

VORTEX2 Project Description

The **Verification of the Origins of Rotation in Tornadoes**

Experiment (VORTEX) is a multi-agency field program to investigate (i) tornadogenesis, maintenance, and demise, (ii) tornado near-ground wind field, (iii) relationships among tornadoes, their parent thunderstorms, and the larger-scale environment, and (iv) numerical weather predication of supercells and tornadoes. The first VORTEX field phase (VORTEX1) was conducted in 1994-1995 and advanced the understanding of the kinematic similarities between tornadic and nontornadic supercell thunderstorms and the implied sensitivity of supercell evolution and tornadogenesis to fine-scale heterogeneity, both pre-storm and storm-induced.

The second field phase of VORTEX (VORTEX2) will take place over a broad region of the central United States Great Plains during the months of May-June, 2009-2010, see Figure 1. VORTEX2 will take full advantage of cutting-edge remote and in situ mobile and fixed observing systems, as well as data assimilation techniques that can improve analyses by combining the dense observations with governing dynamical equations.

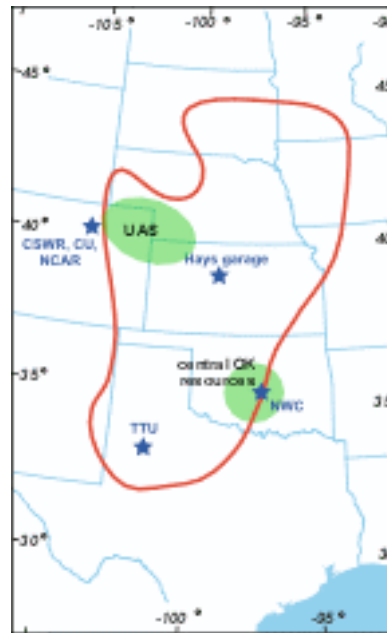


Figure 1. Vortex 2 Domain (red outline).

VORTEX2 is designed to improve our understanding of tornadogenesis, which ultimately will better allow us to assess the likelihood of tornadoes in supercell thunderstorms and possibly even tornado intensity, longevity, and cyclic behavior. Moreover, VORTEX2 is expected to improve vastly our understanding of the range of tornado structures and the relationships between tornado structure and characteristics of the parent thunderstorm.