

Ministry of Earth Sciences Celebrates 20th Foundation Day, Highlighting Two Decades of Scientific Excellence and National Service

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The Ministry of Earth Sciences (MoES) celebrated its momentous **20th Foundation Day** at Prithvi Bhawan, New Delhi, marking two decades of pioneering contributions to earth systems science, weather forecasting, oceanography, and polar research. The grand event witnessed the convergence of eminent scientific leaders, policymakers, and researchers from across the nation.

Highlights and Address by MoES Secretary, Dr N. Kalaiselvi

The celebration was graced by Dr N. Kalaiselvi, Secretary, MoES, who presided over the function. In her inspiring presidential address, Dr. Kalaiselvi warmly congratulated the MoES family on reaching this crucial milestone, emphasised that the ministry has grown into an indispensable pillar for the nation, acting as a complete value chain: *"You (the Ministry) are the data provider through Prithvi systems, you are the service provider through Mission Mausam, and you are the technology provider through your deep ocean mission."*

Highlighting the unique integration of scientific bodies under MoES, she drew attention to the synergy between the 20-year-old ministry and its legendary 150+ year-old constituent, the India Meteorological Department (IMD), remarking that it exemplifies true youth-and-experience harmony and total commitment without hierarchical barriers.

Dr Kalaiselvi also paid glowing tributes to the Guests of Honour, noting that the presence of veteran pioneers like Dr A.E. Muthunayagam and Dr Chandramouli Gaddamanugu bridges the legacy of visionary architects like Dr Vikram Sarabhai and Dr A.P.J. Abdul Kalam with contemporary earth sciences.

Distinguished Dignitaries and Attendees & their Insights

The event featured distinguished Guests of Honour:

- **Dr A.E. Muthunayagam (Padma Shri awardee and the founding Director/Secretary of the Department of Ocean Development (DOD), erstwhile the Ministry of Earth Sciences)** took the audience down memory lane, tracing the genesis of ocean research in India back to July 1981 with the establishment of the Department of Ocean Development under the Prime Minister's direct purview. He detailed the expansion of India's maritime and polar footprint—from launching the maiden Antarctic expedition from Goa in 1981, establishing permanent research stations like Dakshin Gangotri, Maitri, and Bharati, to setting up key autonomous institutions such as NIOT, NCAOR (now NCPOR), and INCOIS, as well as advancing ocean thermal energy conversion (OTEC) and desalination technologies for the blue economy.
- **Dr Chandramouli Gaddamanugu (Padma Shri awardee & eminent defence scientist and veteran leader of the Akash missile development Program)** reflected on his decades of formative mentorship under Dr A.P.J. Abdul Kalam during the development of the indigenous Akash missile system. Drawing

parallels between defense preparedness and earth systems science, he underscored the importance of indigenous innovation, multi-disciplinary team integration, absolute elimination of organizational egos, and rigorous validation in overcoming technical challenges to serve national security and societal resilience.

The occasion also saw the prominent presence of **Dr Mrutyunjay Mohapatra**, Director General of the India Meteorological Department (IMD), and **Shri Sreenivasa Rao Gangi Reddy**, Joint Secretary, Ministry of Earth Sciences, alongside various directors of autonomous institutions, scientists, and administrative staff.

Releases and Launches

Aligned with its mission to enhance public service and operational efficiency, the 20th Foundation Day event featured the official **release of key scientific reports** and the **launch of new technological applications** to bolster early warning systems, disaster management, and weather-tracking capabilities across the country:

1. India Meteorological Department (IMD)

Centres of Excellence (CoEs): Establishment of 13 specialized CoEs across India (such as Desert Meteorology in Jaipur, Mountain Meteorology in Dehradun, Thunderstorm Research in Patna, and Agro-meteorological Research in Bengaluru).

Upgradation: Upgrading the Cyclone Warning Centre (CWC) in Thiruvananthapuram to an Area Cyclone Warning Centre (ACWC) to cover Kerala, Karnataka, and Lakshadweep.

Animal Disease Forecasting: A joint MoU between IMD and ICAR-NIVEDI to establish the Weather Driven Animal Disease Risk Forecasting Unit (WAADRU) for district-level livestock disease risk predictions up to two months in advance.

IMD NOVA: Launch of a web platform for tracking, validating, and archiving thunderstorm nowcasts using lightning network and AWS data.

2. National Centre for Medium Range Weather Forecasting (NCMRWF)

WINGS Mobile Application: A unified mobile platform providing numerical weather prediction, AI/ML predictions, and real-time mesoscale analysis.

National Doppler Weather Radar Reflectivity Mosaic: A seamless, near-real-time visualization tool developed under Mission Mausam to monitor convective systems and severe weather.

NCMRWF Open Data Portal: Redesigned portal offering expanded datasets, including subseasonal-to-seasonal hindcasts, multi-source ensemble rainfall analysis, and 10 years of operational ocean analysis using NEMOVAR.

3. National Centre for Seismology (NCS)

Compendium of Monthly Seismological Bulletins (2023 & 2024): Publication providing validated earthquake catalogues, phase data, and hypocentral parameters from the National Seismological Network (NSN).

Strong Motion Atlas of India (2010–2020): Compilation of strong ground-motion records and accelerograms for earthquakes of magnitude 4.0 and above to support earthquake engineering and hazard assessment.

4. Centre for Marine Living Resources and Ecology (CMLRE)

Taxonomic Manuals: Release of A Pictorial Identification Manual for Tintinnid Ciliates of the Eastern Arabian Sea covering 100 species, and Seamount-Associated Animals of the Indian EEZ (Part I: Lakshadweep Sea) documenting 225 species.

Standard Operating Procedures (SOPs): Documentation outlining guidelines for collecting, preserving, and processing marine biological samples using classical taxonomy, molecular systematics, and genomics.

5. National Centre for Coastal Research (NCCR)

Sagar Prahari App: An AI-enabled, citizen-centric mobile application for geo-tagging beach cleanups and automatically identifying marine litter.

SAHAV 2.0: An advanced open-source, GIS-based decision-support platform for Marine Spatial Planning (MSP) featuring geospatial analytics and Ocean Accounting modules.

6. National Institute of Ocean Technology (NIOT)

Infrastructure Dedication: Inauguration of the marine pipeline trestle, boat landing, and seawater intake facility for the Ballast Water Treatment Test Facility in Pamanji, Andhra Pradesh, along with an IoT-enabled nearshore Met-Ocean observatory.

Mariculture Demonstration: Deployment of 8 circular HDPE floating fish cages for open-sea cage culture of Asian seabass at Chidiyatappu, Andaman and Nicobar Islands.

Deep Sea Mining Outreach: Industry outreach initiatives targeted at exploring 75,000 sq. km in the Central Indian Ocean Basin containing polymetallic nodules.

Ocean Olympiad India 2026: A national-level multi-tier competition aimed at promoting ocean literacy among undergraduate students.

The celebration concluded with a renewed pledge from the entire MoES fraternity to push the frontiers of atmospheric, oceanic, polar, and cryospheric research, turning scientific knowledge into national wealth and societal safety.







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