

Ministry of Earth Sciences (MoES)
Govt. of India
Summary of Important Developments – February, 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 February 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 funded Third Generation Meteorological satellite INSAT-3DS was successfully launched by the Indian Space Research Organisation (ISRO) on 17th Feb 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.
- Hon'ble Minister of Earth Sciences (HMoES) presided over the Foundation Stone Laying and Bhumi Pujan Ceremony of Meteorological Observatory, West Bengal on 28th February 2024.
- IMD has installed and commissioned H-AWOS at 11 heliports, which were inaugurated by HMoES on 25th February 2024 at Itanagar Arunachal Pradesh.
- HMoES inaugurated the Doppler Weather Radar at Lansdowne, Uttarakhand on 23rd February 2024.
- HMoES during his visit to INCOIS on February 14, 2024 inaugurated the 'Synergistic Ocean Observation Prediction Services (SynOPS)' facility, a 'Mural' depicting the theme on 'Life and Ocean' and inaugurated virtually the 'Wandoor site' of GNSS & SMA Network.
- INCOIS completed its 25 years of service to SCIENCE-COMMUNITY-NATION and celebrated its Silver Jubilee on February 03, 2024.
- MoES hosted the 1st 'Blue Talks' meeting in partnership with the Embassy of France and Embassy of Costa Rica in India. More than 50 participants from government, academia and research institutes witnessed the in-person, high level deliberations on matters related to 'Ocean Health and Governance'.
- NCCR completed the project on "Rehabilitation of Coastal Bioshields through eco-friendly techniques in Tamil Nadu coast" given by the Department of Environment & Climate Change, Govt. of Tamil Nadu.
- A brainstorming workshop was held at IITM during 12-14 February 2024 to discuss about the topics related to Weather and Climate Science and Services for framing the MoES vision and mission for Amrit Kaal (2047).

- Winter Fog Campaign WiFEX (2023-24) has been successfully conducted during 1st week of Nov 2023 to 15th Feb 2024. State-of-the-art aerosol lab was set up at IMD headquarters as a part of WiFEX23-24.
- The rainfall for the country as a whole, for Winter Season -2024 has been recorded as 26.8 mm which is 67% of its Long Period Average (LPA) of 39.8 mm.

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)	*473	--	473
Automatic Rain Gauge (ARG)	**456	--	456
Agro AWS	200	--	184
Global Positioning System (GPS) Sonde based Radio-Sonde (RS)/ Radio-Wind (RW) stations	56	--	56
Doppler Weather Radar (DWR)	***41	--	30

Observation Type	Commissioned so far	Installations during the month	Data Reporting
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
Air Quality Monitoring System (System of Air Quality and Weather Forecasting and Research (SAFAR))	10 (Delhi) 10 (Mumbai) 10 (Ahmedabad)	--	09 (Delhi) ****NIL (Mumbai) NIL (Ahmedabad)
Hydromet. (India Meteorological Department (IMD) & Extra-departmental excluding AWS & ARG)	---	--	5071
Aviation	101	--	101
Radiation Stations	47	---	47

* Out of Total 808 commissioned, 335 are outlived.

** Out of total 1382 commissioned, 926 are outlived.

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

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

Modelling

During February 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 29th February 2024 the monthly mean forecast valid for March 2024 were also included for the users.

Monthly Weather Summary (February 2024)

a) Important Weather Events during the month

Western Disturbances (WDs):

A total of 8 number of WDs (30 Jan-2 Feb, 3-8 Feb, 12-19 Feb, 18-22 Feb, 22-24 Feb, 23-27 Feb, 26-28 Feb and 28 Feb-1 March) caused Rain/ snow over western Himalayan states for 1-3 days. Out of these 8 WDs, 6 WDs were actively caused rain and hail storm over plains of north and central India. A North-South Trough in easterlies at lower levels over central India with wind incursion from anti-cyclonic circulation over Bay of Bengal observed in most dates during 2nd half of Feb 2024 which caused rainfall and thunderstorms with isolated hailstorm over central India and eastern parts of India in many days.

Trough in westerly:

Due to the trough in westerly and support from lower-level winds with moisture incursions from north Bay of Bengal, Heavy rainfall/ Snowfall was recorded at isolated places over Higher ridges of Sikkim on 22 Feb and Arunachal Pradesh on 22nd & 24th; Heavy rainfall over Assam & Tripura on 23rd Feb.

Dense Fog/Low clouds:

In Feb 2024, dense fog was observed lesser days with 4-6 days in some isolated pockets in north Rajasthan and adjoining areas of Punjab and Haryana. Eastern parts of India reported dense fog for around 5-7 days with Odisha reported around 5 days.

Cold Wave:

Cold wave conditions prevailed for 4-5 days over Punjab and Haryana during first 10 days in Feb 2024.

b) Rainfall Scenario:

The rainfall for the country as a whole, for the month of February-2024 has been recorded as 19.7 mm which is 87% of its Long Period Average (LPA) of 22.7 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	98
Day2 / 48 Hours	98
Day3 / 72 Hours	98

d) Temperature Scenario:

The mean temperature for the month of February-2024 for the country as a whole was 20.98°C which was above normal by 0.28°C. The maximum temperature of 39.8°C had been recorded at Amreli (Saurashtra & kutch) on 29th February 2024 and the minimum temperature of 1°C had been recorded at Fursatganj (East UP) 1st February 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	0	Nil	Nil	Nil
2.	Northwest India	19	6 (1,4,5,13,20,21 February)	Nil	Nil
3.	Northeast India	7	Nil	Nil	Nil
4.	East India	12	3 (2,14,22 February)	Nil	Nil
5.	Central India	11	2 (12,14,27 February)	Nil	Nil

S. No.	Region	Thunder Storm Days	Hail Events	Squall Events	Dust storms
6.	West India	3	3 (27,28,29 February)	Nil	Nil

Bulletins/Warnings/Press Releases Issued:

All India Weather Bulletins: 116, All India inference and severe weather warnings: 116, All India Weekly Weather Reports: 5, Daily Tropical Weather Outlook with cyclogenesis forecast for next 5 days: 29, Daily Warnings for Fishermen in North Indian Ocean for next 5 days including the advisories from sub-offices of IMD (6 hourly): 116, Fleet Forecast for Indian Navy for next 12 hours: 58, Bulletins for ships in deep sea under Global Maritime Distress Safety System (GMDSS) for next 36 hours: 58, Severe Weather Advisory Bulletins for nowcast guidance: 29, Mountain weather bulletins issued for western and central Himalayan region: 58, All India Multi-hazard winter weather warnings bulletin issued for North India: 29, Current Temperature Status and Warning bulletins: 29, Press Releases issued during the month: 39.

Publications & Operational Reports:

1. Climate Summary for the month of January 2024 was issued.
2. Climate Diagnostic Bulletin for the month November 2023 has been published and uploaded on the website.
3. El Nino Southern Oscillation (ENSO) bulletin for the month of February 2024 and Seasonal Climate Outlook for South Asia for the period of February to May 2024 were issued.
(QuickLink:
https://imdpune.gov.in/cmpg/Product/ENSO_Bulletin/ENSO_IOD_Update_Bulletin_02_24.pdf)
4. Marine Climatological Summary Charts for the period (2011-2020), (2001-2010). and Marine
5. Climatological Atlas for the period (1991-2020) were published.

Seismological Observational Network:

Observation Type	Commissioned so far	Data reporting during the month
Seismic stations	156	121

Earthquake and Tsunami monitoring

Earthquake:

128 earthquakes were monitored in the Indian region out of which 3 events were greater than the magnitude (M) of 5.0.

Tsunami:

No seabed earthquakes (M>6) with a potential to generate tsunami have occurred during the month.

Ocean Observation System

Type of Platform	Commissioned till during the month	Data received during the month
Argo Floats	115	72
Moored Buoys	19	13
Tide Gauges	36	34
High Frequency (HF) Radars	10	8
Acoustic Doppler Current Profiler (ADCP)	20	17
Tsunami Buoys	7	4
Wave Rider Buoy	16	13

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)	31
2.	Tuna Fishing Advisories	20
3.	Ocean State Forecast (OSF)-Wave, Wind, Currents, SST (Sea Surface Temperature), MLD (Mixed Layer Depth) and D20 forecasts	31
4.	Real time global ocean analysis (daily)	31
5.	Coral Bleaching Alert System	10

Outreach and Awareness

- During 1-3 Feb 2024, the UN Ocean Decade Collaborative Centre for the Indian Ocean Region (DCC-IOR) hosted by INCOIS, Hyderabad organized the Indian

Ocean Regional Decade Conference (IO-Con 2024) as an official prelude to the 2024 Ocean Decade Conference that organized by IOC-UNESCO in Barcelona, Spain in April 2024. During this policy conference, more than three hundred delegates from India and abroad brainstormed on the ocean decade challenges through the dedicated sessions.

- The ITCOOcean (a UNESCO Category-II Centre) at INCOIS, Hyderabad, India hosted the following training:
 - first-ever training funded by ITEC (Indian Technical and Economic Cooperation) program of the Ministry of External Affairs (MEA), Govt. of India. The training titled 'Fishery Oceanography for the Ocean Decade (F.O.O.D.) – 2024' spans 3 weeks from 18 Jan-7 Feb 2024. A total of 11 international participants from 7 countries of the Indo-Pacific region comprised the trainee pool.
 - a POGO-funded international training program 'Ocean Observations for Coastal Applications' from 29 Jan-7 Feb, 2024. The gender-balanced pool of thirty (30) participants belonged to eleven (11) countries.
- INCOIS conducted Intergovernmental Coordination Group Indian Ocean Tsunami Warning and Mitigation System (ICG/IOTWMS) Steering Group and Working Group 3 during 5 – 7 February 2024. A total 20 officials were participated including 11 foreign (IOTWMS) delegates from Indian Ocean region.
- INCOIS issued the followings:
 - One hundred and seven (107) High wave/Swell Surge Alert/ Rough Sea Alert were issued to West and East Coast of India, Andaman & Nicobar Islands.
 - Thirty-one (31) 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, MLD, absolute salinity) for the Indian Ocean.
 - 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 (31) days Algal Bloom Information Service issued, and 7 days alert was generated
- Students from various colleges/ institutes/ universities/ schools visited Indian National Centre for Ocean Information Services (INCOIS), NCMRWF and IITM.
- NCCR conducted one day training on “MSP Dashboard for UT Puducherry” for officials of UT Puducherry held on 09 February 2024 at Puducherry. Around 35 officials from various departments participated in the training program.
- IITM celebrated the National Science Day on 28 February 2024 by observing an open day at its premises.
- Indian Air Force Officers attended a training program at NCMRWF about numerical weather modeling and use of super computers for weather prediction on 22nd Feb 2024.
- Three days training visit was organized at IITM by the DESK for five Indian Naval Officers undergoing the Long Meteorology Course (LMC) at School of Naval Oceanology and Meteorology (SNOM), INS Garuda, Kochi.
- 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 (upto two weeks) were issued every Thursday through website and social media (Facebook, Twitter, YouTube etc.).
- The forecast videos in regional language were issued by regional offices of IMD regularly.
- Daily interviews were provided by the forecasters within the country.
- 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 2023 – Jan 202	Feb 2024	Total	Apr 2023 – Jan 202	Feb 2024	Total
Atmospheric Sciences	140	13	153	12	0	12

Ocean Science and Technology	90	7	97	4	0	4
Polar Sciences	27	1	28	0	1	1
Geosciences and resources	51	5	56	5	0	5
Total	308	26	334	21	1	22

Utilization of Ocean Research Vessels during the month

Vessel	Days at Sea/ Utilization	Maintenance/ Inspection/ Scientific Logistics/ Cruise Preparation	No. of Cruises
Sagar Nidhi	16	13	1
Sagar Manjusha	17	12	2
Sagar Tara	20	9	2
Sagar Anveshika	15	14	2
Sagar Kanya	0	29	0
Sagar Sampada	16	13	1

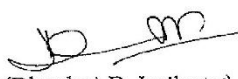
MoES/20/01/2017-Estt. (e-file 7107)
भारत सरकार / Government of India
पृथ्वी विज्ञान मंत्रालय / Ministry of Earth Sciences

New Delhi, the 5 March 2024

CERTIFICATE
(FOR THE MONTH OF FEBRUARY, 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 February, 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
(Including 01 Deputy Secretary appointed under Central Staffing Scheme)
- c. Number of posts totally vacant as on date – 01
- d. Number of posts that would fall vacant during the next 6 months – 02


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