

# **A qualitative study of Some Meteorological Features During tropical Cyclone PHET Using Satellite Observations and WRF Modeling System**

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## **Abstract**

The satellite derived meteorological parameters are quite useful for understanding the genesis of a tropical cyclone. This paper analyses some of the characteristic features of the tropical cyclone (TC) PHET using satellite derived meteorological observations, and numerical model simulations while investigating the performance of various cumulus parameterization schemes using Weather Research and forecasting (WRF) modeling system. The genesis of the TC is primarily discussed using the observed meteorological parameters including the outgoing long-wave radiation, quantitative precipitation estimate (or rainfall), sea surface temperature, relative vorticity and upper tropospheric humidity. These satellite derived parameters show suitable meteorological condition for the development and propagation of the TC. The qualitative analysis of WRF simulated results indicates that Kain-Fritsch cumulus scheme (Kain and Fritsch, 1990 and 1993; Kain, 2004) performs relatively better in predicting various parameters in relation to the genesis and propagation of PHET.

**Keywords** WRF modeling system . Phet . Genesis . Tropical Cyclone . Satellite observations . Quantitative precipitation estimate . Outgoing long-wave radiation . Relative vorticity