



## **The August 1975 Flood over Central China**

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The August 1975 flood in Central China was one of the most destructive floods in history, resulting in 26 000 fatalities, leaving about 10 million people with insufficient shelter, and producing long-lasting famine and disease. Extreme rainfall responsible for this flood event was associated with typhoon Nina during 5-7 August 1975. Despite the prominence of the August 1975 flood, analyses of the storms producing the flood and the resulting flood are sparse. Even fewer attempts were made from the perspective of numerical simulations. We examine details of extreme rainfall for the August 1975 flood based on downscaling simulations using the Weather Research and Forecasting (WRF) model driven by 20th Century Reanalysis fields. We further placed key hydrometeorological features for the flood event in a climatological context through the analyses of the 20th Century Reanalysis fields. Results indicate interrelated roles of multiple mesoscale ingredients for deep, moist convection in producing extreme rainfall for the August 1975 flood, superimposed over an anomalous synoptic environment. Attribution analyses on the source of water vapor for this flood event will be conducted based on a Lagrangian parcel tracking algorithm LAGRANTO. Analytical framework developed in this study aims to explore utilization of hydrometeorological approach in flood-control engineering designs by providing details on key elements of flood-producing storms.