

जुलाई
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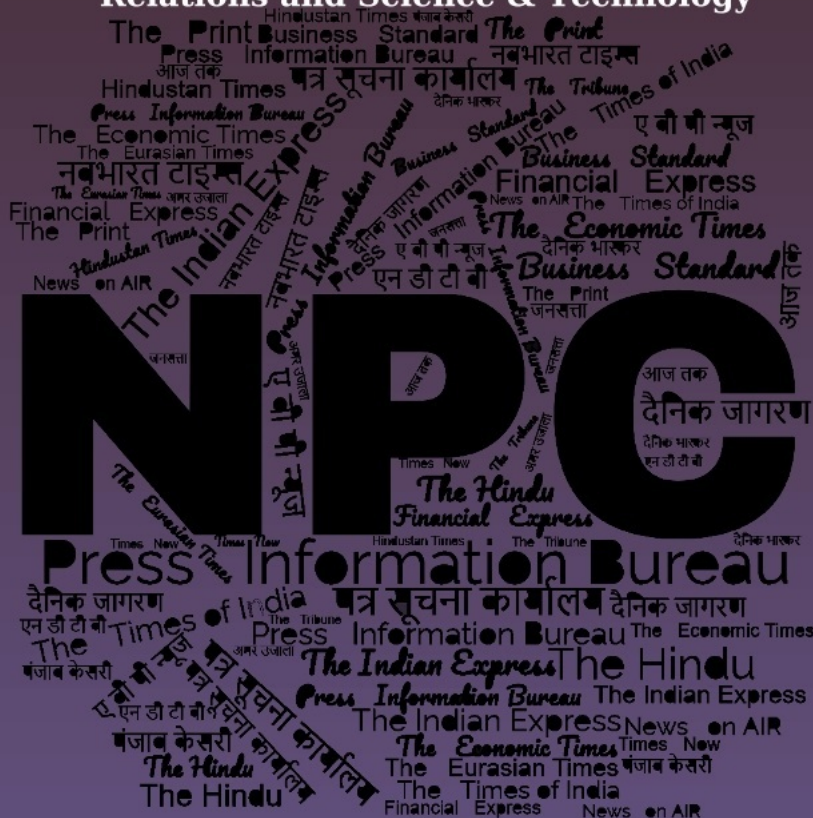
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समाचार पत्रों से चयनित अंश Newspapers Clippings

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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DRDO News

पाताल में भी लक्ष्य को भेदने में सक्षम होगा बैलिस्टिक मिसाइल अग्नि-5 पर लगा मुख्वास्त्र

Source: Dainik Jagran, Dt. 01 Jul 2025

नई दिल्ली, आइएनएस : हाल के वैश्विक संघर्षों से सबक लेते हुए भारत ने भविष्य के युद्धों के लिए बंकर बस्टर बम बनाने की दिशा में प्रयास तेज कर दिया है। भारत ऐसी शक्तिशाली मिसाइल प्रणाली पर काम कर रहा है, जिसमें अग्नि-5 पर लगा मुख्वास्त्र (वारहेड) पाताल में भी लक्ष्य को भेदने में सक्षम होगा। हालिया दिनों में जब अमेरिका ने ईरान के फोर्डो परमाणु संयंत्र पर हमला किया तो बंकर बस्टर बम दुनियाभर में सुर्खियों में आ गया। हालांकि, भारतीय मिसाइल प्रणाली अमेरिका के बी-2 बमवर्षक से ज्यादा सटीक हमले करेगी, क्योंकि अग्नि-5 मिसाइल

- भारत ने भविष्य के युद्धों के लिए बंकर बस्टर बम बनाने के लिए तेज किया प्रयास
- ईरान के फोर्डो परमाणु संयंत्र पर अमेरिकी हमले के बाद सुर्खियों में रहा बंकर बस्टर



ओडिशा के बालासोर में अग्नि-5 के परीक्षण का दृश्य ● फाइल

अग्नि-5 के दो नए संस्करण

- अग्नि-5 मिसाइल के दो नए संस्करण विकसित किए जा रहे हैं। एक को जमीन के ऊपर के लक्ष्यों, जैसे कि एयरफील्ड रनवे और दुश्मन के टैंकों को निशाना बनाने के लिए डिजाइन किया जा रहा है।
- दूसरे में अमेरिका के बंकर बस्टर बम के समान जमीन के नीचे गहराई तक हमला करने की क्षमता होगी।
- इन मिसाइलों की रेंज मूल अग्नि-5 की 5,000 किलोमीटर की रेंज की तुलना में 2,500 किलोमीटर तक सीमित होने की उम्मीद है, क्योंकि वारहेड का वजन अधिक होगा।

बेहतर ढंग से लक्ष्य पर निशाना साधेगी।

भारत का बंकर बस्टर बम न

सिर्फ जमीन के नीचे 80 से 100 मीटर तक दुश्मन के लक्ष्यों को भेद देगा, बल्कि इसे पारंपरिक हथियारों

से नष्ट भी नहीं किया जा सकेगा। मीडिया रिपोर्टों में कहा गया है कि भारत द्वारा बंकर बस्टर बम का

ये हैं विशेषताएं

- यह भारत की अंतरमहाद्वीपीय बैलिस्टिक मिसाइल है
- यह 5,000 किमी से अधिक दूरी तक मार कर सकती है, परमाणु वारहेड ले जाने में भी सक्षम
- इसे सड़क पर चलने वाले लांचर से छोड़ा जा सकता है
- यह उन्नत मार्गदर्शन प्रणाली से लैस है, जो सटीक निशाना सुनिश्चित करती है

निर्माण पहले से प्रस्तावित था। लेकिन, ईरान के परमाणु प्रतिष्ठानों पर अमेरिकी हमले के बाद भारत

ने इसको लेकर अपना प्रयास तेज कर दिया है। पहाड़ियों के नीचे और मजबूत कंक्रीट से ढके होने के बावजूद अमेरिकी बंकर बस्टर ने फोर्डो परमाणु संयंत्र को तबाह कर दिया था। हालांकि, बी-2 बमवर्षक द्वारा छोड़े जाने वाले अमेरिकी बंकर बस्टर के विपरीत, भारतीय बंकर बस्टर को अग्नि मिसाइल पर वारहेड के रूप में लगाया जाएगा। भारत मिसाइल आधारित हमले का विकल्प चुन रहा है, क्योंकि इससे लागत कम होती है और परिचालन आसान रहता है।

रक्षा अनुसंधान और विकास संगठन (डीआरडीओ) अग्नि-5 अंतरमहाद्वीपीय बैलिस्टिक मिसाइल

का नया संस्करण विकसित कर रहा है। पहले के अग्नि संस्करण की रेंज 5,000 किलोमीटर से अधिक है और यह आमतौर पर परमाणु वारहेड ले जाता है। नया संस्करण एक पारंपरिक हथियार होगा, जो 7,500 किलोग्राम भारी बंकर बस्टर वारहेड ले जाने में सक्षम होगा। इसे इस तरह डिजाइन किया जा रहा है, जिससे यह कंक्रीट की मोटी परतों के नीचे दबे हुए दुश्मन के ठिकानों को भी भेद देगा। नए बंकर बस्टर वारहेड दुश्मन के इलाके में कमांड-एंड-कंट्रोल सेंटर, मिसाइल भंडार और महत्वपूर्ण सैन्य ढांचे को निशाना बनाने में महत्वपूर्ण भूमिका निभाएंगे।

Defence News

सेनाध्यक्ष की भूटान यात्रा, रक्षा सहयोग को मिलेगा नया आयाम

Source: Jansatta, Dt. 01 Jul 2025

सेना प्रमुख जनरल उपेंद्र द्विवेदी सोमवार को भूटान की चार दिवसीय यात्रा पर रवाना हुए। अधिकारियों के मुताबिक, रणनीतिक रूप से अहम स्थान पर स्थित डोकलाम पठार के आसपास बुनियादी ढांचे को मजबूत करने के चीन के अथक प्रयासों की पृष्ठभूमि में सेना प्रमुख पड़ोसी मुल्क गए हैं।

भूटान के साथ पहले से ही घनिष्ठ द्विपक्षीय सैन्य संबंध हैं और उनकी इस यात्रा से रिश्तों के साथ रक्षा सहयोग में मजबूती आएगी। अधिकारियों ने बताया कि थिम्पू में जनरल द्विवेदी राजा जिग्मे खेसर नामग्याल वांगचुक से मुलाकात करेंगे और भूटान के सेना प्रमुख लेफ्टिनेंट जनरल बटू शेरींग के साथ व्यापक वार्ता करेंगे। //

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Gen on 4-day visit to Bhutan to boost def ties

Source: The Times of India, Dt. 01 Jul 2025

General Upendra Dwivedi is now on a four-day trip to Bhutan to further enhance already close bilateral military ties - which comes at a time that China continues to strengthen its military infrastructure in the Doklam plateau that saw a 73-day face-off between the Indian and Chinese armies in 2017.

The Army chief will call on Bhutanese King Jigme Khesar Namgyel Wangchuck and hold wide-ranging talks with Lt General Batoo Tshering, the chief operations officer of the Royal Bhutan Army. "The visit reflects the deep-rooted and time-tested ties between India and Bhutan and reaffirms India's commitment to a close and trusted partner," Army spokesperson Colonel Nishant Arvind said.

India has been keeping a close watch on the series of border talks between Bhutan and an expansionist China in a bid to resolve their territorial disputes, which include Doklam plateau in the west and Jakarlung and Pasamlung valleys in the north.

<https://timesofindia.indiatimes.com/india/gen-on-4-day-visit-to-bhutan-to-boost-def-ties/articleshow/122170336.cms>

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India to fast-track 52 military satellites for better surveillance at borders

Source: The Hindu, Dt. 01 Jul 2025

After defence forces realised the need for more precision surveillance during Operation Sindoor, the Union government has ordered the fast-tracking of the launch of 52 dedicated surveillance satellites, enhancing round-the-clock monitoring of coastline and land borders.

In October last year, the Prime Minister Narendra Modi-led Cabinet Committee approved \$3.2 billion for the SBS-III programme to develop next-generation satellites over the next decade. Under the programme, ISRO will manufacture and launch the first 21 satellites, while private companies will handle the remaining 31. The Defence Space Agency (DSA) will oversee the operation of the newly launched satellite system.

India working on 'military space doctrine', expected to be out in three months, says CDS

“We have asked the private companies and ISRO for early launch of satellites. These new satellites will add a next-generation radar imaging capability that will help in all-weather and day-night surveillance. We are expecting first set of satellites to be launched by 2026,” said a senior official.

The official added that the new satellites will be using artificial intelligence (AI) to make smarter decisions and improve overall performance and efficiency in space.

During Operation Sindoor, satellite-based surveillance helped Indian defence forces to act swiftly by offering accurate intelligence, including the trajectory and movement of drones and missiles.

At least 10 satellites working to ensure safety and security of India: ISRO Chief V Narayanan

After the successful implementation of SBS-III, India will become more self-reliant and reduce its dependence on other countries. It will help focus more clearly and accurately on the Pakistan and China border and the Indian Ocean Region.

During the Operation Sindoor, it was claimed that China provided satellite support to Pakistan.

India's satellites, like the Cartosat and RISAT, helped defence forces to track enemy mobilisation, confirm strike impact, and maintain real-time situational awareness, which prevented any major damage to the country's military assets.

<https://www.thehindu.com/sci-tech/india-to-fast-track-new-military-satellites-for-better-surveillance-at-borders/article69755996.ece>

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Brazil, India eye joint production of defence equipment, mutual buying

Source: The Tribune, Dt. 01 Jul 2025

India and Brazil are looking at each other's manufacturing capabilities for joint production of defence equipment and buying military equipment from each other.

Brazil is keen on having Indian-made Akash missiles, artillery guns, coastal radars and secure communication used in the battlefield. The Akash missiles proved their mettle during the recent conflict between India and Pakistan on May 7-10.

Meanwhile, New Delhi is keen on having a joint collaboration to develop an Airborne Warning and Control System (AWACS), based on the Brazil-made plane, Embraer.

Separately, Embraer and India-based Mahindra have signed an MoU to collaborate on making the C-390 multi-mission transport aircraft. India is looking at planes of this class to replace the Soviet-origin AN 32 planes.

These issues are likely to come up in the upcoming bilateral meeting between Prime Minister Narendra Modi and Brazil President Lula da Silva on the sidelines of the BRICS summit. Modi will visit Brazil from July 5 to 8 to attend the 17th BRICS summit, followed by a state visit.

P Kumaran, Secretary (East), MEA, on Monday said, "There is lot of potential to work with Brazil. The two countries are looking at joint ventures, joint research and co- development. The Embraer is being looked at for a reconnaissance platform."

Kumaran said Brazil had shown interest in India's secure communication system, off-shore patrol vessels, Akash missiles, coastal radars and artillery guns.

Additionally, Brazil uses the French-origin Scorpene class submarine, which is also used by India. The two countries are also exploring the idea of a joint maintenance infrastructure for the submarine.

The two countries already have a joint defence committee (JDC). Established under a 2003 agreement, this committee has facilitated 14 high-level exchanges between defence chiefs of both nations.

Since 2007, 134 defence officers (70 from India and 64 from Brazil) have undergone training in each other's institutions. In 2024, the two countries launched the '2+2 Political-Military Dialogue'.

Both countries are strategic partners in various multilateral forums like BRICS, G20 and ISBA (India-Brazil South Africa) platform.

<https://www.tribuneindia.com/news/india/brazil-india-eye-joint-production-of-defence-equipment-mutual-buying/3.html>

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Indian Navy's Rear Admiral Ganapathy assumes command of MILIT amid technological transition

Source: The Statesman, Dt. 01 Jul 2025

Rear Admiral V Ganapathy, a Flag Officer of the Indian Navy, has assumed the command of the Military Institute of Technology (MILIT), Pune, under the Headquarters Integrated Defence Staff.

An alumnus of the College of Defence Management, National Defence College, and Defence Services Staff College, the Rear Admiral has held several key operational, staff and instructional appointments, demonstrating a rare blend of operational insight, institutional leadership and future-oriented thinking.

Rear Admiral V Ganapathy's appointment as Commandant comes at a transformative time when the Armed Forces are undergoing rapid technological evolution and institutional integration under the ethos of jointness, a statement from the Ministry of Defence stated on Monday.

As the head of India's premier Tri-services technical training institution, he now helms the mission of preparing mid-career officers from the Army, Navy, Air Force and friendly nations in cutting-edge military technologies.

His leadership is poised to further strengthen MILIT's role as a hub of excellence in joint technical education, with a renewed emphasis on niche and emerging domains that are reshaping modern warfare, the statement added.

<https://www.thestatesman.com/india/indian-navys-rear-admiral-ganapathy-assumes-command-of-milit-amid-technological-transition-1503451571.html>

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Border dispute complicated, ready to discuss delimitation, says China

Source: The Indian Express, Dt. 01 Jul 2025

KJM VARMA
BEIJING, JUNE 30

CHINA ON Monday said the boundary dispute with India is complicated and will take time to settle but at the same time, it expressed its readiness to hold discussions on the delimitation of the border and keep it peaceful.

Defence Minister Rajnath Singh in his meeting with Chinese counterpart Dong Jun in Qingdao on June 26 proposed that India and China should solve the "complex issues" under a structured roadmap comprising steps to de-escalate tensions along the frontiers and rejuvenate the existing mechanism to



Defence Minister Rajnath met his Chinese counterpart on June 26

demarcate the borders.

Singh and Dong held bilateral talks on the sidelines of a conclave of the Shanghai Cooperation Organisation (SCO) in the Chinese port city of Qingdao, with a focus on maintaining peace and tranquillity along the Line of Actual Control (LAC).

Asked for China's reaction to Singh's remarks, Foreign Ministry spokesperson Mao Ning said: "What I can tell you is

that China and India have established the Special Representatives (SRs) mechanism on the boundary question and reached the Agreement on the Political Parameters and Guiding Principles for the Settlement of the China-India Boundary Question."

The two sides have diplomatic and military communication mechanisms at various levels, she said.

"China stands ready to maintain communication with India on issues including delimitation negotiation and border management, jointly keep the border areas peaceful and tranquil, and promote cross-border exchange and cooperation," she said. PTL

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'रक्षा आवंटन का तीन प्रतिशत तय करने को बनाया जाएगा मापदंड'

Source: Dainik Jagran, Dt. 01 Jul 2025

नई दिल्ली, प्रेटर : "बिग फोर" अकाउंटिंग फर्म में से एक बहुराष्ट्रीय पेशेवर सेवा नेटवर्क अन्स्ट एंड यंग (ईवाई) की एक ताजा रिपोर्ट में कहा गया है कि भारत को अपने सैन्य खर्च को जीडीपी के तीन प्रतिशत पर तय करने के मापदंड पर विचार करना चाहिए। साथ ही, एक 'अक्षय' रक्षा आधुनिकीकरण कोष बनाया जाए और घरेलू विनिर्माण को प्रोत्साहित करने पर भी विचार किया जाना चाहिए।

'ईवाई इकोनमी वाच' के जून संस्करण में एक दूरदर्शी रक्षा बजट रणनीति की आवश्यकता पर प्रकाश डालते हुए कहा है कि इससे अधिक लचीला और उत्तरदायी रक्षा बुनियादी ढांचा तैयार होगा, तथा

- 'ईवाई इकोनमी वाच' रिपोर्ट में दूरदर्शी रक्षा बजट रणनीति की जरूरत पर जोर
- एक 'अक्षय' रक्षा आधुनिकीकरण कोष बनाने की आवश्यकता पर भी दिया बल

भारत उभरती भू-राजनीतिक और तकनीकी चुनौतियों का सामना करने के लिए तैयार हो सकेगा।

कहा गया है, "पिछले कुछ वर्षों में सकल घरेलू उत्पाद के हिस्से के रूप में भारत का सैन्य व्यय धीरे-धीरे कम हुआ है। 2000 के दशक के आरंभ में यह तीन प्रतिशत था, जो घटकर दो प्रतिशत रह गया है।

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ऑपरेशन सिन्दूर के दौरान पाकिस्तान के विमान को भारतीय नौसेना के जेट ने खदेड़ा था दूर तक

Source: NavBharat Times, Dt. 01 Jul 2025

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■ नई दिल्ली : ऑपरेशन सिन्दूर के दौरान पाकिस्तान के एक एयरक्राफ्ट को इंडियन नेवी के फाइटर जेट मिग-29K ने खदेड़ा था। ऑपरेशन सिन्दूर के दौरान वह नॉर्डन अरब सागर में तैनात इंडियन नेवी की टोह लेने की कोशिश कर रहा था। सूत्रों के मुताबिक पाकिस्तान के मेरीटाइम पेट्रोल एयरक्राफ्ट सी-ईगल ने इंडियन नेवी की तैनाती की टोह लेने के लिए अपने इस एयरक्राफ्ट का इस्तेमाल किया, जिसे इंडियन नेवी के मिग-29K ने दूर से ही पकड़ कर खदेड़ दिया।

ऑपरेशन सिन्दूर के दौरान इंडियन नेवी की अरब सागर में फॉरवर्ड तैनाती कर दी गई थी। नेवी का कैरियर बैटल ग्रुप यहां तैनात था। कैरियर बैटल ग्रुप में एयरक्राफ्ट कैरियर के चारों तरफ सबमरीन भी होती हैं, साथ ही 8 से 10 वॉरशिप भी इसका हिस्सा होते हैं। नेवी चारों तरफ चौबीसों



नेवी के मिग-29K फाइटर जेट ने किया कारनामा

घंटे निगरानी रख रही थी। एयरक्राफ्ट कैरियर के साथ ही कैरियर बैटल ग्रुप के साथ मौजूद शिप के रडार भी निगरानी रखते हैं। एयरबॉर्न अल्टी वॉर्निंग सिस्टम भी लगातार उड़ान भर रहा था। साथ ही नेवी के फाइटर जेट मिग-29K लगातार कॉम्बेट एयर पेट्रोलिंग कर रहे थे। कॉम्बेट एयर पेट्रोलिंग में ये लगातार हवा

में रहते हैं और चक्कर लगाते रहते हैं। किसी भी खतरे को अपनी तरफ आता देख तुरंत एक्शन में आ जाते हैं। नेवी का P-8I भी चौकस था। P-8I एक लॉन्ग रेंज मेरीटाइम पेट्रोल एयरक्राफ्ट है। पाकिस्तान के एयरक्राफ्ट को अपनी तरफ आता देख उसे तुरंत खदेड़ दिया गया और वॉर्निंग दी गई।

नेवी ने साइलेंट रहकर किया काम

ऑपरेशन सिन्दूर में इंडियन नेवी ने 'साइलेंट' रहकर अपना रोल निभाया और इस तरह निभाया कि पाकिस्तान के पास मौजूद सीमित वॉरशिप भी अपने हार्बर से बाहर नहीं आ पाए। इंडियन नेवी का दबाव इतना ज्यादा था कि पाकिस्तान ने समंदर में कोई हरकत करने की सोची भी नहीं। साथ ही इंडियन नेवी के कैरियर बैटल ग्रुप और दूसरे वॉरशिप ने जिस तरह पेट्रोलिंग की और निगरानी की उससे दूसरे देशों के कई मर्चेंट शिप ने अपना रास्ता बदल लिया और पाकिस्तान के पोर्ट पर जाने से बचने लगे। जिससे पाकिस्तान की इकॉनमी भी हिट होने लगी।

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QUAD nations launch sea observer mission to boost maritime cooperation

Source: The Pioneer, Dt. 01 Jul 2025

The coast guards of India, Japan, the US and Australia have launched the first-ever “Quad-at-sea” mission to boost operational coordination and interoperability in the Indo-Pacific. The decision to launch the mission was taken at the four-nation’s grouping annual summit in Wilmington in September last year that was attended by Prime Minister Narendra Modi and other Quad leaders. “In a significant stride toward strengthening maritime security and interoperability in the Indo-Pacific, the coast guards of India, Japan, the United States, and Australia have launched the first-ever ‘Quad at sea ship observer mission’ under the Wilmington declaration,” the defence ministry said.

“Two officers, including women officers, from each country have embarked on board US Coast Guard Cutter Stratton, which is currently sailing to Guam,” it said. The ministry said the “cross-embarkation mission” marks an unprecedented step to enhance joint readiness, operational coordination, and domain awareness in support of a free, open, inclusive and rules-based Indo-Pacific. “The mission reflects the vision laid out at the Quad leaders’s summit in September 2024 and signifies a deepening of operational ties between the Indian Coast Guard, Japan Coast Guard, US Coast Guard and Australian Border Force,” the ministry said in a statement. In a joint statement, the Quad leaders on September 22 rolled out a number of new and ambitious initiatives in areas ranging from maritime security, infrastructure to critical and emerging technologies and humanitarian assistance and disaster relief.

A key outcome of the summit was a decision on having joint Coast Guard operations under a first-ever “Quad-at-Sea” ship observer mission to advance maritime safety and to continue with further missions in future across the Indo-Pacific. The defence ministry said India’s participation reinforces its strategic maritime vision of SAGAR (Security and Growth for All in the Region) and complements national efforts under the Indo-Pacific Oceans Initiative (IPOI).

The Quad-at-sea initiative thus sets the foundation for fostering stronger trust, coordination, and collective resilience amid evolving maritime challenges in the region, the ministry added. The IPOI is an open, inclusive, non-treaty based, global initiative that was announced by Prime Minister Narendra Modi at the 14th East Asia Summit in November 2019 to promote collaborative efforts among like-minded nations to better manage, conserve and secure the Indo-Pacific maritime domain.

<https://www.dailypioneer.com/2025/india/quad-nations-launch-sea-observer-mission-to-boost-maritime-cooperation.html>

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Strategic realignment in a shifting world order

-by Sudhir Hindwan, Professor and expert in Strategic Affairs

Source: The Pioneer, Dt. 01 Jul 2025

In recent years, international politics has seen the rise of several popular yet complex terminologies — bandwagoning, strategic autonomy, plurilateralism, and epistemic communities.

These concepts have grown in prominence alongside earlier ideological debates such as the “End of History” and the “Clash of Civilisations” that dominated post-Cold War discourse. As the global order continues to undergo sweeping changes, many once-stable doctrines now stand challenged, highlighting an enduring truth of international relations: change remains the only constant. Amid this flux, a notable evolution has emerged — the strengthening of strategic and democratic bonds between the United States and India, the world’s oldest and largest democracies. While several global regions continue to simmer under conflict — West Asia and the Ukraine-Russia war being prime examples — India and the US have taken steps towards enhancing mutual cooperation in defence, trade, and global governance.

In this environment, nations are urgently seeking robust strategic mechanisms to preserve sovereignty and national interest. The resurgence of offensive realism as a philosophical framework underscores this strategic recalibration. As great powers jostle for influence, the 19th-century maritime doctrine of Alfred Thayer Mahan — that control of the seas equates to global dominance — has resurfaced with striking relevance. Maritime security, therefore, has become the linchpin of modern geopolitics. Oceans are no longer viewed simply as trade routes but as strategic zones essential to regional stability, economic resilience, and defence readiness. Recognising this, India has been working to secure its maritime frontiers, particularly within the framework of its Neighbourhood First Policy and its vision of Security and Growth for All in the Region (SAGAR).

These principles aim not only to foster regional collaboration but also to establish India as a stabilising maritime power in the Indian Ocean. One of the strongest manifestations of India’s maritime strategy has been its deepening cooperation with countries like Mauritius. Recent Indo-Mauritius coordination exemplifies India’s intent to build an integrated network of partnerships, especially in response to assertive moves by other regional powers. This includes countering China’s growing influence through its Belt and Road Initiative (BRI), military bases such as the one in Djibouti, and the strategic encirclement of India via the “String of Pearls” doctrine. In response, India has forged closer security partnerships with countries in the Indian Ocean Region (IOR) such as Sri Lanka, Maldives, Seychelles, Bangladesh, and Mauritius. A coastal radar surveillance network has been established, alongside the Indian Ocean Region Information Fusion Centre (IFC-IOR), which shares real-time intelligence to enhance situational awareness. These steps ensure that India remains agile in detecting and responding to maritime threats. India’s defence preparedness has also been fortified with procurements like the Indo-Russian BrahMos supersonic cruise missile and advanced components for its Air Force’s MIG-29 jets. Parallely, the Necklace of Diamonds strategy — India’s response to China’s “String of Pearls” — is bearing fruit through naval partnerships and infrastructural projects in Oman, Myanmar, Chabahar Port in Iran, and the Changi Naval Base in Singapore.

Underpinning these efforts is India’s Act East Policy, which seeks to reinforce economic, cultural, and strategic ties with East and Southeast Asian nations. Through an expanded network of ports, high-quality medical assistance, humanitarian relief, and joint patrolling initiatives, India is also working to build a resilient and secure Indo-Pacific architecture. Crucially, this strategic reorientation demands not just naval might but also consensus and diplomatic cohesion. India has led calls for a unified maritime policy across the IOR. The emphasis now lies in gathering all regional actors at a common table to forge cooperative responses to transnational challenges — ranging from piracy and drug trafficking to terrorism, cybercrime, and climate-induced threats. India’s leadership in climate action and sustainable development has further bolstered its diplomatic credentials. The country has advocated for renewable energy cooperation and equitable

access to technological resources among developing nations. These initiatives not only support the environmental resilience of small island nations but also reinforce India's role as a responsible global actor.

India's trade volumes with its neighbouring nations have surged significantly in the last half-decade, reflecting the success of its regional engagement strategy. The bolstered economic ties are increasingly complemented by military-to-military cooperation and strategic dialogues, ensuring a multi-layered relationship that transcends transactional interests. In 2023, the Quad (comprising India, the US, Japan, and Australia) took a decisive step forward through the panel titled "The Quad Squad: Power and Purpose of the Polygon." Member nations reiterated their commitment to safeguarding the Pacific and Indian Ocean regions. The Quad's focus on maritime security, resilient infrastructure, and capacity-building for smaller nations aligns perfectly with India's SAGAR doctrine.

This initiative also strengthens the Indian Ocean Rim Association (IORA), where India's growing leadership continues to receive global acknowledgement. Looking ahead, there's a growing consensus on the need for a multi-tiered strategic mechanism to safeguard maritime trade routes, tackle piracy, and counter emerging threats such as smuggling, cyberattacks, and transnational terrorism. Creating resilient alliances that can jointly withstand the impact of such challenges will remain central to India's foreign policy calculus. This collaborative spirit is not merely a reflection of geopolitical necessity — it is also rooted in India's cultural philosophy of Vasudhaiva Kutumbakam, the world as one family. The idea is not just to defend borders but to co-develop strategies that promote shared prosperity, regional equity, and timely support during crises. In conclusion, India's maritime and strategic vision is undergoing a significant transformation — blending realism with regional empathy and diplomatic foresight. From countering China's BRI to building strategic depth through its Necklace of Diamonds, India is carving out a stable and inclusive maritime architecture.

By integrating security, economic, and environmental priorities, India offers a roadmap that blends traditional wisdom with modern statecraft. The coming years will be crucial. The success of India's strategy lies in its ability to ensure that new geopolitical frameworks are inclusive, robust, and adaptable to the fast-evolving international order. This approach will not only preserve regional peace and prosperity but will also project India as a pivotal force in shaping the contours of 21st-century global diplomacy.

<https://www.dailypioneer.com/2025/columnists/strategic-realignment-in-a-shifting-world-order.html>

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Reliance Defence enters agreement with US firm

Source: The Tribune, Dt. 01 Jul 2025

Reliance Infrastructure-promoted Reliance Defence on Monday announced a strategic agreement with a US company for maintenance, repair and overhaul (MRO) of defence equipment.

The company said the agreement was with Coastal Mechanics Inc (CMI), a leading US Department of Defense authorised contractor. This was a Rs 20,000-crore market, a statement said.

Reliance Defence and Coastal Mechanics would focus on providing end-to-end maintenance, repair, overhaul (MRO), upgrade and lifecycle support solutions for the Indian armed forces, targeting a wide range of critical platforms such as Jaguar fighter aircraft, MiG-29 fighter aircraft, Apache attack helicopters, L-70 air defence guns, and other legacy systems that required long-term sustainment and modernisation.

<https://www.tribuneindia.com/news/india/reliance-defence-enters-agreement-with-us-firm/>

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Science & Technology News

Duality discovered in magnetic material could revolutionize design of electronic devices

Source: Press Information Bureau, Dt. 30 Jun 2025

Researchers have detected a striking novel behaviour in a class of magnetic material known as altermagnets that could one day revolutionize how we design electronic devices.

Magnets are a part of our day-to-day lives and play a crucial role in many of the devices we use. Scientists are on the lookout for the discovery of new classes of magnetic materials to improve the functioning of such devices. Altermagnets are a newly discovered class of magnetic materials that enjoy the best properties of both ferromagnets and antiferromagnets. Unlike regular magnets (ferromagnets), which you can stick to your fridge, or antiferromagnets, which cancel out their own magnetism, altermagnets do not show any net magnetism externally, but deep inside, their electrons behave in ways that can be incredibly useful—especially for futuristic technologies like spintronics (manipulating the spin of electrons instead of their charge).

Among the known altermagnets, chromium antimonide (CrSb) is truly remarkable. It is metallic, with the magnetic order sustaining up to more than two times that of room temperature and the largest altermagnetic spin-splitting, equivalent to more than 30 times that of room temperature. These outstanding attributes make CrSb the most promising altermagnetic candidate for practical applications.

Scientists from the S N Bose National Centre for Basic Sciences (SNBNCBS), an autonomous institution of the Department of Science and Technology (DST), have spotted a fascinating and previously unobserved electrical and thermal transport phenomenon in the high-quality single-crystalline altermagnet CrSb. They found that CrSb changes its identity based on direction. When electric current moves within the layers of the crystal (similar to flowing along the pages of a book), it is carried by electrons (typical of n-type materials). But when current is sent across the layers (like flipping through the pages), holes (the absence of electrons) take over (a trait of p-type materials).

This direction-dependent conduction polarity (DDCP) is incredibly rare in solids and challenges the traditional classification of materials as either p-type or n-type, opening up new possibilities for the study of materials. CrSb is one of the very few materials known to exhibit this property and,

notably, the first Altermagnet to do so. This dual character opens exciting opportunities in the area of materials for next-generation devices.

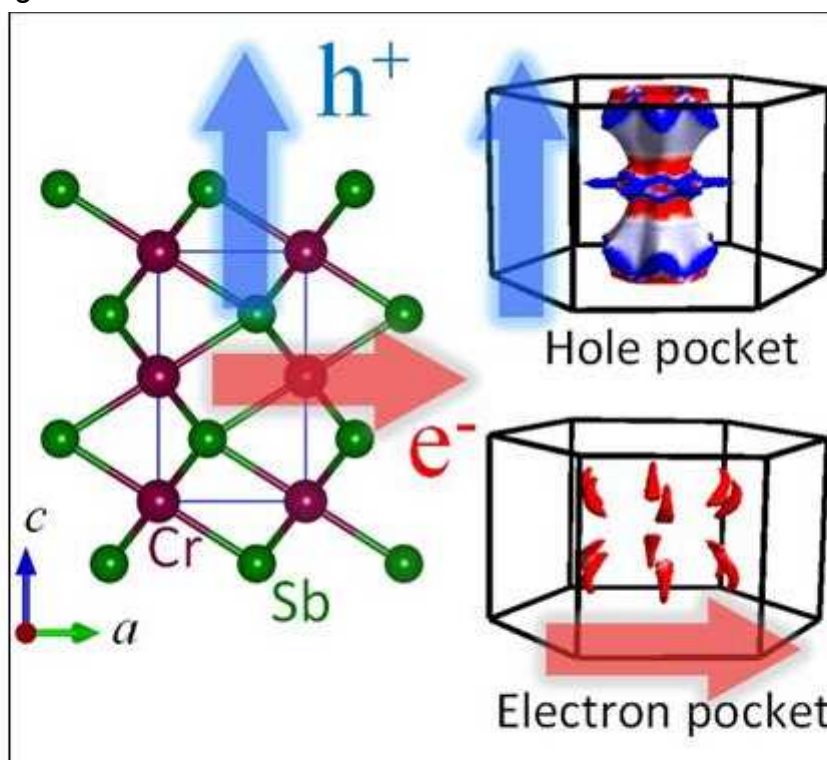


Fig: The electrical conduction in altermagnet CrSb occurs through holes and electrons along the long and the short axis, respectively.

Most devices — from solar cells to thermoelectrics — need both p-type and n-type materials to function. Traditionally, engineers achieve this by mixing different materials or doping a crystal with foreign elements. But CrSb does it all by itself. This could simplify devices and make them more compact, efficient, and easier to manufacture. The research published in the journal *Advanced Science* could obviate the need for heterostructures or doping gradients, significantly simplifying device architectures.

CrSb is made of earth-abundant and non-toxic elements, making it an environmentally friendly option for future electronics. Combined with its altermagnetic properties, CrSb could become a cornerstone of next-generation spintronic devices, offering both conduction versatility and magnetic control in one package.

<https://www.pib.gov.in/PressReleasePage.aspx?PRID=2140866>

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Axiom-4 mission crew dive deep into health research

Source: The Tribune, Dt. 01 Jul 2025

Axiom-4 mission crew are diving deeper into the diverse health research studies and global outreach efforts. The crew collected data for the telemetric health AI study, to better understand how spaceflight impacts cardiovascular and balance systems. By applying advanced data science techniques, this project could lead to smarter, real-time health monitoring — both in space and on Earth.

The Telemetry System for SpaceHealth (TESH) project is from the Hungarian on Orbit (HUNOR) programme. Axiom mission crew also collected data for the Neuro Motion VR project, where astronauts don virtual reality (VR) headsets and perform attention-based tasks while their brain activity is monitored using functional near-infrared spectroscopy (fNIRS). This research explores how microgravity affects cognitive and motor functions, which could provide valuable insight for future deep space missions.

Ax-4 mission Commander Peggy Whitson worked on the cancer in lower earth orbit investigation. The insights could reveal how cancer behaves under the unique stressors of microgravity. This research, in collaboration with the Sanford Stem Cell Institute, could pave the way for cancer treatments back on Earth — especially for aggressive, metastatic cancers.

Mission pilot Group Captain Shubhanshu Shukla focused on the space microalgae experiment, deploying sample bags and capturing images of the algae strains. These tiny organisms could play a big role in the future of space exploration, offering a sustainable, nutrient-rich food source for long-duration missions.

Shukla will conduct seven experiments in total and five in collaboration with National Aeronautics and Space Administration (NASA). A day after Prime Minister Narendra Modi interacted with Shukla, Hungarian astronaut Tibor Kapu had a special moment connecting with Hungarian Prime Minister Viktor Orbán. Peggy and Polish astronaut Sławosz Uznański-Wiśniewski engaged in a conversation with Axiom Space Chief Scientist Dr Lucie Low about the ongoing efforts to protect astronauts from space radiation

<https://www.tribuneindia.com/news/astronauthealth/axiom-4-mission-crew-dive-deep-into-health-research>

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The Tribune
The Statesman
ਪੰਜਾਬ ਕੇਸਰੀ ਜਨਸਤਾ
The Hindu
The Economic Times
Press Information Bureau
The Indian Express
The Times of India
Hindustan Times
नवभारत टाइम्स
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