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## 147<sup>TH</sup> FOUNDATION DAY OF INDIA METEOROLOGICAL DEPARTMENT (IMD)



**Dr. Jitendra Singh, Hon'ble Minister of state, Dr. M. Ravichandran, Secretary, MoES, Dr. M. Mohapatra, DG, IMD and Dr. S. D. Attri, Sc. 'G' during IMD Foundation day**

IMD celebrated its 147<sup>th</sup> Foundation Day on 14<sup>th</sup> January, 2022 in hybrid mode. The Event was inaugurated by Chief Guest **Dr. Jitendra Singh**, Hon'ble Minister of state (Independent Charge) Ministry of Science & Technology & Earth Sciences, Minister of State, Prime Minister's Office, Ministry of Personnel, Public Grievances and Pensions, Department of Atomic Energy and Department of Space, Government of India. The Hon'ble Minister appreciated the initiatives and contribution of IMD in safeguarding the life and property with its accurate prediction and timely dissemination of forecast and warnings. He also assured all support in further augmentation of its observational and modeling capabilities. The occasion was marked with welcome address by **Dr. M. Mohapatra**, DG, IMD highlighting initiatives taken by IMD in augmenting observational, modeling, forecasting and early warning capabilities of IMD to provide sector specific and timely forecast, Presidential Address by **Dr. M. Ravichandran**, Secretary, MoES, Special Address by Guests of Honour **Shri R. K. Mathur**, Hon'ble Lt. Governor of Ladakh, **Shri Jamyang Tsering Namgyal**, Hon'ble Member of Parliament, Ladakh, **Dr. K. Sivan**, Chairman, ISRO and Vote of Thanks by **Dr. S. D. Attri**, Sc. 'G' and Chairman of Organizing Committee for the celebrations.

**Four (4) Doppler Weather Radars (DWRs)** viz., C-band Polarimetric at Veravali (Mumbai), X-band Polarimetric at Ayanagar (Delhi), Pallikarnai (Chennai) and Leh were inaugurated by Hon'ble Minister and Chief Guest in august presence of other dignitaries.

**Four (4) initiatives** viz., (i) Dedicated website for Aviation Weather Services; (ii) Geospatial Services for severe weather monitoring & forecasting; (iii) Climate Hazards and Vulnerability Atlas and (iv) Public Observation System through "**crowd sourcing mobile app**" were also inaugurated by Hon'ble Minister and other dignitaries.

**Nine (9) publications**, viz., Annual Climate Statement for 2021, Report on Cyclonic Disturbances over North Indian Ocean during 2021, Report on "verification of sub-basin-wise quantitative precipitation forecast during SW Monsoon 2021", Numerical Weather Prediction (NWP) model Products for Sectoral applications, Report on "Use of Weather Information for Secure, reliable and economic operation of Indian power grid", Report on "Information Seeking and Utilization behaviour of the Intermediate Users of Weather and Climate Services", Report on "Meteorological Applications of Indian GNSS derived IPWV", International Journal Mausam, January 2022 issue and Mausam Manjusha were released by Hon'ble Minister.



**Released of Mausam Manjusha**

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## Press release

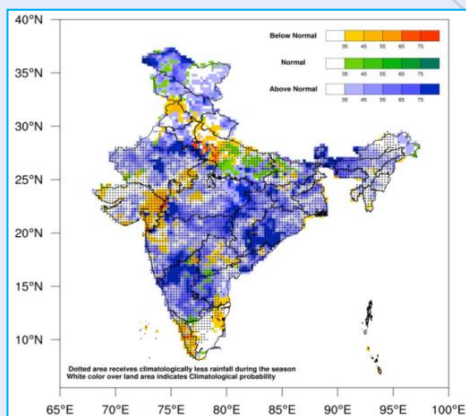
### Rainfall and Temperature forecasts for January-March, 2022

IMD issued rainfall forecast for January-March, 2022 through a Press Release on 3<sup>rd</sup> January, 2022. The highlights of the Press Release issued in this regard are given below:

**(a) Rainfall** – The rainfall during January to March 2022 averaged over North India consisting of seven meteorological subdivisions (East Uttar Pradesh, West Uttar Pradesh, Uttarakhand, Haryana, Chandigarh & Delhi, Punjab, Himachal Pradesh, Jammu Kashmir & Ladakh) is most likely to be normal (86 to 114% of Long Period Average (LPA)). Monthly rainfall for the 2022 January, averaged over the North India is most likely to be above normal [ $>124\%$  of Long Period Average (LPA)].

**(b) Temperature** - During the month of January 2022, normal to above normal minimum temperatures are most likely over many parts of northwest India, northeast India and adjoining areas of east India. Below normal minimum temperatures are most likely over some parts of north peninsula and some parts of central India. Below normal maximum temperatures are likely over most parts of central and peninsular India. The normal to above normal maximum temperatures are most likely over some parts of north India and most parts of northeast India.

**(c) SST Conditions** - Currently, moderate La Niña conditions are prevailing over equatorial Pacific region. The latest Monsoon Mission Climate Forecast System (MMCFS) forecast is indicating that these La Niña conditions are likely to persist during the JFM and thereafter likely to start weakening to reach to cold ENSO neutral conditions during the second quarter of 2022. At present, neutral IOD conditions are present over Indian Ocean and the latest MMCFS forecast indicates that the neutral IOD conditions are likely to continue during the forecast period.



Probability forecast of tercile categories (below normal, normal and above normal) for the rainfall (January 2022)

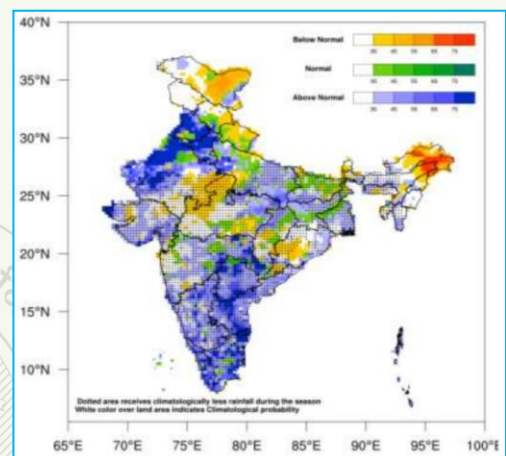
### Rainfall and temperatures during February 2022

Highlights of monthly outlook for rainfall and temperatures during February 2022 released by IMD on 31<sup>st</sup> January, 2022:

**Rainfall** - The rainfall during February 2022 averaged over North India consisting of seven meteorological subdivisions is most likely to be above normal [ $\geq 121\%$  of Long Period Average (LPA)].

**Temperature** - During the month of February 2022, below normal minimum temperatures are most likely over most parts of the country except eastern parts of northeast India, south peninsular India and southeastern parts central India, where normal to above normal minimum temperatures are likely. Below normal maximum temperatures are likely over most parts of the country except along the eastern and southwestern coastal areas of peninsular India where it is likely to be normal to above normal.

**SST Conditions** - Currently, weak La Niña conditions are prevailing over equatorial Pacific region. The latest Monsoon Mission Climate Forecast System (MMCFS) forecast indicates that these La Niña conditions are likely to weaken starting from the northern hemisphere spring season and to reach cold ENSO neutral conditions during the second quarter of 2022.



Probability forecast of tercile categories (below normal, normal and above normal) for the rainfall (February 2022)

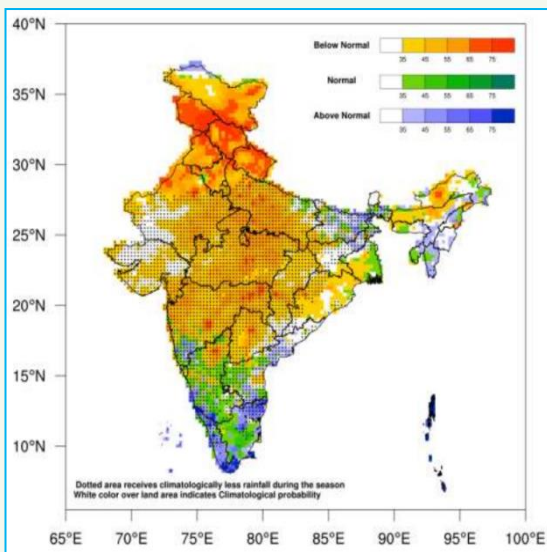
### Seasonal (March to May) and Monthly (March) 2022 Outlook

India Meteorological Department (IMD) has released the Seasonal Temperature Outlook for March to May 2022 and Monthly outlook for the Temperature and Rainfall for March 2022 through a Press Conference chaired by DGM on 1<sup>st</sup> March 2022. The highlights of the same are as follows:

**(a) Temperature** - During the upcoming hot weather season [March to May (MAM)], normal to above normal minimum temperatures are most likely over many parts of northwest India, most parts of northeast India, some parts of central India, east coastal region and some areas along the foothills of the Himalayas. Above normal maximum temperatures are most likely over many areas from west and adjoining areas of central India, northwest India and northernmost parts of northeast India. However, below normal maximum temperatures are likely over most parts of the south peninsula and east and northeast India and northern plains. During March, normal to below normal minimum temperatures are most likely over most parts of India except some parts of eastern, southeastern & northwestern peninsula. Normal to below normal maximum temperatures are likely over most parts of the south peninsula and east and northeast India whereas above normal maximum temperatures are most likely over many parts of western and central India.

**(b) Rainfall** - The rainfall in March 2022 averaged over the country is most likely to be normal (83-117% of LPA). Below normal rainfall is most likely over most areas of northwest and central India and some parts of northeast India. Normal to above normal rainfall likely over many parts of south Peninsula.

**(c) SST Conditions** - Currently, weak La Niña conditions are prevailing over the equatorial Pacific region. The La Niña is likely to weaken during the northern hemisphere spring season and to reach cold ENSO neutral conditions during the second quarter of 2022. At present, neutral IOD conditions are present over the Indian Ocean and the latest MMCFS forecast indicates that the neutral IOD conditions are likely to continue.



Probability forecast of tercile rainfall categories (below normal, normal and above normal) 22

## Significant Events

### MEMORANDUM OF UNDERSTANDING

A MoU was signed by Dr. S. D. Attri, Sc. 'G' on behalf of India Meteorological Department (IMD) with Directorate General of Hydrocarbons (DGH), Indian National Centre for Ocean Information Services (INCOIS), Directorate General of Shipping (DGS) and Indian Coastal Guard (ICG) on 22<sup>nd</sup> March, 2022 for 'Developing a Specialized Integrated Weather Forecasting Tool for Specific requirements of Offshore Exploration & Production (E&P) Operators in India' in august presence of DG, IMD, DGH and senior officers of participating organisations.

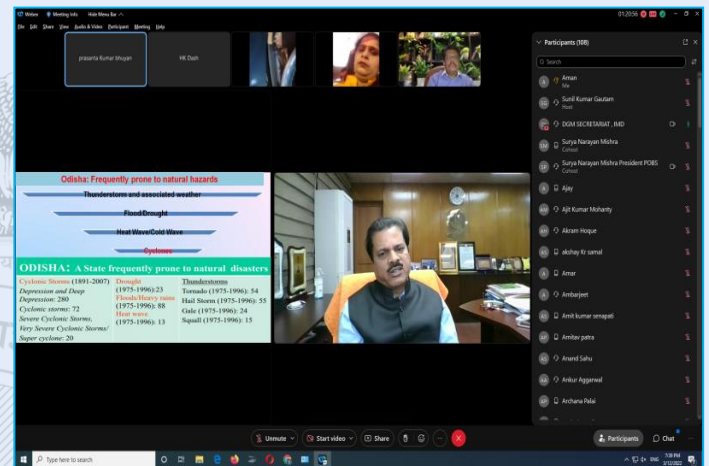


## LETTER OF AGREEMENT

IMD and Manikaran Analytics Limited signed Letter of Agreement on 4<sup>th</sup> March, 2022 under the chairmanship of **Dr. M. Mohapatra**, DG, IMD for R&D on weather services for power sector.

## WORLD METEOROLOGICAL DAY 2022

India Meteorological Department celebrated World Meteorological Day on 23<sup>rd</sup> March, 2022. On this occasion, various activities were organized in IMD HQ and various sub-offices of IMD highlighting the services rendered by various divisions and offices of IMD.



On this occasion, RMC Chennai celebrated WM Day with the theme – "Early Warning and Early Action – Hydrometeorological and Climate Information for Disaster Risk Reduction". Open house, meteorological exhibition and scientific talks on the theme were arranged.



Dr. S. Balachandran welcomed Chief Guest Dr. Balaji Narasimhan, Professor, IIT Madras



Visitors on WMO day at Meenambakkam Observatory, Chennai

**CRS, Pune** celebrated World Meteorological Day in hybrid mode by arranging a Meteorological exhibition and Webinar on 23<sup>rd</sup> March, 2022. Live demonstration of meteorological and seismological instruments, 'Be a weather observer' segment for students to take their own weather observation, a short documentary film on 'Expedition to Antarctica' was shown in the exhibition. About 1300 people including students, scientists, scholars, journalists and general public visited the exhibition. All visitors marked their comments with great enthusiasm.



Visitors on WM day at CRS, Pune

## INTERNATIONAL WORKSHOP ON MONSOONS - 7 (IWM-7)

7<sup>th</sup> International Workshop on Monsoons (IWM-7) was jointly organized by India Meteorological Department, Ministry of Earth Sciences, Government of India and WGTRM, in cooperation with the WCRP CLIVAR/GEWEX Monsoons Panel, the International Monsoons Project Office (IMPO) hosted by the Indian Institute of Tropical Meteorology (IITM) and Indian Meteorological Society (IMS) at New Delhi, India during 22-26 March, 2022. A booklet "**Abstracts Volume : IWM-7**" is the compilation of all the abstracts that will be presented during IWM-7.

A key highlight of the IWM-7 outcomes is to bring out a special issue of the peer-reviewed journal **MAUSAM** published by IMD.



Participants of International Workshop on Monsoons (IWM)

## राजभाषायी निरीक्षण

दिनांक 11.01.2022 को प्रादेशिक मौसम केंद्र- नागपुर द्वारा मौसम कार्यालय - अकोला, मौसम कार्यालय - इंदौर तथा मौसम कार्यालय- सागर का ई निरीक्षण किया गया जिसमें सहायक निदेशक (रा.भा.) **श्रीमती सरिता जोशी** ने आवश्यक दिशा निर्देश दिए।

दिनांक 12.01.2022 को मौसम केंद्र - चंडीगढ़, मौसम केंद्र-लखनऊ तथा खगोल विज्ञान केंद्र - कोलकाता का राजभाषायी ई निरीक्षण श्रीमती सरिता जोशी, सहायक निदेशक (रा.भा.) द्वारा किया गया जिसमें पृथ्वी विज्ञान मंत्रालय के संयुक्त निदेशक (रा.भा.) श्री मनोज आबूसरिया भी उपस्थित रहे।

माननीय संसदीय राजभाषा समिति की दूसरी उपसमिति द्वारा दिनांक 12.02.2022 को मौसम केंद्र पटना का पटना में राजभाषायी निरीक्षण किया गया। इस निरीक्षण कार्यक्रम में मुख्यालय से डॉ. के. के. सिंह, वैज्ञानिक 'जी' तथा श्रीमती सरिता जोशी उपनिदेशक (राजभाषा) ने भाग लिया। मुख्यालय के वरिष्ठ अनुवाद अधिकारी श्री बीरेन्द्र कुमार भी निरीक्षण में सहयोग के लिए उपस्थित रहे।

दिनांक 18.02.2022 को मौसम केंद्र - शिमला, मौसम केंद्र- देहरादून, मौसम केंद्र - श्रीनगर और मौसम केंद्र - लेह का राजभाषायी ई-निरीक्षण उपनिदेशक (रा.भा.) **श्रीमती सरिता जोशी** द्वारा किया गया। निरीक्षण में डॉ. के. के. सिंह, वैज्ञानिक 'जी' तथा **श्री मनोज आबूसरिया**, संयुक्त निदेशक (रा.भा.) पृथ्वी विज्ञान मंत्रालय भी शामिल रहे।

दिनांक 21.2.2022 को प्रादेशिक मौसम केंद्र-नागपुर द्वारा मौसम कार्यालय - बिलासपुर और मौसम कार्यालय - अम्बिकापुर का राजभाषायी ई निरीक्षण किया गया जिसमें उपनिदेशक (रा.भा.) **श्रीमती सरिता जोशी** उपस्थित रहीं और आवश्यक दिशा निर्देश दिए।

माननीय संसदीय राजभाषा समिति की दूसरी उपसमिति द्वारा दिनांक 07.03.2022 को मौसम केंद्र अगरतला का निरीक्षण किया गया। इस निरीक्षण में मंत्रालय की **श्रीमती इंदिरा मूर्ति**, संयुक्त सचिव, **श्री मनोज आबूसरिया**, संयुक्त निदेशक (रा.भा.) और मुख्यालय से डॉ. शिवदेव अत्री, वैज्ञानिक 'जी', **श्रीमती सरिता जोशी**, उपनिदेशक (रा.भा.) ने भाग लिया। **श्री सचिन कादयान**, कनिष्ठ अनुवाद अधिकारी भी निरीक्षण में सहयोग के लिए उपस्थित रहे। निरीक्षण सफल एवं संतोषजनक रहा।



माननीय संसदीय राजभाषा समिति की दूसरी उपसमिति द्वारा मौसम केंद्र अगरतला का निरीक्षण

## राजभाषा नीति का कार्यान्वयन

माननीय मंत्री महोदय द्वारा अनुमोदित 7 सूत्री चार्टर से संबंधित कार्यान्वयन की समेकित रिपोर्ट तैयार करके मंत्रालय को भेजी गई।

## Human Resource Development Activities

### ई-हिंदी कार्यशाला

मुख्यालय द्वारा दिनांक 25.03.22 को ई-हिंदी कार्यशाला का आयोजन किया गया जिसमें दिल्ली सहित विभिन्न कार्यालयों के लगभग 124 कर्मिकों ने भाग लिया। ई-हिंदी कार्यशाला का शुभारंभ महानिदेशक महोदय डॉ. मृत्युंजय महापात्र के संबोधन से हुआ। इस कार्यशाला में पृथ्वी विज्ञान मंत्रालय के संयुक्त निदेशक (राजभाषा) श्री मनोज आबूसरिया, सेवानिवृत्त उपनिदेशक (रा.भा.) सुश्री रेवा शर्मा, श्रीमती सरिता जोशी, उपनिदेशक (राजभाषा) एवं वरिष्ठ अनुवाद अधिकारी श्री बीरेन्द्र कुमार ने व्याख्यान दिए।

### WORKSHOP

**Dr. M. Mohapatra**, DG, IMD participated as Guest of Honour at the 3 days workshop cum training programme on “**Climate Modelling and Remote Sensing Applications for Environmental Systems**” organized by Amity University on 6<sup>th</sup> January, 2022. **Dr. Mohapatra** was presented a memento by the University.

**Dr. M. Mohapatra**, DG, IMD participated in the Workshop for Disaster Management Nodal Officers of the Ministries / Department of Govt. of India on 2<sup>nd</sup> March and made presentation on “**Early warning system**”.

**Dr. M. Mohapatra**, DG, IMD participated in the “**3<sup>rd</sup> WCSSP India Annual Workshop**” during 7-11 March and chaired a session.

**Dr. Balaji Narasimhan**, Professor, IIT Madras, participated in the programme as the chief guest and delivered a talk on Challenges in hydrological and hydraulic modelling in highly urbanized river basins for flood forecasting and disaster risk reduction. **Dr. P. Guhathakurta**, Sc. ‘F’ participated in the programme as the guest of honour and delivered a talk. eBook of Climate Hazards and Vulnerability Atlas of India - State: Tamilnadu was also released in the function. About 370 students visited the Meenambakkam Observatory on WMO day.

**Dr. Kuldeep Srivastava**, Sc. ‘E’ attended the Digital India Dialogues Capacity Building workshop for Government Leaders: titled ‘**Using AI and Blockchain to Solve Supply Chain Problems**’ on 25<sup>th</sup> March, 2022 conducted by National e-Governance Division (NeGD), Ministry of Electronics and Information Technology.

### MEETINGS / VIDEO CONFERENCES

**Shri Shivinder Singh**, Sc. ‘C’ and **Shri Bhavish Gemini**, S.A. participated in a meeting regarding ‘**Smart Cities Open Data**

**Portal (SCODP)** held under the chairmanship of Commissioner, Municipal Corporation Chandigarh on January 03, 2022.

**Dr. M. Mohapatra**, DG, IMD participated in the inaugural ceremony of the building of School of Earth Sciences, IIT Bhubaneswar on 4<sup>th</sup> January, 2022.

**Shri Gajendra Kumar**, Sc. ‘F’ attended the meetings on 09-01-2022, 18-01-2022, and 08-03-2022 of Committee constituted under the chairmanship of Secretary, Ministry of Civil Aviation (MoCA) to oversee the implementation of recommendations made in the Kozhikode aircraft accident investigation report.

**Dr. S. D. Attri**, Sc. ‘G’ attended High Powered Committee (PRC) meeting of “**Climate Change & Health**” organised by ICMR on 11<sup>th</sup> January, 2022.

**Dr. S. D. Attri**, Sc. ‘G’ participated in the meeting under Chairmanship of Member and Secretary I/C, NDMA with TERI and Assam State Disaster Management Authority and other Stakeholders to discuss the 2<sup>nd</sup> and final deliverable of the project “**Development of Flood Warning System for Guwahati Town**” on 12<sup>th</sup> January, 2021.

**Dr. (Smt.) K. Naga Ratna**, Sc. ‘E’ attended a meeting convened by Chief Secretary of Government of Telangana on 10<sup>th</sup> February, 2022 in connection with the visit of “**VVIP – Hon’ble President of India**” to Telangana on 13-14 January, 2022.

**Dr. M. Mohapatra**, DG, IMD participated in the first SRMC meeting under MM-III Programme on 19<sup>th</sup> January, 2021.

**Dr. S. D. Attri**, Sc. ‘G’ attended Seminar on “**Participatory Integrated Climate Services for Agriculture (PICSA)**” organised jointly by UN World Food Programme (WFP) and Department of Agriculture, Govt. of Odisha on 19<sup>th</sup> January, 2022.

**Dr. Kripan Ghosh**, Sc. ‘F’, attended the online meeting on “**Status of Procurement activities in IMD**” under the Chairmanship of the Secretary, MoES, on 19<sup>th</sup> January, 2022.

**Dr. Kripan Ghosh**, Sc. ‘F’, attended the online meeting with the officials of World Food Programme, India on “**National Consultation on WFP India’s new Country Strategic Plan 2023-27**” on 20<sup>th</sup> January, 2022.

**Dr. S. D. Attri**, Sc. ‘G’ chaired Meeting on “**Adaptation Fund Proposal Development**” organised by World Food Programme, UN on 20<sup>th</sup> January, 2022.

**M.C. Chandigarh** and **Shri Manmohan Singh**, Sc. ‘F’, participated in the 53<sup>rd</sup> meeting of Haryana State Drought Relief & Flood Control Board held under the chairmanship of Hon’ble Chief Minister Haryana at Haryana Niwas, Sector-3, Chandigarh on 24<sup>th</sup> January, 2022.

**Dr. Kripan Ghosh**, Sc. ‘F’, **Dr. Ashutosh Kumar Misra**, Sc. ‘D’, and **Dr. Asha Latwal**, Sc. ‘C’, attended the online meeting to discuss project components for collaborative project proposal “**Development of mobile app ‘Grape Advisory’ for**

**dissemination of weather forecast, alerts and advisory to grape growers”** among ICAR-NRCG, Pune, IMD, Pune and NIC Mumbai on 27<sup>th</sup> January, 2022.

**Shri B. P. Yadav**, Sc. ‘F’, **Shri Rahul Saxena**, Sc. ‘F’, **Dr. Ashok Kumar Das**, Sc. ‘E’, **Shri Asok Raja**, Sc. ‘C’, **Shri S. K. Manik**, Sc. ‘C’ and **Ms. Hemlata Bharwani**, Sc. ‘C’ attended the online meeting with HRC, GSI & NRSC for collaborative pilot phase work on SASIAFFGS Landslide Enhancements for two identified locations in India on 28<sup>th</sup> January, 2022.

**Shri U. K. Shende**, Sc. ‘E’, has attended an online meeting regarding **“Review of Aviation Weather Decision Support System”** on dated 28<sup>th</sup> January, 2022.

**Dr. O. P. Sreejith**, Sc. ‘E’, attended **“MoES NWP HPCS”** meeting on 31<sup>st</sup> January 2022.

**Dr. M. Mohapatra**, DG, IMD participated in the Raising Day ceremony of Indian Coast Guard on 1<sup>st</sup> February, 2022.

**Dr. M. Mohapatra**, DG, IMD participated in the **24<sup>th</sup> Foundation Day ceremony of INCOIS** on 3<sup>rd</sup> February, 2022.

**Dr. M. Mohapatra**, DG, IMD and **Dr. S. D. Attri**, Sc. ‘G’ with senior officials of IMD Ministry of Earth Sciences, IITM Pune, NCMRWF Noida, SEBI, National Commodity & Derivatives Exchange Limited and Ministry of Finance participated in meeting held under the chairmanship of Addl. Secretary, Ministry of Finance on **“Inclusion of ‘Weather’** in the list of notified goods for Commodities Derivatives trading under Section 2 (bc) of the Securities Contracts (Regulation) Act, 1956 on 3<sup>rd</sup> February, 2022.

**Dr. (Smt.) K. Naga Ratna**, Sc. ‘E’ attended a Co-ordination Meeting convened by Chief Secretary of Government of Telangana on 3<sup>rd</sup> February, 2022 to tie-up arrangements for the **“visit of VVIP – Hon’ble Prime Minister of India”** to Hyderabad.

**Dr. Pulak Guhathakurta**, Sc. ‘F’, **Dr. Divya Surendran**, Sc. ‘C’, and colleagues from RCC IMD, Pune, UK MET Office and RIMES had participated in the Pre-preparatory meeting for upcoming **Summer Monsoon SASCOF22** conducted online by Regional Climate Centre (RCC), Pune on 8<sup>th</sup> February 2022.

**Shri U. K. Shende**, Sc. ‘E’, has attended an online meeting on “Discussions and pending issues of DRISHTI, RVR, instrument spares etc. with Airport authority of India (AAI)” under the chairmanship of DGM, IMD on 8<sup>th</sup> February, 2022.

**Dr. Kripan Ghosh**, Sc. ‘F’, **Dr. Ashutosh Kumar Misra**, Sc. ‘D’ and **Dr. Asha Latwal**, Sc. ‘C’, **Brainstorming meeting regarding vision 2047** chaired by DGM, IMD, New Delhi with Senior Scientists and officials from IMD, New Delhi, IMD, Pune and RMCs and MCs of IMD on 9<sup>th</sup> February, 2022.

**Dr. Pulak Guhathakurta**, Sc. ‘F’, **Dr. Rajib Chattopadhyay**, Sc. ‘E’, and **Dr. Divya Surendran**, Sc. ‘C’, had participated in the **National Programme on Climate Change and Human Health**

**(NPCCHH) webinar series** conducted by **National Centre for Disease Control (NCDC)** and had an online interaction on Climate Hazards and Vulnerability Atlas of India with state health department officers on 11<sup>th</sup> February, 2022.

**Shri U. K. Shende**, Sc. ‘E’, has attended an online meeting on **“Functional group of indigenous development of met. Instruments”** under chairmanship of Hon. DGM, HQ, New Delhi and presentation given on Digital Snow Gauge installation on 11<sup>th</sup> February, 2022.

**Shri Raja Acharya**, Met. ‘A’, Participated in the **“International Ocean Data Conference 2022”**, organized online by the International Oceanographic and Data Exchange (Intergovernmental Oceanographic Commission) during 14-16 February, 2022.

**Dr. M. Mohapatra**, DG, IMD participated in the meeting with **Shri Alok Prem Nagar**, JS, Ministry of Panchayati Raj regarding **“CORS network for utilization of weather forecasting”** on 15<sup>th</sup> February, 2022.

**Shri U. K. Shende**, Sc. ‘E’, has attended an online meeting on **“Aviation Weather Decision Support System (AWDSS)”** under the chairmanship of hon. DGM, HQ, New Delhi on 18<sup>th</sup> February, 2022.

**Dr. S. D. Attri**, Sc. ‘G’ participated in meeting on **“Adaptation”** chaired by Secretary, MoEF&CC on 18<sup>th</sup> February, 2022.

**Dr. M. Mohapatra**, DG, IMD participated in the inaugural session of the 3 days Annual Monsoon Workshop (AMW-2021) and National E-symposium on **“Changing Climate and extreme events Impacts, Mitigation & Role of Oceans”** organized by IMS Pune Chapter on 21<sup>st</sup> February, 2022.

**Dr. M. Mohapatra**, DG, IMD participated in the **“Bharat Bharti Bhasha Mahotsav-2022 : A Curtain raiser”** on 22<sup>nd</sup> February, 2022.

**Shri Gajendra Kumar**, Sc. ‘F’, attended **Joint Coordination Meeting between AAI-IMD-GGIAL** through VC on **upcoming Goa airport** on 22<sup>nd</sup> February, 2022.

**Dr. S. D. Attri**, Sc. ‘G’ participated in meeting of **‘Expert Team on Agromet Risk Management’**, SERCOM, WMO on 23<sup>rd</sup> February, 2022.



**Dr. M. Mohapatra**, DG, IMD delivered keynote address at the “**High Performance Computing (HPC): Driving India Digital Transformation**” organized by American Chamber of Commerce in India on 24<sup>th</sup> February, 2022.

**Dr. Kripan Ghosh**, Sc. ‘F’ and **Dr. Asha Latwal**, Sc. ‘C’, attended an online meeting to “**Discuss integration of advisory module between IMD and DoA applications**” organised by Maharashtra Agriculture Department on 24<sup>th</sup> February, 2022.

**Dr. M. Mohapatra**, DG, IMD participated in the podcast interview for Microsoft Series for the episode dedicated to weather prediction and how it has evolved over many years on 24<sup>th</sup> February, 2022.

**Shri Raja Acharya**, Met. ‘A’, attended as an Observer, the fifteenth Meeting of the “**Working Group on Tsunamis and Other Hazards related to Sea Level Warning and Mitigation Systems (TOWS-WG-XV)**” conducted by the Intergovernmental Oceanographic Commission of UNESCO (UNESCO-IOC) through online on 24-25 February, 2022.

**Dr. M. Mohapatra**, DG, IMD participated in the inaugural ceremony of the year long program Azadi Ka Amrit Mahotsav as Key Note Speaker on 26<sup>th</sup> February, 2022.

**Dr. S. D. Attri**, Sc. ‘G’ attended meeting on ‘**National War Book**’ on 28<sup>th</sup> February, 2022 held under the chairmanship of Security (Security) at north Block, New Delhi.

A meeting / discussion with **Dr. Sanjay Sharma**, NDMA on “**API related matter w.r.t. SMS and WhatsApp features in the mobile app related to Web-DCRA**” was organized at IMD on 3<sup>rd</sup> March, 2022 under the chairmanship of **Dr. M. Mohapatra**, DG, IMD.

**Dr. M. Mohapatra**, DG, IMD participated as Guest of Honour in the “**Forecasting Healthy Futures Conclave**” at Mayfair Lagoon, Bhubaneswar organized by Institute for Malaria & Climate Solutions, Bhubaneswar, Govt. of Odisha and IMD on 8<sup>th</sup> March, 2022. The joint initiative aims at minimizing the mortality and morbidity due to Malaria in the state of Odisha.

**Dr. M. Mohapatra**, DG, IMD participated in the “**1<sup>st</sup> Regional Conclave of SDMAs**” in collaboration with the Government of Tamil Nadu involving 11 coastal and island states of Tamil Nadu, Karnataka, Kerala, Andhra Pradesh, Odisha, West Bengal, Goa, Andaman & Nicobar Island, Dadra and Nagar Haveli and Daman & Diu during 8-9 March, 2022.

**Dr. M. Mohapatra**, DG, IMD participated in the “**Session II-Scientific and Technological Innovations**” by Different Institutions / Agencies on 8<sup>th</sup> March, 2022.

**Dr. M. Mohapatra**, DG, IMD participated in the Special Session at International Conference on “**Agriculture for Sustainable Future (Agri-Vision 2022)**” held in Cuttack on 8<sup>th</sup> March, 2022.

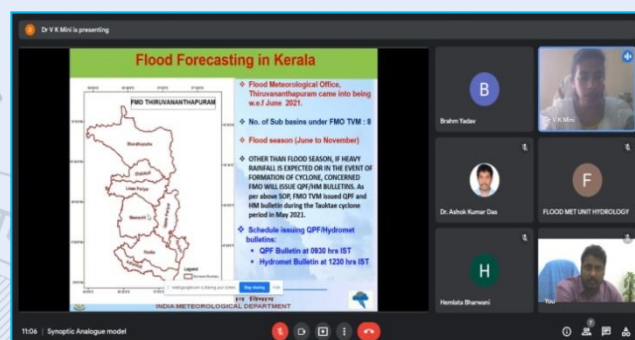
**Dr. S. D. Attri**, Sc. ‘G’ attended Dialogue towards “**Clean Air**” organised by Commission for Air Quality Management in

National Capital Region and Adjoining Areas (CAQM) at Gurugram on 8<sup>th</sup> March, 2022.

**Dr. Ashutosh Kumar Misra**, Sc. ‘D’, attended the online webinar on “**Recent advances in the application and utility of sub seasonal-to-seasonal predictions**” by Christopher White, University of Strathclyde, Glasgow, UK on 9<sup>th</sup> March, 2022.

**Dr. S. D. Attri**, Sc. ‘G’ chaired meeting between GMDA, Gurgaon and IMD officials for finalising sites for ‘**establishment of AWS and Air Quality Monitoring systems**’ in Gururam and Faridabad districts on 11<sup>th</sup> March, 2022 at IMD New Delhi.

**Shri B. P. Yadav**, Sc. ‘F’, **Dr. Ashok Kumar Das**, Sc. ‘E’, **Shri S. K. Manik**, Sc. ‘C’, **Shri Asok Raja**, Sc. ‘C’ and **Ms. Hemlata Bharwani**, Sc. ‘C’ attended the presentation made by **Dr. V. K. Mini**, Sc. ‘E’ on 11<sup>th</sup> March, 2022 through VC for the Showcasing of the ‘**Synoptic Analogue Model**’ for FMO Trivandrum.



**Flood Forecasting using Synoptic Analogue Model, 11<sup>th</sup> March, 2022**

**Dr. M. Mohapatra**, DG, IMD participated as Guest of Honour during the National Webinar Series on “**Environmental Sustainability for Self Reliant India**” on 12<sup>th</sup> March, 2022 by Prabasi Odia Samiti, New Delhi.

**Dr. M. Mohapatra**, DG, IMD participated in the virtual meeting with Officials of Nuclear Power Corporation of India (NPCIL) on 14<sup>th</sup> March, 2022 for ‘**provision of weather forecast**’ for Nuclear Power generation centres.

**Dr. M. Mohapatra**, DG, IMD delivered Inaugural Address at the Short-Term Refresher Course on “**Satellite Applications for Cyclone Monitoring and forecasting**” on 14<sup>th</sup> March, 2022.

**Shri Gajendra Kumar**, Sc. ‘F’, attended meeting through VC with **KIAL Kannur** on 15<sup>th</sup> March, 2022 to discuss the issues on renewing the **MoU between IMD and Kannur International Airport Ltd (KIAL)**.

**Shri A. K. Singh**, Sc. ‘E’, attended the TCE meeting on March 16, 2022 & March 17, 2022 organized by DGRE Chandigarh to procure X-Band DWR by DGRE for NIT Sikkim.

**Dr. M. Mohapatra**, DG, IMD participated in the VC on “**Weather Services for power sector preparedness**” on 16<sup>th</sup> March, 2022 with POSOCO.

**Dr. M. Mohapatra**, DG, IMD participated in the International Conference on “**Climate Resilient Farming through Multifaceted**”

**Production Strategies**” to address as a Lead Speaker to be organized by Tamil Nadu Agricultural University, Coimbatore on 17<sup>th</sup> March, 2022.

**M.C. Chandigarh** organized an online interaction meeting with all the AMFUs and DAMUs of Haryana and Punjab states to discuss the progress under GKMS Scheme on 17<sup>th</sup> March, 2022.

**Dr. M. Mohapatra**, DG, IMD participated as a Lead Speaker during the International Conference on **“Climate Resilient Farming through Multifaceted Production Strategies”** organized by Tamil Nadu Agricultural University, Coimbatore on 17<sup>th</sup> March, 2022.

**Dr. M. Mohapatra**, DG, IMD participated in the meeting of **“National Crisis management Committee”** at cabinet Secretariat on 17<sup>th</sup> March, 2022 and made a presentation on status of low pressure area over Andaman Sea.

**Dr. M. Mohapatra**, DG, IMD participated in the **“International Indian Ocean Science Conference (IIOSC-2022)”** at Goa and chaired the Session on **“Marine weather hazards 14-Extreme Events and their Impacts”** on 18<sup>th</sup> March, 2022.

**Dr. M. Mohapatra**, DG, IMD participated in the **“TNAU-Directorate of Crop Management - Golden Jubilee Year International Conference, 2022”** as Lead speaker on 18<sup>th</sup> March, 2022.

**Dr. S. D. Attri**, Sc. ‘G’ inaugurated **‘Annual Hindi Vaigyanik Sanghosti’** participated of NCMRWF as Chief Guest on 21<sup>st</sup> March, 2022.

**Dr. M. Mohapatra**, DG, IMD participated in the meeting to overview the preparations for Workshop on **“Interpretation and Application of Products for Nowcasting”** during 21-25 March, 2022.

**Dr. Kripan Ghosh**, Sc. ‘F’, attended the online meeting to review the progress and status of feedback received from various organisations / departments of Gol for the development of an IT-based Decision Support system, viz. **“Integrated Water and Crop Information & Management System (IWCIMS)”** by Secretary DoWR RD & GR on 23<sup>rd</sup> March, 2022.

**Dr. M. Mohapatra**, DG, IMD participated as the Guest of Honor at the Conference on **“Building Climate Resilience and Transition to Circular Economy”** on 24<sup>th</sup> March, 2022.

**Dr. M. Mohapatra**, DG, IMD participated in the meeting to discuss the **various measures need to be taken to reduce the death caused by lightning in the country** under the chairmanship of Shri Krishna S. Vatsa on 24<sup>th</sup> March, 2022.

**Dr. M. Mohapatra**, DG, IMD participated in the **“CII conference on Climate Change & Water Connect : moving from Risks to Resilience for a water secure future”** on 25<sup>th</sup> March, 2022.

**Dr. M. Mohapatra**, DG, IMD participated in the inaugural ceremony of the **“WMO’s International Monsoon Workshop-7”** and chaired a session on 26<sup>th</sup> March, 2021.

**Shri Gajendra Kumar**, Sc. ‘F’ and **C. S. Tomar**, Sc. ‘E’, participated in **“ICAO MET/IE WG/20: Twentieth Meeting of the Meteorological Information Exchange Working Group”** from 28-30 March, 2022 through VC.

**Dr. S. D. Attri**, Sc. ‘G’ attended **“CED 59 Smart Cities Sectional Committee of the Bureau of Indian Standards”** on 30<sup>th</sup> March, 2022.

**Dr. M. Mohapatra**, DG, IMD participated in the **“SOFF peer advisors kick off meeting”** on 31<sup>st</sup> March, 2022.

मुख्यालय की राजभाषा कार्यान्वयन समिति की वर्ष 2022 की पहली तिमाही बैठक (158<sup>वीं</sup> तिमाही बैठक) महानिदेशक महोदय की अनुमति से डॉ. शिवदेव अत्री वैज्ञानिक ‘जी’ की अध्यक्षता में दिनांक 30.03.2022 को वर्चुअल माध्यम से आयोजित की गई। इस बैठक में पृथ्वी विज्ञान मंत्रालय के संयुक्त निदेशक (राजभाषा) श्री मनोज आबूसरिया, मुख्यालय के अधिकारी तथा उपकार्यालयों के प्रमुख / प्रतिनिधि वर्चुअल माध्यम से उपस्थित रहे। अंत में महानिदेशक महोदय ने भी आवश्यक दिशा निर्देश दिए।

विषय	31 फ़रवरी 2020 की तिमाही में	31 फ़रवरी 2021 की तिमाही में	सुधारण प्रतिशत
1. 'च' के 'च' क्षेत्र की	100%	88.52%	74.47%
2. 'च' के 'च' क्षेत्र की	100%	82.25%	72.48%
3. 'च' के 'च' क्षेत्र की	65%	69.78%	89.08%

**मुख्यालय की राजभाषा कार्यान्वयन समिति की वर्ष 2022 की पहली तिमाही बैठक**

**LECTURES/ TALK**

**Dr. M. Mohapatra**, DG, IMD participated as distinguished expert in the **“Technical Session on Opportunities for Implementation of STIP”** organized by NIDM on 6<sup>th</sup> January, 2022.

**Dr. M. Mohapatra**, DG, IMD delivered lecture on Early Warning Systems in India during the Technical Session on **“Overview of Disaster Management in India”** in the workshop for the Nodal Officers of Disaster Management in all Ministries/Departments of Government of India on 12<sup>th</sup> January, 2022.

**Dr. S. D. Attri**, Sc. ‘G’, delivered talk on **“Climate Change Mitigation: Role of Science, Technology, Economics and Policy”** on 8<sup>th</sup> February, 2022 in Training program on **“Role of Technology in Community Level Disaster Mitigation for**



**Scientists & Technologists"** organised by LBSNAA, Mussoorie during 7 - 11 February, 2022.

**Dr. S. D. Attri, Sc. 'G'** delivered talk in Hindi on '**Advances in Weather and Climate Services**' on the occasion of '**Vigyan Sarvtra Pujayte**' on 25<sup>th</sup> February, 2022.



**Dr. S. D. Attri, Sc. 'G'** during talk

**Dr. M. Mohapatra, DG, IMD** delivered a Lecture at NIAS Bengaluru on 14<sup>th</sup> March, 2022 on "**Weather forecasting with reference to Science, Technology and Innovation Programme (STIP)**".

## WEBINAR

**Dr. Kuldeep Srivastava, Sc. 'E'**, attended 3-day webinar-based "**Bhuvan Overview**" Training course conducted by TEOG and Bhuvan Web Services of NRSC during 15-17 March, 2022.

**Raja Acharya, Met. 'A'**, attended the webinar "**Seafloor Fiber Optic Sensing**" organized by the Distributed Acoustic Systems Research Coordination Network (DAS RCN) Marine Geophysics Working Group & IRIS (Incorporated Research Institutions for Seismology) on 30<sup>th</sup> March, 2022.

## OUTREACH PROGRAMME



**Dr. M. Mohapatra, DG, IMD** during inaugural ceremony

**Dr. M. Mohapatra, DG, IMD** participated in the inaugural ceremony of **Hologram Statue of Netaji Subhas Chandra Bose** at India Gate on 23<sup>rd</sup> January, 2022. Hon'ble Prime Minister of India appreciated the **end to end cyclone response system in India** that has reduced death toll in recent years.

**Dr. S. D. Attri, Sc. 'G'** delivered Chief Guest Address in valedictory function of Short Term Training Program on "**Recent Advances in Technology for Environment Sustainability (RATES)**" from March 7-12, 2022 organized by J.C. Bose University of Science & Technology, YMCA, Faridabad on 12<sup>th</sup> March, 2022.

## NOMINATIONS/APPRECIATIONS/AWARDS RECEIVED

The Competent authority has approved the following awards on occasion of '**147<sup>th</sup> IMD Foundation day**' on 14<sup>th</sup> January, 2022.

**Best RMC/MC** : M.C. Jaipur,

**Best AMO/MWO/AMS** : AMO Indore

**Best DWR** : Goa

**Best MO** : Bilaspur

**RAJBHASHA Shield** : P.A.C. Kolkata

## Best Employee awards:

### (Group-A Gazetted) :

Dr. V. P. Singh, Sc. 'C', M.C. Bhopal

### Group B (Gazetted) Scientific:

1. Shri S. K. Sharma, Met. 'A', DGM Office, New Delhi
2. Shri P. S. Chinchole, Met. 'A', RMC Nagpur

### Group B Gazetted (Non-Scientific):

Shri Gagan Deep, A.O. II, DGM Office, New Delhi

### Group B (Non-Gazetted) Scientific:

1. Shri Sanjay Damodar Raskar, S.A., CRS Pune,
2. Ms. R. V. Deepa, S.A., RMC Chennai

### Group B (Non-Gazetted) Non Scientific:

Shri Anuj Sinha, Assistant, RMC Mumbai

### Group C Staff (Non MTS):

Shri Tapas Hazra, UDC, RMC Kolkata

### Group C (MTS):

Shri K. Y. Potkule, MTS, RMC Mumbai

## Performance of India Meteorological Department in Inter Ministry Tournaments 2021-22 organized by Central Civil Services Cultural & Sports Board (CCSCSB) (DoPT)

IMD feels proud to announce that its employees participated in Inter Ministry Tournaments 2021-22 and showed exemplary

performance in sports and cultural events. Congratulations to following officials for bringing laurels to IMD.

S. No.	Name of Event	Name of winners	Position acquired
1.	Power lifting (Best Physique)	Shri Rohit Vashisht	Silver
2.	Athletics (10000 m Race)	Samundra Singh	Silver
3.	Carrrom	Shri Syed Md. Ali	Bronze
4.	Badminton (Doubles)	Shri Praveen Ghildiyal Shri Anoop Kandari	Bronze
5.	Badminton Veteran (Singles)	Ms. Renu Verma	Bronze
6.	Badminton Veteran (Doubles)	Ms. Renu Verma Ms. Sunita Rani	Bronze
7.	Group Folk Dance	Ms. Rhythm Naswa Ms. Shivali Ms. Devrakshanjali Srivastava Ms. Shikha Verma Ms. Divya Kumari Ms. Rashmi Kumari Ms. Laxmi Pathak Ms. Twinkle Grover	Bronze
8.	All India Chess Tournament 2021-22	Ms. Komal Srivastava	First Prize in 5 <sup>th</sup> Board in Women Team Chess Event
9.	Azadi ka Amrit Mahotsav	<b>Badminton Silver</b> (Women's Singles) Ms. Malini Thakur <b>Basketball</b> Ms. Rhythm Naswa <b>Badminton</b> (Women's Double) Ms. Rhythm Naswa and Ms. Nisha	Silver  Silver  Bronze

The following officials received Appreciation Letter towards their research contribution for the year 2021.

S. No.	Name	Designation	Posted at
1.	Shri Rizwan Ahmed	Meteorologist 'A'	IMD, New Delhi
2.	Shri Raja Acharya	Meteorologist 'A'	RMC, Kolkata
3.	Ms. Kavita Navria	Scientific Assistant	IMD, New Delhi
4.	Shri Vikram Parashar	Meteorologist 'A'	IMD, New Delhi
5.	Shri Ashish Tyagi	Scientific Assistant	IMD, New Delhi
6.	Shri Atul Kumar Verma	Scientific Assistant	IMD, New Delhi
7.	Shri P. P. Baburaj	Scientific Assistant	RMC, Chennai
8.	Shri Samudrala Venkata Jagannadha Kumar	Meteorologist 'A'	CWC, Visakhapatnam
9.	Shri Arun Sharma	Meteorologist 'A'	IMD, New Delhi



**Dr. M. Mohapatra, DG, IMD with the winners and IMD Recreation Club, Delhi Executive Body**



**IMD and MoES personnel on the inauguration of 'Vigyan Sarvtra Pujayte' on 22<sup>nd</sup> February, 2022**

## Infrastructure Development & Installations

A crowd-source app named "**Public Observation**" developed by **Shri Vikas Meena**, S. A. under the guidance of **Dr. Sankar Nath**, Sc. 'E' was launched on the occasion of Foundation Day of IMD.

Completed computation of cumulative rainfall (mm) and volume of water (TMC). Since June, 2021. Corresponding maps are being generated every week for river sub basin of India.

The websites of CWC Vishakhapatnam, M.C. Agartala, M.C. Ahmedabad, M.C. Amaravati, M.C. Chandigarh, M.C. Itanagar, M.C. Jaipur, M.C. Leh, M.C. Lucknow, M.C. Patna, M.C. Shillong have been converted into hindi language.



**Shri Praveen K. Ghildiyal, Met. 'A' won Bronze Medal**

**New airports** started at Kushinagar (Uttar Pradesh), Sindhudurg (Maharashtra).

**Installation of 77** frangible mast and Current Weather.

**Instrument System (CWIS)** completed at 60 airports.

**Present Weather & Visibility Sensor** installed at Delhi, Hyderabad, Kozhikode, Pakyong, Patna and Shirdi airports.

**CEL (Central Electronics Limited)** produced **Drishti** prototype is installed at IGI Airport, Delhi and is under observation.

**Two nos. of High End Servers** with 28 TB NAS storage was commissioned during March, 2022 as Hardware Support for Customized Rainfall Information System & Hydrological Services.

**Dr. S. Balachandran, Sc. 'F'**, participated in the "**Drone based calibration activities of X Band Radar**" installed at NIOT Chennai campus, Pallikaranai on 6<sup>th</sup> January, 2022.

**Shri Himadri Baishya, Sc. 'C'** and **Shri P. Dutta, Mech-I**, along with installation party from CRS Pune proceeded to Tawang & Bomdila (Arunachal Pradesh) for installation of "Cellcomm AWS & snow gauge sensors" w.e.f. 17-26 January, 2022.

**Two Design storm studies** for (i)Yammeng Hydro Project, Arunachal Pradesh and (ii) Katapati Barrage, Maharashtra got completed and the values sent to the concerned project authority.

A Detailed Report on Project **Nalganga Dam**, Maharashtra have been prepared and sent to concerned Project authority.

On request of **Gp Capt., Command Met. Officer** in connection with the **conduct of Air Display operating over River front, Ahmedabad** as a part of Defence Expo 0600 UTC & 0800 UTC special P.B. ascents w.e.f. 23/02/2022 to 04/03/2022 taken and data supplied to IAF.

## NEW PROJECTS/SCHEMES/PROGRAMMES APPROVED/ INITIATED

### HydroSoS Project in Ganges Brahmaputra Meghna basin

The Global Hydrological Status and Outlook System (HydroSOS) is an important initiative by the World Meteorological Organization (WMO) Congress (Resolution 25 at Cg-18) and aims to provide an operational system capable of assessing the current hydrological status and its outlooks (from sub-seasonal to seasonal time frames) across the globe. The first phase of the system development is the setting up of pilot projects identified in Ganges Brahmaputra Meghna (GBM) basin of South Asia. The pilot study basin covers Bangladesh, Bhutan, India, and Nepal. The pre-concept note on this collaborative project involving partners if all NMHS, IMD, CWC, NCMRWF, MoES for its implementation is approved after the International workshop during 22-23<sup>rd</sup> November 2021 by Hydromet division, IMD.

## Recent initiatives under the Flash Flood Guidance Services for South Asia programme

Integration of **Landslide Susceptibility Module into Flash Flood Guidance System** for better predictability of landslide associated flash floods in the vulnerable hilly regions of Indian Subcontinent. During the past few flood seasons, these events are increasingly witnessed in the **Rudraprayag district of Uttarakhand** and **Wayanad district of Kerala**. Hence, it is imperative for the pilot study on landslide susceptibility zoning in two locations in collaboration with GSI, NRSC, IMD & HRC.

Integration of **Urban Flood Module into Flash Flood Guidance System** for real time flood monitoring of urban cities. In this context, **Delhi has been selected for the pilot study on Urban Flood Modeling** based on the increasing growth potential, vulnerability of sudden floods/ water logging, available requisite datasets, Doppler Weather Radar Data, etc.

## Research & Publications

**Twenty (20)** research articles have been published in **MAUSAM** (Vol. 73, No. 1), January, 2022 issue.

Y.E.A. Raj and **B. Amudha**, 2022, "**Extent of diurnal cycle of rainfall and its intra seasonal variation over coastal Tamil Nadu during north east monsoon season**", *MAUSAM*, 73, 1, 1–18, <https://doi.org/10.54302/mausam.v73i1.4984>.

**RanjanPhukan** and **D. Saha**, 2022, "**Analysis of rainfall trends over Tripura**", *MAUSAM*, 73, 1, 27–36, <https://doi.org/10.54302/mausam.v73i1.5078>.

**Bikram Singh** and **Rohit Thapliyal**, 2022, "**Cloudburst events observed over Uttarakhand during monsoon season 2017 and their analysis**", *MAUSAM*, 73, 1, 91–104, <https://doi.org/10.54302/mausam.v73i1.5084>.

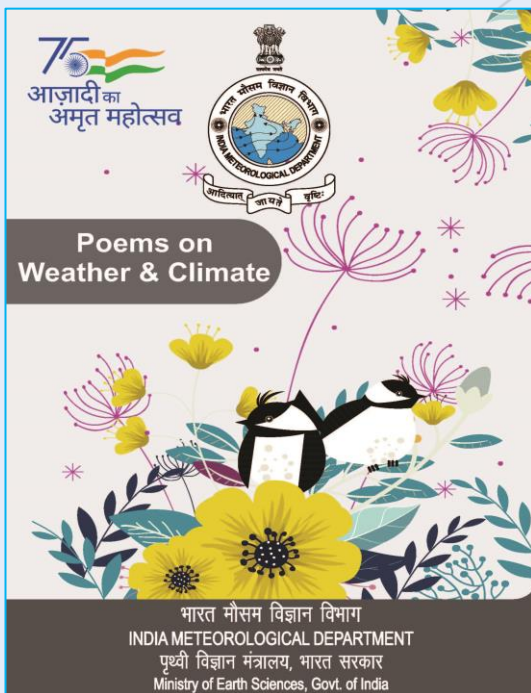
**Singh, V. P., Mathew, J. and Verma, I. J.**, 2022, "**Inter-spatial heat vulnerability assessment of Summer - 2018 over Madhya Pradesh using discomfort (wind & Thermal) indices**", *MAUSAM*, 73, 1, 105-114, <https://doi.org/10.54302/mausam.v73i1.5085>.

**Sandip Nivdange, Chinmay Jena, Pooja V. Pawar, Gaurav Govardhan, Sreyashi Debnath, Santosh Kulkarni, Prasanna Lonkar, Akash Vispute, Narendra Dhangar, Avinash Parde, Prodip Acharja, Vinod Kumar, Prafull Yadav, Rachana Kulkarni, Manoj Khare and N. R. Karmalkar**, 2022, "**Nationwide CoViD-19 lockdown impact on air quality in India**", *MAUSAM*, 73, 1, 115-128, <https://doi.org/10.54302/mausam.v73i1.1475>.

**Prasanta Das and Somenath Dutta**, 2022, "**A mathematical model for fluxes associated with internal gravity waves excited by a corner mountain**", *MAUSAM*, 73, 1, 181-188, <https://doi.org/10.54302/mausam.v73i1.5091>.

**Pravatrabi Naskar**, 2022, "**Variations in Rainfall, Temperatures and Thunderstorm over Kolkata (India) in Recent Decades**", *MAUSAM*, 73, 1, 193-202, <https://doi.org/10.54302/mausam.v73i1.5093>.

Azharuddin Mohammed, Satish Kumar Regonda, Naga Ratna Kopparthi, 2022, "Climatological features of high temporal resolution rainfall over the Hyderabad City, India", *Urban Climate*, 42, March 2022, 101118.



Edited volume of poems and posters received by IMD during 18-24 October, 2021 to commemorate 75 years of independence under the programme Azadi Ka Amrit Mahotsav.

## Media Interaction

Dr. S. D. Attri, Sc. 'G', participated in programme on "Weather and Agriculture" at AIR New Delhi on 21<sup>st</sup> January, 2022.

Dr. M. Mohapatra, DG, IMD discussed the "Ancient Indian Knowledge of Weather Forecasting" in the 21<sup>st</sup> episode of the programme "Power of Listening" on the theme "Megh Vidya"

broadcast by All India Radio on 18<sup>th</sup> February, 2022. The broadcast programme is also available at <https://youtu.be/a07Lv8j2iX8>.

Dr. M. Mohapatra, DG, IMD participated in the "CSE's Annual Media Conclave" on 2<sup>nd</sup> March, 2022 and delivered a talk on "climate change impact on extreme weather events".

Dr. M. Mohapatra, DG, IMD participated in the Virtual Panel discussion show organized by Doordarshan on 11<sup>th</sup> March, 2022 on "cyclone management".

Shri Manmohan Singh, Sc. 'F', delivered an online talk on the topic "Services provided by IMD for the state of Punjab" on the occasion of "World Meteorological Day 2022" on Doordarshan Chandigarh on 23<sup>rd</sup> March, 2022.

Radio and TV talk on the theme of WM day 2022: "A talk on Early Warning and Early Action – Hydro-meteorological and Climate Information for Disaster Risk Reduction", by Dr. S. Balachandran, Sc. 'F' was broadcast by FM Rainbow 101.4 MHz on 23.03.22 at 10:02 IST.



## Visitors

Fifteen (15) students from Nagaon College (Assam) visited RMC Guwahati on 4<sup>th</sup> January, 2022. They were given demonstration on surface observatory, AWs & ARG.

M.C. Chandigarh organized visit of students and research scholars of Punjab Agriculture University, Ludhiana and briefed them about the services being provided by Meteorological Centre Chandigarh on February 14, 2022. Shri Manmohan Singh, Sc. 'F' delivered a lecture to visitors.



About nineteen (19) students from Zakir Husain Delhi College visited the "Central Hydromet Observatory" on 15<sup>th</sup> March, 2022.



Sixty one (61) students from R. C. Technical, Ahmedabad visited Met. Centre, Ahmedabad on 25<sup>th</sup> March, 2022 and briefed them about the functioning of IMD by the Scientist, M.C. Ahmedabad.