

सितम्बर

Sep

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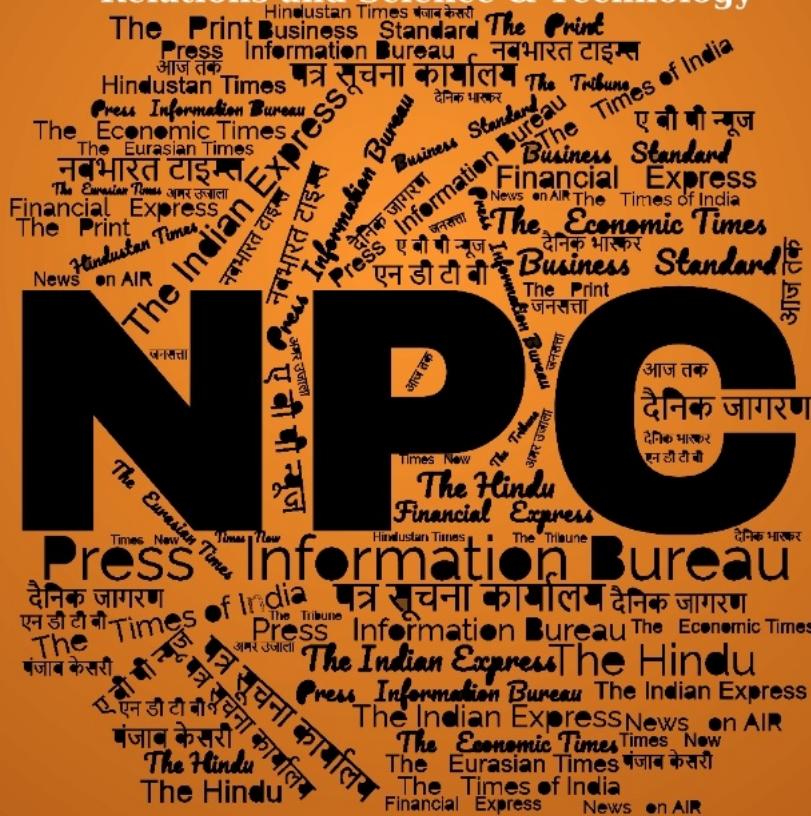
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समाचार पत्रों से चयनित अंश Newspapers Clippings

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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CONTENTS

S. No.	TITLE	Page No.
DRDO News		1-6
1	20 मिनट में PAK-चीन को बना सकता है निशाना, DRDO ने अग्नि-4 का किया सफल परीक्षण	1
2	Successful launch of Agni-4 Ballistic Missile	2
3	Samir V Kamat: DRDO प्रमुख बोले- भविष्य के युद्धों के लिए देश को अंतरिक्ष क्षेत्र में बढ़ानी होगी क्षमताएं	2
4	Indian Navy's Scorpene submarine to get strategically critical Air Independent Propulsion by 2026: DRDO chairperson	3
5	Production value of DRDO will double in five years, says chairman	5
Defence News		6-27
Defence Strategic: National/International		
6	India - France Bilateral Naval Exercise VARUNA	6
7	5th India-Maldives Defence Cooperation Dialogue held in New Delhi	7
8	HQ Integrated Defence Staff to conduct maiden Combined Operational Review and Evaluation (CORE) Programme for senior officers of Tri-Services	8
9	Indian defence market set for 14 pc annual growth amid govt's indigenization push: Report	9
10	Challenges before India's theatre commands	10
11	How Chinese J-20 fighters in Xinjiang and Tibet are a concern for India	11
12	India's Military diplomacy in top gear with back-to-back exercises for three Services	15
13	Expert Explains: What is the responsible use of Artificial Intelligence in war; where India, US and China stand	17
14	Military commanders told to always be ready to establish peace in world, India: Rajnath Singh	20
15	IDS to conduct crash course for senior military officers to boost jointness	21
16	Quad Summit in Delaware on September 21, India to host in 2025	22
17	India and US Set to Flex Military Muscle in Rajasthan: First-Ever Rocket System Joins Yuddhabhyas Exercise	23

- 18 With 10,000 KM Range — China Boasts World’s Most Powerful Radar That Can Detect ‘Rare’ Plasma Bubbles, Stealth Aircraft *The EurAsian Times* 24

Science & Technology News

27-30

- 19 Moon's seismic activity likely linked to past meteorite impacts or heat effects: Isro *The Times of India* 27
- 20 Russia working with China, India for nuclear power on Moon *News Nine* 28
- 21 Novel monoclonal antibody appears effective at neutralizing numerous SARS-CoV-2 variants *MSN* 29



Fri, 06 Sep 2024

20 मिनट में PAK-चीन को बना सकता है निशाना, DRDO ने अग्नि-4 का किया सफल परीक्षण

DRDO (रक्षा अनुसंधान एवं विकास संगठन) ने शुक्रवार को अग्नि-4 बैलिस्टिक मिसाइल का सफल परीक्षण किया. ये परीक्षण ओडिशा के एपीजे अब्दुल कलाम आइलैंड से किया गया है.

अग्नि-4 एक इंटरमीडिएट रेंज की बैलिस्टिक मिसाइल है, जो लगभग 4000 किलोमीटर तक वार करने में सक्षम है. ये मिसाइल परमाणु हथियार ले जाने की क्षमता रखती है, जिससे यह भारत की सामरिक ताकत को और बढ़ाती है.

अग्नि-4 की लंबाई 20 मीटर है और इसका वजन लगभग 17 टन है. ये दो चरण वाली मिसाइल है. सबसे खास बात ये है कि इस मिसाइल को सड़क पर मोबाइल लांचर से भी लॉन्च किया जा सकता है, जिससे इसकी तैनाती में आसानी होती है.

अग्नि-4 में बेहतरीन सटीकता के लिए स्वदेशी रिंग लेजर जाइरोस्कोप आधारित जड़त्वीय नेविगेशन सिस्टम और डिजिटल कंट्रोलर सिस्टम शामिल हैं.

20 मिनट में लक्ष्य बना सकती है अग्नि-4

इस परीक्षण का उद्देश्य भारत की रक्षा क्षमताओं को मजबूत करना और संभावित दुश्मनों को एक साफ संदेश देना था. विशेषज्ञों का मानना है कि अग्नि-4, चीन और पाकिस्तान के किसी भी शहर को केवल 20 मिनट में लक्ष्य बना सकती है. ये भारत की राजनीतिक बलों के लिए एक महत्वपूर्ण अतिरिक्त है जो देश की सुरक्षा में महत्वपूर्ण भूमिका निभाएगी.

रक्षा मंत्रालय ने क्या कहा?

रक्षा मंत्रालय ने इस सफल परीक्षण की पुष्टि करते हुए कहा कि ये भारत के लिए एक महत्वपूर्ण और बड़ी उपलब्धि है. DRDO ने इस मिसाइल प्रणाली को विकसित करने में महत्वपूर्ण भूमिका निभाई है. अग्नि-4 का परीक्षण भारत की आत्मनिर्भरता की ओर भी एक कदम माना जा रहा है.

बता दें कि भारत ने अग्नि-4 का पहला सफल परीक्षण 15 नवंबर 2011 में किया था. अग्नि-4 को लॉन्च करने के 8x8 ट्रांसपोर्ट इरेक्टर लॉन्चर या फिर रेल मोबाइल लॉन्चर से दागा जाता है. जानकारी के मुताबिक मिसाइल का नेविगेशन डिजिटली नियंत्रित से किया जाता है.

<https://www.tv9hindi.com/india/odisha-drdo-agni-4-missile-test-nuclear-capable-intermediate-range-ballistic-missile-2819388.html>



Press Information Bureau
Government of India

Ministry of Defence

Fri, 06 Sep 2024

Successful launch of Agni-4 Ballistic Missile

A successful launch of an Intermediate Range Ballistic Missile, Agni-4, was carried out from the Integrated Test Range in Chandipur, Odisha on September 06, 2024. The launch successfully validated all operational and technical parameters. It was conducted under the aegis of the Strategic Forces Command.

<https://pib.gov.in/PressReleasePage.aspx?PRID=2052666>

अमर उजाला

Sun, 08 Sep 2024

Samir V Kamat: DRDO प्रमुख बोले- भविष्य के युद्धों के लिए देश को अंतरिक्ष क्षेत्र में बढ़ानी होंगी क्षमताएं

रक्षा अनुसंधान एवं विकास संगठन (डीआरडीओ) के प्रमुख समीर वी. कामत ने कहा कि पहले युद्ध जमीन, वायु और समुद्र में लड़े जाते थे। लेकिन अब साइबर, सूचना और अंतरिक्ष क्षेत्र भी महत्वपूर्ण हो गए हैं। उन्होंने बताया कि जिन देशों के पास इन क्षेत्रों में विशेषज्ञता होगी, वे भविष्य की लड़ाइयों में बढ़त हासिल करेंगे।

उन्होंने कहा कि अंतरिक्ष एक ऐसा महत्वपूर्ण क्षेत्र है, जिसमें देश को अपनी विशेषज्ञता और तकनीकी क्षमताएं बढ़ानी होंगी। उन्होंने कहा कि इससे देश की जरूरतों से तेजी से पूरी की जा सकेगी।

कामत ने बताया कि उन्होंने अंतरिक्ष क्षेत्र में काम कर रही स्टार्ट-अप कंपनियों से बातचीत की है और ये कंपनियां नागरिकों के इस्तेमाल के लिए विकसित की गई तकनीकों को सैन्य उपयोग में भी काम में ला सकती हैं। डीआरडीओ प्रमुख ने उम्मीद जताई कि अंतरिक्ष क्षेत्र में निवेश से देश की रक्षा क्षमताओं को मजबूत किया जा सकेगा।

वहीं, निबे लिमिटेड ने आज कई साझेदारों के साथ समझौतों पर हस्ताक्षर किए हैं। इन साझेदारों में थेल्स एलेनिया स्पेस, लार्सन एंड टुब्रो, सेंटी, अग्रिकुल, स्काईरूट, स्पेसफील्ड्स, सिसिर और साइरान शामिल हैं। इन समझौतों के तहत भारत का पहली मल्टी सेंसर, ऑल वेदर अर्थ ऑब्जर्वेशन सैटेलाइट कंस्टीलेशन स्थापित किया जाएगा।

निबे लिमिटेड ने कहा कि वह रक्षा और अंतरिक्ष क्षेत्र में देश की आत्मनिर्भरता को बढ़ाने के लिए योगदान देगा और उसका अगले एक दशक में एक प्रमुख रक्षा और अंतरिक्ष कंपनी बनने का लक्ष्य है।

<https://www.amarujala.com/india-news/drdo-chief-samir-v-kamat-highlights-space-cyber-as-key-to-future-warfare-nibe-ltd-launches-new-satellite-2024-09-08>

Indian Navy's Scorpene submarine to get strategically critical Air Independent Propulsion by 2026: DRDO chairperson

Chairperson of the Defence Research and Development Organisation (DRDO) Dr Samir V Kamat said on Saturday that the indigenously developed and strategically critical Air Independent Propulsion (AIP) system, which significantly enhances the submerged endurance of a diesel-electric submarine, will be installed on the Indian Navy's scorpene submarine by 2026.

Kamat was delivering the convocation address at the 13th convocation of the Defence Institute of Advanced Technology (DIAT), the premier research and academic establishment of the Ministry of Defence in Pune's Girinagar area.

A total of 271 students graduated from the DIAT which included 225 with Master of Technology, 22 Master of Science (MSc), one Master of Science (MS) by research and 23 with PhDs. The passing out students included several serving officers of the Indian Army, Navy, Air Force, Coast Guard along with civilian students.

The DIAT is involved in the development of indigenous contemporary defence related technologies in advanced sensing, radar technology, data science, quantum communications, energy and environmental systems, mechanical and aerospace systems, laser and optical systems, cyber security, artificial intelligence and weapon systems for DRDO and defence services.



In his convocation address, Kamat said, “Any journey in defence research and development is going to be complex. It will require not to work individually but work in teams and in collaboration. Only then will you be able to achieve anything significant.”

Giving an example of how success can be achieved with teamwork, Kamat said, “We have a small laboratory, Naval Materials Research Laboratory at Ambarnath. It is a small facility that consists of around 70 scientists. They started a scientist and technology project sometime in the early 2000s to make fuel cells...they developed a phosphoric acid fuel cell of one kilowatt as demonstration. From that small fuel cell, we have demonstrated a land-based prototype of an air independent propulsion system, which can deliver more than 200 kilowatt of power to a conventional diesel electric submarine.”

Kamat added, “Today I can proudly say that we are only the third country which has developed this capability. When the Indian Navy’s P75 scorpene submarine comes for refit in 2026, this AIP is going to be inserted by cutting the submarine and it will improve the capabilities of our conventional submarines significantly. A submarine’s success lies if it does not resurface because if it does, then it gets detected. So if submarines can stay submerged for a long time which the AIP allows you to, your success rate improves dramatically and it gives significant capabilities to our Navy. The point I also want to make is you can dream big even if you are small.”

The Indian Navy has both conventional and nuclear submarines in its arsenal. The fleet of conventional submarines use the diesel-electric engines, which require them to surface almost daily to get atmospheric oxygen for fuel combustion.

With the Air Independent Propulsion (AIP) system on board, these submarines will be required to surface much less frequently, thus increasing their lethality and stealth multifold. The successful tests of the AIP prototype have been conducted in 2019 and 2021.

While nuclear-powered submarines are considered as key assets for deep-sea operations, the conventional diesel-electric ones are vital for the coastal defence and operations close to the shore.

Indigenously developed AIP, which is one of the key missions of the NMRL, is considered as one of the ambitious projects of the DRDO for the Navy. The project aims at fitting the technology on India’s Scorpene class submarine INS Kalvari.

Kamat further said in his address, “As an organisation, at DRDO, we are now looking at how to transform ourselves to meet the emerging challenges. You are aware that the world is going through a geopolitical and geo-strategic churn...The way things are emerging, India is going to become one of the major poles in the multipolar world that is shaping...A lot of disruptive technologies are emerging which are changing the way wars are being fought We are also seeing how to adapt to the emerging world order.”

<https://indianexpress.com/article/cities/pune/indian-navy-scorpene-submarine-drdo-chairperson-9556072/>

Production value of DRDO will double in five years, says chairman

DRDO chairman Samir Kamat said on Saturday that the organisation's production value of defence systems was over Rs5.8 lakh crore, which would double in the next five years as its systems were finding applications in the and foreign countries, including European nations.

Kamat was the chief guest at the convocation ceremony of the Defence Institute of Advanced Technology (DIAT), a deemed university of the Defence Research and Development Organisation (DRDO), at Girinagar near Khadakwasla.

"With the emphasis on self-reliance, our developed systems are increasingly finding applications in Indian armed forces. At the same time, our export interest is also increasing dramatically. Brahmos missiles, radars, sonars, advanced towed artillery guns (ATAGS), and Pinaka (multi-barrel rocket launchers) have found interest in Southeast Asian countries and European nations," said Kamat.

"The DRDO has had several successes over the past years. A series of tactical missiles ranging from Akash to Naag and newer quick reaction surface to air missiles have been successful. Several new missiles will be inducted into the service. We will soon induct a man-portable anti-tank guide missile. We also had success in radars, sonars, and torpedoes. Our armament systems, ATAGS, and Arjun tanks, are effective. Now we are developing light tank," he said.

"The Naval Materials Research Laboratory has developed an air-independent propulsion (AIP) system that will significantly increase the underwater endurance of conventional submarines of the Indian Navy in 2026. It will be a big operational advantage for the Navy," he said.

During the convocation, Kamat awarded degrees to 249 students of MTech and 22 PhD scholars from various disciplines, including 17 gold medals. The students also demonstrated their research projects on the occasion.

"As there is a focus on self-reliance in the defence sector, there will be ample opportunity for you in the defence research and development sectors. Working in collaboration is key to achieving success in defence projects. The DRDO is on the cusp of transformation, and you will be playing a key role as young scientists," said Kamat.

He said the DRDO is working to adopt several disruptive defence technologies that have emerged from the ongoing wars (Israel and Hamas and Russia and Ukraine). "Currently, the world is going through geopolitical and strategic changes. The world order is changing, and India will play a massive role. Several disruptive defence technologies have emerged in the ongoing wars that have a disproportionate impact on the outcomes. So, we are seeing how best we can adapt to the world's emerging technologies," he added.

Kamat said they have collaborated with leading institutes in the country. "We have established 15 academic institutes of excellence to work on high technology projects. We are trying to emulate the

US, which has set up similar centres in their leading institutes such as California Institute of Technology, Massachusetts Institute of Technology etc to leverage young talents to find defence solutions," he said.

Kamat said they have established five "young scientists" laboratories with directors below the age of 35. "This is our effort to make the organisation agile to encourage young scientists to work on research and development organisation projects like start-ups," he said.

The Chairman said they are also working in collaboration with private industries. "We can fund up to Rs 50 crore to private industries for developing indigenous research and development systems and create a defence research and development ecosystem," he added.

<https://timesofindia.indiatimes.com/spotlight/sima-taparia-talks-to-three-brides-about-beauty-biases-in-their-matrimonial-searches/articleshow/112983374.cms>

Defence News

Defence Strategic: National/International



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India - France Bilateral Naval Exercise VARUNA

‘Indian Naval Ship Tabar & LRMR P8I Aircraft Participate in the 22nd edition of IN - FN Bilateral Exercise VARUNA in the Mediterranean Sea’

Indian Navy's frontline stealth frigate, INS Tabar commanded by Captain MR Harish had recently visited Toulon, France from 29 Aug 24 to 01 Sep 24 and later upon departure participated in the 22nd edition of IN - FN Bilateral Exercise VARUNA from 02 - 04 Sep 24 in the Mediterranean Sea. In addition to INS Tabar, Indian Navy was represented by the ship borne Helicopter; LRMR Aircraft P8I, whereas French side was represented by FS Provence, Submarine Suffren, Aircraft F20; Atlantique2, fighters MB339 and Helicopters NH90; Dauphin. A series of advanced naval operations were conducted during the present edition of bilateral exercise, involving enhanced tactical manoeuvres, advanced anti-submarine warfare exercises, FLYEX, Air Defence Exercise,

live weapon firings, PHOTO-EX and Steam Past, seamlessly integrating assets of both the navies in all three domains viz air, surface and sub-surface.

The bilateral exercise VARUNA which began in 2001 is the backbone of IN- FN relationship and has evolved significantly over the years towards enhancing interoperability and exchange Best Practices. The conduct of 22nd edition of VARUNA in the Mediterranean Sea marks a significant milestone in the maritime domain between India and France displaying Indian Navy's outreach and commitment towards sustained operations far away from IOR.

VARUNA also exemplifies the commitment of Indian and French Navies towards enhancing interoperability through collaborative efforts. The Indian Navy remains committed to fostering partnerships with like-minded navies across the world.

<https://pib.gov.in/PressReleasePage.aspx?PRID=2052614>



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Fri, 06 Sep 2024

5th India-Maldives Defence Cooperation Dialogue held in New Delhi

5th Defence Cooperation Dialogue between India and the Maldives took place in New Delhi on September 06, 2024. The Indian delegation was led by Defence Secretary Shri Giridhar Aramane, while the Maldivian delegation was headed by Chief of Defence Force, Maldives National Defence Force General Ibrahim Hilmy.

The meeting provided both sides with an opportunity to discuss the matters related to bilateral defence cooperation. This, inter alia, included expediting the implementation of various ongoing defence cooperation projects.

The two sides also deliberated on few other areas of common interest such as high-level exchanges and capability development projects. The aspects of participation in forthcoming bilateral military exercise were also discussed. The entire range of talks were productive which will advance shared interests of both the nations in near future and bring stability & prosperity in the Indian Ocean Region.

<https://pib.gov.in/PressReleasePage.aspx?PRID=2052539>



HQ Integrated Defence Staff to conduct maiden Combined Operational Review and Evaluation (CORE) Programme for senior officers of Tri-Services

In a first, the Headquarters Integrated Defence Staff (HQ IDS) is organising a Combined Operational Review and Evaluation (CORE) Programme for senior officers of Tri-Services at USI, New Delhi from 09 to 13 Sep 24. The five-day development cum orientation programme, has been designed for Major General and equivalent officers from the three services, along with officers from the Ministry of Defence, Ministry of External Affairs, and Ministry of Home Affairs.

The Combined Operational Review and Evaluation (CORE) programme has been conceptualized to prepare senior officers of the Indian Armed Forces for future leadership roles, by developing skills in strategic planning, duly anticipating, and preparing for future threats, challenges and conflicts. The effective conduct of future wars will hinge on three vital elements: military leaders, combatants (man-machine interface) and support staff.

The Indian Armed Forces are taking dynamic steps towards modernisation, both in concepts and inventory. It is, therefore, imperative for future senior military leaders to stay abreast with changing geo-political dynamics and futuristic combat scenarios augmented by disruptive technologies and advancements to take comprehensive decisions.

The CORE programme aims to foster jointness and integration and enhance cooperation and coordination among different services to create a detailed understanding of the operational environment.

The programme will comprise panel discussions and lectures by 30 eminent speakers and subject matter experts from varied fields, curated around a unique different theme on each day. Changing Nature of Warfare, Globalisation and Interconnectedness, Lessons from Recent ongoing Conflicts in the world, Impact of non-kinetic warfare, Cyber and Information Warfare, and Adoption of Artificial Intelligence and autonomous systems in military are some of the topics that will be discussed.

<https://pib.gov.in/PressReleasePage.aspx?PRID=2052911>

Indian defence market set for 14 pc annual growth amid govt's indigenization push: Report

The potential market opportunity for Indian defence companies is expected to rise at 14 per cent CAGR (compound annual growth rate) over financial year (FY) 2024-FY 2030E (estimated), driven by the government's indigenisation focus on export opportunity, Jefferies said in its sectoral report.

Citing factors such as global geopolitical tensions and India's rising focus on self-reliance, the report added that these factors are fuelling order flow and revenue growth for domestic defence companies. "Government focus on building country-to-country relations to promote exports is icing on the cake," Jefferies added.

It further added that India's defence spending will double between FY24 and FY30, which should continue to push the stock prices of the defence companies higher. India is expected to have a defence market opportunity worth USD 90-100 billion over the next 5-6 years, with the defence industry likely to grow at 13 per cent annually from FY24 to FY30.

It added, that even though India is one of the top three countries in terms of defence spending globally, in 2022, its spending was only about 10 per cent of what the U.S. spent and 27 per cent of China's spending. India is the second-largest importer of defence equipment, making up 9 per cent of global arms imports.

The expectation is that India's defence spending on big equipment (capital defence) will keep growing at around 7-8 per cent per year, just like in the last 10 years, the American financial services company stated in its anticipation. Going further, it added that the export defence opportunity for the companies is expected to rise at 18 per cent CAGR in FY24-30E. India's defence exports rose 14 times in FY17-24 to USD 2.6 billion.

"We believe this should rise further to USD 7 bn by FY30E and is directionally in line with the government target of achieving USD 6 billion by FY29E," it added.

For Indian exporters, Italy, Egypt, the UAE, Bhutan, Ethiopia, and Saudi Arabia form the most attractive defence destinations. Middle East (ME) accounts for 33 per cent of global arms imports at USD 11 billion and offers an opportunity for India. Qatar and Saudi account for 52 per cent of ME imports, as per the report.

<https://economictimes.indiatimes.com/news/defence/indian-defence-market-set-for-14-pc-annual-growth-amid-govts-indigenization-push-report/articleshow/113161382.cms>

Challenges before India's theatre commands

India's effort to reorganise its armed forces is gathering momentum with plans to establish three theatre commands (TCs) being finalised at the Joint Commanders' Conference in Lucknow last week. Reports suggest that the new adversary-based TCs on India's western and eastern borders and the Indian Ocean Region (IOR) could become operational by the year-end.

Chief of Defence Staff General Anil Chauhan had wide-ranging consultations with all ranks of the Indian Army, Indian Navy (IN) and the Indian Air Force (IAF) before presenting the proposal to set up these commands in line with the concept of 'One Border One Force'.

Major militaries such as those of the United States, China, Russia, and France have multiple TCs which are crucial for ensuring the interoperability of different services. The US, for instance, has half a dozen TCs with specific geographic or functional missions. Each of these has independent control of its domain and has all units of the defence forces — such as the army, navy, air force, and missile commands — at its disposal.

Till a decade ago, China's armed forces were slotted in regional commands like India's, but Beijing undertook major military reforms in 2015 to convert them to theatre-based forces. Even Pakistan is now believed to be planning a similar reorganisation of its armed forces. Integrated TCs are an important part of long-delayed reforms in the Indian military.

The current structure allows the armed forces to achieve joint operations only at the tactical level. This robs the services of synergy in operations, planning, and logistics, which, in turn, affects their combat readiness. A single operational commander controlling the assets of all the services in a particular theatre would rationalise manpower, infrastructure, and resources, just as integrating training would result in shutting down many service-specific training institutes, saving funds.

These funds could be diverted for the modernisation of weapon systems and capabilities, augmenting India's military modernisation programme. Therefore, military planners rightly believe that theaterisation is the silver bullet for clubbing various units of the army, the IAF, and the IN under a single theatre commander to help them fight jointly as a unit.

The original idea was to merge the army's existing seven single-service commands with the IAF's seven commands and the IN's three commands to form six or seven joint-service commands. But successive governments dragged their feet on the issue, and it was only in 2020, when late General Bipin Rawat became India's first CDS that the concept of TCs was finally fleshed out.

A separate Department of Military Affairs was established in the Ministry of Defence (MoD) to help the CDS get the ball rolling on the reorganisation. As it happened, however, Rawat's demise in a helicopter crash in 2021, and the subsequent inordinate delay in appointing a new CDS, slowed down the entire theaterisation process — until now. The China-specific Northern TC will have its headquarters in Lucknow where the Army's central command is currently located.

The proposed Western TC, focused on Pakistan, will be based in Jaipur. The Maritime TC to safeguard India's interests in the IOR is to operate from Thiruvananthapuram where it replaces the IAF's southern air command.

While this looks good on paper, theaterisation in the subcontinent is easier said than done. There are many challenges including inter-services rivalry and clash of doctrines of the three services to be overcome before a final structural map can be worked out.

A major headache could be hierarchical hurdles: it's not uncommon for generals, admirals, and air marshals to vie for joint command roles in any new scheme of things. The recommendation for the commanders of the TCs to be four-star generals (like the CDS and the three service chiefs) could become a bone of contention. For feathers would get ruffled among the top brass as the MoD cherry-picks some of the senior three-star officers for promotion to the four-star posts.

Policymakers would perhaps do well to borrow a leaf from the TC notebooks of some major militaries where theatre commanders are invariably four-star officers, even though it puts them at par with their service chiefs or CDS.

Another major challenge would be to tweak the operational philosophies of the three services since the shift to joint operations requires new training doctrines and protocols for inter-service co-operation. According to the blueprint announced by Chauhan, the integration of the three services is "a step-by-step process, beginning with cross-service cooperation, leading to a 'joint culture', and finally achieving integration of forces for conduct of joint operations". After all, at the end of the day, what is important is for the men and women in uniform to fight as cohesive teams, rather than each fighting its own war.

Hopefully, the military planners will be able to iron out these wrinkles sooner rather than later. Only then can India's armed forces be integrated under TCs to synergise their combat potential on the theaterised battlefields of tomorrow.

<https://www.deccanherald.com/opinion/challenges-before-indias-theatre-commands-3182278>



Sun, 08 Sep 2024

How Chinese J-20 fighters in Xinjiang and Tibet are a concern for India

India-China relations have been at lows since the Galwan skirmish four years ago. There is an uneasy calm at present and an attempt to re-engage, but a range of divergences persist between the two Asian giants. China is aggressively building infrastructure in Tibet and Xinjiang along the Line of Actual Control (LAC). The Chinese want to add air power to the conflict.

China's People's Liberation Army Air Force (PLAAF) recently deployed fifth-generation stealth fighters J-20 at Shigatse Air Base around 300 kilometres north of the Indian Air Force's (IAF) Rafale air base at Hasimara and just 150 km from the LAC in Sikkim.

J-20s have operated at Hotan Airbase in Xinjiang, 350 km north of Pangong Tso Lake. And just 120 km from India's claim line in Aksai Chin. It is important to understand the PLAAF resources and capabilities at these two operationally important airbases.

Shigatse (Xigaze) Air Base

Shigatse (Xigaze) is the second largest city in Tibet Autonomous Region. Shigatse Airbase, also called the Shigatse Peace Airport, is a dual-use airfield in Tibet, around 180 kilometres west of Lhasa. Construction began in 1968 and was completed in 1973. PLAAF started operating there in 1973, and civil operations began in 2010. The airport is at an elevation of 3,782 m / 12,408 ft above mean sea level (AMSL) and is one of the highest airports in the world. It has two concrete runways, 09/27 with 5,000 m (16,404 ft) length, and the second, 07/25 with 3,000 m (9,843 ft) length. It has the longest public runway in the world; the only other with the same length is Ulyanovsk Vostochny Airport in south-west Russia.

The airport sees over 2,000 movements a year and around 200,000 passengers. Significant cargo is also transported by air. The second (shorter) runway was constructed in 2017, and Guizhou WZ-7 "Soaring Dragon" UAVs were seen operating from here.

In May 2024, six J-20 stealth fighters were seen operating from the airbase. Also, at least eight J-10 aircraft and one KJ-500 Airborne Early Warning and Control (AEW&C) aircraft were seen parked at the airbase. The runway at Shigatse is very large, and therefore it will be able to partially neutralise the disadvantage of weight carriage during high-altitude airfield operations.

The Chengdu J-20 'Mighty Dragon'

The Chengdu J-20 is the Chinese twinjet stealth fifth-generation fighter aircraft. The aircraft has three variants: the initial production model J-20A, the thrust-vectoring J-20B, and the twin-seat aircraft teaming capable J-20S. The aircraft made its first flight in January 2011, and the first J-20 combat unit was formed in February 2018, making China the second country in the world and the first in Asia to field an operational stealth aircraft. Nearly 250 have been built as of date. J-20 squadrons have been allotted to all the theatre commands.

The aircraft has the Type 1475 (KLJ-5) active electronically scanned array (AESA) radar. Six electro-optic sensors provide omnidirectional IR coverage, which is fused with the radar picture for better situational awareness.

The aircraft is powered by a Chinese WS-10Cs engine with thrust of 142-147 kN and has serrated afterburner nozzles for enhanced rear-aspect stealth. The finally intended powerplant is the Shenyang WS-15 with a thrust of 180 kN.

The main weapon bay is capable of housing both long-range air-to-air missiles (PL-12, PL-15, PL-21) and precision-guided munitions. The two smaller lateral weapon bays can carry short-range AAMs (PL-10).

The estimated production rate was 40 to 50 airframes per year in 2022 and 100 to 120 airframes per year in 2023. PLA Air Force (PLAAF) currently has around 240 aircraft. The J-20 fleet could reach 1,000 aircraft by the early 2030s.

J-20S will be a twin-seat variant. The second operator to coordinate attack and reconnaissance missions and manage unmanned combat aerial vehicles (UCAVs) as “loyal wingmen” such as the AVIC Dark Sword and stealth Hongdu GJ-11 UCAV.

Significance of Deployment at Shigatse

Shigatse is rather close to LAC near Sikkim (150 km) and IAF’s Hasimara air base (300 km). Hasimara air base is in the Siliguri corridor, known as the Chicken’s Neck. It is a stretch of land, 20–22 kilometres at the narrowest section. This geopolitical and geoeconomic corridor connects the seven northeastern states to the rest of India. The airbase is very significant as it houses one of the only two squadrons of the top-end IAF aircraft, the Rafale. If this base was to be neutralised even for short periods, it would have implications for India.

If an unfriendly regime takes charge in Bangladesh, the complexity of the narrow Siliguri corridor increases. But then India has lived with much more hostile East Pakistan. Today, India is a much more powerful country, but so is China.

J-20 vs Rafale

The Indian Rafale is a 4.5-generation aircraft with front-hemisphere stealth. It is much better than J-20 in terms of weapons, electronic warfare, and aero-engine reliability. The J-20 has yet to leave its shores, even for an airshow. It has no combat experience. It has yet to exercise with any foreign air force. Rafale has been combat-proven for 20 years in Iraq, Afghanistan, Mali, Libya, and Syria. IAF regularly exercises them with the top air forces of the world, most recently in “Red Flag” (USA) and the ongoing exercise “Tarang Shakti” in India.

IAF Options Against Shigatse

Even though Hashimara is the home base for Rafale, the aircraft will be in hardened shelters. Also, all the aircraft don’t remain at home bases and move to operational detachments at other bases. Like China may attempt to neutralise IAF bases, India would do the same against Shigatse using fighter and missile strikes. India has much more air base options for aircraft dispersal and deployment, whereas Shigatse is a sole base in the region. Indian air bases are at much lower altitude and will allow a higher weapon and fuel load and therefore reach targets without refuelling.

The IAF has a significant number of Su-30 MKI squadrons in the eastern air bases (Tezpur and Chabua) with very significant air strike capabilities, including the deadly BrahMos missiles, among others. Clearly, IAF can launch many more missions than PLAAF. IAF will also deploy significant air defence systems, including the S-400.

Hotan Air Base

The Hotan airfield in the Xinjiang autonomous region was built in 1957, around the time China began building the contested Aksai Chin Highway (G219) through Indian Ladakh. The airfield elevation is 4,672 feet (1,424 m) AMSL. It has two parallel concrete runways (11/29) with a wide

parallel taxiway 3,200 m (10,499 ft) long. The civil airport has a capacity of around 1.5 million passengers annually.

Hotan is just 130 km north of India's claim line and 270 km north-east of Karakoram Pass. It is 380 km north-east of Leh. These distances are not large for airborne platforms.

The Hotan airbase plays a critical role in Chinese military operations in the Ladakh area. Both runways at Hotan are now active. The second runway is longer than the original and is about 3,700 meters long. A number of military buildings and aprons have also come up along with the new runway. The new runway would enable more sortie rates.

China is constantly upgrading its military preparedness since the standoff with India began in eastern Ladakh in 2020. Hotan is one of the seven strategic dual-use airports that have been upgraded since 2017. The Chinese air force has built an underground command and control centre at Hotan Airbase. There are hardened shelters and secure ammunition and fuel storage areas. There are PLA Rocket Forces (PLARF) dugout positions. Besides Hotan, Chinese have also carried out extensive upgrades at their airports in Ngari Gunsa.

Kashgar is another airbase a little further north in Xinjiang province. Nearly 300 km north of the Indian claim line and 600 kilometres from Leh. Elevation is 4,529 ft (1,380 m) AMSL, and it has a 10,499 ft long runway. There is significant PLAAF presence here with sunshelters and hardened blast pens. Fighter aircraft can be seen in satellite pictures.

J-20s at Hotan

Hotan had seen between 70 and 100 aircraft during the Galwan crisis. These included cruise-missile carrying and nuclear-capable H-6K bombers, J-11, J-10, UAVs, AEW&C, and EW platforms. The then still operationally greenhorn J-20s were also briefly seen at Hotan in 2020, during Galwan perhaps making show of flag missions, in the hope of intimidating. In June 2022, PLAAF once again stationed around two dozen frontline fighters, including the J-20, J-11, and J-10 at Hotan.

The Y-20 strategic transport aircraft has also been observed at the airbase. These would facilitate faster and larger entry of troops and equipment. AEW&C KJ-500 deployments have also been seen. One can see the UAV apron and hangars, and CH-5 UAV have been observed. There are SatCom antennas and vehicles.

IAF Response to J-20s in Hotan

The Rafale base is at Ambala. Most IAF fighters can operate from Leh. The MiG-29s were deployed in Thoise. A sizable number of Su-30 MKI can cover the Ladakh region. Immediately after the Galwan skirmish, IAF fighters began making significant day and night flights in the region. IAF Mirage-2000 and MiG-29s have been upgraded. A few more are being acquired. Meanwhile, India is building a full-fledged airbase in Nyoma, just 35 kilometres from the LAC.

Summary

India has been significantly upgrading the IAF airfields facing China. Also, the road-rail network, bridges, and tunnels are coming up at high speed. India has a significant inventory of surface and aerial strike weapons with significant range.

India has nearly 28 airfields overlooking the LAC, and most are at much lower altitudes vis-à-vis China, which are much fewer in numbers and at altitudes above 10,000 feet. Nearly 118 ongoing projects of India's Border Roads Organisation (BRO) involve construction of airfields, bridges, and roads near the LAC.

IAF has seen much more combat, and its aircrew are exposed and trained for better employment tactics and concepts of operation, and most importantly, skill sets, experience, and combat readiness status. IAF has fought a war at Himalayan heights in Kargil. IAF is engaged in logistic support operations at the highest battleground in Siachen and elsewhere in Ladakh and north-east throughout the year.

Many Indian analysts behave like sceptics, painting doomsday scenarios relative to China. Actually, India is fairly well off, and IAF will be able to launch many more missions. Of course India must quickly build its fighter squadron numbers, more so because Pakistan could take an advantage and create a two-front threat situation.

India's own fifth-generation fighter, the Advanced Medium Combat Aircraft (AMCA), is still under initial development and will take another 10-15 years to be operationally deployed with the IAF. While India must accelerate the Light Combat Aircraft and AMCA programs, which are currently facing delays, there is an urgent need to acquire the 114 Multi-Role Fighter Aircraft (MRFA) gap to bolster the 4.5-generation inventory.

India must increase its satellite- and aircraft-based intelligence, surveillance, and reconnaissance (ISR) capability. It must increase the number of AEW&C and FRA quickly. Atmanirbharta in aerospace has to be accelerated. Time to act is now, lest we get left too far behind.

<https://www.firstpost.com/opinion/how-chinese-j-20-fighters-in-xinjiang-and-tibet-are-a-concern-for-india-13813077.html>



Mon, 08 Sep 2024

India's Military diplomacy in top gear with back-to-back exercises for three Services

In the last few months, India's military diplomacy is at a hectic pace with back-to-back military exercises from countries far and wide for all three Services. India-U.S. bilateral Army exercise Yudh Abhyas is set to commence at the Mahajan field firing ranges in Rajasthan on Monday (September 9, 2024). Not far away, Phase-II of the Indian Air Force's (IAF) largest multilateral exercise Tarang Shakti is underway at Jodhpur with eight countries, including India participating with aircraft and 17 countries as observers.

The iconic A-10 Thunderbird close air support aircraft are flying over Indian air space for the first time as the U.S. has deployed them for the exercise along with F-16 jets. The countries deploying aircraft include Australia, Greece, Japan, Singapore, Sri Lanka, UAE and the U.S., Bangladesh,

which was scheduled to deploy a C-130 transport aircraft, has dropped out in the backdrop of recent domestic developments.

“Tarang Shakti: A force for unity! The 25th Fighter Squadron’s A-10 Thunderbolt II and a C-17 Globemaster III assigned to Joint Base Lewis-McChord showcased their capabilities in India,” the U.S. Pacific Air Forces headquartered in Hawaii said on social media ‘X’. The Malabar naval exercise comprising India, Australia, Japan and the U.S. is scheduled to be held off the Visakhapatnam coast in the first half of October. Shortly after that, an Indian Army mechanised infantry contingent will head to Russia for bilateral exercise Indra.

Largest U.S. contingent

This year’s Yudh Abhyas is going to feature one of the largest U.S. contingent at the exercise with around 600 personnel and the U.S. Army also set to deploy Stryker infantry vehicles and the M142 HIMARS (High Mobility Artillery Rocket System).

Incidentally, the Stryker vehicles are currently being put to test by the Indian Army in various conditions, and a few hundred vehicles of different variants are likely to be procured, including some mounted with the javelin Anti-Tank Guided Missiles (ATGM). The talks for licence manufacture of the vehicles are in “relatively” early stages, officials said.

The U.S. has in the past demonstrated both the Stryker as well as the Javelin ATGM to the Indian Army during bilateral exercises and the Javelin was extensively evaluated by the Indian Army though the deal did eventually fall through. Presently, India conducts more military exercises with the United States than with any other country.

The Army’s other major engagements include the 10th edition of the bilateral exercise Mitra Shakti with Sri Lanka held from August 12-25 at Army Training School, Maduru Oya, Sri Lanka. Further, the Indian Army deployed a contingent of 40 personnel for the 21st edition of multinational peacekeeping exercise Khaan Quest hosted by Mongolia from July 27 to August 9. The exercise had around 430 participants from 23 countries, including Australia, Canada, China, Japan, Türkiye, the U.S. and the U.K. among others.

The Indian Navy has been busy building bridges of friendship at sea. Russian naval ships Varyag and Marshal Shaposhnikov visited Kochi from August 6-9. At the same time, the Phase-I of exercise Tarang Shakti was held at Sullur from August 6-14 which saw participation of Germany, France, Spain and the U.K. Each phase of Tarang Shakti has participation of 70-80 air assets, both IAF and participating forces. Phase-II is under way at Jodhpur from September 1 to 14.

The Commander-in-Chief of Russian Navy, Admiral Aleksandr Alekseyevich Moiseyev, was on an official visit to India from August 19 to 22. Around that period, the Commander of Brazilian Navy, Admiral Marcos Sampaio Olsen, also visited India from August 19 to 24. Indian Naval Ship Shivalik completed participation in exercise Rim of the Pacific (RIMPAC) hosted by the U.S. Navy at Guam held from June 27 to August 1.

The Shivalik mission deployed to the South China Sea and Pacific Ocean joined RIMPAC after taking part in a series of engagements. Shortly after that, the Indian Navy’s frontline stealth frigate, INS Tabar commanded by Captain M. R. Harish was in Toulon, France from August 29 to September 1 and on departure participated in the 22nd edition of IndiaFrance bilateral Exercise

Varuna from September 2 to 4 in the Mediterranean Sea. INS Tabar has been on a long deployment to Africa and Europe and has made a series of port calls in the last few weeks before visiting France.

The Indian Navy also deployed a P-8I long range maritime patrol aircraft for exercise Varuna, which, it said, was its first-ever deployment in Europe.

“This deployment comes 63 years after the Indian Navy’s Alizé aircraft, operating from the erstwhile INS Vikrant, last flew at the Hyères Airbase,” the Navy said as the P-8I touched down at Air Base 125 Istres-Le Tubé, France.

Before Tarang Shakti commenced, the IAF took part in exercise Pitch Black hosted by Australia from July 12 to August 2 and also in exercise Red Flag hosted by the U.S. in June, both multilateral exercises. These are some of the major war games that Indian military was engaged in.

<https://www.thehindu.com/news/national/military-diplomacy-in-top-gear-with-back-to-back-exercises-for-three-services/article68618770.ece#:~:text=Presently%2C%20India%20conducts%20more%20military,%2C%20Maduru%20Oya%2C%20Sri%20Lanka.>



Sat, 09 Sep 2024

Expert Explains: What is the responsible use of Artificial Intelligence in war; where India, US and China stand

As the use of artificial intelligence (AI) by the world’s militaries grows, the political effort to regulate the way the revolutionary technology is used in warfare is growing too. If the ongoing wars in Ukraine and Gaza are emerging as “AI labs” for warfare, there is also a diplomatic push to establish at least some general norms on how to limit the dangers of its military use.

India, which has been actively engaged with the issues of development and safe use of AI in the civilian domain, has stood apart from the emerging global debate on limiting the technology for military uses. But as new global frameworks for ‘AI arms control’ begin to emerge, Delhi must shape the process rather than stay away from it.

What is the REAIM?

The summit on Responsible Use of Artificial Intelligence in the Military Domain (REAIM) beginning in Seoul, South Korea, on Monday (September 9) is part of the new global diplomacy to shape global norms on the military applications of AI. The summit is being co-hosted by Kenya, the Netherlands, Singapore, and the United Kingdom. A wide range of governments, international organisations, technology companies, academia, and civil society from around the world are expected to participate.

This is the second iteration of the summit; the first took place in February 2023 in The Hague, and was hosted by the government of Netherlands. Although there were no dramatic outcomes at The

Hague summit, it broadened the global debate on the military dimensions of AI and brought a wider range of stakeholders into the debate.

Until recently, the debate on military AI had been focused on autonomous weapons, the so-called ‘killer robots’. The fear that the conduct of warfare would be taken up by computers and algorithms had generated calls for controlling these weapons. Keeping humans in the decision-making loop on the use of force has been a major objective of this discourse. The issues relating to lethal autonomous weapon systems (LAWS) have been discussed within a group of governmental experts since 2019 at the United Nations in Geneva.

Last December, the United Nations General Assembly took up for the first time the question of LAWS, and called on the Secretary General to gather the views of member states and report on the possible ways to address the ethical, legal, and operational challenges presented by autonomous weapons. The Secretary General’s report is expected to be presented at this year’s session of the UNGA beginning later this month.

From The Hague to Seoul

The REAIM process widened the debate beyond ‘killer robots’ to a broader range of issues by recognising that AI systems are finding ever greater applications in warfare. While AI has long been used by leading militaries for inventory management and logistical planning, in the past few years, the use of AI in intelligence, surveillance, and reconnaissance of the battlefield has significantly expanded.

Major militaries see the capacity of AI to transform the collection, synthesis, and analysis of vast amounts of data from the battlefield as useful in raising situational awareness, increasing the time available for decision-making on the use of force, enhancing precision in targeting, limiting civilian casualties, and increasing the tempo of warfare. Many critics have warned that these presumed attractions of AI in warfare might be illusory and dangerous.

The proliferation of the so-called AI decision-making support systems (AI-DSS) and their implications are among the issues that are now being debated under the REAIM process. The Hague summit called for continuing dialogue, and the second summit hopes to codify a measure of consensus on these issues.

The three-fold objective of the Korea summit is to understand the implications of military AI on global peace and security, implement new norms on using AI systems in military affairs, and develop ideas on long-term global governance of AI in the military domain.

Focus on responsible use of AI in military affairs

In an important shift, the REAIM process has moved away from the idea that the AI revolution in military affairs can be reversed and abolished. Instead, it is calling for the “responsible use” of AI. The REAIM process is one of the many initiatives to promote responsible AI — national, bilateral, plurilateral, and multilateral.

On the last day of The Hague summit, the United States had issued a unilateral draft political declaration on the responsible use of AI, and formalised it in November 2023. Earlier in 2020,

Washington had issued national guidelines for responsible military use of AI by the US armed forces.

The US has also encouraged its NATO allies to adopt similar norms. NATO's 2021 strategy identified six principles for the responsible military use of AI and unveiled a set of guidelines for its forces in July this year. The objective is to "accelerate" the use of AI systems that could generate military gains for NATO, but in a "safe and responsible" manner.

Simply put, we are going to see more AI in warfare than less; that comports with the historic trend that all new technologies will eventually find military applications. AI is no exception. The REAIM process recognises this — and given the potentially catastrophic outcomes from such use, the idea is to develop an agreed set of norms. The US is also conducting a bilateral dialogue with China on the responsible use of AI, especially on limiting its potential implications for nuclear deterrence.

Where the world, India, and China stand on AI use in weapons

In a parallel effort to the REAIM summits, the US introduced a resolution on the responsible use of AI at the UNGA earlier this year, which was co-sponsored by 123 countries and adopted by consensus. While the UN effort is focused on broad objectives, the REAIM process is aimed at a more granular discussion of the issues and building a wide international coalition in developing a new set of global norms on military AI.

More than 50 countries have endorsed the US political declaration on the responsible use of AI in the military domain. The US is reaching out to a wide range of countries in the Global South to inform them and win their support for the new AI initiative. On its part, Delhi has been in a 'watch-and-wait' mode in this unfolding debate. It is examining issues of substance and their long-term significance as it observes but holds back from full involvement with the new AI initiatives.

India had not endorsed the "call to action" issued by The Hague summit, and it remains to be seen if it supports a blueprint for global AI action that is expected to be unveiled by the Korea summit. Delhi, however, can't afford to remain a passive bystander in this profoundly consequential global debate on promoting norms for military use of AI.

Beijing, in contrast, has been at the forefront of the strategic as well as regulatory discourse on the military uses of AI. Its military analysts talk about the role of AI in "intelligised warfare". In 2021, China issued a White Paper outlining its approach to the regulation of military uses of AI. It also supported The Hague summit's "call to action" on the responsible military use of AI.

India's bitter experience with nuclear arms control, where political indecisiveness and ideological hesitations cost the nation dearly, is a reminder that it is easier to shape the global normative architecture in the design phase than change it after the new rules are established.

<https://indianexpress.com/article/explained/reaim-summit-ai-war-weapons-9556525/>

Military commanders told to always be ready to establish peace in world, India: Rajnath Singh

Defence Minister Rajnath Singh on Friday said that keeping in mind the global conditions prevailing today, the military commanders have been told to always be ready to establish peace in the world and India so that peace is not disturbed anywhere.

Rajnath Singh's statement came a day after the Joint Commanders Conference was held here. Speaking to reporters in the Uttar Pradesh capital after visiting the Khatu Shyam temple in Lucknow on Friday, Singh said, "India is the only country in the world which has given the message of 'Vasudhaiva Kutumbakam'. India is a worshipper of peace and will always remain so.

"Keeping in mind the global conditions prevailing today, the military commanders have been told to always be ready to establish peace in the world and India so that peace is not disturbed anywhere."

On Thursday, Singh had called upon the top military brass to analyse the conflicts in Ukraine and Gaza as well as the current situation in Bangladesh to "predict" any future problems and stay prepared to deal with the "unexpected".

In an address at the maiden joint commanders conference here, he also said the armed forces need to be prepared for war in order to preserve peace and emphasised on "synergised, swift and proportionate response to provocations", in comments that came amid the lingering border row with China in eastern Ladakh. The defence minister pitched for deeper analysis of the situation along India's border with China and developments in the neighbouring countries, which are posing a challenge to peace and stability in the region.

The conference, with the theme 'Sashakt aur Surakshit Bharat: Transforming the Armed Forces', held extensive discussions on the contours of the government's ambitious plans to roll out 'Integrated Theatre Commands'.

In his remarks, Singh, in presence of the chiefs of the three services, stressed on evolving a joint military vision as part of preparation to confront future security challenges and urged the commanders to identify and include the right mix of traditional and modern military hardware in the arsenal. On Friday, Singh offered prayers at the Khatu Shyam temple in Lucknow.

During this, Deputy Chief Minister Brajesh Pathak, office bearers of the Lucknow Mahanagar' unit of the BJP and MLAs were present, the Lucknow Mahanagar unit of the BJP said in a statement.

<https://economictimes.indiatimes.com/news/defence/military-commanders-told-to-always-be-ready-to-establish-peace-in-world-india-rajnath-singh/articleshow/113135840.cms>

IDS to conduct crash course for senior military officers to boost jointness

The Headquarters Integrated Defence Staff (IDS), a single-point organisation for jointness under the defence ministry, will on Monday begin a five-day programme for senior military officers, with a focus on boosting jointness and integration among the armed forces, an essential prerequisite to the creation of theatre commands.

The programme, called Combined Operational Review and Evaluation (CORE), is being conducted by IDS for the first time and has been conceptualised to prepare senior officers of the armed forces for leadership roles by honing their skills in strategic planning and to help them anticipate and prepare for future threats and conflicts, the defence ministry said in a statement on Sunday.

The development comes at a time when the armed forces are charting a path towards theaterisation, a long-awaited reform for the best use of the military's resources to fight future wars.

The single-point organisation for jointmanship, headed by CISC (chief of Integrated Defence Staff to the Chairman Chiefs of Staff Committee), integrates policy, doctrine, war-fighting and military purchases. Jointmanship refers to a degree of co-ordination and integration in terms of strategy, capabilities and execution across the three services. The CISC reports to the chief of defence staff (CDS) who is spearheading the theaterisation drive.

The development-cum-orientation programme, CORE, has been designed for two-star officers from the three services, as well as officials from the defence, external affairs and home ministries.

It aims to foster jointness and integration and enhance cooperation and coordination among the services to create a detailed understanding of the operational environment, the defence ministry said.

The programme is being conducted days after jointness came into sharp focus at the Joint Commanders' Conference in Lucknow where defence minister Rajnath Singh made a firm push for cultivating a joint vision, preparing for future wars, and delivering a synergised, swift and proportionate response to provocations.

The military is ready with the blueprint of the theaterisation model and will present it to the government for final approval soon.

"The effective conduct of future wars will hinge on three vital elements: military leaders, combatants (man-machine interface) and support staff. The Indian armed forces are taking dynamic steps towards modernisation. It is imperative for future senior military leaders to stay abreast of changing geo-political dynamics and futuristic combat scenarios...to take comprehensive decisions," the statement said.

The programme will involve panel discussions and lectures by 30 eminent speakers and subject matter experts from different fields. The topics will include the changing nature of warfare, globalisation and interconnectedness, lessons from ongoing global conflicts, impact of non-kinetic warfare, cyber and information warfare, and adoption of artificial intelligence and autonomous systems in the military.

In Lucknow, Singh drew the military's attention to the ongoing wars between Russia and Ukraine, and Israel and Hamas, and the instability in Bangladesh. He asked the military leadership to analyse the troubling global developments, predict the challenges that India could face, and build capability and stay prepared to deal with the unexpected.

The minister emphasised the need for "a broader and deeper analysis" of security dynamics by the top military leadership in light of the situation along the country's border with China and developments in the neighbouring countries, which threaten peace and stability in the region.

Speaking at the Lucknow conference, CDS General Anil Chauhan also made a pitch for jointness and integration for the military to adapt to the contours of future warfare.

The theaterisation model being pursued involves raising the China-centric northern theatre command in Lucknow, the Pakistan-centric western theatre command in Jaipur, and the maritime theatre command in Thiruvananthapuram.

<https://www.hindustantimes.com/india-news/ids-to-conduct-crash-course-for-senior-military-officers-to-boost-jointness-101725798847969.html>



Mon, 09 Sep 2024

Quad Summit in Delaware on September 21, India to host in 2025

Prime Minister Narendra Modi will visit the United States this month, his first after assuming office for a third straight term. The trip to the US comes days after Modi visited Ukraine and Russia in the last two months.

The prime minister will attend the Quad Summit on September 21 in Wilmington, the home town of outgoing US president Joe Biden in Delaware. It is the last gathering of all the current leaders of the Quad alliance together, as both Biden and Japan's Fumio Kishida are stepping down from the office.

Biden recently announced that he will not run again for a second stint at White House. Kishida also made his plans clear of not seeking re-election as the head of Liberal Democratic Party.

Modi, now in his 11th year as prime minister, has been a senior leader among the four. The development assumes significance as India will be hosting the Summit in 2025.

The Delaware summit will mark 20 years of the formation of Quad alliance. Biden owns a home in Wilmington and used to travel to Washington on an Amtrak during his days as senator.

According to several media reports, the US had initially explored the Sunnylands estate in California for the summit. In 2013, then US president Barack Obama had hosted then China's newly appointed president Xi Jinping. The Chinese leader had proposed a “new model of major-country relations” under which both Washington DC and Beijing would agree to no conflict or confrontation.

After the Quad Summit in Delaware, PM Modi will head to New York to attend the United Nations Summit of the Future on September 22–23.

On September 22, the prime minister will address a mega community event titled ‘Modi & US’ Progress Together’, on September 22 at the 16,000-seater Nassau Veterans Memorial Coliseum in Long Island.

However, PM Modi will not address the UN General Assembly. External affairs minister S Jaishankar will address on behalf of India on September 28.

Modi's visit to the US comes months ahead of the presidential elections, where Republican candidate Donald Trump is facing Democrat nominee Kamala Harris.

<https://www.hindustantimes.com/india-news/quad-summit-in-delaware-on-september-21-india-to-host-in-2025-101725809544265.html>



Sat, 07 Sep 2024

India and US Set to Flex Military Muscle in Rajasthan: First-Ever Rocket System Joins Yuddhabhyas Exercise

As the strategic relationship between India and the United States begins to stabilize, both nations are gearing up for their largest joint military exercise yet. Ahead of Prime Minister Narendra Modi's upcoming visit to the US later this month, the 20th edition of the annual 'Yuddhabhyas' exercise will take place at the Mahajan Field Firing Range in Rajasthan from September 9-24. This exercise marks a significant development, with both countries bringing advanced military technology to the battlefield, setting the stage for an unprecedented showcase of firepower.

Involving 600 soldiers from each side, this year's Yuddhabhyas exercise brings a new element into play—the US is introducing its Mobile Artillery Rocket System (MARS) to the exercise for the first time. Traditionally, the US Army has deployed its Stryker Brigade, an armored personnel carrier, in joint drills with India. However, the addition of the MARS system signals an escalation in the complexity and scale of the military cooperation between the two nations. This comes as a response to India's use of tanks and cannons during the joint exercises in the US in 2021.

The Yuddhabhyas exercise, which alternates annually between the two nations, was hosted by the US in Alaska last year. This year, the scorching sands of the Thar desert will serve as the backdrop for advanced combat training, focusing on modern warfare techniques and the integration of cutting-edge technology.

The introduction of rocket systems comes at a critical time, as such artillery has proven to be a game-changer in modern conflicts like the ongoing Russia-Ukraine war. Notably, the Russian Army frequently uses multiple rocket launcher systems during its joint military exercises with India. The US's decision to bring its rocket system to the table this year further enhances the military synergy between Washington and New Delhi, showcasing their ability to cooperate on a deeper, more sophisticated level.

In addition to the US rocket systems, India is set to showcase the AK-203 assault rifles, jointly manufactured with Russia at a facility in Korwa, Amethi. This marks the first time the Indian Army will use these rifles during a major international military drill, adding a new dimension to India's indigenous defense production efforts under the 'Make in India' initiative.

This exercise also comes at a time when the diplomatic ties between India and the US have seen a recent recovery. Strained by India's neutral stance on Russia during the Ukraine war and the murder of Khalistani separatist Gurpatwant Singh Pannu, relations had cooled. However, Modi's visit to Kyiv and Defense Minister Rajnath Singh's recent engagement with US officials have helped restore trust between the two nations.

The world will be watching closely as these two military powerhouses engage in Yuddhabhyas, especially as they bring their most advanced artillery and weapons systems to the forefront. This joint exercise symbolizes more than just a display of military strength; it represents the rekindling of a strategic partnership that has the potential to shape global security dynamics.

<https://www.financialexpress.com/business/defence-india-and-us-set-to-flex-military-muscle-in-rajasthan-first-ever-rocket-system-joins-yuddhabhyas-exercise-3604083/>



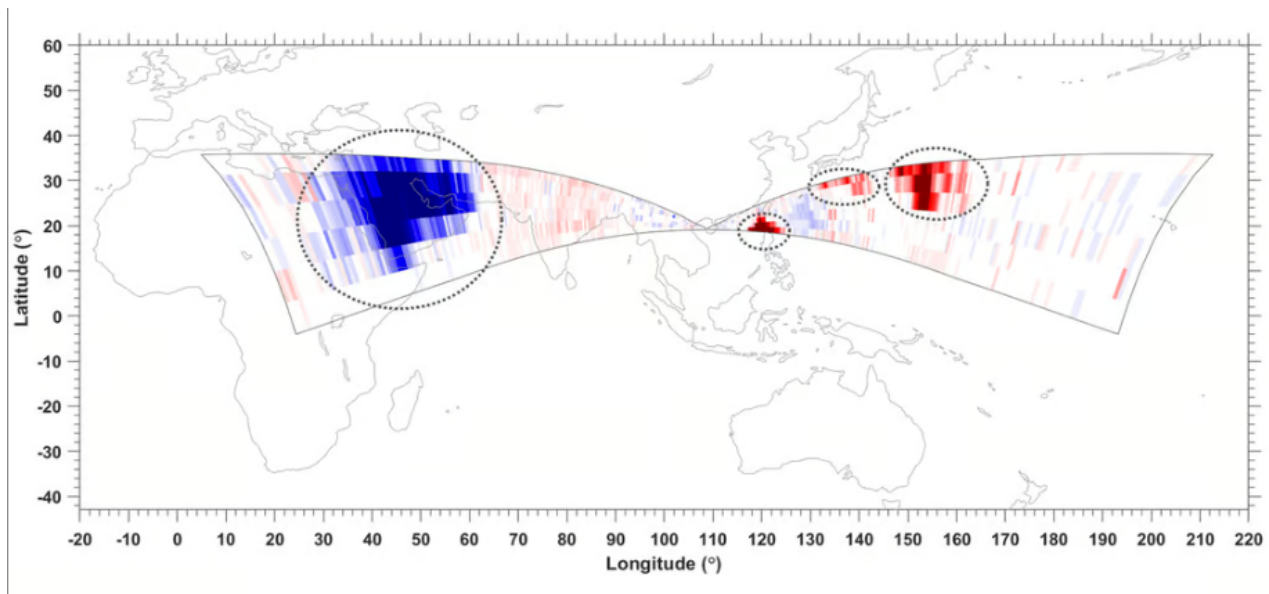
Sun, 08 Sep 2024

With 10,000 KM Range — China Boasts World's Most Powerful Radar That Can Detect 'Rare' Plasma Bubbles, Stealth Aircraft

Chinese scientists have claimed to have made a groundbreaking discovery using what is currently regarded as the world's most powerful radar system. This system allows them to simultaneously detect equatorial plasma bubbles (EPB) over the Egyptian pyramids and the Midway Islands in the Pacific Ocean. This development positions China as a leader in ionospheric research, and the

country is now the first in the world to track such anomalies in real-time, according to Chinese media claims.

The radar, known as the Low Latitude Long Range Ionospheric Radar (LARID), was developed by the Institute of Geology and Geophysics under the Chinese Academy of Sciences and was installed last year. It has the unique ability to detect plasma bubbles, “an anomalous weather phenomenon” that can disrupt satellite communications and GPS systems by interfering with the ionosphere — the part of Earth’s upper atmosphere populated by charged particles. These plasma bubbles, which can grow to hundreds of kilometers in size, are typically seen in low-latitude regions.



LARID can detect plasma bubbles as far as 9,600km away.

They form when large amounts of electrons suddenly vanish from the ionosphere, creating vast electron-depleted zones. Until now, tracking and observing these bubbles in real time has been challenging. The report claimed that the breakthrough came last year during a solar storm from November 4-6. The LARID system successfully detected radar echoes from plasma bubbles forming over North Africa and the Central Pacific.

The radar’s unprecedented detection range allowed scientists to monitor these bubbles as they formed and moved across regions separated by vast distances. What makes this achievement particularly noteworthy is the scale of LARID’s capabilities. Located on Hainan Island in southern China, the radar’s detection range has tripled since its initial deployment, expanding from 3,000 km to nearly 9,000 km.

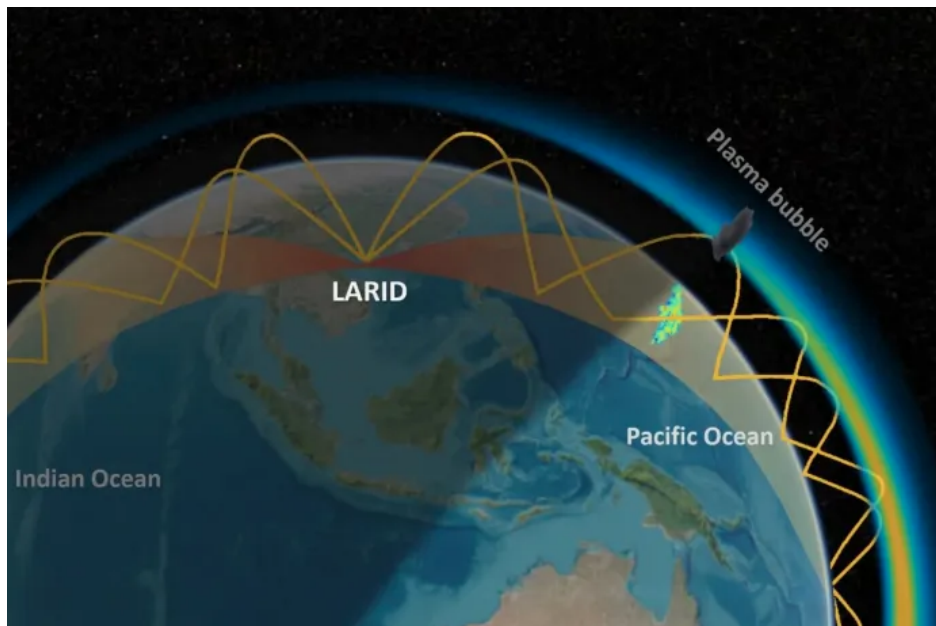
This extended range reaches approximately as far as Hawaii to the east or Libya to the west. Advances in signal processing and geophysical simulation models have made this possible. Chinese researchers believe the discovery will have major implications for global communications and navigation systems, offering the potential to mitigate the negative impacts of plasma bubbles on satellite signals. LARID operates with two high-frequency (HF) radar systems, oriented eastward and westward.

A research article by the Chinese Academy of Sciences, published in March 2024, highlights LARID's capability to predict and issue alerts regarding ionospheric scintillations over an extensive area that spans from the Indian Ocean to the western Pacific. LARID operates within the 8-22 MHz frequency range and comprises two radar subsystems, each equipped with 24 transceiver antennas facing east and west. Its advanced, fully digital phased array system allows real-time adjustments to detection parameters such as frequency, range, and radar coding, enhancing its adaptability and effectiveness.

Potential For Strategic Military Applications

Traditional radar systems struggle with targets beyond the horizon due to the Earth's curvature. In contrast, LARID utilizes high-power electromagnetic waves that bounce between the ionosphere and the ground, allowing it to overcome this limitation. Previously, radar systems with such extensive over-the-horizon capabilities were deemed impractical due to the complexity of radio wave propagation and the impact of severe weather conditions like geomagnetic storms on signal clarity.

Despite these challenges, LARID has reportedly achieved notable success and has significant military implications. The detection of plasma bubbles can greatly affect modern military operations, particularly satellite communications and GPS systems. Traditionally, the military has recognized the strategic value of understanding these phenomena, as evidenced by numerous studies supported by various global armed forces.



China's super-radar LARID has detected plasma bubbles as far away as the Midland Islands north of Hawaii and the pyramids in Giza, Egypt. Photo: Chinese Academy of Sciences. However, the absence of large-scale, persistent observation facilities over oceans has limited early warning and comprehensive monitoring capabilities. Yet, LARID's success underscores the potential benefits of expanding this technology.

Chinese scientists have proposed establishing additional over-the-horizon radars in low-latitude regions worldwide, aiming to create a global network for seamless real-time monitoring of

equatorial plasma bubbles. This network would enhance early warning capabilities and improve understanding of these phenomena.

Similar over-the-horizon radar technologies have already been implemented by the Chinese military in a military context. Reports indicate the successful detection of stealth US-made fifth-generation fighter aircraft like the F-22. Some new PLA warships, such as the 055-type destroyers, are also equipped with radars capable of detecting stealth aircraft. These radars utilize wavelengths that penetrate stealth coatings, potentially reaching detection ranges of hundreds of kilometers.

<https://www.eurasiantimes.com/n-china-boasts-worlds-most-powerful-radar-detects/>

Science & Technology News

THE TIMES OF INDIA

Sat, 07 Sep 2024

Moon's seismic activity likely linked to past meteorite impacts or heat effects: Isro

Seismic activity in the Moon's soil could be due to impact from meteorites in the past or local heat-related effects, according to Isro's preliminary analysis of data received from 's quakedetecting instrument.

However, detailed studies are needed to get more insights from the data, they said. Their research paper, published in the journal *Icarus*, summarises observations made on 190 hours of data recorded by the Instrument for Lunar Seismic Activity (ILSA).

ILSA is one of the five major scientific instruments carried by Chandrayaan-3's Vikram lander and Pragyaan rover together. Chandrayaan-3 made a soft-landing on the Moon's south pole on August 23, 2023.

The quake-detecting ILSA was operated continuously until September 2, 2023, after which it was switched off and was packed back up, before the lander was relocated to a new point roughly 50 centimetres away from the initial one, the researchers from the Indian Space Research Organisation (ISRO) explained.

ILSA operated on the lunar surface for about 218 hours, of which 190 hours of data are available, they said. "We have identified more than 250 distinct signals of which about 200 signals are correlated to known activities involving the physical movements of the rover or the operation of science instruments," the study authors wrote.

The 50 signals, which could not be linked to the movements of either the lander or the rover, were deemed "uncorrelated events" by the authors. "The uncorrelated signals recorded by ILSA might be

due to impact of micrometeorites at near ranges of the instrument, local thermal effects on the soil, or thermal adjustments within the lander subsystems," they wrote. A micrometeorite is a very small meteorite, or a remnant of a meteoroid, with a diameter usually less than a millimetre.

The researchers also found that during its course of operation, ILSA also recorded a wide range of changes in temperature, from (minus) 20° Celsius to (plus) 60 ° Celsius.

ILSA was operated during a lunar day when the sun elevation angle had changed steadily. After the initial five hours of operation, the temperature started to decrease, which was noted by shadows cast by the lander's parts on the instrument, the authors said.

They said detailed studies are required to understand potential sources of ILSA's data. "Even though the possible causes of signals due to uncorrelated events are presented, detailed analysis has to be conducted to get more insights from the records," the authors wrote.

ILSA is the first instrument ever to have recorded seismic data from the Moon's polar region and the second one to record ground movements on the Moon after Nasa's Apollo mission about four decades back.

<https://timesofindia.indiatimes.com/science/moons-seismic-activity-likely-linked-to-past-meteorite-impacts-or-heat-effects-isro/articleshow/113141659.cms>



Mon, 09 Sep 2024

Russia working with China, India for nuclear power on Moon

At the Eastern Economic Forum, the head of Rosatom, Alexey Likhachev indicated that Russia's planned Luna nuclear plant with the capacity for generating half a megawatt of power is attracting international collaborators, including China and India. According to a report in TASS, Likhachev said, "Our Chinese partners, Indian ones, are very interested in this. We are trying to lay down several international space projects."

Earlier in the year, the director general of Roscosmos, Yury Borisov had announced plans for setting up a Russian nuclear reactor on the Moon in collaboration with China. The mission will have to rely heavily on automation, with plans for deploying the lunar power station between 2033 and 2035. Russia and China are working closely together on the the International Lunar Research Station (ILRS), a planned base on the Moon in the highlands around the south pole, to rival USA's Artemis Basecamp.

Russia and India collaborations in Space and Energy

Russia is providing technical assistance to India for setting up its nuclear power infrastructure, including the power plants in Kudankulam, and the innovative, next-generation fast breeder reactor at Kalpakkam.

Russia is also helping out India with its ambitious Gaganyaan programme, including providing training to the Gaganyatris at Star City in Russia, in the same facilities that the Russian Cosmonauts are trained at. ISRO also closely collaborates with NASA for its Gaganyaan programme, with a Gaganyatri headed to the International Space Station in 2025. ISRO initially planned the Chandrayaan missions as a collaboration with Russia, but chose to develop its own lander after the failure of the Phobos-Grunt mission in 2011.

On 13 December, 1991, UR Rao, Chairman of the Space Commission and Liu Jiyuan, the Vice-Minister of Aerospace in China signed an agreement for bilateral cooperation in space research, technology and applications.

The MoU was signed in the presence of the then Prime Minister of India, PV Narasimha Rao and the then Prime Minister of China, Li Peng. India has launched academic satellites for China routed through Europe, but in recent years, the cooperation in the space domain between China and India has been minimal.

<https://www.news9live.com/science/russia-working-with-china-india-for-nuclear-power-on-moon-2687054>



Fri, 06 Sep 2024

Novel monoclonal antibody appears effective at neutralizing numerous SARS-CoV-2 variants

A monoclonal antibody appears effective at neutralizing the numerous variants of SARS-CoV-2, as well as related viruses in animals that could pose a threat if they were to begin spreading in people. The antibody, called SC27, was recently described in Cell Reports Medicine.

The finding opens the possibility of broader, more effective treatments to work against current and future COVID variants.

Monoclonal antibody SC27 was identified, developed and provisionally patented by a team of researchers led by Greg Ippolito, Ph.D., who recently joined Texas Biomedical Research Institute (Texas Biomed) from University of Texas at Austin. Other team leaders included Jason Lavinder, Ph.D., at UT and Ralph Baric, Ph.D., at University of North Carolina at Chapel Hill.

Other COVID-19 antibodies have been rendered ineffective as SARS-CoV-2 has evolved over the past several years. Our new study suggests the virus is less likely to escape this treatment because SC27 targets and attaches to multiple parts of the virus's spike protein, including sections that are not mutating as frequently."

Dr. Greg Ippolito, Ph.D., Associate Professor

SC27 appears to work in two ways: it blocks the ACE2 binding site, which the virus uses to bind to, enter and infect cells. It also binds to a hidden or "cryptic" site on the underside of the spike protein that is largely unchanged or "conserved" between variants, which means SC27 can broadly recognize variants and related viruses. This is critical because if an antibody's shape does not match enough with a virus – like two puzzle pieces that don't quite fit – the antibody can't effectively neutralize the virus and the virus sneaks by the body's immune defense system.

The researchers tested SC27 against 12 viruses, from the original SARS-CoV-2 to currently circulating variants, as well as related SARS-1 and several other coronaviruses found in bats and pangolins. The antibody was effective against all of them in a petri dish and protected mice against both variants tested.

"This makes it broader and more effective than any other monoclonal antibody reported in scientific literature to date and the former FDA-approved cocktails," says Dr. Ippolito, adding the caveat that SC27 still needs to be tested in human clinical trials.

The team is looking to collaborate with industry to further develop the SC27 monoclonal antibody treatment, which could potentially benefit immunocompromised patients who are unable to get vaccines. It also could serve as an emergency treatment during future outbreaks of new variants or coronaviruses. Next steps would include preclinical studies in larger animal models, including nonhuman primates, which are the gold standard to evaluate how complete immune systems respond to a treatment before safely moving to human clinical trials.

Notably, SC27 was found in individuals following vaccination with mRNA COVID-19 vaccines. Previously, this type of "class 1/4" antibody – which attaches to two distinct areas or "epitopes" of the spike protein – was only detected following natural infection from SARS-1.

"This is fantastic news that vaccines can prompt the generation of these more robust and effective antibodies," explains Dr. Ippolito. "It means that future vaccine development can be tailored to generate these antibodies and have a clear metric for measuring which vaccines will be most effective."

<https://www.msn.com/en-gb/health/other/novel-monoclonal-antibody-appears-effective-at-neutralizing-numerous-sars-cov-2-variants/ar-AA1q84x2>

