

**Ministry of Earth Sciences (MoES)**  
**Summary of Important Developments –September,2020**

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>

☐ **Cases of sanction for prosecution pending in the Ministry for more than three months:** Nil

☐ **Particulars of cases in which there has been a departure from the Transaction of Business rules of established policy of the Government:** Nil

☐ **Status of implementation of e-Governance :** Being implemented

☐ **Status of Public grievances:**

No. of Public Grievances redressed during the month	No. of Public Grievances pending at the end of the month
24	14

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:**

1. Quantitatively, the 2020 All India monsoon seasonal rainfall during 1<sup>st</sup> June to 30<sup>th</sup> September 2020 has been 95.8 cm against the long period average of 88.0 cm based on data of 1961-2010 (109% of its Long Period Average (LPA)). In general, the country received good distribution of rainfall this year.
2. The following Memorandum of Understandings (MoU) were signed for collaborations in various fields of earth science and technologies :
  - a. Pondicherry University and National Institute of Ocean Technology(NIOT) for cooperative research in Marine Biology, Microbiology and Biotechnology on 09<sup>th</sup> September 2020.
  - b. Council of Scientific and Industrial Research- Central Salt and Marine Chemicals Research (CSIR-CSMCRI), Bhavnagar, Gujarat and NIOT for cooperative research in large scale seaweed, algal culture and desalination on 18<sup>th</sup> September 2020.
  - c. India Meteorological Department (IMD) and National Institute of Ocean Technology (NIOT) for installation of Doppler Weather Radar.
3. An incubation centre was launched at NIOT, Chennai to facilitate start-ups in Ocean Technology.
4. In the context of oil spill fears owing to fire on MT New Diamond vessel, Indian National Centre for Ocean Information Services (INCOIS) provided oil spill trajectory patterns to Sri Lankan Met Department which was well appreciated.

All instructions / guidelines regarding lockdown due to COVID-19 issued by the government are strictly adhered.

There was no matter pending before the Cabinet requiring decision/approval.

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##### 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 mode. Presently, 40 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.

All instructions / guidelines regarding lockdown due to COVID-19 issued by the government are strictly adhered.

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, 42.57 million farmers in the country are getting advisories through SMS directly.

#### Atmospheric Observation Systems Network

Observation Type	Commissioned so far	Installations during the month	Data Reporting
Automatic Weather Station (AWS)	322*	-	271
Automatic Rain Gauge (ARG)	356**	--	315
GPS Sonde based RS/RW (Radio Sonde/Radio Wind) Stations	56	--	56
Doppler Weather Radar (DWR)	25***	--	24
Ozone (Ozone Sonde + Total Ozone)	04	--	04
Surface Ozone (Electrochemical Concentration Cell method)	07	--	07
Nephelometer	12	--	12
Sky Radiometer	20	--	17
Black Carbon Monitoring Systems (Aethalometer)	25	--	23
System of Air Quality Monitoring System (SAFAR)	10 (Delhi) 10 (Mumbai) 10 (Ahmedabad)	--	09 (Delhi) 10 (Mumbai) 10 (Ahmedabad)
Hydromet. (Indian Meteorological Department (IMD) & Extra-departmental excluding AWS & ARG) 3700	---	--	3214
Aviation	79	--	79
Radiation Stations	46	---	46

\* Out of Total 722, 400 are outlived.

\*\* Out of total 1356, 1000 are outlived.

\*\*\* In addition, there are 2 Doppler Weather Radars of ISRO.

High Wind Speed Recording Systems (HWSR) installed at Bhubaneswar, Kakinada, Puri, Ongole, Cuddalore (Tamilnadu) during the month.

#### Modelling

Every week on all Thursdays during September 2020, National Centre for Medium Range Weather Forecasting (NCMRWF) coupled model based Extended Range Prediction (ERP) up to next four weeks for rainfall, surface temperature, and winds were provided in real-time to Space Applications Centre (SAC) / Indian Space Research Organisation (ISRO), Snow and Avalanche Study Establishment (SASE) / Defence Research and Development Organisation (DRDO), Indian Air Force (IAF), Navy, Geological Survey of India (GSI) and (viii) of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) countries.

#### Monthly Weather Summary (September 2020)

##### a) Important Weather Events during the month

Low Pressure Systems: During the month, three low pressure systems formed during 6-9, 13-16, and 20-30 September 2020 including one over Arabian Sea and two over Bay of Bengal. These systems have caused very intense and widespread rainfall activity during the month over southeast, central, west and northwest India. Widespread rainfall/thunderstorms along with intense to very intense rainfall activity associated with these systems; especially that related with the last one system has lead to very intense rainfall over East Uttar Pradesh, Bihar and Sub-Himalayan West Bengal.

**b) Rainfall Scenario:** The rainfall for the country as a whole for the month of September 2020 has recorded as 177.3mm which is 4% higher than its Long Period Average (LPA) of 170.2mm.

**c) Heavy Rainfall Events:**

Warning issued for	No. of Heavy/Very Heavy Rainfall Events (>64.4 mm): 392
	Percentage correct (in %) for Rainfall >64.4mm
Day1 / 24 Hours	87%
Day2 / 48 Hours	88%
Day3 / 72 Hours	88%

**d) Temperature Scenario:** The Mean Temp for the month for the country as a whole was 28.05°C; which was above normal by +0.74°C. The highest maximum temperature of 43.8°C was recorded at Ajmer (East Rajasthan) on 26th September 2020, over the plains of the country during the month.

**e)Thunder squall & Hailstorm activity:**Thunder squall (TS)& Hailstorm activity during the month (till 0830 IST of 30-09-2020) is recorded as under:

S. No.	Region	TS Days	Date of Maximum TS Activity	Hail Events	Squall Events
1.	South Peninsular India	-	-	Nil	Nil
2.	Northwest India	-	-	Nil	Nil
3.	Northeast India	-	-	Nil	Nil
4.	East India	-	-	Nil	06 (Port Blair on 18/09/20, 19/09/20 & 29/09/20)
5.	Central India	-	-	Nil	Nil
6.	West India	-	-	Nil	Nil

**Bulletins/Warnings/Press Releases Issued:**

All India Weather Bulletins –120 (issued four times daily), All India weather inference and severe weather warnings – 120 (issued four times daily), All India Weekly Weather Reports – 4 (issued every Thursday), Mountain weather bulletins including severe weather warnings for Western and Central Himalayan region – 60, Marine Weather forecast Bulletins-60, Tropical Weather Outlook for the north Indian Ocean – 30, Bulletins of the Severe Weather Forecast Programme -30, Related to commencement of withdrawal of South West (SW) Monsoon 2020- 1, Related to intense rainfall activity over different parts of the country- 3, Related to current weather status and outlook for next two weeks- 4, Related to South West monsoon, Seasonal Performance -1.

**Publications & Operational Reports:**

- i) Daily All India Weather Summary and Weekly Weather Reports are being brought out on routine basis.
- ii) Five (5) weekly and cumulative Standardized Precipitation Index (SPI) maps were prepared for the weeks ending 02, 09, 06, 23 & 30 September 2020 and uploaded at IMD Pune website.
- iii) Gridded Standardized Precipitation Index (SPI) & Standardized Precipitation Evapo transpiration Index (SPEI) at 0.5\*0.5 degree resolution at 4 weekly 1, 2, 3 & 4 monthly time scales computed and maps of same timescales are being uploaded at weekly basis on IMD Pune website.
- iv) Climate Diagnostics Bulletin of India for June 2020 has been brought out and same is uploaded on IMD Pune website.
- v) ENSO bulletin for September 2020 and Seasonal Climate Outlook for South Asia for the months of September to December 2020 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)).

**Seismological Observational Network**

Observation Type	Target	Commissioned so far	Data reporting during the month
Seismic stations	115	115	100
GPS stations	40	20#	18

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

### Earthquake and Tsunami monitoring

**Earthquake:** 115 earthquakes were monitored in the Indian region out of which 5 events were greater than 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 September, 2020	Data received during September, 2020
Argo Floats *	200	374	136
Moored Buoys	16	19	12
Tide Gauges	36	36	26
High Frequency (HF) Radars	10	12	8
Acoustic Doppler Current Profiler (ADCP)	20	20	18
Tsunami Buoys	7	7	3
Wave Rider Buoy	23	16	11

\*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)	24
2	Tuna Fishing Advisories	19
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)	30
5.	Coral Bleaching Alert System	10

INCOIS provided rough sea alert (swell height 1.5 - 3.0 m, peak wave period 15-19 s), for the states of Karnataka, Kerala, Lakshadweep, Tamil Nadu, Odisha, West Bengal and Andaman & Nicobar Islands during September 9-11, 2020.

### Outreach and Awareness

NCMRWF conducted a course on 'Introduction to Numerical Weather Prediction and Data Assimilation' for Indian Air Force Air Warriors during 21-25 September 2020.

Hindi Divas & Pakawada were celebrated at all MoES institutes. Various competitions were organised to promote the use of Hindi.

Third meeting of the Brazil, Russia, India, China and South Africa (BRICS) Working Group on Ocean and Polar Science and Technology was organized by National Centre for Polar and Ocean Research (NCPOR) on 23 September 2020. About 50 delegates from BRICS countries attended the meeting and 21 scientific presentations were made.

A one day workshop on 'Recent Advances in Ocean Science & Technology' was held by NIOT. Experts from various national and international organizations delivered lectures. The participating international organizations include UNESCO-IOC (United Nations Educational, Scientific and Cultural Organization-Intergovernmental Oceanographic Commission), Japan Agency for Marine-Earth Science and Technology (JAMSTEC), Universities in the United States of America and Singapore, Institute of Electrical and Electronics Engineers (IEEE) and International Society of Offshore and Polar Engineers (ISOPE).

National Institute of Disaster Management (NIDM), Ministry of Home Affairs in collaboration with INCOIS, Ministry of Earth Sciences, Govt. of India organized a Webinar on "Tsunami Risk Reduction and Resilience" on 01 September 2020. More than 900 participants attended this webinar.

Online Short Term Training Course on "Preparation and Dissemination of Agromet Advisories at Block level under Gramin Krishi Mausam Seva (GKMS) scheme" for Subject Matter Specialists (Agromet) was organized during 24-30 September, 2020. Total 32 trainees attended the course.

The Fourth Indian Institute of Tropical Meteorology (IITM) Monsoon discussion seminar with a focus on "Withdrawal of monsoon" was organised on 21<sup>st</sup> September 2020.

As an initiative by the MoES, (IITM) organized "Earth Sciences Popular Lectures" webinar series in coordination with MoES & its Institutions. Total 5 talks were delivered by MoES institutes in the month of September, 2020.

As a part of the two year long commemoration of 150th birth anniversary of Mahatma Gandhi, a webinar on "The Relevance of Gandhian Philosophy in the Present Context" was organised on 16th September 2020 at IITM Pune.

### **Publications**

Subject	Publications			Ph.Ds		
	April-August 2020	September, 2020	Total	April-August 2020	September, 2020	Total
Atmospheric Sciences	102	21	123	4	-	4
Ocean Science and Technology	72	4	76	-	-	-
Polar Sciences	20	11	31	1	-	1
Geosciences and resources	13	4	17	-	-	-
Total	207	40	247	5	-	5

### **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	0	30	0
Sagar Anveshika	12	18	1
Sagar Kanya	05	25	1
Sagar Sampada	09	21	1

## Annex II

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

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New Delhi-110 003

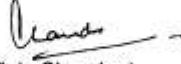
Dated, the 1<sup>st</sup> October, 2020

### CERTIFICATE

(FOR THE MONTH OF SEPTEMBER, 2020)

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 September, 2020. 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	- 01
(e)	Number of posts that would fall vacant during the next 6 months	- 01

  
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