

Extreme Weather Events and Their Relationship to
Low Frequency Teleconnection Patterns

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A new method for identifying the structure and other characteristics of extreme weather events is introduced and applied to both model simulations and observations. The approach is based on a rotated EOF that links daily extreme precipitation for a particular point on the globe to precipitation and related quantities at all other points. We present here some results of our analysis of extreme precipitation events over the United States, and how they are influenced by climate variability associated with ENSO and various large-scale teleconnection patterns such as the PNA and the Arctic Oscillation. The results are based on three 20 years simulations with the NASA/NCAR AGCM (Lin and Rood 1996), forced with idealized cold, neutral and warm ENSO SST anomalies. The simulated climate is described in Chang et al. (2001). Comparisons are made with the results obtained from a similar analysis that uses daily NOAA precipitation observations (Higgins et al. 1996) over the United States and NCEP/NCAR reanalysis data (Kalnay et al. 1996) for the period 1949-1998.