

North Pacific Precursors to a Multi-Day Severe Weather Outbreak over the United States

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Beginning on 15 May 2006, Typhoon Chanchu recurved in the northwestern Pacific Ocean and underwent extratropical transition. The upper-level outflow from Chanchu strengthened the mid-latitude jet stream and resulted in an episode of downstream development that propagated across the ocean basin. The energy associated with this downstream development contributed to the cyclonic wave breaking of a pre-existing, quasi-stationary trough in the extreme eastern Pacific Ocean. As this trough crossed into the lee of the Rocky Mountains and cutoff, a surface cyclone formed beneath an upper-level potential vorticity (PV) anomaly on 22 May. This cutoff cyclone progressed eastward across the northern United States, touching off a five-day severe-weather outbreak stretching from the lee of the Rockies to the eastern coast of the United States.

This presentation will provide an investigation of the complex flow evolution that led to the development and evolution of the cutoff cyclone. Observational data will highlight the multiscale processes and interactions that resulted in the formation of a distinct PV anomaly and cutoff cyclone to the lee of the Rockies, while model ensembles will explore the precise role of Typhoon Chanchu in the large-scale flow evolution and its associated predictability given the uncertainty displayed by models in relation to the formation of the cutoff cyclone.