

User-Centered Research Framework Overview (SBE, FACETs, R2O, Partnerships)

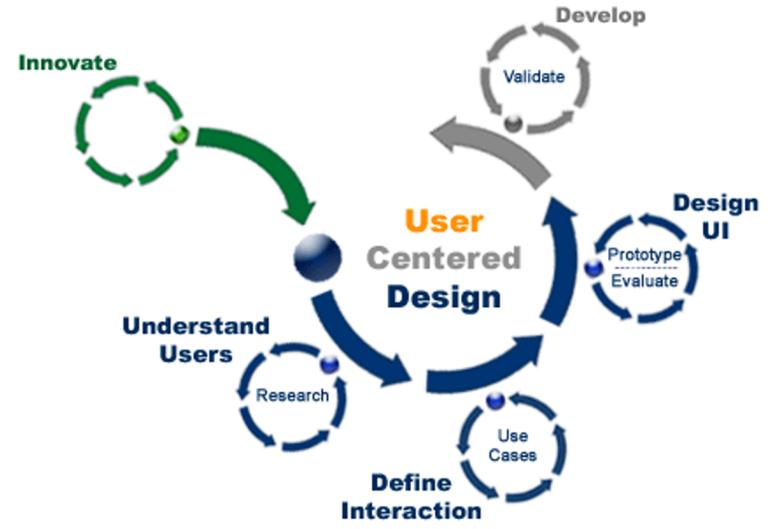
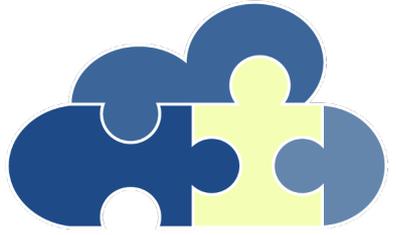
Kim Klockow-McClain, PhD; CIWRO Research Scientist; WRDD





NSSL is an OAR leader in its inclusion of social and behavioral sciences.

User-centered design: Integral to R2O2R approach





Key Themes of SBE Work

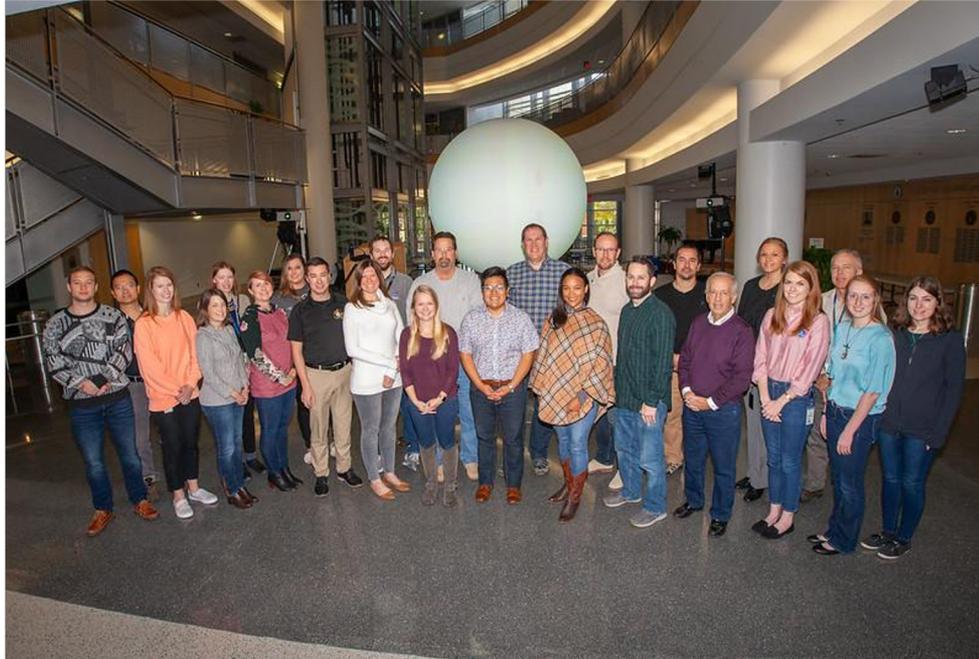
Explore and enhance severe **weather warning/communication system** (end-user research & local/population issues)

Improve forecast/warning reception, understanding, and decision-making with **uncertainty** information (FACETs)





A diverse, thriving, fully embedded presence





Goals of FACETs

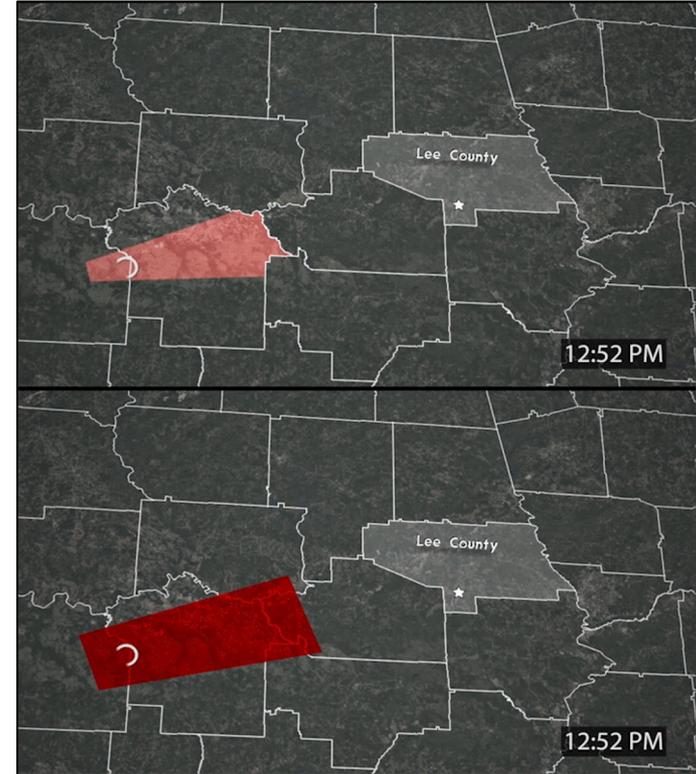
- Better individual decision making
- More consistent communication & decision support services
- Meaningful quantification of hazard probabilities
- To produce a continuous stream of high-resolution probabilistic hazard information extending from days to within minutes of an event – for all environmental hazards





Threats-in-Motion (TIM)

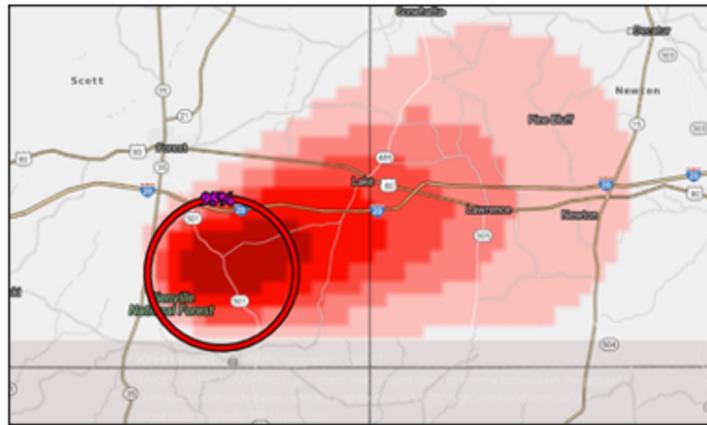
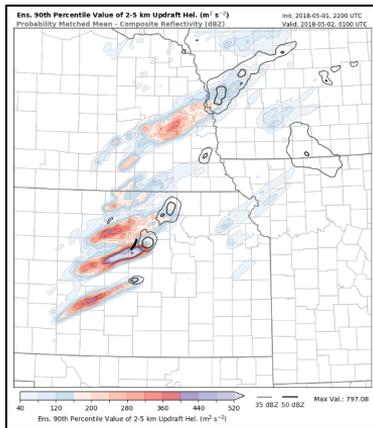
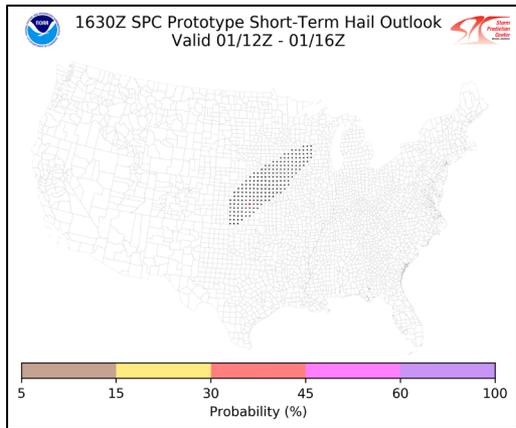
- Severe thunderstorm and tornado warnings that move with the storm
- Initial step to shift the current NWS convective watch and warning paradigm toward a more continuous flow of information





Future FACETs Work

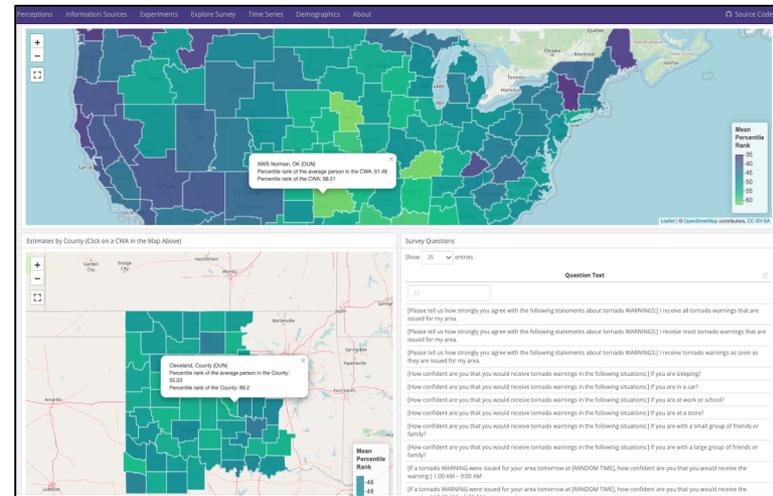
Cross-division effort to ensure FACETs-related research and products tell a cohesive story across time and space scales





Severe Weather & Society Dashboard

- Baseline survey on where the U.S. public gets severe weather information and their understanding of current severe products
- Deployed each year to monitor changes
- Database of survey data from 2017-2021
- Developed a Dashboard to allow forecasters to view community statistics
- Transitioned to NWS cloud services
- Developing companion survey and database for tropical cyclone threats
- Spanish Survey Data Available in 2021





Strategy for SBE R2O

What: Integrate insights from the social, behavioral and economic sciences end-to-end into NSSL research activities.

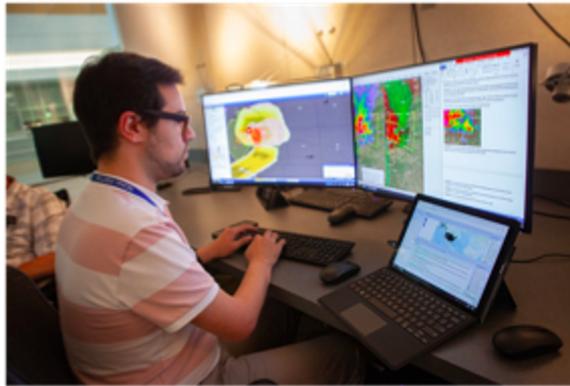
How: Institutionalize social science research across NSSL,
Enhance social science R2O/O2R linkages





Examples of Progress: Meaningful Integration

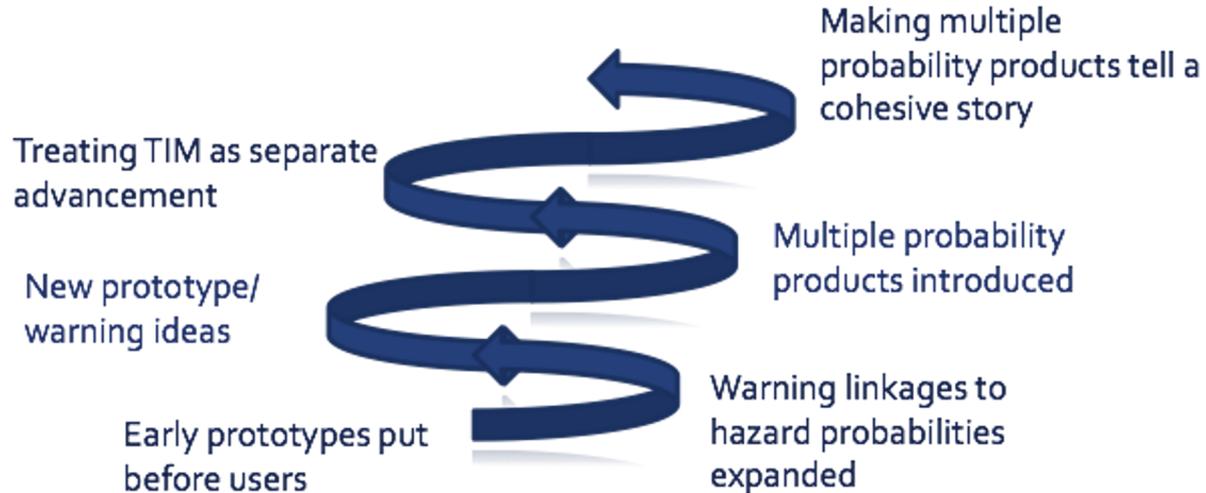
Brought SBE methods/instruments to the **Hazardous Weather Testbed** that was previously dominated by physical science development





Examples of Progress: Iteration, Inclusion

Evolved thinking about FACETs technologies and their use





Examples of Progress: New Hiring Model



O2R Practitioner



R2O Scientist





NWS & Natural Hazards Center

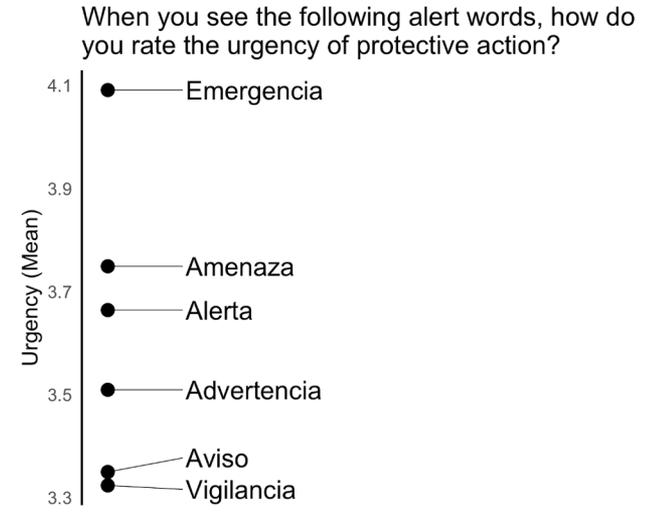
- Today, forecast & warning effectiveness is studied in **<1%** of all tornadoes
- **Need:** Standardized, routine measurement
- **NSSL:** Organized working group, developed survey, obtained Institutional Review Board approval
- **Next steps:** Integration in NWS Damage Assessment Toolkit, Tornado Touchdown App, Natural Hazards Center Quick Response Funding Call





Bilingual Research-to-Operations Efforts

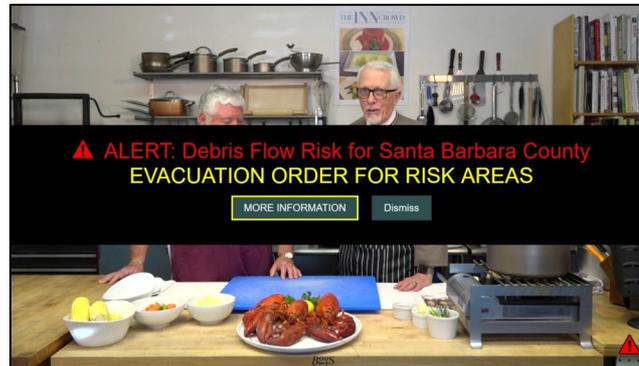
- Collaboration with OU's Center for Risk and Crisis Management, SPC, NWS Multimedia Assistance in Spanish Team and NWS Spanish Outreach Team provided insights in serving U.S. Spanish speakers
- Findings revealed inconsistencies in current translated material and risk literacy
- A proposed infrastructure has been showcased at the National Academies and recently, a NOAA/NWS leadership briefing





Advanced Warning and Response Network

- Collaborative project to begin understanding how the next-generation broadcast standard could change severe weather communication with the public
- Conduct **focus groups** in Nebraska to investigate what kind of **rich content** viewers might want during severe weather
- **Design prototype displays** and **conduct usability testing**, including eye tracking and think aloud interviews



UNIVERSITY
AT ALBANY

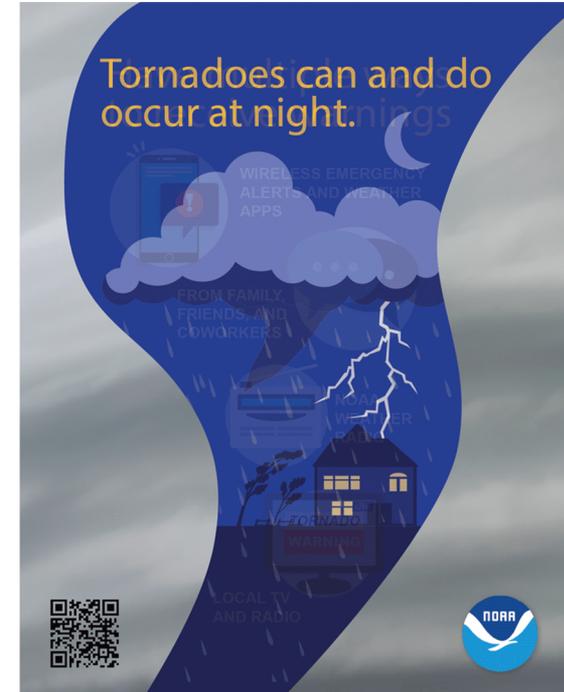
State University of New York

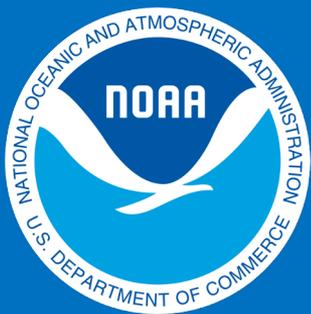




VORTEX-SE & MS/AL Sea Grant Collaboration

- Create a model to integrate VORTEX-SE physical and social science research into local communities
- Support two-way dialog on the needs of local communities that are vulnerable to severe weather events
- Respond to those needs with accurate, trusted information delivered by extension specialists, researchers, and other experts





Kodi Berry



David Hogg



Kim Klockow-McClain



Holly Obermeier



Justin Sharpe



Cassandra Shivers-Williams



Joseph Trujillo



Katie Wilson

Questions for the panel?

