

*Title: Flash Flood Forecasting in an Ungaged Semi-Arid Basin with a Distributed Model*

*Topic: Storm Forecasting Tools*

*Abstract:*

*Headwater basins and canyons that quickly respond to heavy rainfall runoff pose a significant threat to life and property throughout the semi-arid western United States. The National Weather Service (NWS) has applied the real-time distributed KINematic runoff and EROsion model (KINEROS2) to the complex terrain of the Fish Creek basin located at the southern end of the Vallecito Mountains and the Carrizo Badlands in the Anza Borrego State Park near Borrego Springs, California. In NWS operations, KINEROS2 uses real-time radar data to produce a forecast hydrograph. Due to inherent uncertainties with forecasting for ungaged locations, the forecast will be categorical in nature (no flooding, minor flooding, moderate flooding, major flooding, or record flooding). The model was calibrated using a series of rainfall events representing a full range of flow outcomes from below flood stage up to record flood. Calibration was successful in reproducing all flows regardless of magnitude. The timing and magnitude of the peak flow, at an ungaged basin, is useful information currently not available using NWS flash flood forecasting methods.*

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