

Ministry of Earth Sciences (MoES)
Summary of Important Developments –June,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 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, 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 & 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
12	06

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 have been updated on AVMS:** 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 have been received but the proposals are yet to be submitted to the ACC Secretariat:** NIL

Annex-I

Important policy decision taken and major achievements:

1. The **Southwest Monsoon** has covered the entire country on 26th June 2020 against the normal date of 8th July.
2. **Integrated Flood Warning System (IFLOWS) for Mumbai** developed by Ministry of Earth Sciences was launched on 12th June 2020 by Hon'ble Minister of Earth Sciences and Hon'ble Chief Minister of Maharashtra. IFLOWS is a state of art system to enhance the resilience of Mumbai by providing early warning for flooding specially during high rainfall events and cyclones.
3. **Current Weather Status and Weather Forecast** for next two weeks has been started in the form of weekly video capsule w.e.f. 12th June 2020. The video capsule is being uploaded at Facebook page of Weather India and Mausam NWFC (National Weather Forecasting Centre) every Friday in both English and Hindi languages.
4. **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 mode. Presently, 40.1 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)	*305 + 15 (705-400)	15(Kerala)	286
Automatic Rain Gauge (ARG)	356*** (1356-1000)	--	336
GPS Sonde based RS/RW Stations	56	--	26
Doppler Weather Radar (DWR)	** 25	--	24
Ozone (Ozone Sonde + Total Ozone)	04	--	04

Surface Ozone (<u>Electrochemical Concentration Cell</u> method)	07	--	07
Nephelometer	12	--	12
Sky Radiometer	20	--	13
Black Carbon Monitoring Systems (Aethalometer)	25	--	23
Air Quality Monitoring System (SAFAR)	10 (Delhi) 10 (Mumbai) 10 (Ahmedabad)	--	09 (Delhi) 10 (Mumbai) 10 (Ahmedabad)
Hydromet. (IMD & Extra-departmental excluding AWS & ARG)	---	--	3894
Aviation	79	--	79
Radiation Stations	46	---	46

* Out of Total 705, 400 are outlived.

** In addition there are 2 Doppler Weather Radar of ISRO.

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

PC based Current weather instrument system having facility of generating, Met report and other aviation reports installed at Kolkata, Thiruvananthapuram and Patna airport.

Monthly Weather Summary (June 2020)

- a) **Western Disturbances(WD) and Severe Weather:** Five WDs affected Western Himalayan Region and adjoining plains of northwest India during the month causing scattered to fairly widespread rain/thundershowers over Western Himalayan Region. Movement of two WDs among them caused isolated to scattered rain/thundershowers over adjoining plains of Northwest India during the month. Intense rainfall activity over Punjab, Himachal Pradesh, Uttarakhand, Haryana, Chandigarh & Delhi and hailstorms and thunderstorms/ dust storms accompanied with gusty winds at isolated places also had been reported from these regions during the passage of those two systems.
- b) **Temperature Scenario:** The Mean Temp for the month for the country as a whole was 29.01°C; this was near normal (-0.14°C below normal temp.). Heat Wave conditions over some parts with severe heat wave conditions at isolated pockets had been observed over West Rajasthan on two days and Heat wave conditions at isolated pockets had been observed over West Rajasthan on two days during the month. The highest maximum temperature of **47.8° C** had been recorded at Bikaner (West Rajasthan) on 17th June 2020, over the plains of the country during the month.
- c) **Advancement of Southwest Monsoon:** Southwest Monsoon advanced into entire South Arabian Sea and Lakshadweep- Maldives area and most parts of Kerala &Mahe and some parts of Tamilnadu, Puducherry &Karaikal on 1st June 2020 **coinciding with its normal date of onset over Kerala**;it has coveredentire Kerala &Mahe on 4th June 2020 and entire Tamil Nadu,Puducherry&Karaikkal on 10th June 2020. Monsoon entered Northeast India and covered most parts of Mizoram, Manipur and Tripura and some parts of Assam & Nagaland also on 10th June 2020. It covered entire Karnataka, Rayalaseema & Coastal Andhra Pradesh and progressed into Maharashtra, Telangana, Chhattisgarh and Odisha on 11th June 2020; it has covered entire Telangana, Bay of Bengal and northeastern states on 12th;it covered entire Odisha & West Bengal on 13th and covered entire Maharshtra (including Mumbai) and entered Gujarat and Madhya Pradesh on 14th June; it covered entire Chhattisgarh, Jharkhand and Bihar and entered East Uttar Pradesh on 15th ; it has further advanced into some more parts of West Madhya Pradesh, most parts of East Madhya Pradesh, and some more parts of East Uttar Pradesh on 16th June 2020; there had been a hiatus from then in advance of monsoon till 22nd; from 23rd onwards it started progressing further and thus covered entire Arabian Sea, entire Gujarat and Madhya Pradesh, most parts of Uttar Pradesh and Himachal Pradesh, entire Uttarakhand and Jammu & Kashmir, Ladakh, Gilgit-Balistan & Muzaffarabad on 24th June 2020; advancing further, it covered entire Uttar Pradesh and Himachal Pradesh, entire

Delhi, some parts of Haryana and most parts of Punjab on 25th June, 2020; and covered entire country on 26th June, 2020.

- d) **Thundersquall & Hailstorm activity:** Thundersquall & Hailstorm activity during the month (till 0830 IST of 30-06-2020) is recorded as under:

S. No.	Region	TS Days	Date of Maximum TS Activity	Hail Events	Squall Events
1.	South Peninsular India	30	10/06/20	Nil	Nil
2.	Northwest India	30	28/06/20	01(Churu on 02/06/20)	Nil
3.	Northeast India	29	11/06/20	Nil	Nil
4.	East India	30	01/06/20	Nil	01(Alipur on 27/06/20)
5.	Central India	30	27/06/20	Nil	02(Nagpur 11/06/20, 14/06/20)
6.	West India	24	25/06/20 & 26/06/20	Nil	Nil

Note: The convective activities mentioned above had been predicted and corresponding warnings were issued about 4-5 days in advance of the occurrence of the event. In addition to that, nowcasts were also given by corresponding RMCs/MCs with respect to these events.

- e) **Rainfall Scenario:**

The rainfall for the country as a whole for the month of June 2020 has recorded as 196.2mm which is 18% higher than its Long Period Average (LPA) of 166.9mm.

- f) **Heavy / Very Heavy Rainfall Warning Skill:** No. of Heavy/Very Heavy Rainfall Events (>64.4 mm) and Warning Skill (correctness in %) of spatial distribution in issued warnings during the month is given below:

Warning issued for	No. of Heavy/Very Heavy Rainfall Events (>64.4 mm): 409
	Percentage correct (in %) for Rainfall >64.4mm
Day1 / 24 Hours	73%
Day2 / 48 Hours	72%
Day3 / 72 Hours	72%

Under BIMSTEC activity Meteograms and EPSgrams for 20 locations over Bhutan (new stations) are generated daily.

Bulletins/Warnings/Press Releases Issued: All India Weather Bulletins(120), All India inference and severe weather warnings(120), Press Releases related to (a)Low Pressure Area/Depression/Tropical Cyclones(6),(b)onset and advance of SW Monsoon 2020(07), (c) forecast of SW Monsoon 2020 rainfall of SW Monsoon(02),(d) intense southwest monsoon rainfall spell over northeast & adjoining east India(02), (e) launching of Flood Warning System in Mumbai(01), Nowcast Guidance Bulletins for severe weather (30), All India Weekly Weather Reports (4), FDP Storm Bulletins (30) and Heat wave bulletins(30).

Publications & Operational Reports issued: Mausam Journal (Issue 71 Part-II April 2020), Daily All India Weather, Summary and Weekly Weather Reports, ENSO and Indian Ocean Dipole (IOD) bulletin for the month of June, 2020 and Seasonal Climate Outlook for South Asia for the months of June to September 2020 (www.imdpune.gov.in/Clim_Pred_LRF_New/Products.html), Gridded Standardized Precipitation Index (SPI) & Standardized Precipitation Evapotranspiration Index (SPEI) at 0.5*0.5 degree resolution at 4weekly 1,2,3 & 4 monthly

time scales computed and maps of same timescales are being uploaded at weekly basis on IMD Pune website, CRS Research Report No. 001/2020 entitled "Development of a New (1.0° x 1.0°) Monthly Gridded Rainfall data set over South Asian Region (1981--2019)" Climate Diagnostics Bulletin of India for March, 2020,

Geoscience Research

Seismological Observational Network

Observation Type	Target	Commissioned so far	Data reporting during the month
Seismic stations	115	115	101
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: 43 earthquakes were monitored in the Indian region out of which 8 events were greater than magnitude (M) of 5.0.

Tsunami: 5 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 5 events.

Ocean Observation System

Type of Platform	Target	Commissioned till June, 2020	Data received during June, 2020
Argo Floats *	200	374	150
Moored Buoys	16	22	13
Tide Gauges	36	36	27
High Frequency (HF) Radars	10	12	9
Acoustic Doppler Current Profiler (ADCP)	20	20	18
Tsunami Buoys	7	9	3
Wave Rider Buoy	16	28	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)	23
2	Tuna Fishing Advisories	23
2	Ocean State Forecast (OSF)-Wave, Wind, Currents, SST, MLD and D20 forecasts	30
4.	Real time global ocean analysis (daily)	30
5.	Coral Bleaching Alert System	10

Marine Living Resources

One new zoogeographical record of the deep-sea sponge crab *Sphaerodromianux* Alcock, 1900 was revealed. This was collected with HSDT (CV) net during FORV Sagar Sampada cruise no. 349 leg 1 from 290 m depth in the eastern Bay of Bengal. This species is previously known only from Myanmar.

Outreach and Awareness

As an initiative by the Ministry of Earth Sciences (MoES), IITM Pune (MoES) organized "Earth Sciences Popular Lectures" webinar series in coordination with MoES & its Institutions. Total 9 talks were delivered in the month of June by MoES institutes.

The first International OTEC webinar was held on 26th June with participation of experts from various countries and NIOT as coordinating agency.

On the occasion of World Ocean Day(June 8th 2020), a webinar on the topic "Oceans and life on earth" was organized by Centre for Marine Living Resources and Ecology (CMLRE).

Subject	Publications			Ph.Ds		
	April-May 2020	June, 2020	Total	April-May 2020	June, 2020	Total
Atmospheric Sciences	48	23	71	-	2	2
Ocean Science and Technology	20	16	36	-	-	-
Polar Sciences	6	6	12	-	-	-
Geosciences and resources	-	-	-	-	-	-
Total	74	45	119	-	2	2

Publications

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(Corona Lockdown)	0
Sagar Manjusha	3	27(Corona Lockdown)	1
Sagar Tara	6	24(Corona Lockdown)	0
Sagar Anveshika	11	19(Corona Lockdown)	1
Sagar Kanya	12	18(Corona Lockdown)	1
Sagar Sampada	0	30(Corona Lockdown)	-

Annex II

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

Prithvi Bhavan, Lodhi Road
New Delhi-110 003

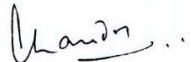
Dated, the 1st July, 2020

CERTIFICATE

(FOR THE MONTH OF JUNE, 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 June, 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 | - 02 |
| (e) | Number of posts that would fall vacant during the next 6 months | - 01 |


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