



Contribution ID: 9

Type: **Oral presentation**

Multi-model ensemble prediction of Super Cyclone Amphan using ECMWF, GEFS and NEPS-G forecasts

Wednesday 2 June 2021 09:35 (20 minutes)

The Super Cyclonic Storm (SuCS) Amphan pounded coastal areas of Odisha, West Bengal, India and Bangladesh across Sundarbans during 10-12 UTC of 20th May 2020, causing severe destruction and fatalities amidst the raging Covid-19 pandemic. The catastrophic natural disaster exacerbated the challenges associated with the outbreak faced by public and disaster management authorities. The cyclonic system formed over the south-east Bay of Bengal on 13th May, reaching its peak intensity with a maximum sustained wind speed of 130 knots and a minimum central pressure of 920 hPa at 00 UTC of 19th May. Mitigation strategies with timely dissemination of warnings help minimize the extensive damage and post-storm hazards.

The global ensemble forecasting system (GEFS) operational at India Meteorological Department (IMD) is based on the Global Forecast System (GFS) model from the National Centers for Environmental Prediction (NCEP). It comprises of a control forecast, 20 perturbed forecasts initiated from 00 UTC and 20 perturbed forecasts initiated from 12 UTC. The global ensemble prediction system at NCMRWF (NEPS-G) is based on the Unified model of Met Office, UK. It consists of 11 perturbed forecasts initiated at 00 UTC, 11 perturbed forecasts initiated from 12 UTC (lagged), in addition to the control forecast. The ensemble forecasts of 51 members including control from the European Centre for Medium-Range Weather Forecasts (ECMWF) at 00 UTC are merged with the ensemble forecasts from NEPS and GEFS to create a multi-model ensemble (MME) of 115 members. The performance of the MME and the respective EPSs are evaluated for the SuCS Amphan during 16th-21st May 2020. Depending on the accuracy with which such potentially hazardous events can be predicted and monitored, it is often possible to specify the timing, location and likely magnitude of an impending cyclone strike hazard.

Thematic area

Severe weather and hazard forecasting

Author: Ms CHAKRABORTY, Paromita (National Centre for Medium Range Weather Forecasting)

Co-authors: Dr PRASAD, S. Kiran (National Centre for Medium Range Weather Forecasting); Mr T., Arulalan (IMD New Delhi); Dr KANASE, Radhika (IITM Pune); Dr DESHPANDE, Medha (IITM Pune); Dr MURALI KRISHNA, Phani (IITM Pune); Dr PATTANAIK, D. R. (India Meteorological Department, New Delhi); Dr SARKAR, Abhijit (National Centre for Medium Range Weather Forecasting); Dr MUKHOPADHYAY, Parthasarathi (Indian Institute of Tropical Meteorology); Dr MITRA, Ashish (National Centre for Medium Range Weather Forecasting)

Presenter: Ms CHAKRABORTY, Paromita (National Centre for Medium Range Weather Forecasting)

Session Classification: Thematic Area: Severe weather and hazard forecasting

Track Classification: UEF2021