International Conference on Ensemble Methods in Modelling and Data Assimilation

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Source: *PIB & World Meteorological Organization*

In order to provide a platform for discussions and deliberations on the present status, future prospects and optimum use of **Ensemble Prediction System(EPS)**, a three-day international conference on "Ensemble Methods in Modelling and Data Assimilation (EMMDA)" is being **organised by National Centre for Medium-Range Weather Forecasting(NCMRWF), Ministry of Earth Science** from February 24, 2020, at NCMRWF, Noida, India.

The major themes of the conference are:

- Ensemble methods in Global Weather Prediction
- Ensemble methods in Data Assimilation
- Ensemble methods in Monthly and Seasonal Forecasting
- Convection Permitting Ensemble Prediction Systems
- Verification of Ensemble weather forecasts
- Applications of Ensemble weather forecasts

What is the Ensemble Prediction System(EPS)?

- Ensemble Prediction System (EPS) is **numerical weather prediction (NWP) systems that allow us to estimate the uncertainty in a weather forecast as well as the most likely outcome.**
- The EPS is designed to sample the **probability distribution function (pdf) of the forecast**, and is often used to **produce probability forecasts** – to assess the probability that certain outcomes will occur.
- In an EPS, a number of similar models, called the

ensemble members, are run from slightly different initial conditions.

- It requires high computational resources and in turn, provides the flow-dependent forecast uncertainty in terms of probability.

Significance of EPS

- The probabilistic forecasts help the end-users in making decisions and plan their actions suitably.
- The forecasts from high resolution global and regional EPS **provide more accurate probabilistic forecasts of extreme weather events and help the planners and administrators in taking timely actions.**

EPS in India

- **India has recently operationally implemented two global EPS** which **have the highest resolution in the world** and also a regional EPS of horizontal resolution 4km which covers the Indian region.
- The Ministry of Earth Sciences (MoES) has commissioned two very high resolution (12 km grid scale) state-of-the-art global Ensemble Prediction Systems (EPS) for generating operational 10-days probabilistic forecasts of weather. The EPS involves the generation of multiple forecasts using slightly varying initial conditions.
- The Ministry of Earth Sciences (MoES) provides Weather and Climate Services to various users round the year and on 24/7 basis. Both operational and research aspects for these services are implemented through its constituent units like IMD, NCMRWF, IITM and Indian National Centre for Ocean Information Services (INCOIS).

About National Centre for Medium-Range Weather Forecasting

• National Centre for Medium-Range Weather Forecasting (NCMRWF) is a **national agency for weather forecasting under the Ministry of Earth Sciences,** (transferred from its former parent Ministry of Science and Technology), Government of India.

• It is a premier institute in India to provide Medium-Range Weather Forecasts through deterministic Methods and to offer Agro-Advisory Service (AAS) to the farmers.

• NCMRWF offers research opportunities in Numerical Weather Prediction, Diagnostic Studies, Crop Weather Modeling and Computer Science.