

1067-86-950

Sean M Crowell* (scrowell@ou.edu), Department of Mathematics, University of Oklahoma, Norman, OK 73019, and **Luther White** and **Louis Wicker**. *Estimation of Near Surface Wind Structures in Tornadic Vortices*.

Concentrated vortices in the atmosphere (such as tornados) constitute fluid mechanical phenomena that are fairly well understood qualitatively, and to less of an extent quantitatively. Field experiments in the past decade have sought a better understanding of such vortices using remote sensing technologies like radar in addition to standard measuring devices to provide a more complete picture of the atmosphere in the vicinity of severe rotation. Due to line of sight limitations on radar technology, the lowest few hundred meters of tornadic vortices are not measurable.

In this work, the authors investigate a methodology that incorporates measurements, simplified dynamics, and a tangential velocity model to estimate the quantitative and qualitative structure of the wind velocity in the near surface portion of the tornado. The sensitivity of the methodology to the amount of observable data is examined, and probabilistic interpretations are considered to account for the possibility of noisy data. (Received September 16, 2010)