

Ministry of Earth Sciences (MoES)

Summary of Important Developments –February, 2022

- 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:** Discussed internally within MoES and directors of MoES autonomous institutions (ABs), and arrived a new proposal to merge all 5 ABs under one society. All existing ABs will function under one society. The detailed note regarding is will be sent to MoF for their concurrence and agreement.
- 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 Cabinets) directions have not been compiled with:** It is also 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.

Important policy decision taken and major achievements:

- Coastal Research Vessel Sagar Anveshika participated in the 12th Presidential Fleet Review-2022 by the Hon'ble President of India held at Visakhapatnam on 21st February, 2022 and showcased the scientific strength, capacity in respect of acquisition of marine scientific data and ocean observations for various programmes of the Government of India.
- 19 summer members of 41-Indian Scientific Expedition to Antarctica (ISEA) were de-inducted from Bharati and Maitri and returned to India via Cape Town.
- Launch of International Monsoons Project Office (IMPO): IMPO worked with the Ministry of Earth Sciences (MoES) and World Climate Research Programme (WCRP) Secretariat for organization of the high level launch event of IMPO, on 28th February 2022, coinciding with the "National Science day". The event included pre-recorded address by Hon'ble Minister of Earth Sciences Dr. Jitendra Singh.
- Deoxy Ribo Nucleic Acid (DNA) derived occurrence record has been uploaded for the first time in the Indian Ocean Biodiversity Information System (IndOBIS) portal for the marine mammal Kogiabreviceps. It is the first record of its kind in IndOBIS after introducing DNA-derived extension in OBIS.

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 28.78 million farmers in the country are getting advisories through SMS 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)	*329 (727-398)	--	329
Automatic Rain Gauge (ARG)	500** (1382-882)		500
Agro AWS	198	03	196
GPS Sonde based RS/RW (Radio Sonde/ Radio Wind) Stations	56	--	56
Doppler Weather Radar (DWR)	*** 32		25
Ozone (Ozone Sonde + Total Ozone)	04	--	04

Surface Ozone (Electrochemical Concentration Cell method)	07	--	07
Nephelometer	12	--	10
Sky Radiometer	20	--	13
Black Carbon Monitoring Systems (Aethalometer)	25	--	23
System of Air Quality Monitoring System (SAFAR)	10 (Delhi) 10 (Mumbai) 10 (Ahmedabad)	--	09(Delhi) NIL(Mumbai)**** 10 (Ahmedabad)
Hydromet (Indian Meteorological Department (IMD)& Extra-departmental excluding AWS & ARG)	---	--	3251
Aviation	79	--	79
Radiation Stations	46	---	46

*Out of Total 727, 398 are outlived.

** Out of total 1382, 882 are outlived.

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

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

Modelling

During February 2022, every week on Thursdays, 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) Snow and Avalanche Study Establishment (SASE), (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 SASE/ DRDO an IAF for use at their end.

Monthly Weather Summary (February2022)

a) Important Weather Events during the month

Low Pressure Systems: A total number of eight Western Disturbances, one Induced Low Pressure area and about six induced cyclonic circulations had affected Northwest India during the month. These had caused fairly widespread to widespread rainfall/snowfall /thunderstorm activity over Western Himalayan Region, Northwest India, Jammu Kashmir & Ladakh, Punjab & Haryana, East and Northeast India, Central India.

Dense to very dense fog had been reported over parts of Northwest, Central and East India.

Cold day to severe cold day conditions were reported from parts of Northwest India and adjoining areas of Madhya Pradesh.

Cold wave conditions at isolated places had occurred over Madhya Pradesh, Uttar Pradesh, Vidarbha and Odisha.

b) Rainfall Scenario: The rainfall for the country as a whole, for the month of February-2022 has been recorded as 19.1 mm which is 81% of its Long Period Average (LPA) of 23.5 mm.

c) Heavy Rainfall Events:

Warning issued for	No. of Heavy/Very Heavy Rainfall Events (>64.4 mm): 31
	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 2022 for the country as a whole was 21.42⁰C which was below normal by -0.23⁰C. The highest maximum temperature of 38.0⁰C had been recorded at Nalgonda (Telengana) on 28thFebruary 2022 and the lowest minimum temperature of 1.8⁰C had been recorded at Hissar (Haryana, Chandigarh & Delhi) on 6thFebruary 2022 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.	State/ UT	Thunderstorm Events	Hail Events	Dust storms	Gusty Winds
1	Andaman & Nicobar Islands	0	0	0	0
2	Andhra Pradesh	0	0	0	1
3	Arunachal Pradesh	0	0	0	0
4	Assam	5	2	0	1
5	Bihar	2	1	1	3
6	Chandigarh	2	2	0	0
7	Chhattisgarh	1	4	1	0
8	Dadar and Nagar Haveli	0	0	0	0
9	Delhi	3	3	0	0
10	Goa	0	0	0	0
11	Gujarat	0	0	0	0
12	Haryana	6	3	2	1
13	Himachal Pradesh	0	0	0	0
14	J & K	0	0	0	0
15	Jharkhand	1	1	0	0
16	Karnataka	0	0	0	0
17	Kerala	0	0	1	0
18	Ladakh	0	0	0	0
19	Lakshdweep Islands	0	0	0	0
20	Madhya Pradesh	0	1	1	0

S. No.	State/ UT	Thunderstorm Events	Hail Events	Dust storms	Gusty Winds
21	Maharashtra	0	0	0	0
22	Manipur	0	0	0	0
23	Meghalaya	0	2	0	0
24	Mizoram	0	0	0	0
25	Nagaland	1	0	0	0
26	Odisha	0	0	0	1
27	Puducherry	0	0	0	0
28	Punjab	1	1	0	0
29	Rajasthan	0	0	0	0
30	Sikkim	0	0	0	0
31	Tamilnadu	1	1	1	1
32	Telangana	0	0	0	0
33	Tripura	0	0	0	0
34	Uttar Pradesh	1	4	1	1
35	Uttarakhand	1	0	0	0
36	West Bengal	4	1	0	5

Bulletins/Warnings/Press Releases Issued:

All India Weather Bulletins:-112, All India inference and severe weather warnings:-112, All India Weekly Weather Reports:-4, Mountain weather bulletins issued for western and central Himalayan region:-56, All India Multi-hazard winter weather warnings bulletin issued for North India:-28, Marine Weather Bulletins:-56, Nowcast Guidance Bulletins for severe weather:-28, Bulletins of the Severe Weather Forecast Programme(SWFP):-28, Tropical Weather Outlook to World Meteorological Organization (WMO)/Economic and Social Commission for Asia-Pacific (ESCAP) Panel member countries for the north Indian Ocean:-28, Extended range outlook on Cyclogenesis (Weekly basis on every Thursday):-4, Press Releases issued during the month:-33.

Publications & Operational Reports:

- i) El Niño-Southern Oscillation (ENSO) bulletin for the month of February 2022 and Seasonal Climate Outlook for South Asia for the period of February to March 2022 were issued. (Quick Link: www.imdpune.gov.in/Clim_Pred_LRF_New/Products.html).
- ii) Four weekly and cumulative Standardized Precipitation Index (SPI) maps were prepared for the weeks ending 05.02.2022, 12.02.2022, 19.02.2022 and 26.02.2022 and supplied for use in Agromet Advisory Services Bulletin. The same have also been uploaded in IMD Pune website.
- iii) Computed gridded SPI & Standardized Precipitation Evapotranspiration Index (SPEI) at 0.5 *0.5 degree resolution at 4 weekly, 1, 2, 3, & 4 monthly time scales. Uploaded the maps of the aforementioned timescales at weekly basis on IMD Pune website.
- iv) Four weekly Aridity anomaly maps for the period 29 January to 04 February, 05 to 11, 12 to 18 and 19 to 25 February 2020 have been prepared.

- v) Four weekly Aridity anomaly outlook maps for the period 05 to 11 February, 12 to 18, 19 to 25, 26 February to 04 March 2022 have been prepared.
- vi) Two Biweekly Aridity Anomaly maps for the period 29 January to 11 February and 12 to 25 February 2022 have been prepared.
- vii) Monthly and cumulative Standardized Precipitation Index (SPI) maps were prepared for the month ending January 2022 for use in Climate Diagnostic Bulletin of India. The same have also been uploaded in IMD Pune website.

Seismological Observational Network

Observation Type	Target	Commissioned so far	Data reporting during the month
Seismic stations	115	152	144

Earthquake and Tsunami monitoring

Earthquake: 111 earthquakes were monitored in the Indian region out of which 3 events were greater than the magnitude (M) of 5.0.

Tsunami: Nosebed earthquakes (M > 6) with a potential to generate tsunami occurred.

Ocean Observation System

Type of Platform	Target	Commissioned till January, 2022	Data received during February, 2022
Argo Floats *	200	374	75
Moored Buoys	16	19	11
Tide Gauges	36	36	29
High Frequency (HF) Radars	10	12	10
Acoustic Doppler Current Profiler (ADCP)	20	20	18
Tsunami Buoys	4	7	2
Wave Rider Buoy	23	16	12

*The remaining floats/drifters have completed their life time and as such no data can be received from them.

Ocean Science Services

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	29
3.	Ocean State Forecast (OSF)-Wave, Wind, Currents, SST (Sea Surface Temperature), MLD (Mixed Layer Depth) and D20 forecasts	28
4.	Real time global ocean analysis (daily)	30
5.	Coral Bleaching Alert System	10

Outreach and Awareness

- Indian National Centre for Ocean Information Services (INCOIS) commemorated its 24th Foundation Day celebration with a Foundation Day Talk on “Ocean Prediction and the United Nations (UN) Decade opportunity”.
- An Integrated user interaction workshop was conducted in an online mode on 2 February 2022 as part of commemorating the INCOIS foundation day. Total around two hundred (200) participants, who are the end-users from various categories such as fisher folks, Non-

Governmental Organizations, Industry, Navy, Disaster Management Authority, Port & Harbours, Shipping industries, and seafarers were participated.

- A very unique online training for the operators of the coastal community radio stations entitled “Training to Coastal Community Radio Operators” was organized by INCOIS on 09 February 2022. Representatives of more than two dozen community radio stations from almost all the coastal states of India participated. The event was organized under INCOIS’s international training center – International Training Centre for Operational Oceanography (ITCOcean), in collaboration with the Community Radio Association of India (CRA).
- Dr. M. Mohapatra, IMD discussed the "Ancient Indian Knowledge of Weather Forecasting" in the 21st episode of the programme "Power of Listening" on the theme "MeghVidya" broadcast by All India Radio on 18th February, 2022. The broadcast programme is also available at <https://youtu.be/a07Lv8j2iX8>.
- Dr. R. K. Jenamani, Sc-F and Head, Regional Specialized Meteorological Centre (RSMC) Organized and chaired the 1st Meteorological - Air Traffic Management (MET-ATM) meeting on “Integrated Web- Geographic Information System (GIS) based Met Decision Support System (DSS) system for Indira Gandhi International Airport (IGIA) held at IGI Airport New Delhi on 21st February and presented on “Work plan and progress on various user specific product components of Web based GIS of IMD” to get users suggestions and requirements”. IGI Airport and other senior officers, functional group of IMD with officials also participated in the meeting.
- 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 socialmedia (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.
- Indian Institute of Tropical Meteorology (IITM) is celebrating 'Azadi Ka Amrit Mahotsav' and as part of the celebrations, virtual lecture series and national science day activities were organized at IITM during February 2022.

Publications

Subject	Publications			Ph.Ds		
	April, 2021 – January 2022	February, 2022	Total	April, 2021 – January 2022	February, 2022	Total
Atmospheric Sciences	195	14	209	6	1	7
Ocean Science and Technology	94	8	102	4	-	4
Polar Sciences	41	1	42	1	-	1
Geosciences and resources	95	11	106	2	1	3
Total	425	34	459	13	2	15

Utilization of Ocean Research Vessels during the month

Vessel	Days at Sea / Utilization	Maintenance/ Inspection /Scientific Logistics / Cruise Preparation	No. of Cruise
Sagar Nidhi	0	28	0
Sagar Manjusha	0	28	0
Sagar Tara	15	13	2
Sagar Anveshika	3	25	1
Sagar Kanya	22	6	2
Sagar Sampada	0	28	0

No.MoES/20/01/2017-Estt.
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Dated, the 11th March, 2022

CERTIFICATE

(FOR THE MONTH OF FEBRUARY, 2022)

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, 2022. 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 | - 10 |
| c. Number of posts totally vacant as on date | - 02 |
| d. Number of posts under additional charge arrangement | - 01 |
| e. Number of posts that would fall vacant during the next 6 months | - 01 |

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