

Year-End Review

Major Achievements

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- Union Cabinet approved the "PRITHVi Vigyan (PRITHVI)" overarching scheme of MoES for implementation during the period from 2021-26 at an overall cost of Rs. 4,797 crores. The scheme encompasses five ongoing sub-schemes, namely Atmosphere & Climate Research- Modelling Observing Systems & Services (ACROSS), Ocean Services, Modelling Application, Resources and Technology (O-SMART), Polar Science and Cryosphere Research (PACER), Seismology and Geosciences (SAGE) and Research, Education, Training and Outreach (REACHOUT).
- Union Cabinet approved the 'Mission Mausam' on September 11, 2024, with an outlay of 2,000 crores over two years. Mission Mausam is envisaged to be a multi-faceted and transformative initiative to boost India's weather and climate-related science, research, and services.
- Union Cabinet approved India's signing of the Biodiversity Beyond National Jurisdiction (BBNJ) Agreement, an international treaty under the United Nations Convention on the Law of the Sea (UNCLOS). The BBNJ Agreement will allow India to enhance its strategic presence in areas beyond our EEZ (Exclusive Economic Zone), which is very promising. In addition, it will further strengthen our marine conservation efforts and collaborations, open newer avenues for scientific research and development, access to samples, sequences and information, capacity building and technology transfer.
- Hon'ble Prime Minister inaugurated a 1.5 lakh litre Low-Temperature Thermal Desalination (LTTD) plant set up by NIOT at Kadmat (Lakshwadeep) on January 03, 2024.
- Hon'ble Prime Minister launched the MoES High-Performance Computers (HPC) systems at the IITM (named *Arka*) and NCMRWF (named *Arunika*) on September 26, 2024. The HPC will revolutionise meteorology, climate research and services, enhancing India's supercomputing capacity to 22 petaflops (from the previous capacity of 6.8 petaflops) for accurate weather predictions for better disaster preparedness.
- Under the Deep Ocean Mission, for the first time, scientists from NCPOR and NIOT have captured the image of an active hydrothermal vent located 4,500 metres below the surface of the Indian Ocean. This site holds potential for exploration both from economic and biological perspectives.
- Hon'ble Minister of Earth Sciences (HMoES) inaugurated the Doppler Weather Radar at Lansdowne, Uttarakhand, on February 23, 2024.
- HMoES inaugurated HAWOS at 11 heliports installed and commissioned by IMD on February 25, 2024, at Itanagar, Arunachal Pradesh, for better weather observations and advisories.
- HMoES inaugurated the 'Synergistic Ocean Observation Prediction Services (SynOPS)' facility at INCOIS, Hyderabad, for better visualisation of in situ ocean data, satellite remote sensing and model products for an integrated view of the state of the ocean on February 14, 2024.
- HMoES inaugurated the Coastal Research Laboratory of NCCR at Dolphins Nose, Visakhapatnam, on March 12, 2024.
- HMoES inaugurated the Atmospheric Research Testbed Facility IITM at Silkheda, Bhopal, Madhya Pradesh, on March 12, 2024. This facility will have several meteorological observing systems for studying the cloud processes associated with the Monsoon

- IMD celebrated the 150th year of its establishment and service to the nation on January 15, 2024, at Vigyan Bhawan, New Delhi. Hon'ble Vice President of India graced the occasion as Chief Guest, and HMoES was the Guest of Honor. During the occasion, IMD launched the Panchayat Mausam Seva.
- Air Quality Early Warning and Decision Support System for Jaipur, Rajasthan, was launched by the Hon'ble Chief Minister of Rajasthan, Shri Bhajan Lalji Sharma, on June 05, 2024.
- Secretary MoES inaugurated India's first Urban Radar Network over the Mumbai Metropolitan Region, established by IITM on September 14, 2024, in Colaba, Mumbai, which will help better monitor and forecast severe weather events.
- Secretary MoES inaugurated the Heliport Automatic Weather Observing System (HAWOS) at Kedarnath Temple, Uttarakhand, on September 29, 2024. This system, executed by IMD and Uttarakhand Civil Aviation Development Authority, will enhance meteorological services for safer helicopter operations during the Yatra season.
- Secretary MoES inaugurated the Antarctic Huts facility on September 29, 2024, redeveloped under an agreement between NCPOR and M&SI-ITBP ([Indo Tibetan Border Police](#)), with Shri SB Sharma, Inspector General, ITBP, which will train participants in snow-ice craft and acclimatisation for pre-Antarctic missions.
- Secretary MoES inaugurated the Integrated Ocean Energy Atlas towards generating 9.2 lakh TWh of [renewable energy](#) from blue sources such as tidal waves, currents and salinity gradients within the Exclusive Economic Zone, developed by INCOIS on September 12, 2024.
- MoES-funded Third Generation Meteorological satellite INSAT-3DS was launched by the Indian Space Research Organisation on February 17, 2024. INSAT-3DS will augment and boost the country's meteorological (weather, climate, and ocean-related) services with the presently operational INSAT-3D and INSAT-3DR in-orbit satellites.
- MoES co-organised the India International Science Festival (IISF) from November 30 to December 03, 2024 at Guwahati.
- MoES organised high-level workshops for BIMSTEC countries, promoting scientific capacity and regional cooperation.
- MoES successfully concluded activities under the 2024 editions of Swachhata Hi Seva, Special Campaign 4.0, and Swachh Sagar Surakshit Sagar. Secretary MoES and Ambassador of Norway to India participated in the Swachh Sagar Surakshit Sagar 3.0 at Thiruvannamiyur Beach, Chennai, to commemorate the International Coastal Cleanup 2024.
- MoES organised a consultative inter-ministerial joint workshop on the Blue Economy Pathways study report status with experts from the World Bank, various line Ministries like the Ministry of Statistics and Programme Implementation, Ministry of Environment, Forest & Climate Change, Ministry of Fisheries, Animal Husbandry and Dairying, Niti Aayog, Ministry of Port Shipping and Waterways, Ministry of Tourism and various state and national R&D organisations participated to deliberate on the collaborative role of each line Ministry towards the preparation of the report.
- The four-member Indian team comprising students from Gujarat, Kerala, Chhattisgarh, and Rajasthan won three gold and bronze each and two silver medals across three competition categories at the 17th edition of the International Earth Sciences Olympiad (IESO) held in Beijing, China.
- CMLRE released a catalogue entitled Taxonomy and Systematics of Anomuran Crabs (*Paguroidea*, *Chirostyloidea* and *Galattheoidea*) from the Indian EEZ (Exclusive Economic Zone).
- CMLRE identified five new species of false lobsters, commonly known as squat lobsters and one new species of sponge crab from the Indian Ocean. These unique crustaceans add to the already diverse marine life in the region. The specimens were collected during various scientific

expeditions onboard FORV Sagar Sampada.

- CMLRE hosted a national-level workshop on the Indian Ocean Biodiversity Information System (IndOBIS) on September 03, 2024. The workshop brought together scientists and researchers from various institutions, raising awareness about the documentation and publication of [marine biodiversity](#) data.
- IMD released a Met Monograph on ‘Disastrous Weather Events 2023’ on August 26, 2024, providing critical insights into severe weather occurrences across the nation to improve preparedness and response.
- IMD released Standard Operation Procedure on Cyclone Warning in India and Competency Framework for Monitoring and Forecasting High-impact Weather Events on July 27, 2024.
- IITM installed an Electric Field Mill at India’s Arctic station Himadri in Svalbard, Norway.
- IITM established a Climate Data Archival and Distribution System (CDAS) for disseminating climate change projections generated from India using the IITM Earth System Model (IITM-ESM).
- IITM Delhi Branch Office initiated a [Rainwater](#) Chemistry Campaign at multiple locations across the [Indo Gangetic](#) Plain and the foothills of [the Himalayas](#) during the [Monsoon 2024](#), spanning over four months from June to September 2024.
- IITM developed the first version of the IITM-Decadal Climate Prediction System (DCPS), which is being used by the World Meteorological Organization (WMO) Lead Center to prepare the ‘Global Annual to Decadal Climate Update’.
- INCOIS hosted the maiden National Space Day 2024 events, including a workshop themed ‘Application of Space Technology for Earth System’.
- INCOIS participated in the 27th ICG/IOTWMS Communication Test as part of the Indian Ocean Tsunami Warning and Mitigation System on June 12, 2024, and issued test bulletins to 26 Indian Ocean rim countries as a Tsunami Service Provider.
- INCOIS received the Geospatial World Excellence in Maritime Services award on May 17, 2024, for creating the SAMUDRA Mobile App (Smart Access to Marine Users for Ocean Data Resources and Advisories) during Geospatial World Forum 2024, Rotterdam, Netherlands.
- NCCR completed the project on ‘Rehabilitation of Coastal Bio shields through eco-friendly techniques in Tamil Nadu coast’ given by the Department of Environment and Climate Change, Government of Tamil Nadu.
- NCCR submitted the draft of the Shoreline Management Plan for Tamil Nadu to the Department of Environment and Climate Change, Tamil Nadu.
- Winter Fog Campaign WIFEX (2023-24) was conducted until February 15, 2024. A state-of-the-art aerosol lab was set up at IMD Hq as a part of WIFEX23-24.
- NCMRWF BIMSTEC Centre for Weather & Climate (BCWC) conducted a two-week workshop on Data Assimilation and Forecast Verification Techniques from July 15-26, 2024, for BIMSTEC member countries.
- NCPOR signed a contract with M/s Garden Reach Shipbuilders and Engineers, Kolkata, on July 16, 2024, for the MoES Ocean Research Vessel.
- NCPOR retrieved core samples from the [Canadian](#) permafrost on September 09, 2024, which would help understand the impacts of [climate change](#) and its implications for global health.
- NCPOR hosted the 46th Antarctic Treaty Consultative Meeting (ATCM) and 26th Meeting of the Committee for Environmental Protection (CEP) from May 20 to 30, 2024, in Kochi, Kerala.
- NCPOR hosted the 43rd Indian Scientific Expedition to Antarctica.
- NCPOR released the Consolidated report on the 14th Indian Arctic Expedition (2023-24), including India’s maiden winter Arctic Expedition launched on December 18, 2023.
- NIOT deployed a Vector Sensor Array System for data acquisition towards ship detection and tracking carried out off Chennai on June 11, 2024, onboard Sagar Manjusha.

- NIOT deployed the Indian Arctic subsurface instrumented mooring IndARC-VI and recovered the Acoustic mooring System mooring that was deployed last year in the Kongsforden, Ny-Alesund, Svalbard Arctic during August 30-31, 2024, onboard the Arctic University of Norway ship, RV Helmer Hanssen. NCPOR coordinated this Arctic expedition.
- NIOT developed 'ROSHNI' (Renewable Ocean System for Harnessing Novel Illumination) – a saline water lantern to power the LED light and also works as a mobile charger has been selected as one of the top 100 Indian innovations by the Indian Innovator Association.
- NIOT demonstrated water extraction from humid air. The water connection from the developed unit is provided at the NIOT bus stop for public consumption.
- NIOT tested an underwater feeding system based on water ejectors conducted as part of the development of open-sea submerged fish cage technologies.

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