

Ministry of Earth Sciences (MoES)
Govt. of India
Summary of Important Developments – June, 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 13th July 2022 approved the merging of 5 Autonomous Bodies under MoES to one Autonomous Body. Efforts are underway to implement the same.

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.

Important policy decision taken and major achievements:

- Hon'ble Union Minister for Earth Sciences (HMoES), Shri Kiren Rijiju visited Norway during 12-16 June 2023 at the invitation of Norwegian Minister of Research and Higher Education. HMoES was the Chief Guest and keynote Speaker at the Conference "Sustainable Pathways – Norway-India collaboration in research, education and innovation". HMoES visited "Himadri"- the Indian Research station in Ny-Ålesund, Svalbard, Arctic and interacted with the Indian researchers. HMoES also visited Svalbard ground station where India (ISRO) is setting up two antennas. During his visit to Bergen, HMoES interacted with scientists working in the field of climate, oceanography and earth sciences drawn from the Bjerknes Centre for Climate Research, Nansen Environmental & Remote Sensing Centre, Institute of Marine Research.
- HMoES, Shri Kiren Rijiju participated in 'Beach Cleaning Drive' in Chennai and presided over the World Ocean Day celebration at NIOT on June 8, 2023.
- HMoES, Shri Kiren Rijiju visited Research vessels Sagar Nidhi & Sagar Anveshika and inaugurated the Ship Tracking System for Scientific Data Management [STSSDM] developed by NIOT. This advanced system facilitates the real-time monitoring of ship's scientific data & movements aligning with global maritime requirements.
- Dr Srinivasa Kumar, Director, Indian National Centre for Ocean Information Services (INCOIS) was elected as a Vice President of International Oceanographic Commission (IOC) of UNESCO.
- Working Group meeting on Statistics, Assessment and Management (WG-SAM) of the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) was held at Centre for Marine Living Resources and Ecology (CMLRE) during 26-30th June 2023 and attended by representatives from 14 countries including India.
- The monthly rainfall over the country as a whole during July 2023 is most likely to be normal (94 to 106 % of Long Period Average (LPA)).
- During July 2023, normal to above normal maximum temperatures are likely over most parts of the country.

- There are high probabilities for the development of El Niño conditions over the equatorial Pacific Ocean and positive Indian Ocean Dipole (IOD) conditions over the Indian Ocean during July to September 2023.
- Southwest Monsoon has advanced into some parts of South Arabian Sea and Maldives & Comorin area and some more parts of South Bay of Bengal and East-central Bay of Bengal on 1st June 2023.
- IMD signed a Memorandum of Understanding with United Nations Development Programme (UNDP) to enhance India's climate resilience by using weather data to strengthen climate adaptation efforts on 22nd June.
- A MoU was signed by IITM with Dwarkadas J. Sanghvi College of Engineering (DJSCE), Vile Parle (West), Mumbai on 16th June 2023 for installation of X-band radar in their premises.
- A Tri Party agreement has been signed with M/s Bharat Electronics Limited (BEL) Bangalore through National Research Development Corporation (NRDC) for the Transfer of Technology of indigenous Acoustic Sub Bottom Profiler by NIOT.

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)	*491	--	491
Automatic Rain Gauge (ARG)	**507	--	507
Agro AWS	200	--	195
GPS Sonde based RS/RWStns.	56	--	56
Doppler Weather Radar (DWR)	***39	--	31
Ozone (Ozone Sonde + Total Ozone)	02	--	02
Surface Ozone (Electrochemical Concentration Cell method)	07	--	05
Nephelometer	12	--	09
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)	---	--	3082
Aviation	99	--	99
Radiation Stations	47	---	47

* Out of Total 808 commissioned, 317 are outlived.

** Out of total 1382 commissioned, 875 are outlived.

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

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

Modelling

During June 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 29th June 2023 the monthly mean forecast valid for July 2023 were also included for the users.

Monthly Weather Summary (June 2023)

a) Important Weather Events during the month

Low Pressure Systems:

An upper air Cyclonic Circulation formed over the Southeast Arabian Sea (AS) on 5th June, 2023. Under its influence a Low Pressure Area formed over the same region and it concentrated into a Depression on 6th June over Southeast AS. It moved nearly northwards and intensified into a Deep Depression (DD) & into the Cyclonic Storm (CS) "BIPARJOY". Continuing to move further nearly northwards, it intensified into a Severe Cyclonic Storm (SCS) over east-central AS and into a Very Severe Cyclonic Storm (VSCS) over the same region on 7th June. While moving northwards, it intensified into an Extremely Severe Cyclonic Storm (ESCS) over east-central AS on 11th June. The system caused intense rainfall activity over Gujarat, Rajasthan, West Madhya Pradesh. Under the influence of two low pressure system (LPS) which formed over North Bay of Bengal (one of them around 9th June and another on 25th June 2023) and their subsequent movement has helped in the advance of Southwest Monsoon over the country significantly. Under the influence of these systems and the remnants of the Very Severe Cyclonic Storm "BIPARJOY", intense rainfall activity had been reported across the country during the month.

Heat Wave:

Above Normal Heat Wave days were observed over East and adjoining areas of Central and Peninsular India during the month.

b) Rainfall Scenario:

The rainfall for the country as a whole, for the month of June-2023 has been recorded as 148.6 mm which is 90% of its Long Period Average (LPA) of 165.3 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	84
Day2 / 48 Hours	84
Day3 / 72 Hours	83

d) Temperature Scenario:

The mean temperature for the month of June-2023 for the country as a whole was 30.03°C which was above normal by +0.078°C. The maximum temperature of 46.1°C had been recorded at Sambalpur (Odisha) on 12th June 2023 and the minimum temperature of 15.5°C had been recorded at Itanagar (Arunachal Pradesh) on 17th June 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:

S. No.	Region	Thunder Storm Days	Hail Events	Squall Events	Dust storms
1.	South Peninsular India	30	Nil	Nil	Nil
2.	Northwest India	29	4 {Mukteshwar -1,2,6 June, Kukernag –5 June}	Nil	6 {Jaipur- 3 June, Bikaner- 3

S. No.	Region	Thunder Storm Days	Hail Events	Squall Events	Dust storms
					June, Jodhpur- 3 June, Jalore- 3 June, Chittorgarh- 3 June, Churu- 6 June}
3.	Northeast India	30	Nil	Nil	Nil
4.	East India	30	Nil	5 {Alipore- 12 June, Dumdum- 11 June, Portblair- 04,10 June, Malda- 11 June}	Nil
5.	Central India	28	Nil	Nil	Nil
6.	West India	25	2 {Thane-1 June, Sangli- 1 June}	Nil	Nil

Bulletins/Warnings/Press Releases Issued:

All India Weather Bulletins:- 120, All India inference and severe weather warnings:- 120, All India Weekly Weather Reports:- 5, Daily Tropical Weather Outlook with cyclogenesis forecast for next 5 days: 16, Daily Severe Weather Guidance for next 5 days under Severe Weather Forecasting Programme: 30, Weekly Extended Range Outlook for Cyclogenesis for next 2 weeks: 5, Daily Warnings for Fishermen in North Indian Ocean for next 5 days: 16, Fleet Forecast for Indian Navy for next 12 hours: 32, Bulletins for ships in deep sea under Global Maritime Distress Safety System for next 36 hours: 32, Mountain weather bulletins issued for western and central Himalayan region:- 60, Expedition Forecast bulletins issued for Mt. Kun Expedition conducted by The Indian Army (High Altitude Warfare School): 12, Expedition Forecast bulletins issued for Mt. Kamet Expedition conducted by NIMAS (National Institute of Mountaineering and Adventure Sports): 24, Expedition Forecast bulletins issued for Dirang Expedition conducted by NIMAS (National Institute of Mountaineering and

Adventure Sports): 17, Expedition Forecast bulletins issued for Mt. Bhagirathi-II conducted by NDRF(National Disaster response force): 5, Nowcast Guidance Bulletins for Severe Weather:- 30, Forecast Demonstration Project (FDP) Severe Thunder Storm Observation and Regional Modeling (STORM) Bulletins: 30, Current Temperature Status and Heat Wave Warning bulletins:-30, Press Releases issued during the month:- 41.

Publications & Operational Reports:

1. Climate Diagnostic Bulletin for the month of February 2023 and winter season been published and uploaded on the website.
2. ENSO bulletin for the month of June 2023 and Seasonal Climate Outlook for South Asia for the period of June to September 2023 were issued.
(Quick Link: www.imdpune.gov.in/Clim_Pred_LRF_New/Products.html)
3. Climate Summary for the month of May, 2023 Issued .
4. Digital Current Weather Indication System (DCWIS) and Present Weather Detector (PWD) systems were installed at Jalgoan airport (Runway (RWY) 27).
5. DCWIS and PWD systems were installed at Khajuraho airport (RWY 19).
6. DCWIS and PWD systems were installed at Tirupati airport (RWY 26) and at Vijayawada airport (RWYs 26 & 08).

Seismological Observational Network:

Observation Type	Commissioned so far	Data reporting during the month
Seismic stations	153	137

Earthquake and Tsunami monitoring

Earthquake:

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

Tsunami:

1 seabed earthquake (M>6) with a potential to generate tsunami has occurred during the month. This information was 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	48
Moored Buoys	19	14
Tide Gauges	36	31
High Frequency (HF) Radars	12	6
Acoustic Doppler Current Profiler (ADCP)	20	17
Tsunami Buoys	7	3
Wave Rider Buoy	16	12

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)	16
2.	Tuna Fishing Advisories	1
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

- India Meteorological Department (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.
- IITM, Pune observed the World Environment Day 2023 at IITM, Pune on 5 June 2023 by conducting various awareness activities towards the environmental protection.
- As part of World Blood Donor Day, IITM organized a blood donation camp for the Indian Army in association with the Armed Forces Medical College (AFMC), Pune on 12 June 2023.
- Ministry of Earth Science and the Department of Science and Technology jointly hosted an International Climate Research Conclave (ICRC) 2023 at IIT Bombay during 26-27 May, 2023.
- MoES and its institutes celebrated 9th International Yoga Day on 21 June 2023 with great enthusiasm.
- Indian National Centre for Ocean Information Services (INCOIS) participated in 26th Intergovernmental Coordination Group for the Indian Ocean Tsunami Warning and Mitigation System (ICG/IOTWMS) Communication Test on 7 June 2023 and issued test bulletins to 25 Indian Ocean rim countries as a Tsunami Service Provider (TSP). Tested the Nicobar Islands, India scenario and validated the dissemination mechanism of Email, SMS, Fax, GTS and Website.
- INCOIS celebrated World Ocean Day on June 8 as an open day wherein over seven-hundred (700) visitors, ranging from school and university students to retired officers and the general public attended.
- National Centre for Coastal Research (NCCR) conducted a workshop on "Knowledge base to MSP for Puducherry – and implement plans" on 22 June 2023 for the Puducherry administration.

Publications

Subject	Publications			Ph.Ds		
	April 2023 – May 2023	June 23	Total	April 2023 – May 2023	June 23	Total
Atmospheric Sciences	25	14	39	5	-	5

Ocean Science and Technology	23	8	31	2	-	2
Polar Sciences	1	3	4	-	-	-
Geosciences and resources	4	5	9	2	-	2
Total	53	30	83	9	-	9

Utilization of Ocean Research Vessels during the month

Vessel	Days at Sea/ Utilization	Maintenance/ Inspection/ Scientific Logistics/ Cruise Preparation	No. of Cruises
Sagar Nidhi	28	2	2
Sagar Manjusha	16	14	1
Sagar Tara	18	12	2
Sagar Anveshika	12	18	1
Sagar Kanya	0	30	0
Sagar Sampada	0	30	0

MoES/20/01/2017-Estt.

1/5410/2023

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

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Dated, the 13 July, 2023

**CERTIFICATE
(FOR THE MONTH OF JUNE, 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 June, 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 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 6 months	-	01


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