

**Ministry of Earth Sciences (MoES)**  
**Summary of Important Developments – June, 2021**

1. **Important policy decisions taken and major achievements during the month:** Provided in Annex I.
2. **Important policy aspects / matters held up on account of prolonged Inter- Ministerial consultations/ delays, etc.:** Nil
3. **Compliance of COS (Committee of Secretaries) decisions:**

S.No.	Number of COS decisions pending for compliance	Proposed action plan/timelines	Remarks
1.	<p>Dt 14/08/2014            PROPOSAL FOR KRILL FISHING</p> <p>MoES, in collaboration with MEA (Ministry of External Affairs), will study the experience of different countries showing varied interest in krill fishing so that India could learn from their experiences. MEA, in collaboration with MoES, will examine and identify the countries with which India can collaborate for krill fishing. MoES will ascertain the interest of Indian industry in krill fishing and also explore the feasibility of Indian companies collaborating directly with foreign companies MoES will study legislations enacted by other member countries before finalising the draft legislation as part of international convention obligations.</p> <p>MoES will bring out a paper on krill fishing giving a detailed account of demand analysis, financial viability, interest of industry, experiences of other countries, criteria for fishing license, existing knowledge gap, etc. Thereafter, the CoS will meet again to decide whether India should engage in commercial krill fishing.</p>	<p>The Ministry has examined the aspect of Krill fishing. Japan &amp; Norway have developed expertise and these countries have been tentatively identified for collaboration on Krill fishing. Their experiences have been obtained. Indian Industries have been approached for Krill fishing to ascertain their interests. However, so far we have not received any response. The draft paper is prepared and suggestions of Cabinet Secretariat have been obtained.</p>	<p>A proposal has been mooted through NITI Aayog for collaboration with Norway for krill fishing.</p>

4. **Cases of sanction for prosecution pending in the Ministry for more than three months:** Nil
5. **Particulars of cases in which there has been a departure from the Transaction of Business rules of established policy of the Government:** Nil
6. **Status of implementation of e-Governance:** Being implemented

**7. Status of Public grievances:**

No. of Public Grievances redressed during the month	No. of Public Grievances pending at the end of the month
26	21

**8. Information on the specific steps taken by the Ministry/Department 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.

9. (i) **Confirmation that the incumbency details of all posts in the Ministry/Department and its organizations falling under the purview of the ACC (Appointments Committee of Cabinets) have been updated on AVMS(ACC Vacancy Monitoring System):** 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.

(ii) **Status regarding compliance of the directions of ACC:** It is also confirmed that the directions of ACC are complied with.

(iii) **Status of cases where recommendations from PESB (Public Enterprise Selection Board) have been received but the proposals are yet to be submitted to the ACC Secretariat:** NIL

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## Annex-I

### Important policy decision taken and major achievements:

- The Deep Ocean Mission, India's ambitious plan to explore and harness deep-oceanic resources was approved by the Cabinet Committee on Economic Affairs on June 16, 2021.
- India was elected in the Executive Council of the Intergovernmental Oceanographic Commission (IOC) of the United Nations Educational, Scientific and Cultural Organization (UNESCO).
- Dr. T Srinivasa Kumar, Director, Indian National Centre for Ocean Information Services (INCOIS) was elected as the Vice Chair of Intergovernmental Oceanographic Commission (IOC) of the United Nations Educational, Scientific and Cultural Organization (UNESCO).
- India Meteorological Department (IMD) issued the updated seasonal monsoon forecast. As per the forecast rainfall over the country as a whole for the Southwest monsoon seasonal (June to September) is most likely to be normal (96 to 104 % of Long Period Average (LPA)).

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)	348*		348
Automatic Rain Gauge (ARG)	422**	--	422
GPS Sonde based RS/RW (Radio Sonde/Radio Wind) Stations	56	--	56
Doppler Weather Radar (DWR)	28***	--	25
Ozone (Ozone Sonde + Total Ozone)	04	--	04
Surface Ozone (Electrochemical Concentration Cell method)	07	--	07
Nephelometer	12	--	12
Sky Radiometer	20	--	15
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)	---	--	3030

Aviation	79	--	79
Radiation Stations	46	---	46

\* Out of Total 726, 378 are outlived.

\*\* Out of total 1370, 948 are outlived.

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

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

## Modelling

Following a request from Met Department of Indian Naval Ship (INS) Hansa of Indian Navy, several surface and upper air climatological products were generated and provided for operational activities of Indian Navy. The climatological products are based on the NCMRWF's Indian Monsoon Data Assimilation and Analysis (IMDAA) regional re-analysis data from 1979-2018.

Oil and Natural Gas Corporation (ONGC - Eastern Offshore Asset, Kakinada) is now taking INCOIS support with financial implications, for regular forecast of currents (both surface and sub-surface), since June 11, 2021. They will approach INCOIS dynamically for the data on forecast currents for 26 different wells, as per their requirements.

## Monthly Weather Summary (June 2021)

### a) Important Weather Events during the month

Low Pressure Systems: During the month, two low pressure systems have been formed during 11<sup>th</sup> June 2021 over the Bay of Bengal and during 18<sup>th</sup> June 2021 over Bihar. These systems have caused fairly widespread to widespread rainfall/thunderstorms along with isolated heavy to very heavy and extremely heavy rainfall activity over Bihar, Gangetic West Bengal, East Uttar Pradesh, Sub Himalayan West Bengal, Sikkim, Odisha, Jharkhand and Chhattisgarh.

Heat Wave: Severe Heat wave conditions at isolated places had occurred over Punjab, Haryana, Chandigarh, Rajasthan, Delhi, Jammu Kashmir & Ladakh, West Rajasthan, West Uttar Pradesh and northern parts of West Madhya Pradesh during the month.

**b) Rainfall Scenario:** The rainfall for the country as a whole for the month of June 2021 has recorded as 182.9mm which is 110% of its Long Period Average (LPA) of 166.9 mm.

### c) Heavy Rainfall Events:

Warning issued for	No. of Heavy/Very Heavy Rainfall Events (>64.4 mm): 407	
	Percentage correct (in %) for Rainfall >64.4mm	
Day1 / 24 Hours	74%	
Day2 / 48 Hours	73%	
Day3 / 72 Hours	73%	

**d) Temperature Scenario:** The Mean Temp for the month of June 2021 for the country as a whole was 29.07°C which was near normal by 0.18°C. The maximum temperature of 45.8°C had been recorded at Ganganagar (West Rajasthan) and the minimum temperature of 16.6°C had been recorded at Bidar (North Interior Karnataka) 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	Date of Maximum TS Activity	Hail Events	Squall Events
1.	South Peninsular India	27	03/06/21	Nil	Nil
2.	Northwest India	29	12/06/21	4 {Quzigund-1 (01/06/21), Shimla-	4 {Amritsar AP & Palam

				1 (14/06/21), Banihal-1 (23/06/21), Sriganganagar-1 (26/06/21)	one each (01/06/21), Jodhpur & Jaisalmer one each (15/06/21)}
3.	Northeast India	29	15/06/21	Nil	Nil
4.	East India	30	15/06/21	Nil	10 {Patna-1 (01/06/21), Digha-1 (06/06/21), Alipore-1 (07/06/21), Bhubaneswar-1 (07/06/21), Port Blair-6 (07/06/21, 11/06/21, 13/06/21, 14/06/21, 22/06/21, 24/06/21)}
5.	Central India	30	13/06/21	Nil	4 {Raipur (Mana)-2 (03/06/21 & 09/06/21), Ambikapur-1(09/06/21) and Nagpur-1 (15/06/21)}
6.	West India	10	28/06/21	Nil	2 {Ahmedabad-2 (13/6/21 & 16/06/21)}

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

All India Weather Bulletins:-120, All India inference and severe weather warnings:-120, All India Weekly Weather Reports:-4, Mountain weather bulletins including severe weather warnings for Western and Central Himalayan region:-60, Marine Weather Bulletins:-60, Nowcast Guidance Bulletins for severe weather:-30, Bulletins of the Severe Weather Forecast Programme (SWFP):-30, Tropical Weather Outlook to World Meteorological Organization / Economic and Social Commission for Asia and the Pacific (WMO/ESCAP) Panel member countries or the north Indian Ocean:-30, Extended range outlook on Cyclogenesis (Weekly basis on every Thursday):-4, Forecast Demonstration Project (FDP) bulletin for winter weather system: 30.

#### Publications & Operational Reports:

- i) El Niño/ Southern Oscillation (ENSO) bulletin for the month of June 2021 and Seasonal Climate Outlook for South Asia for the period of June to September 2021 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))
- ii) Gridded Standard Precipitation Index (SPI) and Standardized Precipitation Evapotranspiration Index (SPEI) at 4 weekly, 1, 2, 3, & 4 monthly time scales. Uploaded the maps of the aforementioned timescales at weekly basis on IMD Pune website.
- iii) Monthly and cumulative Standardized Precipitation Index (SPI) maps were prepared for the month ending May 2021 for use in Climate Diagnostic Bulletin of India. The same have also been uploaded in IMD Pune website.
- iv) Four weekly and cumulative Standardized Precipitation Index (SPI) maps were prepared for the weeks ending 02.06.2021, 09.06.2021, 16.06.2021, 23.06.2021 and 30.06.2021 and supplied for use in Agromet Advisory Services Bulletin. The same have also been uploaded in IMD Pune website.
- v) Updated Enhanced Seasonal Consensus Outlook Statement (SCOS) South Asia - Jun to Sep 2021.
- vi) Daily All India Weather Summary and Weekly Weather Reports are being brought out on routine basis.

Important Press Releases: Updated Long Range Forecast for the 2021 Southwest Monsoon Season Rainfall: 2 (in Hindi & English), Onset of Southwest Monsoon over Kerala 2021: 1, Advance of southwest monsoon: 9, Report on Extremely Severe Cyclonic Storm TAUKTAE over the Arabian Sea (14-19 May, 2021): 1, Report on Very Severe Cyclonic Storm YAAS over the Bay of Bengal (23–28 May, 2021): 1.

#### Seismological Observational Network

Observation Type	Target	Commissioned so far	Data reporting during the month
Seismic stations	115	115	102
GPS stations	40	20#	-

# 20 out of 40 are connected with VSAT, remaining 20 are operating in stand-alone mode.

## Earthquake and Tsunami monitoring

**Earthquake:** 74 earthquakes were monitored in the Indian region out of which 1 event was greater than the magnitude (M) of 5.0.

**Tsunami:** 3 seabed earthquakes (M> 6) with a potential to generate tsunami occurred. This information was provided in less than 12 minutes of occurrence of all the events.

## Ocean Observation System

Type of Platform	Target	Commissioned till June, 2021	Data received during June, 2021
Argo Floats *	200	374	103
Moored Buoys	16	19	14
Tide Gauges	36	36	28
High Frequency (HF) Radars	10	12	11
Acoustic Doppler Current Profiler (ADCP)	20	20	18
Tsunami Buoys	4	7	3
Wave Rider Buoy	23	16	9

\*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)	12
2	Tuna Fishing Advisories	6
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)	30
5.	Coral Bleaching Alert System	10

## Outreach and Awareness

Secretary, MoES and Dr. G. A. Ramadass, Director, National Institute of Ocean Technology (NIOT) participated in a panel discussion on Deep Ocean Mission in Doordarshan News on June 17, 2021.

Secretary, MoES attended the Cabinet Briefings by the Honourable Union Ministers Shri. Prakash Javadekar and Shri. Mansukh Mandviya at the National Media Centre on June 16, 2021.

Dr. Vijay Kumar, Scientist, MoES participated in a panel discussion on Deep Ocean Mission in program on 'Cabinet keba de faisle' on DD News on June 16, 2021.

Hindi workshop on the topic 'Hindi in the field of science' was organized through online mode in NIOT on 25th June 2021.

INCOIS celebrated the "World Ocean's Day" on 8 June 2021.

An online Hindi workshop was organized at INCOIS on 9 June 2021.

A webinar on "Numerical modeling of the coastal circulation around India" was organized by International Training Centre for Operational Oceanography (ITCOcean), INCOIS on 25th June 2021. 120 participants including 22 foreign nationals from different countries attended the online event.

Dr. A. Krishnakumar, Scientist D, Hydrology Group, National Centre for Earth Science Studies (NCESS) delivered a talk on "Climate change and its consequences: Increasing terrestrial phenomena" aired by All India Radio (AIR), Thiruvananthapuram on 20 June 2021.

The First IITM Monsoon discussion seminar with a focus on "Onset and LRF of monsoon 2021" was organised on 25th June 2021. <https://youtu.be/TwqwpX8ryN4>

41st Prof. R. Ananthkrishnan colloquium was delivered by Dr. Dipanjan Dey, Department of Meteorology, Stockholm University, Sweden, on the topic "Lagrangian Tracing and Analysis of the South Asian Summer Monsoon Precipitation" on 16th June 2021. <https://youtu.be/Zlp01PVja6M>

A webinar on “Complex diseases: Yoga unravelling the pharmacy within” by Dr. Rima Dada, Professor, All India Institute of Medical Sciences (AIIMS), New Delhi was arranged on 21<sup>st</sup> June 2021. [https://youtu.be/21LogxZbf\\_M](https://youtu.be/21LogxZbf_M)

As an initiative, the India Meteorological Society (IMS) along with IMD, IITM, NCMRWF, National Disaster Management Authority (NDMA) organized a workshop/ brainstorming session for media and disaster managers of Bengal, Odisha, Kerala, Maharashtra, Bihar and Uttar Pradesh for lightning forecast, warning dissemination, dos and don'ts on 28<sup>th</sup> June 2021. <https://youtu.be/2Frp0V162QA>

IITM-ENVIS (Environmental Information System) arranged various educational and awareness events on the occasion of World Environment Day on 4<sup>th</sup> June 2021.

IMD released updated Long Range Forecast for 2021 Southwest Monsoon Season Rainfall on 1<sup>st</sup> June, 2021. Dr. M. Mohapatra, IMD presented the updated Long Range Forecast (LRF) for southwest monsoon in the on-line press conference and interacted live with media and general public on the issue. The same is available at the link: <https://www.youtube.com/watch?v=wT3bhbAnb7o>

NDMA released May issue of “Aapda Samvad” highlighting the monitoring process of the two cyclones Tauktae and Yaas during May, 2021. The issue is available at the link:

[https://ndma.gov.in/index.php/Reference\\_Material/NDMASamvaad](https://ndma.gov.in/index.php/Reference_Material/NDMASamvaad)

Dr. M. Mohapatra, IMD delivered online public talk cum presentation on the subject “Understanding Indian Cyclones” organized by a Marathi magazine BHAVTAL which works for environmental awareness across Maharashtra on 4<sup>th</sup> June 2021.

41-ISEA (Indian Scientific Expedition to Antarctica) workshop was organised online on 8<sup>th</sup>, 10<sup>th</sup> and 11<sup>th</sup> June 2021 for evaluating scientific proposals for participation in the 41<sup>st</sup> ISEA. During three-day's workshop, about 33 (17 ongoing and 16 new) scientific proposals were evaluated by the experts committee.

The 6<sup>th</sup> lecture of the Webinar Series- Indian Polar and Ocean Mission entitled ‘Exploring the largest geoid low on earth through deep seismological observation’ was delivered by Dr. Sanjay Negi on 4<sup>th</sup> June, 2021.

A national level Quiz Competition was organized on the occasion of World Environment Day and World Oceans Day 2021 on 5<sup>th</sup> June, 2021. Around 3000 candidates across India had participated in the competition.

### **Publications**

Subject	Publications			Ph.Ds		
	April, 2021 – May 2021	June, 2021	Total	April, 2021 – May 2021	June, 2021	Total
Atmospheric Sciences	46	23	69	1	2	3
Ocean Science and Technology	19	10	29	-	-	-
Polar Sciences	13	4	17	-	-	-
Geosciences and resources	12	12	24	-	-	-
Total	90	49	139	1	2	3

**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	30	0
Sagar Manjusha	0	30	0
Sagar Tara	14	16	1
Sagar Anveshika	16	14	1
Sagar Kanya	20	10	1
Sagar Sampada	0	30	0

## Annex II

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

Prithvi Bhavan, Lodhi Road  
New Delhi-110 003

Dated, the 7<sup>th</sup> July, 2021

### CERTIFICATE

(FOR THE MONTH OF JUNE, 2021)

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, 2021. 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 | - 03 |

*Indira Murthy*  
07/07/21

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