

VORTEX2 Tornado Scientists Hit the Road Again

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VORTEX2 researchers trailed this Wyoming twister during last spring's expedition. Credit: Josh Wurman, CSWR

(PhysOrg.com) -- In the largest and most ambitious effort ever made to understand tornadoes, more than 100 scientists and 40 support vehicles will hit the road again this spring.

The project, VORTEX2--Verification of the Origins of Rotation in Tornadoes--is in its final season: May 1st through June 15th, 2010.

VORTEX2 is supported by the National Science Foundation (NSF) and the National Oceanic and Atmospheric Administration (NOAA).

Scientists from more than a dozen universities and government and private organizations will take part. International participants are from

Italy, Netherlands, United Kingdom, Germany, Canada and Australia.

The questions driving VORTEX2 are simple to ask but hard to answer, says lead scientist Josh Wurman of the Center for [Severe Weather Research](#) (CSWR) in Boulder, Colo.

- How, when, and why do tornadoes form?
- Why are some violent and long-lasting while others are weak and short-lived?
- What is the structure of tornadoes?
- How strong are the winds near the ground?
- How exactly do they do damage?
- How can we learn to forecast tornadoes better?

"Current warnings have only a 13-minute average lead time, and a 70 percent false alarm rate," says Brad Smull, program director in NSF's Division of Atmospheric and Geospace Sciences. "Can we issue reliable warnings as much as 30, 45 or even 60 minutes ahead of tornado touchdown?"

VORTEX2 scientists hope to find the answers.

They will use a fleet of instruments to literally surround [tornadoes](#) and the supercell thunderstorms that form them.

An armada will be deployed, including:

- Ten mobile radars such as the Doppler-on-Wheels (DOW) from CSWR;
- SMART-Radars from the University of Oklahoma;
- the NOXP radar from the National Severe Storms Laboratory (NSSL);
- radars from the University of Massachusetts, the Office of Naval Research and Texas Tech University (TTU);

- 12 mobile mesonet instrumented vehicles from NSSL and CSWR;
- 38 deployable instruments including Sticknets (TTU);
- Tornado-Pods (CSWR);
- 4 disdrometers (University of Colorado (CU);
- weather balloon launching vans (NSSL, NCAR and SUNY-Oswego);
- unmanned aircraft (CU);
- damage survey teams (CSWR, Lyndon State College, NCAR); and
- photogrammetry teams (Lyndon State University, CSWR and NCAR).

"VORTEX2 is fully nomadic with no home base," says Wurman. Scientists will roam from state to state in the U.S. Plains following severe weather outbreaks.

"When we get wind of a tornado," says Wurman, "we spring into action."

More information: VORTEX2 Project: www.vortex2.org

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