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# An analysis of the 27-28 May 2001 Great Plains derecho

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## ABSTRACT

On 27-28 May 2001, a line of severe thunderstorms organized itself into a derecho and pushed southeastward from west-central Kansas into east-central Texas. This derecho lasted approximately twelve hours and caused significant, widespread wind damage along its path.

An ingredients based methodology is used to examine the environmental conditions needed for severe convection. Surface theta-e maps, upper air analyses, and RAOB soundings indicate that moisture, lift, instability, and vertical wind shear were all present in the southern Great Plains region, but that large-scale forcing was lacking on this day. Mesoscale surface analyses were performed and compared to radar images at the same time to assess the accuracy and utility of the analyses.

The presence of severe thunderstorms in an environment characterized by weak synoptic-scale forcing implies strong mesoscale forcing. The mesoscale forcing mechanism in this case was an outflow boundary, which helped to focus and organize the long-lived convection of the derecho.