OSID & IESS

Thu. Nov 12, 2026 2:00 PM - 3:30 PM JST | Thu. Nov 12, 2026 5:00 AM - 6:30 AM UTC | Room D (Icho) (3F)

Oral D2 OSID & IESS

Chair: Alessandro Oggioni, Matthias Obst

3:00 PM - 3:15 PM JST | 6:00 AM - 6:15 AM UTC

[.s6T5WKf-05] An approach to forecast of super cyclone Amphan (2020) using WRF-ARW model at 1.667 km horizontal resolution

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The present study investigates the role of the high-resolution (1.667 km) Weather Research and Forecasting (WRF-ARW) Model in the forecast of super cyclone Amphan (2020). The study analysed the dynamic of the ocean-atmosphere interaction using the WRF-ARW model coupled with the three-dimensional Price-Weller-Pinkel (3DPWP) model, and the role of time-varying sea surface temperature (SST) was examined using initial conditions taken from the fifth generation of the European Centre for Medium-Range Weather Forecasts Data. Three sensitive experiments (CNTL, SST, and 3D-PWP) were carried out using the WRF-ARW model on a moving nested domain platform with finer domain horizontal resolution of about 1.667 km. The initial and boundary conditions for the model simulations were taken from the National Centers for Environmental Prediction final analysis data. The cyclone intensity, track, and structures were evaluated with the available observational data from the India Meteorological Department best track, satellite observations, and Doppler Weather Radar observations. Results indicated that the SST and 3D-PWP experiments showed a 25%-39% improvement in the MSW estimate and a 49%-55% improvement in the MSLP estimate compared to the CNTL experiment. There is no significant enhancement in the track estimate for the SST and 3D-PWP experiments. The study indicated that both SST and 3D-PWP experiments showed considerable impact on the structure characteristics in terms of reflectivity, latent heating, and temperature anomaly.

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