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Important Events

Shri Kiren Rijju taken charge as Minister of Earth Sciences at New Delhi



Hon'ble Union Minister, MoES, Shri Kiren Rijju, chaired a meeting with the Secretary, MoES, Dr. M. Ravichandran, Dr. M. Mohapatra, DG, IMD and Senior Officials of MoES, at Prithvi Bhawan in New Delhi on 19th May, 2023

Today on 19th May, 2023 **Honourable Minister of Earth Sciences Shri Kiren Rijju** took charge of the Ministry of Earth Sciences. During the occasion **Dr. M. Mohapatra**, DGM made presentation on Organizational Structure and Activities of India Meteorological Department. During the presentation Dr. Mohapatra briefly discussed about organizational structure of IMD, its forecasting systems, various NWP models being used in IMD, Observational networks, Information and Communication Technology, Meteorological services to various sectors, performances of forecasts, dissemination mechanism and finally he presented organizational structure of IMD in NE Region, present observational networks and forecasting services provided by IMD to various stakeholders of NE Region and future plan to expand observational network and forecasting services over NE Region.

The Nineteenth World Meteorological Congress (Cg-19) at CICG

The World Meteorological Congress, the supreme body of World Meteorological Organization (WMO), organized its 19th session from 22 May to 2nd June, 2023 at the International Conference Centre of Geneva (CICG). It assembles all 193 Member States and Territories of the WMO. On 1st of June, 2023 voting was held for various positions of Cg-19. **Dr. Mrutyunjay Mohapatra**, DG, IMD was elected **Third Vice President of WMO**.



Dr. Mrutyunjay Mohapatra, DG IMD elected "Third Vice President of World Meteorological Organisation"



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First Project Management Committee (PMC) for implementation of Global FFGS

Mr. Rahul Saxena, Sc. 'F' & Focal Point (SA) attended first Project Management Committee (PMC) for implementation of Global FFGS on 16 May, 2023 at Skopje, North Macedonia and was elected as first Chair for PMC for the duration of four years. About 17 Regional Centers representing 70 countries participated in this election.



PMC CHAIR
Mr. Rahul Saxena
India



PMC VICE CHAIR
Ms. Ana Oktavia
Indonesia



PMC VICE CHAIR
Ms. Emel Unal
Türkiye



The news was shared in the official handle of MoES and appreciated by **Hon'ble Minister of Earth Sciences, Shri Kiren Rijiju Sir**.

Significant Events

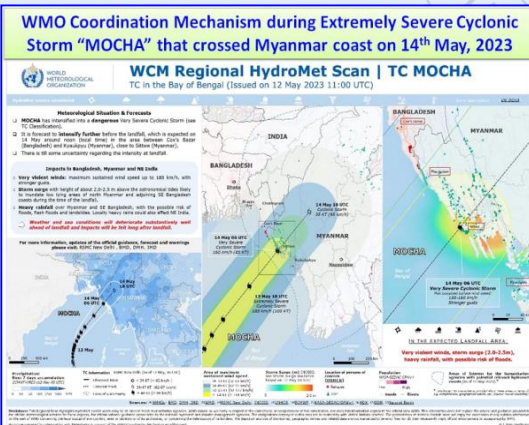
Achievements of India Meteorological Department as Regional Specialized Meteorological Centre (RSMC)

On 30th May, 2023 WMO organized a meeting to highlight the achievements of India Meteorological Department (IMD) as Regional Specialized Meteorological Centre (RSMC) for Tropical cyclones providing support to countries in Bay of Bengal and Arabian Sea region. During the meeting, WMO specially highlighted forecast and advisory services provided by IMD to Bangladesh and Myanmar during cyclone MOCHA (pronounced as MOKHA) helping these countries to take response action to minimize loss of life and property. WMO and UNHCR appreciated IMD for its services during cyclone MOCHA.

Dr. M. Mohapatra, DG, IMD participated in the 77th Session of World Meteorological Organisation, Executive Council during 5- 6 June, 2023 as the 3rd Vice President of WMO.



Dr. M. Mohapatra, DG, IMD participated in the 77th Session of WMO



Dr. Mrutyunjay Mohapatra discussing the early warnings provided by RSMC New Delhi since 27th April (about 12 days prior to cyclogenesis over Bay of Bengal) and personal interactions with DG Myanmar & Bangladesh that helped in effective mitigation.



Hon'ble Minister for MoES, Shri Kiren Rijiju & Dr. M. Ravichandran, Secretary, MoES visited X BAND Radar facility at NIOT campus Chennai on 08.06.2023. During the visit of the Hon'ble Minister for MoES, Shri Kiren Rijiju & Dr. M. Ravichandran, Secretary, MoES for participation in the World Oceans Day programme at NIOT Chennai Dr. S. Balachandran, Scientist-G & Head RMC Chennai, Shri B. A. M. Kannan, Sc. 'F' and Shri P. S. Kannan, Scientist-E participated in the programme at NIOT Chennai on 8th June, 2023.



World Oceans Day programme at NIOT Chennai

Dr. M. Mohapatra, DG, IMD led the delegation from India to participate in the 19th Session of World Meteorological Congress (Cg-19). During the Congress, Dr. Mohapatra actively participated in the deliberations & discussions and made several interventions which were accepted as recommendation by the Congress.



Some interactive meetings with the heads of other countries during Cg-19 at Geneva

Dr. M. Mohapatra, DG, IMD made a statement on India's commitment to support implementation of WMO's initiatives on Global Basic Observation Network (GBON) and Systematic Observations Financing Facility (SOFF). He also reiterated India's support from India towards implementation of SOFF for the benefit of least developed countries and island nations.

During the Cg-19, a video film on "**Cyclone Warning and Management in India : An End to End System**" developed by India Meteorological Department was screened by WMO during. The film showcased the multi-institutional mechanism in India to manage cyclones with case studies of cyclone Tauktae (2021) and Mocha (2023) discussed therein.

Long Term Plan Of World Weather Research Program : Dr. M. Mohapatra, DG, IMD highlighted the contribution of India to polar research and seasonal to sub seasonal forecast to different countries in the region as a regional climate centre. He also expressed willingness to act as Regional Climate Centre for Third Pole (The Himalayas) region.



Participation in the Nineteenth World Meteorological Congress (Cg-19) at Geneva

Google team headed by its Vice President held a meeting with Indian delegation led by Dr. M. Mohapatra, DG, IMD in Geneva on 25th May, 2023 in the sidelines of WMO Congress for possible extension of cooperation between Google and India Meteorological Department for extension of weather services in the region. It is needless to mention that Google works with IMD for sharing the cyclone advisory services in the region and is also working for development of nowcast techniques for prediction of location specific rainfall.



Google team headed by its Vice President held a meeting with Indian delegation led by Dr. M Mohapatra, DG, IMD

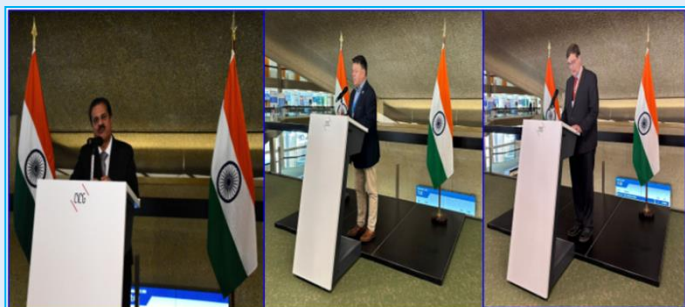
During the session "**Early Warning for all (EW4All)**" on 26th May, 2023 **Dr. M. Mohapatra**, DG, IMD informed the house about India's support for early warning for all initiatives by WMO and UN. He made a statement that India will act as Peer Advisor for implementation of systematic observation and forecasting facility (SOFF) in least developing countries and small island states for augmentation of meteorological observation network. He further stressed the need for regional and national committees for regular review and implementation of early warning for all initiative in the globe.



Dr. M Mohapatra, DG, IMD during the session "Early Warning for all (EW4All)" on 26th May, 2023

Dr. M Mohapatra, DG, IMD interacted with **President WMO, Secretary General of WMO and Permanent Representatives of different countries** to the UN Missions in Geneva, Permanent Representative of different countries to WMO during his visit and highlighted India's contribution and commitment towards implementation of various initiatives of WMO. Prof. Pettari Taalas Secretary General of WMO appreciated the role of INDIA especially India Meteorological Department in improving weather and climate services for the region and contributing to the world for betterment of services through observational infrastructure, modelling infrastructure, capacity building

through various regional platforms like Regional Specialised Meteorological Centres for Tropical Cyclones, Severe Weather Guidance, Flash flood, Mountain Weather for Himalayan region among others. Dr. Adrian President of WMO appreciated INDIA for its services to different countries on weather and climate while addressing the gathering. Both the President and Secretary General of WMO highlighted and appreciated especially the contribution of **Dr. M. Mohapatra**, DG, IMD as members of the Executive Council of WMO.



Dr. M. Mohapatra, Prof. Petteri Taalas, Secretary General, WMO and Dr. Adrian, President WMO during the interactive meeting at Cg-19

IMD signed a Memorandum of Understanding with United Nations Development Programme (UNDP) to enhance India's climate resilience by using weather data to strengthen climate adaptation efforts on 22nd June, 2023. With this collaboration, the community needs will be strengthened upto Gram Panchayat level.



IMD signed a Memorandum with UNDP

MoU

IMD signed Letter of Agreement with Bhabha Atomic Research Centre on 14th April, 2023 with an objective to enhance collaboration between the two agencies for establishment of environmental radiation network in IMD observatories by BARC.

Dr. M. Mohapatra, DG, IMD, deliver an invited talk on **"Climate Change and You"** at DAE Convention Centre at Mumbai on 14th April, 2023.

Dr. M. Mohapatra, DG, IMD signed an MoU with **Prof. Petteri Taalas, Secretary General World Meteorological Organization** for the hosting of WMO Regional Training Centre with IMD as coordinator.

IMD signed a Memorandum of Understanding with World Food Programme on 1st May, 2023.

Dr. S. Bandyopadhyay, Sc. 'G', and **Smt. Sangita Sil**, Deputy General Manger (Electrical), DVC signed an agreement of MOU on 20th June, 2023.



Dr. Sanjib Bandyopadhyay, Head RMC Kolkata (IMD) and Smt. Sangita Sil, Dy. General Manger (Electrical), DVC signing agreement of MOU with Damodar Valley Corporation on 20.06.23

Dr. S. Bandyopadhyay, Sc. 'G', and Smt. Sangita Sil, Deputy General Manger (Electrical)

Human Resource Development Activities

MEETINGS / VIDEO CONFERENCES

Dr. H. R. Biswas, Sc. 'F' attended heat wave preparedness meeting on 9th April, 2023 at Lok Seva Bhawan under chairmanship of **Hon'ble minister, Smt. Pramila Mallik**, Revenue and Disaster Management, Government of Odisha.

Shri Vivek Sinha, Sc. 'G' attended the meeting with Chief Minister, Govt. of Bihar and given presentation about Heat Wave and long range forecast on 10th April, 2023.

Dr. S. Dwivedi, Sc. 'C' attended State Level Technical Committee Meeting for implementation of PMFBY at Krushi Bhawan, Bhubaneswar under the chairmanship of DAFP, Govt. of Odisha on 11th April, 2023.

Dr. S. Dwivedi, Sc. 'C' attended State Level Technical Committee Meeting for implementation of PMFBY at Krushi Bhawan, Bhubaneswar under the chairmanship of DAFP, Govt. of Odisha on 11th April, 2023.

Dr. H. R. Biswas, Sc. 'F' attended review meeting on "Seed Reserve Policy to discuss the status of monsoon for 2023 at Krushi Bhawan, Bhubaneswar under the chairmanship of DAFP, Govt. of Odisha on 12 April, 2023.

Dr. Kripan Ghosh, Sc. 'F', Agrimet Division, Pune attended the "13th meeting of Project Monitoring and Advisory Committee (PMAC) of IMD" to monitor the periodic progress of the projects under ACROSS-IMD and to suggest suitable remedial measures for successful implementation of the activities on 13th April, 2023.

Shri Abhimanyu Chauhan, Sc. 'C' & **Shri N. S. Darji**, Met. 'A' attended Monsoon 2023 preparedness meeting at Collector office Ahmedabad on 13th April, 2023.

Shri S. C. Bhan, Sc. 'G' and **Dr. Ashok Kumar Das**, Sc. 'E' attended the 13th 'Project Monitoring and Advisory Committee (PMAC)' held through VC on 13th April, 2023 and **Dr. Ashok Kumar Das**, Sc. 'E' made a presentation on the status of the project 'Upgradation of Hydromet Services'.

Shri Abhimanyu Chauhan, Sc. 'C' and **Shri N. S. Darji**, Met. 'A' attended meeting on use of Satellite images in Crop Plantation at Director of Agriculture, Gandhinagar on 15th April, 2023.

Dr. S. Bandyopadhyay, Sc. 'G', attended a meeting along with officers of NCCR on the subject of Implementation of Iflows chaired by Municipality Commissioner, Kolkata Municipal Corporation on 17th April, 2023.

Pre-cyclone exercise and preparedness Meeting on 17th April, 2023 : IMD conducted Pre-cyclone exercise and preparedness Meeting for the cyclone season (April-June) on 17th April, 2023.

Dr. (Smt.) Manorama Mohanty, Sc. 'E' took a lecture on "Heat Wave early warning & Forecast of the current year" on 18th April, 2023.

Shri H. S. Sawhney, Sc. 'E' attended a user workshop organised by NCMRWF on 18th April, 2023 for the NWP Data users from the Renewable Energy sector.

Dr. Rajib Chattopadhyay, Sc. 'E', **Dr. Divya Surendran**, Sc. 'C', **Dr. Ananya Karmakar**, Sc. 'C' and **Ms. Lekshmi**, JFR had attended a meeting with the District collector of Pune for discussing latest forecast issued for the South West monsoon 2023 and the overall activities of the CR&S office on 19th April, 2023.

Dr. S. Bandyopadhyay, Sc. 'G', attended meeting with officials of Environment Department, Government of West Bengal on 20th April, 2023.

Pre-Cyclone meet 2023 was chaired by **Dr. S. Bandyopadhyay**, Sc. 'G', On 20th April, 2023 at RMC Kolkata.

Shri G. S. Nagrale, Sc. 'E' attended A meeting of Flood Crisis Management Team (FMCT) under Chairmanship of the Chief Engineer, Monitoring (Central) Organisation, CWC, Nagpur will be held on 23rd April, 2023.

A meeting was organised under the **Chairmanship of Secretary MoES** to discuss the various issues faced by IMD Officers. The meeting was held at O/o CRS, Pune on 25th April, 2023 and attended by DGM, Joint Secretary MoES, other senior officers of MoES and Heads of RMCs, MCs and senior officers.

Shri M. L. Sahu, Sc. 'F' attended and gave presentation, **Shri G. S. Nagrale**, Sc. 'E' and **Shri P. S. Chinchole** RMC Nagpur attended Pre Kharif season meeting by Departmental Agriculture Co-Ordinator Nagpur at 27th April, 2023.

Dr. G. N. Raha, Sc. 'E' attended a meeting on Monsoon Preparedness and Updating of Disaster Management Plan 2023 in Jalpaiguri on 27th April, 2023.

Sri S. Adhikary, Sc. 'E' attended AP044/23(MET) - Twelfth Meeting of Meteorological Requirements Working Group (MET/R WG/12) and Seminar on Meteorology and Air Traffic Management (MET/ATM Seminar), held at Bangkok, Thailand from 1- 5 May, 2023.

Dr. M. Mohapatra, DG, IMD participated in the meeting under Chairmanship of **Shri Amit Khare**, Advisor to PM on "Smart India Hackathon (SIH)" through VC on 2nd May, 2023.

Dr. M. Mohapatra, DG IMD and **Dr. V. K. Soni**, Sc. 'F' participated in the meeting of the National Steering Committee (NSC) for Review and Finalization of India's Third National Communication (TNC) to UNFCCC at Teestha Conference Hall, Indira Paryavaran Bhawan, Jor Bagh, New Delhi on 2nd May, 2023.

Dr. M. Mohapatra, DG, IMD participated in the 41st Annual General Meeting of National Institute of Hydrology Society, Roorkee through VC on 2nd May, 2023.

Dr. G. N. Raha, Sc. 'E', attended the Video Conference meeting "Conduct of State Level Mock Exercise on Earthquake disaster in Sikkim" on 2nd May, 2023.

Dr. H. R. Biswas, Sc. 'F', attended a review meeting with Hon'ble Chief minister of Odisha on preparedness for possible Summer Cyclone in Bay of Bengal in the 3rd floor Conference Hall of Lok Seva Bhawan on 2nd May, 2023.

Dr. M. Mohapatra, DG, IMD participated in the conference to review Pre-Monsoon/Monsoon situation for South-West Monsoon under the Chairmanship of **Shri Kamal Kishore**, Member and Secretary, NDMA on 3rd May, 2023.

Dr. M. Mohapatra, DG, IMD participated in the 9th Meeting of the Executive Committee on Climate Change (ECCC) under Chairmanship of Principal Secretary to PM on 3rd May, 2023.

Dr. M. Mohapatra, DG, IMD participated and made a presentation on "Forecast of South-West Monsoon 2023, Cyclonic System and IMD's Future Plans for Enhancement of its Forecasting Capabilities" in the Annual Conference of Relief commissioners/Secretaries, Department of Disaster Management of States/UTs to review the status of preparedness for Southwest Monsoon 2023 at Vigyan Bhawan, New Delhi.

Dr. Sathi Devi, **Dr. R .K. Jenamani**, **Dr. Soma Senroy** and **Dr. D. S. Pai** also participated in the meeting on 9th May, 2023.

Dr. M. Mohapatra, DG IMD participated in the meeting under the Chairmanship of **Ms. Leena Nandan**, Secretary (Environment, Forest and Climate Change) as a follow-up meeting of the meeting chaired by **Principal Secretary to Hon'ble PM** on 9th May, 2023.

Dr. Suprit Kumar, Sc. 'E' attended cyclone preparedness review meeting with Chief Secretary, A & N Island Government on 10th May, 2023.

Dr. Rajib Chattopadhyay, Sc. 'E', **Dr. Divya Surendran**, Sc. 'C', **Dr. Ananya Karmakar**, Sc. 'C' had attended online KJSIT - IMD Collaborative Research Product Launch Event on 10th May, 2023 conducted by K. J. Somaiya Institute of Technology (KJSIT), Sion, Mumbai.

Dr. G. N. Raha, Sc. 'E' & **Shri Himanshu Gupta**, SA attended the Video Conference Meeting Table Top Exercise (TTE) on 10th May, 2023 conducted by Sikkim State Disaster Management Authority (SSDMA).

Mr. David Puig, Ambassador of Dominican Republic made a Courtesy call to the office of **Dr. M. Mohapatra**, DG, IMD on 11th May, 2023. Mr. Alan Ramirez, Technical Director of the National Council for Climate Change and Clean Development Mechanism of the Dominican Republic, met with Dr. Mrutyunjay Mohapatra, Director General of the Indian Meteorological Department. Together, they discussed areas of cooperation in this field.



Mr. David Puig, Ambassador of Dominican Republic
With **Dr. M. Mohapatra**, DG, IMD

Dr. G. N. Raha, Sc. 'E', attended the meeting in connection with Flood Preparedness related to ensuing Monsoon at the Office of the Chief Engineer, Irrigation & Waterways, Jalpaiguri on 15th May, 2023.

Mr. Sourav Adhikary, Sc. 'E' and **Dr. Anwesa Bhattacharya**, Sc. 'C' attended a meeting on "the matter on acquiring India's Radar data for Hong Kong Observatory Regional Sig-Met coordination platform" on 15th May, 2023.

Hydromet Division of IMD in collaboration with World Meteorological Organization organized a one-day Steering Committee Meeting for South Asia Flash Flood Guidance System (SAsiaFFGS) with member countries on 16th May, 2023, **Dr. M. Mohapatra**, DG, IMD & PR of India, **Dr. Hwirin Kim**, Head (HWR), WMO, **Shri S. C. Bhan**, Sc. 'G', PR's and Hydrological Advisors of Nepal, Bangladesh, Sri Lanka participated in this meeting held at New Delhi.



Steering Committee Meeting for South Asia Flash Flood Guidance System (SAsiaFFGS) on 16th May, 2023

Dr. (Smt) Manorama Mohanty, Sc. 'E', attended state level Pre-Monsoon Meeting under the chairmanship of chief secretary for disaster preparedness on 17th May, 2023 at Gandhinagar.

Shri Himanshu Gupta, SA M. C. Gangtok attended the Meeting "Development & Implementation of Unified Mobile App for IMD" conducted by DGM New Delhi on 19th May, 2023.

Dr. Sankar Nath, Sc. 'F', attended a meeting between ICG, BEL & IMD scheduled on 17th May, 2023 at Bengaluru to discuss the sharing of weather data through coastguard Radar station with IMD.

Shri Abhimanyu Chauhan, Sc. 'C' participated in Joint refresher training workshop of South Asia Flash Flood Guidance System (SAsiaFFGS) at New Delhi during 17-19 May, 2023.

Dr. Satyaban B. Ratna, Sc. 'E', attended the 19th World Meteorological Congress, Geneva, Switzerland online from 22nd May to 2nd June, 2023.

WMO 19th Session of Congress and FINAC-43 meeting & Cg-19, virtual as well as hybrid mode participated by **Shri K. C. Sai Krishnan**, Sc. 'G', **Dr. Kuldeep Srivastava**, Sc. 'F' and **Dr. Sankar Nath**, Sc. 'F' and **Shri Sunny Chug**, Sc. 'C' on 22 May-02 June, 2023, 29 May-02 June, 2023, 19-20 May, 2023 and 22 May-02 June, 2023 respectively.

Shri. K. S. Hosalikar, Sc. 'G' and **Dr. O. P. Sreejith**, Sc. 'E' attended Kharif Hangam 2023 meeting organized by Agriculture Ministry of Maharashtra Government on 24th May, 2023 at Mumbai.

Dr. Kripan Ghosh, Sc. 'F', participated in the meeting 'Joint AGRESCO 2023' and presented on "Southwest monsoon 2022 and activities under GKMS in Maharashtra" at Central Campus, MPKV, Rahuri on 25th May, 2023.

Dr. Sankar Nath, Sc. 'F', attended second meeting of RA II WG-I Expert Team on WMO-IATA Collaborative AMDAR Programme (WICAP) (ET-WICAP) through online mode on 26 May, 2023.

Shri Vigin Lal F, Sc. 'C' and **Shri N. V. Patel**, Met. 'A' attended Pre-Monsoon Inter State meeting on Flood Management & Preparedness for Monsoon 2023 for Lower Narmada, Tapi and Damanganga Basins at CWC Gandhinagar on 30th May, 2023.

Dr. G. N. Raha, Sc. 'E' attended a meeting regarding 80th Meeting Of Brahmaputra Board at Mayfair, Gangtok, Sikkim on 30th May, 2023.

Shri Sanjoy Bhowal, Met. 'A', M. C. Gangtok attended "Pre-Monsoon Preparedness Meeting" of State Departments/Central Organizations, on 30th May, 2023 conducted by Sikkim State Disaster Management Authority (SSDMA) Gangtok Sikkim.

Dr. H. R. Biswas, Sc. 'F' attended the flag off ceremony of the maiden direct flight service to Bangkok from BPI Airport on 3rd June, 2023 at B.P.I. Airport, Bhubaneswar.

Dr. (Smt.) Manorama Mohanty, Sc. 'E', attended the Weather Watch Group Meeting with State govt. officials headed by the Relief Commissioner, Govt. of Gujarat at State Emergency Operation Centre, Gandhinagar on 5, 7, 20 & 27 June, 2023.

Shri H. S. Sawhney, Sc. 'E', attended NPCCHH National Review Meeting on 8th June, 2023.

Dr. M. Mohapatra, DG, IMD participated in the meeting on Shri Amarnath Ji Yatra chaired by Union Home on 9th June, 2023.

Dr. (Smt.) Manorama Mohanty, Sc. 'E', attended Cyclone meeting on 9th June, 2023 (Online Mode) and on 11th June, 2023 at Sachivalaya, Gandhinagar under the Chairmanship of Chief Minister.



Meeting with **Shri Bhupendra Rajnikant Patel**, Hon'ble Chief Minister of Gujarat

Dr. M. Mohapatra, DG, IMD participated and presented the status & forecast of Biparjoy cyclone in the following High Level Committee Meetings: (i) National Emergency Response Committee (NERC) headed by Home Secretary, Govt. Of India was organised on 11th June, 2023 (ii) National Crisis Management Committee Meeting on impending Cyclone Scenario in Arabian Sea under the Chairmanship of Home Secretary, on 12th June, 2023. (iii) Hon'ble Prime Minister reviewed the preparedness in a high level meeting on 12th June, 2023. (iv) Hon'ble Home Minister reviewed the preparedness in a high level meeting on 13th June. (v) Hon'ble Home Minister reviewed the preparedness in a high level meeting on 17th June, 2023.

Dr. (Smt.) Manorama Mohanty, Sc. 'E', attended Cyclone meeting under the Chairmanship of Hon'ble Chief Minister of Gujarat on 12-16 June, 2023 at Sachivalaya, Gandhinagar.

Shri S. C. Bhan, Sc. 'G' attended meeting of Hon'ble Home Minister with the Ministries of the State/UTs holding the portfolio of disaster management on 13th June, 2023.

Dr. (Smt.) Manorama Mohanty, Sc. 'E', attended the Cyclone meeting (Online Mode) under the Chairmanship of Hon'ble Union Home Minister on 17th June, 2023 at Gandhinagar.



Shri Amit Shah, Hon'ble Union Home Minister on 17th June, 2023 at Gandhinagar during cyclone review meeting

Dr. M. Mohapatra, DG, IMD participated virtually in the 105th Governing Council Meeting of IITM, Pune on 17th June, 2023.

Dr. G. N. Raha, Sc. 'E', attended the Meeting "Current status of RSRW & PB system and Procurement of balloon and has through GeM" conduct by DGM New Delhi on 19th June, 2023, through online mode.

Dr. H. R. Biswas, Sc. 'F', attended the Crop Weather Watch Group Committee Meeting (CWWGCM) for Kharif - 2023 under the chairmanship of Agriculture Production Commissioner, Govt. of Odisha, on virtual mode through Microsoft Teams on 19th and 26th June, 2023.

Dr. S. Bandyopadhyay, Sc. 'G', attended a meeting for integration of GKMS services with State Agricultural Services on 22nd June, 2023.

Dr. M. Mohapatra, DG, IMD participated in the South Asia Hydromet Forum (SAHF): Executive Council Preparatory Meeting on 22nd June, 2023.

Shri Umasankar Das, Sc. 'C' and **Dr. S. Dwivedi**, Sc. 'C' attended Virtual Interface meeting for Agricultural Contingencies during Kharif-2023 organised by Directorate of Agriculture & Food Production, Odisha, Bhubaneswar on 27th June, 2023.

Dr. M. Mohapatra, DG, IMD participated in the Online meeting with Principal Secretary, West Bengal under Chairmanship of Shri Kamal Kishore, Member/Secretary, NDMA on 28th June, 2023 on implementation of Common Alert Protocol.

WORKSHOP

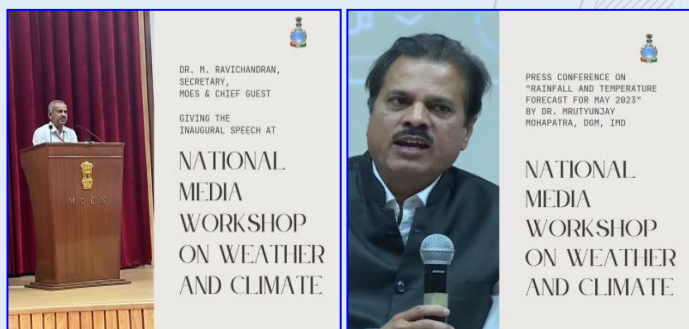
Dr. Kuldeep Srivastava, Sc. 'F' & **Shri Parmod Kumar**, Sc. 'C' attended one day workshop on "Policy Issue in Tech Spaces" on 6th April, 2023 at Indian Institute of Public Administration (IIPA), New Delhi.

An online training workshop on "**Thunderstorm Monitoring and Forecasting**" was organised by Nowcast Division, NWFC from 18-22 April, 2023. All officers from RMCs, MCs and O/o CRS attended the meeting.

Dr. Divya Surendran, Sc. 'E' attended the online thunderstorm workshop conducted by NWFC from 18-22 April, 2023.

Dr. Rajib Chattopadhyay, Sc. 'E', participated in Brainstorming Workshop under National Hydrology Project on the theme "**Avenues of AI/ML in Groundwater**" in Bhujal Bhavan and gave suggestions for how to use machine learning methods in groundwater resource-related studies on 21st April, 2023.

National Media Workshop on 28th April : IMD conducted National Media Workshop on 28th April (Hybrid Mode) with participation from various media groups countrywide, All India Radio and also disaster management agencies like National Disaster Response Force, National Disaster Management Agency etc. The objective of the workshop was to familiarize the mass media agencies about various new initiatives by IMD, various warning bulletins & graphical products, terms & terminologies, FAQs and website of IMD. The workshop also aimed to gather reviews from eminent journalists present there with the objective to further improve the services of IMD. **Dr. M. Ravichandran**, Secretary Ministry of Earth Sciences graced the occasion as the Chief Guest. **Dr. M. Mohapatra**, D.G. of IMD presided over the function.



Secretary MoES, Dr. M Ravichandran presenting the inaugural address and DG IMD, Dr. M Mohapatra discussing the future plans of IMD during the Panel Discussion

Dr. Rajib Chattopadhyay, Sc. 'E', **Dr. G. K. Das**, Sc. E and **Shri Umasankar Das**, Sc. 'C' attended National Media Workshop on Weather and Climate on 28th April, 2023 in Mahika Hall, MoES, at New Delhi.

Dr. O. P Sreejith, Sc. 'E', **Dr. Satyaban Bishoyi Ratna**, Sc. 'E' and **Dr. Sabeerali C. T.**, Sc. 'C' attended online Nineteenth Session of the Forum on Regional Climate Monitoring-Assessment-Prediction for Asia (RAII) FOCRAII organized by Beijing Climate Center (BCC), CMA from 8-10 May/ 2023. **Dr. Sreejith O. P.** gave a presentation on "**SACOF25 Seasonal Climate Outlook over South Asia for the 2023 Southwest Monsoon Season (June – September)**".

Dr. O. P. Sreejith, Sc. 'E' attended SAMA and SAFOAM jointly organized an online workshop on "**Long Range Forecast for the 2023 Southwest Monsoon Season Rainfall and its application on South Asian Agriculture**" on 13th May, 2023 and gave

presentation on "**Long Range Forecast for the 2023 Southwest Monsoon Season Rainfall for South Asia**".

Dr. Rajib Chattopadhyay, Sc. 'E' had visited WMO, Geneva to attend the Write shop Workshop from 16-19 May, 2023.

M.C. Bhubaneswar conducted three training programme workshops in collaboration with Odisha State Disaster Management Authority on understanding Weather Forecasting at Meteorological Centre, IMD, Bhubaneswar on 17th May, 2023, 24th May, 2023 & 31st May, 2023. District Emergency Officers, District Project Officers and DRR Consultant attended the meeting. **Dr. Gyana Das**, IAS, Managing Director OSDMA, Odisha attended the meeting on 31st May, 2023.

Dr. Rajib Chattopadhyay, Sc. 'E', participated in the '**International Climate Research Conclave 2023 (ICRC 2023)**' being organized jointly by the Ministry of Earth Sciences (MoES) and Department of Science and Technology (DST), Govt. of India. This conclave was hosted by IIT Bombay, Mumbai, India on 26-27 May, 2023.

Dr. Satyaban B. Ratna, Sc. 'E', presented a online talk on "**MJO in conjunction with Large Scale Features and its impact on Rainfall over India**" at the Southwest Monsoon 2023: Preparedness Training Workshop from 16-20 June, 2023.



Second FFGS Global Workshop during 16–23 June 2023, Skopje, Republic of North Macedonia

Indian Delegation Headed by **Shri Rahul Saxena**, Sc. 'F', **Dr. Ashok Kumar Das**, Sc. 'E', **Ms. Hemlata Bharwani**, Sc. 'C' and **Mr. Asok Raja S.K.**, Sc. 'C' IMD & NDMA attended First Flash Flood Guidance System (FFGS) Programme Management Committee (PMC) Meeting and the Second FFGS Global Workshop during 16-23 June, 2023, Skopje, Republic of North Macedonia. Global FFGS is a Flagship program of WMO with the objective of providing "**EW4ALL (Early Warning for all) by 2030**".



TRAININGS



Participant of International Training for Cyclone Forecasters (3-13, April, 2023)

International Training for Cyclone Forecasters (03-13, April-2023) : India Meteorological Department (IMD) conducted 19th WMO's Tropical Cyclones Forecaster Training during 3-13 April, 2023 through WebEx. IMD acts as one of the six Regional Specialised Meteorological Centres (RSMCs) in the world recognised by WMO under a global system for issue of warnings and advisories in association with cyclonic disturbances over north Indian Ocean. IMD started conducting tropical cyclones forecasters training for WMO sponsored participants from ESCAP Panel member countries since 2005. This year there were 106 participants including 26 International participants from Thailand, Myanmar, Bangladesh, Sri Lanka, Maldives, Pakistan, Iran, Oman, United Arab Emirate & Saudi Arabia, and 80 participants from various sub-offices of IMD. The training was aimed at building capacity of the TC forecasters in the region by understanding the latest developments in observations, monitoring, modelling, prediction and early warning services of TCs over the Bay of Bengal and the Arabian Sea and carrying out the case studies as practical examples in these aspects. The training included resource persons from UN-ESCAP, RSMC Tokyo, IMD, National Centre for Medium Range Weather Forecasting (NCMRWF), Indian National Centre for Ocean Information Services (INCOIS) and IIT Delhi. During the training special sessions were organised for storm surge & ocean state forecasts and monsoon circulations. Dr. T. Peng, WMO appreciated the role of IMD for providing the tropical cyclone advisories and the capacity building efforts. Dr. Srivastava, UN-ESCAP also highlighted the contributions of IMD and RSMC for capacity building in the region and the services provided by IMD for management of the cyclones. On the last day of training on 13th April, internal assessment of participants was carried out followed by the ceremonial Valedictory Ceremony and distribution of certificates.

Nowcast Unit (NWFC) organized Demonstration Programme on the Nowcast Portal on 4th April, 2023 and Thunderstorm Monitoring and Training Workshop during 18-22 April, 2023.

Dr. S. Dwivedi, Sc. 'C' attended session on Climate & weather variability and seasonal forecast for Ganjam during the training of master trainers at Swosti Plam Resort, Gopalpur 18th April, 2023.

Training workshop on Thunderstorm monitoring and Forecasting (Online) is held on 19th April, 2023 and **Shri B. A. M. Kannan**, Sc. 'F', DWR Chennai given lecture on "**Radar Meteorology for Nowcasting of Thunderstorms**" to the trainees from IMD.

Shri S. K. Mallick, Met. 'B', DWR Paradeep attended the "SAGARMITRAS' 2023-24 training on skill up gradation and awareness programme at BWTC Campus Paradeep on 1st May, 2023 & 4th May, 2023 organized by Principal Brackish Water Training Centre (BWTC).

Monsoon Preparedness Training workshop was organised through VC by NWP division, O/o DGM during 16-20 May, 2023. Officers from RMCs, MCs and O/o CRS, Pune attended the workshop.

Dr. M. Mohapatra, DG & PR of India and **Shri S. C. Bhan**, Sc. 'G' flagged off the three days Joint Refresher training workshop for SASIAFFGS, BSMEFFGS and SEEFFGS conducted in New Delhi, India. About 60 participants from Bangladesh, India, Sri Lanka, Nepal, Jordan, Turkey, Moldova and World Meteorological Organization attended this workshop. **Shri Rahul Saxena**, Sc. 'F' & Focal Point (SASIAFFGS), **Dr. Ashok Kumar Das**, Sc. 'E', **Shri Asok Raja S. K.**, Sc. 'C' and **Ms. Hemlata Bharwani**, Sc. 'C' conducted the Step 5 & Joint Refresher FFGS Training Workshop in collaboration with WMO New Delhi during 17-19 May, 2023.



Joint Refresher FFGS Training Workshop, New Delhi during 17-19 May, 2023

Dr. K. Naga Ratna, Sc. 'E' participated and presented a talk on "**Heavy Rainfall for the District, Block & Location level: Decision Making**" in Monsoon Preparedness Training Workshop (16-20 May, 2023) on 20th May, 2023.

M. C. Bhubaneswar conducted three training programme workshops in collaboration with Odisha State Disaster Management Authority on understanding Weather Forecasting at Meteorological Centre, IMD, Bhubaneswar on 17th May, 2023, 24th May, 2023 & 31st May, 2023. District Emergency Officers, District Project Officers and DRR Consultant attended the meeting. Dr. Gyana Das, IAS, Managing Director OSDMA, Odisha attended the meeting on 31st May, 2023.

Four Met. 'A' from M.C. Ranchi completed short term refresher course on Solar Radiation Instruments (instead of DATABASE MANAGEMENT) held in M.C. Ranchi from 22-26 May, 2023.

Dr. H. R. Biswas, Sc. 'F' Chaired in 3days duration training workshops in collaboration with Odisha State Disaster Management Authority on understanding Weather Forecasting

at Meteorological Centre, IMD, Bhubaneswar, dated 17th May, 2023, 24th May, 2023 & 31st May, 2023. **Shri Umasankar Das**, Sc. 'C' and **Dr. S. Dwivedi**, Sc. 'C', delivered lectures on understanding Weather Forecasting.

AWS Software Training conducted in AWS Lab CRS, Pune during 1st week of June 2023.



AWS Software Training (400) at CRS, Pune

Shri Y. D. Bijani, Met. 'B' and **Shri Indra Jeet Jakhar**, S.A. was attended the short term refresher course on 'Solar Radiation Instruments' during 22-26 May, 2023.

LECTURES/ TALK

Dr. H. R. Biswas, Sc. 'F' delivered lecture on "**Weather Forecasting & Warning Service-IMD**" for the training program of DEOC officials on "**Management of emergency operation centre**" on 13th April, 2023 at Gopabandhu Academy of Administration, Bhubaneswar.

Dr. Kripan Ghosh, Sc. 'F', delivered a lead lecture on "**Integration of Weather and Climate information for management of Agricultural Risks**" at College of Agriculture, Tripura during National Seminar on "**Climate Resilient Millet Production Technologies for Sustainable Agriculture (CRMPTSA)**" on 28th April, 2023.

Dr. S. Bandyopadhyay, Sc. 'G' delivered a lecture on the occasion of World Environment Day, 2023 organized by Diamond Harbour Women's University, Diamond Harbour on 5th May, 2023.

Shri P. S. Kannan, Sc. 'E' delivered a lecture on Hydromet and Agromet services rendered by Regional Meteorological Centre, Chennai to the participants of International workshop on Hydromet Service for Coastal, Agricultural, and Urban Resilience held at Chennai on 7th May, 2023.

Dr. V. K. Mini, Sc. 'F', CWC Thiruvananthapuram, given an interactive talk to educate nearly 200 fishermen in a Community Interactive Programme (CIP) organized by Headquarters, No. 4 Coast Guard District (Kerala & Mahe at Marianad Fish Landing Centre, Puthukurichi, Thiruvananthapuram on 20th May, 2023 in coordination with AD, Fisheries, Vizhinjam, Thiruvananthapuram.

Shri M. L. Sahu, Sc. 'F', RMC Nagpur delivered lecture to students of SBJITM, Nagpur on 26th May, 2023.

Dr. H. R. Biswas, Sc. 'F', attended & delivered lecture in State Level Consultation Workshop on preparation of Drought Management Plan for Odisha, 29th May, 2023, Convention Centre, Lok Seva Bhawan, Bhubaneswar.

Dr. S. Bandyopadhyay, Sc., 'G', delivered a lecture on the occasion of World Environment Day, 2023 organized by Diamond Harbour Women's University, Diamond Harbour on 5th June, 2023.

Dr. G. N. Raha, Dr. G. N. Raha, Sc. 'F', gave a Lecture on "**Plastic and Climate Change Connection**" On occasion of World Environment Day conducted by DGM New Delhi on 5th June, 2023 through online mode.

Dr. S. Bandyopadhyay, Sc. 'G', delivered a talk to Agriculture officers from government of West Bengal during GKMS familiarization Programme on 27th June, 2023.

Shri Abhishek Anand, Sc. 'C', delivered a lecture on "**Role of GIS in Disaster Management**", as a Guest lecturer in St. Xaviers College Ranchi on 27th June, 2023.

PANEL DISCUSSION/INTERVIEW

Dr. M. Mohapatra, DG, IMD participated as a Panelist in the session "**Improving Infrastructure Risk Management: Early Warning, Regulations and Local Action**" during International Conference on Disaster Resilient Infrastructure (ICDRI) 2023 on 4th April, 2023.

CONFERENCE/PRESENTATIONS

Dr. M. Mohapatra, DG, IMD participated in the UN-WMO initiative on development of Systematic Observations and Forecasting Facilities (SOFF) Peer Advisors Virtual meeting on 3rd April, 2023 through VC.

Dr. O. P. Sreejith, Sc. 'E', participated and gave presentation on "**Characteristic of Monsoon Circulation over the RSMC region**" on 11th Apr, 2023 during 19th Tropical Cyclones and Storm Surge Forecasters Training (Online) conducted by RSMC, New Delhi.

Dr. M. Mohapatra, DG, IMD had been on Ex-India deputation Singapore to participate in the High Level Regional forum of the Open Consultative Platform in WMO Regional Associations II and V during 18-19 April, 2023.

Dr. M. Mohapatra, DG, IMD participated in the WMO briefing to Permanent Representatives and Missions in Geneva prior to the Nineteenth Session of WMO Congress through VC on 24th April, 2023.

Ms. Lekshmi S., JRF participated and presented a paper on "Propagation of Mid-Latitudinal Rossby waves along the Jet stream wave guides and their Role in Summer Temperature Intraseasonal Oscillations and Extremes over the Indian Region"

in the European Geophysical Union (EGU) General Assembly in online mode on 24th April, 2023.

Dr. S. Bandyopadhyay, Sc. 'G' attended 2nd International Conference on Geospatial Science and Technology for Earth Observation (GSTEO 2023) on 12th May, 2023 and delivered a lecture on Weather and Climatic Services at Adamas University Organized by the Department of Geography, School of Basic and Applied Sciences, Adamas University, Kolkata.

Twenty fifth (25th) Session of South Asian Climate Outlook Forum (SASCOF-25) and Climate Services User Forum (CSUF) conducted online in collaboration with World Meteorological Organization (WMO) and RIMES, Bangkok from 27-29 April, 2023 to issue outlook for Rainfall and Consensus Statement on the Seasonal Climate Outlook over South Asia for the 2023 Southwest Monsoon Season (June - September). **Dr. O. P. Sreejith**, Sc. 'E', gave presentation on "Pre-Consensus outlook for SASCOF-25" on 27th April, 2023 and SASCOF-25 outlook for Rainfall and Temperature over South Asia Region during Southwest Monsoon Season 2023 on 28-29 April, 2023 during Climate Services User Forum of SASCOF-25. Also, **Dr. Satyaban B. Ratna**, Sc. 'E', presented a talk on "Seasonal climate outlook of South Asia for JJAS 2023 Global and Regional Perspectives". **Dr. Ashutosh Kumar Misra**, Sc. 'D' and **Dr. Divya Surendran**, Sc. 'E' attended the same.

Shri H. S. Sawhney, Sc. 'E', attended a conference on climate change and health - Climate Proofing Indian Health System : Pathways for Enhancing Health Sector Resilience and Sustainability on 2nd June, 2023 organised by the World Bank at New Delhi.

Dr. O. P. Sreejith, Sc. 'E', gave presentation on "Updated SASCOF-25 outlook for Rainfall and Temperature over South Asia Region during Southwest Monsoon Season 2023" on 14th June, 2023 during update session of SASCOF-25.

ACHIEVEMENTS / APPRECIATIONS / AWARDS RECEIVED

WMO recognised three IMD observatories, viz., Dwarka & Veraval in Gujarat and Cuttack in Odisha as long term observing stations for more than 100 years of hydrological observations. **Dr. M. Mohapatra**, DG, IMD received the certificates from the President during Cg-19.



Dr M.Mohapatra, DG IMD received the certificates from the President during Cg-19



Hon'ble Chief Minister of Odisha Shri Naveen Pattanaik appreciated IMD for providing quality hydrological observations which are essential for dealing with climate hazards.

M.C. Ahmedabad received 'Appreciation letter' from **Shri Bhupendra Patel, Hon. Chief Minister of Gujarat State and from Gujarat Frontier of BSF** for providing the accurate and precise forecast services during "BIPARJOY CYCLONE".

Dr. G. N. Raha, Sc. 'E', **Shri Debjit Das**, S.A. & **Shri Himanshu Gupta**, S.A., M. C. Gangtok, received the appreciation letter for significant contributions made during 2022-2023 issued by the Director General of Meteorology.

AWARD

Smt. Sulekha Sonal, S.A., **Ms. Meenakshi Yadav**, Upper Division Clerk, **Smt. Lata Sridhar**, Met. 'B' and **Ms. Ruby Verma**, S.A. of Regional Meteorological Center, Nagpur received the first and consolation prizes respectively in the competitions organized by the Town Official Language Implementation Committee (Narakas).

राजभाषा अनुभाग



श्री सोनम लोट्स, वैज्ञानिक 'ई' ने राजभाषा 'नायक' पुरस्कार प्राप्त किया

भारतीय भाषा एवं संस्कृति केंद्र द्वारा दिनांक 27 अप्रैल से 29 अप्रैल 2023 तक आयोजित होने वाले 40^{वें} अखिल भारतीय सम्मेलन एवं प्रशिक्षण शिविर में भाग लेने हेतु श्री सोनम लोट्स, वैज्ञानिक 'ई'/प्रमुख, मौसम केंद्र - श्रीनगर/लेह को नामित किया गया। श्री सोनम लोट्स, वैज्ञानिक 'ई'/प्रमुख, मौसम केंद्र - श्रीनगर/लेह ने सम्मेलन में भारत मौसम विज्ञान विभाग को दिए जाने वाले 'राजभाषानायक' पुरस्कार प्राप्त किया।

माननीय संसदीय राजभाषा समिति की दूसरी उपसमिति द्वारा दिनांक 08.05.2023 को मौसम केंद्र - पटना, दिनांक 13.05.2023 को

विमानन मौसम स्टेशन – अमृतसर तथा डॉप्लर मौसम रेडार-पटियाला का अमृतसर, दिनांक 25.05.2023 को मौसम केंद्र - देहरादून, दिनांक 17.10.2022 को मौसम केंद्र – जयपुर और दिनांक 14.11.2022 को मौसम केंद्र – रायपुर में राजभाषायी निरीक्षण किया गया।



मौसम केंद्र- पटना का राजभाषायी निरीक्षण



मौसम केंद्र-जयपुर, मौसम केंद्र- देहरादून का राजभाषायी निरीक्षण

माननीय संसदीय राजभाषा समिति की दूसरी उपसमिति द्वारा दिनांक 23.06.2023 को मौसम विज्ञान केंद्र- लखनऊ का लखनऊ में निरीक्षण किया गया। इस निरीक्षण में मुख्यालय से डॉ. मृत्युंजय महापात्र, महानिदेशक, श्रीमती सरिता जोशी, उपनिदेशक (रा.भा.) ने भाग लिया सुश्री गुंजन त्यागी, कनिष्ठ अनुवाद अधिकारी निरीक्षण में सहयोग के लिए उपस्थित रही। इस अवसर पर महानिदेशक महोदय को विश्व मौसम विज्ञान संगठन का तीसरा उपाध्यक्ष चुने जाने पर संसदीय राजभाषा समिति की दूसरी उपसमिति की संयोजक महोदया डॉ. रीता बहुगुणा जोशी द्वारा सम्मानित किया गया।



महानिदेशक महोदय को डॉ. रीता बहुगुणा जोशी द्वारा सम्मानित किया गया



मौसम विज्ञान केंद्र - लखनऊ का लखनऊ में निरीक्षण



अमृतसर में राजभाषायी निरीक्षण

Research & Publications

Mausam Vol.74, No. 2 (April, 2023) Special issue on “Seventh WMO International Workshop on Monsoon (IWM-7) The Global Monsoon System: Research and Forecast 5th Edition” Twenty two (22) research papers published.

Rahul Kashyap, Radheshyam Sharma, Shyam Das Kotal “Distribution of variability of bc aerosol & its response to specific met occurrence for ranchl”. *Aerosol Science and Engineering*, SPRINGER. <https://doi.org/10.1007/s41810-023-00174-9>.

Shri M. L. Sahu, Sc. F, RMC Nagpur and **Shri A. M. Bhatt**, Met. 'A', M.O. Ambikapur written a book "आंकड़ों की दृष्टि से अम्बिकापुर की जलवायु" published in June, 2023.

M. V. S. Ramarao, D. C. Ayantika, R. Krishnan, J. Sanjay, T. P. Sabin, M. Mujumdar and K. K. Singh., "Signatures of aerosol-induced decline in evapotranspiration over the Indo-Gangetic Plain during the recent decades", *Mausam*, **74**, 2, 297-310.

Mohapatra, Anshul Cauhan, Avnish Varshney, Suman Gurjar, M. T. Bushair, Monica Sharma, R. K. Jenamani, Kuldeep Srivastava, Pulak Guha Thakurta, Rajib Chattopadhyay, Mamta Yadav, Radheshyam Sharma, A. K. Mitra, Ananda Kumar Das, Sankar Nath, Naresh Kumar, Soma Senroy, T. Arulalan, Amit Bharadwaj, D. R. Pattanaik, B. P. Yadav, Rahul Saxena, Ashok Kumar Das, Asok Raja, Hemlata B., Arun K. V. H., Nitha S., Atul K. Singh, Shobhit Katiyar, Krishna Mishra, Surendra Pratap Singh, Shashikant Mishra, Akhil Srivastava, Geetha B., Rahul M., K. Nagaratna, H. R. Biswas, Manorama Mohanty, R. Thapliyal, Shivinder Singh, Sonam Lotus, Sandeep Kumar Sharma, V. K. Mini, Sunit Das, K. Das, Abhishek Anand and Gayatri Vani K., "Short to medium range impact based forecasting of heavy rainfall in India", *Mausam*, **74**, 2, 311-344.

U. C. Mohanty, Hara Prasad Nayak, M. R. Mohanty, P. Sinha, Raghu Nadimpalli and K. K. Osuri., "Role of land surface processes on Indian summer monsoon rainfall : Understanding and impact assessment", *Mausam*, **74**, 2, 345-360.

M. T. Bushair, D. R. Pattanaik and M. Mohapatra, "A multi-model ensemble tool for predicting districts level monsoon rainfall and extreme rainfall events over India", *Mausam*, **74**, 2, 429-454.

Amey Datye, S. Chakraborty, R. Chattopadhyay, P. M. Mohan, Md. Arzoo Ansari and Archana Deodhar, "Precipitation isotopes' response to the atmospheric processes over the mainland and the island region in the northern Indian Ocean : Implications to the paleo-monsoon study", *Mausam*, **74**, 2, 503-512.

Gautam, P., Chattopadhyay, R., Joseph, S., Martin, G. M. & Sahai, A. K. (2023), "Coupled model biases and extended-range prediction skill during the onset phase of the Indian summer monsoon with different initializations related to land surface and number of observations", *Quarterly Journal of the Royal Meteorological Society*, 1–24. Available from: <https://doi.org/10.1002/qj.4475>.

Soyam, P. S., Safai, P. D., Mukherjee, S., Kondle, S., Bankar, S., Todekar, K., Malap, N., Surendran, D., Gaikwad, A., Lohogaonkar, S. and Prabhakaran, T., 2023, "Significant abundances of alkaline components in the fine and coarse aerosols over a tropical rain shadow location in peninsular India" *Journal of Atmospheric Chemistry*, pp.1-19.

ENSO bulletin for the month of March, April, and May 2023 and Seasonal Climate Outlook for South Asia for the period of April to August 2023 were issued.

"Climate of Bhuj" accepted for departmental publication vide publication no. "MoES/IMD/RMC Mumbai/CLI-REP(Bhuj)/01(2023)/15".

"Climate of Baroda" accepted for departmental publication vide publication no. "MoES/IMD/RMC Mumbai/CLI-REP(Baroda)/02(2023)/16"(Quick Link : www.imdpune.gov.in/Clim_Pred_LRF_New/Products.html).

Climate Diagnostic Bulletin for December 2022 and Post monsoon 2022 has been published and uploaded on the website.

Outreach and Media Interaction

IMD issued press release on **First Long Range Forecast for Southwest Monsoon Season 2023 at National media Centre** on 11th April, 2023. **Dr. M. Mohapatra**, DG, IMD made the presentation in this regard.

The Earth Day was celebrated by IMD with (i) plantation of trees, (ii) delivery of a popular lecture by **Dr. V. K. Soni** and address by **Dr. M. Mohapatra**, DG, IMD, (iii) awareness campaign by calculating carbon equivalent contribution of individual employees and (iv) a climate pledge by the employees led by **Dr. M. Mohapatra**, DG, IMD on 22nd April, 2023.

Dr. M. Mohapatra, DG, IMD was interviewed for the show "Perspective" on the topic "WMO's report on state of Global climate - 2022" organized by Sansad TV on 24th April, 2023.

Dr. M. Mohapatra, DG, IMD participated as the guest speaker during the Panel Discussion on "Cyclone" for the programme "Aapdaka Samna" at the DD News Studio (C/o Ms. Swati Singh, NDMA) on 28th April, 2023..

Monthly Press Conference by DG IMD on "Rainfall and Temperature Forecast" for May, 2023 : IMD released the monthly forecast of "Temperature and Rainfall for the month of May, 2023" on 28th April, 2023. **Dr. Mrutyunjay Mohapatra**, DG, IMD made a presentation in this regard. The press release was conducted in Hybrid Mode as a side event of National Media Workshop on 28th April.

During the quarter (April-June, 2023) **86 Farmers awareness programmes (FAPs)** were organized by AMFUs and DAMUs across the country. Agromet Bulletins have also been prepared and uploaded in the website of Agricultural Meteorology Division.

Dr. G. K. Das, Sc. 'E', and **Shri Shubhendu Karmakar**, Met. 'A' attended community interaction/outreach programme of the fishing community at Nandigram village, East Midnapore on 30th May, 2023 organised by Indian Coast Guard.

Heavy rainfall warning was issued by India Meteorological Department due to **Cyclonic Storm "BIPARJOY"** over Arabian Sea from 6-19 June, 2023. During the period SMSs have been sent to the farmers in the states of Gujarat and Rajasthan.



FAP conducted by DAMU, Mokochung at Longsa Village, Ongpangkong (North) Block, Mokochung District

TEDx (Technology, Entertainment & Design) is an initiative with a mission to research and discover “ideas worth spreading”. **Dr. Mrutyunjay Mohapatra**, DG, IMD participated in the TEDx on the theme “InterpreT, visualisE, and ResponD” organized by S.C.B. Medical College and Hospital, Cuttack, Odisha and presented a story on his life that inspired him to save life against hazard due to cyclones on 5th May, 2023.

India Meteorological Department organized a virtual Press Conference and released monthly outlook of rainfall and temperature for July month on 30th June, 2023. **Dr. M. Mohapatra**, DG, IMD made a detailed presentation in this regard and answered queries from media persons during the conference.

Shri Anand Shankar, Sc. ‘C’ was deployed with thematic teams, Central Multi-Centre for Heat Wave in the State of Bihar, India from 22-26 June, 2023. He interacted with various stakeholders in the State of Bihar on Early Warning System and taken inputs from them. The final report was submitted to the Ministry of Health and Family Welfare, Government of India.

India Meteorological Department issued Press release for Monthly outlook of Monsoon for July, 2023.

Visitors

Professors and 32 students from VIT University from Vellore visited DWR Chennai and were explained about functions and utilities of DWR Chennai Radar on 3rd April, 2023.

Approx. 519 visitors visited CRS, Pune were briefed on various activities of the Climate, Agrimet and Instruments division. 60 Civil Engineering Students, 5 Professors from PVPIT, Pune visited AWS & Radiation Lab, Pashan during the period April-June, 2023. **MC Ranchi visited**, students from Women’s College, Ranchi an Educational tour on 3rd April, 2023.

M.C. Bhubaneswar visited 20 Nos. Botany Honours students & one faculty member of Udayanath Autonomous College of Science and Technology, Cuttack for Project Work on 17th April, 2023.

M.C. Gangtok, visited 190 Nos. of students from Tashi Namagyal Academy, Gangtok an educational tour during April, 2023.

Fifteen (15) Nos. of students from Ramakrishna Mission Vivekananda Educational Research Institute (Deemed University)/Agriculture Students visited this office for familiarization with activities of IMD (RMC Kolkata), on 8th June, 2023.

Eighty six (86) Nos. of students from DPS, Howrah visited RMC Kolkata as educational tour, on 15th June, 2023.

GHMC Director of EVDM (Disaster Manager) visited Meteorological Centre Hyderabad on 23rd June, 2023.

Fourty (40) Nos. of M.Sc. Geography students from Women’s College Kolkata visited RMC Kolkata as an educational visit, on 23rd June, 2023.



Students from Women’s College Kolkata at PAC Kolkata

Six students of M.Sc (Physics) from SRM Engineering College, Chennai visited DWR Chennai and were explained about the functioning and utilities of DWR Chennai on 24th June, 2023.

Infrastructure Development And Installation

Dr. Praveen Kumar, Sc. ‘C’, RMC Nagpur was on tour from 17-25 April, 2023 regarding inspection, maintenance and revival of AWS and ARG in various stations of Madhya Pradesh.

Total 65 Inspection and maintenance work has been done during this period. 12 departmental/part time observatory has been inspected. 13 AWS, 40 ARG stations has been visited by the officials for revival and maintenance. During this 13 AWS and 36 ARG stations were successfully revived.

IERMON System has been installed in the premises of MC Gangtok by BARC on 18th May, 2023.

DCWIS and PWD systems were installed in April Kalburgi (RWY 09), Bhopal (RWYs 30, MID & 12), Sindhudurg, RWY 27, Kolhapur, RWY 07 & Bhavnagar, RWY 25, in May Porbandar (RWY 27) & Bhuntar (RWY 34) and in June Shirdi (RWYs 27 &

09), Jalgoan (RWY 27), Khajuraho (RWY 19), Tirupati (RWY 26) & Vijayawada (RWY 26 & 08).



DCWIS and PWD systems

Weather Information

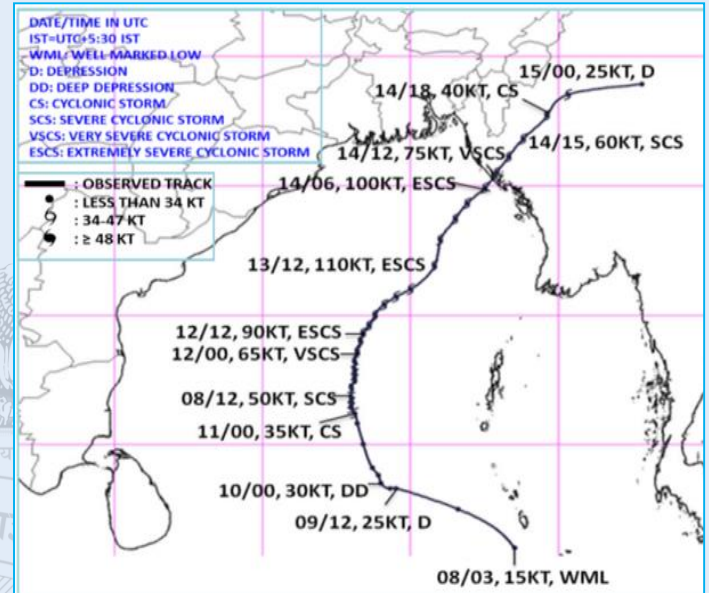
April

Rainfall : The country as a whole for the month of April 2023 recorded 41.4 mm of rainfall, which is 5% more than its Long Period Average (LPA) of 39.3 mm for the period 1971-2020. Rainfall over homogeneous region of central India (30.0 mm) was 4th highest since 1901 after the years 1909 (52.8 mm), 1937 (44.7 mm) and 1907(40.6mm). Among the four homogeneous regions, east & northeast India received 63.8 mm of rainfall which is 5th lowest since 1901. Prior lowest rainfall years were 1960 (36.9 mm), 2014 (41.1 mm), 1940 (47.3 mm) and 1903 (53.0 mm).

Temperature : The average maximum, average minimum and mean temperature for the country as a whole during April 2023 are 34.19 °C, 22.08 °C and 28.14 °C respectively, against the normal of 33.94 °C, 22.15 °C and 28.04 °C based on the period 1981-2010. Thus, the average maximum temperature is above normal by 0.26 °C while the average minimum temperature and mean temperature are normal by -0.07 °C and 0.10 °C respectively for the country as a whole. The climatological data based on the period of 1981 to 2010 are used to calculate the normal and hence the anomaly (Actual average temperature in 2022 - normal temperature based on data of 1981-2010).

May

Extremely Severe Cyclonic Storm "MOCHA" over the BoB during (9-15 May, 2023): IMD maintained round the clock watch over the north Indian Ocean and the cyclone was monitored since 27th April, 2023 about 12 days prior to formation of depression on 9th and 17 days prior to the landfall of system over Myanmar-Bangladesh coasts.



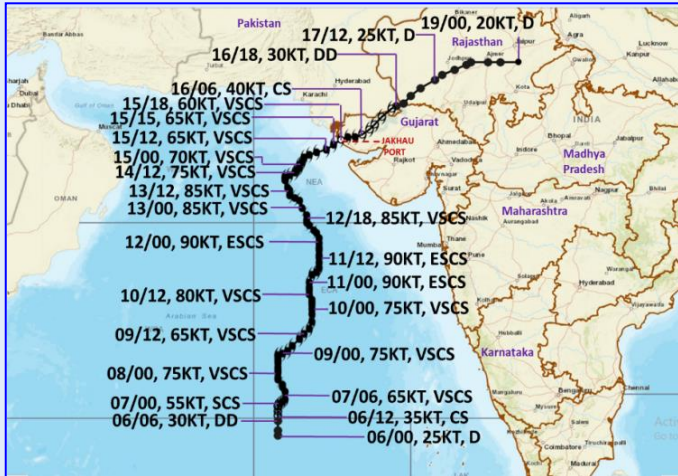
Observed track of Extremely Severe Cyclonic Storm "MOCHA" over the BoB during (9-15 May, 2023)

June

Extremely Severe Cyclonic Storm "BIPARJOY" over the Arabian Sea during (6-19 June, 2023) : An upper air Cyclonic Circulation formed over the Southeast Arabian Sea (AS) in the morning (0830 hrs IST/0300 UTC) of 5th June, 2023. Under it's influence a Low Pressure Area formed over the same region in evening (1730 hrs IST/1200 UTC) and Well Marked. It moved nearly northwards and intensified into a Deep Depression (DD) over the same region around noon (1130 hrs IST/0600 UTC) & into the Cyclonic Storm (CS) "BIPARJOY" pronounced as "BIPORJOY" over eastcentral and adjoining southeast AS in the evening (1730 hrs IST/1200 UTC) of 6th June. Continuing to move further nearly northwards, it intensified into a Severe Cyclonic Storm (SCS) over eastcentral AS in the early morning (0530 hrs IST/0000 UTC) and into a Very Severe Cyclonic Storm (VSCS) over the same region around noon (1130 hrs IST/0600 UTC) of 7th June. While moving northwards, it intensified into an Extremely Severe Cyclonic Storm (ESCS) over eastcentral AS in the early morning (0530 hrs IST/0000 UTC) of 11th June. It then moved north-northwestwards and weakened into a VSCS around midnight (2330 hours IST/1800 UTC) of 12th June, 2023 over northeast and adjoining eastcentral AS. It continued to move nearly north-northwestwards till 13th noon, then northwards till 14th forenoon and then northeastwards with gradual weakening in intensity till 15th forenoon. It then moved northeastwards and crossed Saurashtra & Kutch and adjoining Pakistan coasts between Mandvi (Gujarat) and Karachi (Pakistan) close to Jakhau Port (Gujarat) near latitude 23.28° N and longitude

68.56° E between 2230 and 2330 hours IST of 15th June, 2023 as a VSCS with maximum sustained wind speed (MSW) of 115-25 kmph (65 knots) gusting to 140 kmph (75 knots).

Intense Rainfall Activity: The system caused intense rainfall activity over Gujarat on 15th, 16th and 17th, over Rajasthan on 17th, 18th & 19th and over West Madhya Pradesh on 19th, 20th & 21st June.



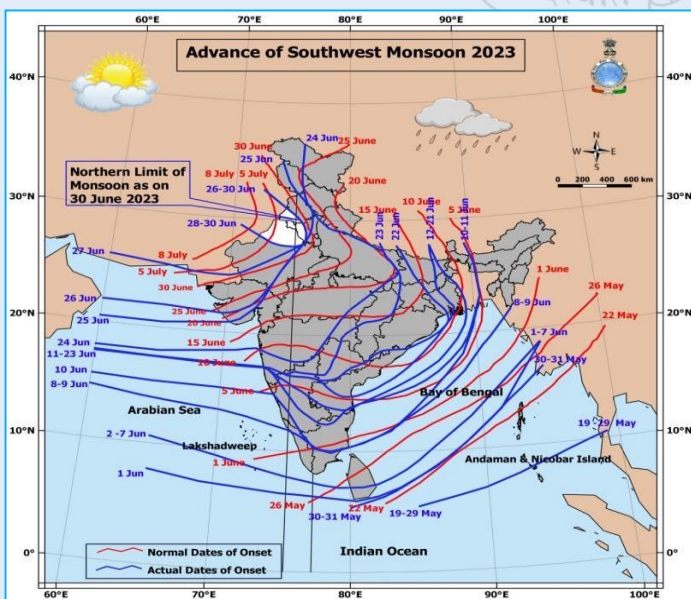
D: Depression
DD: Deep Depression
CS: Cyclonic Storm
SCS: Severe Cyclonic Storm
VSCS: Very SCS
ESCS: Extremely SCS

- : LESS THAN 34 KT
- : 34-47 KT
- ⦿ : ≥ 48 KT

Observed track of Extremely Severe Cyclonic Storm "BIPARJOY" over the Arabian Sea during (6-19 June, 2023)

Advance of Southwest Monsoon

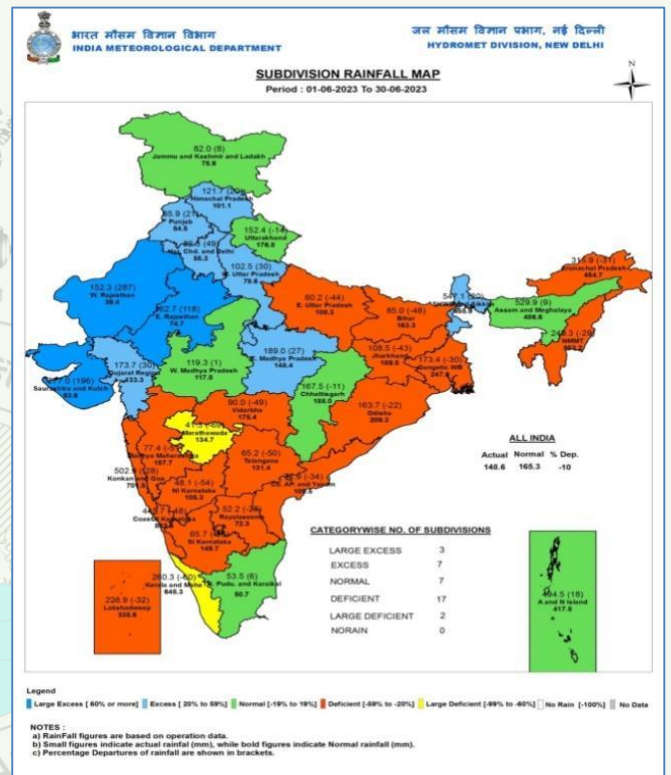
Southwest Monsoon has set in over Kerala on 8th June, 2023 against the normal date of 1st June. Advance of monsoon 2023 till 30th June, 2023 is shown in the figure:



Rainfall during June-2023

The rainfall for the country as a whole, for the month of June-2023 has been recorded as 148.6 mm which is 90% of its Long Period Average (LPA) of 165.3 mm. In all, category wise, 3 Met sub-divisions in LARGE EXCESS, 07 Met sub-divisions in EXCESS, 07 Met sub-divisions in NORMAL, 17 in DEFICIENT, 02 in LARGE DEFICIENT and none of any Met sub-divisions in "NO RAIN" category of rainfall.

The monthly rainfall statistics for June 2023 is given in the figure below:



Heavy rainfall events in the month of June 2023.

