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Modern Statistical Techniques for Characterization of Extremes

Extreme value theory, which deals with the probability distributions of extreme values, provides a solid statistical foundation for analysis of climate extremes. There has been relatively little work conducted on either the spatial correlation among extremes simulated by climate models, or the potential changes in the extreme events within a warmer climate. The statistical modeling of extreme data provides advanced and modern statistical techniques in studies of climate change and extreme event attribution related to anthropogenic climate change. This talk focuses on two statistical data analyses using extreme value modeling; 1) characterization of extreme precipitation within atmospheric rivers over California, and 2) event attribution statements of central US temperature anomaly. We can also address interpretation of extreme value analysis and identify sources of uncertainty within the statistical framework.