

**Ministry of Earth Sciences (MoES)**  
**Summary of Important Developments –June,2017**

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 &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>There is no response from the private industries for a long time. Accordingly, it is proposed to close this item for monthly reporting. As and when the response is received, the same will be reported.</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
18	36

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

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### Annex-I

#### **Important policy decision taken and major achievements:**

India Meteorological Department issued the second stage monsoon forecast. As per the Second Stage Long Range Forecast of southwest monsoon 2017, rainfall over the country as a whole for the 2017 southwest monsoon season (June to September) is most likely to be NORMAL with 98% of long period average (LPA) and model error of  $\pm 4\%$ . Region wise, the season rainfall is likely to be 96% of LPA over North-West India, 100% over Central India, 99% over South Peninsula and 96% of LPA over North-East India all with a model error of  $\pm 8\%$ . The monthly rainfall over the country as whole is likely to be 96% of its LPA during July and 99% of LPA during August both with a model error of  $\pm 9\%$ .

Monsoon has covered most parts of the country outside some parts of plains of northwest India. The advance of southwest monsoon had been slightly behind the schedule over the central as well as eastern parts of the country and near normal over northwest India.

POSOCO-IMD weather portal, the joint project of Power System Operation Corporation Limited (POSOCO) and India Meteorological Department (IMD) for utilization of weather information for power management was inaugurated on 23<sup>rd</sup> June 2017.

#### **Minimum Government, Maximum Governance:**

Agromet Advisories are being communicated to 214 lakh farmers of the country through mobile SMS.

Adverse weather SMS warning are being sent through mobiles to State Govt. officials / Disaster related officials / Central Govt. Organization/Common men.

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.

Training classes for Forecasters Training Course (Batch No. 184) started in electronic mode by video conferencing at various centres w.e.f. 19-06-2017.

#### **Atmospheric Observation Systems Network**

Observation Type	Target	Commissioned up to June, 2017	Data reporting
Automatic Weather Station (AWS)	675	682	386
Automatic Gauge (ARG)	1350	1350	521
GPS Sonde	10	43	43
Doppler Radar (DWR)	23	20	18
Ozone	17	15	5
Black Carbon Monitoring Systems (Aethalometer)	16	16	16
Other Rain Gauges excluding ARG and AWS @	-	-	2399
Aviation	--	73	73

@ Data received from various agencies viz. Air Force, Railways, Central Water Commission, State Agriculture, State Irrigation and India Meteorological Department (IMD)

The commissioning of the instrument used for reporting the runway visual range, Indigenously designed and jointly developed by IMD & CSIR-National Aerospace Laboratories (CSIR-NAL) called as **DRISHTI** was extended to Mangalore Airport.

Distant Indicating Wind Equipment (DIWE) was installed at Ludhiana airport.

### **Atmospheric Processes, Modeling and Services**

#### **Monthly Weather Summary (June, 2017)**

**Deep Depression over the Bay of Bengal (11-13 June 2017):** A depression formed over north Bay of Bengal in the evening of 11th June 2017 in association with advance of southwest monsoon over the region. It moved north-northeastwards, intensified into a **deep depression** and crossed Bangladesh coast near Khepupara between 0430 & 0530 IST of 12th June 2017. It lay as a deep depression over coastal Bangladesh, close to Northeast of Khepupara at 0530 IST of 12th June 2017. It then moved northeastwards across Bangladesh, weakened gradually into a depression around mid night of 12th June 2017 and further into a well marked Low pressure area over Nagaland and neighborhood in early morning of 13th June 2017. It caused heavy rainfall activity over northeastern states.

**Low pressure Systems :** Two low pressure areas developed during the month, one over northeast Arabian Sea and adjoining Gujarat and the other over north Bay of Bengal leading to good rainfall activity over Gujarat and over Odisha respectively.

#### **Rainfall in June, 2017**

Rainfall during the month of June, 2017 was large excess in 4, excess in 11, normal in 14, deficient/ large deficient in 7 and no rain in 0 of 36 meteorological sub- divisions. The rainfall for the country as a whole for the month has been recorded as 170.2 mm (+4%) against the normal rainfall for the month as 163.6 mm.

**Heavy Rainfall Verification for the month:** Total No. of Heavy Rainfall events: 350 (over northeastern states during 11<sup>th</sup> to 20<sup>th</sup> June 2017)

Days→	Day 1	Day 2	Day 3
Percentage correct	74	72	71

**Heat Wave :** Heat wave to Severe heat wave conditions prevailed at a few places over West Rajasthan on 4<sup>th</sup> June; over Jammu & Kashmir, Punjab, Haryana, Chandigarh & Delhi, Uttar Pradesh, West Rajasthan, Odisha and East Madhya Pradesh on 5<sup>th</sup> June; over Haryana, Chandigarh & Delhi, Uttar Pradesh, East Madhya Pradesh and coastal Andhra Pradesh on 6<sup>th</sup> June and at isolated places over East Uttar Pradesh on 15<sup>th</sup> June 2017. Heat wave warnings skill (% correct) during June 2017 is as follows:

Days→	Day 1	Day 2	Day 3
Percentage correct	98	98	98

Daily All India Weather Summary and Weekly Weather Reports are being brought out on routine basis. Climate Diagnostics Bulletin of India were brought out for April & May 2017.

Seasonal Climate Outlook for South Asia for the month of May 2017 was issued.

High resolution (4km) regional data assimilation (NCUM-RegDA) is made operational to predict high impact weather events over monsoon region.

Model predictions of wind, relative humidity and rainfall over Sriharikota were provided in real-time to SHAR/ISRO during the launch of GSLV MK III GSAT-19 and PSLV C38.

## **Geoscience Research**

### **Seismological Observational Network**

Observation Type	Target for XII Plan	Commissioned so far	Data reporting during the month
Seismic stations	130	99	58
GPS stations	40	28	22

### **Earthquake and Tsunami monitoring**

**Earthquake:** 21 earthquakes were monitored in the Indian region out of which 2 events were greater than magnitude (M) of 5.0.

### **Koyna borehole drilling**

Drilling of the first pilot borehole KFD1 has been completed to 3000 m depth. This is the deepest scientific borehole drilled through hard crystalline basement rocks in the country. Comprehensive geophysical logging has been carried out between 1500 m and 3000 m depth. The in-situ stress measurements were carried out in the granitic basement formation, the deepest measurement so far in the country.

**Tsunami:** 4 major seabed earthquakes (M > 6) with a potential to generate tsunami were monitored. This information was provided within 12 minutes of occurrence in respect of all the events.

### **Ocean Observation System**

Type of Platform	Target	Commissioned till June, 2017	Data received during June, 2017
Argo Floats <sup>A</sup>	200	291	137
Drifters <sup>*</sup>	150	103	6
Moored Buoys	16	19	17
Tide Gauges	36	34	28
High Frequency(HF) Radars	10	10	9
Current Meter Array	10	11	2
Acoustic Doppler Current Profiler(ADCP)	20	21	18
Tsunami Buoys	7	9	4
Wave Rider Buoy	16	16	12

\*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)	17
2	Tuna Fishing Advisories	1
2	Ocean State Forecast(OSF)-Wave, Wind, Currents, SST, MLD and D20 forecasts	30
3.	Near Real time global ocean analysis (5-day averaged)	6
4.	Real time global ocean analysis (daily)	30
5.	Coral Bleaching Alert System	10

A scientific cruise in the northern Bay of Bengal was conducted onboard SagarKanya during 1-27 Jun, 2017 under Ocean Observation Network (OON) programme. Different oceanographic parameters were measured by Vertical Micro-structure profiler, underway CTD(Conductivity, Temperature and Depth), Radiosonde, Acoustic Doppler Current Profiler and shipbased Automatic Weather Station. One sea glider also deployed for 5 month mission in the northern Bay of Bengal to collect hydrographic observation. 19 participants from various institutes in India participated in the cruise.

### **Topographic surveys of Exclusive Economic Zone:**

Area covered during the month: 32,000 sq. km(approx.)

### **Ocean Technology**

A patent on "A Computer Implemented System for transmitting High frequency Ocean ambient noise in Real time (SHOR)" has been awarded to NIOT by the Patent Office, Germany dated 19<sup>th</sup> July 2016 for a term of 10 years. The patent is for the invention of a system for transmitting high frequency ocean ambient noise through various modes of communications in real-time for marine applications.

### **Capacity Building and Outreach**

A Memorandum of Understanding was signed between the Kerala University of Fisheries and Ocean Studies (KUFOS), Kochi and the Indian National Centre for Ocean Information Services (INCOIS), Hyderabad on 2nd June 2017 for long term collaboration in Education and Research.

Swachhata Pakhawda was observed in the Ministry and attached/subordinate offices and autonomous institutes during June 16-30, 2017. The employees participated in cleanliness drive in the premises and adjoining area, tree plantations, weeding out of old files etc. Action to condemn old and obsolete unserviceable items was also initiated. Various competitions, lectures were organised to spread awareness about cleanliness by MoES institutes. Cleaning activities were carried out in the three fishermen villages, Kadalur - Periyakuppam, Chinnakuppam and Aazhikuppam by National Institute of Ocean Technology (NIOT), an autonomous institute under Ministry of Earth Sciences. Method of segregation of waste was demonstrated and dustbins with segregation bags were provided.

Third International Yoga Day was celebrated June 21, 2017 and Yoga Training Programs/Yoga camps were organized.

World Environment Day was celebrated on 5<sup>th</sup> June 2017.

IMD & Himachal State Disaster Management Authority jointly organized Second user's conference on Awareness Program & Challenges in weather forecasting over Western Himalayan Region at Shimla on 15<sup>th</sup> June 2017.

India Meteorological Department (IMD) organized Hindi Sangoshti from 1-2 June, 2017 at Thiruvananthapuram in which 35 scientists participated.

A Hindi workshop on phonetic typing was organised on 28.6.2017 for the staff of the Ministry.

### **Utilization of Ocean Research Vessels during the month**

Vessel	Days at Sea / Utilization	Maintenance/ Inspection /Scientific Logistics / Cruise Preparation	No. of Cruise	No. of Port Calls / Port Stay/ Statutory survey
SagarNidhi	28	2	1	-
SagarManjusha	13	17	2	-
SagarPurvi	6	22	1	-
SagarKanya	0	30(Dry Dock)	-	-
SagarSampada	22	8	2	-

### **Publications in Science Citation Index(SCI) journals and PhDs awarded**

Subject	Publications			Ph.Ds		
	April – May, 2017	June, 2017	Total	April – May, 2017	June, 2017	Total
Atmospheric Sciences	25			1	1	
Ocean Science and Technology	14	1		-	-	
Polar Sciences	2	1		-	1	
Geosciences and resources	10			-	-	
Total	51			1	1	

Ministry of Earth Sciences

**CERTIFICATE**  
**(For the month of June, 2017)**

It is certified that the detailed status regarding all the posts pertaining to Ministry/Department of Earth Sciences have been updated on AVMS as on last day of the month of June, 2017. A summary of the status is given below :

- (a) Total number of posts required to be entered on AVMS : 6
- (b) Number of posts filled as on date : 5
- (c) Number of posts totally vacant as on date : 1
- (d) Number of posts under additional charge arrangement : 1
- (e) Number of posts that would fall vacant during the next 06 months : Nil

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