Indian Institute of Tropical Meteorology (IITM)

Press release (17 March 2025)

Eighth WMO International Workshop on Monsoons (IWM-8)

Dates:17-21 March 2025

Venue: Indian Institute of Tropical Meteorology, Pune

Highlights from IWM-8:

- This International workshop addresses following:
  - Advancing the understanding and prediction of monsoons and their impacts in a changing climate
  - Regional Monsoons of the World and their Multi-scale Processes
  - Monsoons in a Changing Climate
  - Field Experiments and Multi-platform Measurements of Precipitation over Monsoon regions
  - Research to Operations and Operations to Services transitions and Communication
  - Simulation and Prediction of Monsoons, including Extremes

- Jointly organised by Indian Institute of Tropical Meteorology (IITM), Pune, Ministry of Earth Sciences (MoES), Government of India, the WWRP's Working Group on Tropical Meteorology Research (WGTMR) and the WCRP's CLIVAR/GEWEX Monsoons Panel in cooperation with the India Meteorological Department and the International Monsoons Project Office (IMPO).

- Around 320 participants from India and different countries are attending the international workshop. **On-Site participants** from USA, UK, Germany, Japan, Singapore, Norway, Nigeria, Kenya, Switzerland, Brazil, Sri Lanka, Ecuador, Ghana **and Online**: Italy, China.

- 70 Early Career Researchers (ECRs) are participating in the dedicated ECR Session on 19th March. Approximately 140 total ECRs are attending the workshop.

- Release of online Compendium of Abstract

- Event Website for detailed information about Schedule (Talks/ Posters sessions) https://wmo-iwm8.tropmet.res.in/

Meghdhoot Hall, IITM;17.3.2025: Eighth WMO International Workshop on Monsoons (IWM-8) Advancing the understanding and prediction of monsoons and their impacts in a changing climate is inaugurated on 17th March 2025 by Chief Guest, Dr. M. Ravichandran, Secretary, MoES, GOI, Guest of Honour, Dr. M. Mohapatra, Director General, IMD (online), Dr. Nico Caltabiano (WWRP) and Dr. Hindumathi Palanisamy (WCRP), Dr. R. Krishnan, Director IITM and Convener, Dr. E.N. Rajagopal, Executive Director IMPO.

Dr R Krishnan, Director, IITM, extended a warm welcome to all the distinguished delegates and to the international workshop participants from different countries. Dr R Krishnan stated the importance of the international workshop. The IWM has been centred on 5 themes (these are mentioned under highlights). The workshop includes a dedicated early career researchers' session (ECR). Around 70 ECRs will be participating in that session.

Dr M Ravichandran, Secretary MoES, Govt of India, in his inaugural address (virtual) as a Chief Guest, highlighted that monsoon understanding in the changing climate requires enhanced satellite and field observations, and monsoon prediction tools for societal benefits. He conveyed his best wishes for success of the international workshop.

Dr. M. Mohapatra in his address mentioned that monsoon study started over 100 years ago in India. There are still challenges to understand Monsoon. He presented the IMD historical background and the role of IITM, IMD, & MoES institutes critical role in the development of couple models for improving accuracy in the monsoon predictions. The takeaway from this workshop will be helpful for the monsoon studies.

A brief was presented by Dr. Hindumathi Palanisamy, World Climate Research Programme (WCRP) and Dr. Nico Caltabiano, World Weather Research Programme (WWRP).

Keynote Talk was delivered by Prof. Chris Davis, NSF-NCAR, USA on topic: "West African Monsoon and African Easterly Wave Dynamics Investigated Through Moisture Sensitivity Calculations" .

Dr. E.N. Rajagopal, Convener of the workshop and Executive Director IMPO presented the Vote of Thanks to Chief Guest, Guests of Honour, Director IITM, all the delegates, participants, Local Organizing Committee members for success of the workshop.

A Press Meet is arranged after the inaugural session.

Over the next five days, several experts from around the world will deliberate Talks on five themes and related topics and lead to exchange of knowledge across different institutions globally.

For IWM-8 **related clarifications**, please contact: **Dr. E.N. Rajagopal, Executive Director** IMPO (enraja@tropmet.res.in

For **Media related clarifications**, please contact: Mrs. Shompa Das, PRO, IITM, Pune (shompa@tropmet.res.in)

Photographs are available at IITM Photo-gallery.

Background Information about IWM-8

Brief about IWM-8 Eighth WMO International Workshop on Monsoons (IWM-8)

Advancing the understanding and prediction of monsoons and their impacts in a changing climate

Date: 17-21 March 2025

Venue: IITM, Pune (Hybrid mode)

Event website: https://wmo-iwm8.tropmet.res.in/

Talks and Posters presentations details are available here.

The International Workshop on Monsoons (IWM) is a major quadrennial workshops series under the World Weather Research Programme (WWRP) of the World Meteorological Organization (WMO). IWM-8, the eighth workshop in this series, is organized at Pune, India, jointly by the Indian Institute of Tropical Meteorology (IITM), Pune, Ministry of Earth Sciences (MoES), Government of India, the WWRP's Working Group on Tropical Meteorology Research (WGTMR) and the WCRP's CLIVAR/GEWEX Monsoons Panel in cooperation with the India Meteorological Department and the International Monsoons Project Office (IMPO).

The workshop is held at IITM Pune during 17-21 March 2025 in hybrid mode, permitting on-site and virtual participation. The IWM provides a forum for researchers, forecasters, and stakeholders/end-users to discuss recent advances in monsoons research and current topics including new observational studies, process studies, and strategic priority setting for modelling/prediction studies, covering weather-to-climate time scales.

The emphasis is on addressing monsoon impacts as part of the societal challenges prioritized by the WWRP and WCRP: high-impact weather, water, agriculture, energy, disaster risk reduction, urbanization, and new technologies, in heavily populated monsoon regions around the world. Outcomes from the workshop are expected to facilitate transfer of new science and technology to National Meteorological and Hydrological Services (NMHSs) in these regions.

An important feature of the workshop is a series of invited perspective talks on key monsoon topics of current interest. The workshop also place high importance on poster presentations as a great opportunity to support in-depth presentation of the study, results, and achievements.

The workshop proceedings will be published as a special collection in a reputed journal following the peer review.

Goal of the workshop:

The goal of the IWM-8 is to discuss recent developments in understanding, modeling, and predicting monsoons, new technologies and tools used for prediction of extreme rainfall events, field experiments and the application of monsoon prediction tools to derive societal benefits. The prediction aspects will cover all spatial and temporal scales, from weather and

sub-seasonal to seasonal and decadal, as well as monsoon projections and weather extremes in a changing climate, and research on climate intervention relevant to monsoon regions.

Participants from operational, research, climate services, and end-user communities are welcome. In addition to the invited keynote talks, the IWM-8 will include contributed oral and poster presentations on the themes indicated below.

Workshop Themes

1. Regional Monsoons of the World and their Multi-scale Processes
   Multi-scale weather and climate processes influence a wide variety of phenomena in the monsoon regions, including seasonal-to-decadal monsoon variabilities, active and break monsoon spells on sub-seasonal time-scales, monsoon synoptic systems (e.g., low pressure systems and depressions), severe and high-impact weather, among others. Improved understanding of these processes is essential to better represent them in weather and climate models. The topics to be covered in this theme focus on the key underlying physical processes across different scales, such as land-ocean-atmosphere interactions, remote teleconnections, large-scale organized convection, mesoscale convective systems, and cloud-aerosol interactions, that shape variations in the regional monsoons of the world.

2. Monsoons in a Changing Climate
   Integrated observations of precipitation and heavy rainfall-producing weather systems in monsoon regions are important for better understanding of the underlying physical mechanisms and evaluating weather-and-climate models. The topics to be covered in this theme mainly include: results from recent field campaigns and satellite measurements of precipitation over monsoon regions; description of plans for upcoming deployments as well as proposals for coordinated international activities (such as MONEX-2029); evaluation of monsoon simulations utilizing newly available observational datasets from field campaigns and space-borne instruments; status of multi-platform precipitation data sets over global monsoon regions, gap areas and possible solutions.

3. Field Experiments and Multi-platform Measurements of Precipitation over Monsoon regions
   Integrated observations of precipitation and heavy rainfall-producing weather systems in monsoon regions are important for better understanding of the underlying physical mechanisms and evaluating weather-and-climate models. The topics to be covered in this theme mainly include: results from recent field campaigns and satellite measurements of precipitation over monsoon regions; description of plans for upcoming deployments as well as proposals for coordinated international activities (such as MONEX-2029); evaluation of monsoon simulations utilizing newly available observational datasets from field campaigns and space-borne instruments; status of multi-platform precipitation data sets over global monsoon regions, gap areas and possible solutions.

4. Research to Operations and Operations to Services transitions and Communication
   The topics in this theme will focus on transforming monsoon research to operations and societal services; application of climate prediction and projections in various sectors (such as agriculture, energy, and water); quantification and communication of uncertainties associated with monsoon prediction and projection; use of AI/ML for preparing sector specific predictions and projections; assessing the socioeconomic impacts of monsoons; developing climate change adaptation strategies in monsoon regions.

5. Simulation and Prediction of Monsoons, including Extremes
   There are major uncertainties in simulating and predicting regional monsoon processes and extremes such as persistent heavy precipitation and draughts. Topics to be covered in this theme mainly include: predictability of regional monsoon processes, precipitation extremes, and sub-seasonal to decadal timescale variability; large-ensemble simulations to better understand forced and internal monsoons' variabilities; analysis of regional monsoon processes using global storm-resolving simulations; improving the monsoon simulation/prediction through development of advanced data assimilation and better model physical schemes, including application of AI techniques.

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