



Using a peaks-over-threshold approach to assess changes in flood magnitude, volume, duration, and frequency across the United States

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In the United States, there have been an increasing number of studies quantifying trends in the annual maximum flood; yet, few studies examine trends in floods that may occur more than once in a given year. This type of flood series is commonly referred to as peaks-over-threshold (POT) series because flood events are defined as any discharge which exceeds a predetermined threshold value and provides the opportunity to look at multiple flood events which may have occurred in the same year. A POT series of flood events for approximately 6,000 long-term streamgauges across the United States was developed using a multi-threshold, event-based approach using the daily time series. The series of flood events were examined for trends in the peak-day discharge, total volume of discharge during event, duration of discharge during the whole event, time between events, and the number of events per year. Initial results examining the presence of trends in the peak-day discharge and number of events per year for the mid-Atlantic United States show few statistically significant trends. In addition to trends, the POT series are also mined to identify flood-rich and flood-poor periods and their spatial consistency.