



Extreme Flood Response and Spatial Extremes: Analyses of the June 2008 Flooding in Iowa

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We examine the hydrometeorology of extreme floods through analyses that center on the June 2008 flooding in Iowa (USA). The most striking and important feature of the June 2008 flooding was the flood peak of the Cedar River at Cedar Rapids (drainage area of 16,900 km²), which was almost twice the previous maximum from a record of 110 years. Record flooding in Iowa occurred over a range of spatial scales and was produced by a series of storm systems concentrated during the periods 4 – 6 June and 7 - 9 June of 2008. The environment of heavy rainfall in Iowa during June 2008 is examined through analyses of composite rainfall fields (15-minute time interval and 1 km spatial resolution) developed from the Hydro-NEXRAD system, storm tracking analyses based on 3-D volume scan reflectivity observations and simulations using the Weather Research and Forecasting (WRF) model. Analyses of the June 2008 flooding in Iowa are synthesized to provide insights into spatial extremes of flood magnitudes and scale-dependent flood response.