Title: A butterfly flaps it wings in Texas and tornadoes are *not* produced in Oklahoma

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Abstract: A series of high-impact, regional severe-weather events took place in parts of central Oklahoma, the Texas Panhandle, and northwest Texas during the afternoon and evening of 30 May 2012 and the very early morning hours of 31 May 2012, *which were not explicitly forecast*. Regional numerical models and convection-allowing models forecast a bow-echo event for northwestern Oklahoma propagating southeastward; tornadoes, hail, and damaging straight-line winds were anticipated associated with the bow echo. Instead, a series of isolated, very long-lived, high-precipitation, tornadic supercells formed in the southern part of the Texas Panhandle near a mesoscale surface cyclone along the dryline and propagated southeastward into northwest Texas; the longest-lived storm also produced damaging straight-line winds and many fires were set, apparently from lightning. Although a bow echo did not form, a mesoscale convective system (MCS) did form in southern Kansas and tracked eastward and southeastward into northeastern Oklahoma. While this MCS did not affect central Oklahoma as had been forecast, a narrow swath of high winds in clear air, far removed from the MCS, were observed; wind speeds in excess of 35 m s^{-1} were measured at a number of locations, prompting "severe thunderstorm warnings" from the National Weather Service despite the absence of precipitation and severe thunderstorms within 100s of km from the areas hit by the strong winds. It is thought that this windstorm was related to production of gravity waves, possibly bores, generated when outflow from the MCS interacted with a low-level stable layer. The author and his graduate students collected data in the longest-lived tornadic storm with a mobile, rapid-scan, polarimetric Doppler radar and experienced the windstorm on the way back home to Norman. This case study will provide a demonstration of the complex mesoscale interactions between convective storms and their environment.

The main issue to be discussed is: What was the mechanism for the formation of the mesoscale surface cyclone along the dryline and what role did it play in the subsequent evolution of convective storms on the regional scale?

A detailed analysis of surface data will demonstrate the value of real-time mesoanalysis over dependence on numerical guidance for nowcasting events as complex as this one. It is suggested that drying in the boundary layer in southwest Oklahoma, underneath the anvil of the convective system that developed near the mesoscale cyclone, may have effectively reduced the intensity of the MCS as it moved into northwest Oklahoma, ultimately resulting in the high-wind event and producing unfavorable conditions for tornadoes in Oklahoma.