 Jan 2024

New Year Satellite XpoSAT Exemplifies 'Whole of Science' Joint Effort by more than One Institution: Dr Jitendra Singh

Union Minister for Science and Technology Dr. Jitendra Singh has said that the New Year Satellite XpoSAT exemplifies synergised "whole of science" joint effort of more than one institution.

Addressing the Platinum Jubilee celebrations of "Raman Research Institute" here, the Minister said, the primary science payload was conceived, designed and developed by the Raman Research Institute while the launch was made by the Indian Space Research Organisation (ISRO).

Dr. Jitendra Singh said, the culture of ‘Make in India’ and being Aatmanirbhar has been the success mantra of the Raman Research Institute (RRI) over the remarkable 75 years.

The Minister expressed satisfaction over the close synergies between the Indian Space Research Organisation (ISRO) and the Raman Research Institute, a long recognised academic partner in India’s space based science programme.

Dr. Jitendra Singh congratulated the RRI scientists and engineers, who worked on POLIX, the very best for the recent mission. He noted that the RRI is also playing a lead partner role in satellite based quantum communications again in collaboration with ISRO.

The Minister remarked, "I am excitedly looking forward to RRI achieving major milestones in this thrust area of national interest towards securing our country’s future".

Outlining the launch of Chandrayan-3 and other events, the Minister noted that the year 2023 was particularly significant for the country in scientific and technological achievements.

The Minister was addressing at the grand closing ceremony of the platinum jubilee year celebrations of the RRI in Bengaluru today. Dr. Jitendra Singh recalled the great contributions of Prof. C.V. Raman, founder of the Institute, whose ground breaking discovery a century ago has

now spawned applications in spectroscopy and related areas. This is the latent value of cutting-edge fundamental frontier science and technology that every developed society world-wide must learn to appreciate, he said. Describing Professor Raman as a scientist without borders, the Minister pointed out that his remarkable aura had touched future leaders such as G.N. Ramachandran, S. Pancharatnam and Vikram Sarabhai who went on to seed very diverse topical areas of molecular biology, quantum optics and the space programme.

Taking note of India swiftly progressing towards the top four economies, the Minister pointed out that humanity will face many challenges for which one has to rely on science and technology to provide solutions. He urged the scientists here to contribute towards India's journey to Amrit Kaal.

Dr. Anil Kakodkar, Chancellor, Homi Bhabha National Institute, Shri A.S. Kiran Kumar, Chairperson, RRI Governing and former Chairman, ISRO and Prof. Tarun Souradeep, Director, RRI were among those present on the occasion.

Earlier on his arrival, the Minister visited the RRI Library complex, interacted with senior scientists and recorded remarks in the Visitor's Book.

Later, the Minister planted the new "Raman Tree" at the Institute premises and released a publication "Lighting the way of Physics" outlining the scientific achievements of RRI.

https://pib.gov.in/PressReleasePage.aspx?PRID=1992415

THE HINDU

Tue, 02 Jan 2024

National Maritime Domain Awareness Centre to be Ready in Three Years

The Indian Navy's Information Management and Analysis Centre (IMAC) in Gurugram, the nodal agency for maritime information and monitoring, set up after the 26/11 Mumbai terror attacks, is on track to upgraded into the National Maritime Domain Awareness (NMDA) centre in about three years.

Once operational, the NDMA Centre will house people from 15 agencies under seven Ministries enabling exchange of maritime information in real-time across the board, officials said. The contract for setting it up is set to be concluded shortly and it should be ready in under three years, according to official sources while expressing confidence that the time can be compressed further.

Bharat Electronics Limited (BEL) is the lead integrator for both software and hardware for the NMDA and as per contractual terms it should be executed in three years from contract conclusion.

Approved by the Defence Acquisition Council in 2012, the IMAC became operational in 2014 at a cost of ₹450 crore and is located in Gurugram. It is the nodal centre of the National Command Control Communication and Intelligence System (NC3I) which was established to link the operational Centres and lower echelons of Navy and Coast Guard spread across the country's coastline including the island territories.

The IMAC tracks vessels on the high seas and gets data from the coastal radars, white shipping agreements, Automatic Identification Systems (AIS) transponders fitted on merchant ships, air and traffic management system and global shipping databases.

https://www.thehindu.com/news/national/national-maritime-domain-awareness-centre-to-be-ready-in-three-years/article67698773.ece

THE HINDU

Tue, 02 Jan 2024

What is it: XPoSat: ISRO's X-ray Eye in the Sky

At 9.10 am on the first day of 2024, the Indian Space Research Organisation will launch XPoSat, short for 'X-ray Polarimeter Satellite'. Once launched, the satellite will study X-rays emitted by phenomena in space and their polarisation from earth-orbit.

X-rays are electromagnetic radiation whose wavelength is 0.01-10 nanometres (where 1 nanometre is one-billionth of a metre), corresponding to energies of 100-100,000 electron-volt (eV). Electromagnetic radiation is characterised by an electric field and a magnetic field vibrating perpendicular to each other. The polarisation of electromagnetic radiation refers to the orientation of these two fields as the radiation moves through space.

X-rays can be polarised when they get scattered. For example, when an X-ray travelling through space encounters an atom, the electric field of the X-ray can energise an electron, which will then emit a photon. Since X-rays are also photons, the new photon will give the impression that an X-ray photon has been scattered. Polarised X-rays are also produced when the path of a fast-moving charged particle is bent by a magnetic field.

Studying these X-rays can reveal which way the magnetic field is pointing, and tracking how these X-rays evolve in time can reveal many things about the body producing such fields, like a pulsar.

The XPoSat satellite has two payloads to make these measurements. POLIX will study X-rays with energy 8-30 keV emitted by around 40 astronomical sources in five years. XSPECT will study X-rays with energy 0.8-15 keV and track changes in continuous X-ray emissions.

https://www.thehindu.com/sci-tech/science/what-is-it-xposat-isros-x-ray-eye-in-the-sky/article67697737.ece

The Indian EXPRESS

Wed, 03 Jan 2024

Another Eye in Sky, on Ground: India is now part of World's Largest Radio Telescope Project

Even as ISRO Monday launched a unique observatory to study X-rays and black holes in deep space and the stage is being set to construct the third node of the LIGO in Maharashtra, scientists in India will now also be part of the international mega-science project, the Square Kilometre Array Observatory (SKAO), that will function as the world's largest radio telescope.

The SKAO is not a single telescope but an array of thousands of antennas, to be installed in remote radio-quiet locations in South Africa and Australia, that will operate as one large unit meant to observe and study celestial phenomena.

India, through the Pune-based National Centre for Radio Astrophysics (NCRA) and some other institutions, has been involved in the development of SKA since its inception in the 1990s.

Considering the multinational collaboration, SKAO was established as an intergovernmental organisation in 2021 following years of negotiation in which India, too, participated. Countries have to sign, and ratify, the SKAO convention to formally become members. The Government's

approval for joining the project, with a financial sanction of Rs 1,250 crore, is the first step towards the ratification.

The approval, which the Department of Atomic Energy announced in its 2023 year-ending note, comes weeks after India gave its go-ahead to construct the third node of the US-based Laser Interferometer Gravitational Wave Observatory (LIGO) in Hingoli district of Maharashtra.

Gravitational wave research is one of most promising fields for scientific discovery. The first detection of gravitational waves by the two existing LIGO detectors in the US won the Nobel Prize in Physics in 2017.

The SKA will also search for gravitational waves but is meant to study a range of phenomena being able to peer much deeper into the universe — more than 3,000 trillion km — to study galaxies and stars in greater detail. These are aimed at advancing the scope of astronomical observations for improving the overall understanding of the universe and its evolution.

India's main contribution to the SKA is in the development, and operation, of the Telescope Manager element, the "neural network" or the software that will make the telescope work.

NCRA, a unit of the Tata Institute of Fundamental Research, which operates India's largest network of radio telescopes called the Giant Metrewave Radio Telescope (GMRT) near Pune, led an international team from nine institutions and seven countries to develop the software.

It is the success of building and operating GMRT that landed NCRA this responsibility with the SKA. GMRT is the world's largest and most sensitive radio telescope operating within the 110-1,460 MegaHertz frequency range. This unique telescope has, so far, yielded remarkable scientific results after studying pulsars, supernovae, quasars, galaxies and its observation time has always remained oversubscribed.

In 2021, GMRT became only the third in India to be recognised with the Institute of Electrical and Electronics Engineers (IEEE) Milestone facility. Back then, Prime Minister Narendra Modi had called this recognition as a rare feat earned by NCRA. Modi had hailed the contributions made by the astronomers towards deepening scientific understanding of the universe using GMRT.

In June last year, GMRT was among the six top radio telescopes used to enable the detection of the nano-hertz gravitational waves for the first time.

The SKA-India consortium comprises engineers and scientists from over 20 national-level research institutions which include: NCRA; Aryabhatta Institute of Observational Sciences; Inter University Centre for Astronomy and Astrophysics, IIT-Kharagpur; IISER, Mohali and Thiruvananthapuram; TIFR; Raman Research Institute; Indian Institute of Science and Physical Research Laboratory.

Some of the countries taking part in building the SKA include the UK, Australia, South Africa, Canada, China, France, India, Italy and Germany.

https://indianexpress.com/article/india/another-eye-in-sky-on-ground-india-is-now-part-of-worlds-largest-radio-telescope-project-9092577

the pioneer

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Phenomenal Performance of Indian Scientists in 2023

The year 2023 saw Bharat emerging as a global leader in Science and Technology. A rejuvenation could be felt in every field of science and technology, from agriculture to space research. This rejuvenation is mainly due to various activities taken by the government during the last decade.

Nature's 10, a compilation of ten people they believe have had a major impact on science, published by the prestigious scientific journal Nature, has selected our Kalpana Kalahasti, who played a crucial part in ensuring Chandrayaan-3's triumphant touchdown. India has jumped to the third position in the global ranking in scientific publications and the number of patents filed.The government's Digital India initiative has significantly increased internet penetration, making India the world's second-largest internet market. The rapid evolution of computing technologies since the latter half of the 20th century has brought about transformative changes in every facet of our lives.

The government of India, recognizing the significance of quantum computing, approved a substantial funding package of US$730 million for the National Quantum Mission (NQM) in April of last year.The year 2023 has been a turning point in Indian space science as we gained a top position in the space race along with other developed countries.

India's lunar lander reaches the dark side of the moon. Indian scientists achieved something unprecedented with their Chandrayaan-3 moon lander, marking the first successful mission to reach the unexplored lunar south pole, believed to harbour frozen water reservoirs. Launched in July 2023, the success of Chandrayaan-3 not only underscored India's significant role in space exploration but also demonstrated that a moon lander could be deployed successfully at an economic cost of $75 million (£60 million). India sent Aditya-L1, its first mission to study the Sun, into space just a few days after landing on the Moon. The rocket that lifted off on September 2 is now 1.5 million km (932,000 miles) away from Earth. It should arrive at its target L1 or Lagrange point 1 of the Sun-Earth system on January 6, 2024, enabling the spacecraft to view the Sun without any eclipses.The Indian Space Research Organisation (ISRO) also completed the first in a series of test flights for its proposed manner mission Gaganyaan, on October 21, 2023. The mission will put India on the small and exclusive list of countries that can launch a crewed spacecraft by itself—Gaganyaan. ISRO has more ambitious plans, as the Hon.Prime Minster Narendra Modi envisioned, to put an Indian space station in orbit by 2035 and take an Indian astronaut to the Moon in 2040. In the Union Budget for 2023-2024, the Centre has earmarked Rs 600 crore for the 'Samudrayaan' Deep Ocean Mission, which is aimed at exploring marine biodiversity for the sustainable utilization of resources. A significant component of this mission involves India's inaugural expedition to a depth of 6,000 meters using the domestically developed submersible 'Matsya6000,' crewed by a team of three.

India has positioned itself as a frontrunner in the renewable energy sector, securing the fourth rank in installed capacity for renewable, wind, and solar power.

On January 4, 2023, the Union Cabinet, led by PM Modi, approved the National Green Hydrogen Mission. Even after doing focused research, we were at a loss in controlling environmental pollution and food adulteration, the pillars of human survival. Similarly, on solid waste management and plastic pollution, our scientists have failed to come out with any concrete measures to tackle it. Unfortunately, the focus on these areas has been very poor.

https://www.dailypioneer.com/2024/columnists/phenomenal-performance-of-indian-scientists-in-2023.html