

Public Abstract

First Name:Max

Middle Name:James

Last Name:Nunes

Adviser's First Name:Dr. Anthony

Adviser's Last Name:Lupo

Co-Adviser's First Name:

Co-Adviser's Last Name:

Graduation Term:SS 2017

Department:Soil, Environmental & Atmospheric Sciences

Degree:MS

Title:The Occurrence of Extreme Monthly Temperature and Precipitation in Two Global Regions

Recently, there has been focus on extreme weather events and the connection to climate change and weather variability. Most work is related to individual events rather than mean monthly conditions. This study examines the occurrence of extreme monthly temperature and precipitation events in the central United States (cUSA) and southwest Russia (swRUS). The surface data were provided by the Missouri Climate Center and the Russian Hydrometeorological Center for an extended period (128 years for cUSA and 73 years for swRUS). An extreme event is defined such that a large enough sample is gathered without losing the meaning of extreme. The results demonstrate that in cUSA, there was no preference for warm or cold anomalies. For swRUS, there was a preference for cold (warm) anomalies early (late) in the period, which was characterized by steadily increasing temperatures. There was a tendency in both locations for extreme months during a preferred phase of the El Ni~no Southern Oscillation. In both regions, there was no significant signal in extreme temperature related to longer term climatic cycles, whereas for precipitation there was a relationship to the Pacific Decadal Oscillation for cUSA. Additionally, cold monthly anomalies were associated with persistent and strong upstream blocking events. Finally, two case studies are examined for the cUSA.