



Temporal Variability of Rainfall in Climate Change Impact Studies for Eger Creek Watershed

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Climate change impact studies have become more relevant to watershed catchment studies. In order to better understand the range of possible outcomes, a series of analyses were performed for an impact study of Eger Creek. While climate models provide the broad parameters, temporal variation of rainfall patterns may or may not exert a strong influence as well on model outcomes. This study examines the effect of changing both annual rainfall totals as well as daily distributions on soil moisture, runoff, stream flow and flood risk. On the other hand, some parameters may not be relevant for making broad, long-term predictions. We look at the influence of various hydrological and climatic parameters on the runoff, stream flow and flood risk for Eger Creek which flows through the city of Eger and its surroundings. Event-based as well as continuous rainfall-runoff models have been developed for the Eger Creek watershed. The models were calibrated, and validated using daily/hourly field measurements, as well as site observations. The continuous model is used to predict future runoff between 2020 and 2050, as well as estimate influence of temporal variability of rainfall. These predictions are then used to evaluate the impact of changes in the stream flow of Eger Creek. Finally, based on the event model predictions, a one-dimensional hydrodynamic analysis is applied to evaluate flood risk along Eger Creek, focusing on downtown Eger.