



Evaluation of Satellite and Ground Based Precipitation Products for Flood Forecasting

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The development in satellite-derived rainfall estimates encouraged the hydrological modeling in sparse gauged basins or ungauged basins. Especially, physically-based distributed hydrological models can benefit from the good spatial and temporal coverage of satellite precipitation products. In this study, three satellite derived precipitation datasets (TRMM, CMORPH, and PERSIANN), NEXRAD, and rain gauge precipitation datasets were used to drive the hydrological model. The physically-based, distributed hydrological model Gridded Surface Subsurface Hydrological Analysis (GSSHA) was used in this study. Focus will be on the results from the Guadalupe River Basin above Canyon Lake and below Comfort, Texas. The Guadalupe River Basin above Canyon Lake and below Comfort Texas drains an area of 1232 km². Different storm events will be used in these simulations. August 2007 event was used as calibration and June 2007 event was used as validation. Results are discussed in terms of accuracy of satellite precipitation estimates with the ground based precipitation estimates, predicting peak discharges, runoff volumes, time lag, and spatial distribution. The initial results showed that, model was able to predict the peak discharges and runoff volumes when using NEXRAD MPE data, and TRMM 3B42 precipitation product. The results also showed that there was time lag in hydrographs driven by both PERSIANN and CMORPH data sets.