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IMD NEWS

INDIA METEOROLOGICAL DEPARTMENT
(Ministry of Earth Sciences)



APR – JUN 2021

Volume 14

Number 2

Weather Summary

April	May	June
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Heatwave & Temperature **Onset of SW Monsoon, 2021** **Advance of SW Monsoon, 2021**

Heatwave to severe heatwave conditions prevailed at: Many places over South Coastal Andhra Pradesh and at isolated places over northern parts of Tamil Nadu and Saurashtra & Kutch on one day each.

Heatwave conditions prevailed at: A few places over East Rajasthan on two days and Tamil Nadu, Puducherry & Karaikkal and West Rajasthan on one day each,

At isolated places over Saurashtra & Kutch on five days, Gangetic West Bengal on four days, Coastal areas of Odisha on three days, West Rajasthan, Delhi, Chandigarh Haryana, West Madhya Pradesh and Vidarbha on two days each and Telengana, Rayalaseema, southern parts of Uttar Pradesh and northern parts of East Madhya Pradesh on one day each.

Isolated hailstorm activity over reported Northwest India and adjoining northern parts of Central India, Telengana, North Interior Karnataka, Madhya Maharashtra, Marathwada, Vidarbha and Chhattisgarh, Northeast and East India.

The highest maximum temperature of 45.2 °C had been recorded at Banda (East Uttar Pradesh) on 28th April and the lowest minimum temperature of 4.8 °C had been recorded at Pantnagar (Uttarakhand) on 3rd April, 2021.

IMD issued forecast for the onset of the Southwest Monsoon, 2021 over Kerala on 14th May, 2021. “The onset of southwest monsoon over Kerala is likely to be on 31st May with a model error of ± 4 days”.

Southwest monsoon advanced into some parts of southwest Bay of Bengal, most parts of southeast Bay of Bengal, south Andaman Sea and Nicobar Islands and some parts of North Andaman Sea on 21st May, 2021 in association with the strengthening & deepening of southwesterly winds over the region and widespread rainfall activity.

Forecast verification of onset during last 5 years (2016-20) is as follows:

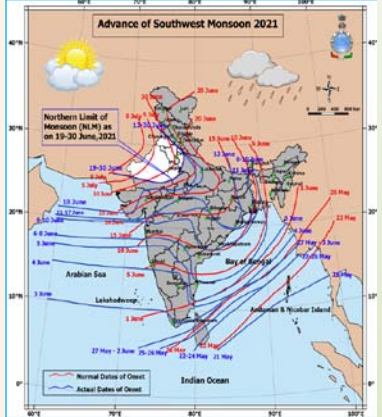
Year	Actual Onset Date	Forecast Onset Date
2016	8 th Jun	7 th Jun
2017	30 th May	30 th May
2018	29 th May	29 th May
2019	8 th Jun	6 th Jun
2020	1 st Jun	5 th Jun

The northern Limit of Monsoon (NLM) passed through 5° N/72° E, 6° N/75° E, 8° N/80° E, 12° N/85° E, 14° N/90° E and 17° N/94° E (latitude/longitude) till 31st May.

All India average temperature during May 2021 was 29.17 °C which was below normal by -0.57 °C. The normal temperature for the month of May is 29.74 °C.

No significant Heat wave spell was observed during the month over any parts of India except over isolated pockets of northwest Rajasthan where it was observed for 2 days.

SW Monsoon has advanced into some parts of South Arabian Sea & Lakshadweep area, south Kerala, south Tamil Nadu, remaining parts of Comorin - Maldives area and some more parts of SW BoB on 3rd June; thus, setting over Kerala on 3rd June, 2021. The monsoon advance over the country had been very fast due to favourable synoptic factors and covered entire northeastern States on 6th June, entire BoB on 12th June, entire Arabian Sea and most part of the country except NW India on 19th June. The Northern Limit of Monsoon (NLM) passed through Lat. 26°N / Long. 70°E as on 19th.



Heatwave conditions occurred at most places with severe heatwave conditions at isolated places over Punjab and Haryana, Chandigarh & Delhi on one day each, severe heatwave conditions at isolated places over East Rajasthan on one day and heat wave conditions at isolated places over Jammu division of J & K & Ladakh, West Rajasthan, West Uttar Pradesh and northern parts of West Madhya Pradesh on one day each.





Long Range Forecast of 2021 South west Monsoon

IMD released Long Range Forecast for “**2021 Southwest Monsoon Season Rainfall**” in the month of April on 16th April, 2021 through an Interactive VC. In this event, there had been presentations by **Dr. M. Rajeevan**, Secretary, MoES and by **Dr. M. Mohapatra**, DG, IMD. The highlights of the forecast are as follows:

- Southwest monsoon seasonal (June to September) rainfall over the country as a whole is most likely to be normal [96 to 104 % of Long Period Average (LPA)].
- Quantitatively, the monsoon seasonal (June to September) rainfall is likely to be 98% of the Long Period Average (LPA) with a model error of $\pm 5\%$. The LPA of season rainfall over the country as a whole for the period 1961-2010 is 88 cm.
- Neutral ENSO conditions are prevailing over the Pacific Ocean and Neutral Indian Ocean Dipole (IOD) conditions are prevailing over the Indian Ocean. The latest global model forecast indicates neutral ENSO conditions are likely to continue over the equatorial Pacific and negative IOD conditions are likely to develop over the Indian Ocean during the ensuing monsoon season.

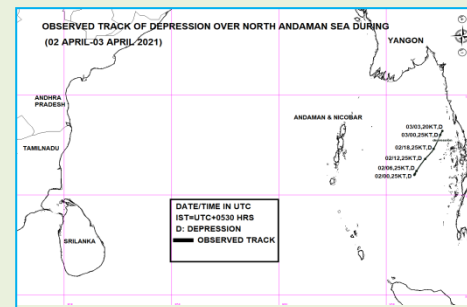
IMD released updated **Long Range Forecast** in the month of June on 1st June, 2021 through a Virtual Press Conference. The highlights of the forecast follow:

- Southwest monsoon seasonal (June to September) rainfall over the country as a whole is most likely to be normal (96 to 104 % of Long Period Average (LPA)).
- Quantitatively, the monsoon seasonal (June to September) rainfall over the country as a whole is likely to be 101% of the Long Period Average (LPA) with a model error of $\pm 4\%$. The LPA of the season rainfall over the country as a whole for the period 1961-2010 is 88 cm.
- If the southwest monsoon seasonal (June to September) rainfall over the four homogeneous regions is considered, rainfall is most likely to be Normal over Northwest India (92-108%) and South Peninsula (93-107%) whereas Seasonal rainfall is most likely to be below normal over North east India (< 95%) and above normal over Central India (>106%).
- The southwest monsoon seasonal (June to September) rainfall over the monsoon core zone, which consists of most of the rain fed agriculture regions in the country is most likely to be Above Normal (>106% of LPA).
- Monsoon seasonal rainfall is likely to be well distributed spatially. Most parts of the country is expected to receive normal to above normal rainfall during the season.
- The latest global model forecasts indicate that the prevailing neutral ENSO conditions are likely to continue over the Equatorial Pacific Ocean and possibility of development of negative IOD conditions are there over the Indian Ocean during the monsoon season.

Significant Weather Systems

Depression over Andaman Sea during 2-3 April

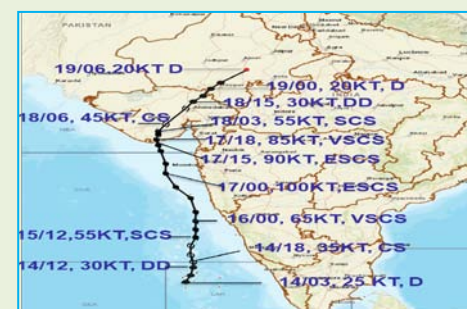
A low pressure area formed over SE Bay of Bengal (BoB) & adjoining south Andaman Sea in the early morning (0530 hrs IST) of 31st March. Under favourable environmental conditions, it concentrated into a Depression (D) over North Andaman Sea in the early morning (0530 hrs IST) of 2nd April. It moved north-northeastwards over North Andaman Sea and weakened into a WML around noon (1130 hrs IST) of 3rd April over North Andaman Sea and adjoining south Myanmar coast. IMD maintained continuous watch over the Bay of Bengal and Andaman Sea since 18th March. The observed track of the system during 2-3 April is presented in figure given below:



A preliminary report of Depression uploaded on the website at: http://www.rsmcnewdelhi.imd.gov.in/uploads/report/26/26_ea_f8e1_Preliminary%20Report%20on%20Depression%20April%202021.pdf

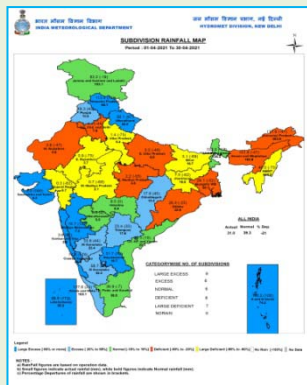
Extremely Severe Cyclonic Storm TAUKTAE over the Arabian Sea (14-19 May, 2021)

A low pressure area formed over SE & adjoining Lakshadweep area in the morning (0830 hrs IST) of 13th May, 2021. It lay as a well marked low pressure area over Lakshadweep area and adjoining SE Arabian Sea in the same evening (1730 hours IST of 13th May). It intensified into a deep depression over Lakshadweep area and adjoining southeast & eastcentral Arabian Sea in the same afternoon (1430 hrs IST) and into cyclonic storm “**TAUKTAE**” in the same midnight (2330 hrs IST) over the same region. It moved nearly northwards and intensified into a severe cyclonic storm in the evening (1730 hrs IST) of 15th May over eastcentral Arabian Sea. It intensified into a very severe cyclonic storm over eastcentral Arabian Sea in the early hours (0230 hrs IST) of 16th May. It weakened into a deep depression over north Gujarat region in the evening and into a depression over north Gujarat region and adjoining South Rajasthan in the midnight (2330 hrs IST) of 18th May. The observed track of the system is presented in figure given below:



Rainfall Scenario

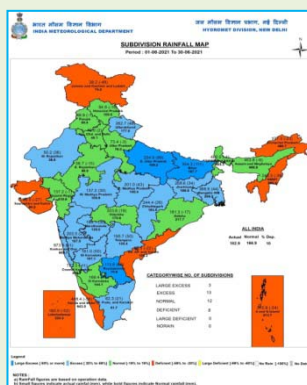
April: Very heavy rainfall at isolated places occurred over Assam & Meghalaya, SHWB & Sikkim, Arunachal Pradesh, Assam & Meghalaya and Kerala & Mahe on one day each during the month. Heavy rainfall occurred at isolated places over Kerala & Mahe on five days; over Tamil Nadu, Puducherry & Karaikkal on four days; over Himachal Pradesh, Odisha and Arunachal Pradesh on three days each; over Assam & Meghalaya, Andaman & Nicobar Islands, Coastal & South interior Karnataka on two days each. The sub-division wise rainfall distribution is given below:



May: The rainfall for the country as a whole, for the month of May-2021 has been recorded as 107.9 mm which is 174% of its Long Period Average (LPA) of 62.0 mm. The sub-division wise rainfall distribution is given below:



June: The rainfall for the country as a whole, for the month of June-2021 has been recorded as 182.9 mm which is 110% of its Long Period Average (LPA) of 166.9 mm. Sub division wise rainfall distribution is given below:



Significant Events

National Crisis Management Committee Meeting

Dr. M. Mohapatra, DG, IMD attended “**National Crisis Management Committee Meeting**” chaired by Hon’ble Prime Minister Shri Narendra Modi and Cabinet Secretary Shri Rajiv Gauba to review preparedness for the impending cyclone in the Arabian Sea “**Tauktae**” on 16th May, 2021 and for the Cyclone YAAS over the Bay of Bengal on 22nd May, 2021.



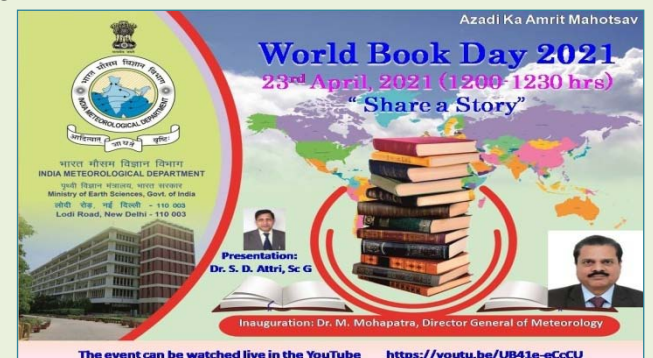
Dr. M. Mohapatra, DG, IMD briefing about extremely severe cyclonic storm **Tauktae** during the meeting under the Chairmanship of Hon’ble Prime Minister

Dr. M. Mohapatra, DG, IMD, PR of India with WMO and Member EC led Indian delegation in “**73rd Session of the Executive Council (EC) of WMO**” during 14-25 June, 2021. The EC meeting was also attended by **Ms. Anju Bhalla**, Joint Secretary, MoES, **Gopal Iyengar**, Sc. ‘G’, MoES, **Dr. (Mrs) Kamaljit Ray**, Sc. ‘G’, MoES **Dr. A.K. Mitra**, Head NCMRWF, **Shri Bashir Ahmed**, First Secretary, PMI Geneva and **Dr. S.D. Attri**, Sc. ‘G’, **Shri B. P. Yadav**, Sc. ‘F’, **Dr. Pulak Guhathakurta**, Sc. ‘F’, **Dr. D.R. Pattanaik**, Sc. ‘F’, **Dr. R. K. Giri**, Sc. ‘E’, IMD.



Dr. M. Mohapatra, DG, IMD and other delegations during “**73rd Session of the Executive Council (EC) of WMO**”

World Book Day was celebrated in IMD on 23rd April, 2021 highlighting knowledge resources of IMD and its online services to the scientific community and public which was chaired by DGM.





Dr. M. Mohapatra, DG, IMD and Chairman of RA II -TT-Regional Partnership of WMO chaired first meeting of “**RA II TT-Regional Partnership**” organized by RAP Singapore of RA II of WMO on 26th April, 2021 which was also attended by **Dr. S. D. Attri, Sc. ‘G’** and **Dr. R. K. Giri, Sc. ‘E’**.

The 19th **South Asia Climate Outlook Forum** and **Climate Services Users Forum** was jointly organised by UKMO, RCC, IMD and RIMES during 26-29 April, 2021. On 26th April, 2021, **Dr. M. Mohapatra, DG, IMD** made a special statement on “**SASCOF and CSUF**” during the Inaugural programme. Consensus Statement on the “**Seasonal Climate Outlook over South Asia for the 2021 SW Monsoon Season**” was issued.

Dr. Madhavan Nair Rajeevan, Secretary MoES and **Dr. Trilochan Mohapatra**, Secretary DARE & DG ICAR Gol jointly chaired meeting on “**Effective implementation of Gramin Krishi Mausam Sewa (GKMS) scheme**” for the benefit of farming community in the country on 27th April, 2021 which was also attended by DGM, Principal Secretaries and senior officers of State Departments of Agriculture, ICAR, Agric. Universities, ATARIs, AMFUs, DAMUs and IMD.

Dr. Madhavan Nair Rajeevan, Secretary MoES chaired the meeting on “**Monsoon Preparedness 2021**” on 12th May, 2021 which was attended by DG, IMD and Senior Officers from IMD, NMRWF and IITM, Pune.

An International virtual meeting hosted by the Regional Centre titled “**Get Ready Campaign for Flood Season 2021**” on 24th May 2021. All representatives from member countries, WMO, HRC and IMD participated and appreciated the accuracy of operational alerts on flash floods rendered in recent times.

Dr. S. D. Attri, Sc. ‘G’ and **Dr. R. K. Giri, Sc. ‘E’** participated in “**17th Session of RA-II of WMO**” during 25-26 May, 2021. Indian inputs on various aspects were presented and were successful in securing maximum number of 4 position (Chair/ Vice chairs) for India followed by China (3), Japan and Iran (2 each) and Vietnam and South Korea (1 each).

Smt. Sunitha Devi, Sc. ‘F’ and **Smt. Monica Sharma, Sc. ‘D’** attended Familiarization session on “**Flash flood Guidance System**” organized by Hydrology Division, under the Chairmanship of DGM on 27th April, 2021.

Shri S. K. Manik, Sc. ‘C’ attended the meeting cum training for “**Discussion on hosting of GIS Data at NSDI website**” on 12th May, 2021.

Shri Umasankar Das, Sc. ‘C’ and **Dr. Sankar Nath, Sc. ‘E’** attended the Training on “**Artificial Intelligence (AI)**” for Government Officials organized by CDAC Pune w.e.f. from 18 May, 2021 to 6th June 2021.

Shri Amul Batra, Sc. ‘E’, attended the Training on “**Artificial Intelligence (AI)**” for Government Officials organized by CDAC Pune w. e. f. from 15th June, 2021 to 5th July, 2021.

Dr. D. R. Pattanaik, Sc. ‘F’ hosted and **Dr. M. Mohapatra, DG, IMD**, **Smt. Sunitha Devi, Sc. ‘F’**, **Dr. Anand Kumar Das, Sc. ‘E’**, **Dr. (Smt.) K. Naga Ratna, Sc. ‘E’**, **Smt. Monica Sharma, Sc. ‘D’**, **Dr. A. Sravani, Sc. ‘C’**, **Dr. A. Dharma Raju, Sc. ‘C’**, **Shri L. V. Rao, Met. ‘B’** and others attended training on “**Ensemble products interpretation**” conducted by National Medium Range Weather Forecasting (NCMRWF) on 19th June, 2021 & by Indian Institute of Tropical Meteorology (IITM) on 21st June, 2021.



Dr. M. Mohapatra, DG, IMD, Dr. D. R. Pattanaik and others

Human Resource Development Activities

PANEL DISCUSSION

Dr. R. K. Jenamani, Sc. ‘F’ attended “**First expert sub-committee**” on “**Urban Flooding**” on 28th April, 2021 as part of work allotted by main Expert Committee formed by INAE on “**Technology Preparedness for dealing with national disruptions: Atmosphere and climate related disasters**” where **Dr. M. Mohapatra, DG, IMD** is the Chairman of the main expert national committee.

Smt. Sunitha Devi, Sc. ‘F’ attended Panel discussion on “**Cyclones & COVID – Double disaster**” organized by National Institute for Disaster Management (NIDM) and Impact & Policy Research institute (IMPRI), New Delhi on 2nd June, 2021.

E-Inspection of working progress in official language of M. C. Jaipur was conducted on 27th May 2021 through VC under the Chairmanship of **Dr. K. K. Singh, Sc. ‘G’**.

WORKSHOP

Dr. K. Naga Ratna, Sc. ‘E’ organised Awareness and Training Workshop “**On better understanding and Dissemination of Agromet Advisories to reach every farmer household**” on 29th April, 2021.

Dr. M. Mohapatra, DG, IMD participated in the “**Co-ordinated Group for Meteorological Satellites (CGMS) 49-Plenary Session**” on 19-20 May, 2021.

Dr. M. Mohapatra, DG, IMD participated in the “**Convergence Workshop**” organized by National Science Foundation on 26th May, 2021.

Dr S D Attri, Sc. ‘G’ attended **IPCC webinar** on 27th May, 2021 on topical themes viz., “**Future projections**”, including constrained global surface temperature and global mean sea level rise and Aspects related to limiting climate change, including cumulative CO₂ emissions, remaining carbon budgets, and non-CO₂ emissions.

Dr. G. N. Raha, Sc. 'E' attended virtual meeting regarding **"Brainstorming workshop on prioritizing action for ecosystem restoration of High-Altitude Wetlands (HAWs)"** in Sikkim on 5th June, 2021.

Shri Raja Acharya, Met. 'A' attended the Virtual Workshop on **"Fifth Data Buoy Cooperation Panel Pacific Islands Training Workshop on Ocean Observations and Data Applications (DBCP-PI-5)"** held on 9-10 June, 2021, hosted by the WMO and Intergovernmental Oceanographic Commission.

Smt. Sunitha Devi, Sc. 'F' and **Smt. Monica Sharma, Sc. 'D'** participated in **"WMO's Tropical Cyclone-Probabilistic Forecast Products Workshop"** on 15th, 17th and 18th June, 2021. The workshop aimed at **"Discussing the current & planned probabilistic products worldwide, understanding & communicating probabilistic forecasts"** and discussion on **"Resources available for producing probabilistic forecasts"**. During the workshop, the scientists from IMD highlighted the practices followed to familiarize new product to the masses.

Dr. A. K. Das, Sc. 'E' attended **"Numerical Weather Prediction/ EPS Workshop"** virtually on 19-21 June, 2021.

Dr. (Smt.) K. Nagaratna, Sc. 'E', Dr. (Smt.) Alanka Sravani, Sc. 'C' and **Shri L. V. Rao, Met. 'B'**, participated in the two days Virtual Workshop on **"South Asia Flash Flood Guidance System"** organized by Hydromet Division, New Delhi, under the Chairmanship of DGM with FMOs, MCs, and RMCs, NWFC, NWP and CRS Pune Division held on 20-21 May, 2021.

Shri B. P. Yadav, Sc. 'F' along with **Shri Rahul Saxena, Sc. 'F', Dr. A. K. Das, Sc. 'E', Shri Raja, Sc. 'C'** and **Ms. Hemlata, Sc. 'C'** attended workshop on **"Real Time Operational Spatial Flood Early Warning in Godavari and Tapi Basin"** on 22nd June, 2021 organized by Water Resources, RD & GR.

Shri Raja Acharya, Met. 'A' participated in the Second Virtual Workshop on **"Artificial Intelligence for Natural Disaster Management"**, organised by the International Telecommunication Union (ITU), World Meteorological Organization (WMO) and UN Environment Program on 23rd June, 2021.

Dr. M. Mohapatra, DG, IMD chaired Awareness Workshop on **"Lightning and Thunderstorm"** jointly organized by MoES, IMD, IITM, NCMRWF and Indian Meteorological Society on 28th June, 2021. **Smt. Sunitha Devi, Sc. 'F'** also attended the workshop.

MEETINGS / VIDEO CONFERENCES

Dr. H. R. Biswas, Sc. 'E' attended the **"Pre-Cyclone Preparedness Meeting"** through Webex Platform under the chairmanship of **Dr. M. Mohapatra, DG, IMD** on 1st April, 2021.

Dr. M. Mohapatra, DG, IMD chaired **"Thunderstorm Research Testbed Committee Meeting"** on 6th April, 2021.

Smt. Sunitha Devi, Sc. 'F' and **Smt. Monica Sharma, Sc. 'D'** participated in the third quarterly Meeting of the **"Committee for implementation of recommendations of the Technical committee on Aviation Met. Services"** on 6th April, 2021.

Dr. M. Mohapatra, DG, IMD attended **"Farmers Innovation Expo-2021"** organized by College of Agriculture, Meghalaya as Chief Guest and delivered invited talk on 7th April, 2021.

Dr. R. K. Jenamani, Sc. 'F' organized and participated in the **"2nd progress review meeting"** of expert members held on 8th April, 2021 and meeting of **"Functional Groups of Aviation Weather Decision Support System (AWDSS)"** at major airports and also DGM review meeting held on 9th April, 2021.

Smt. Sunitha Devi, Sc. 'F', Dr. H. R. Biswas, Sc. 'E' and **Smt. Monica Sharma, Sc. 'D'** attended the **"Annual Monsoon Review (AMR)"** and **"Annual Cyclone Review (ACR)"** Meetings, 2021 through virtual platform on 10th April, 2021.

Shri Abhishek Anand, Sc. 'B' participated in a video conference on **"Annual Monsoon Review (AMR)"** and **"Annual Cyclone Review (ACR)"** conducted by DG, IMD on 10-11 April, 2021.

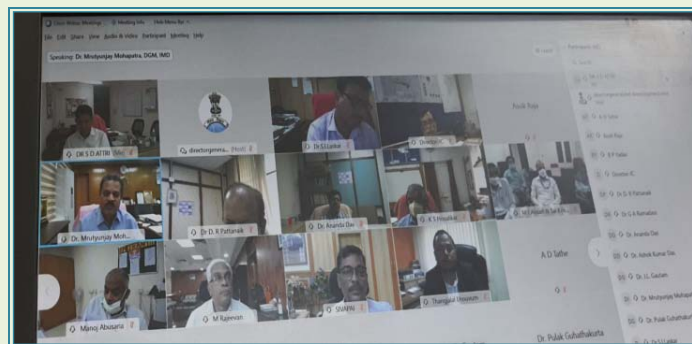
Dr. M. Mohapatra, DG, IMD attended **Brain Storming Session of Monsoon Mission Project** organized by IITM, Pune on 12th April, 2021.

Shri Raja Acharya, Met. 'A' participated in International Conference on **"Marine Data and Information Systems(IMDIS) 2021"** through Virtual Mode during 12-14 April, 2021 organized by the IODE (International Oceanographic Data and Information Exchange) UN, Royal Netherlands Institute for Sea Research, IFREMER (National Institute of Ocean Science), France National Institute of Oceanography, and Experimental Geophysics (OGS),Italy.

Dr. Madhavan Nair Rajeevan, Secretary MoES chaired the meeting to review the **"Status of procurement"** on 12th April, 2021 which was attended by DGM and Senior Officers of IMD.



Dr. M. Mohapatra, DG, IMD and others during Awareness Workshop



Meeting to review the status of procurement



Shri Vivek Sinha, Sc. 'F', **Shri Ashish Kumar Singh**, Sc. 'C', **Shri Anand Shankar**, Sc. 'C' and **Shri S. Bhushan**, Met. 'A' attended in a Video Conference with **Dr. M. Mohapatra**, DG, IMD on 13th April, 2021. The main agenda of discussion was the maintenance and facilities at observatories. The DG, IMD instructed to M. C. Patna to provide computer, furniture and drinking water facilities at the M. O's. The land transfer matter at M.O. Purnia was also discussed.

Dr. R. K. Jenamani, Sc. 'F' Attended and Presented rainfall status and forecast in **45th Meeting of Cauvery -CWRC** held on 15th April 2021, through Video Conferencing.

Shri P. S. Kannan, Sc. 'E' and **Shri K. Raja**, Met. 'B' attended online meeting organized by AASD, New Delhi for "**Discussing progress of Agro AWS installation**" on 16th April, 2021.

Dr. M. Mohapatra, DG, IMD attended a meeting with **Prof. Patteri Taalas**, Secretary General, WMO through VC on 19th April, 2021.

Dr. M. Mohapatra, DG, IMD attended First Meeting of the Institute for Advanced Research in Science (IARSc) Programme on "**Science, Technology, Research and Applications (IPSTRA)**" at Institute for Advanced Research in Science on 20th April, 2021.

Dr. M. Mohapatra, DG, IMD delivered "**Foundation Day Lecture**" of ICAR-National Rice Research Institute, Cuttack through VC on 22nd April, 2021.

Dr. M. Mohapatra, DG, IMD Chaired First Meeting of **WMO Regional Association (RA) II (Asia) Task Team** on "**Regional Planning (TT-RP)**" on 26th April, 2021.

Dr. A. K. Mitra, Sc. 'E' and **Shri Shibin B.**, Sc. 'C' attended the "**CGMS-49 Working Group-III (WG-III) intersessional meeting**" on 26-28 April, 2021.

Dr. M. Mohapatra, DG, IMD delivered a Guest lecture on "**Role of India Meteorological Department in Nation Building**" to the trainees of Air Force Academy, Hyderabad on 28th April, 2021.

Shri P. S. Kannan, Sc. 'E' a Video conferencing meeting chaired by **Dr. M. Mohapatra**, DG, IMD on 29th April, 2021 on "**Finalisation of Data Supply procedure**".

Dr. M. Mohapatra, DG, IMD attended meeting chaired by Secretary, NDMA on Cyclonic Storm "**YAAS**" in Bay of Bengal on 2-22 May, 2021.

Dr. M. Mohapatra, DG, IMD attended the Briefing Meeting chaired by Secretary General of WMO to Permanent Representatives of "**Eastern Hemisphere Countries**" on 6th May, 2021.

Smt. Monica Sharma, Sc. 'D' participated in the "**INAE sub-group meeting on Cyclones**" on 4th May, 2021 and in the preparedness meeting for cyclone '**Tauktae**' on 11th May, 2021.

Dr. R. K. Jenamani, Sc. 'F' organized/participated in "**WCSSP project WP3: Satellite based Impact information on Kerala**

flood 2018 and 2019" which has been shared under WCSSP Project by "**Satellites for Impact and Vulnerability Assessments (SIVA)**" project, led by HR Wallingford and two meetings conducted virtually on 11th and 13th May, 2021 by SIVA experts, UK GROUP.

Dr. M. Mohapatra, DG, IMD attended meeting on "**Impending Cyclone Scenario in Arabian Sea**" under the Chairmanship of Member Secretary, NDMA on 13th May, 2021.

Dr. S. D. Attri, Sc. 'G' attended meeting of the sub-committee on "**Urban Flooding**" held on 13th May, 2021 to finalise TOC related to the "**Preparation of the report on technology preparedness**" to deal with Urban Flooding.

Dr. Kuldeep Srivastava, Sc. 'E' attended an NSDI-IMD Interactive meeting on "**India Meteorological Data interoperability and data sharing**" on 13th May, 2021 for the presentation of the concept and steps for making an on-line ISO/ OGC/ BIS-compliant interoperable data service (WFS) for registration unto the National Data Registry (NDR) of NSDI.

Dr. M. Mohapatra, DG, IMD attended meeting under the joint Chairmanship of Hon'ble Minister of State for Ports, Shipping & Waterways (I/C), Hon'ble Minister of Commerce & Industry to review the preparedness on Severe Cyclonic Storm "**Tauktae**" on 16th May, 2021.

Dr. S. Bandyopadhyay, Sc. 'F' attended a VC on 18th May, 2021 regarding "**Flood preparedness**" chaired by Minister-in-Charge of Irrigation & Waterways Department, Govt. of West Bengal.

Dr. S. D. Attri, Sc. 'G' chaired the meetings of "**Pre-bid committee**" for Hiring of mass media consultancy by IMD on 19th May, 2021.

Dr. M. Mohapatra, DG, IMD, **Shri Virendra Singh**, Sc. 'F' and **Dr. R. K. Giri**, Sc. 'E' attended the "**Plenary Session meeting of CGMS-49**" on dated 19-21 May, 2021 virtually.

Dr. M. Mohapatra, DG, IMD attended meeting of the National Crisis Management Committee (NCMC) on the Cyclone "**Tauktae**" on 20th May, 2021.

Dr. S. Bandyopadhyay, Sc. 'F' attended a virtual meeting on 21st May, 2021 organized by CRS, Pune on the subject "**Monitoring working status of Surface instruments through SIMMS and procurement for Airport/AWS/ARG/Surface observatories**".

Dr. M. Mohapatra, DG, IMD attended Annual Conference of Relief Commissioners/Secretaries of Department of Disaster Management of states/UTs to review the "**Status of preparedness for South-West Monsoon 2021**" on 22nd May, 2021 and made a presentation on "**IMD's preparedness for monsoon and cyclone and its future plans**".

Dr. H. R. Biswas, Sc. 'E' attended the Review Meeting on "**Preparedness for the impending Cyclone in the Bay of Bengal**" chaired by Hon'ble Chief Minister, Govt. of Odisha on 22nd May, 2021 at Lok Seva Bhawan, Bhubaneswar.



Dr. M. Mohapatra, DG, IMD participated in the briefing meeting under the Chairmanship of Hon'ble Prime Minister on "Preparedness regarding cyclone YAAS" on 23rd May, 2021.

Dr. M. Mohapatra, DG, IMD participated in the meeting to review the "Preparedness on very severe Cyclonic Strom YASS" held under the joint Chairmanship of Hon'ble Minister of State for Ports, Shipping & Waterways (I/C), Hon'ble Minister of Commerce & Industry and Hon'ble Minister of Petroleum and Natural Gas on 24th May, 2021.

Dr. M. Mohapatra, DG, IMD participated in the meeting to review the preparedness for impending cyclone 'YAAS' under the chairmanship of Union Home Minister on 24th May, 2021 and 27th May, 2021.

Dr. H. R. Biswas, Sc. 'E' attended the meeting on the "Flood preparedness for the ensuing Monsoon-2021" conducted by Central Water Commission, Bhubaneswar through virtual mode on 27th May, 2021.

Dr. Ashok Kumar Das, Sc. 'E' attended the fifth meeting of "Project Monitoring & Advisory Committee (PMAC)" through VC on 31st May, 2021.

Dr. H. R. Biswas, Sc. 'E' attended the Virtual interface meeting on "Enhancing the preparedness for Agriculture contingencies during Kharif-2021" on 4th June, 2021 under chairmanship of Director, DAFF (Directorate of Agriculture & Food Production), Odisha, Krushi Bhawan, Bhubaneswar and discussed on "Monsoon Forecast-2021" for Odisha with specific reference to Northern parts.

Dr. S. D. Attri, Sc. 'G' participated in Meeting on "Exploring Climate Adaptation and Mitigation in Drylands towards Achieving the SDGs- a Roadmap to the COP26" organised by NCCSD on 2nd June, 2021.

Dr. Kuldeep Srivastava, Sc. 'E' attended Meeting for discussion of "GIS Data and NSDI" on 4th June, 2021 through VC.

Dr. H. R. Biswas, Sc. 'E' attended the "Crop Weather Watch Group Committee Meeting for Kharif – 2021" under the chairmanship of Agriculture Production Commissioner, Govt. of Odisha, on virtual mode through Microsoft Teams on 7th, 14th, 21st and 28th June, 2021.

Dr. R. K. Jenamani, Sc. 'F' attended "12th RAC meeting" of National Centre for Coastal Research (NCCR), Ministry of Earth Sciences on 7th June, 2021 as RAC Member of NCCR.

Dr. M. Mohapatra, DG, IMD attended meeting under the Chairmanship of Member Secretary, NDMA with Lightning Protection Association of India on 11th June, 2021.

Dr. M. Mohapatra, DG, IMD chaired "First meeting of Joint SAHF EC and Working Group Members" organized by RIMES on 14th June, 2021.

Shri Raja Acharya, Met. 'A' attended the online workshop on "Understanding the Benefits of Operational Ocean and Forecasting Systems" organised by the WMO and IOC during 14-16th June, 2021.

Dr. M. Mohapatra, DG, IMD attended meeting to review "Flood Preparedness" in the country under Chairmanship of Hon'ble Home Minister on 15th June, 2021.

Dr. M. Mohapatra, DG, IMD attended meeting of the "WMO Selection Committee for Vaisala Awards" on 15th June, 2021.

Dr. M. Mohapatra, DG, IMD alongwith **Shri B. P. Yadav**, DDGM (H), Sc. 'F' and **Dr. (Ms.) Soma Sen Roy**, Sc. 'F' attended meeting to review the "Preparedness and Mitigation Measures on Thunderstorm & Lightning and Flood" with the States/UTs under Chairmanship of Member Secretary, NDMA on 16th June, 2021.

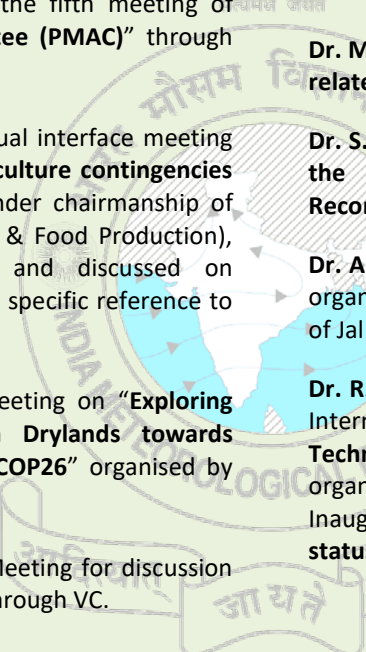
Dr. M. Mohapatra, DG, IMD attended first meeting of "Planning Committee of Space Applications Management System (PC-SAMS)" under chairmanship of Principal Scientific Adviser to GOI on 18th June, 2021.

Dr. M. Mohapatra, DG, IMD delivered talk on "Environment and related issues" as Chief Guest on 20th June 2021.

Dr. S. D. Attri, Sc. 'G' participated in Meeting on "Challenges in the Ongoing Crop Insurance Schemes and Suggestive Recommendations" on 18th June, 2021.

Dr. A. K. Das, Sc. 'E' attended the "27th Water Talk" through VC organized by National Water Mission, DoWR, RD& GR, Ministry of Jal Shakti on 18th June, 2021.

Dr. R. K. Jenamani, Sc. 'F' was invited as Chief guest in the 3rd International Conference on "Recent Trend on Science and Technology (ICRTST-2021)" held during 19-20 June, 2021 organized by MST, Greater Noida UP India and delivered the Inaugural talk on "Weather and Climate Services: Present status, Gap areas, New opportunities".



Dr. M. Mohapatra, DG, IMD attended first meeting of the Standing Committee on "Oceanography and meteorology under space application management system (SC_O&M)" under the Chairmanship of Secretary MoES on 22nd June, 2021.



Dr. M. Mohapatra, DG, IMD, **Shri Virendra Singh**, Sc. 'F' and **Dr. A. K. Mitra**, Sc. 'E' attended the meeting of Standing Committee on **"Agriculture & Soil (SC-A&S)"** (under space application Management system) on RISAT-1A & 1B under the chairmanship of Secretary Ministry of Agriculture on virtual mode on 22nd June, 2021.

Dr. R. K. Jenamani, Sc. 'F' attended "IMD SIGMET coordination platform meeting" chaired by DG, IMD on 22nd June, 2021 to discuss about the **"Implementation of SIGMET Coordination Platform"** developed by Hong Kong Observatory.

Dr. M. Mohapatra, DG, IMD alongwith other senior officers attended 1st meeting of standing committee on **"Disaster Management"** under Space Application Management System (SAMS), ISRO on 23rd June, 2021.

Dr. S. D. Attri, Sc. 'G' and Member ET-ARM, SERCOM of WMO participated WMO in Meeting held on 23rd June, 2021 to prepare road map.

Dr. R. K. Jenamani, Sc. 'F' participated in the Second Virtual Workshop on **"Artificial Intelligence for Natural Disaster Management"**, organised by the International Telecommunication Union (ITU), World Meteorological Organization (WMO) and UN Environment Program on 23rd June, 2021.

Dr. K. K. Singh, Sc. 'G' participated in the 1st meeting of Standing Committee on **"Agriculture and Soils (SC-A&S)"** (under Space Application Management System) on 23rd June, 2021 through virtual mode.

Dr. M. Mohapatra, DG, IMD alongwith other senior officers attended meeting regarding discussion on **"C Band SSPA radar"** under chairmanship of Secretary, MoES on 24th June, 2021.

Shri Raja Acharya, Met. 'A' participated in the second online meeting of the ITU/WMO/UNEP Focus Group on **"AI for Natural Disaster Management (FG-AI4NDM)"**, during 24-25 June, 2021.

Dr. M. Mohapatra, DG, IMD attended and delivered talks on **"Monsoon forecast and Early warning for flood and lightning"** in the Annual Conference of SDRFs, Civil Defence & Home Guard organized by NDRF on 25th June, 2021.

Dr. M. Mohapatra, DG, IMD chaired meeting of the **"Official Language Implementation Committee & 7 Point Charter"** on 25th June, 2021.

Dr. M. Mohapatra, DG, IMD delivered keynote speech and released Annual Lightning Report during International Conference on Disaster Risk Management on 30th June, 2021.

Dr. K. K. Singh, Sc. 'G' chaired the meeting on 30th June, 2021 regarding **"Sharing Experience on real time farmer feedback under GKMS"** attended by technical officers of AMFUs and SMS-Agromet of DAMUs and all the Observers in Uttar Pradesh.

Dr. R. K. Jenamani, Sc. 'F' lead the IMD team and participated on behalf of IMD in the **"South Asia Hydromet Forum (SAHF)**

Working Group 1 on IBF", a meeting with members of South Asian Countries, organized by Regional Integrated Multi-hazard Early Warning System (RIMES) Bangkok, held during 28-29 June, 2021 and presented India's progress in IBF and RBW as **"Impact based Forecasting and Risk based Warning"** Progress in India (2019-2021).

Dr. R. K. Jenamani, Sc. 'F' participated in International conference on **"Disaster Risk Management"** on 30th June - 1st July, 2021 organized by CROPC and presented paper on **"Advancement in Technology in Risks Based Early Warning and Impact based Forecasting"**.

LECTURES/ TALK

Shri Virendra Singh, Sc. 'F' delivered lecture on **"Remote sensing observational system- Satellite"** to the direct recruited Scientists training course on 7-8 April, 2021.

Dr. K. K. Singh, Sc. 'G' delivered a talk on **"Role of weather based advisory in livestock management in changing climate"** in relation to a four days virtual training programme on **"Climate Smart Dairying in the Context of Global Warming"** from 4-7 May 2021 organized by College of Veterinary & Animal Sciences, Trissur in collaboration with MANAGE, Hyderabad. He also submitted an extended abstract in this regard for benefits of participants.

Dr. K. K. Singh, Sc. 'G' delivered a talk on on **"AAS in India: Recent Developments and Future Plan"** highlighting Agromet DSS in Webinar Series on **"Decision Support System (DSS) for Understanding and Reducing Climate Risks"** held on 4th May, 2021 organized by RIMES, Bangkok.

Dr. A. K. Mitra, Sc. 'E' delivered an online talk for School teachers program on **"Space technology"** conducted by IIRS, Dehradun on 2nd June, 2021.

Dr. M. Mohapatra, DG, 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 4th June, 2021.

Dr. K. K. Singh, Sc. 'G' coordinated a lecture on **"Crop Yield Prediction"** delivered by **Dr. Nilabja Ghosh** on 10th June, 2021.

Dr. M. Mohapatra, DG, IMD delivered an invited talk on **"Recent Advances in Cyclone Warning in India"** during the Webinar organized by the Institution of Engineers (India) Angul Local Centre, Odisha on 11th June, 2021.

Shri Amul Batra, Sc. 'E' delivered lectures on **"Meteorological Communication"** for Group-B gazetted officers of IMD posted at different parts of country from 14-25 June, 2021 as part of advance training course in MI & IS.

Dr. M. Mohapatra, DG, IMD delivered the key note address on **"Recent Advances in Cyclone Warning Services"** in the workshop for journalists organized by IITM, Pune on 17th June, 2021.

Dr. A. K. Das, Sc. 'E' attended the **"27th Water Talk"** through VC organized by National Water Commission, DoWR, RD & GR and Ministry of Jal Shakti on 18th June 2021.

Shri B.P. Yadav, DDGM (H), Sc. 'F' gave a talk on **"Flood Meteorological Services of IMD over NER during Flood"**- Early Warning System Training Workshop organized by Teri on 22nd June, 2021. The workshop was also attended by **Shri Rahul Saxena, Sc. 'F'**, **Dr. A. K. Das, Sc. 'E'**, **Shri Asok Raja, Sc. 'C'**.

Dr. G. K. Das, Sc. 'E' delivered a lecture on 27th June, 2021 on **"Technique of Weather forecasting and its limitation"** at webinar **"Severe Climate Hazards: its prediction & modelling"** organized by Centre for Disaster Management & Planning(CDMP) & South Asian Institute for Advanced Research and Development (SAIARD).

WEBINAR

Dr. M. Mohapatra, DG, IMD and Smt. Sunitha Devi, Sc. 'F' attended webinar entitled **"Using Satellite Earth Observation Data for Flood mapping and Flood Impact Assessment (SIVA Project)"** organized by Met Office, UK on 11th May, 2021.

Smt. Sunitha Devi, Sc. 'F' attended webinar for **"Integrating Climate Risk information into Climate Action"** organized by World Meteorological Organisation (WMO) on 2nd June, 2021.

Dr. M. Mohapatra, DG, IMD attended WMO Webinar on **"Integrating Climate Risk Information in Climate Action"** on 2nd June, 2021.

Dr. A. K. Mitra, Sc. 'E' attended WMO-organized webinar on **"Integrating Climate Risk Information in Climate Action"** on 2nd June, 2021.

Dr. M. Mohapatra, DG, IMD delivered talk on **"Cyclone Warning Services in India"** in a webinar on **"World Environment Day 2021"** on 5th June 2021.

Rotary Club of Bhubaneswar Ekamra Kshetra
In Association with

UTKAL HOSPITAL
Invites you to a Webinar on World Environment Day

Theme: Reimagine, Recreate, Restore
Time: June 5th, 2021, 04:30 PM (Saturday)
Zoom ID: 943 4036 3369
Passcode: 232066

Speaker
Dr. Sarvjeet Nayak
Topic: World environment Day

Chief Guest
Rtn. Soumya Ranjan Mishra (DG, RID 3262)

Speaker
Dr. M. Mohapatra (DG-IMD)
Topic: Cyclone Warning System in India

RSVP: Rtn. Dr. Bani Sengupta, President - RCBEK
Tele Consultation Services available: 6370704001/4002

Dr. Kuldeep Srivastava, Sc. 'E', **Ms. Komal Srivastava, S. A.**, **Ms. Shikha Verma, S. A.** & **Shri Virender, S. A.** attended **Bhuvan Webinar** held during 8-10 June, 2021.

PRESENTATION

Dr. R. K. Jenamani, Sc. 'F' participated in ACR/AMR-2021 held on 10th April, 2021 and presented **"IMD progress on IBF and Risk based warning on heavy rainfall and implementation of various new Guidelines in monsoon 2020, issues and challenges"**.

Virtual presentations on **"Bias corrected River basin rainfall forecast"** by **Dr. Partha Mukhopadhyay, Sc. 'F'**, IITM and **Dr. Pulak Guhathakurta, Sc. 'F'** were made in the event hosted by Hydromet Division on 19th April, 2021.

Shri Rahul Saxena, Sc. 'E' presented a study entitled **"A Study Of Extreme Rainfall Events Over Indian Region"**, in the Virtual International Conference during 28-30 April, 2021 on **"Innovative Trends in Hydrological and Environmental Systems (ITHES-2021)"** organized by National Institute of Technology, Warangal.

Dr. M. Mohapatra, DG, IMD presented the life history, forecast verification and actions initiated by IMD to trigger effective response among masses on the cyclones **'Tauktae'** and **'Yaas'** during the debriefing Session on these cyclones organized by NDMA on 7th June, 2021.

Shri Vivek Sinha, Sc. 'F' gave presentation about the **"Long range forecast for the monsoon season'21"**, in the meeting headed by Hon'ble Chief Minister, Govt. of Bihar which was attended by cabinets and all DM/SP of Bihar on 8th June, 2021.

Shri B. P. Yadav, Sc F, **Shri Rahul Saxena, Sc. 'E'**, **Dr. A. K. Das, Sc. 'E'**, **Shri Asok Raja, Sc. 'C'**, **Shri S. K. Manik, Sc. 'C'** and **Ms. Hemlata, Sc. 'C'** attended RMSI Webinar on **"Flood Forecasting and Early Warning Systems"** on 24th June, 2021.



FFGS Familiarization Training

Shri B.P. Yadav, DDGM (H), Sc. 'F' attended the conference at NDRF through VC and made presentation on **"Weather Information and Forecast including warnings for Monsoon 2021"** with a focus on Floods, Thunderstorms and Lightning on 25th June, 2021.

Shri Anand Shankar Scientist-C made presentation on the topic of **"Early warning and Urban Flooding in the context of Bihar"** for the publications in the guidelines for the management of urban flooding under the Bihar State Disaster Management Authority, Govt. of Bihar 25th June, 2021 to the BDSMA, Govt. of Bihar.



OUTREACH PROGRAMME

Pre-Cyclone Exercise Meet

Pre-Cyclone Exercise was conducted by IMD through its Cyclone Warning Division, New Delhi and various Cyclone Warning centres of the country during April 2021. As a part of it, a pre-cyclone exercise meeting was organised by Cyclone warning Division IMD, New Delhi on a virtual platform, on 1st April under the chairmanship of **Dr. Mrutyunjay Mohapatra**, Director General of Meteorology (DGM), IMD to review the preparedness, take stock of requirements, plan for the cyclone season April-June, 2021 and share new initiatives by IMD with stakeholders. There were around 100 participants including experts from IMD, National Centre for Medium Range Weather Forecasting (NCMRWF), Indian Air Force (IAF), Indian Navy (IN), Central Water Commission (CWC), Indian Institute of Technology (IIT) Delhi, Indian National Centre for Ocean Information Services (INCOIS), National Disaster Management Agency (NDMA), National Disaster Response Force (NDRF), Deptt. of Fisheries, Punctuality Cell, Indian Railways and Central Water Commission (CWC) and senior level officers from State Governments including all the coastal states of India.

During the meeting DGM, IMD touched upon various issues from forecasting to last mile connectivity and discussed the areas that require improvement. The participants from state and central disaster management agencies appreciated the cyclone warning services of IMD and also suggested areas which require further improvement. As a part of this exercise, the telephone, telefax numbers and email addresses of various stakeholders were updated by IMD.

Dr. M. Mohapatra, DG, IMD participated in the “**Signing ceremony of Country Hydromet Diagnostics (CHD) Report of WMO**” prepared jointly by IMD & Maldives on 7th June, 2021.

Herald Global, an online portal for global success stories released a story on “**The Journey of Dr. M. Mohapatra, DGM, IMD**” highlighting his role in accurately predicting the path, landfall & intensity of tropical cyclones. The story is available at the link: <https://www.youtube.com/watch?v=d5-2Uf-bwsY>.

ONLINE INTERVIEW

Dr. S. Balachandran, Sc. ‘F’ gave an interview on “**Tropical Cyclones**” in Hindi to Bhavatal you tube channel on 25th May, 2021.

Awards and Recognition/ Appreciation

Dr. M. Mohapatra, DG, IMD has been elected as **Chairman of Executive Council of South Asia Hydrometeorological Forum**.

Shri B. P. Yadav, DDGM (H), Sc. ‘F’, **Shri Rahul Saxena**, Sc. ‘F’, **Shri Asok Raja S. K.**, Sc. ‘C’ and **Ms. Hemlata Bharwani**, Sc. ‘C’ received appreciation from DGM for excellent services towards “**Development and implementation of South Asia Flash Flood Guidance System**”.

New Projects/ Schemes/ Programmes

Extended Range Forecasting was implemented for the subdivision of Tamil Nadu with effect from 1st April, 2021.

Extended range forecast bulletins are prepared for two weeks and updated every week on Thursday.

10 websites developed for various MCs under the project of "development of uniform and automated websites for all IMD offices" have been launched on 28th May, 2021 by DGM.

Infrastructure Development & Installations

IMD has developed a **Multi-Model Ensemble (MME) forecasting system** based on coupled global climate models (CGCMs) from different global climate prediction and research centers including the **Monsoon Mission CFS (MMCFS)** of Ministry of Earth Sciences (MoES) during the quarter. The MME is a universally accepted technique, which is used to improve skill of forecasts and reduce forecast errors when compared to a single model-based approach. The performance improvements are completely attributed to the collective information of all models used in the MME forecasting system.

For the first stage forecast, the existing statistical forecasting system and the new MME based forecasting system are used to generate forecasts. The MME based forecasting system also will be used in the second stage forecasts in May for generating probabilistic forecasts for the country as a whole and four homogenous regions of India. For generating monthly forecasts, IMD will use a dynamical MME framework instead of present statistical models. Monthly probabilistic forecast for all four months (June to September) will be prepared during the last week of previous month using the MME forecasting system.

In **CDR Paradeep**, a HWSR has been installed with new **Ultrasonic Wind Sensor** and it is functioning. Revival of HWSR Systems was made at M C Bhubaneswar using Ultrasonic wind sensor.

Agro AWS stations at 8 districts KVK's (CUTTACK, RAYAGADA, MAYURBHANJ, ANGUL, BOLANGIR, JAGATSingHPUR, GAJAPATI and GANJAM), Odissa, were installed by the vendor M/S Astra Microwave Products Limited, Hyderabad during the month.

Design storm studies for the following projects have been completed and the values sent to the concerned project authority.

- i. Narihalla Dam, Karnataka
- ii. Hippargi Barrage, Karnataka

Many new **Ensemble Prediction System (EPS)** products are being generated operationally by IMD, IITM and NCMRWF for the use by forecasters as guidance tools for issuing operational weather forecasts and warnings.

Installation and Commissioning of Agro-AWS at 118 DAMUs has been done during the quarter.

Inter-Agency Meetings

Dr. M. Mohapatra, DG, IMD attended meeting of **South Asia Hydrometeorological Forum Meeting** on 1st April, 2021.

Dr. K. K. Singh, Sc. 'G' attended **"Third subcommittee meeting for finalization of production forecast for Real Time Information System for Agriculture Sector (RTISA)"** for finalization of forecast of March, 2021 under the Chairmanship of **Sr. E. S. A.** held on 13th April, 2021 through VC.

Shri S. C. Bhan, Sc. 'F' and **Dr. Sheshakumar Goroshi, Sc. 'E'** attended the meeting regarding **"Integrated IMD's Weather Forecasts with the electronic National Agriculture Market (e-NaM)"** on 14th April, 2021 to provide weather forecast to different Yards (Mandies) in the country to secure/minimize losses in the agricultural produce lying in open in these yards due to extreme weather conditions.

Dr. M. Mohapatra, DG, IMD attended 3rd Meeting of **BRICS Joint Task Force (JTF)** on **"Disaster Risk Management"** convened through virtual mode and made presentation on **"Multi-Hazard Early Warning System"** on 16th April, 2021.

Shri Virendra Singh, Sc. 'F' attended working level meeting with ISRO member on the **"Recovery plan for Gaganyaan Mission"** on 16th April, 2021.

An interactive meeting was held on 27th April, 2021 Gramin Krishi Mausam Seva (GKMS) under the co-chairmanship of **Dr M Rajeevan, Secretary, MoES** and **Dr. T. Mohapatra, DG, ICAR** and Secretary, Department of Agricultural Research and Education (DARE). After long deliberations and comments and suggestions from the participants, recommendations were adopted for improvement and implementation of GKMS.

Dr. K. K. Singh, Sc. 'G' attended **"ACR-AMR Meeting"** held on 5th May, 2021 chaired by **Dr. M. Mohapatra, DG, IMD** and also gave a presentation on **"Agrometeorological Services in India"** through VC.

Dr. R. K. Jenamani, Sc. 'F' participated in Expert committee Meeting on **"Technology Preparedness to deal with national disruptions - Cloud Bursts"** held on 13th May, 2021 organized by NCMRWF.

Dr. K. K. Singh, Sc. 'G' attended the Discussion Meeting on **"Climate-Agriculture Projects"** through VC organised by Monsoon Mission Desk, IITM and also SCMR meeting for further decision about continuation of projects held on 18th May, 2021.

Dr. H. R. Biswas, Sc. 'E' attended the **"Cyclone Preparatory Meeting"** under the chairmanship of SRC and ACS, Disaster Management, Govt. of Odisha through virtual platform on 20th May, 2021. He also attended the Meeting on **"Cyclone Preparedness"** conducted by OSDMA, Govt. of Odisha through virtual platform on 19-20 May, 2021.

Dr. H. R. Biswas, Sc. 'E' attended meeting of National Crisis Management Committee (NCMC) to review the **"Preparedness for the impending Cyclone in the Bay of Bengal"** on 22nd May, 2021 at Lok Seva Bhawan, Bhubaneswar.

Dr. K. K. Singh, Sc. 'G' chaired the 5th meeting of **"Project Monitoring & Advisory Committee (PMAC)"** of IMD through VC on 31st May, 2021 to monitor the periodic progress of the projects under ACROSS Scheme and to suggest suitable remedial measures for successful implementation of the activities. **Dr. S. D. Attri, Sc. 'G'** attended the meeting to present status and future plan of GKMS in this meeting.

Dr. M. Mohapatra, DG, IMD participated in the meeting on **"Preparation of draft on India's State Safety Programme (SSP) Edition-2"** under the Chairmanship of Secretary, Civil Aviation on 4th June, 2021.

Dr. M. Mohapatra, DG, IMD attended meeting on the final proposal of the **"India-USA Collaborative Project on EKAMSAT"** organized by INCOIS, Hyderabad on 7th June, 2021.

Shri B. P. Yadav, DDGM(H), Dr. A. K. Das, Sc. 'E' & **Shri Asok Raja, Sc. 'C'** attended the 6th quarterly inter-ministerial VC meeting on BRTMS on 9th June, 2021.

Dr. H. R. Biswas, Sc. 'E' attended the Interface Meeting on **"Enhancing preparedness for Agriculture contingencies during 2021"** organized by ICAR-CRIDA, Hyderabad and Dept. of Agriculture and Farmer's Empowerment, Govt. of Odisha on 11th June, 2021.

Shri S. K. Manik, Sc. 'C' attended the **51st Working Group Meeting** of NIH Roorkee on 14-15 June, 2021.

Smt. Monica Sharma, Sc. 'D' Meeting with NRSC team regarding **"Integrating of cyclone forecast information on Bhuvan map"** on 16th June & follow-ups on 29-30 June, 2021.

Dr. H. R. Biswas, Sc. 'E' attended the Virtual interface meeting of **"Crop Weather Watch Group for Drought Management (CWWGDM)"** with State Govt. to monitor Drought Parameters arranged by OSDMA on 23rd June, 2021 under chairmanship of Joint Secretary (DM), DAC&FW, Orissa.

Dr. G. N. Raha, Sc. 'E' attended a review meeting regarding the **"Progress by the functional group on Impact Based Forecasting of Heavy Rainfall"** on 23rd June, 2021.

Dr. K. K. Singh, Sc. 'G' attended **"5th National Level Monitoring Committee (NLMC)"** under Pradhan Mantri Fasal Bima Yojana on 25th June, 2021 organized online by DAC & FW under chairmanship of Secretary, DAC&FW. All the stakeholders attended the meeting.

Dr. Kuldeep Srivastava, Sc. 'E' attended Seventh Meeting of **"Geospatial Information Sectional Committee from BIS"** on 30th June 2021, through Webex.

Dr. S. Bandyopadhyay, Sc. 'F' attended a meeting on 30th June, 2021 regarding **"Tripartite agreement"** i.e.w. handing over of Modelling Component of FFEWS of Kolkata Chaired by Ld. Commissioner, Kolkata Municipal Corporation.



Research & Publications

Twenty (20) research papers were published in **MAUSAM** Vol. 72 No. 2 (April, 2021) issue.

R. Bibraj, K. Ramachandra Rao, Prayek Sandepogu, Avkl Ganeswara Rao, Ch. Ramana and K. C. Saikrishnan, “**Automatic Weather Radar Based Geo-Specific Severe-Weather Alerting System (R-Alert)**”, *Mausam*, **72**, 2 (April 2021), 291-300.

S. G. Narkhedkar, **S. N. Dutta**, V. Anilkumar, S. Mukherjee and G. Pandithurai, “**Rainfall Characteristics and Its Variability Over A High-Altitude Station in Western Ghats During Southwest Monsoon Of 2015 - A Case Study**”, *Mausam*, **72**, 2 (April 2021), 331-348.

Vikram Mor, Rajesh Dhankhar and **S. D. Attri**, “**Variability in Aerosols Properties and Sources Over Rohtak, India**”, *Mausam*, **72**, 2 (April 2021), 373-386.

Arnav Shukla and Geeta Agnihotri, “**Analysis of Fog and Inversion Characteristics Over Sub-Urban Bangalore**”, *Mausam*, **72**, 2 (April 2021), 387-398.

Somenath Dutta, Mahendra Jagtap, **R. Balasubramaniam**, Nahush Kulkarni, Md. Danish, **S. Deshpande**, U. Satpute, A. K. Sahai, **R. Wayal**, P. Bhagbat, Bindu Nambier, D. Kulkarni, L. Bile, P. V. Kamble, Pradeep Awate, Kripan Ghosh, G. K. Sawaisarje, Sirish Khedekar, Chetna Patil and Osaid Alam, “**A Pilot Study On Assessing The Effect of Climate on The Incidence Of Vector Borne Disease At Pune And Pimpri-Chinchwad Area, Maharashtra**”, *Mausam*, **72**, 2 (April 2021), 399-414.

Pravat Rabi Naskar, “**Statistical Analysis of Wind Characteristics And Wind Energy Potential Of Port Blair, India**”, *Mausam*, **72**, 2 (April 2021), 443-456.

S. Chattopadhyay, S. Ghosh and A. Kayal, “**An Unusual Hot Summer in Kolkata In Last 10 Years and Prediction of Probability of Discomfort Applying Numerical Method**”, *Mausam*, **72**, 2 (April 2021), 463-472.

Mehnaj Tharranum A., Avinash C. Pandey, **K. K. Singh**, Y. P. Singh and **Basant K. Kandpal**, “**Calibration and Validation of Thermal-Time Based Models For Forewarning of Aphid Pest in Rapeseed mustard Crop In India**”, *Mausam*, **72**, 2 (April 2021), 501-506.

Dr. M. Mohapatra, DG, IMD, **Shri Rizwan Ahmed Met. ‘A’, Dwivedi**, Suneet and **R. K. Giri** “**Characteristics features of Super Cyclone ‘AMPHAN’- Observed through Satellite Images**”, *Tropical Cyclone Research and Review (TCRR)*.

Raja Acharya, “**World Meteorological Organisation Voluntary Observing Ships scheme (VOS): An Overview**”, *Earth Science India*, **14**, 1, 2021, 1-17.

R. S. Singh, K. K. Singh, A. H. Bhengra, S. M. Singh, Ganesh Prasad, Priyanka Singh, Mamta Rana and G. B. Gohain,

“**Potential yield and yield gap analysis of sugarcane (Saccharum officinarum) using the DSSAT-CANEGRO model in different districts of Uttar Pradesh, India**”, *Journal of Agrometeorology*, **23**, 2 (June, 2021), 147-153.

Four papers presented at International Virtual Conference on “**Innovative Trends in Hydrological and Environmental Systems (ITHES)**” on 20th February, 2021 got published in the Selected Book of Abstracts during June 2021:

Ashok Kumar Das, Brahm Parkash Yadav and Charu & Jyotsana Dhingra, “**Performance of WRF (ARW), GFS and NCUM for Sub-Basin Wise Quantitative Rainfall Forecast For SW Monsoon 2020 Over Indian Region**”.

Brahm Parkash Yadav, Asok Raja S. K., Rahul Saxena, Ram Kumar Giri & Deepak Yadav, “**Recent Advances in Pluvial Flash Flood Forecasting of India**”.

Asok Raja S. K., Brahm Parkash Yadav, Rahul Saxena, S. K. Manik and Deepak Yadav, “**Performance evaluation of NWP models for Flash Flood Forecasting over India during post monsoon 2020**”.

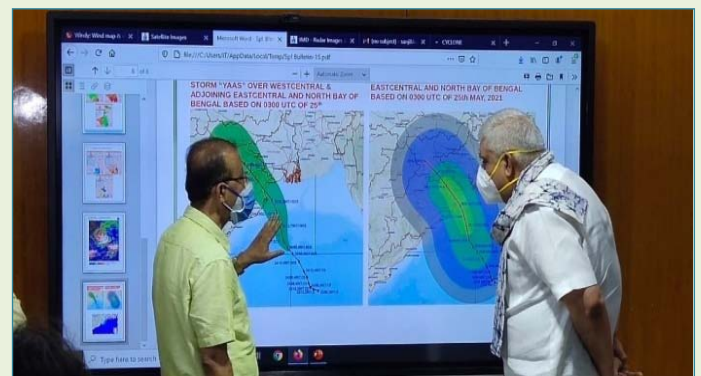
Rahul Saxena, Brahm Parkash Yadav, S. K. Manik and Davinder Sharma, “**A study of extreme rainfall events over Indian region**”.

Shri Ramashray Yadav, **Shri Ram Kumar Giri** and **Shri Virendra Singh**, “**Intercomparison review of IPWV retrieved from INSAT-3DR sounder, GNSS and CAMS reanalysis data**” *Atmos. Meas. Tech.*, **14** (2021), 1-21.

Amit Kumar, Anil Kumar Singh, J. N. Tripathi, M. Sateesh and Virendra Singh, “**Evaluation of INSAT-3D derived Hydro-Estimator and INSAT Multi-Spectral Rain Algorithm over Tropical Cyclone**” *Indian Society of Remote Sensing*.

Visitors

Hon’ble Governor of West Bengal **Shri Jagdeep Dhankar** visited RMC, Kolkata on 26th May, 2021 for update on the cyclone ‘Yaas’. **Dr. S. Bandyopadhyay**, Sc. ‘F’ briefed him on the track of the cyclone and also briefed Hon’ble Governor about the activities of RMC, Kolkata along with forecast, warning issued, and damage apprehended etc.



Dr. S. Bandyopadhyay, Sc. ‘F’ briefing to honorable Governor of WB about the track of the Cyclone ‘Yaas’