

UNIVERSITI TEKNOLOGI MARA

TECHNICAL REPORT

**ANALYSIS OF DROUGHT IN PERAK USING GLOBAL
SATELLITE MAPPING OF PRECIPITATION (GSMap)**

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ABSTRACT

The study utilised data from the Global Satellite Mapping of Precipitation (GSMaP) to examine patterns in rainfall and drought in Perak, Malaysia. This model is one of the Numerical Weather Prediction (NWP) models, which includes the Global Forecast System (GFS) model that is developed by the National Centers for Environmental Prediction (NCEP). The objectives of this study were to assess the relationship between actual and forecast rainfall data and to examine rainfall and drought patterns. The data were gathered and visualised, where the maximum and lowest rainfall data were found, trends and frequency were examined, and the Root Mean Square Error (RMSE) was calculated to determine the accuracy of the predictions. The findings showed cyclical rainfall patterns, flooding susceptibility in different districts, and the prevalence of drought conditions in Gerik, Tapah, Lenggong, Ipoh, Bagan Datuk and Taiping. However, the RMSE study highlighted data availability restrictions and the need for stronger models for forecasting. The study suggests some activities, including cloud seeding for augmentation of the water supply, comprehensive flood control plans, early warning systems, community education campaigns, and climate change adaptation measures. In order to improve reaction and preparedness plans, more studies and collaboration with meteorological authorities are recommended.