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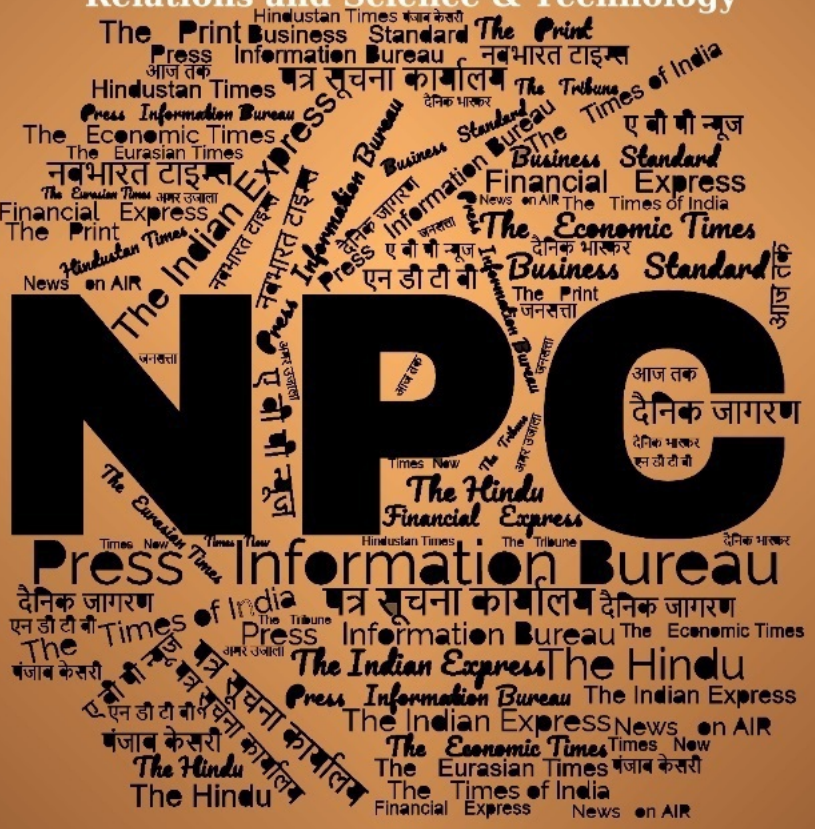
समाचार पत्रों से चयनित अंश
Newspapers Clippings

डीआरडीओ समुदाय को डीआरडीओ प्रौद्योगिकियों, रक्षा प्रौद्योगिकियों, रक्षा नीतियों, अंतर्राष्ट्रीय संबंधों और विज्ञान एवं प्रौद्योगिकी की नूतन जानकारी से अवगत कराने हेतु दैनिक सेवा

A Daily service to keep DRDO Fraternity abreast with DRDO Technologies, Defence Technologies, Defence Policies, International Relations and Science & Technology



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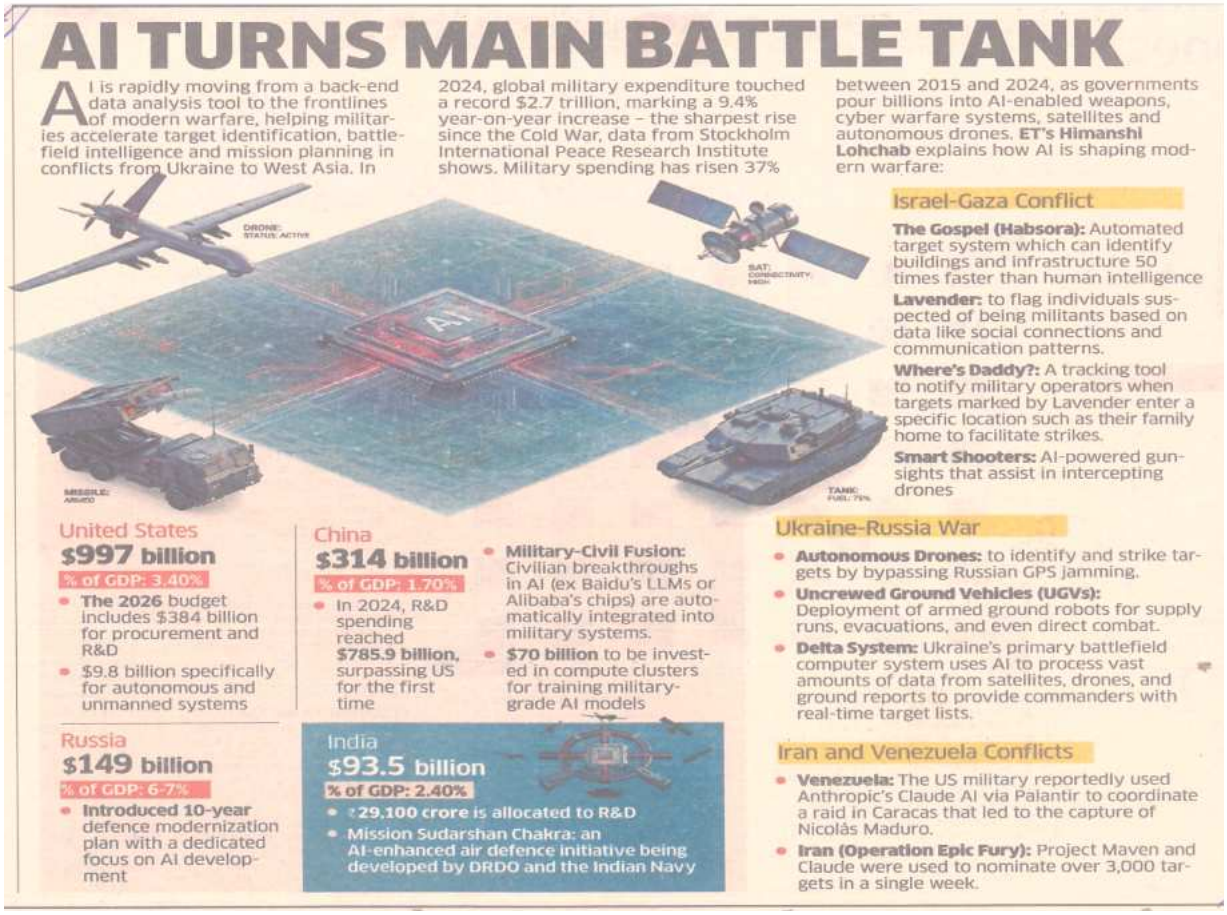
Source: The Economic Times, Dt. 17 Mar 2026



AI TURNS MAIN BATTLE TANK

AI is rapidly moving from a back-end data analysis tool to the frontlines of modern warfare, helping militaries accelerate target identification, battlefield intelligence and mission planning in conflicts from Ukraine to West Asia. In 2024, global military expenditure touched a record $2.7 trillion, marking a 9.4% year-on-year increase – the sharpest rise since the Cold War, data from Stockholm International Peace Research Institute shows. Military spending has risen 37% between 2015 and 2024, as governments pour billions into AI-enabled weapons, cyber warfare systems, satellites and autonomous drones. **ET's Himanshi Lohchab** explains how AI is shaping modern warfare:

Israel-Gaza Conflict

The Gospel (Habsora): Automated target system which can identify buildings and infrastructure 50 times faster than human intelligence

Lavender: to flag individuals suspected of being militants based on data like social connections and communication patterns.

Where's Daddy?: A tracking tool to notify military operators when targets marked by Lavender enter a specific location such as their family home to facilitate strikes.

Smart Shooters: AI-powered gunsights that assist in intercepting drones

United States
$997 billion
% of GDP: 3.40%
- The 2026 budget includes $384 billion for procurement and R&D
- $9.8 billion specifically for autonomous and unmanned systems

China
$314 billion
% of GDP: 1.70%
- In 2024, R&D spending reached $785.9 billion, surpassing US for the first time
- **Military-Civil Fusion:** Civilian breakthroughs in AI (ex Baidu's LLMs or Alibaba's chips) are automatically integrated into military systems.
- **$70 billion** to be invested in compute clusters for training military-grade AI models

Russia
$149 billion
% of GDP: 6-7%
- **Introduced 10-year** defence modernization plan with a dedicated focus on AI development

India
$93.5 billion
% of GDP: 2.40%
- ₹29,100 crore is allocated to R&D
- Mission Sudarshan Chakra: an AI-enhanced air defence initiative being developed by DRDO and the Indian Navy

Ukraine-Russia War
- **Autonomous Drones:** to identify and strike targets by bypassing Russian GPS jamming.
- **Uncrewed Ground Vehicles (UGVs):** Deployment of armed ground robots for supply runs, evacuations, and even direct combat.
- **Delta System:** Ukraine's primary battlefield computer system uses AI to process vast amounts of data from satellites, drones, and ground reports to provide commanders with real-time target lists.

Iran and Venezuela Conflicts
- **Venezuela:** The US military reportedly used Anthropic's Claude AI via Palantir to coordinate a raid in Caracas that led to the capture of Nicolás Maduro.
- **Iran (Operation Epic Fury):** Project Maven and Claude were used to nominate over 3,000 targets in a single week.

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एन्क्रिप्टेड क्लाउड, विदेशी सर्वर से जुड़े हो सकते है कैमरे

Source: Dainik Jagran, Dt. 17 Mar 2026

एन्क्रिप्टेड क्लाउड, विदेशी सर्वर से जुड़े हो सकते हैं कैमरे

तरेश कुमार सिंह • जागरण

नई दिल्ली। दिल्ली-एनसीआर में आतंकियों द्वारा सोलर-बेस्ड कैमरे मिलने के बाद सुरक्षा विशेषज्ञों ने चिंता जताई है। विशेषज्ञों का कहना है कि ये कैमरे एन्क्रिप्टेड क्लाउड या विदेशी सर्वर से जुड़े हो सकते हैं, जो देश की सुरक्षा के लिए बड़ा खतरा हैं। चिंता की बात ये है कि कैमरे सोलर बेस्ड होने की वजह से बार-बार बैटरी बदलने की भी जरूरत नहीं है। ऐसे में एक बार इंस्टाल किए जाने के बाद वर्षों तक जासूसी कर संवेदनशील डाटा जुटाया जा सकता है।

स्पेशल सेल के एक अधिकारी के मुताबिक ये कैमरे अक्सर एन्क्रिप्टेड क्लाउड या विदेशी सर्वरों से जुड़े होते हैं। इससे सीमा पार बैठे आतंकियों के आका दिल्ली की सड़कों, चौराहों पर मूवमेंट और सुरक्षा चौकियों को लाइव देख सकते हैं। ये कैमरे छोटे होते हैं, जिन्हें अक्सर पेड़ की टहनियों, स्ट्रीट लाइटों या ऊंची इमारतों के कोनों में छिपा दिया जाता है।

- सोलर बेस्ड कैमरों को लेकर सुरक्षा एजेंसियां पहले ही कर चुकी हैं सतर्क
- डिजिटल रेकी के लिए पेड़ों की टहनियों या स्ट्रीट लाइट पर लगाए जाते हैं कैमरे

ये हो सकता है मकसद

सोलर बेस्ड कैमरे लगाए जाने के पीछे आइएसआइ का मकसद भारत में दीआइपी मूवमेंट का पता लगाना, सुरक्षा काफिले के समय और रूट की सटीक जानकारी जुटना हो सकता है। भीड़ वाले इलाके, मेट्रो स्टेशन व बाजारों में सुरक्षा खामियों का पता लगाने को इसका प्रयोग किए जाने की आशंका है।

सामान्य व्यक्ति इन्हें साधारण वाई-फाई कैमरा समझकर नजरअंदाज कर देता है। इस तरह के कैमरे लगाने का मुख्य उद्देश्य किसी बड़े हमले से पहले इलाके की डिजिटल रेकी करने के जैसा होता है, ताकि वहां की सारी गतिविधियों के पैटर्न को ठीक से समझा जा सके।

स्पेशल सेल के एक अधिकारी के मुताबिक सोलर-बेस्ड कैमरा साधारण कैमरा नहीं है। यह 'डिजिटल आई' की तरह हाई फ्रीक्वेंसी का कैमरा होता है। इससे रैंज में आने वाली हर तरह की गतिविधि पर विदेश में बैठकर बारीक नजर रखी जा सकती है।

सुरक्षा विशेषज्ञों का कहना है कि यदि यूपी पुलिस द्वारा गिरफ्तार आतंकियों के बयान में दिल्ली-एनसीआर में संवेदनशील व भीड़भाड़ वाले जगहों पर सोलर कैमरे लगाने की जानकारी मिली है तो पूरे एनसीआर की पुलिस को 'इलेक्ट्रानिक ऑडिट' करने की आवश्यकता है। पुलिस को सभी निजी और संदिग्ध कैमरों की जांच करनी चाहिए।

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Killer Robots,drone swarms, cyberwarfare

Source: The Economic Times, Dt. 17 Mar 2026

INDIA'S MILITAIRY ROADMAP

Killer Robots, Drone Swarms, Cyberwarfare

AI policy looks to retain 'meaningful human oversight', high on industry collaboration

Manu Pubby

New Delhi: India's new AI policy in the military domain has endorsed Lethal Autonomous Weapon Systems alongside drone swarms, AI-driven cyberattacks and predictive battlefield analytics as core capabilities for future warfare.

The triservices AI policy, drawn up by Headquarters Integrated Defence Staff, has identified several military use cases for AI and has pitched for deep industry and academia collaboration, to maintain an edge for the armed forces, while retaining "meaningful human oversight".

Dated March 9, the policy declares that the armed forces will establish a dedicated defence cloud in the near future and mandates public-private partnerships, joint research centres with academia and an intellectual property framework balancing security with commercialisation.

In use cases for AI, robots are mentioned specifically to replace human soldiers in high-risk environments, including on borders.

It adds that drone swarms and LAWS variants can strengthen area denial capabilities and current technological trends suggest that there will be a transition to unmanned combat operations in the near term. "Potential strategic applications include unmanned aerial bombing, close-combat support across domains and autonomous border or harbour patrols," it reads, adding that as a general principle, meaningful human oversight would be maintained when such systems are used.

The policy places emphasis on developing indigenous AI models tailored for military operations, mandating the creation of specialised datasets from satellite imagery, SIGINT, OSINT and UAV feeds. The armed forces will train, test and validate these models using data governance frameworks that ensure access to real-time operational data while maintaining confidentiality.

AI cyberwarfare also gets a mention in the policy, with defensive applications being planned that will include AI-powered malware detection across avionics and maritime systems, addressing concerns that adversaries will weaponise AI against Indian networks.

The armed forces also see a transformation in intelligence, surveillance and reconnaissance capabilities, with AI fusing electro-optical/infra-red imagery, radar, sonar, acoustic and space-based feeds into coherent battlespace pictures. This "will help commanders gain predictive enemy action analytics and decision support systems, compressing decision cycles".

Lethal AI

Lethal Autonomous Weapon Systems (LAWS), commonly referred to as 'killer robots', represent one of the earliest and most prominent military applications of AI: Policy

In logistics, armed forces see AI revolutionising 'warfighting stamina' through smart inventory, just-in-time ammunition forecasting, self-driving resupply vehicles, drones and robotic mules navigating tactical battle areas

CAPACITY BUILDING

AI-enabled military operator, delivering AI literacy and training seniors for data-driven transformation

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सुप्रीम कोर्ट ने ग्रुप इंश्योरेंस सोसाइटी को माना 'राज्य'

Source: Navbharat Times, Dt. 17 Mar 2026

SC ने एयरफोर्स ग्रुप इंश्योरेंस सोसायटी को माना 'राज्य'

Rajesh.Choudhary
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■ नई दिल्ली : सुप्रीम कोर्ट ने एक अहम फैसले में एयरफोर्स ग्रुप इंश्योरेंस सोसायटी (AFGIS) को संविधान के अनुच्छेद 12 के तहत 'राज्य' माना है। इसके साथ ही शीर्ष कोर्ट ने 12 मार्च को हुई सुनवाई में साफ कर दिया कि AFGIS के खिलाफ रिट याचिका दायर की जा सकती है। संविधान के अनुच्छेद-12 के तहत राज्य को परिभाषित किया गया है। इसके तहत कहा गया है कि मौलिक अधिकार के लिए राज्य पर दायित्व है कि वह उसकी रक्षा करे और उल्लंघन होने पर नागरिक राज्य के खिलाफ रिट दाखिल कर सकते हैं। राज्य का मतलब केंद्र सरकार, राज्य सरकार, तमाम सरकारी अथॉरिटी और सरकारी निकाय आदि हैं। हाई कोर्ट के फैसले को याचिकाकर्ता की ओर से एडवोकेट उदय खन्ना और अन्य ने सुप्रीम कोर्ट में चुनौती दी थी। जस्टिस संजय करोल और जस्टिस विपुल एम पंचोली की पीठ ने दिल्ली हाई कोर्ट के उस फैसले को पलट दिया, जिसमें AFGIS को 'राज्य' मानने से इनकार किया गया था। पीठ ने कहा कि चूंकि यह सोसायटी भारतीय वायु सेना के सदस्यों के प्रति राज्य के दायित्वों से निकट रूप से जुड़ा एक सार्वजनिक कार्य करती है, इसलिए इसे 'राज्य' माना जाएगा। अदालत ने कहा कि हम इस निष्कर्ष पर पहुंचे हैं कि AFGIS वास्तव में एक सार्वजनिक कर्तव्य का निर्वाह करती है।

दिल्ली हाई कोर्ट के फैसले को सुप्रीम कोर्ट ने पलटा

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Amid mideast conflict : Navy will take part in US sub drill

Source: The Asian Age , Dt. 17 Mar 2026

Amid Mideast conflict: Navy will take part in US sub drill

PAWAN BALI
NEW DELHI, MARCH 16

Amidst tensions in West-Asia, Indian Navy along with Australia, Japan, and New Zealand, is participating in US led anti-submarine warfare exercise Sea Dragon 2026 in Andersen Air Force Base in Guam. The multinational is being conducted to strengthen cooperation among allied forces and improve understanding for better anti-submarine warfare capabilities in the Indo-Pacific region.

Indian Navy's maritime reconnaissance aircraft P-8I has joined two US Navy P-8A Poseidon aircraft, one P-1 from the Japan Maritime Self-Defense Force (JMSDF), P-8A from the Royal Australian Air Force (RAAF), and P-8A from the Royal New Zealand Air Force (RNZAF) for the multinational exercise Sea Dragon 2026 at Andersen Air Force Base. These exercises are designed to test crews' ability to detect, track and respond to both simulated and live submarine targets in a challenging operational environment.

Sea Dragon 2026 advances aircrew proficiency in anti-submarine warfare (ASW) by progressing from track-simulated targets to detecting and tracking a live submarine. The crews participate in over 200 cumulative hours of in-flight train-

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जल्दी पूरा होगा थिएटर कमांड का सपना: आशुतोष दीक्षित

Source: Dainik Jagran, Dt. 17 Mar 2026

जल्द पूरा होगा थियेटर कमांड का सपना : आशुतोष दीक्षित

एयर चीफ मार्शल आशुतोष दीक्षित को स्मृति चिन्ह देते हुए आयोजक। सौजन्यः आयोजक

जागरण संवाददाता, नई दिल्ली: देश के पहले चीफ आफ डिफेंस स्टाफ (सीडीएस) जनरल बिपिन रावत की 68वीं जयंती पर जीबीआर मेमोरियल फाउंडेशन आफ इंडिया द्वारा कांस्टीट्यूशन क्लब में जनरल बिपिन रावत मेमोरियल लेक्चर आयोजित किया गया।

कार्यक्रम में एयर चीफ मार्शल आशुतोष दीक्षित ने कहा कि जनरल बिपिन रावत ने थियेटर कमांड बनाने का जो सपना देखा था, वह अब पूरा होने वाला है। इसके लिए सीडीएस जनरल अनिल चौहान के नेतृत्व में अब काम अंतिम चरण में है और कुछ समय बाद जनरल बिपिन रावत का यह सपना साकार हो जाएगा। इसके लिए तीन कमांड बनाई जाएंगी। उन्होंने कहा कि आज विश्व में रूस और यूक्रेन का युद्ध हो या अमेरिका और ईरान का युद्ध भारतीय सेना पूरी नजर बनाए हुए है और इन युद्धों से बहुत कुछ सीख रही है। उन्होंने कहा कि भारत आज आत्मनिर्भरता की

एयर चीफ मार्शल ने कहा कि जनरल बिपिन रावत ने थियेटर कमांड बनाने का जो सपना देखा था, वह अब होने जा रहा है पूरा

दिशा में जिस मजबूती से आगे बढ़ रहा है, उसमें जनरल बिपिन रावत की दूरदर्शी सोच और पहल का बड़ा योगदान है।

यदि आज भारत अपने बल पर मजबूती से खड़ा है, तो यह जनरल बिपिन रावत जैसे दूरदर्शी सेना प्रमुखों की ही देन है, जिन्होंने सशस्त्र सेनाओं के आधुनिकीकरण और आत्मनिर्भर रक्षा व्यवस्था की दिशा में महत्वपूर्ण कदम उठाए। इस अवसर पर फाउंडेशन के अध्यक्ष एवं पूर्व वायुसेना प्रमुख आरके एस भदौरिया, जनरल बिपिन रावत की पुत्री तारिणी रावत, एयर वाइस मार्शल राजेश भंडारी, लेफ्टिनेंट जनरल अनिल भट्ट, कर्नल एसपीएस परमार, एमजी रंगाराव आदि लोग मौजूद रहे।

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Science & Technology News

SUDDEN COOLING IN GREENLAND REDUCED SUMMER MONSOONS IN INDIA 8,200 YEARS AGO

Source: PIB, Dt. 17 Mar 2026

Around 8,200 years ago, a drop in temperature in Canada at one end of the globe triggered a decline in the intensity of the Indian Summer Monsoons, scientists have found.

The "8.2 ka cooling event" is the largest climatic excursion of the Holocene from the perspective of Greenland temperature change. Greenland temperature dropped by 3 ºC, and methane declined by 80 ppbv, which suggest an important change in the hydrologic cycle.

During ca. 8220 to 7600 cal yr BP also called the "8.2 ka cooling event" Greenland temperature dropped by 3 ºC, and methane declined by 80 ppbv due to glacial outburst flood of freshwater from Lake Agassiz thorough the Hudson Bay into the North Atlantic.

It is one of the largest climatic excursions of the Holocene and an important change in the hydrologic cycle.

Scientists from Birbal Sahni Institute of Palaeosciences (BSIP), an autonomous institute of the Department of Science and Technology (DST) have found signature of this Abrupt Climate Change (ACC) or Rapid Climate Change (RCC) event of the North Atlantic, in the Core Monsoon Zone (CMZ), India (Figs. 1 & 2).

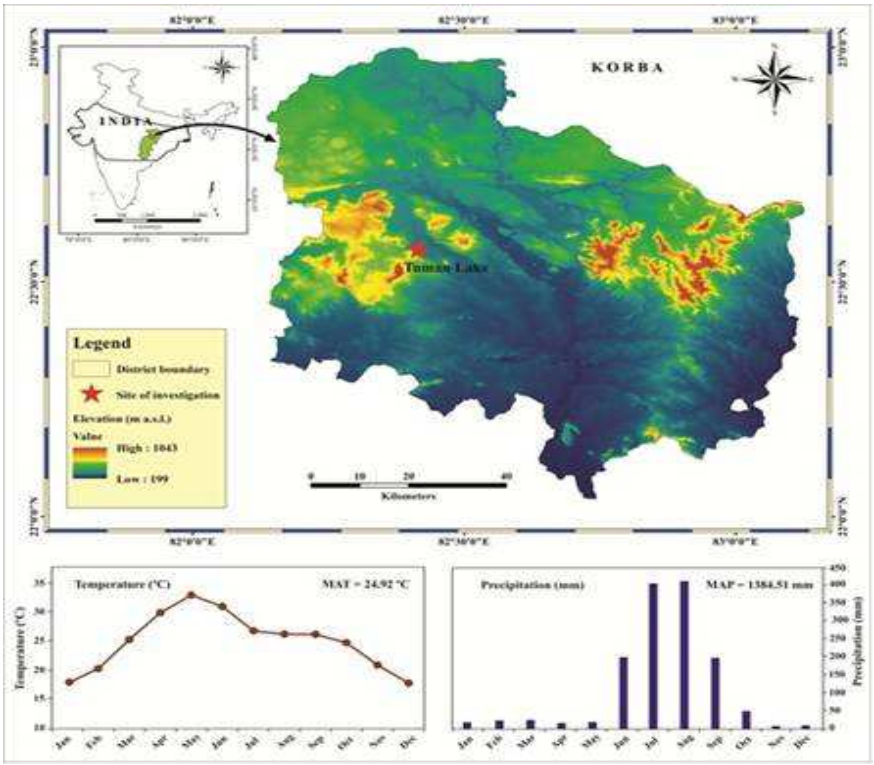

Fig. 1. *Shuttle Radar Topographic Mission (SRTM) Digital Elevation Model (DEM) of the Korba District, Chhattisgarh State, central India, showing the location of the study area (the red star shows the site of investigation). Geographic map of India showing Korba District in Chhattisgarh State, and the Core Monsoon Zone (CMZ) of India (dark black and bold lines) (left upper panel). This figure was created using*

ArcGIS 10.8.2. Nearest Climate research Unit Time Series (CRU TS) 4.07, 0.5 × 0.5 gridded climate data point, 1901–2022, showing mean monthly precipitation and temperature around the study area (inserted down panel). MAP = Mean Annual Precipitation; MAT = Mean Annual Temperature.

The team extracted a 1.2-meter-long sediment profile from Tuman Lake in Korba District, Chhattisgarh, located within the CMZ and analyzed fossil pollen preserved in lake sediments.

Each type of plant produces distinctive pollen grains. By identifying and counting 300 terrestrial pollen grains per sample, the researchers reconstructed past vegetation patterns and, in turn, inferred past climate conditions and constructed a high-resolution climate archive written in microscopic grains of pollen.

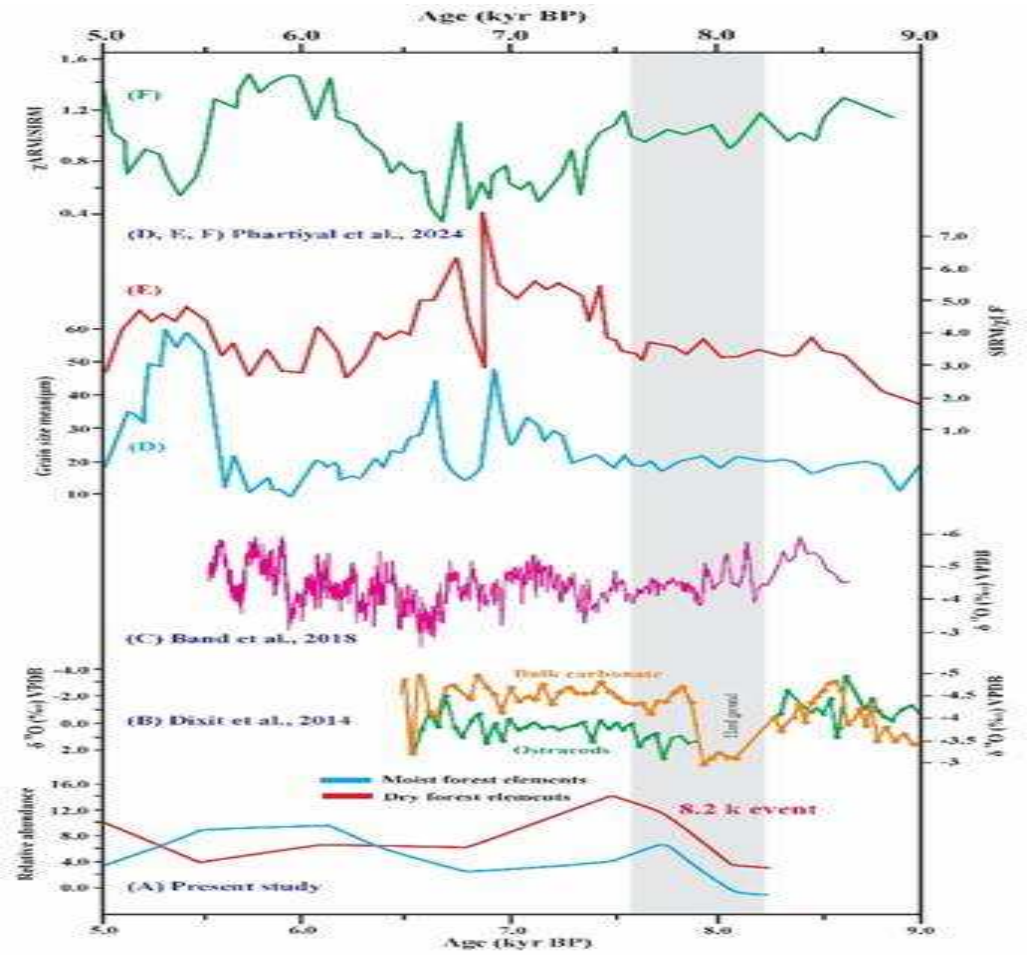

Fig. 2. The weakening of the monsoon at global 8.2 kyr BP and its correlation with the present study (8220 cal yr BP) (A). Present study, and correlation with other studies. (B). $\delta^{18}O$ of ostracod calcite (green) and bulk carbonate (orange) record from Riwasa Lake, NW India (Dixit et al. 2014). (C). Speleothem $\delta^{18}O$ records from Kotumsar Cave (Kanger Valley National Park, Jagdalpur of the Bastar District, Chhattisgarh), CMZ, India (Band et al. (2018). (D, E, and F). Record from the Kanwar wetland (mean grain size, SIRM/χlf and χARM/SIRM) (Phartiyal et al., 2024). (For interpretation of the references to color in this figure legend, the reader is referred to the web version of this article).

In a study published in the journal Quaternary International, the researchers interpretated that more tropical moist deciduous forest pollen indicated stronger monsoon rainfall and drier deciduous or herbaceous pollen indicated weaker monsoon conditions and identified weakened monsoon during the 8.2 ka interval.

Also, using radiocarbon dating and statistical age-depth modelling, the team built a timeline stretching back over 8,200 years.

The weakened monsoon during the 8.2 ka interval suggests a powerful teleconnection or an atmospheric and oceanic link between the North Atlantic and the Indian Summer Monsoon. It indicated that cooling in Greenland caused disruptions in Atlantic circulation that may have shifted global wind belts and weakened monsoons in the Northern Hemisphere, thereby reducing rainfall over India.

The findings show that even in the Middle Holocene, India's monsoon was sensitive to both high-latitude ocean changes and tropical Pacific variability.

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URL: https://www.pib.gov.in/PressReleasePage.aspx?PRID=2240850&reg=3&lang=1

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As NavIC Loses atomic clock, India's own GPS remains a challenge

Source: ThE Indian Express, Dt. 17 Mar 2026

SCIENCE

As NavIC loses atomic clock, India's own GPS remains a challenge

Anonna Dutt
New Delhi, March 16

EVER SINCE its inception, India's regional navigation system has been plagued by problems affecting its positioning data. The Indian Space Research Organisation (ISRO) last week said that the atomic clock of one of five satellites that were still providing this data had stopped working.

"IRNSS-1F satellite launched in March 2016 has completed its design mission life of 10 years... On 13th March 2026, procured on-board Atomic clock stopped functioning," it said. The space agency added that the satellite will continue to provide one-way broadcast messaging services.

Atomic clocks are key for satellites being able to provide positioning data used for applications such as navigation of vehicles, mapping and surveying, and even planning large constructions with accuracy.

A GPS for India

The Indian Regional Navigation Satellite System (IRNSS), operationally called NavIC, was planned to be a seven-satellite system to provide positioning data over the Indian subcontinent and 1500 km around it: a regional system similar to the American GPS.

With all its satellites functioning and placed directly above the region, NavIC was designed to provide location accuracy of around 10 metres over the Indian landmass and surrounding countries. This ensures better availability of signals even in difficult geographical locations compared with GPS, whose signals are received in India at an angle that makes it difficult to access in certain areas like valleys and forests.

However, NavIC has been running into troubles since its successful 2023 launch.

NavIC's track record

The constellation had five satellites that could provide positioning data: IRNSS-1B, 1C, 1F, 1I, and NVS-01. Atomic clocks on board some of the initial satellites started failing early on, with replacement satellites planned to keep the system running. Now, the atomic clock on board the IRNSS-1F has also been lost.

Besides the failing atomic clocks, some of the initial satellites are also aging out. IRNSS-1A was launched into orbit in 2013, and 1B and 1C followed in 2014. 1A is almost defunct, and the other two are also past their 10-year mission lives.

The last of the first-generation IRNSS satellites was 1I — a replacement for the failed 1H launch — which was launched in 2018. IRNSS-1H, launched in 2017 to replace 1A, failed to reach orbit due to operational issues.

NVS-02, the second of the new-generation satellites meant for NavIC (after NVS-01), was successfully placed in a highly elliptical transfer orbit in ISRO's 100th launch in January 2025. But it failed to move to its final orbit due to an electrical failure.

Another criticism ISRO faced over NavIC is the delay in developing the user segment. A 2018 report by the Comptroller and Auditor General of India pointed out delays in developing technology to that end.

Now, NavIC data is in use for aviation, shipping, and railways. Several new cell phones have chipsets that can use this data.

Advancements in new satellites

The most important change to the new-generation NavIC satellite was an indigenously developed atomic clock developed by ISRO. The newer generation satellites also have a longer mission life: 12 years.

Importantly, they send signals in a third frequency, L1, besides the two (L5 and S) in existing satellites. As GPS commonly uses L1, this improves interoperability with other positioning systems. L1 also helps in using NavIC data in wearable devices.

NavIC was planned to provide positioning data over the Indian subcontinent. X/ISRO

Mapping alternatives

- There are four satellite systems that provide global navigation data: the US's GPS, the Russian GLONASS, the European Galileo, and the Chinese Beidou.
- Japan has a four-satellite system called Quasi-Zenith Satellite System that can augment GPS signals over the country.

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