

Ministry of Earth Sciences (MoES)

Summary of Important Developments – July, 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 Cabinet in its meeting on 13th July 2022 approved the merging of 5 Autonomous Bodied 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 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:

- A cleanliness campaign "Swachh Sagar, Surakshit Sagar/Clean Coast Safe Sea" has been launched by MoES in collaboration with other Government Ministries/Departments, voluntary organizations along India's entire coastline. It is a 75-day citizen-led campaign for improving ocean health through collective action. The campaign started on July 5th, 2022 and will culminate with the largest beach cleaning event on September 17th, 2022 (International Coastal Cleanup Day). A mobile app "Eco Mitram" has been launched to spread awareness about the campaign and also for the common people for voluntary registration for the beach cleaning activity on the 17th September 2022.
- MoES celebrated its 16th foundation day on July 27th, 2022. Secretary, MoES delivered the welcome address and Union Minister of State (Ind. Charge) for Earth Sciences Dr Jitendra Singh inaugurated the followings.
 1. The "Buoy-based automated coastal observatory and water quality nowcasting system" by INCOIS
 2. Launch of "Climatological Tables of Observatories in India 1991-2020" by IMD
 3. Release of special volume on Coastal Research by NCCR
 4. Release of the Earthquake Compendium by NCS.

Various awards and certificate of merits were given to various candidates.

- The Indian Antarctic Bill, 2022 was passed by Lok Sabha on 17th July 2022.
- The Cabinet in its meeting on 13th July 2022 approved the merging of 5 Autonomous Bodies under MoES to one Autonomous Body.
- The latest global model forecasts indicate that the prevailing La Niña conditions are likely to continue over the Equatorial Pacific Ocean and there is enhanced possibility of development of negative Indian Ocean Dipole (IOD) conditions over the Indian Ocean during July to September 2022.
- Southwest Monsoon has covered most parts of the country (excluding some parts of North Arabian Sea, Gujarat state and Northwest India) including Delhi towards the end of last month.
- The rainfall percentage departure for July 2022 (+17%) for the country as a whole had been the second highest since the year 2000 for the month of July; the first highest being the year 2005 with rainfall percentage departure of +19%.

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)	*448 (797-349)	22	448
Automatic Rain Gauge (ARG)	581** (1382-801)	--	581
Agro AWS	200	--	194
GPS Sonde based RS/RW (Radio Sonde/ Radio Wind Stations)	56	--	56
Doppler Weather Radar (DWR)	*** 32	--	24
Ozone (Ozone Sonde + Total Ozone)	02	--	02
Surface Ozone (Electrochemical Concentration Cell method)	07	--	05
Nephelometer	12	--	09
Sky Radiometer	20	--	13
Black Carbon Monitoring Systems (Aethalometer)	25	--	15
System of Air Quality Monitoring System (SAFAR)	10 (Delhi) 10 (Mumbai) 10 (Ahmedabad)	--	10(Delhi) NIL(Mumbai)**** 10(Ahmedabad)
Hydromet (Indian Meteorological Department (IMD)& Extra-departmental excluding AWS &ARG)	---	--	3305
Aviation	79	--	79
Radiation Stations	46	---	46

* Out of Total 797, 349 are outlived.

** Out of total 1382, 801 are outlived.

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

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

Modelling

During July 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 DRDO and IAF for use at their end.

Monthly Weather Summary (July 2022)

a) Important Weather Events during the month

Low Pressure Systems:

Four Low Pressure Systems (LPS) formed during the month of July 2022. The first system (4-8 July) formed over north Odisha. The second system (9-18 July) formed over south coastal Odisha. The third system (15-18 July) formed over Northeast Arabian Sea and concentrated into a Depression and weakened into a Low pressure area. The 4th system (24-27 July) formed over southwest Rajasthan. Due to the formation and persistence of these LPS, the total number of LPS days in July 2022 had been 21 days against the normal of about 13.5 days for the month. These had caused intense rainfall activity over Central India and Peninsular India during the month.

b) **Rainfall Scenario:** The rainfall for the country as a whole, for the month of July-2022 has been recorded as 327.7 mm which is 117% of its Long Period Average (LPA) of 280.5 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	73
Day2 / 48 Hours	72
Day3 / 72 Hours	69

d) **Temperature Scenario:** The mean temperature for the month of July-2022 for the country as a whole was 28.17 °C which was above normal by +0.19°C. The highest maximum temperature of 41.8 °C had been recorded at Ganganagar (West Rajasthan) on 8th July 2022 and the lowest minimum temperature of 16.4 °C had been recorded at Khargone (West Madhya Pradesh) on 19th July 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	6	1	0	1
3	Arunachal Pradesh	0	0	0	0
4	Assam	1	1	1	1
5	Bihar	18	9	8	9
6	Chandigarh	0	0	0	0
7	Chhattisgarh	3	1	2	0
8	Dadar and Nagar Haveli	0	1	0	0
9	Delhi	3	0	0	1
10	Goa	3	2	1	1
11	Gujarat	23	6	2	8
12	Haryana	12	10	6	4

S. No.	State/ UT	Thunderstorm Events	Hail Events	Dust storms	Gusty Winds
13	Himachal Pradesh	0	0	0	1
14	J & K	2	1	1	1
15	Jharkhand	3	0	0	5
16	Karnataka	6	5	1	11
17	Kerala	5	3	1	6
18	Ladakh	0	0	0	0
19	Lakshdweep Islands	0	0	0	0
20	Madhya Pradesh	7	2	3	5
21	Maharashtra	14	4	5	6
22	Manipur	0	0	0	0
23	Meghalaya	0	0	0	0
24	Mizoram	0	0	0	0
25	Nagaland	0	0	0	0
26	Odisha	4	2	1	0
27	Puducherry	0	0	0	0
28	Punjab	13	1	3	2
29	Rajasthan	29	12	6	9
30	Sikkim	0	0	0	0
31	Tamilnadu	3	2	1	2
32	Telangana	7	4	3	12
33	Tripura	0	0	0	0
34	Uttar Pradesh	32	6	13	20
35	Uttarakhand	2	1	1	1
36	West Bengal	4	1	1	4

Bulletins/Warnings/Press Releases Issued:

All India Weather Bulletins:- 124, All India inference and severe weather warnings:- 124, All India Weekly Weather Reports:- 4, Special Daily Weather Report for Southwest Monsoon 2022:- 31, Current Weather Status & Outlook for next two weeks:- 4, Extended Range Outlook for Cyclogenesis:- 4, Mountain weather bulletins issued for western and central Himalayan region:- 62, Marine Weather Bulletins:- 62, Nowcast Guidance Bulletins for Severe Weather:- 31, Press Releases issued during the month:- 38.

Publications & Operational Reports:

- i) Monthly and cumulative Standardized Precipitation Index (SPI) maps were prepared for the month ending June 2022 for use in Climate Diagnostic Bulletin of India. The same have also been uploaded in IMD Pune website.
- ii) ENSO bulletin for the month of July 2022 and Seasonal Climate Outlook for South Asia for the period of July to October 2022 were issued.
(Quick Link :www.imdpune.gov.in/Clim_Pred_LRF_New/Products.html)
- iii) Four weekly and cumulative Standardized Precipitation Index (SPI) maps were prepared for the weeks ending 06.07.2022, 13.07.2022, 20.07.2022 and 27.07.2022 and supplied for use in Agromet Advisory Services Bulletin. The same have also been uploaded in IMD Pune website.
- iv) Computed gridded SPI & 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.

- v) Four weekly Aridity Anomaly Maps for the period 30 June to 06 July, 07 to 13, 14 to 20 and 21 to 27 July 2022 have been prepared and uploaded on IMD Website.
- vi) Four Biweekly Aridity Anomaly Maps for the period 23 June to 06 July, 30 June to 13 July, 07 to 20 and 14 to 27 July 2022 have been prepared and uploaded on IMD Website.
- vii) Four weekly Aridity Anomaly Outlook Maps for the period 07 to 13, 14 to 20, 21 to 27 and 28 July to 03 August 2022 have been prepared and uploaded on IMD Website.
- viii) Four weekly Aridity Anomaly Maps for the period 30 June to 06 July, 07 to 13, 14 to 20 and 21 to 27 July 2022 have been prepared and mailed to Agrimet for Agromet Advisory Services.
- ix) Annual Climate Summary for 2021 is published and uploaded on website.

Seismological Observational Network

Observation Type	Target	Commissioned so far	Data reporting during the month
Seismic stations	115	152	127

Earthquake and Tsunami monitoring

Earthquake: 124 earthquakes were monitored in the Indian region out of which 9 events were greater than the magnitude (M) of 5.0.

Tsunami: No seabed earthquake (M>6) with a potential to generate tsunami occurred.

Ocean Observation System

Type of Platform	Target	Commissioned till July, 2022	Data received during July, 2022
Argo Floats *	200	374	61
Moored Buoys	16	19	11
Tide Gauges	36	36	32
High Frequency (HF) Radars	10	12	8
Acoustic Doppler Current Profiler (ADCP)	20	20	17
Tsunami Buoys	4	7	3
Wave Rider Buoy	23	16	10

*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)	27
2.	Tuna Fishing Advisories	2
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	8

Outreach and Awareness

- IMD and MoES launched Short Virtual lecture Series on Different Modules of Weather & Climate Science & Services to commemorate 75 years of independence of India.
- 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.
- 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), Pune is celebrating 'Azadi Ka Amrit Mahotsav' and as part of the celebrations, virtual lecture series were organized at IITM during July 2022.
- As part of the 'Azadi Ka Amrit Mahotsav' celebrations, INCOIS organized various events during July 2022.
- INCOIS provided Oil Spill Trajectory advisory for oil spill from “MV Princess Miral” off New Mangalore coast during 1-4 July 2022 to Directorate General of Shipping and Indian Coast Guard.
- NCCR co-hosted a webinar on “A Plastic Free July: from deep space to deep sea, Indo-Pacific Oceans Initiative-led regional event” with the Indonesian Ministry of Education, Culture, Research and Technology and CSIRO, Australia.
- NIOT has completed technology transfer training to Ambtu Life Sciences, Pvt. Ltd, Mumbai, for production of Recombinant ectoine from deep sea bacteria for skin care and cosmetic applications.
- A team of five scientists/engineers from Govt Departments of Nigeria visited NCMRWF to see the facility and understand how the model based forecasts are produced in real-time at NCMRWF. Delegation also visited IMD.

Publications

Subject	Publications			Ph.Ds		
	April, 2022 – June, 2022	July, 2022	Total	April, 2022 – June, 2022	July, 2022	Total
Atmospheric Sciences	46	12	58	4	1	5
Ocean Science and Technology	17	10	27	-	1	1
Polar Sciences	10	4	14	-	-	-
Geosciences and resources	15	8	23	-	1	1
Total	88	34	122	4	3	7

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	0	31	0
Sagar Manjusha	0	31	0
Sagar Tara	0	31	0

Sagar Anveshika	3	31	0
Sagar Kanya	0	31	0
Sagar Sampada	0	31	0

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

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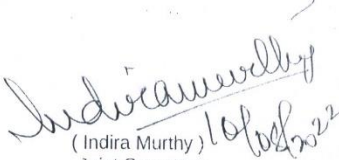
Dated, the August, 2022

CERTIFICATE

(FOR THE MONTH OF JULY, 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 July, 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 | - 00 |


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