**Suggest Topics:** Remote Sensing Application, Water Resources

**Paper title:** Satellite Base Rainfall Application for Flood Simulation

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**Abstract**: Flood always causes significantly damage. Flood protection utilizing the structural measures may be caused difficulties with the social and also investment. However, the location, time, and quantities of the rainfall can be predicted, the awareness and preparation of flood protection that are efficiently represented to minimize damages from disaster. The main cause of the flood disaster depends on topography, land cover and rainfall. Normally, rainfall is a phenomenon of natural, which is exactly difficult to forecast. It could be possible to forecast flooding in the near future when the magnitude and rainfall distribution over the basin area are real-time measured. The rain-gauges in some basin area are limited; therefore it is inevitable to use satellite technology precipitation to represent on real time precipitation measurement and its distribution over basin area.

This paper serves objective to use the satellite precipitation data combination with other remote sensing data to flood simulation model which concentrate in a large basin scale. The satellite precipitation used was Tropical Rainfall Measuring Mission (TRMM) which was estimated to use a rainfall in the ungauged areas. TRMM daily data was used in rainfall-runoff-inundation model (RRI) at upper part of NAN river basin in Thailand. In simulation, the SRTM and HydroSHEDS were represented topography that was scaled to 15 arc-seconds (500 metres) and GLCC was explained land cover that was classified in 12 groups. TRMM data period in 2010 to 2012 were applied to flood simulation because these period covered 3 main of flood type in study area; great, medium and exiguous respectively. The result revealed that runoff was analysed with TRMM which was under estimation when it was evaluated with measurement runoff station along the main river. The assessment of study to compare analysed runoff with observation data found that the bias of peak was closely about 20-25% and the correlation of time series pattern was nearly about 0.67-0.72. This approach can be using for flood warning and flood hazard map leading to the recommendation of sustainable flood management.

**Keywords:** Flood simulation, Satellite data, Tropical Rainfall Measuring Mission (TRMM)