

Final Report
The 2010 Lubbock Severe Weather Conference
A COMET Partners Project

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SECTION 1: SUMMARY OF PROJECT OBJECTIVES

The objective of the conference was twofold. First, the conference would provide a forum in which operational forecasters and university researchers could come together to present new information on a variety of topics related to severe storms. Second, the conference would strengthen and further promote collaborative research between professors and graduate students at Texas Tech University and operational forecasters at the NWS office in Lubbock.

SECTION 2: PROJECT ACCOMPLISHMENTS AND FINDINGS

The conference brought together an excellent mix of speakers from both the research and operational communities. Presenters included faculty members from both the University of Oklahoma and Texas Tech, research scientists from the National Severe Storms Laboratory, operational forecasters from the Storm Prediction Center and regional Weather Forecast Offices and several graduate students from Texas Tech. In addition to the speakers, attendees include representatives from the Albuquerque, Amarillo and Midland WFOs and weather broadcasters from the local TV stations.

Several positive comments were received by those in attendance. A few of those are included below:

"This conference is unique in that there are not multiple sessions going on at the same time. I was forced to listen to talks I otherwise may not and I learned some things"

"I took a lot of notes and have more work to do when I get back. Good to hear other ideas and thoughts on a problem."

"One of the best things about this conference was how many student presentations appeared on the billing..."

SECTION 3: BENEFITS AND LESSONS LEARNED: OPERATIONAL PARTNER PERSPECTIVE

The conference provided a regional meeting place where experts in the fields of meteorology and engineering were brought uniquely together to discuss issues relevant to operational forecasting. Participants were informed on the latest methods of analysis for a variety of severe weather types. Presenters spoke directly to observational issues facing forecasters today and methods being investigated for future implementation. The latest findings related to the VORTEX2 project were discussed along with exploration of lightning data, uses of the WSR-88D and Phased Array radars, and wind science issues resulting from hurricanes and tornadoes. Many forecasters in attendance commented that the speakers offered insight into areas key to supporting the fulfillment of their mission.

Another key benefit of this project was the strengthened relationship between the NWS and the Atmospheric Sciences Group and Wind Science and Engineering Group at Texas Tech. A good rapport with frequent communication was established between NWS organizers, the university PI and graduate and post-graduate students that allowed a common focus for planning and executing the conference details. This project also allowed us to work more closely with the TTU Atmospheric Science group as a whole including professors and faculty. Overall this was a very positive experience in which much additional collaboration and interaction will likely result in the near future.

SECTION 4: BENEFITS AND LESSONS LEARNED: UNIVERSITY PARTNER PERSPECTIVE

Perhaps the greatest benefit from the university perspective was the opportunity afforded to graduate students in the Atmospheric Science Group to present their research at a conference where highly regarded atmospheric scientists were present. Students were able to hear comments and critiques during the question/answer portion of their presentation as well as interact with others during the break sessions.

Another benefit was the interaction among the conference planning committee whose members were from the NWS office and the Texas Tech Atmospheric Science Group. Members of this committee worked well together during the months prior to the conference. This further strengthened the collaborative ties that already existed between the NWS office and Texas Tech.

SECTION 5: PUBLICATIONS AND PRESENTATIONS

A summary of the conference along with some photos and a video summary by a local media outlet can be accessed at

<http://www.srh.noaa.gov/lub/?n=2010svrwxconfsummary>.

The conference agenda and presentations for the 2010 Lubbock Severe Weather Conference:

Wednesday, February 17, 2010

Lubbock Tornado Anniversary, Dr. Kishor Mehta (TTU) - keynote

40th Anniversary Video of the Lubbock Tornado, NWS Lubbock

Shear features within a convective rain band of Hurricane Frances, Scott Gunter (TTU)

A Case Study and Verification of WRF Simulations of Cold Pools on 11 June 2009, Anthony Reinhart (TTU)

Observations within a Forward Flank Region of the May 23rd, 2007 Perryton, TX Supercell, Patrick Skinner (TTU)

The Greensburg, KS tornado, Mike Umscheid (NWS Dodge City)

Mapping Historical Tornadoes Across Texas and the Southern Plains, Dr. William Monfredo (OU)

Development of a Statistical Relationship between Ground-Based and Remotely-Sensed Damage in Windstorms, Tanya Brown (TTU)

The importance of data analysis in the forecast process, Dr. Chuck Doswell (OU, CIMMS)-keynote

Thursday, February 18, 2010

Tropical cyclone tornadoes, Roger Edwards (SPC)-keynote

The Electronic Journal of Severe Storms Meteorology, Roger Edwards (SPC)

Building damage issues in hurricanes, wind vs. wave, Tim Marshall (Haag Engineering)-keynote

WSR-88D Observations of tropical cyclone low-level wind maxima, Ian Giammanco (TTU)

Climatology of cloud-to-ground lightning within landfalling tropical cyclones, Danielle Nagele (TTU)

Total lightning observations of severe thunderstorms over Oklahoma, Chris Burling (TTU)

The Impacts of Thunderstorm Geometry and WSR-88D Beam Characteristics on Diagnosing Supercell Tornadoes, Steven Piltz (NWS Tulsa)

Thunderstorm characteristics of importance for wind engineering, Dr. Frank Lombardo (TTU)

Evaluating a new low-cost radiosonde system for use in adaptive sounding networks, Dr. Michael Douglas (NSSL)

WSR-88D signatures associated with one inch hail in the Southern Plains, Jessica Schultz (NWS Fort Worth)

Exploiting NWRT PAR capabilities to improve temporal data resolution, Dr. Pamela Heinselman (NSSL)-keynote

Friday, February 19, 2010

A Cost-Effective Data Collection and Photogrammetric Research Project from 2009, Danny Cheresnick

Analysis of baroclinity within two tornadic supercells using high resolution in-situ StickNet data, Brad Charboneau (TTU)

The VORTEX2 Project: Goals and Preliminary Results, Dr. Christopher Weiss (TTU)-keynote

Three-Dimensional Lightning Mapping Observations of Supercell Storms, Dr. Donald MacGorman (NSSL)

Observational Analysis of the Influence of Mesoscale Convective Vortices on West Texas Heat Bursts, Trevor Boucher (TTU)

Warn-on-Forecast, Don Burgess (retired NSSL)-keynote

Optional tour of the West Texas Mesonet and Wind Science and Engineering Laboratory at Reese Center

An informal poster session also ran concurrent with the conference. Topics included:

Research Applications of the Large-Scale Tornado Vortex Simulator VorTECH, Karen Tarara

Lightning in a Supercell Environment with Consideration for Tornadogenesis, Amanda Thibault (TTU)

The Structure of the June 5, 2009 Lagrange, WY Tornado, Ryan Metzger (TTU)
Mechanisms Associated with a High-Precipitation Supercell to Bow Echo Transition, Sarah Dillingham (TTU)

Lightning in the Anvils of Supercells, Stephanie Weiss (OU)

Using GIS to Examine Potential Impacts of the 1970 Tornado in the City of Lubbock Today, Mark Conder (NWS Lubbock)

Lubbock Tornado Aftermath Then (1970) and Now (2010), Gary Skwira (NWS Lubbock)

SECTION 6: SUMMARY OF UNIVERSITY/OPERATIONAL PARTNER INTERACTIONS AND ROLES

A lengthy period of interaction occurred during the planning phase of this conference. The chair of the planning committee was the MIC of the Lubbock NWS office. The SOO and a Senior Forecaster were also members. Two graduate students and an instructor from the Atmospheric Science Group at Texas Tech completed the planning committee. This was a huge team effort involving the many logistical aspects of planning such a conference.