



CU to participate in major tornado study

By Brittany Anas

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BOULDER, Colo. — University of Colorado students and faculty members will chase tornadoes this spring -- by sending their lasers and Unmanned Aerial Vehicle to do the windy work.

The project, called Verification of the Origins of Rotation in Tornadoes Experiment 2, or Vortex2, is the largest and most ambitious attempt to study tornadoes in history and will involve more than 50 scientists and 40 research vehicles, including 10 mobile radar instruments. The Vortex2 researchers will sample "supercell" thunderstorms -- violent storms capable of producing damaging winds, large hail and tornadoes.

The purpose of Vortex2 is to further improve tornado warnings and short-term severe weather forecasts.

CU's College of Engineering and Applied Science will be flying an unmanned aerial vehicle to measure air pressure, temperature, relative humidity and wind velocities of the twisters that tear over the central Great Plains. The CU team will probe both the early and late stages of the severe storms.

An Unmanned Aerial Vehicle weighs 12 pounds, has a 101/2-foot wingspan, and will make one-hour flights into developing storms.

Led by aerospace engineering professor Brian Argrow, the CU team hopes to fly the aircraft at least three times during the six-week field experiment. Argrow said the team has worked for years to operate the unmanned aircraft in order to reach places "too dangerous for human presence."

The effort also includes collaborators from the University of Nebraska at Lincoln, the University of Oklahoma and Rasmussen Systems of Grand Junction.

The second CU experiment involves a laser "disdrometer," an instrument that can measure raindrop and hail-size distribution and falling velocity in severe storms. The instrument weighs about five pounds, is 2-foot-long and includes a horizontal laser beam through which precipitation particles pass, said project leader and assistant professor Katja Friedrich of the Atmospheric and Oceanic Sciences Department.

Friedrich and CU doctoral student Rachel Humphrey plan to deploy several disdrometers on the leading edge of severe storms, mounting them on fixed platforms or on mobile, storm-chasing trucks. The instruments also will measure temperature, humidity, pressure and wind velocity.

"A better understanding of severe storm behavior can ultimately lead to better warnings that can save lives and protect property," Friedrich said.

Areas of focus include southern South Dakota, western Iowa, eastern Colorado, Nebraska, Kansas, the

Texas Panhandle and western Oklahoma. The operations center will be at the National Weather Center in Norman, Okla. The research will be conducted May 10 through June 13.

The CU experiments are funded by the Atmospheric Sciences Division of the National Science Foundation. Vortex2 is a \$10.5 million program funded by the National Oceanic and Atmospheric Administration, NSF, 10 universities and three nonprofit organizations.

The original Vortex program operated in the central Great Plains during 1994 and 1995 and documented the entire life cycle of a tornado for the first time.

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