

Ministry of Earth Sciences (MoES)
Govt. of India
Summary of Important Developments – May, 2024

1. Important policy decisions taken and major achievements during the month:

Provided in Annex-I.

2. Important policy matters held up on account of prolonged Inter-Ministerial consultations:

Nil

3. No. of cases of 'sanction for prosecution' pending for more than three months:

Nil

4. Particulars of cases in which there has been a departure from the Transaction of Business Rules or established policy of the Government:

Nil

5. Status of ongoing Swachhta Abhiyan (progress under Special Campaign):

As a part of Special Campaign 3.0, various activities were carried out under Swachhta Abhiyan during the month of April 2024 in MoES and its institutes.

6. Status of Rationalization of Autonomous Bodies:

The Cabinet in its meeting on 13th July 2022 approved the merging of 5 Autonomous Bodies under MoES to one Autonomous Body. An umbrella Autonomous Society 'Earth System Science Council (ESSC)' has been registered in the office of the Registrar of Societies under Govt of NCT of Delhi along with Memorandum of Association and Rules and Regulations of ESSC on 26th December 2023.

7. Information on specific steps taken for utilization of the Space Technology based tools and applications in Governance and Development:

Potential Fishing Zone advisories are generated using the satellite derived parameters viz., Sea Surface Temperature, and Chlorophyll. Further, data from Global satellite data are used on continuous basis for generating short range and medium range weather forecasts.

8. Vacancy position of senior level appointments in the Ministry/ Department, including Autonomous Bodies/ PSUs:

It is confirmed that the incumbency details of all the posts in the Ministry/ Department and its organizations falling under the purview of the Appointments Committee of Cabinet (ACC) have been updated on ACC Vacancy Monitoring System (AVMS) and are placed at Annex-II.

9. List of cases in which ACC directions have not been compiled with:

It is confirmed that the directions of ACC are complied with.

10. Details of Foreign Direct Investment (FDI) Proposals cleared during the month and status of FDI proposals awaiting approval in the Ministry/ Department:

Not Applicable.

Important policy decision taken and major achievements:

- Ministry of Earth Sciences (MoES) successfully hosted the 46th Antarctic Treaty Consultative Meeting (ATCM-46) and the meeting of 26th Committee on Environmental Protection (CEP-26) from May 20th to May 30th, 2024 in Kochi, Kerala. ATCM-46 was inaugurated by the Hon'ble Union Cabinet Minister, Shri Kiren Rijju. Ambassador Pankaj Saran, former Deputy Adviser to the National Security Board, chaired the 46th ATCM.
- The Indian Meteorological Department (IMD) updated its Long-Range Forecast Outlook for the Southwest Monsoon Rainfall Season (June–September) 2024. It also released the Monthly Rainfall and Temperature Forecast for June 2024. The southwest monsoon seasonal rainfall over the country as a whole is likely to be 106% of the long period average (LPA).
- The Geospatial World Excellence in Maritime Services award was presented to Indian National Centre for Ocean Information Services (INCOIS) on 17th May 2024 for creating SAMUDRA Mobile App (Smart Access to Marine Users for Ocean Data Resources and Advisories) during Geospatial World Forum 2024 (GWF2024), Rotterdam, Netherlands.
- India Meteorological Department (IMD) and National Foundation of India signed a Memorandum of Understanding (MoU) on 6th May 2024 to enhance collaboration between the two organisations aimed at raising awareness on extreme weather events.
- IMD signed an MoU with Motilal Nehru National Institute of Technology (MNNIT), Allahabad on 9th May 2024 to enhance collaborative research and development activities between the two institutes.
- IMD signed an MoU with Birla Institute of Technology and Science (BITS), Ranchi on 10th May 2024 to enhance collaborative research and development activities between the two institutes with a focus on thunderstorms.

There was no matter pending before the Cabinet requiring decision/ approval.

Minimum Government, Maximum Governance:

- Dissemination of Agromet Advisories to user communities through SMS and IVR technology is continued in the country through Kisan Portal and under PPP (Public Private Partnership) mode. Presently, about 7.6 million farmers in the country are getting advisories directly.
- Adverse-weather SMS warnings are being sent through mobile to the State Government officials / Disaster-related officials / Central Government organizations/common man.
- Daily forecast along with warning and city forecast for many cities are disseminated through email to all users including state authorities, electronic and print media.

Atmospheric Observation Systems Network

Observation Type	Commissioned so far	Installations during the month	Data Reporting
Automatic Weather Station (AWS)	711* (808-97)	--	711
Automatic Rain Gauge (ARG)	544** (1382-838)	--	544
Agro AWS	200	--	189
Global Positioning System (GPS) Sonde based Radio-Sonde (RS)/ Radio-Wind (RW) stations	56	--	56
Doppler Weather Radar (DWR)	*** 41	--	33
Ozone (Ozone Sonde + Total Ozone)	02	--	02
Surface Ozone (Electrochemical Concentration Cell method)	09	--	06
Nephelometer	12	--	09
Sky Radiometer	20	--	13
Black Carbon Monitoring Systems (Aethalometer)	25	--	23

Observation Type	Commissioned so far	Installations during the month	Data Reporting
Air Quality Monitoring System (System of Air Quality and Weather Forecasting and Research (SAFAR))	10 (Delhi) 10 (Mumbai) 10(Ahmedabad)	--	10 (Delhi) NIL (Mumbai)**** NIL (Ahmedabad)
Hydromet. (India Meteorological Department (IMD) & Extra-departmental excluding AWS & ARG)	---	--	4556
Aviation	107	--	107
Radiation Stations	47	---	47

* Out of Total 808 commissioned, 97 are outlived.

** Out of total 1382 commissioned, 838 are outlived.

*** Including 2 Doppler Weather Radar of Indian Space Research Organization.

**** Contract with the firm is not renewed.

Modelling

During April 2024, every week on Thursdays, National Centre for Medium Range Weather Forecasting (NCMRWF) coupled model based Extended Range Prediction (ERP) for four weeks for rainfall, surface temperature and winds (full fields and anomalies) were provided in real-time to (i) Long-range forecast and Agri-Met divisions of IMD, (ii) Indian Institute of Tropical Meteorology (IITM) ERP group, (iii) Space Applications Centre (SAC), (iv) Defence Geo-informatics Research Establishment (DGRE), (v) Indian Air Force (IAF), (vi) Navy, (vii) Geological Survey of India (GSI), (viii) National Institute of Hydrology (NIH), (ix) All regional centers of IMD and (x) Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) countries Met Departments. Additionally, snow forecasts were provided to Defence Research and Development Organisation (DRDO) and IAF for use at their end. On the last Thursday of the month, i.e., on 30th May 2024 the monthly mean forecast valid for June 2024 were also included for the users.

Monthly Weather Summary (May 2024)

a) Important Weather Events during the month

Cyclones/ Depressions:

Under the influence of a cyclonic circulation over the southwest Bay of Bengal (BoB), a cyclonic storm (CS) “REMAL” has formed on 25th May 2024. It intensified further into a severe cyclonic storm (SCS) over the North BoB on 26th May 2024. The cyclone “REMAL” caused, torrential rains (heavy to extremely heavy rainfall) and gale-force winds over coastal districts of Bangladesh and West Bengal, Assam, Meghalaya, Nagaland, Manipur, Mizoram and Tripura.

Western Disturbances (WDs):

Five (5) WDs (2-4, 4-7, 9-15, 17-22 and 24-27 May) affected North India. However, only 2 WDs, (4-7 and 9-15 May) were active.

Heat Wave:

Over Northwest and Central India, a major heat wave to severe spell conditions prevailed persistently and severely impacted the region during 16th May to 31st May. Heat wave to severe heat wave conditions observed mainly over Rajasthan, Gujarat, Madhya Pradesh, Jammu, Punjab, Delhi, Uttar Pradesh, Maharashtra, during 16-31st May and then spread over to Uttarakhand, Odisha and Bihar during 28-31st May.

b) Rainfall Scenario:

The rainfall for the country as a whole, for the month of May-2024 has been recorded as 66.5 mm which is 108% of its Long Period Average (LPA) of 61.4 mm. The rainfall for the country as a whole, for the month of Pre-Monsoon-2024 has been recorded as 125.9 mm which is 96% of its Long Period Average (LPA) of 130.6 mm.

c) Heavy Rainfall Events:

Warning issued for	No. of Heavy/Very Heavy Rainfall Events (>64.4 mm): 306
	Percentage correct (in %) for Rainfall >64.4mm
Day1 / 24 Hours	89
Day2 / 48 Hours	88
Day3 / 72 Hours	89

d) Temperature Scenario:

The mean temperature for the month of May-2024 for the country as a whole was 31.06°C which was above normal by 0.68°C. This is 5th highest since 1901. The maximum temperature of 50.5°C had been recorded at Churu (West Rajasthan) on 28th May 2024 over the plains of the country during the month.

e) Thunder Squall & Hailstorm activity:

Thunder squall & Hailstorm activity during the month (till 0830 IST of last date of the month) is given in the table below:

S. No.	Region	Thunder Storm Days	Hail Events	Squall Events	Dust storms
1.	South Peninsular India	21	Nil	Nil	Nil
2.	Northwest India	25	06 (8, 9, 12, 15, 23 & 24 May)	Nil	04 (8, 10, 11 & 14 May)
3.	Northeast India	27	Nil	Nil	Nil
4.	East India	24	1 (19 May)	3 (6, 7 & 8 May)	Nil
5.	Central India	22	Nil	Nil	Nil
6.	West India	16	Nil	Nil	Nil

Bulletins/Warnings/Press Releases Issued:

All India Weather Bulletins: 124, All India inference and severe weather warnings: 124, All India Weekly Weather Reports: 5, Daily Tropical Weather Outlook with cyclogenesis forecast for next 7 days: 25, Daily Severe Weather Guidance for next 5 days under Severe Weather Forecasting Programme: 31, Weekly Extended Range Outlook for Cyclogenesis for next 2 weeks: 5, Daily Warnings for Fishermen in North Indian Ocean for next 5 days: 25 (No cyclone days), Fleet Forecast for Indian Navy for next 12 hours: 50 (No cyclone days), Bulletins for ships in deep sea under Global Maritime Distress Safety System for next 39 hours: 50 (No cyclone days), Mountain weather bulletins issued for western and central Himalayan region: 62, Expedition Forecast bulletins issued for FachuKandi Peak expedition by Indian Army: 09, Nowcast Guidance Bulletins for Severe Weather: 31, Forecast Demonstration Project (FDP) - Severe

Thunder Storm Observation and Regional Modeling (STORM) Bulletins: 31, Heat wave Bulletins: 31, Press Releases issued during the month: 50.

Publications & Operational Reports:

1. Climate Summary for the month of April 2024 issued.
2. El Niño/Southern Oscillation (ENSO) bulletin for the month of May 2024 and Seasonal Climate Outlook for South Asia for the period of May to August 2024 were issued.
(QuickLink:https://imdpune.gov.in/cmpg/Product/ENSO_Bulletin/ENSO_IOD_Update_Bulletin_05_24.pdf)
3. Digital Current Weather Indication System (DCWIS) and Present Weather Detector (PWD) systems were installed at Keshod airport (Runway (RWY) 23).

Seismological Observational Network:

Observation Type	Commissioned so far	Data reporting during the month
Seismic stations	156	129

Earthquake and Tsunami monitoring

Earthquake:

91 earthquakes were monitored in the Indian region out of which 2 events were greater than the magnitude (M) of 5.0.

Tsunami:

1 seabed earthquakes (M>6) with a potential to generate tsunami has occurred during the month.

Ocean Observation System

Type of Platform	Commissioned till during the month	Data received during the month
Argo Floats	118	75
Moored Buoys	19	16
Tide Gauges	36	33
High Frequency (HF) Radars	10	8
Acoustic Doppler Current Profiler (ADCP)	20	17

Tsunami Buoys	7	4
Wave Rider Buoy	16	10

Ocean Science Services

S. No.	Types of forecasts	No. of advisories issued during the month
1.	Integrated Potential Fishing Zone (PFZ) advisories (Sea Surface Temperature (SST), Chlorophyll., wind)	29
2.	Tuna Fishing Advisories	11
3.	Ocean State Forecast (OSF)-Wave, Wind, Currents, SST (Sea Surface Temperature), MLD (Mixed Layer Depth) and D20 forecasts	30
4.	Real time global ocean analysis (daily)	31
5.	Coral Bleaching Alert System	10

Outreach and Awareness

- INCOIS conducted a training program on “Customization of Ocean Forecast Products” for Regional Integrated Multi-Hazard Early Warning System (RIMES) South Asia Hydromet Forum countries from 20th to 24th May 2024 under International Training Centre for Operational Oceanography (ITCOcean). Eleven (11) participants from Bangladesh, Maldives, Myanmar, and Sri Lanka attended the workshop.
- INCOIS issued the followings:
 - Two hundred and twenty-six (226) High wave/ Swell Surge Alert/ Rough Sea Alert were issued to the West and East Coast of India, Andaman & Nicobar Islands.
 - Twirty (30) days forecasts were issued as Regional Specialized Meteorological Centre (RSMC) for (i) Numerical Ocean Wave Prediction (wave and swells) and (ii) Global Numerical Ocean Prediction (currents, conservative temperature, absolute salinity) for the Indian Ocean.
 - 19 INCOIS-IMD joint bulletins were issued for Severe Cyclonic Storm “Remal” over the North Bay of Bengal during 24 -27 May 2024.
 - 14 - Storm surge and inundation forecasts were issued for Severe Cyclonic Storm “Remal” over the North Bay of Bengal during 24 -26 May 2024.

- Provided weekly updates, including past week briefing and upcoming week forecast of Ocean State Forecast information (Wave, Wind, Current, Swell, Sea Surface Temperature) for Indian Ocean to South Asia Hydromet Forum (SAHF) which is administrated by RIMES.
 - Thirty (30) days Algal Bloom Information Service was issued, but no alert was generated.
 - Swell surge warning/ Alerts to the respective states/ UTs on 4 & 5th May 2024.
 - Provided OSF consultancy services of wind and wave parameters at their rig location to M/s McDermott, a firm supporting ONGC for exploration services.
- IMD issued daily weather forecasting video of about 5 minutes duration in English & Hindi through YouTube, Facebook, Twitter and IMD website.
 - Weekly Video on extended range forecast (up to two weeks) were issued every Thursday through website and social media (Facebook, Twitter, YouTube etc.).
 - Daily interviewed was provided by the forecasters within the country.
 - The forecast videos in regional language were issued by regional offices of IMD regularly.
 - Bulletins and Warnings along with graphics were also communicated through social media including Facebook, Twitter, Instagram, YouTube and IMD Blog page.

Publications

Subject	Publications			Ph.Ds.		
	Apr 2024	May 2024	Total	Apr 2024	May 2024	Total
Atmospheric Sciences	10	12	22	2	0	2
Ocean Science and Technology	13	6	19	0	0	0
Polar Sciences	5	4	9	0	0	0
Geosciences and resources	4	3	7	0	1	1
Total	32	25	57	2	1	3

Utilization of Ocean Research Vessels during the month

Vessel	Days at Sea/ Utilization	Maintenance/ Inspection/ Scientific Logistics/ Cruise Preparation	No. of Cruises
Sagar Nidhi	13	18	1
Sagar Manjusha	7	24	2
Sagar Tara	23	8	2
Sagar Anveshika	5	26	1
Sagar Kanya	0	31	0
Sagar Sampada	22	9	1

No.MoES/20/01/2017-Estt.
Government of India
Ministry of Earth Sciences

Prithvi Bhavan, Lodhi Road
New Delhi-110 003
Dated, the 3 June, 2024

**CERTIFICATE
(FOR THE MONTH OF MAY, 2024)**

It is certified that the detailed status regarding all the posts pertaining to Ministry of Earth Sciences have been updated on AVMS as on last day of the month of May, 2024. A summary of the status is given below:-

a. The total number of posts required to be entered on AVMS	–	13
b. Number of posts filled as on date	–	12
c. Number of posts totally vacant as on date	–	01
d. Number of posts under additional charge arrangement	–	00
e. Number of posts that would fall vacant during the next 6 months	–	02



(Dharkat R Luikang)
Deputy Secretary
dharkat@nic.in