

**Ministry of Earth Sciences (MoES)**

**Govt. of India**

**Summary of Important Developments – January, 2023**

**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):**

Routine cleaning of the campus.

**6. Status of Rationalization of Autonomous Bodies:**

The Cabinet in its meeting on 13<sup>th</sup> July 2022 approved the merging of 5 Autonomous Bodies under MoES to one Autonomous Body.

**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 ACC have been updated on AVMS and are placed at Annex-II.

**9. List of cases in which ACC (Appointments Committee of Cabinet) directions have not been compiled with:**

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

**10. Details of FDI Proposals cleared during the month and status of FDI proposals awaiting approval in the Ministry/ Department:**

Not Applicable.

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**Important policy decision taken and major achievements:**

- A Wave Rider Buoy (WRB) was deployed by INCOIS off Somnath, Gujarat. The information collected from this buoy will be used to give accurate information about ocean weather conditions, the nature of tides, and ocean currents for the coast of Saurashtra.
- A water quality buoy was deployed off RK Beach, Visakhapatnam by National Centre for Coastal Research (NCCR) for regular monitoring of coastal water quality.
- India Meteorological Department (IMD) celebrated its 148<sup>th</sup> Foundation day on 15<sup>th</sup> January, 2023. Dr. Jitendra Singh, Hon'ble Minister of State (Independent Charge), Ministry of Earth Sciences graced the occasion as the Chief Guest. Sh. Pushkar Singh Dhami, Hon'ble Chief Minister, Uttarakhand, Sh. Sukhvinder Singh Sukhu, Hon'ble Chief Minister, Himachal Pradesh and Sh. Manoj Sinha, Hon'ble Lieutenant Governor, Jammu & Kashmir, participated remotely as Guests of Honour. Dr. M Ravichandran, Secretary MoES presided over the function. The programme included inauguration of observational instruments including 4 Doppler Weather Radars (at Banihal in Kashmir, Murari Devi & Jot in Himachal Pradesh and Surkanda Devi in Uttarakhand) and 200 Agro-meteorological Automatic Weather Stations (Agro-AWS).
- IMD signed a Memorandum of Understanding with Indian Institute of Technology (IIT) Patna to enhance collaborative research between IMD and IIT Patna.
- Centre for Marine Living Resources and Ecology (CMLRE) successfully completed the characterization of Whole Mitogenome of the Indian Ocean Humpback Dolphin, *Sousa plumbea* (G. Cuvier, 1829). Taxonomic studies of archived samples in the Central Indian Ocean yielded one new species of the pelagic basslet fish namely *Bathysphyraenops radhae*.

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)	*453	--	453
Automatic Rain Gauge (ARG)	**514	--	514
Agro AWS	200	--	195
GPS Sonde based RS/RW Stns.	56	--	56
Doppler Weather Radar (DWR)	***37	--	26
Ozone (Ozone Sonde + Total Ozone)	02	--	02
Surface Ozone (Electrochemical Concentration Cell method)	07	--	05
Nephelometer	12	--	09

Observation Type	Commissioned so far	Installations during the month	Data Reporting
Sky Radiometer	20	--	17
Black Carbon Monitoring Systems (Aethalometer)	25	--	19
Air Quality Monitoring System (SAFAR)	10 (Delhi) 10 (Mumbai) 10 (Ahmedabad)	--	09 (Delhi) ****NIL (Mumbai) NIL (Ahmedabad)
Hydromet. (IMD & Extra-departmental excluding AWS & ARG)	---	--	3113
Aviation	79	--	79
Radiation Stations	46	---	46

\* Out of Total 808 commissioned, 349 are outlived.

\*\* Out of total 1382 commissioned, 868 are outlived.

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

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

### Modelling

During January 2023, 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 centres 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 26<sup>th</sup> Jan 2023 the monthly mean forecast valid for February 2023 were also included for the users.

## Monthly Weather Summary (January 2023)

### a) Important Weather Events during the month

#### Low Pressure Systems:

Under the influence of a cyclonic circulation over east Equatorial Indian Ocean and adjoining Southeast Bay of Bengal in the lower tropospheric levels, a Low-Pressure Area formed over the same on 27th January, 2023. It weakened into a well-marked low pressure area over Comorin and adjoining Gulf of Mannar and west coast of Sri Lanka. It had caused scattered to fairly widespread rainfall/ thunderstorm activity over Andaman & Nicobar Islands.

#### Cold Wave:

Cold day to severe cold conditions had been reported over Northwest India and over parts of Central and East India during the first half of the month. Cold wave to severe cold wave conditions also had been reported over Northwest India and over parts of Central and East India during the first half of the month with northern parts of Rajasthan reporting subzero minimum temperatures on two to three spells during that period.

#### Western Disturbances:

About six Western Disturbances and three induced cyclonic circulations had affected Northwest India during the month. Isolated heavy rainfall/ snowfall activity and isolated hailstorm activity had been reported over Western Himalayan Region whereas isolated heavy rainfall activity had been reported over the plains during the passage of these systems.

#### Fog:

Dense to very dense fog had been reported over Northwest India and parts of Central, East and Northeast India during the month; however, the spatial distribution, intensity and duration of the fog had been significantly reduced during the second half of the month.

### b) Rainfall Scenario:

The rainfall for the country as a whole, for the month of January-2023 has been recorded as 14.8 mm which is 87% of its Long Period Average (LPA) of 17.1 mm.

**c) Heavy Rainfall Events:**

<b>Warning issued for</b>	<b>No. of Heavy/Very Heavy Rainfall Events (&gt;64.4 mm): 330</b>
	<b>Percentage correct (in %) for Rainfall &gt;64.4mm</b>
Day1 / 24 Hours	98
Day2 / 48 Hours	98
Day3 / 72 Hours	98

**d) Temperature Scenario:**

The mean temperature for the month of January-2023 for the country as a whole was 19.87<sup>0</sup>C which was above normal by +0.23<sup>0</sup>C. The maximum temperature of 36.5<sup>0</sup>C had been recorded at Kannur (Kerala & Mahe) on 29th January 2023 and the minimum temperature of -2.7<sup>0</sup>C had been recorded at Churu (West Rajasthan) on 17th January 2023 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:

<b>S. No.</b>	<b>Region</b>	<b>Thunder Storm Days</b>	<b>Hail Events</b>	<b>Squall Events</b>	<b>Dust storms</b>
1.	South Peninsular India	02	Nil	Nil	Nil
2.	Northwest India	11	Nil	Nil	Nil
3.	Northeast India	01	Nil	Nil	Nil
4.	East India	00	Nil	Nil	Nil

S. No.	Region	Thunder Storm Days	Hail Events	Squall Events	Dust storms
5.	Central India	04	Nil	Nil	Nil
6.	West India	02	Nil	Nil	Nil

### **Bulletins/Warnings/Press Releases Issued:**

All India multi-hazard winter weather warning bulletins-31, Daily Tropical Weather Outlook :- 29, Extended Range Outlook :- 4, Fishermen warnings: 31, Sea Area Warnings under Global maritime safety support system: 62, National Bulletins to central and state level disaster management agencies in association with depression over southeast Bay of Bengal: 19, Regional Specialized Meteorological Centre (RSMC) Bulletins to World Meteorological Organization (WMO)/ Economic and Social Commission for Asia-Pacific (ESCAP) Panel member countries including Sri Lanka: 19, All India Weather Bulletins: - 124, All India inference and severe weather warnings: - 124, All India Weekly Weather Reports: - 4, Daily guidance under Severe Weather Forecasting Programme: 31, Severe weather guidance to South Asian countries for next 5 days about heavy rain, strong winds, high waves & storm surge: 31, Nowcast Guidance Bulletins for Severe Weather:- 31, Fleet forecast for Indian Navy: 62, Press Releases issued during the month:- 35.

### **Publications & Operational Reports:**

1. The publication entitled “Pentad Normals of Observatories in India 1991-2020” was released on IMD Foundation Day on the 15th January 2023.
2. The publication entitled “Instructions to Observers” was released on IMD Foundation Day on the 15th January 2023.
3. El Niño–Southern Oscillation (ENSO) bulletin for the month of January 2022 and Seasonal Climate Outlook for South Asia for the period of January to April 2023 were issued. (Quick Link :[www.imdpune.gov.in/Clim\\_Pred\\_LRF\\_New/Products.html](http://www.imdpune.gov.in/Clim_Pred_LRF_New/Products.html))



4. Press release on Climate Summary for the month of December 2022 issued on 4th January 2023.

**Seismological Observational Network:**

Observation Type	Commissioned so far	Data reporting during the month
Seismic stations	152	130

**Earthquake and Tsunami monitoring**

Earthquake:

112 earthquakes were monitored in the Indian region out of which 6 events were greater than the magnitude (M) of 5.0.

Tsunami:

2 seabed earthquakes (M>6) with a potential to generate tsunami have occurred during the month. These information were provided in less than 12 minutes of occurrence of the events.

**Ocean Observation System**

Type of Platform	Commissioned till during the month	Data received during the month
Argo Floats	80	51
Moored Buoys	19	9
Tide Gauges	36	29
High Frequency (HF) Radars	12	10
Acoustic Doppler Current Profiler (ADCP)	20	17
Tsunami Buoys	7	2
Wave Rider Buoy	16	13

### **Ocean Science Services**

<b>S. No</b>	<b>Types of forecasts</b>	<b>No. of advisories issued during the month</b>
1.	Integrated Potential Fishing Zone (PFZ) advisories (Sea Surface Temperature (SST), Chlorophyll., wind)	31
2.	Tuna Fishing Advisories	21
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**

- National Training Workshop on Paleoclimate - Archives, Proxies and Analysis/ Measurement Techniques (NT-PALEO 2023) was conducted by Indian Institute of Tropical Meteorology (IITM) from 16-20 January 2023. It was live streamed to BIMSTEC (Bangladesh, India, Myanmar, Sri Lanka, Thailand, Nepal & Bhutan) nation's institute. Total 57 participants attended the workshop.
- Stakeholder Engagement Workshop on Sub-seasonal Prediction was conducted on January 30, 2023 in hybrid mode by IITM. It was attended by 65 participants (includes 25 online). This workshop aimed to enhance the usage of forecast products in different sectors such as agriculture, health, power, hydroelectricity, etc.
- MoES and its institutes participated in the 8th India International Science Festival (IISF) – 2022 Mega Science and Technology Exhibition (Expo) at Bhopal during 21-24 January 2023.
- 74<sup>th</sup> Republic Day was celebrated at all MoES institutes on 26th January 2023.
- NCMRWF is recognized as the Indian Technical and Economic Cooperation (ITEC) training Center by Ministry of External Affairs for the coming calendar

year 2023. Under ITEC, 161 countries in Asia, Africa, East Europe, Latin America, the Caribbean as well as Pacific and Small Island countries are invited to share in the Indian developmental experience acquired over six decades of India's existence as a free nation.

- On the request of Directorate of Naval Oceanology and Meteorology (DNOM), NCMRWF provided weather forecast (from 19th January onwards) for Republic Day and Beating Retreat parade in New Delhi on the event of 74th Republic Day celebrations.
- INCOIS and National Institute of Disaster Management (NIDM, Ministry of Home Affairs) organized an expert-webinar on “Tsunami Awareness and Preparedness” on 26<sup>th</sup> December 2022 to commemorate the 18<sup>th</sup> anniversary of 2004 Indian Ocean tsunami.
- On January 10<sup>th</sup>, 2023, INCOIS in collaboration with the Central Institute of Fisheries Technology, organized a regional awareness programme for fisher folks and the local community at Veraval, Gujarat.
- INCOIS along with the Kerala University of Fisheries and Ocean Studies conducted three user interaction meetings in Kerala during 17-19 January 2023. The fisher folk were introduced to the benefits of new services available in the Potential Fishing Zone advisories and Ocean State Forecast.
- A knowledge workshop on prospects in deep sea mining was conducted at NIOT on 27th January 2023, to sensitize the Indian industries for the future prospects in Deep Sea Technologies.
- An industry academia interaction workshop was conducted by NIOT on January 20, 2023 to discuss possible technology collaboration/ development in the areas of innovative research work and demonstration carried out by NIOT in Energy and Freshwater, Desalination and Coastal Engineering.
- Training and demonstration of open sea cage culture was conducted to fishermen self help group at Kumta, Karnataka during January 2-14, 2023.
- A one-day workshop on “Marine Spatial Planning for Tamil Nadu” was jointly conducted by NCCR and Minister of Public Works Highways and minor Ports Department, Government of Tamil Nadu on 10<sup>th</sup> January 2023. More 300

participants from various state governments departments and institute participated in the program.

- A workshop was conducted by NCCR to raise awareness on the “Plastics in Marine Environment” at Berhampur University, Odisha on 18<sup>th</sup> January, 2023.
- A three-day training program was conducted by NCCR on "Mapping our Coast towards Marine Spatial Plan for Tamil Nadu" for the fisher community of Thoothukudi from 18-20 January 2023. More than 60 participants attended the training program.
- 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.).
- 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		
	April 22 – Dec 2022	Jan 23	Total	April 22 – Dec 2022	Jan 23	Total
Atmospheric Sciences	141	25	<b>166</b>	19	2	<b>21</b>
Ocean Science and Technology	69	6	<b>75</b>	5	1	<b>6</b>
Polar Sciences	21	3	<b>24</b>	-	-	-
Geosciences and resources	44	9	<b>53</b>	1	-	<b>1</b>
<b>Total</b>	<b>275</b>	<b>43</b>	<b>318</b>	<b>25</b>	<b>3</b>	<b>28</b>

**Patents:** 1

**Utilization of Ocean Research Vessels during the month**

<b>Vessel</b>	<b>Days at Sea/ Utilization</b>	<b>Maintenance/ Inspection/Scientific Logistics/ Cruise Preparation</b>	<b>No. of Cruise</b>
Sagar Nidhi	24	7	3
Sagar Manjusha	20	11	1
Sagar Tara	22	9	2
Sagar Anveshika	20	11	2
Sagar Kanya	0	31	0
Sagar Sampada	0	31	0

MoES/20/01/2017-Estt.

I/4745/2023

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

Prithvi Bhavan, Lodhi Road  
New Delhi-110 003

Dated, the 10 February, 2023

CERTIFICATE

(FOR THE MONTH OF JANUARY, 2023)

I/4745/2023

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 January, 2023**. 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  
- 00

  
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