FACETs
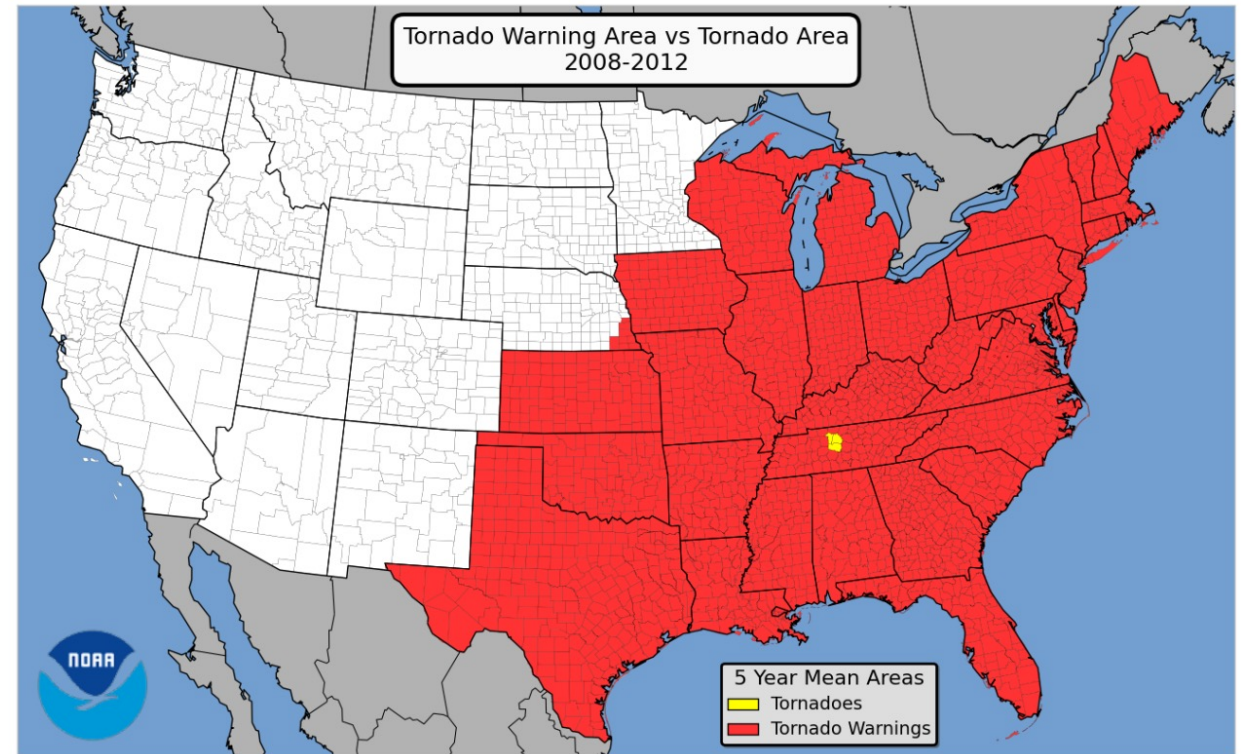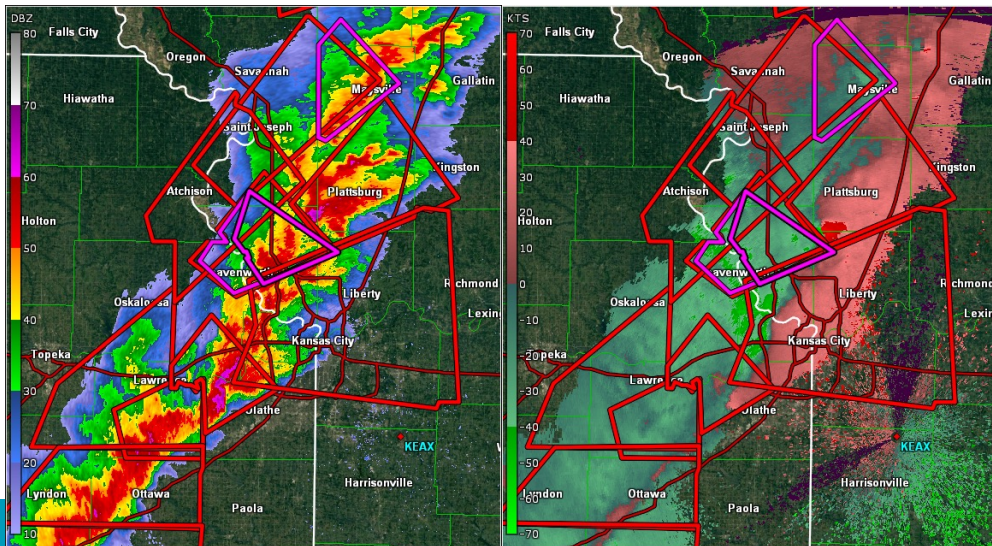## Forecasting A Continuum of Environmental Threats

Kodi Berry

FACETs Program Lead

National Severe Storms Laboratory

Current Warning System

- Inherently "binary", in/out
- Large false alarm area

Courtesy Patrick Marsh

Current Warning System

- Inherently "binary", in/out
- Large false alarm area
- Messy
- Designed for teletype era


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BULLETIN — EAS ACTIVATION REQUESTED
TORNADO WARNING
NATIONAL WEATHER SERVICE JACKSON MS
1155 AM CST SUN FEB 21 1971

*TORNADO WARNING FOR…
 NORTHERN SUNFLOWER COUNTY IN NORTHWEST MISSISSIPPI
 TALLAHATCHIE COUNTY IN NORTHWEST MISSISSIPPI
 QUITMAN COUNTY IN NORTHWEST MISSISSIPPI

* UNTIL 1 PM CST

* AT 1155 AM CST…A TORNADO WAS REPORTED BY THE PUBLIC AND INDICATED
   BY RADAR 5 MILES NORTHEAST OF CLEVELAND…AND IS MOVING TOWARD THE
   NORTHEAST AT 55 MPH.

PRECAUTIONARY/PREPAREDNESS ACTIONS…

IF THREATENING CONDITIONS ARE SIGHTED…BE PREPARED TO MOVE TO A
PLACE OF SAFETY.  TO REPORT A TORNADO OR OTHER SEVERE WEATHER…PLACE
AN EMERGENCY CALL TO THE JACKSON MS NATIONAL WEATHER SERVICE OFFICE
AT 601 939 5751…OR ASK THE NEAREST LAW ENFORCEMENT AGENCY TO RELAY
YOUR REPORT TO THE NEAREST NATIONAL WEATHER SERVICE OFFICE.
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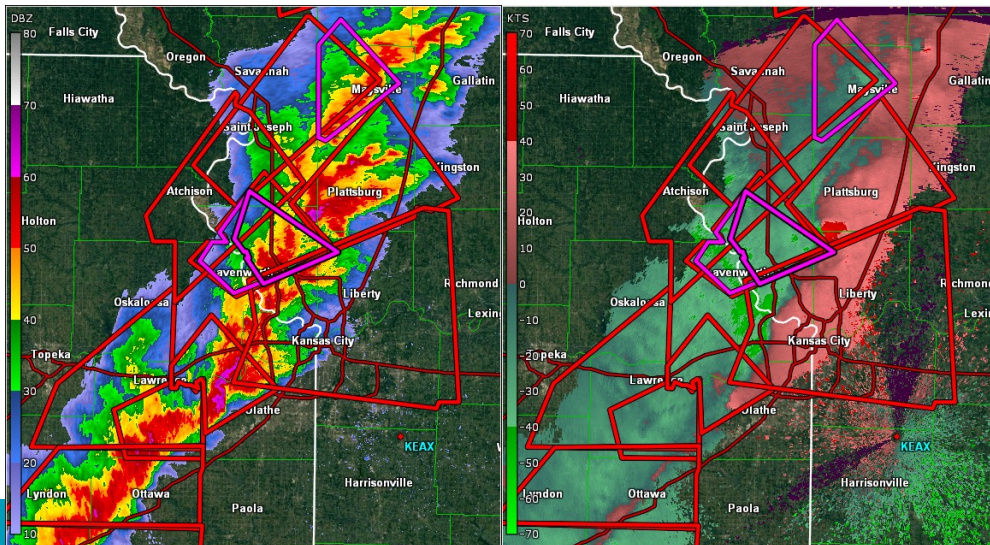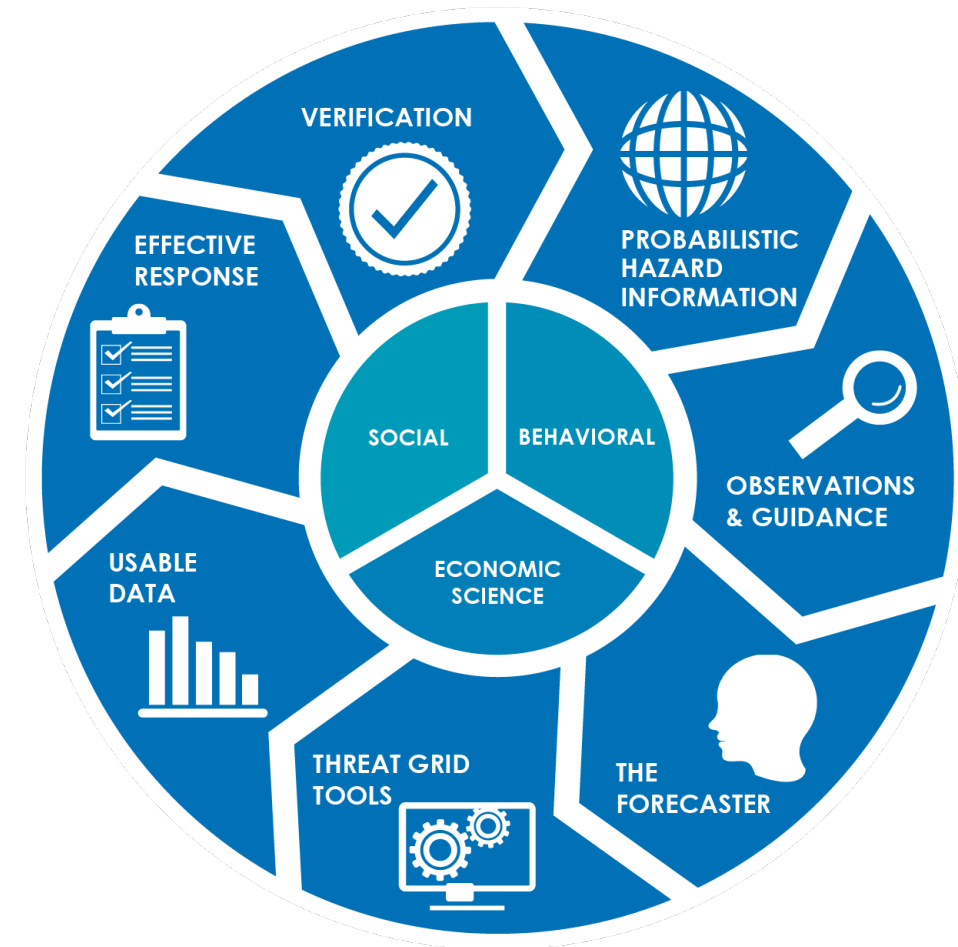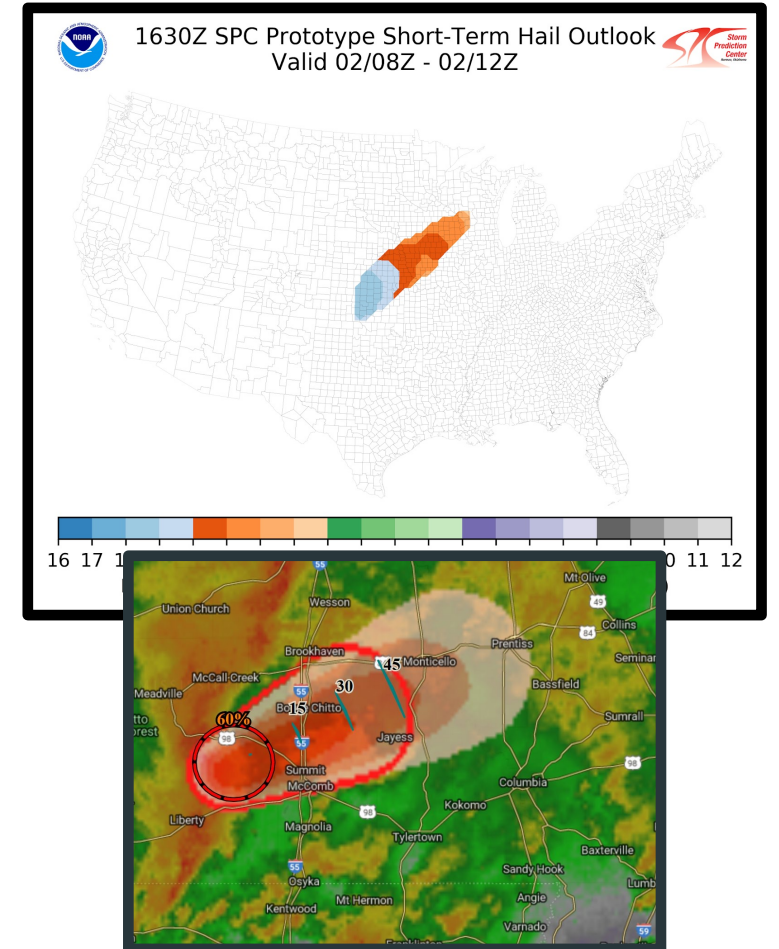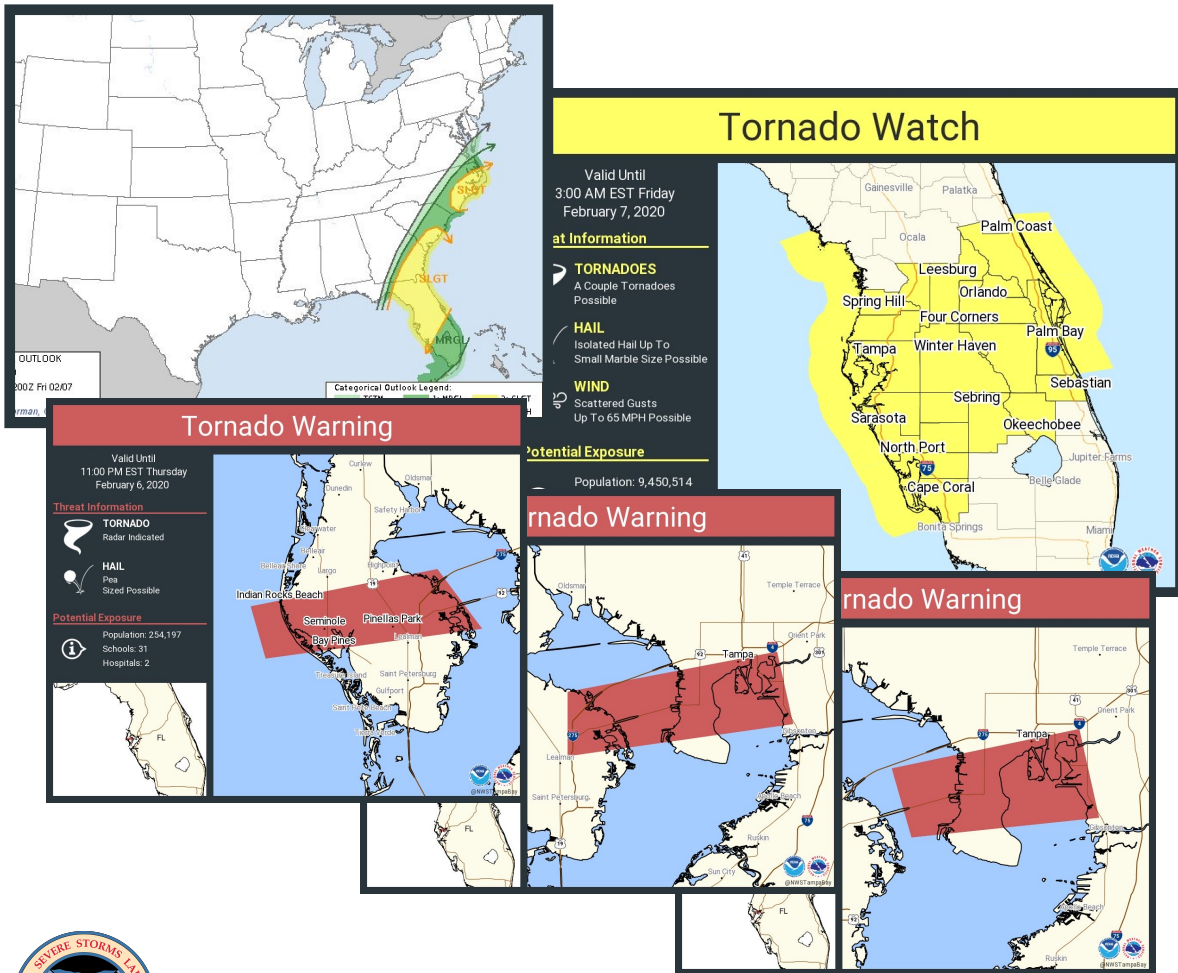
What is FACETs?

Forecasting A Continuum of Environmental Threats

- Modernization of NOAA's entire forecast & warning process
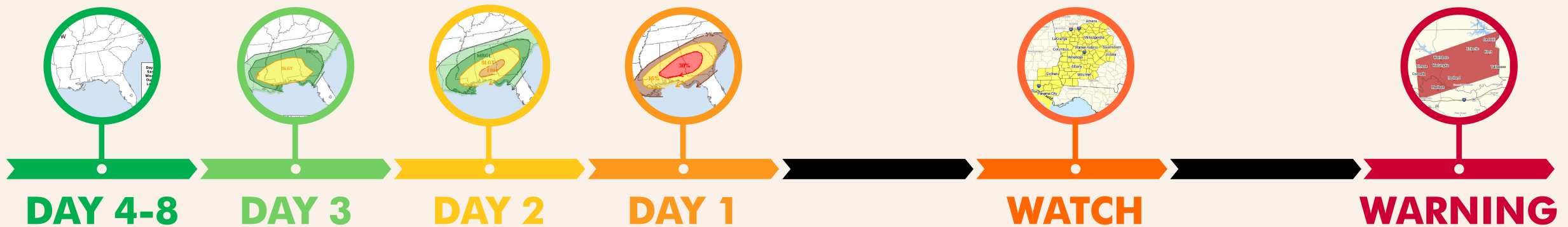- Requires integration of physical & social/behavioral/economic sciences

FACETs is a Framework

FACETs Goal

To produce a continuous stream of high-resolution probabilistic hazard information (PHI) extending from days to within minutes of an event – for all environmental hazards

**DAY 4-8**   **DAY 3**   **DAY 2**   **DAY 1**   **WATCH**   **WARNING**

FACETs will enable …

- Better individual decision making

- More consistent communication & decision support services

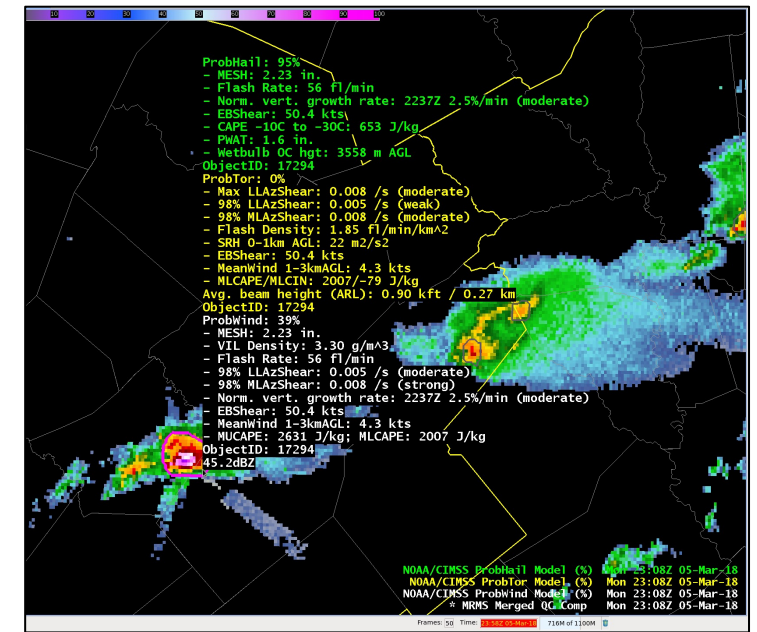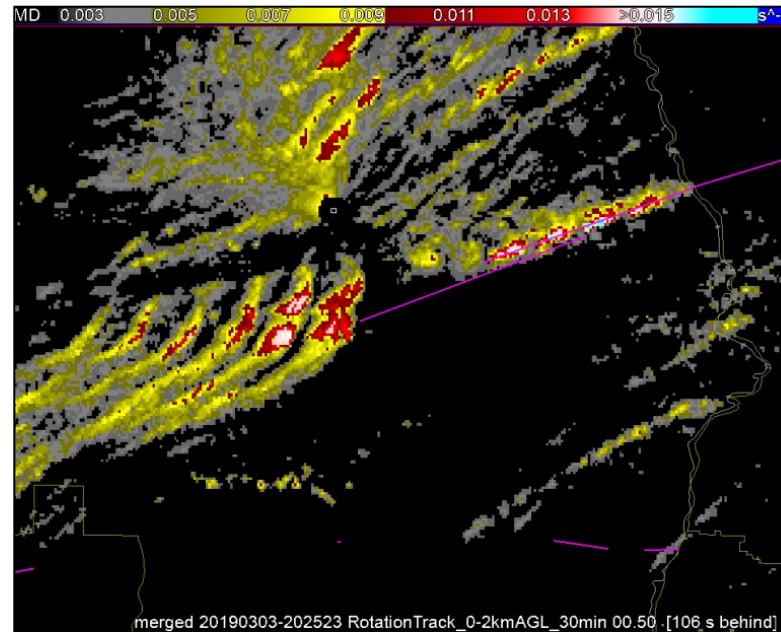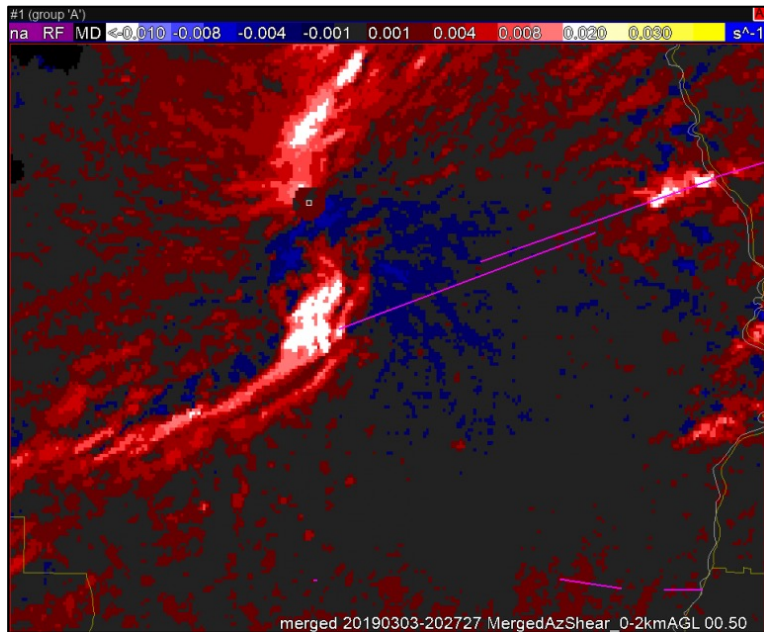- Meaningful quantification of hazard probabilities
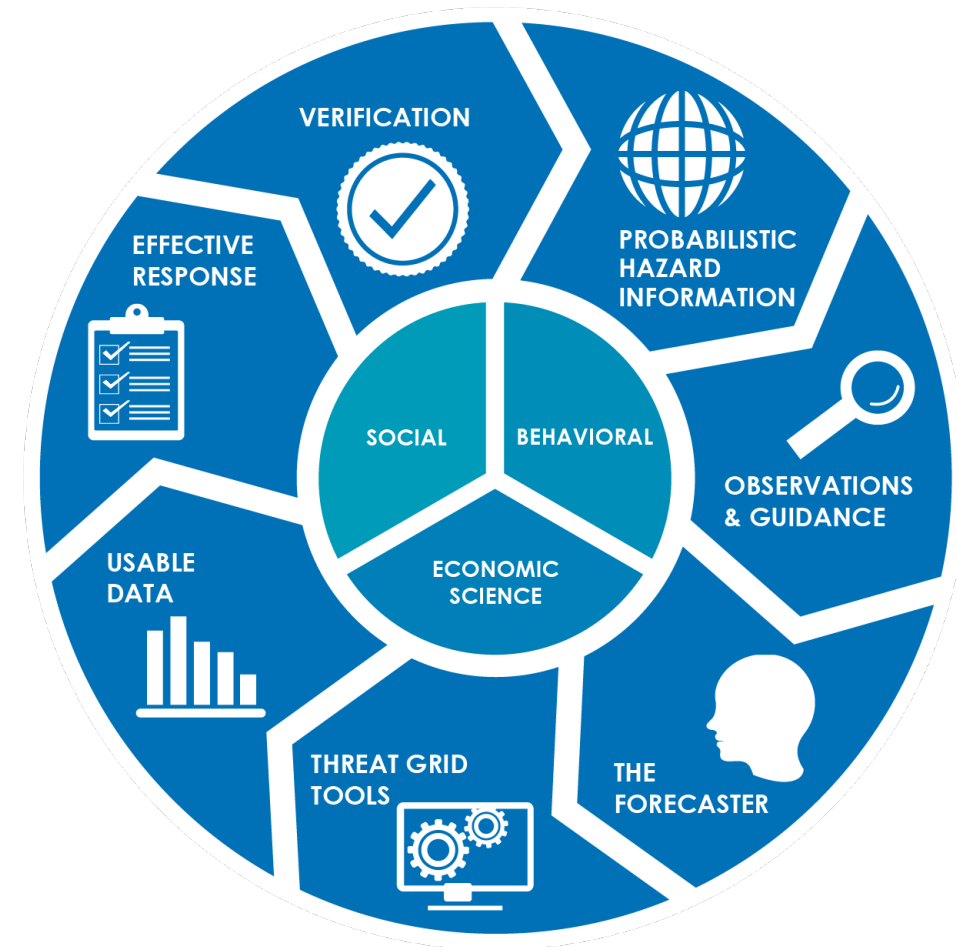
Facet 1: Probabilistic Hazard Information

- Grid-based probabilities
- Already exists in some of the NWS product suites
- Serves as the foundation for decision support services
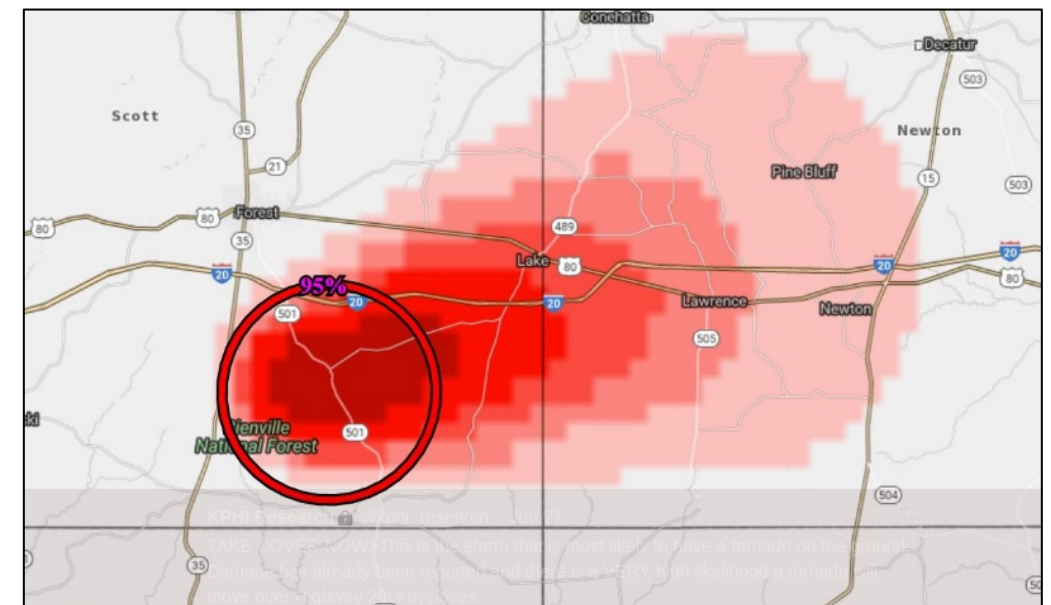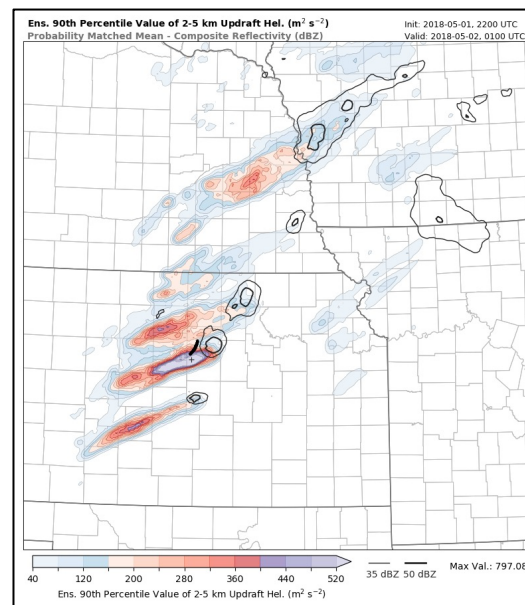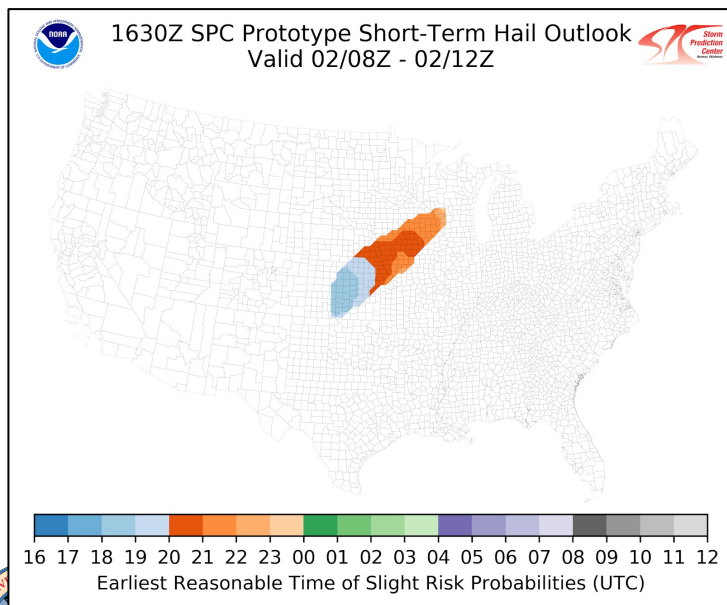
Facet 2: Observations & Guidance

- What forecasters use to make decisions
 - Radar data, satellite data, model output, observations, etc.

Facet 3: The Forecaster

- The person making the forecast & warning decisions
  - As essential as ever to the <u>entire</u> forecast & warning process
  - Knowledge, skills, abilities
- New paradigm = new training

Facet 4: Threat Grid Tools

- What forecasters use to create the probabilistic hazard information
    - Hardware & software
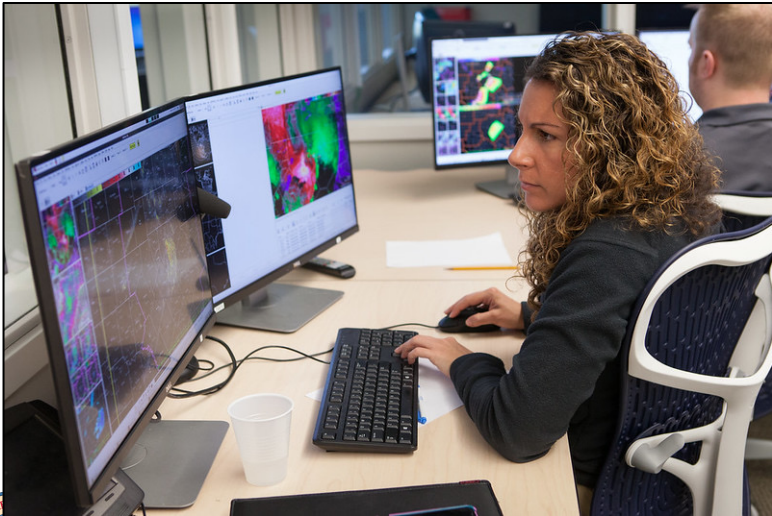
Facet 5: Usable Data

- What the end users see & hear
  - Graphical, textual, auditory, digital, etc.
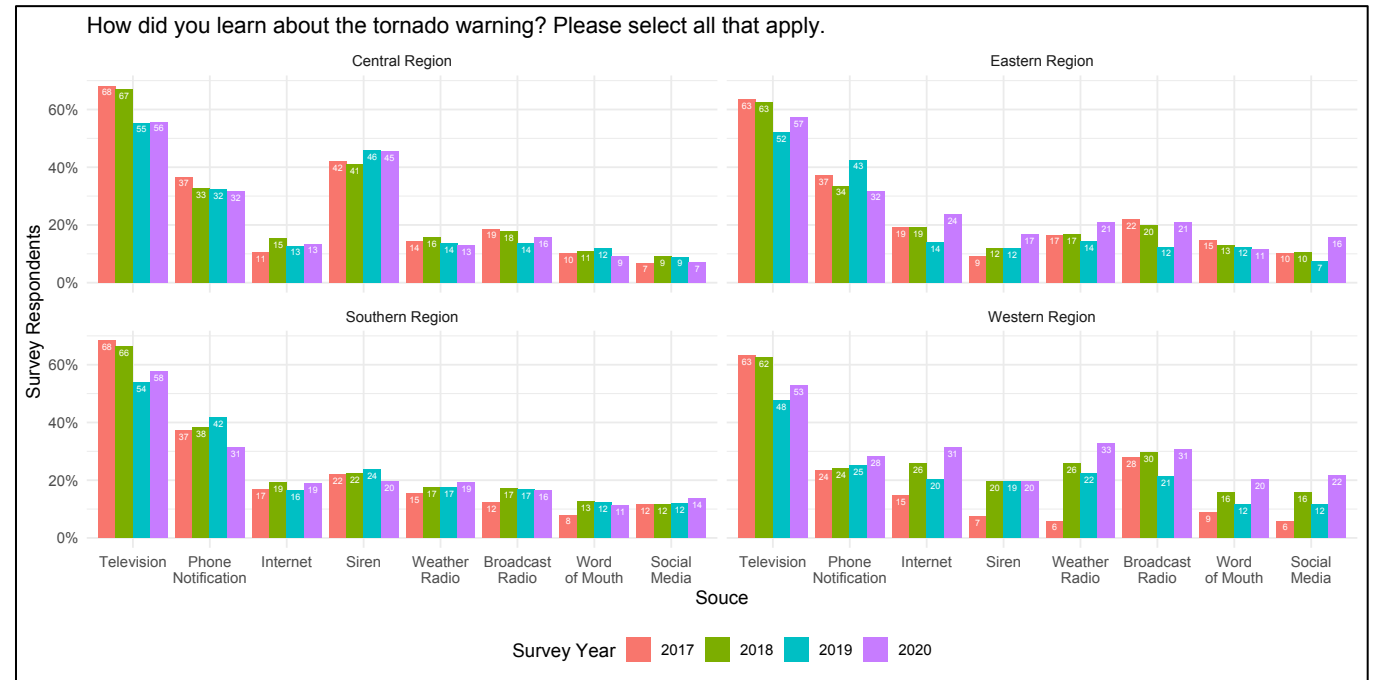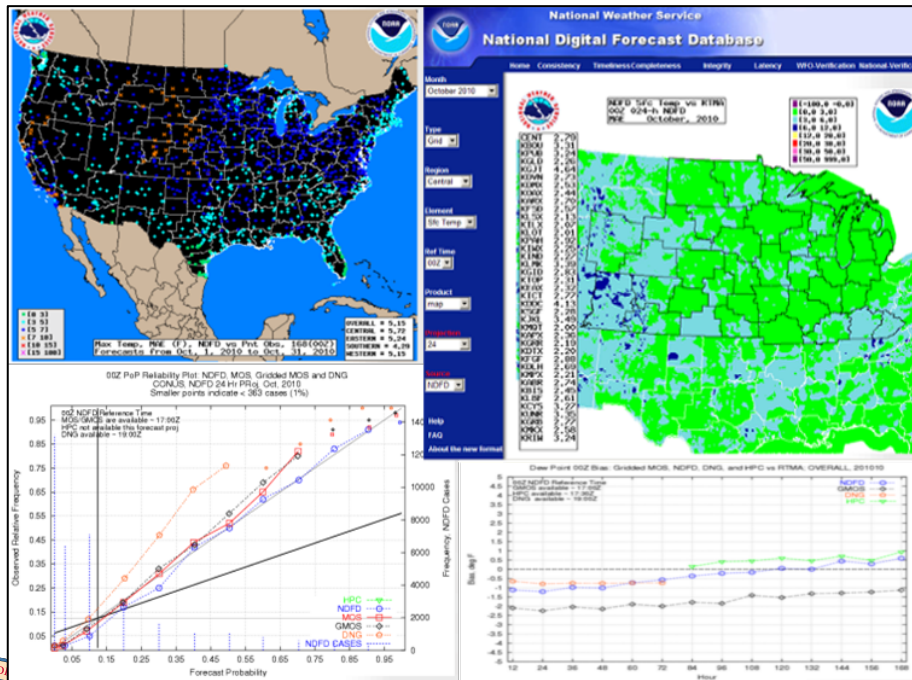 - Social/behavioral sciences are key
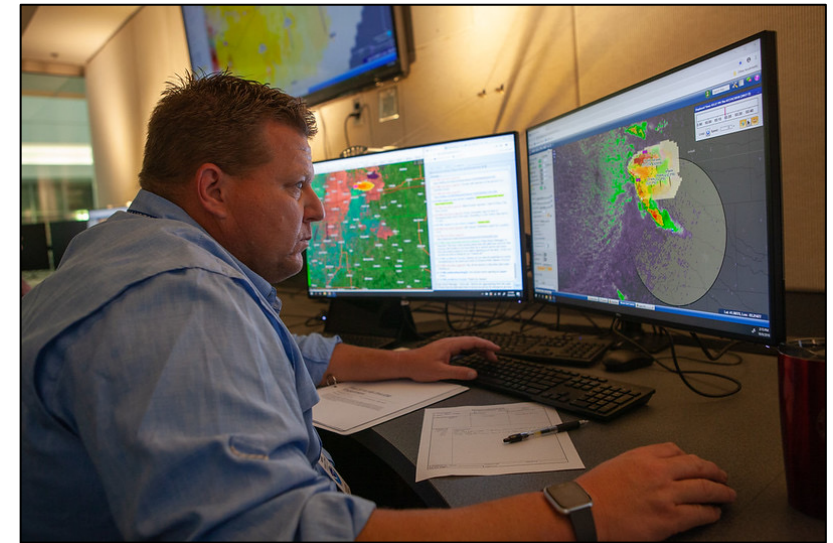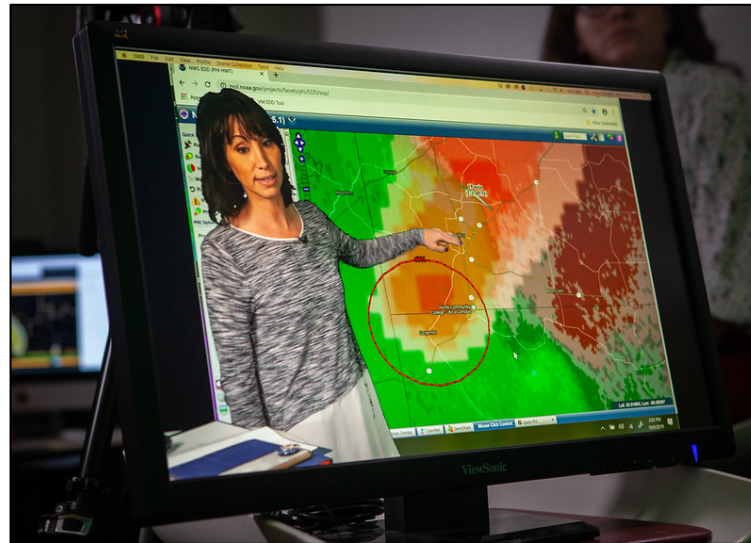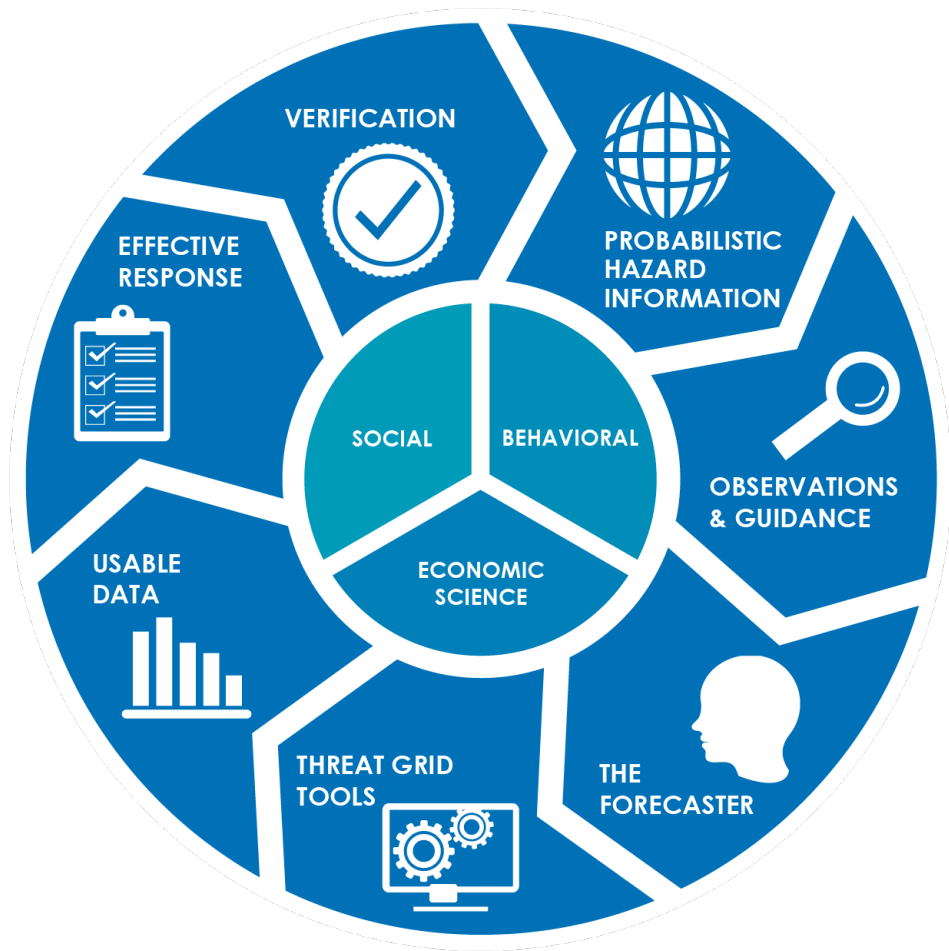
Facet 6: Effective Response

- What the end users do
  - The physical/social interface
  - The most important facet
  - Where social & behavioral science research pays off

Facet 7: Verification

- Evaluating system effectiveness
    - Measuring more than just forecast skill … measure responses, too!

Kodi Berry

FACETs Program Lead

National Severe Storms Laboratory

kodi.berry@noaa.gov