

NEWS TODAY

A study titled 'Future projections for the tropical Indian Ocean' Predicts accelerated warming of Indian Ocean

Key findings of study:

- ⊕ Climate models predicts **accelerated warming of Indian Ocean (IO)** at a rate of 1.7°C–3.8°C per century from 2020–2100, compared to 1.2°C per century from 1950–2020.
- ⊕ **Maximum warming is in the Arabian Sea (northwestern IO).**
- ⊕ **Marine heatwaves are expected to increase** from 20 days per year to 220–250 days per year, pushing tropical IO into near-permanent heatwave state.
- ⊕ In high emission scenario, study expects **minimum average temperature in IO basin to stay above 28°C** by 2100, which remained around 26°C–28°C during 1980–2020.

Impact of warming Indian Ocean:

- ⊕ **Thermal expansion** due to increased heat content contributing to **sea level rise.**
- ⊕ Marine heatwaves may lead to **habitat destruction** (coral bleaching, seagrass destruction, loss of kelp forests) and **rapid intensification of cyclones.**
- ⊕ Increase in frequency of extreme **Indian Ocean Dipole (IOD) events.**
 - ◆ IOD is marked by temperature differences in IO.
 - ◆ **During Positive IOD,** warm waters are pushed to Western IO while during Negative IOD, warm waters are pushed to Eastern IO.
 - ◆ **Positive IOD is favourable for rainfall in Indian sub-continent.**
- ⊕ **Others:** Increased Ocean acidification and decline in net primary productivity etc.

Way forward for mitigating impacts of warming Indian Ocean:

- Reducing global carbon emissions
- Investing in resilient infrastructure
- Conserving marine ecosystems through sustainable practices
- Enhancing forecasting capabilities
- Promoting adaptive agriculture for food security

International Energy Agency releases a policy brief titled 'Standards for a Net Zero Iron and Steel sector in India'

- Policy brief **focuses on standards for low and near zero emissions steel**, including emissions measurement methodologies, definitions or emissions thresholds.

Benefits of Standards for low and near zero emissions steel

- ⊕ **Increased acceptance** of emission-related measures by producers due to simplified process.
- ⊕ **Help policymakers** to reduce duplicating efforts and minimise trade barriers.
- ⊕ **Help countries** to set a common verification approach and improve emissions understanding across various actors.

Initiatives to standardize Steel Sector

- ⊕ **India**
 - ◆ **Steel Scrap Recycling Policy, 2019.**
 - ◆ **Perform, Achieve and Trade scheme** under National Mission for Enhanced Energy Efficiency, incentivizes steel industry to reduce energy consumption.
 - ◆ Ministry of Steel formed **14 Task Forces** to support development of its **"Roadmap for Green Steel"**.
- ⊕ **Global**
 - ◆ In 2021, **COP26** launched **Steel Breakthrough**, under **Breakthrough Agenda** focussing on **definitions and emissions measurement methodologies.**
 - ◆ **Steel Standard Principles at COP 28 in 2023**, for development of low/near-zero emissions steel definitions and measurement methodologies.

About Steel sector

- India is **second-largest steel-producing country**, accounting for **7% of total crude steel production.**
- Steel production is **highly reliant on coal**, used as **reducing agent** to extract iron from iron ore and **provide carbon content** needed in steel.
- It is the **largest coal consumer** and is responsible for **7–9% of global Greenhouse Gas emission.**
- **India's Steel industry** accounts for **12% of carbon dioxide emissions** and are expected to **double by 2030** due to infrastructure push of government.

Measures required to standardize Steel Sector

- ⊕ **Setting clear timelines for emissions reduction**, measurement methodologies and defining near zero steel.
- ⊕ **Creating markets for low-emissions materials and products**, developing novel emissions reduction technologies.
- ⊕ **Developing policies to support commercial-scale low emissions production**, and mobilising finance and investment.

Forest fire observed in several parts of Uttarakhand

- In some regions of Uttarakhand, fires were doused with the help of a Bambi bucket, a specialised aerial fire-fighting tool used to pour water in targeted areas.
- **About Forest Fire**
 - ⊖ Any uncontrolled and non-prescribed burning of plants in a natural setting such as a forest, grassland, which consumes natural fuels and spreads based on environmental conditions (e.g., wind, topography).
 - ⊖ As per India State of Forest Report 2021,
 - ◆ Odisha reported highest forest fires between November 2020 and June 2021, followed by Madhya Pradesh.
 - ◆ More than 36% of country's forest cover has been estimated to be prone to frequent forest fires.
- **Causes of forest fires**
 - ⊖ **Natural factors:** Lightning strike, increased temperature and dryness, friction created by rubbing of branches etc.
 - ⊖ **Man-made factors:** Spark from cigarette, carelessly setting farmlands on fire, etc.
- **Impact of forest fire:** Deforestation, loss of biodiversity and wildlife habitat, soil erosion affecting productivity of soils etc.
- **Steps taken to protect forest fires**
 - ⊖ National Action Plan on Forest Fires, 2018.
 - ⊖ Forest Survey of India Van Agni Geo-portal for single point of information on forest fire.
 - ⊖ Wildlife (Protection) Act, 1972 prohibits setting fire in wildlife sanctuaries.

How Forest fires can be prevented?

- Construction of watch towers for early detection.
- Involvement of local communities, and creation and maintenance of fire-lines.
 - ⊖ Two types of fire lines are in practice.
 - ◆ In Kaccha fire-lines, undergrowth and shrubs are removed while trees are retained to decrease fuel load.
 - ◆ Pucca fire-lines are clear felled areas separating a forest/compartments/block from another to control spread of potential fires.

Vice President calls for reforming Indian Arbitration System

- Arbitration is a procedure in which a dispute is submitted, by agreement of the parties, to one or more arbitrators who make a binding decision on the dispute.
 - ⊖ Arbitration is a quasi-judicial proceeding. It is one of the mechanisms of Alternate Dispute Resolution (ADR).
- **Arbitration Mechanism in India**
 - ⊖ Arbitration and Conciliation Act, 1996 governs the arbitral proceedings in India.
 - ◆ It was based on UNCITRAL (United Nations Commission on International Trade Law) Model Law on International Commercial Arbitration 1985 and UNCITRAL Conciliation Rules, 1980.
 - ⊖ Act has been amended in years 2015, 2019, and 2021.
 - ⊖ Arbitration and Conciliation (Amendment) Act, 2021 allows for an unconditional stay of the enforcement of arbitral awards in cases where the arbitration agreement, contracts, or award itself were obtained through fraud or corruption.
 - ◆ This amendment was effective retrospectively from October 23, 2015.
- **Issues with Arbitration System**
 - ⊖ Lack of diversity in appointing arbitrators, as retired judges dominate the field.
 - ⊖ Lack of Trust as there is always scepticism about the independence and impartiality of the third party.
 - ⊖ Judicial intervention in arbitration proceedings leads to delays in awards.

Recommendations

- Disruptive technologies can be used in arbitration to ensure effective and timely resolution.
- Increase efficiency to build trust, with quality infrastructure.
- Diversity in source and experience like adding other qualified candidates such as lawyers, academicians, etc.
- Limiting court intervention in arbitral awards to strengthen ADR in India.

According to a study, climate change has slowed Earth's rotation and could affect timekeeping

- Earth rotates on its axis relative to the Sun every 24 hours mean solar time, with an inclination of 23.45 degrees from the plane of its orbit around the Sun.
- Earth's rotation is affected by three major geophysical processes -
 - ⊖ Tidal dissipation: Friction between ocean water and the sea floor – both in shallow seas and in deep ocean – has progressively slowed Earth's rotation.
 - ⊖ Earth's core: Changes in the flow of currents in the molten outer core affecting its spin.
 - ⊖ Glacial melt: As polar glaciers melt, the water mass gets redistributed throughout the oceans, pooling most noticeably around the equator.
 - ◆ It changes the shape of Earth, making it flatter and slows down its rotation speed.
- Findings of the study:
 - ⊖ Earth's rotation is speeding up in recent years due to changes in its core, however, melting of polar ice mass due to climate change have decelerated such speeding up.
 - ⊖ To keep clocks in sync with the Earth's rotation, speeding up of Earth's rotation would have necessitated addition of a negative leap second in two years' time.
 - ◆ However, climate change has delayed such addition by another three years, to 2029.

About Leap Second

- Historically, Coordinated Universal Time (UTC) is followed as time standard, in which a day lasts 86,400 seconds (24 hours * 60 minutes * 60 seconds).
 - ⊖ However, average length of a day depends on Earth's rotation speed.
- In case of fluctuations in Earth's rotation speed, leap seconds are added to UTC.
 - ⊖ A negative leap second is subtracted in case of slowing of Earth's rotation while a positive leap second is added to compensate for speeding up of Earth's rotation.

Indian Space Research Organization (ISRO) releases Indian Space Situational Assessment Report (ISSAR) for 2023

- ISSAR for 2023, compiled by ISRO System for Safe and Sustainable Space Operations Management (IS40M), indicated a steady **growth in the space object population**.
 - ⊕ IS40M has been operational since 2022 to **safeguard ISRO's space assets**.
- **Key Highlights:**
 - ⊕ **Global Scenario:** During 2023, more objects (3143 objects) were placed in orbit compared to 2022 (2533 objects).
 - ◆ There were **five major on-orbit break-up events** in 2023, adding to **space debris**.
 - ⊕ **Indian Scenario:** From the start of India's space journey until 31st December 2023, 127 Indian satellites have been sent into space.
 - ◆ In 2023, **all seven launches of ISRO** including Chandrayaan-3 and Aditya L-1 were **successful**.
 - ⊕ **Risk to Space Assets:** There is increasing trend in **Collision Avoidance Manoeuvres (CAMs)** to safeguard the operational spacecraft in case of close approaches by other space objects.
- **Concerns with Space Object population growth:**
 - ⊕ **Risks to spacecraft operations:** India had to carry out 23 CAMs to protect Indian space assets.
 - ⊕ **Kessler syndrome:** Phenomenon in which the junk in orbit around Earth reaches a point where it just creates more and more space debris.
 - ⊕ **Threat to astronauts' lives** due to space debris.

Risk Mitigation Steps taken by India:

- **Space Object Proximity Analysis (SOPA) for Satellites:** Prediction of close approaches through IS40M/ ISRO Telemetry Tracking and Command Network (ISTRAC).
- **Collision Avoidance Analysis (COLA) for Launch Vehicles**
- **ISRO's Network for space object TRacking and Analysis (NETRA) project**
- **Controlled re-entry** of decommissioned satellites/ spacecrafts
- **International Cooperation** such as Inter-Agency Debris Coordination Committee (IADC) with 13 space agencies.

Also in News



Navratna Status

- Department of Public Enterprises has **granted Navratna status to Indian Renewable Energy Development Agency Limited (IREDA)**.
 - ⊕ IREDA is under administrative control of **Ministry of New and Renewable Energy**. It was established as a Non-Banking Financial Institution in 1987.
- **Status of Navratna is granted based on various parameters, such as,**
 - ⊕ **CPSEs which are Miniratna I,** and
 - ⊕ have obtained '**excellent**' or '**very good**' MoU rating in **three of the last five years** and
 - ⊕ having **composite score of 60 or above** in selected performance indicators.



Electronic Trading Platforms (ETPs)

- RBI releases **Draft Master Direction – Reserve Bank of India (Electronic Trading Platforms) Directions, 2024**.
 - ⊕ Prior authorization or registration with RBI is required for operating ETP.
 - ⊕ **An entity seeking authorisation** as an ETP operator
 - ◆ should be **incorporated in India** and
 - ◆ maintain a **minimum net worth of RS 5 crore**.
- **ETP refers to any electronic system, other than a recognised stock exchange, on which transactions in eligible instruments** are contracted.
 - ⊕ **Eligible instruments** include securities, money market instruments, foreign exchange instruments, derivatives etc.



Foreign Contribution Registration Act (FCRA), 2010

- **Ministry of Home Affairs (MHA)** has cancelled the registration of at least five Non-Governmental Organisations (NGOs) for allegedly violating provisions of FCRA.
- **About FCRA, 2010**
 - ⊕ **Nodal Ministry:** MHA.
 - ⊕ **Enacted during Emergency in 1976** amid apprehensions that foreign powers were interfering in India's affairs.
 - ⊕ **Amended in 2010 to consolidate the law on utilisation of foreign funds,** and to prohibit their use for any activities detrimental to national interest.
 - ⊕ **Again amended in 2020,** giving the government tighter control and scrutiny over the receipt and utilisation of foreign funds by NGOs.



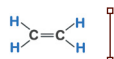
K2-18B

- Data from James Webb Telescope suggests a high probability of Dimethyl Sulphide (DMS) gas.
 - ⊕ On Earth, **living beings are the primary producers of DMS**.
- **About K2-18B**
 - ⊕ Discovered in 2015, K2-18b is a **super Earth exoplanet (planet located outside our solar system)** that orbits an M-type star.
 - ◆ M stars (also called M dwarfs or Red dwarfs) are relatively cool, and smaller in size than the sun.
 - ⊕ **It orbits K2-18 in the Goldilock zone (habitable zone)** –Range of distance with right temperatures for water to remain liquid.



Baseflow

- A recent study highlighted that **Baseflows have a stronger triggering effect on river floods in Peninsular India** as compared to rainfall and soil moisture.
 - ⊖ Six rivers studied include **Narmada, Tapi, Mahanadi, Godavari, Krishna and Cauvery.**
- **Baseflow:**
 - ⊖ Baseflows are **streamflows** which results from precipitation that **infiltrates into the soil** and eventually **moves through soil to the stream channel.**
 - ⊖ This is often called **groundwater flow or dry-weather flow.**



Ethylene (C₂H₄)

- Mangoes were seized after being artificially ripened with ethylene.
- **About Ethylene**
 - ⊖ **Colourless, flammable gas** having a **sweet taste and odour.**
 - ⊖ **Gaseous plant growth promoter.**
 - ⊖ **Highly effective in fruit ripening; Enhances respiration rate** during ripening of fruits.
 - ⊖ **Breaks seed and bud dormancy,** initiates germination in peanut seeds, sprouting of potato tubers.
 - ⊖ **Promotes root growth** and **root hair formation.**
 - ⊖ **Ethephon** is most **widely used compound as source of ethylene.** Ethephon in an **aqueous solution** readily absorbed and transported within plant and releases ethylene slowly.
- **FSSAI directions to use Ethylene**
 - ⊖ Permits **Ethylene for artificial ripening** provided concentration does not **exceed 100 ppm** (parts per million).
 - ⊖ Any source of **ethylene gas coming in direct contact with fruits is not permitted.**



Kalvari Class Submarine

- Pakistan launched its **first Hangor class submarine** which is considered a **direct counterpart of India's Kalvari class of submarines.**
- **About Kalvari class submarines:**
 - ⊖ Built by Mazagon Dock Shipbuilders Limited under **Project-75,** these are adaptation of **French Scorpene-class submarines.**
 - ⊖ These have **diesel-electric propulsion systems** and are primarily attack submarines.
 - ⊖ India operates **six Kalvari class submarines,** namely Kalvari, Khanderi, Karanj, Vela, Vagir, Vagshir.
 - ⊖ Indian Navy is in process of installing an **indigenously developed Air Independent Propulsion (AIP) system** to these submarines.
 - ◆ AIP system allows non-nuclear submarines to **remain submerged for longer period.**



National Bank for Agriculture and Rural Development (NABARD)

- NABARD has sanctioned a study on the impact evaluation of Geographical Indication (GI) products.
 - ⊖ Presently, 144 products supported by NABARD, are GI tagged.
- **About NABARD**
 - ⊖ It is India's apex **development bank,** established in **1982** under an **Act of Parliament.**
 - ⊖ **Headquartered in Mumbai,** it is **wholly owned by Government of India.**
 - ⊖ **Mandate:** to promote sustainable and equitable agriculture and rural development.
 - ⊖ **Recommended** by B. Sivaraman committee.
 - ⊖ **Functions:** Promotional and developmental initiatives, finance and refinance support, capacity building of cooperatives and regional rural banks etc.

Place in news



Spain (Capital: Madrid)

- Spain's Prime Minister refuses to resign after a court opened an initial inquiry into his wife over corruption claims.
- **Political boundaries**
 - ⊖ Located in **southwestern Europe.**
 - ⊖ **Land Borders:** Portugal (West), Andora, France (Northeast) and Gibraltar (enclave of Britain).
 - ⊖ **Maritime Border:** Atlantic Ocean (west), Mediterranean Sea and Balearic Sea in east and Alboran Sea (south).
- **Geographical features:**
 - ⊖ **Highest peak:** Teide Peak.
 - ⊖ **Major Rivers:** Tagus, Ebro, Douro etc.
 - ⊖ **Climate:** Temperate; clear, hot summers in interior, more moderate and cloudy along coast.
 - ⊖ **Important Plateau:** Iberian Plateau also known as Meseta Central.

