

DAILY PT POINTERS

2st May, 2024



The Hindu-Space(GSIII)-Page 5

ISRO finds proof of enhanced possibility of water ice in polar craters of the moon

The Hindu Bureau
BENGALURU

A study by Indian space scientists has found evidence of enhanced possibility of water ice occurrence in the polar craters of the moon.

The study was done by scientists of ISRO's Space Applications Centre (SAC) in collaboration with researchers of IIT Kanpur, University of Southern California, Jet Propulsion Laboratory and IIT (ISM) Dhanbad.

The study suggests that the amount of sub-surface ice in the first couple of metres is about five to eight times larger than the one on the surface in both



This picture, taken by Chandrayaan-1's terrain mapping camera on November 15, 2008, shows craters in the moon's polar region. ISRO

poles.

As such, drilling on the moon to sample or excavate that ice will be primordial for future missions and long-term human presence. Moreover, the study

suggests that the extent of water ice in the northern polar region is twice that in the southern polar region.

The study confirms the hypothesis that the primary source of sub-surface

water ice in the lunar poles is out-gassing during volcanism in the Imbrian period. The results also conclude that the distribution of water ice is likely governed by mare volcanism and preferential impact cratering.

Accurate knowledge of the distribution and depth of water ice occurrence in the lunar poles, as presented in the investigation, is crucial for constraining the uncertainties in selecting future landing and sampling sites for missions aimed at exploring and characterising lunar volatiles. This study is crucial for supporting ISRO's future in-situ volatile exploration plans on the moon.

- A study by Indian space scientists has found evidence of enhanced possibility of water ice occurrence in the polar craters of the moon.
- The study was done by scientists of ISRO's Space Applications Centre (SAC) in collaboration with researchers of IIT Kanpur, University of Southern California, Jet Propulsion Laboratory and IIT (ISM) Dhanbad.
- The study suggests that the amount of sub-surface ice in the first couple of metres is about five to eight times larger than the one on the surface in both poles.
- As such, drilling on the moon to sample or excavate that ice will be primordial for future missions and long-term human presence. Moreover, the study suggests that the extent of water ice in the northern polar region is twice that in the southern polar region.

The Hindu-Space(GSIII)-Page 5

IIA releases video of the moon occulting brightest star Antares

The Hindu Bureau
BENGALURU

Bengaluru-based Indian Institute of Astrophysics (IIA) has filmed the passing of the moon in front of Antares, a bright red star.

The moon passed in front of Antares on April 27, hiding it for roughly 40 minutes. IIA said this event was visible only from southern India. IIA filmed the event from its Bengaluru campus using a camera on an eight-inch telescope.

While moving in its orbit roughly once a month, the moon will occasionally occult, or hide, bright stars that are behind. and some-

times, even planets. This happens now and then for the star Antares (Jyeshtha), which is the brightest star in the constellation of Scorpius. Since the moon is relatively close to the Earth, such occultations will be visible only from some locations on the globe.

The last such occultation of Antares, which was visible from India, was on February 5 this year.

The next one will be in June 2027. As seen from Bengaluru, Antares disappeared behind the bright side of the gibbous moon around 1.13 a.m. and reappeared at the darker side around 1.53 a.m.

- Antares is the brightest star in the constellation **Scorpius**
- The star is a red supergiant .
- Its name derives from the ancient Greek word meaning “rival to Ares” where Ares is the planet Mars. This is because the star appears similar in colour and brightness to Mars in the night sky.
- Antares is the 15th brightest star in the sky
- It is having several hundred times the diameter of the Sun and 10,000 times the Sun’s luminosity.

The Hindu-Environment(GSIII)-Page 8

Analysing labour on a warming plane

The link between labour productivity, human health and climate change gets scant attention, as the focus remains on economic and infrastructure resilience. The International Labour Organization's latest report points to the need to ensure that labour becomes climate proofed

FULL CONTEXT

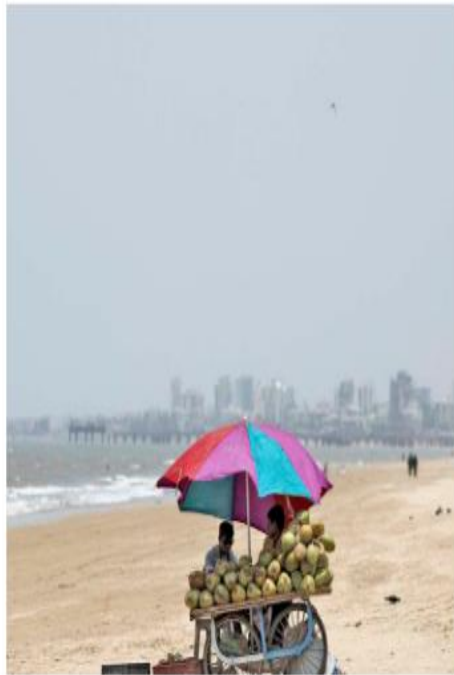
Kunal Shankar

The story so far:

The International Labour Organization's (ILO) latest report, 'Ensuring safety and health at work in a changing climate', is an urgent call to ensure the future of labour is climate proofed and to address the constantly evolving work environment as the planet warms. The UN body states that well over a third of the world's population, are exposed to excessive heat annually, leading to almost 23 million work-related injuries.

What are the emerging hazards?

The ILO has identified six key impacts of climate change. They are – excessive heat, solar ultraviolet radiation, extreme weather events, workplace air pollution, vector-borne diseases and agrochemicals. These could lead to a range of health issues such as stress, stroke and exhaustion. The ILO mentions agriculture workers, workers in the construction sector, conservancy workers in cities and those employed in transport and tourism as most affected by climate change. It is also important to take note of the global



disposal, as they could significantly impact human health based on temperature. Hindustan Unilever's thermometer manufacturing plant in Kodaikanal, Tamil Nadu was shut in 2001, as it was found disposing mercury-laced glass waste in the centre of the town. Frontline reports that the company dumped 7.4 tonnes, leaving townspeople exposed to a highly toxic and vapourable chemical that causes a range of diseases from birth defects to several types of cancer. "This was our main case in the Madras High Court against the company," tells S. Meenakshi, who was among a battery of lawyers representing retrenched workers and townspeople seeking redress for the serious illnesses caused across Kodaikanal that were attributed to Mercury exposure. A charge denied by Unilever, even as it reached an out of court settlement with workers in 2016 after a decades-long battle.

Another significant occupational illness to be addressed in the coming decades would be the possible rise in silicosis cases. Silicosis is a fatal and incurable pulmonary disease caused by what is commonly called "lung dust", the fine particulate matter emitted in the mines of coal, precious gems like quartz and diamonds and stone quarries. India is set to record its highest coal production over

THE GIST

The ILO has identified six key impacts of climate change. They are – excessive heat, solar ultraviolet radiation, extreme weather events, workplace air pollution, vector-borne diseases and agrochemicals.

When it comes to dealing with occupational heat, the Factories Act broadly defines "ventilation and temperature" and leaves it to the States to decide optimal standards based on specific industries. However, these regulations were framed more than five decades back.

Amendments are also required to address the handling of effluents and byproducts disposal, as they could significantly impact human health based on temperature.

According to the ILO report "Ensuring safety and health at work in a changing climate", at least 2.41 billion workers - 70.9 percent of the workforce - are exposed annually to excessive heat.

The ILO has identified six key impacts of climate change. They are — excessive heat, solar ultraviolet radiation, extreme weather events, workplace air pollution, vector-borne diseases and agrochemicals. These could lead to a range of health issues such as stress, stroke and exhaustion.

- The ILO mentions agriculture workers, workers in the construction sector, conservancy workers in cities and those employed in transport and tourism as most affected by climate change.
- Climate change related hazards have been linked to numerous health effects, including injuries, cancer, cardiovascular disease, respiratory conditions, macular degeneration and mental health issues. The financial implications are also considerable, due to lost productivity, business disruptions and damaged infrastructure.

The Hindu-Polity and Governance(GSII)-Page 12

EC brings out protocol on symbol loading units as mandated by top court

The Hindu Bureau
NEW DELHI

The Election Commission (EC) on Wednesday brought out a detailed protocol for the handling and storage of symbol loading units (SLU) in compliance with the Supreme Court's order of April 26.

The top court issued directions to seal and store the SLUs in a container, and store them in a strongroom along with the electronic voting machines (EVMs) for at least 45 days after the declaration of results.

The SLU uploads the name and symbol of the candidates contesting a particular seat on Voter Verified Paper Audit Trail (VVPAT) or paper trail machines.

The SLUs had till now been handed over to local election officials by engineers of Bharat Electronics Ltd. (BEL) or the EC before voting. A day after the



A model of an electronic voting machine is displayed outside the Election Commission office in New Delhi on April 15. REUTERS

polls, the SLUs used to be returned to the engineers of the two public sector undertakings that manufacture the ballot unit, the control unit, and the VVPAT, along with the SLUs.

The EC, in a statement on Wednesday, said that it had directed all State Chief Electoral Officers to create the necessary infrastructure for the handling and storage of the SLUs in the EVMs in accordance with the new protocols being implemented from May 1

as mandated by the SC.

"Enough number of SLU containers, generally two to four per Assembly constituency, are to be kept ready in advance based on the requirements," the EC said.

The revised protocols are applicable in all cases of completion of the symbol loading process in VVPATs undertaken on or after May 1. The top court had also paved the way for verification of micro-controllers embedded in the EVMs.

- The Election Commission (EC) on Wednesday brought out a detailed protocol for the handling and storage of symbol loading units (SLU) in compliance with the Supreme Court's order of April 26.
- The top court issued directions to seal and store the SLUs in a container, and store them in a strongroom along with the electronic voting machines (EVMs) for at least 45 days after the declaration of results.
- The SLU uploads the name and symbol of the candidates contesting a particular seat on Voter Verified Paper Audit Trail (VVPAT) or paper trail machines.
- The SLUs had till now been handed over to local election officials by engineers of Bharat Electronics Ltd. (BEL) or the EC before voting. A day after the polls, the SLUs used to be returned to the engineers of the two public sector undertakings that manufacture the ballot unit, the control unit, and the VVPAT, along with the SLUs.

The Hindu-IR(GSII)

'S. Korea discussing participation in AUKUS tech pact'

Agence France-Presse
SYDNEY

South Korea's Defence Minister said his country was actively discussing participation in a landmark defence technology pact between Australia, the United Kingdom and the United States.

"During today's meeting we also discussed the possibility of partnering with AUKUS pillar two," Shin Won-sik said, referring to a pact focused on developing hypersonic weapons, drones and other advanced technologies.

Mr. Shin was speaking after a meeting of Australian and South Korean Defence and Foreign Ministers in Melbourne.

AUKUS was established in 2021 with two main goals in mind: "Pillar one"

aims to provide Australia with nuclear-powered attack submarines. South Korea is not expected to be part of that project.

Pillar two

"Pillar two" focuses on developing advanced warfighting capabilities such as artificial intelligence, undersea drones and hypersonic missiles.

Australia, the U.K. and the U.S. have said they are open to other partners taking part, with Japan, South Korea and New Zealand all said to be in consideration.

"Korea is obviously a country with deeply impressive technology," said Australian Defence Minister Richard Marles. "So as AUKUS pillar two develops, I think there will be opportunities in the future".

- South Korea's Defence Minister said his country was actively discussing participation in a landmark defence technology pact between Australia, the United Kingdom and the United States.
- In September 2021, leaders of Australia, the United Kingdom, and the United States announced the creation of an enhanced trilateral security partnership called "AUKUS."
- AUKUS was established with two main goals in mind:
 - "Pillar one" aims to provide Australia with nuclear-powered attack submarines. South Korea is not expected to be part of that project.
 - "Pillar two" focuses on developing advanced warfighting capabilities such as artificial intelligence, undersea drones and hypersonic missiles.

Indian Express-Defense(GSIII)-Page 11

DRDO successfully tests missile-assisted torpedo release system

Next-gen system to boost Navy's anti-submarine warfare capability

EXPRESS NEWS SERVICE
NEW DELHI, MAY 1

THE DEFENCE Research and Development Organisation (DRDO) Wednesday tested a next-generation torpedo release system aimed at boosting the Navy's anti-submarine warfare capabilities, the Defence Ministry said.

The Supersonic Missile-Assisted Release of Torpedo (SMART) system has been designed and developed by the DRDO. This missile-based mechanism to launch lightweight torpedoes can target submarines hundreds of kilometres away — far beyond the conventional range of lightweight torpedoes. It will be particularly employed in the absence of other assets for immediate action when an enemy submarine is detected.

The system, which can be launched from both coasts and



The SMART system was launched from the Integrated Test Range off the coast of Odisha. PTI

precision inertial navigation. It carries an advanced lightweight torpedo missile as a payload along with a parachute-based release mechanism.

- The Defence Research and Development Organisation (DRDO) on May 1 announced the successful flight test of the Supersonic Missile-Assisted Release of Torpedo (SMART) system from Dr APJ Abdul Kalam Island off the coast of Odisha.
- SMART is a next-generation missile-based light-weight torpedo delivery system designed and developed by DRDO to enhance the anti-submarine warfare capability of the Indian Navy far beyond the conventional range of lightweight torpedoes.
- “This canister-based missile system consists of several advanced sub-systems, namely two-stage solid propulsion system, electromechanical actuator system, precision inertial navigation system etc. The system carries advanced light-weight torpedo as payload along with parachute-based release system,” DRDO said in a statement.
- The system, which can be launched from both coasts and warship

Indian Express-History (GSI)-Page 11

In Goa's capital, a historical artefact is discovered inside a dug-up pavement

Historians say the stone carving could be a depiction of 'Paulist missionaries'

PAVNEET SINGH CHADHA
PANAJI, MAY 1

WORKERS DIGGING up a pavement in Panaji Tuesday stumbled upon a carved stone slab estimated to date back several hundred years, when Goa was under Portuguese rule.

The slab, made of either granite or sandstone, depicts a bearded man playing a musical instrument, with an animal near his feet. This has led to speculation that the carving is that of a "Paulist" — missionaries from the Society of Jesus who worked to spread Catholicism in the Portuguese Empire's Asian colonies.

Historian Prajal Sakhardande said these Jesuit missionaries came to Goa in the 16th century. "They were followers of St Paul who built the College of St Paul in Old Goa, and hence the term 'Paulists'," he said.

Though the origin of the sculpture is yet to be conclusively established, Sakhardande said three similar sculptures and



The carving, either made of granite or sandstone, was found by workers digging up a pavement. *Express*

images of Paulists already exist in the Siridao area.

"This sculpture is exactly the same as those in Siridao. The Paulists were earlier in Old Goa and later came to the Tiswadi area, where they built many

churches. From the headgear, the violin (musical instrument) and the presence of a dog in the sculpture, I am certain it is a similar statue of a Paulist. My hypothesis is that from the carvings and the type of stone, this particular sculpture dates back to the 19th century, around the time Panjim became Goa's capital," he said.

The Archaeology Department has taken custody of the statue to ascertain its time period and historical significance.

Dr Nilesh Fal Dessai, Director of the Department of Archaeology, said: "It is a significant find, though it is yet to be established which period the sculpture belongs to. We will consult experts and historians."

Another historian, Sanjeev Sardesai, said: "It is my logical theory that this carved granite slab was part of the construction material which was transported from the earlier, decaying Portuguese capital at 'Velha Goa' (Old Goa) and brought here during the latter part of the 1700s to

develop the new capital, or 'Nova Goa' (Panaji)."

"There must be hundreds of such pieces, discarded during the rebuilding process, and buried at various places in Panaji, of which I know of at least three sites. During the construction of the New Patto Bridge, many such granite artefacts and round pillars were found in that area," he said.

Several myths are associated with the Paulists in local folklore. The missionaries are revered figures, especially for their proficiency in building large churches and structures across Goa.

One such popular myth says that the construction of Ribandar Causeway or the Ponte Conde de Linhares — a 3.2-km causeway connecting Panaji to Ribandar — was done by the Paulists overnight with the light of a single lamp.

The causeway was built in 1633–34 under the direction of the then Viceroy of Portuguese India — Miguel de Noronha, fourth Count of Linhares — after whom it is named.

- Workers digging up a pavement in Panaji Tuesday stumbled upon a carved stone slab estimated to date back several hundred years, when Goa was under Portuguese rule.
- The slab, made of either granite or sandstone, depicts a bearded man playing a musical instrument, with an animal near his feet. This has led to a theory that the carving is that of a "Paulist" — missionaries from the Society of Jesus who worked to spread Catholicism in the Portuguese Empire's Asian colonies.

Indian Express-Polity and Governance (GSII)-Page 13

The question of Article 31C

While hearing a case about private property, SC has asked whether Article 31C, a fundamental right, still exists. What is this article, when was it introduced in the Constitution, what has been its legal journey?

AJOYSINHA KARPURAM
NEW DELHI, MAY 1

DURING THE ongoing hearing in the Supreme Court to decide whether the government can acquire and redistribute private property, a nine-judge Constitution Bench led by Chief Justice of India (CJI) D Y Chandrachud asked a question of "radical constitutional consequence": Does Article 31C still exist?

Article 31C of the Constitution protects laws that are enacted to ensure that "material resources of the community" are distributed to serve the common good (Article 39(b)) and that wealth and the means of production are not "concentrated" to the "common detriment" (Article 39(c)).

Article 39 of the Constitution lists certain directive principles of state policy, which are meant to be guiding principles for the enactment of laws, but are not directly enforceable in any court of law.

As per Article 31C, these particular directive principles (Articles 39(b) and 39(c)) cannot be challenged by invoking the right to equality (Article 14) or the rights under Article 19 (freedom of speech, right to assemble peacefully, etc).

So why is the continued existence of Article 31C itself now under question? And how is this article of the Constitution related to the question of private property that the court is considering?

Introduction of Article 31C

The *Indian Express* front page report on the Supreme Court's judgment in the *Kesavananda Bharati* case. The court ruled that even laws that are protected by Article 31C must pass the basic structure test – even if such laws can bypass Articles 14 and 19 of the Constitution.

in Mumbai challenged the 1986 amendment at the Bombay High Court. But the High Court upheld the amendment, citing the protection granted by Article 31C to laws enacted in furtherance of Article 39(b).

This decision was appealed at the SC in December 1992, where the question eventually became whether "material resources of the community" under Article 39(b) included private resources such as cesses and properties.

Arguments in the SC

When the hearing finally began, on the first day (April 23), the nine-judge Bench seemed to agree with the Centre's submission that the case should be restricted to interpreting Article 39(b). CJI Chandrachud said, "It's very clear that the ambit of the reference to nine judges is squarely only on the content of 39(b)," according to reporting by the *Supreme Court Observer*.

However, the very next day, the Bench stated that the question of whether Article 31C still lives following the *Minerva Mills* decision has to be decided to avoid "constitutional uncertainty".

Senior advocate Zal Andhyarajina, appearing for the petitioners, argued that the original version of Article 31C was 'substituted' with the expanded version provided in the 42nd Amendment. This, Andhyarajina argued, means the older version of the provision ceased to exist once the amendment came into force. Therefore, when this new Article 31C was struck down in *Minerva Mills*, the older version would not survive.

Breakdown in 3 power stations plunges Delhi in darkness

Anand Margi commits self-immolation

Govt statement in Lok Sabha today

Article with analysis

- The Supreme Court upheld the validity of Article 31C, The 25th Constitutional Amendment introduced Article 31C into the Constitution to implement the Directive Principles of State Policy under Article 39 (b) and (c) for distribution of material resources of the community and to prevent concentration of wealth.

Do you know ?

The Supreme Court in various cases has interpreted the relationship between fundamental rights and the DPSP. Most of these cases were against constitutional amendments made by the state that curtailed the right to property that was then a fundamental right. In the *Golak Nath* case (1967), the Supreme Court held that fundamental rights cannot be abridged or diluted to implement DPSP. Finally, in the *Kesavananda Bharati* case (1973), a thirteen-judge Bench of the Supreme Court upheld the validity of Article 31C but made it subject to judicial review. In the *Minerva Mills* case (1980), the Supreme Court ruled that the Constitution exists on a harmonious balance between fundamental rights and DPSP.

Indian Express-miscellaneous Page 13

Booker slavery links: Behind the criticism of the prestigious literary prize

RISHIKA SINGH
NEW DELHI, MAY 1

THE BOOKER Prize, one of the most prestigious awards in the literary world, has repeatedly come under fire for the historical links to slavery of its original sponsor, Booker Group.

Last week, a BBC Radio host reminded the organisation behind the prize that Booker Group founders George and Josias Booker did not, as the Prize website said, "manage" enslaved people – rather, they turned African people into slaves. The website then changed the word "managed" to "enslaved".

Prestigious honour

The Booker Prize was founded in 1969, initially just for writers from the Commonwealth, but was later opened to

writers all over the world. Every year, the prize is awarded to a single work of fiction in the English language. In 2004, a separate International Booker Prize was instituted for translated works.

The prize was co-founded by publishers Tom Maschler and Graham C Greene, and from 1969 to 2001, it was sponsored by, and named after Booker Group Ltd, Booker is a British wholesale foods company that was established in 1835 as a shipping and trading company, and which is now

owned by Tesco. In 2002, British investment management firm Man Group became the sponsor of the prize, and it thus came to be known as The Man Booker Prize. After the Man Group ended its sponsorship in 2019, the American charity Crankstart took over, and reverted to the award's original name, Booker Prize.



Berger, during his 1972 acceptance speech. Youtube screenshot @TheBookerPrizes

Links to slavery

Following the 1815 Congress of Vienna, the northeastern coast of South America was divided among three European powers: the Dutch got modern-day Suriname, the French

got French Guiana (still a French overseas territory), and the British got what is now known as Guyana. Many entrepreneurial Europeans like the Booker brothers headed to these colonies in search of fortune.

The economy of Guyana was driven by the sugar and (to a lesser degree) cotton industries, with African slaves providing labour on the plantations. The Booker brothers were part of this slave-based economy.

According to the Booker website, Josias managed a cotton plantation in northern Guyana where he enslaved "nearly 200 people". Along with his brother, he would then go on to own several sugar plantations, which too were operated by slave labour.

When slavery was abolished in Guyana in 1834, "the Booker brothers received compensation from the state for 52 emancipated slaves. The Legacies of Slave Ownership database at University College London records the total sum as £2,884, equivalent to £378,000 in 2020," the Booker website says.

Indentured labour

The exploitation did not stop with the emancipation of the African slaves. Plantation owners like the Bookers joined in the exploitation of another population – Indian labourers who faced massive debt and unemployment at home, in no small part due to the agrarian policies of the East India Company.

"Rather than pay fair wages to free African workers, British planters such as the Bookers convinced the British government to help finance voyages to collect replacement sugar workers – indentured workers from India," Natalie Hopkinson, a journalism professor whose ancestors were enslaved in Guyana and worked at the Bookers' farms, wrote for *The New York Times* in 2017.

The system of indentured labour lasted until about the 1920s. The scale of the migration of labourers from India was such that people of Indian origin are today the

single largest ethnic group in Guyana.

Previous criticism

In 1972, philosopher and art critic John Berger won the Booker Prize for his experimental novel *G*. Protesting the prize's links to slavery, he donated half the prize money to the British Black Panther movement, an organisation that fought for the rights of Black people and minorities in the country.

During his acceptance speech, Berger said: "Booker McConnell has had extensive trading interests in the Caribbean for over 130 years. The modern poverty of the Caribbean is the direct result of this and similar exploitation... The London-based Black Panther Movement has arisen out of the bones of what Bookers and other companies have created in the Caribbean... [The Black Panthers] have links with the struggle in Guyana... in Trinidad and throughout the Caribbean: the struggle whose aim is to expropriate all such enterprises."

- The Booker Prize, one of the most prestigious awards in the literary world, has recently come under fire for the **historical links to slavery** of its original sponsor, Booker Group.
- The Booker Prize was **founded in 1969**, initially just for writers from the Commonwealth, but later opened to writers globally. Each year, the prize is awarded to a single work of fiction in the English language.
- In 2004, a separate International Booker Prize was instituted for translated works.

PIB- GS3/ Environment

India set to host the prestigious 46th Antarctic Treaty Consultative Meeting and 26th Meeting of the Committee for Environmental Protection in 2024

Posted On: 01 MAY 2024 2:58PM by PIB Delhi

The Ministry of Earth Sciences (MoES), Government of India, through the National Centre for Polar and Ocean Research (NCPOR), will host the 46th Antarctic Treaty Consultative Meeting (ATCM 46) and the 26th Meeting of the Committee for Environmental Protection (CEP 26) from May 20 to 30, 2024, in Kochi, Kerala. This is in line with India's poise to facilitate constructive global dialogue on environmental stewardship, scientific collaboration, and cooperation in Antarctica.

The ATCM and meetings of the CEP are pivotal in the international community's ongoing efforts to safeguard Antarctica's fragile ecosystem and promote scientific research in the region. Convened annually under the Antarctic Treaty System, these meetings serve as forums for Antarctic Treaty Consultative Parties and other stakeholders to address Antarctica's pressing environmental, scientific, and governance issues. The Antarctic Treaty, signed in 1959 and entered into force in 1961, established Antarctica as a region dedicated to peaceful purposes, scientific cooperation, and environmental protection. Over the years, the Treaty has garnered widespread support, with 56 countries currently party to it. The CEP was established under the Protocol on Environmental Protection to the Antarctic Treaty (the Madrid Protocol) in 1991. The CEP advises the ATCM on environmental protection and conservation in Antarctica.

India has been a Consultative Party to the Antarctic Treaty since 1983. It participates in the decision-making process along with other 28 Consultative Parties to the Antarctic Treaty to date. India's first Antarctic research station, Dakshin Gangotri, was established in 1983. At present, India operates two year-round research stations: Maitri (1989) and Bharati (2012). The permanent research stations facilitate Indian Scientific Expeditions to Antarctica, which have been ongoing annually since 1981. In 2022, India enacted the Antarctic Act, reaffirming its commitment to the Antarctic Treaty.

As a signatory to the Antarctic Treaty, India remains dedicated to environmental protection, scientific cooperation, and peaceful operations in Antarctica. Dr M Ravichandran, Secretary of the Ministry of Earth Sciences, highlighted the importance of India hosting the ATCM and CEP meetings in 2024. He said, "We look forward as a country to fostering meaningful exchanges of knowledge and expertise to advance the shared goals of environmental conservation and scientific research in the Antarctic region."

The Antarctic Treaty Secretariat (ATS) serves as the administrative hub for the Antarctic Treaty System. Established in 2004, the ATS coordinates the ATCM and CEP meetings, republishes and disseminates information, and facilitates diplomatic communication, exchanges, and negotiations related to Antarctic governance and management. It also monitors compliance with Antarctic Treaty provisions and agreements and provides assistance and guidance to Antarctic Treaty Parties on treaty implementation and

The Ministry of Earth Sciences will host the 46th Antarctic Treaty Consultative Meeting (ATCM 46) and the 26th Meeting of the Committee for Environmental Protection (CEP 26) from May 20 to 30, 2024, in Kochi, Kerala. This is in line with India's poise to facilitate constructive global dialogue on environmental stewardship, scientific collaboration, and cooperation in Antarctica.

- India has been a Consultative Party to the Antarctic Treaty since 1983.
- It participates in the decision-making process along with other 28 Consultative Parties to the Antarctic Treaty to date.
- India's first Antarctic research station, Dakshin Gangotri, was established in 1983. At present, India operates two year-round research stations: Maitri (1989) and Bharati (2012).
- The permanent research stations facilitate Indian Scientific Expeditions to Antarctica, which have been ongoing annually since 1981. In 2022, India enacted the Antarctic Act, reaffirming its commitment to the Antarctic Treaty.