Understanding US Extreme Rainfall Events, Through Historical Data

Student Mentor : Saman

Advisor: Reza Khanbilvardi

The method commonly applied in frequency analysis of rainfall extremes, restricts the objective to examine whether there is a positive or negative trend in the data. But it is merely explained, what is the underlying mechanism to regulate these extremes. It is generally believed with contribution of human to the global warming, the rise of temperature leads to the increase in the atmosphere's water-holding capacity and intensification of the global water cycle. As a result, more severe and frequent maximum precipitation events are observed, particularly in the high latitudes and tropical regions, and during the winter seasons of the northern mid-latitudes. However, the external forces, exposed by human activity, cannot solely replicate the real climate observation, and the actual trajectory is highly dependent on internal variability of natural climate. In this study, we adopt a simple statistical analysis to investigate, how the climate change can module rainfall extremes and what is the role of natural climate variability, across the different climate regions of United States.