When will severe weather hit my jurisdiction?

Poster Showcase
#iaem25

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Objectives

Emergency Managers (EMs) need actionable forecasts from the National Weather Service (NWS), including timing and hazard information for their specific location to adequately prepare and staff ahead of a severe weather event.

This study explores how the Storm Prediction Center (SPC) time series graphics, that are currently in development, can be leveraged to add location specific information to forecasts. Through workshop discussions with NWS forecasters and EMs, we learned how the SPC time series graphics could be improved for future use.

Can the SPC time series graphics help EMs answer "when will severe weather hit my jurisdiction?"

Literature

- EMs play a critical role as information brokers during severe weather events, making time-sensitive, location-specific decisions and coordinating preparedness efforts. *(Hoss & Fischbeck, 2018;* Federal Emergency Management Agency, 2015)
- Timely and accurate forecasts from the NWS are essential for EMs to plan, prepare, and communicate with their stakeholders ahead of severe weather. *(Cross & LaDue, 2021; Demuth et al., 2012; Ernst et al., 2018)*
- Misunderstanding or underestimating forecast timing and uncertainty can result in delayed actions or inadequate preparedness. *(Ernst et al., 2018; Lussenden, 2014)*

Data & Methods

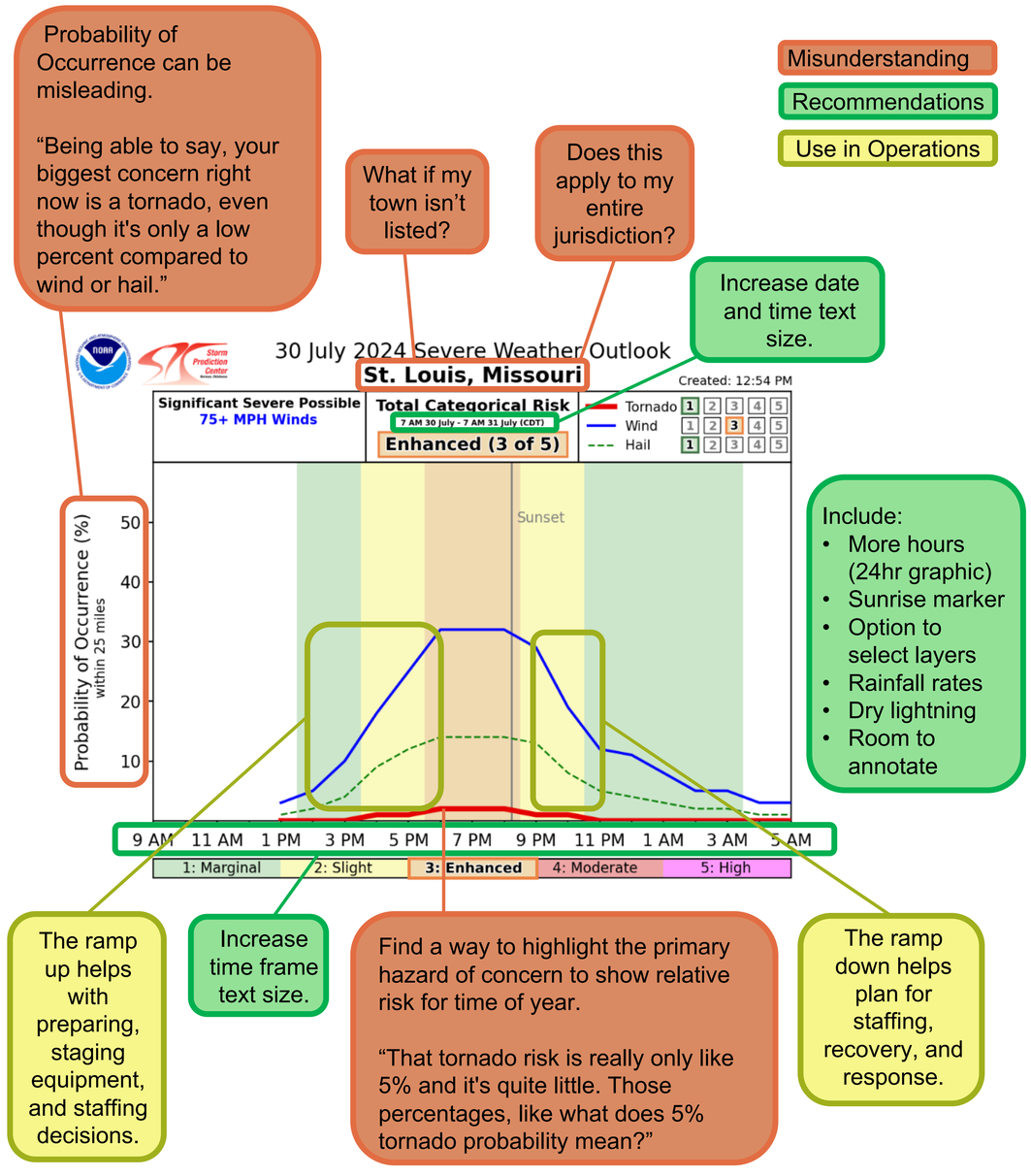
Two national scale workshops with:
- 19 NWS forecaster participants across NWS regions
- 18 EMs participants including county, state, and university EMs

The workshops covered relevant prior research, an introduction to the SPC time series graphics, and breakout discussions.

Workshop Breakout Prompts
1. How might SPC time series graphics be used in operations?
2. Do you have any hesitancy or concerns about using these?
3. Identify key design principles for the functionality of the graphics.

The workshops were recorded and transcribed, then coded and analyzed in a qualitative data analysis software package.

Project Goal: Incorporate design recommendations to increase comprehension and usability of the SPC time series graphics to provide localized forecast information to benefit both NWS forecasters, EMs, and core partners.



Workshop Findings

Aids in Answering:

When? & Where?

- Gives more information on when severe weather will hit, when we should be ready, and when we should staff
- Helps convey the onset, peak, and ending time
- Helps convey relative hazards and timing across a jurisdiction

Benefits of use:

- Easy to share
- Great situational awareness tool
- Quick/Efficient: data gathering & digestion of information
- Helps narrow down:
  - Timing of hazards
  - When thresholds might be met
- Can help with communicating risk to non-English-speaking populations

Conclusions

Do the SPC time series aid in EM decision-making?

- The visual representation of risks over time, for specific, named locations provide more localized context to how a severe weather event will unfold.
- These can help to make more informed, timely decisions as well as aid in communicating with other local officials.

Other Advice:
- Before the products are widely shared, training or educational materials are needed to inform best practices while using these products.
- It is important for the NWS to provide context to help EMs interpret the SPC time series.

Next Steps

Background Focus Groups:
Gather insight on how NWS forecasters currently communicate timing information and how core partners use that information ahead of severe weather.

Tabletop Exercises:
Run through a severe weather scenario to gain additional understanding of the use of timing information in EM operations and to review prototypes of the SPC time series graphics to further improve the products for EM use.

Revise Graphics:
Analyze data and share finding with SPC to incorporate into future designs.

Website for current SPC Time Series Graphics

References

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