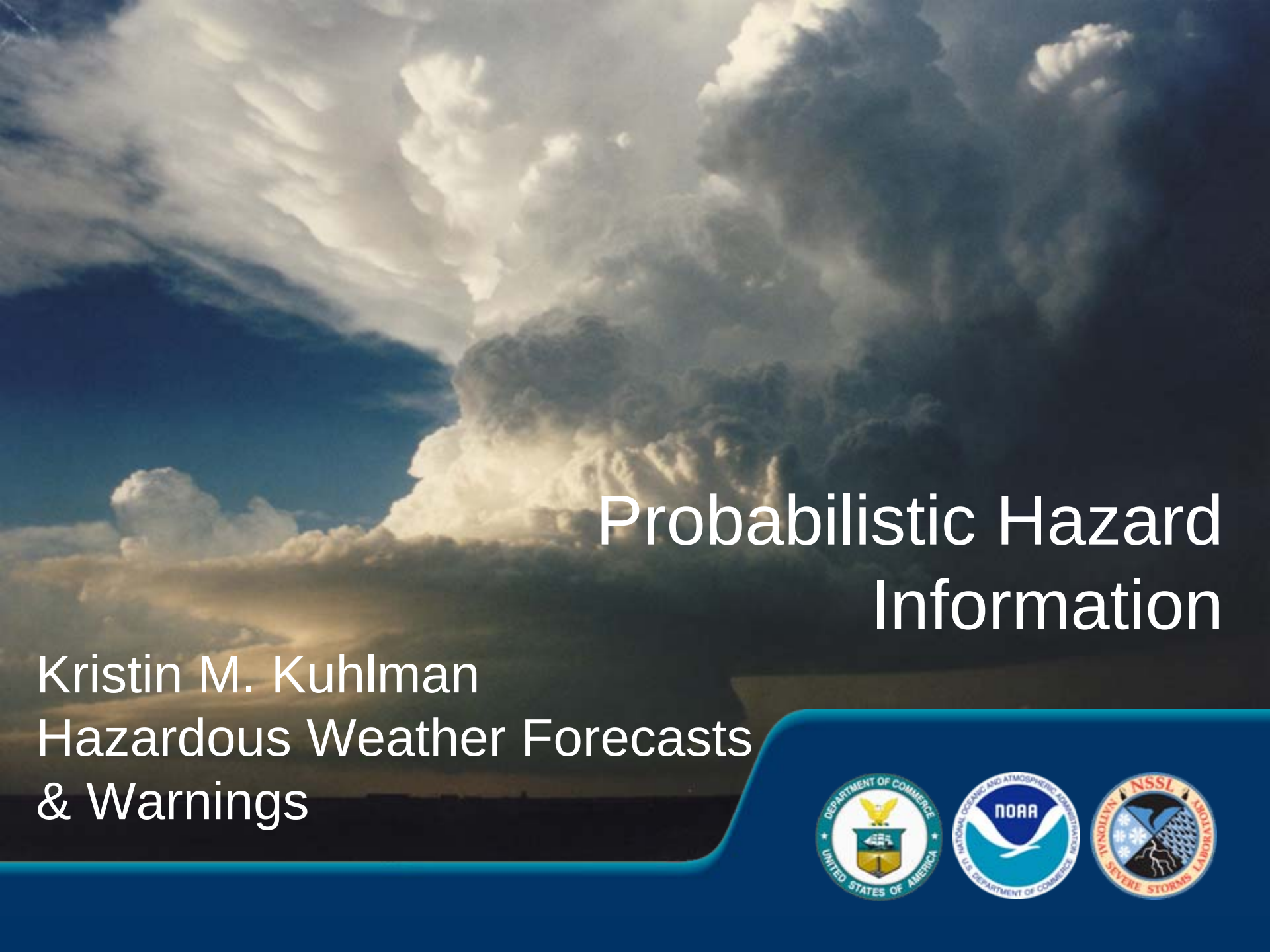
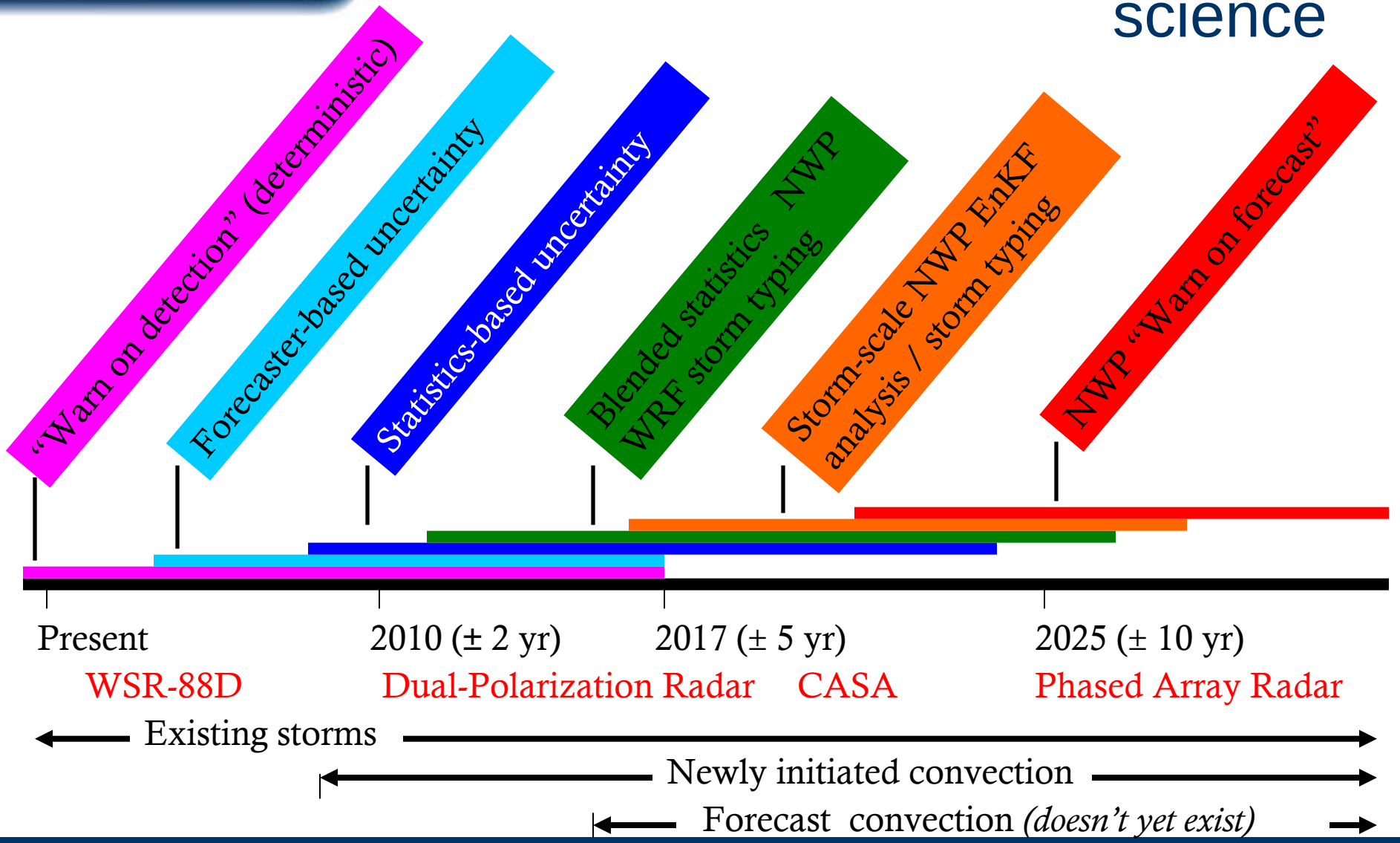


Probabilistic Hazard Information

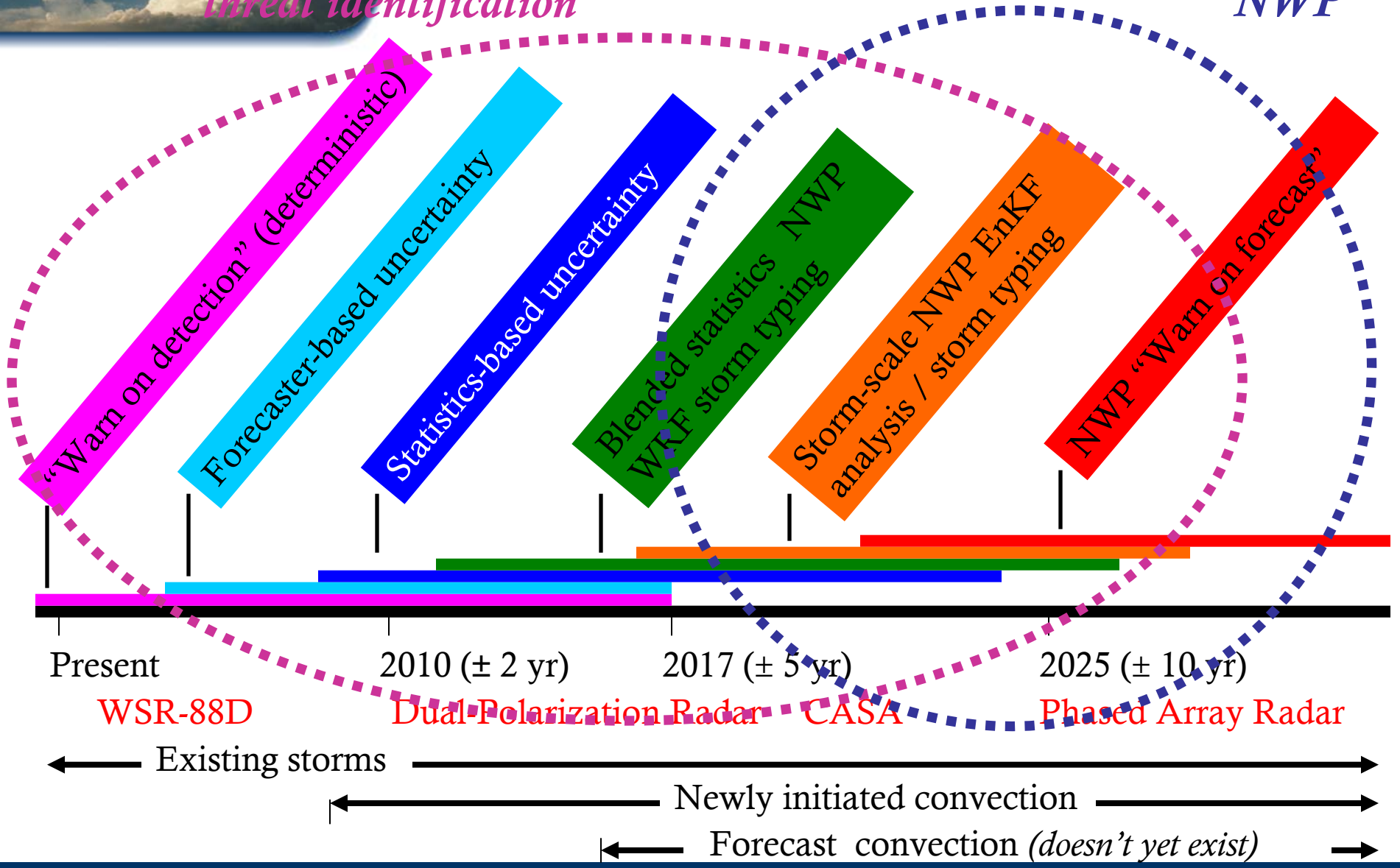
Kristin M. Kuhlman
Hazardous Weather Forecasts & Warnings

The **Vision**: The future evolution of warning decision-making science

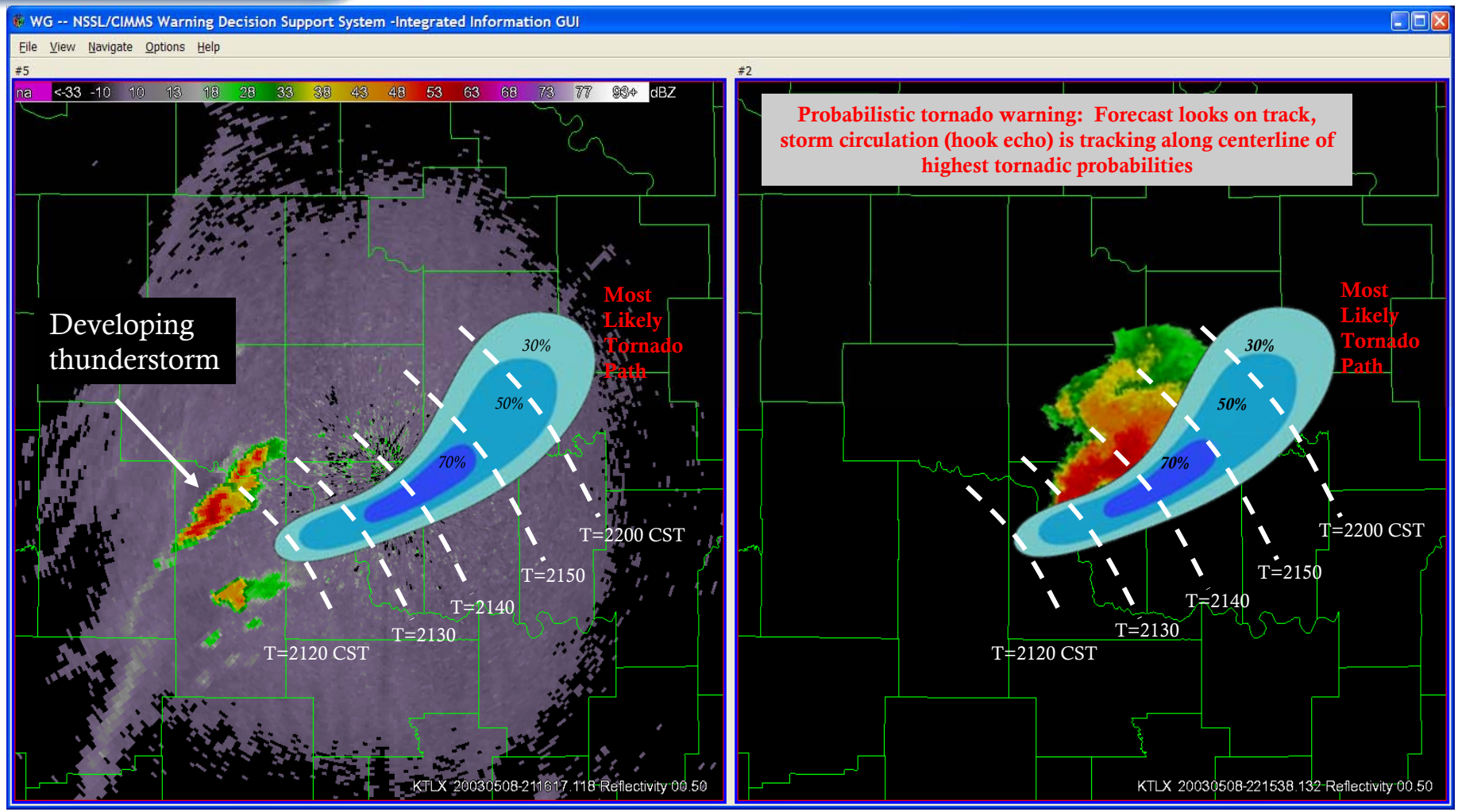


Statistics / storm-scale analysis / threat identification

Data assimilation / NWP



Warn-on-forecast in 2020: *What might it look like?*

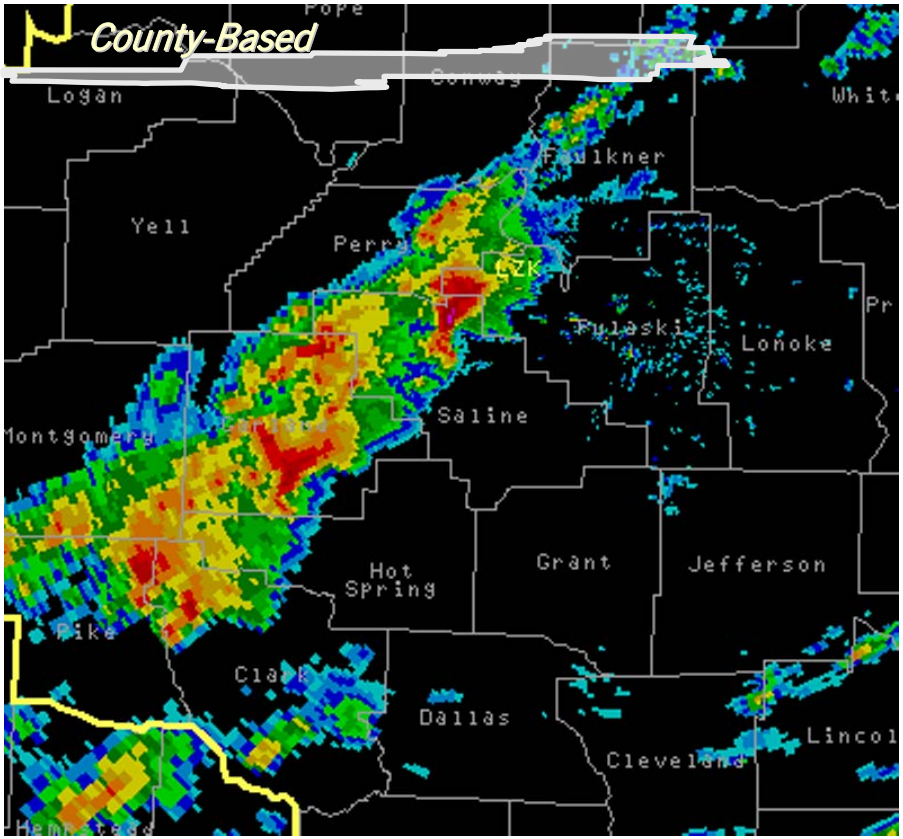


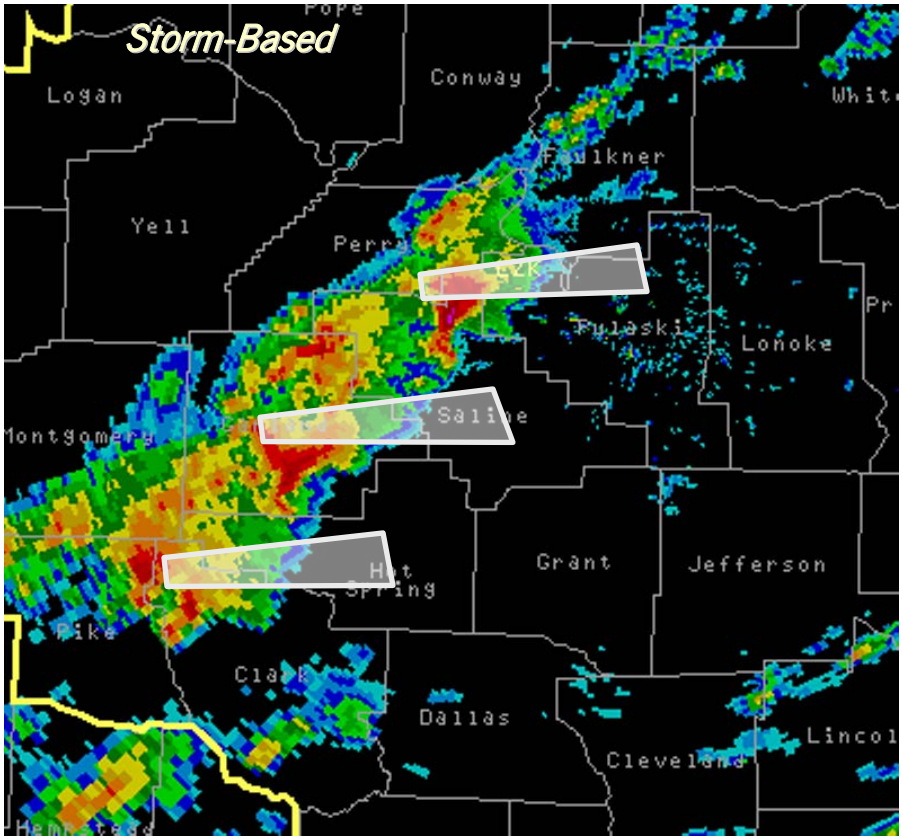
Radar and Initial Forecast at 2100 CST

Radar at 2130 CST: Accurate Forecast

Courtesy Lou Wicker

Storm-based warnings
(implemented by NWS 1 Oct 2007)





Storm-based warnings
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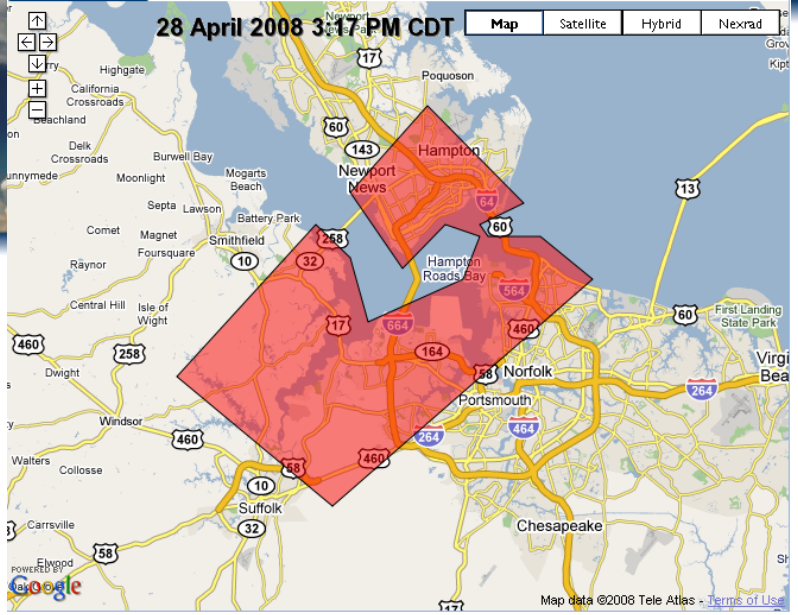
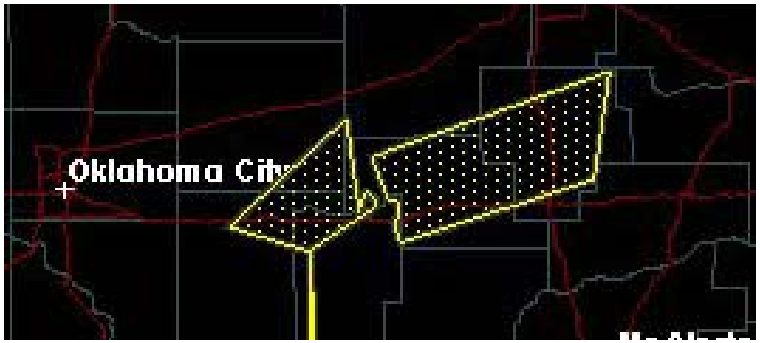
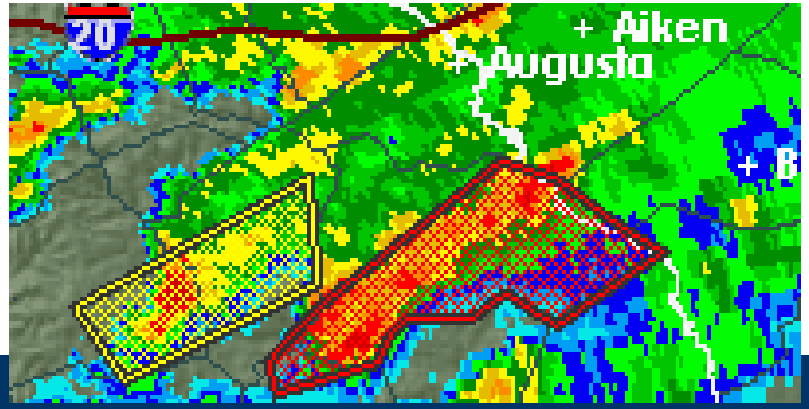
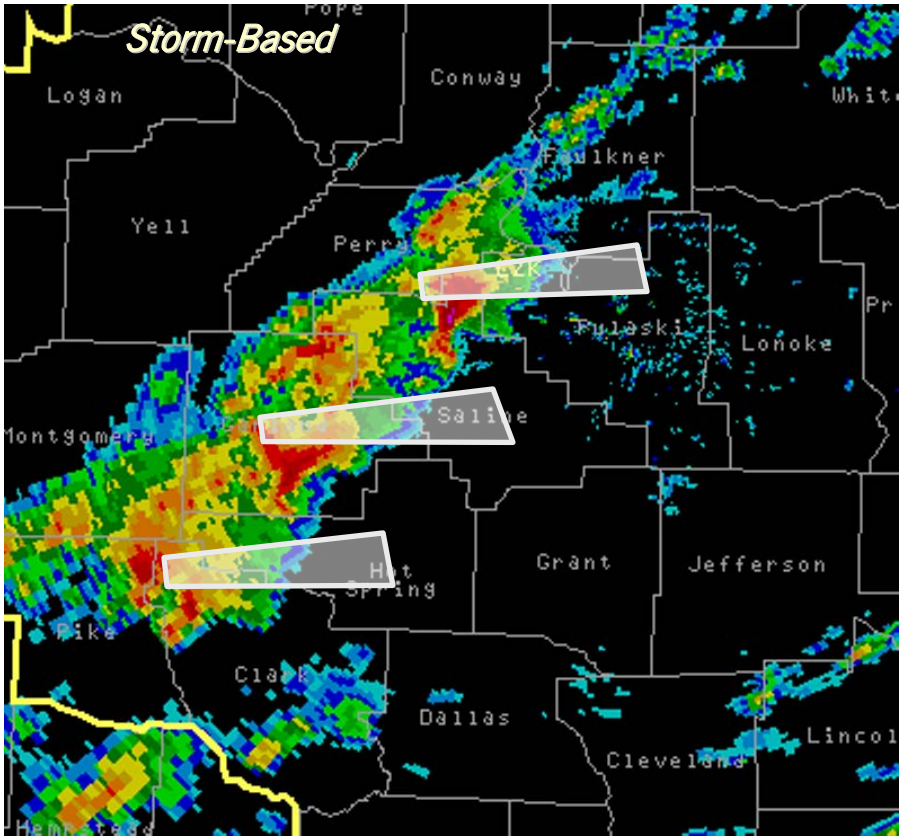
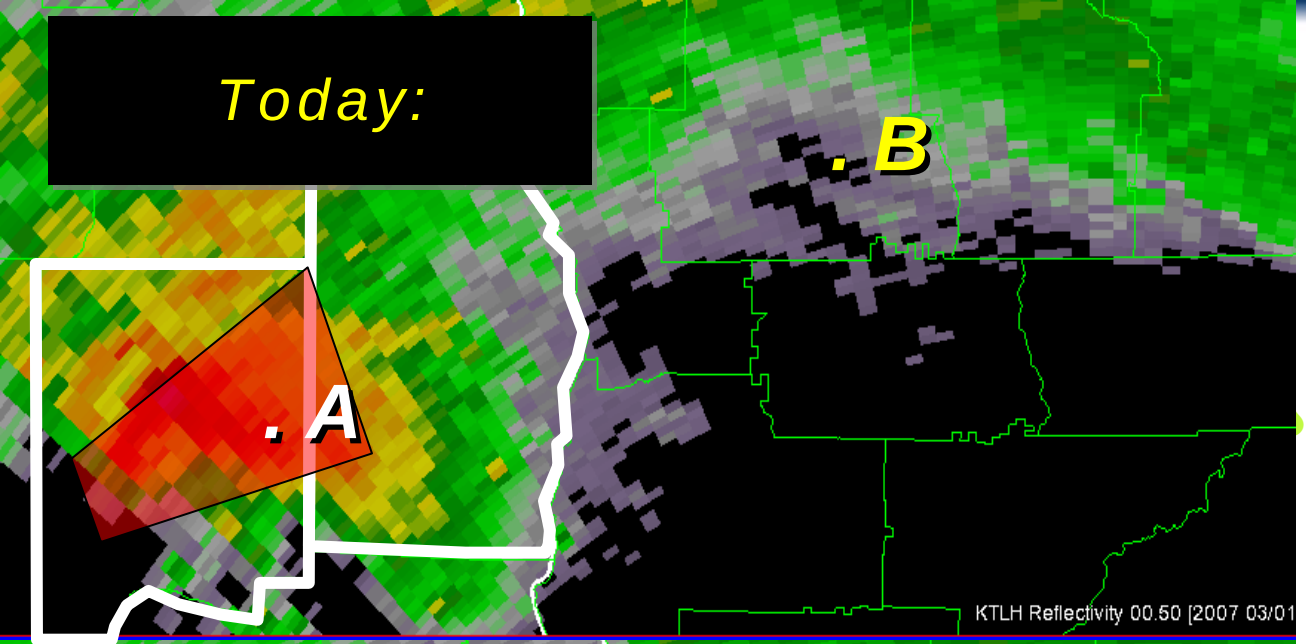
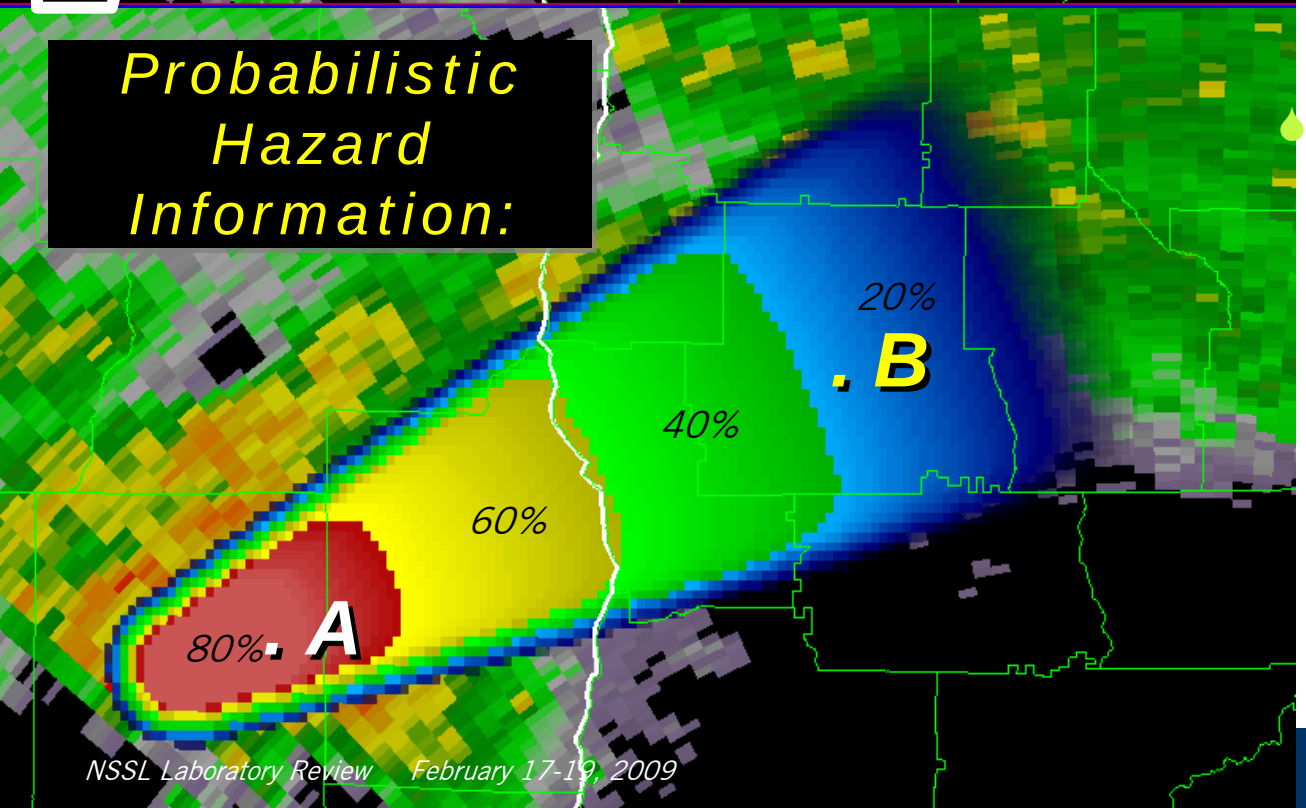












User B provided no information about approaching storm.

Allows forecaster to communicate uncertainty and users to make more informed decisions.

Sociological Implications

*Risk = Hazard * Exposure * Response Time*

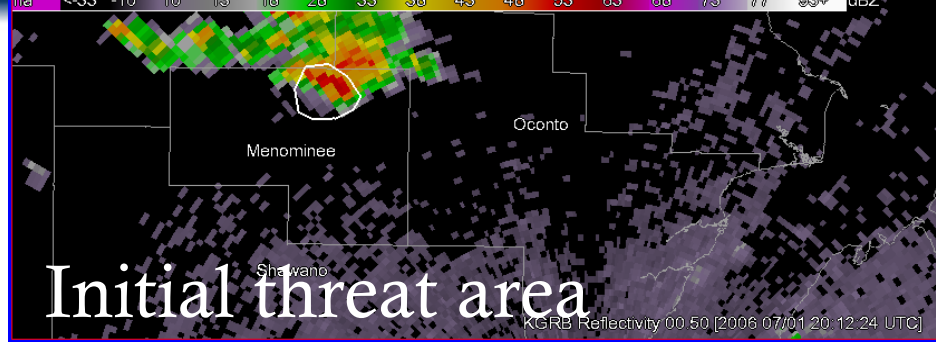
Tornado, wind, hail, other hazards

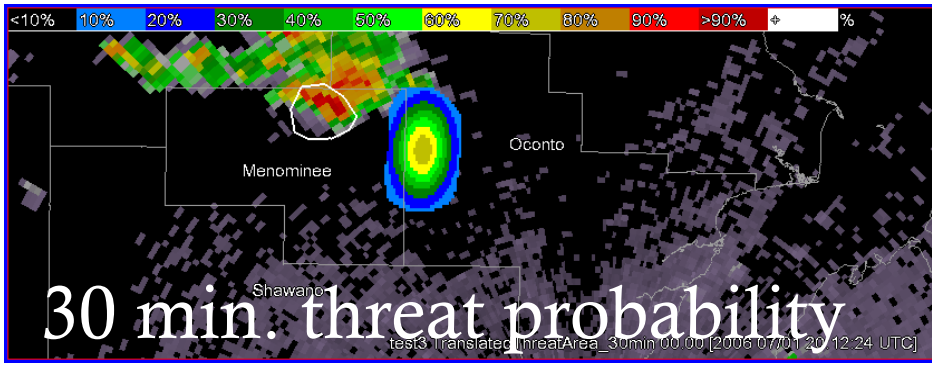
How to account for this?

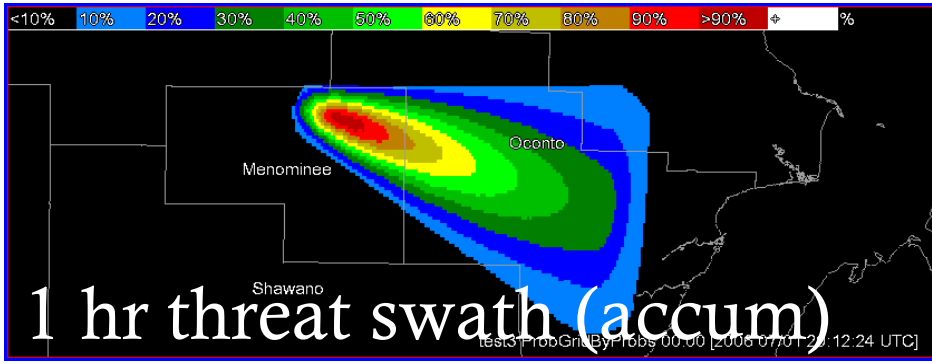
Little Sioux Scout Ranch
June 11, 2008

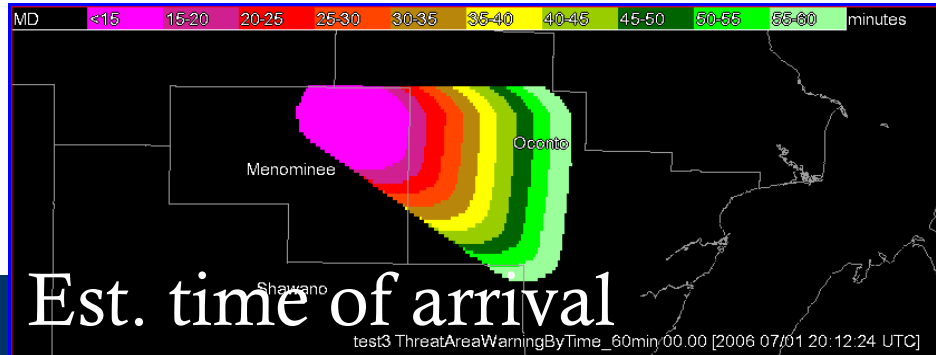
Concrete Dome House
Newcastle, OK

- Probabilistic Hazard Information (PHI) uses gridded data - High resolution in space and time
- Each grid point provides time of arrival, time of departure and probabilities of the event
- Goal: Improve decision support for high impact weather hazards.







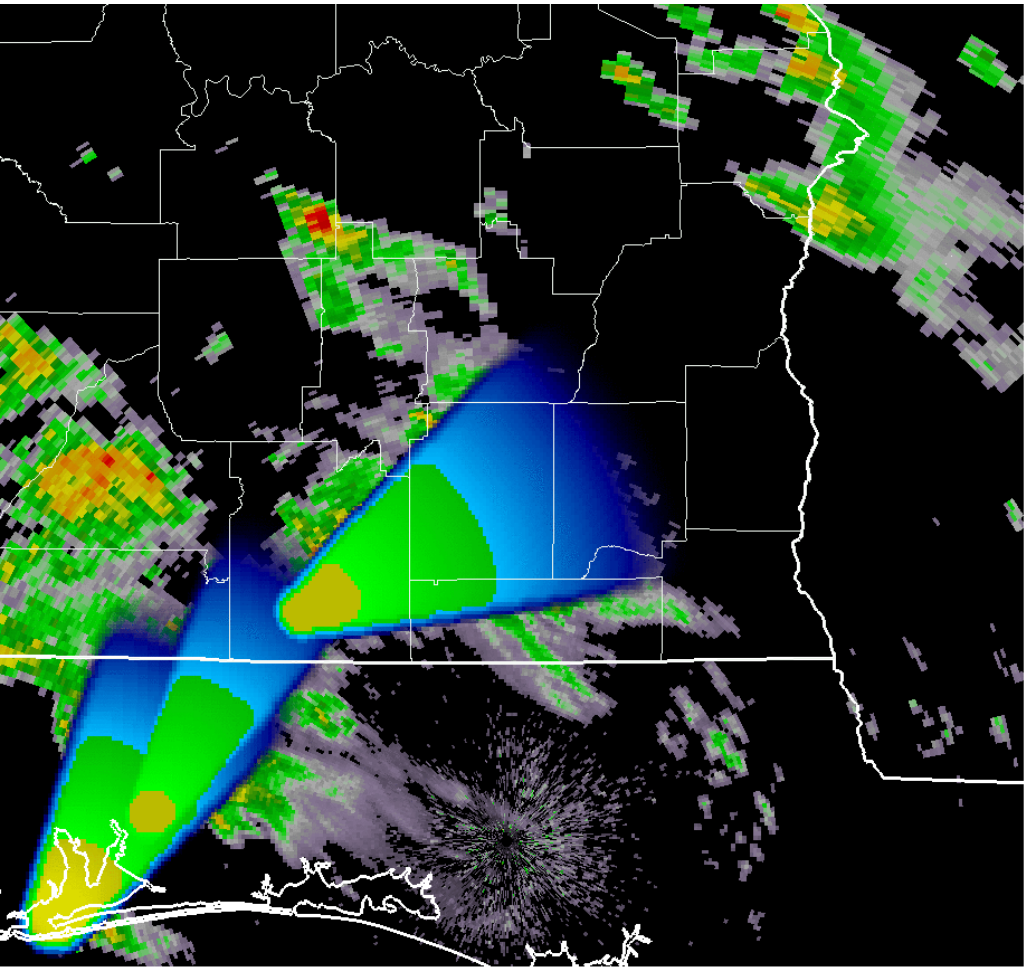


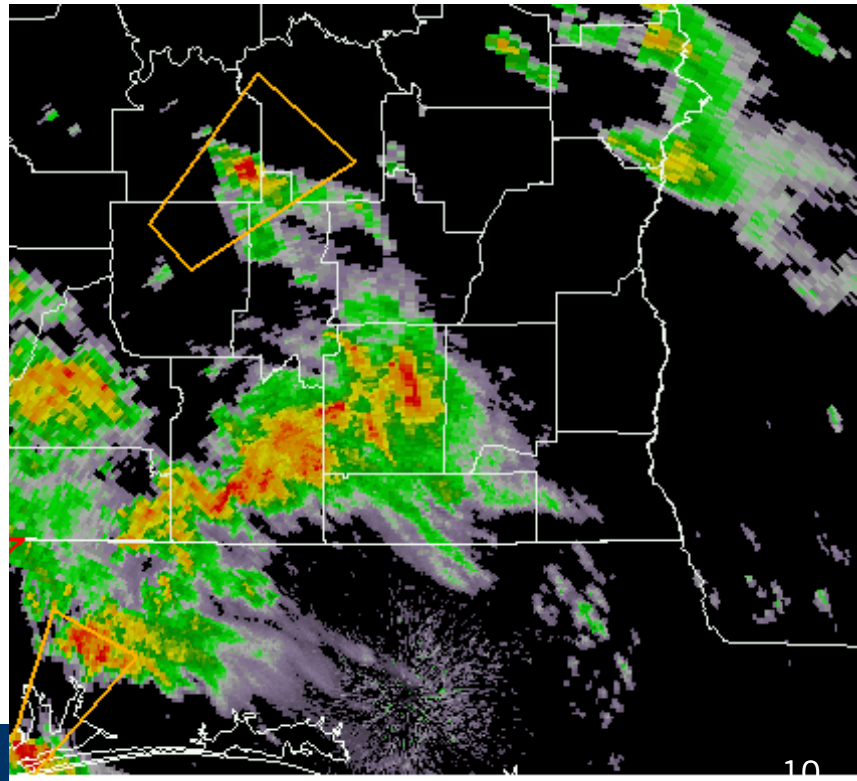
Advantages of PHI:

More specific regarding time & space

Defines type of threat

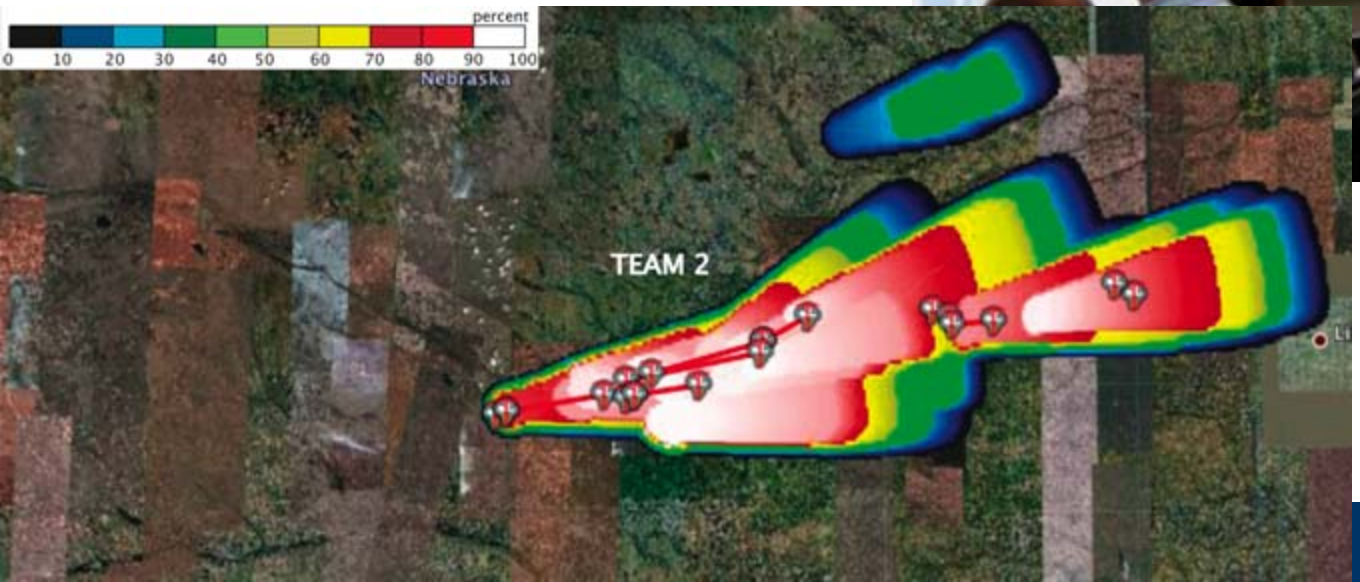
Defines the temporal, spatial, and intensity uncertainties of the threats.





Experimental Probabilistic Information in Practice

- At present, very little research addresses specific needs of lead time and warning accuracy for different user types…



SSWIM

SOCIAL SCIENCE

woven into

Meteorology

Weaving Social Science into Climate and Weather Research and Practice

Sociological Implications

WAS* IS

CULTURE CHANGE

NCAR

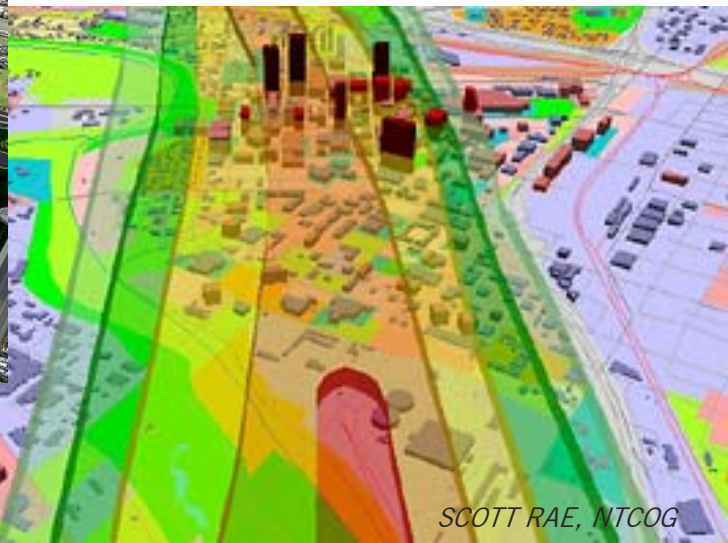
weather & society * integrated studies

Changing from what ***WAS*** to what ***IS***

the future of integrated weather studies

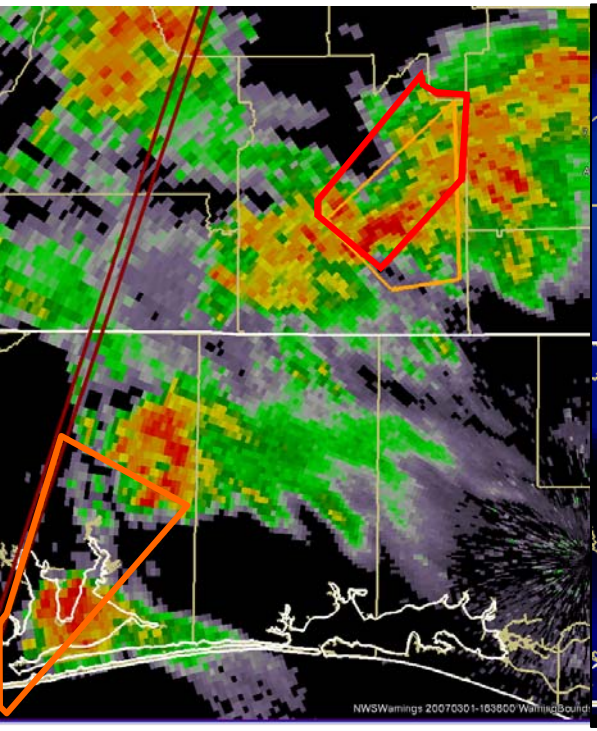
Large Venues

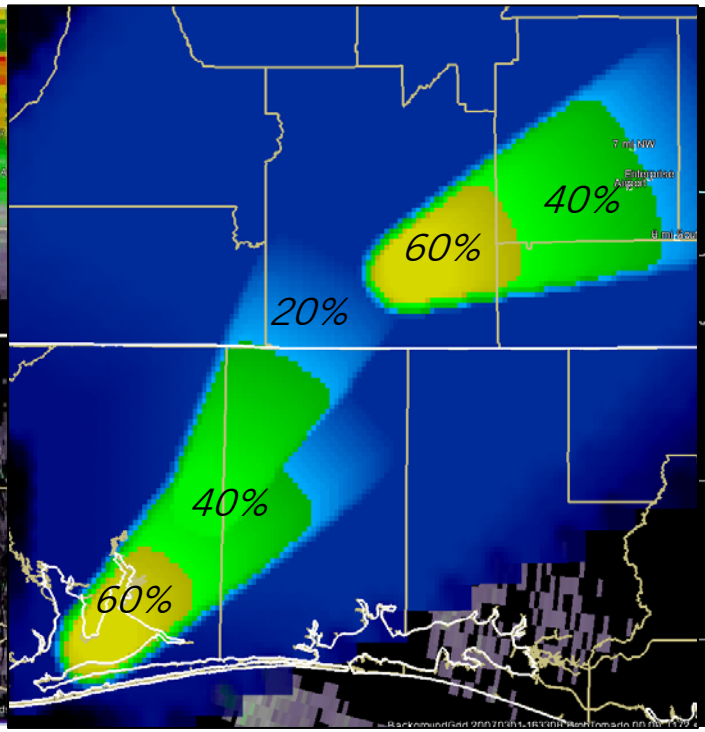
GIS Based Social Vulnerability Research

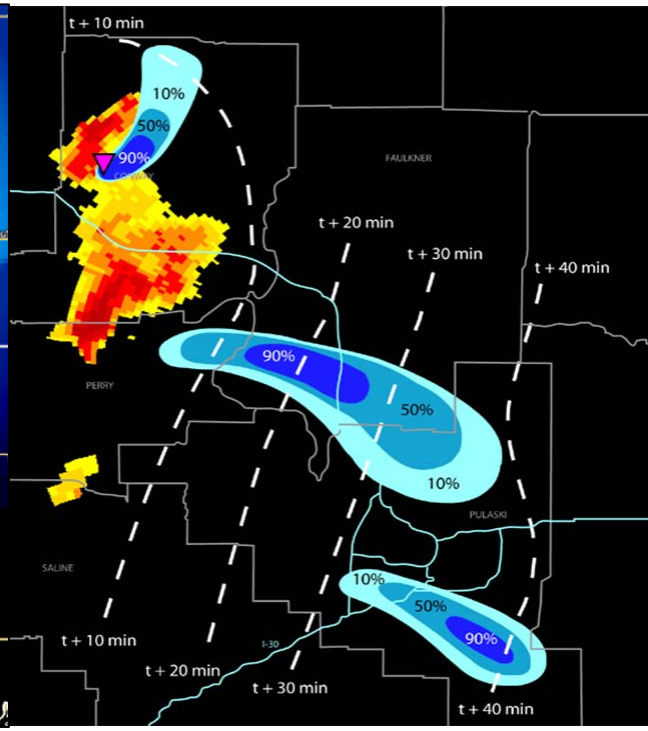


SCOTT RAE, NTCOG

Probabilistic Hazard Information







- Develop methodology and applications that combine statistics with multi-radar, multi-sensor data
- Provides framework to be applied to a “Warn-on-Forecast” system

Questions:

Contact:

Kristin.Kuhlman@noaa.gov

Experimental Warning Program:

http://ewp.nssl.noaa.gov/