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Uncertainty estimation of simulated water levels for the Mitch flood event in Tegucigalpa

Diana Carolina Fuentes Andino (1), Sven Halldin (1), Beven Keith (1,2), Xu Chong-Yu (1,3)

(1) Uppsala, Earth Science, Uppsala, Sweden (dianafuentes46@gmail.com), (2) Hydrology and Fluid Dynamics Group, Environmental Science, Lancaster University, Lancaster,, (3) Department of Geoscience, University of Oslo, Oslo

Hurricane Mitch in 1998 left a devastating flood in Tegucigalpa, the capital city of Honduras. Due to the extremely large magnitude of the Mitch flood, hydrometric measurements were not taken during the event. However, post-event indirect measurements of the discharge were obtained by the U.S. Geological Survey (USGS) and post-event surveyed high water marks were obtained by the Japan International Cooperation agency (JICA). This work proposes a methodology to simulate the water level during the Mitch event when the available data is associated with large uncertainty. The results of the two-dimensional hydrodynamic model LISFLOOD-FP will be evaluated using the Generalized Uncertainty Estimation (GLUE) framework. The main challenge in the proposed methodology is to formulate an approach to evaluate the model results when there are large uncertainties coming from both the model parameters and the evaluation data.