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Modeling the Pineapple Express phenomenon via multivariate extreme value theory for both current and future climate

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We employ multivariate extreme value methods to explore the Pineapple Express (atmospheric river) phenomenon on the U.S. Pacific Coast. We characterize the extremal dependence in these precipitation events for observational data and Regional Climate Model output from NARCCAP. With the aim of better understanding the behavior of the Pineapple Express under climate change, new methodologies are developed to establish a connection between these extreme events and synoptic-scale atmospheric process drivers. The model we develop is used to describe the distribution of future extreme Pineapple Express rainfall events under different climate change scenarios.