

Ministry of Earth Sciences (MoES)

Summary of Important Developments – October, 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:** The Cabinet in its meeting on 13th 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 complied 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:

- 42nd – Indian Scientific Expedition to Antarctica has been formally launched from Goa on 22nd October 2022. The batch comprising 30 members reported at National Centre for Polar and Ocean Research (NCPOR), underwent firefighting training and attended briefing lectures by Antarctic veterans and external experts. The team reached Cape Town, South Africa, and started 05 days of mandatory quarantine.
- Ship Borne Transportable (SBT) team onboard Sagar Nidhi successfully tracked the trajectory of the launch vehicle on 23rd October 2022, when GSLV/Mk-III was successfully launched from Satish Dhawan Space Centre [SDSC], Sriharikota launching station and confirmed the separation event of satellites. It also successfully transmitted both TM 1 and TM 2 vehicle data to Sriharikota on both east and west beams of GSAT 7 satellite links.
- Dr. Roxy Mathew Koll, Scientist, Indian Institute of Tropical Meteorology (IITM) was announced as the recipient of the American Geophysical Union's (AGU) 2022 Devendra Lal Medal for his outstanding research in Earth and Space Sciences.
- MoES and its Institutes' officials virtually participated in the launch of the Mission LiFE by Hon'ble Prime Minister of India Shri Narendra Modi on 20th October 2022.
- India Meteorological Department (IMD) signed a Memorandum of Understanding (MoU) on 17th October, 2022 with Fakir Mohan University, Balasore to enhance research & development activities between the two organizations.

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)	*432 (806-374)	2	432
Automatic Rain Gauge (ARG)	557** (1382-825)	--	557
Agro AWS	200	--	194
GPS Sonde based RS/RW (Radio Sonde/ Radio Wind) Stations	56	--	56

Doppler Weather Radar (DWR)	*** 32	--	28
Ozone (Ozone Sonde + Total Ozone)	02	--	02
Surface Ozone (Electrochemical Concentration Cell method)	07	--	05
Nephelometer	12	--	09
Sky Radiometer	20	--	16
Black Carbon Monitoring Systems (Aethalometer)	25	--	15
System of Air Quality Monitoring System (SAFAR)	10 (Delhi) 10 (Mumbai) 10(Ahmedabad)	--	10(Delhi) NIL(Mumbai)**** NIL(Ahmedabad)
Hydromet (Indian Meteorological Department (IMD)& Extra-departmental excluding AWS &ARG)	---	--	3091
Aviation	79	--	79
Radiation Stations	46	---	46

* Out of Total 806, 374 are outlived.

** Out of total 1382, 825 are outlived.

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

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

Modelling

During October 2022, 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 27th Oct 2022 the monthly mean forecast valid for October 2022 were also included for the users.

Monthly Weather Summary (October 2022)

a) Important Weather Events during the month

Low Pressure Systems:

A Low Pressure Area has formed and intensified into the Cyclonic Storm “SITRANG” had caused scattered to fairly widespread rainfall with isolated extremely heavy rainfall over Meghalaya, Arunachal Pradesh, Assam and Manipur.

The Southwest Monsoon has withdrawn from the entire country on 23rd October, 2022. The cyclonic circulation over south Coastal Andhra Pradesh & neighbourhood, the passage of Western Disturbances with the cyclonic circulation in the lower tropospheric levels and Strong

southwesterlies/ southerlies from Bay of Bengal had caused fairly widespread to widespread rainfall/ thunderstorm activity over Coastal Andhra Pradesh, Yanam, Telengana, Rayalseema, Maharashtra, Gujarat, West Madhya Pradesh, Konkan, Goa, Himalayan Region, Uttar Pradesh, East Rajasthan, Punjab, Haryana, Chandigarh, Delhi, Uttarakhand, West Bengal, Assam, Meghalaya, Sikkim and Arunachal Pradesh.

b) Rainfall Scenario: The rainfall for the country as a whole, for the month of October 2022 has been recorded as 110.8 mm which is 147% of its Long Period Average (LPA) of 75.8 mm.

c) Heavy Rainfall Events:

Warning issued for	No. of Heavy/Very Heavy Rainfall Events (>64.4 mm): 330
	Percentage correct (in %) for Rainfall >64.4mm
Day1 / 24 Hours	85
Day2 / 48 Hours	85
Day3 / 72 Hours	85

d) Temperature Scenario: The mean temperature for the month of October 2022 for the country as a whole was 26.27⁰C which was above normal by +0.24⁰C. The maximum temperature of 39.6⁰C had been recorded at Ganganagar (West Rajasthan) on 5th October 2022 and the minimum temperature of 10.5⁰C had been recorded at Sikar (East Rajasthan) on 24th, 25th and 26th October 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.	Region	TS Days	Hail Events	Squall Events	Dust storms
1.	South Peninsular India	25	Nil	Nil	Nil
2.	Northwest India	19	Nil	Nil	Nil
3.	Northeast India	17	Nil	Nil	Nil
4.	East India	20	Nil	Nil	Nil
5.	Central India	16	Nil	Nil	Nil
6.	West India	13	Nil	Nil	Nil

Publications & Operational Reports:

1. ENSO/IOD bulletin issued in the month of October 2022 and uploaded on the RCC website.
2. Monthly climate summary for September 2022 prepared.
3. Enhanced Seasonal Climate Outlook Statement (SCOS) of SASCOF23 has been prepared and uploaded on the RCC website.

Seismological Observational Network

Observation Type	Target	Commissioned so far	Data reporting during the month
Seismic stations	115	152	133

Earthquake and Tsunami monitoring

Earthquake: 108 earthquakes were monitored in the Indian region out of which 4 events were greater than the magnitude (M) of 5.0.

Tsunami: 1 seabed earthquake (M>6) with a potential to generate tsunami has occurred. This information was provided in less than 12 minutes of occurrence of the events.

Ocean Observation System

Type of Platform	Target	Commissioned till October, 2022	Data received during October, 2022
Argo Floats *	200	374	57
Moored Buoys	16	19	11
Tide Gauges	36	36	32
High Frequency (HF) Radars	10	12	6
Acoustic Doppler Current Profiler (ADCP)	20	20	17
Tsunami Buoys	4	7	5
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)	30
2.	Tuna Fishing Advisories	2
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

- Four-month “First Advanced Oceanography Course” by International Training Centre for Operational Oceanography (ITCOcean) at Indian National Centre for Ocean Information Services (INCOIS) has begun for the officers of the School of Naval Oceanology & Meteorology (SNOM) under the southern naval command of the Indian Navy on 10th October 2022.
- INCOIS hosted a half-day virtual workshop between MoES and the National Research and Innovation Agency, Indonesia, coordinated by the Indian Embassy in Jakarta on the Through flow of Ocean Currents for research initiative in the southeastern Tropical Indian Ocean through observation and Modelling on 12th October, 2022. Scientists from INCOIS, MoES, and Badan Riset dan Inovasi Nasional (BRIN), Indonesia, participated in the discussion.
- Fourteen (14) High wave/ Swell Surges (Alert/ Warning) were issued for the east coast of India and Andaman & Nicobar by INCOIS.
- Ten (10) Storm surge and inundation forecasts were issued by INCOIS, associated with the Cyclonic Storm SITRANG over the North Bay of Bengal during 22-25th October 2022.
- Thirty (30) days of Algal Bloom Information Service was issued, and 1-day alert was generated by INCOIS.
- INCOIS provided weekly updates including past week briefing and upcoming week forecast of Ocean State Forecast information (Wave, Wind, Current, Swell, Sea Surface

Temperature) for the Indian Ocean to South Asia Hydromet Forum (SAHF) which is administrated by Regional Integrated Multi-Hazard Early Warning System (RIMES).

- Indian Tsunami Warning Centre of INCOIS is celebrating its 15 years of service to the nation.
- Students from various schools & colleges visited the IITM, National Centre for Coastal Research (NCCR), NCMRWF and INCOIS campus.
- MoES and its institute's staffs took integrity pledge on 31st Oct 2022 for the observance of Vigilance Awareness week.
- Hindi Pakhwada was celebrated at MoES and its various Institutes.
- Special Campaign for Disposal of Pending Matters has been carried out at MoES and its Institutes.
- 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, 2022 – September, 2022	October, 2022	Total	April, 2022 – September, 2022	October, 2022	Total
Atmospheric Sciences	84	14	98	11	2	13
Ocean Science and Technology	42	8	50	1	1	2
Polar Sciences	18	2	20	-	-	-
Geosciences and resources	35	4	39	1	-	1
Total	179	28	207	13	3	16

Patents: 1

Utilization of Ocean Research Vessels during the month

Vessel	Days at Sea/ Utilization	Maintenance/ Inspection/Scientific Logistics/ Cruise Preparation	No. of Cruise
Sagar Nidhi	28	3	1
Sagar Manjusha	21	10	2
Sagar Tara	19	12	2
Sagar Anveshika	20	11	2
Sagar Kanya	0	31	0
Sagar Sampada	0	31	0

No.MoES/20/01/2017-Estt. (Computer No: 7107)
Government of India
Ministry of Earth Sciences

Prithvi Bhavan, Lodhi Road
New Delhi-110 003
Dated, the 07th November, 2022

CERTIFICATE

(FOR THE MONTH OF OCTOBER, 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 October, 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 | - 11 |
| c. Number of posts totally vacant as on date | - 02 |
| d. Number of posts under additional charge arrangement | - 00 |
| e. Number of posts that would fall vacant during the next 3 months | - 00 |


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