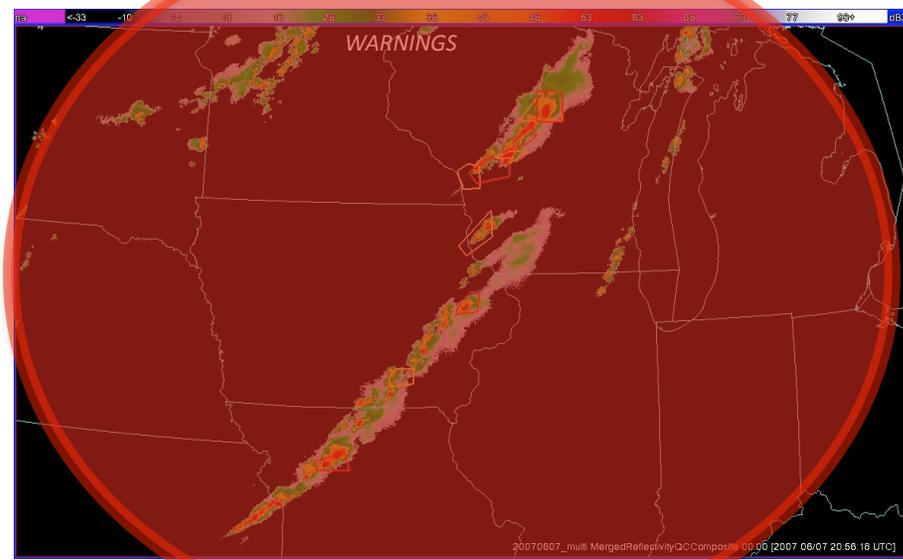
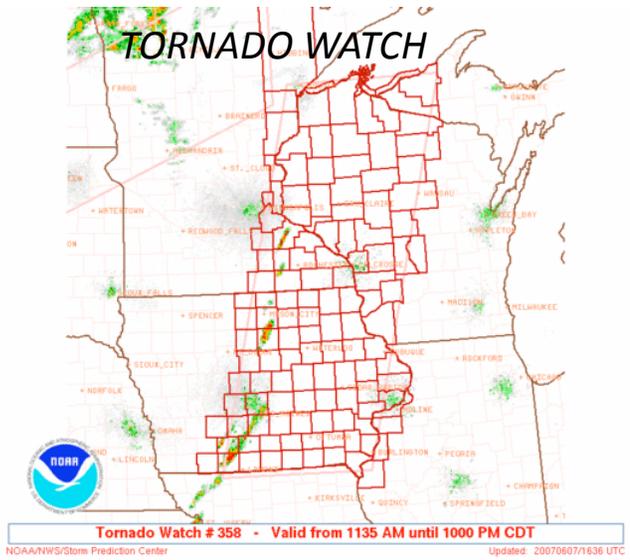
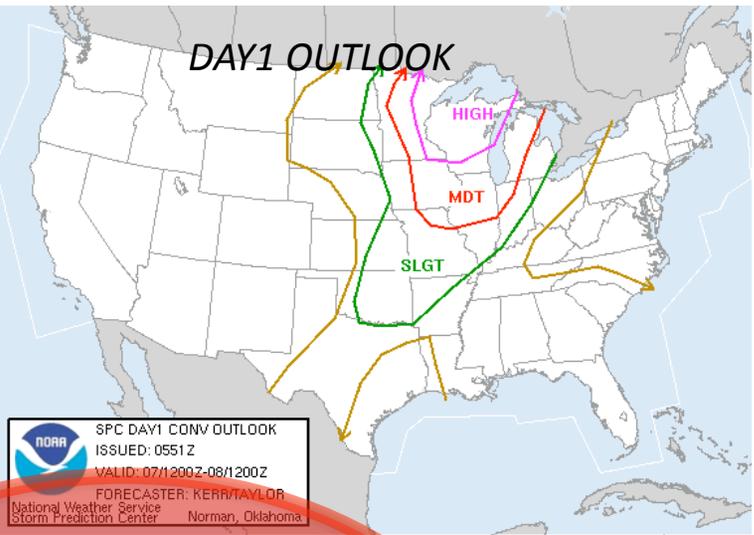
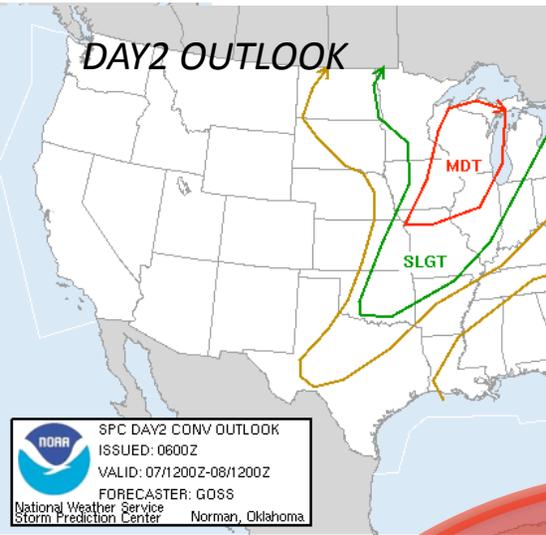
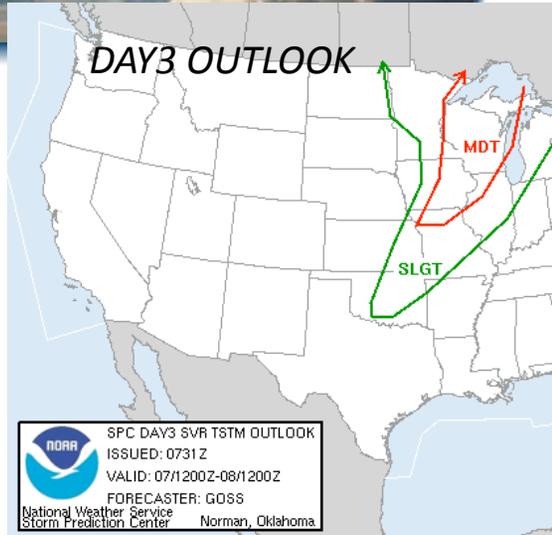
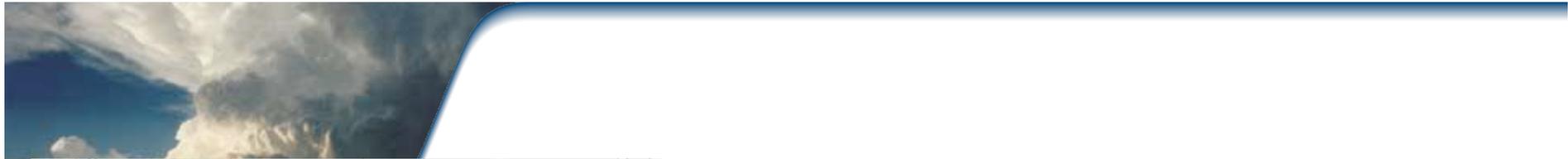


Hazardous Weather Forecasts

David J. Stensrud
Hazardous Weather Forecasts
& Warnings







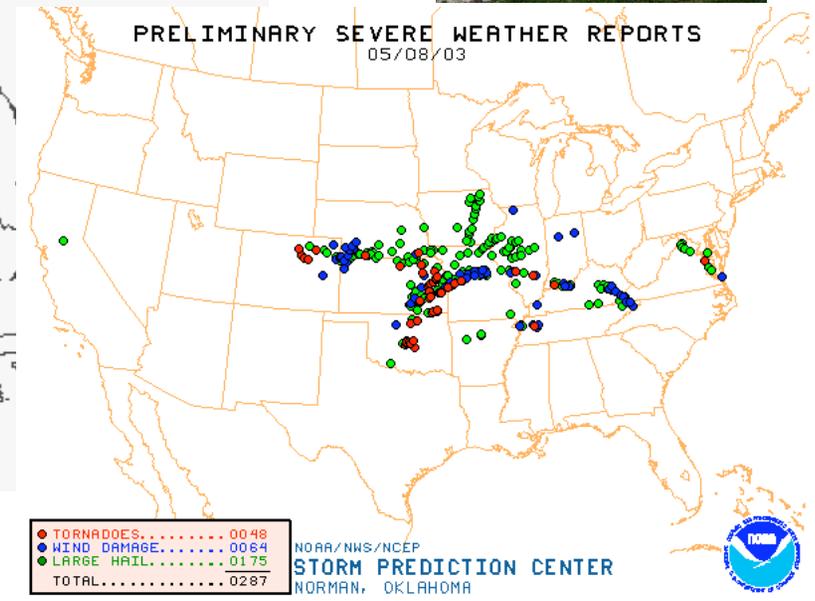
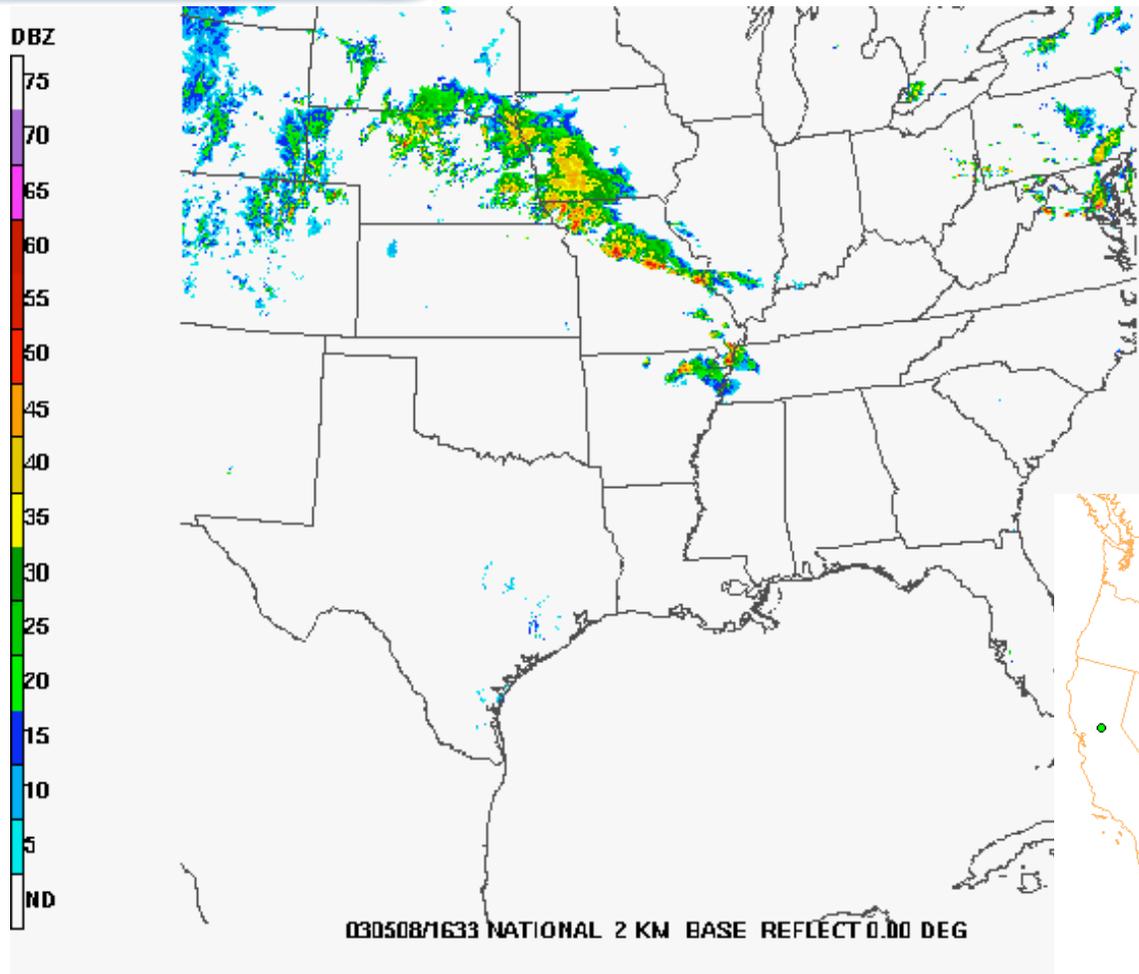
Relevance NOAA Mission Goal *Weather and Water*

“Serve society’s needs for weather and water information”

Objectives:

- ✦ Increase **lead-time** and accuracy for weather and water warnings and **forecasts**
- ✦ **Improve predictability** of the onset, duration, and impact of hazardous and severe weather and water events
- ✦ Understand and predict climate variability and change from weeks to decades to a century (climate goal)

Cannot forecast well what we don't understand

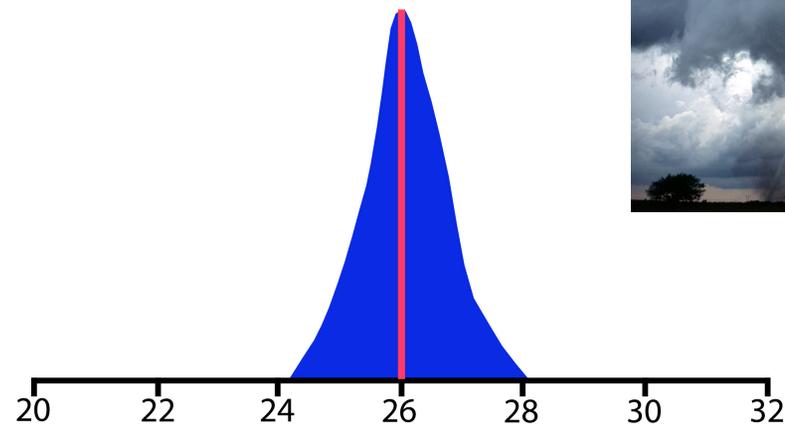
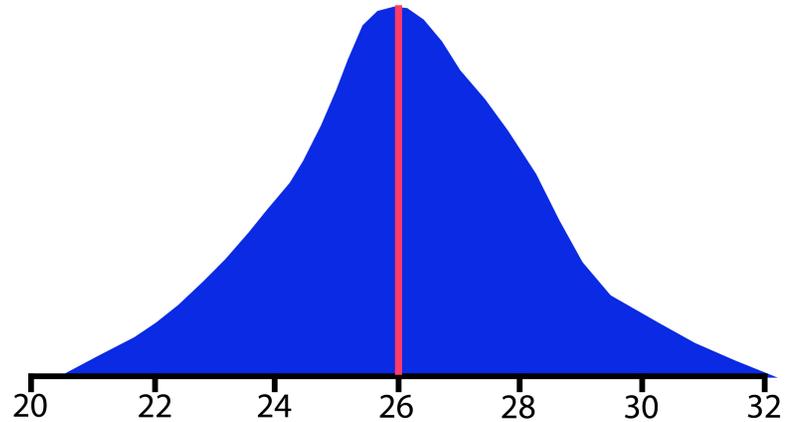


Forecasts Need to Include Uncertainty Information

Tomorrow



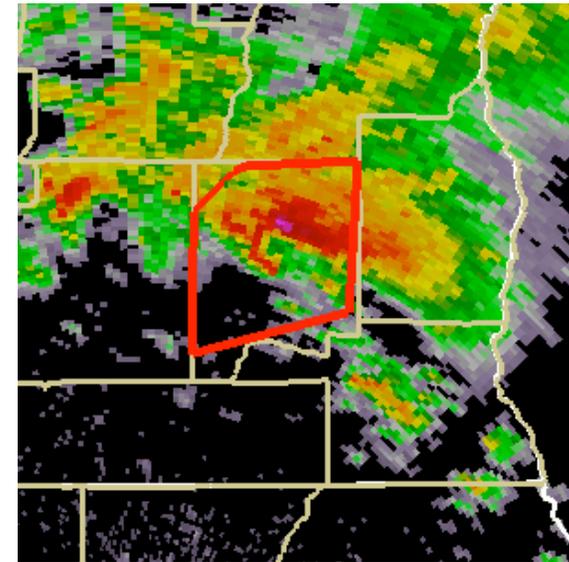
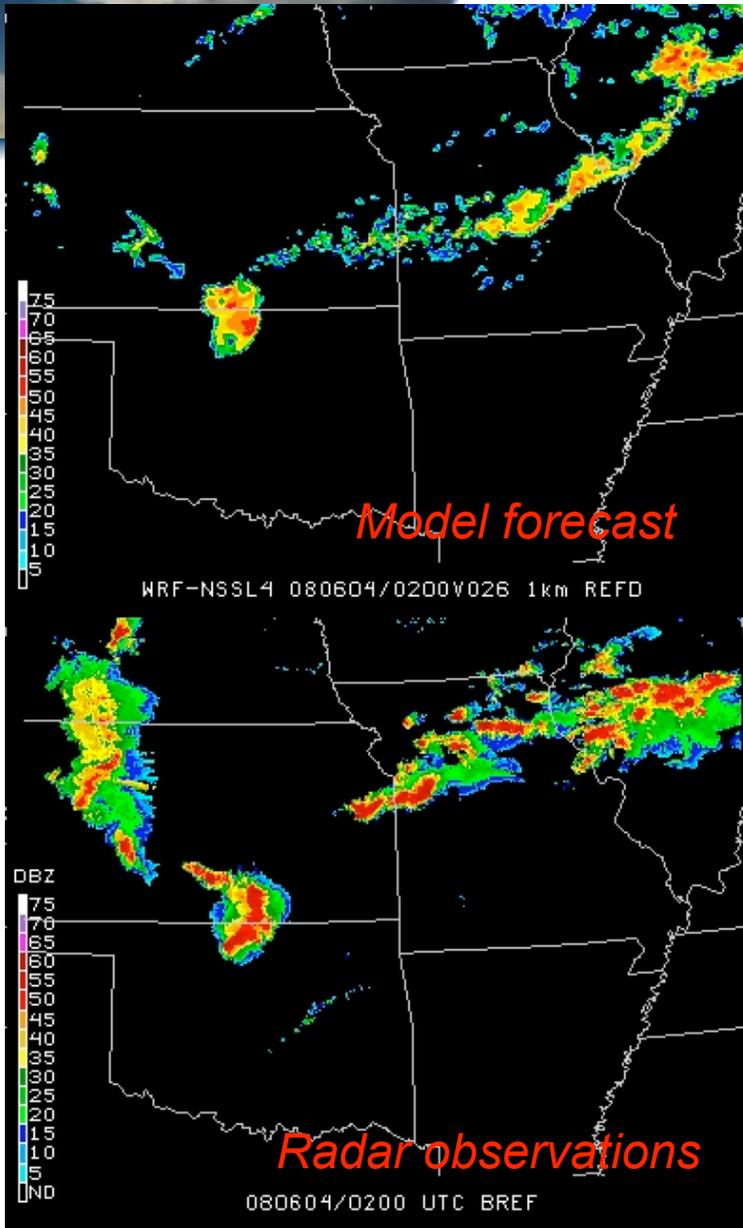
**Chance
Flurries
Hi: 26 F**



Infusion



Warn on Forecast





**Understand
Climate Variability
and Change to
Enhance Society's
Ability to Plan and
Respond**



Quality

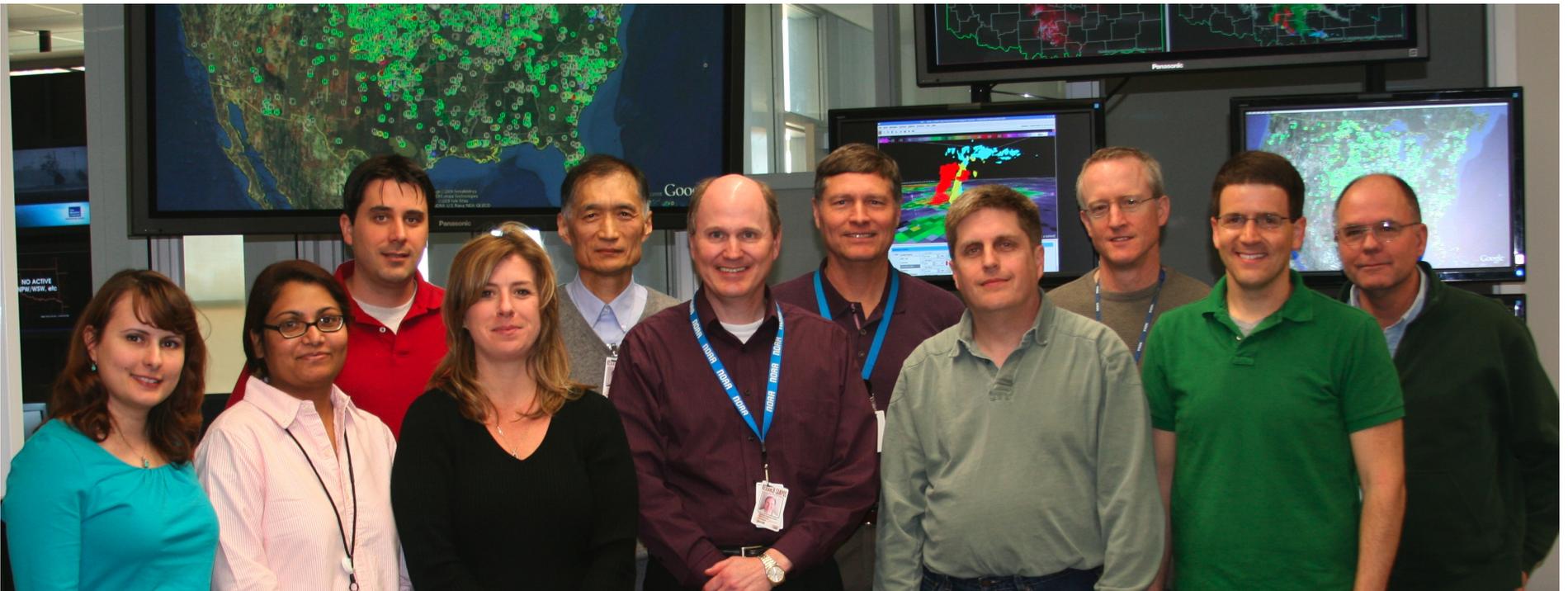
- Over 80 peer-reviewed publications in last 5 years
 - Coniglio, M. C., H. E. Brooks, S. F. Corfidi, S. J. Weiss, 2007: Forecasting the maintenance of quasi-linear mesoscale convective systems. *Weather and Forecasting*, **22**, 556-570.
 - Kain, J. S., S. J. Weiss, D. R. Bright, M. E. Baldwin, J. J. Levit, G. W. Carbin, C. S. Schwartz, M. L. Weisman, K. K. Droegemeier, D. B. Weber, K. W. Thomas, 2008: Some practical considerations regarding horizontal resolution in the first generation of operational convection-allowing NWP. *Weather and Forecasting*, **23**, 931-952.
 - Fujita, T., D. J. Stensrud, D. C. Dowell, 2007: Surface data assimilation using an ensemble Kalman filter approach with initial condition and model physics uncertainty. *Monthly Weather Review*, **135**, 1846-1868.

—— NSSL and CIMMS ——— University/NCAR ——— Other NOAA ——— Private Sector

- **DEPARTMENT OF COMMERCE SILVER MEDAL**, Harold Brooks for development of the first highly accurate and accessible estimates of threats from tornadoes, wind storms and large hail anywhere in the U.S. (2002)



It's All About the People





Hazardous Weather Forecasts Session

- Talks:

- Science Infusion (Jack Kain)
- Understanding Severe Weather Processes (Mike Coniglio)
- Short-range Ensemble Forecasts and Ensemble Data Assimilation (David Stensrud)

- Electronic Posters:

- [Hail Verification and Analysis Research \(Kiel Ortega\)](#)
- [Circulation Detection and Analysis \(Kim Elmore\)](#)
- Lightning Parameterization (Ted Mansell)
- Mountain Valley Cold Pools (Heather Reeves)

- Talks:

- [Warn on Forecast and VORTEX2 \(Louis Wicker\)](#)
- Severe Weather and Climate Change (Harold Brooks)
- Hazardous Weather Warnings and Forecasts Summary (David Stensrud)