



What have we learned about high-shear low-CAPE severe weather? A review.

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Severe convective storms in environments with large vertical wind shear and marginal instability (so-called “high-shear low-CAPE”, or “HSLC” events) represent a significant short-term, high-impact forecasting and warning challenge. Such environments account for a large fraction of the severe weather in Europe. In addition, HSLC conditions are associated with many significant severe weather and tornado reports in the southeastern United States. Many of these events occur during the cool season or overnight, which are times when warning skill scores tend to be lower, and societal vulnerability is at its greatest. Even so, HSLC severe weather has received only modest attention in the peer-reviewed literature to date. Our previous and ongoing research has found that synoptic forcing is a fundamental aspect of environmental destabilization in HSLC events, that there are several useful environmental cues (lower and middle tropospheric lapse rates as well as bulk vertical wind shear) for HSLC significant severe weather events, and that there is some possible (although limited in range) skill in using radar-measured azimuthal shear for issuing tornado warnings. The proposed presentation will review the current state of the knowledge base and discuss the applicability of some recent findings to HSLC severe weather in both Europe and the United States.