



Revolutionizing our ability
to observe, understand,
predict and respond to
hazardous weather events



Research

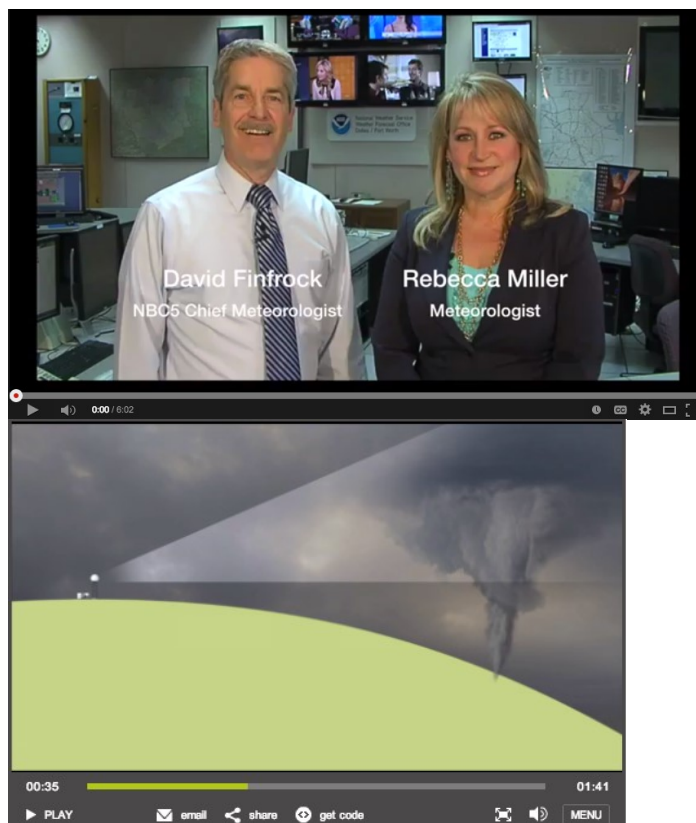
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DFW Urban Test Bed

CASA and the North Central Texas Council of Governments (NCTCOG) have embarked on a five-year, \$10 million project to create the Dallas Fort Worth (DFW) Urban Demonstration Network. This project is centered on the deployment of a [network of 8 dual-pol, X-band radars](#) to demonstrate improved hazardous weather forecasts, warnings and response in a densely populated urban environment. These radars provide weather hazard information at spatial and temporal scales that are relevant to urban decision-making and human response. The project goals are to:

- 1. To develop high-resolution, two and three-dimensional mapping of current and future atmospheric conditions, focusing on the lower atmosphere, to detect and forecast severe wind, tornado, hail, ice, and flash flood hazards.
- 2. To create impacts-based, urban-scale warnings and forecasts for a range of public and private decision-makers that result in measureable benefit for public safety and the economy.
- 3. To demonstrate the value of collaborative, adaptive X-band radar networks to existing and future sensors, products, performance metrics, and decision-making; and assess optimal combinations of observing systems.
- 4. To develop models for federal/municipal/private partnerships that fund new observation technologies and on-going interdisciplinary weather system research.

CASA and its [collaborators](#) will offer a suite of high-resolution products to DFW stakeholders, the National Weather Service, for research and to demonstrate that value of the data to stakeholder groups. These products include real-time detections of severe wind events, hail, and tornados; accurate rainfall estimates; and forecasts ranging from 10 minutes to 3 hours.



[Project Overview Video](#) [NSF Educational Video](#)

[Broad research areas](#) to be addressed are:

- Urban flooding and hydrology sensing, forecast, decision making and impacts
- Hydrometeor identification, forecast, decision making and impacts
- Low level wind sensing, forecast, decision making and impacts
- Network of Networks demonstration
- Warn-on-forecast research

Together with the NCTCOG, CASA is developing a **community-based model** for supporting the installation and ongoing costs of operating, maintaining, managing and expanding the radar network. The radars themselves will continue to be owned by university and industry partners involved in the project, and made available to the project on an annual-operations-costs-recovery basis, primarily for research, marketing, and demonstrating the benefits of boundary layer sensing for urban severe weather warning and response. The IT/network infrastructure will be locally provided and supported. In addition, funds will be sought to cover on-going research from many different sources. The longer term vision is to expand the network to cover the entire 16 county region, and to transfer ownership and operations to local stakeholders, as a subscription based effort, while establishing the Dallas Fort Worth Urban Demonstration Network as a national-level urban test bed for multidisciplinary research and technology transfer for radars, socio-technical system design, meteorology, hydrology, decision-making, and socioeconomics of weather.

Additional information on the Urban Demonstration Network can be obtained by contacting:

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