Distributed monsoon flood modeling at Kota Tinggi, Malaysia

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Abstract. The Kota Tinggi valley has been flooded with flow depth exceeding five meters during flood in December 2006 and January 2007. The two consecutive events caused extensive damages and cost Malaysia's Government approximately RM 1.5 billion (USD 0.5 billion). These two large monsoon floods were caused by total rainfall amounts of 340 and 430 mm in four days. These correspond to return periods of 50 and more than 100 years, respectively. The fully distributed two-dimensional TREX model simulated these two large floods. The performance of the model was tested using three statistical methods: Relative Percentage Difference (RPD), Percentage Bias (PBIAS) and Nash-Sutcliffe Efficiency Coefficient (NSEC). The model performance was *very good* based on the RPD (3.7%) and NSEC (0.8) values. The model is successful in simulating the flood in December 2006 and January 2007 at Kota Tinggi. The calculated flood stages were within 10 cm of the field measurements.

Keywords: Flood in Kota Tinggi; TREX model; Monsoon floods

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