

# VALIDATION OF SATELLITE PRECIPITATION USING TRMM RECENT PRODUCTS

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**ABSTRACT:** Rainfall, which is sub-precipitation that occurs highly in tropical region, plays a vital role for earth energy balance and living creature. With the advance of satellite, rainfall over large area coverage can be measured in a better spatial resolution. In every released of data Tropical Rainfall Measuring Mission (TRMM) such as 3B43 product series, an improvement from the previous version is very substantial, particularly in minimizing local random errors. This article presents the validation of latest TRMM satellite-based 3B43 v7 product for localizing error in Peninsular Malaysia. The validation time range covers from 2000-2010, consisting of 132 satellite data sets were evaluated with a total of 26 sets of rain gauge observation recorded by Malaysia Meteorological Department (MMD) and Department of Irrigation and Drainage Malaysia (DID). The main objective of study is to validate the TRMM 3b43-v7 product against corresponding in-situ measured rainfall. The random errors patterns identified were then form a new re-calibration of the products, before further use of the data set with respect to spatio-temporal parameter input. Results of the study indicated a reasonably good agreement between re-calibrated follow-on the first step validations, evident with statistics measure, such that  $r = 0.8$ ,  $p < 0.005$ , and  $RMSE = \pm 5mm$ . It is concluded that re-calibration of TRMM 3B43 v7 products is very crucial for inherent random errors, especially in the maritime-influenced rainfall in Peninsular Malaysia.

Keyword: validation, calibration, TRMM, 3B43 V7, precipitation.