

Effect of density of gauges on accuracy of merged GSMaP: case study of typhoon Morakot

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Abstract Previous research has found that satellite-based rainfall data such as GSMaP NRT in general tend to underestimate raingauge data, especially for heavy rainfall, which poses a problem in their use for applications. Thus, a correction method for satellite-based rainfall data to improve the accuracy is necessary for applications. In some ungauged basins, a few real time raingauges have been recently installed. In these basins a merging method for satellite-based rainfall and raingauge data can be applied, e.g. Inverse Distance Weighted interpolation (IDW), co-kriging. These merging methods are expected to improve the accuracy of satellite-based rainfall with raingauges. This paper revealed the relation between the density of raingauges and the accuracy of merged GSMaP by IDW. The result implies that a certain level of the density (one station/5000 km²) of raingauges is necessary for applications using merged GSMaP.

Key words GSMaP; merging, IDW; ungauged basin; Morakot