

An Ensemble-Based Analysis of Two Extreme Rainfall Events over Kerala

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Abstract

This study investigates the impact of synoptic-scale features on rainfall forecast using the operational global ensemble forecasts from the European Centre for Medium Range Weather Forecasts (ECMWF). A persistent and extreme rainfall occurred in Kerala during August 2018 and this resulted in extensive flooding and landslides across most of the districts in Kerala. A similar event is repeated in August 2019. It is interesting to note that synoptic conditions that led to both the events are similar. This study utilizes the 50 ensemble members from THORPEX Interactive Grand Global Ensemble (TIGGE) ECMWF ensemble to understand the key synoptic-scale features prevailing during the two heavy rainfall events. Initial results are encouraging and the results suggests that small positional shifts in the monsoon depressions will lead to substantial differences in precipitation placement and intensity.