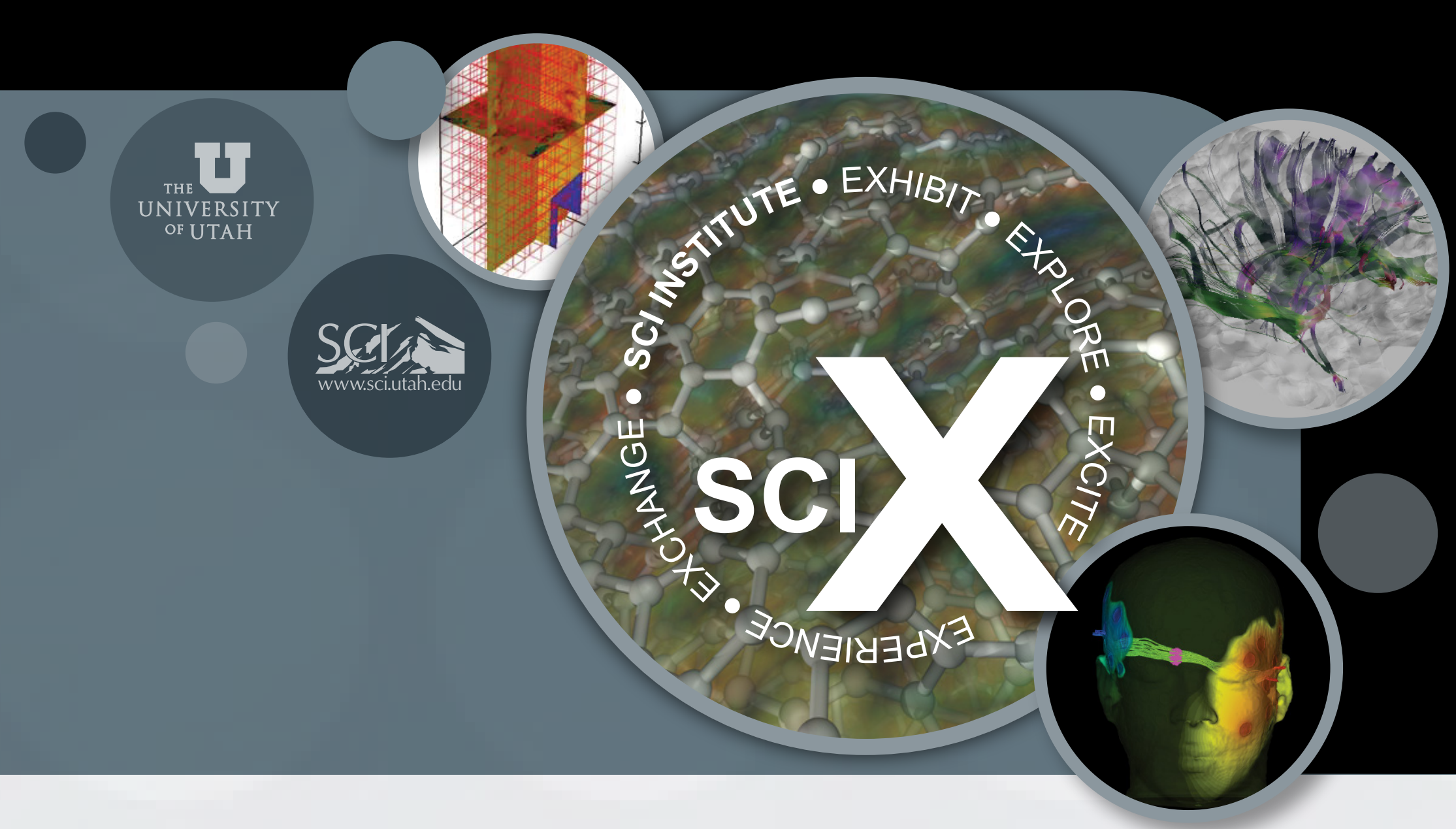


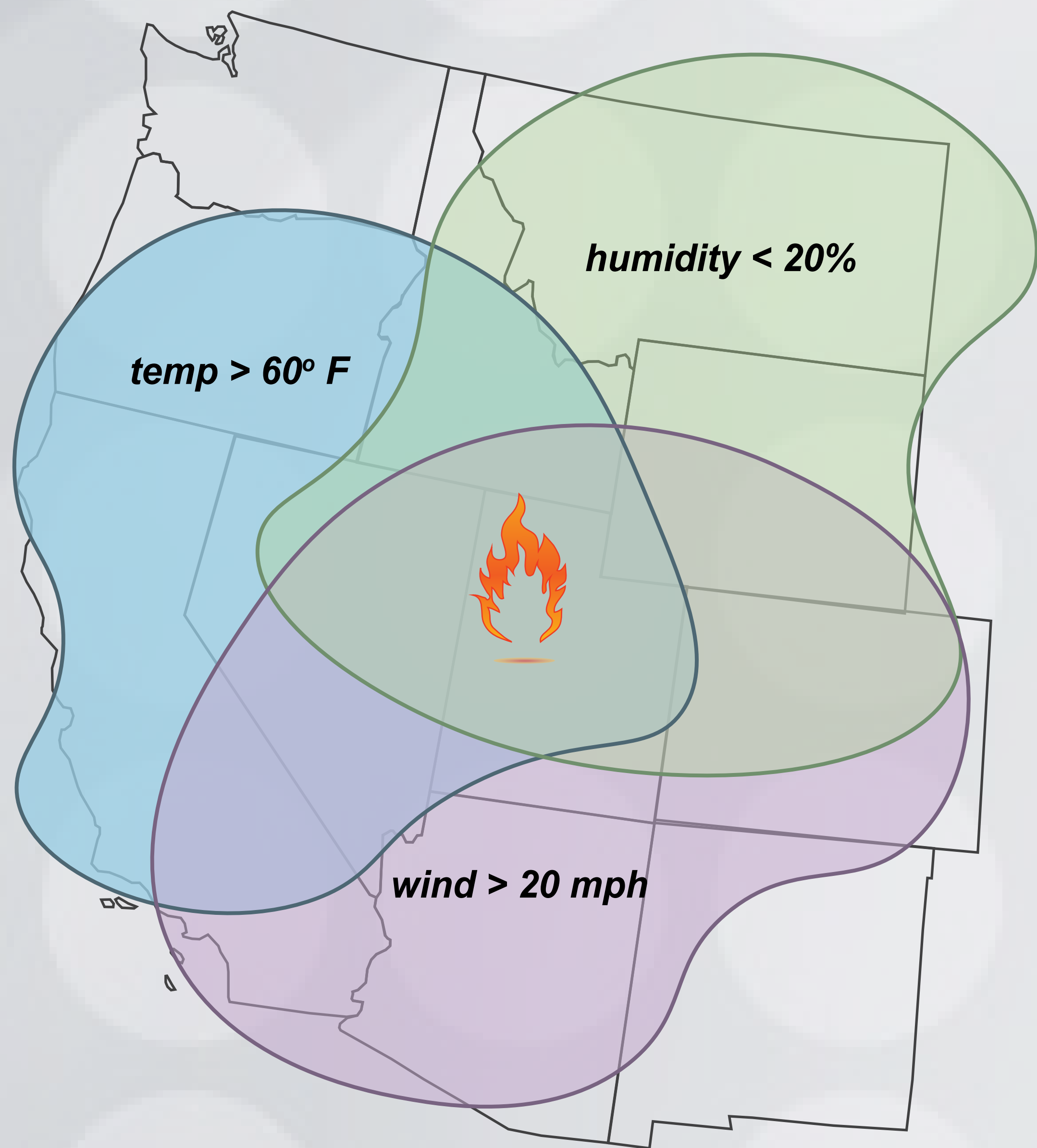
Visually Comparing Weather Features in Forecasts

P. Samuel Quinan and Miriah Meyer



We conducted a **design study** with meteorologists in various decision support roles (e.g., wildfire response).

Meteorologists, at a high level, identify and relate multiple weather features.

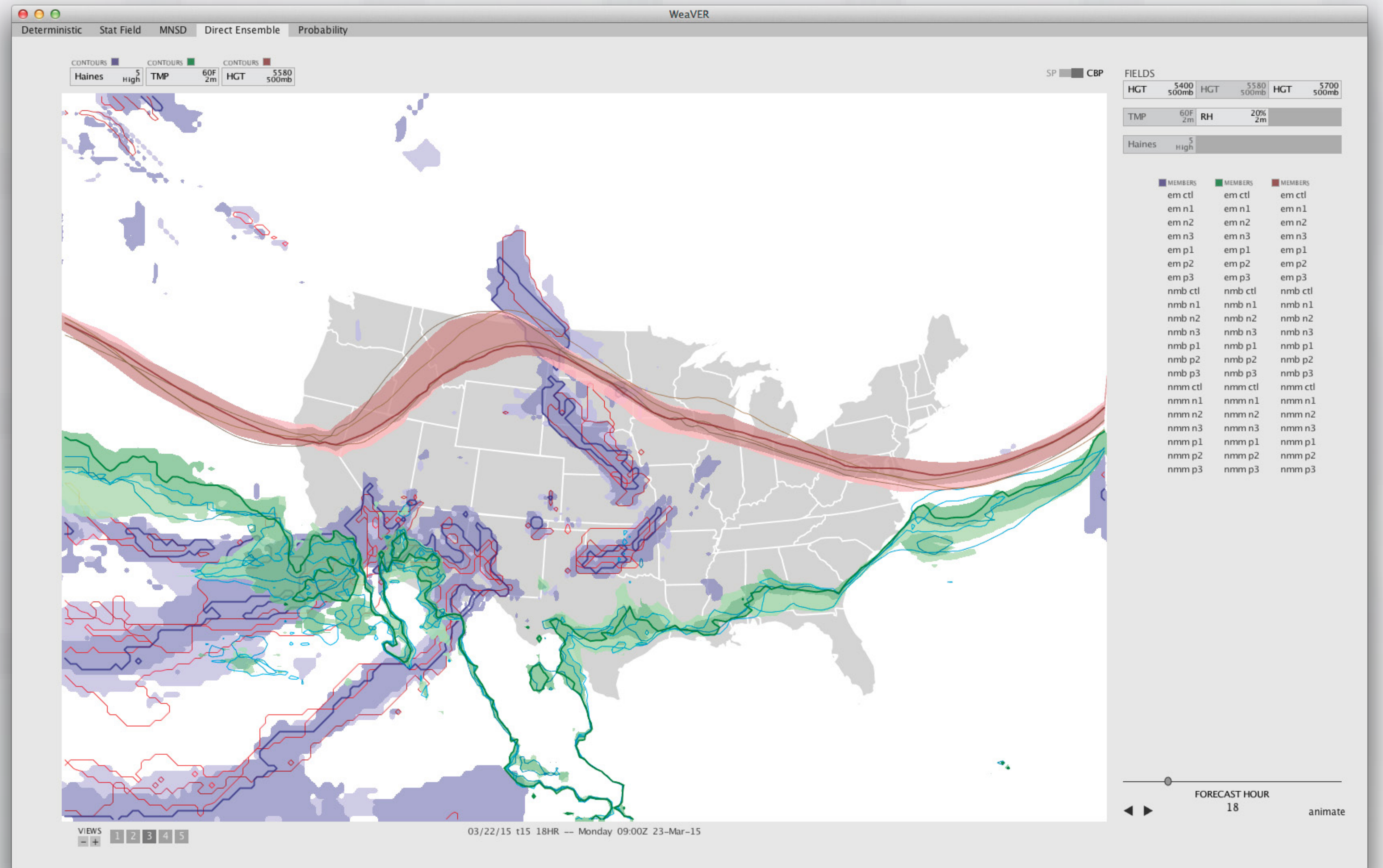


Only combined, for example, do the above criteria become red-flags for potential wildfire outbreaks.

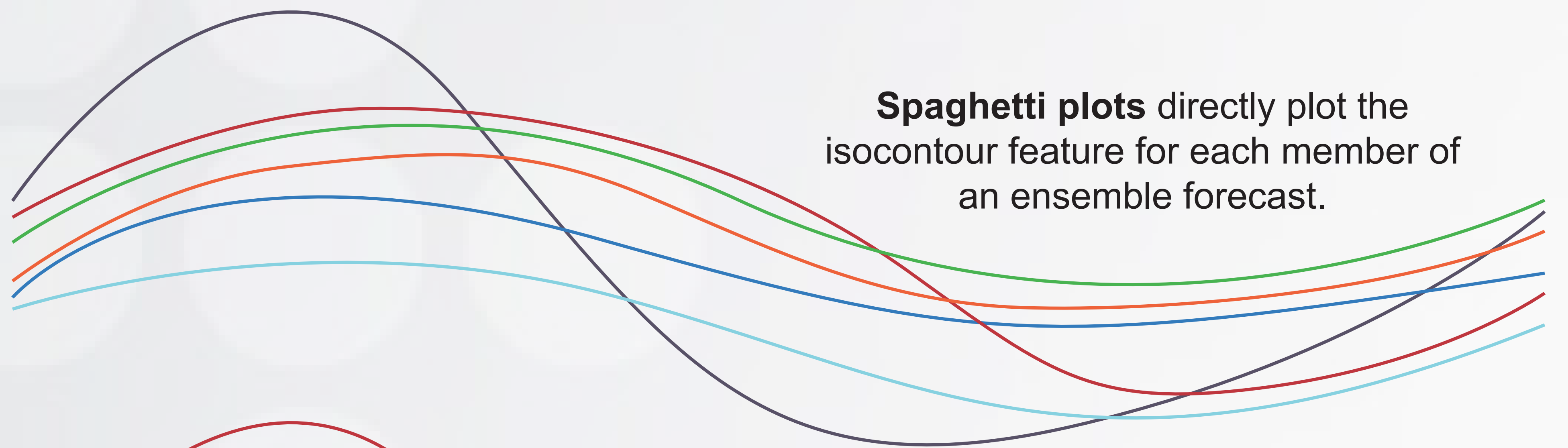
As part of this work, we extended a set of techniques using interactivity to provide an initial-step in directly visualizing the interactions of multiple features over an **ensemble** forecast -- something existing techniques did not support.

This work also introduced a set of **informed default** encoding choices that integrate meteorological conventions with effective visualization practices.

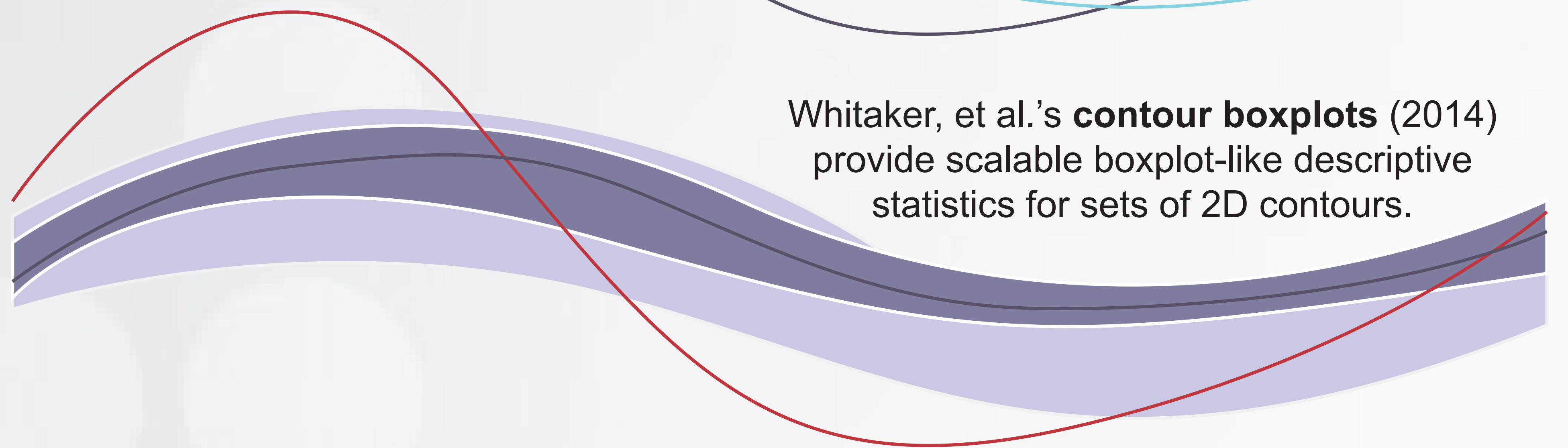
This work was funded by NSF grant IIS-1212806. Special thanks to our collaborators: Shelby Law, Chuck Maxwell, Lance Avey, Jim Steenburgh, and Trevor Alcott. The authors would also like to thank Mike Kirby, Ross Whitaker, Mahsa Mirzargar, Jack Kain, Kent Knopfmeier, Don House, Mike Goodchild, Steve Kruger, Jason Dykes, and Alan MacEachran for their feedback and assistance at various points in the project.



An overview of the interface for WeaVER, an open-source tool developed for supporting meteorological analysis, shown here visually relating multiple isocontour features across an ensemble using contour boxplots.



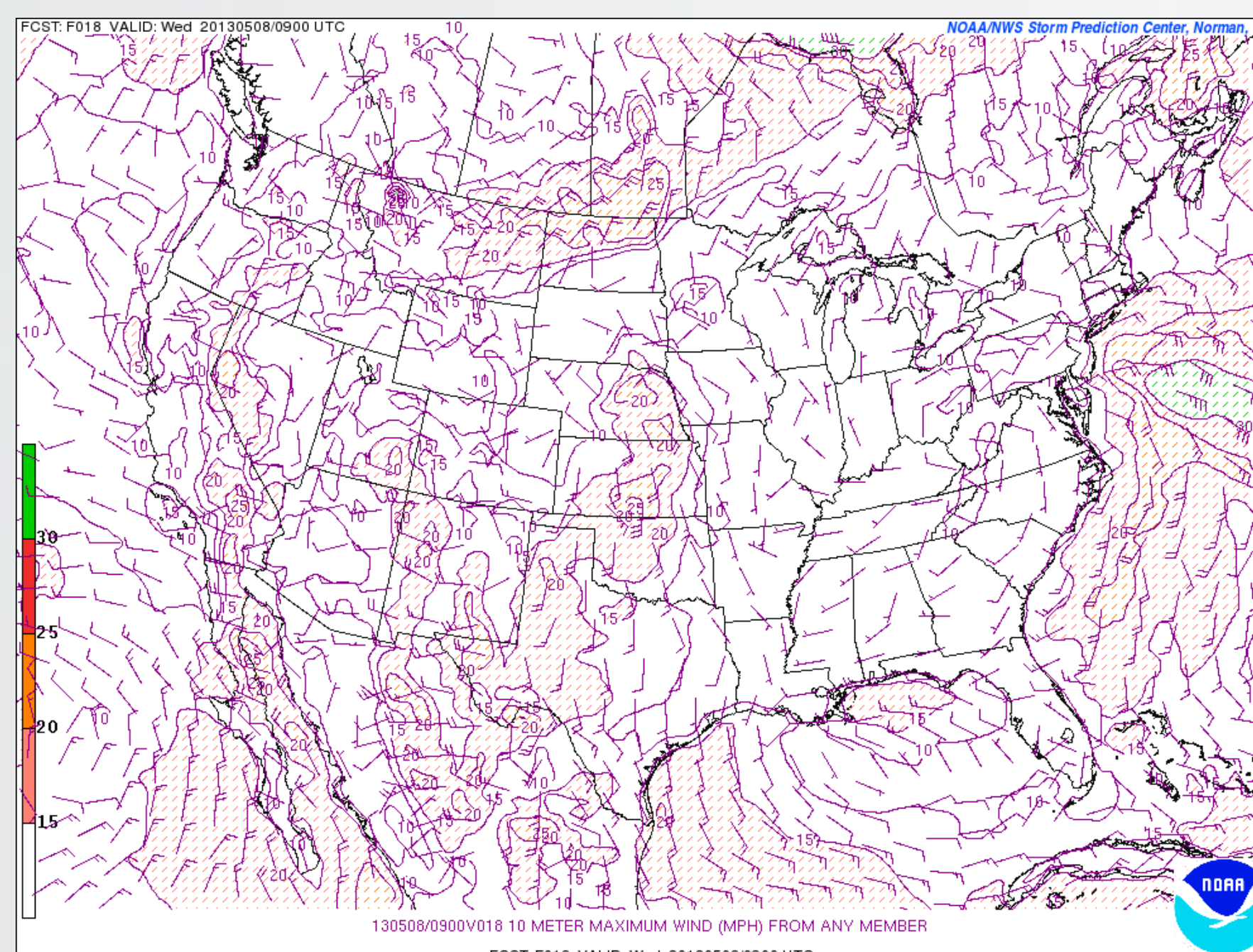
Spaghetti plots directly plot the isocontour feature for each member of an ensemble forecast.



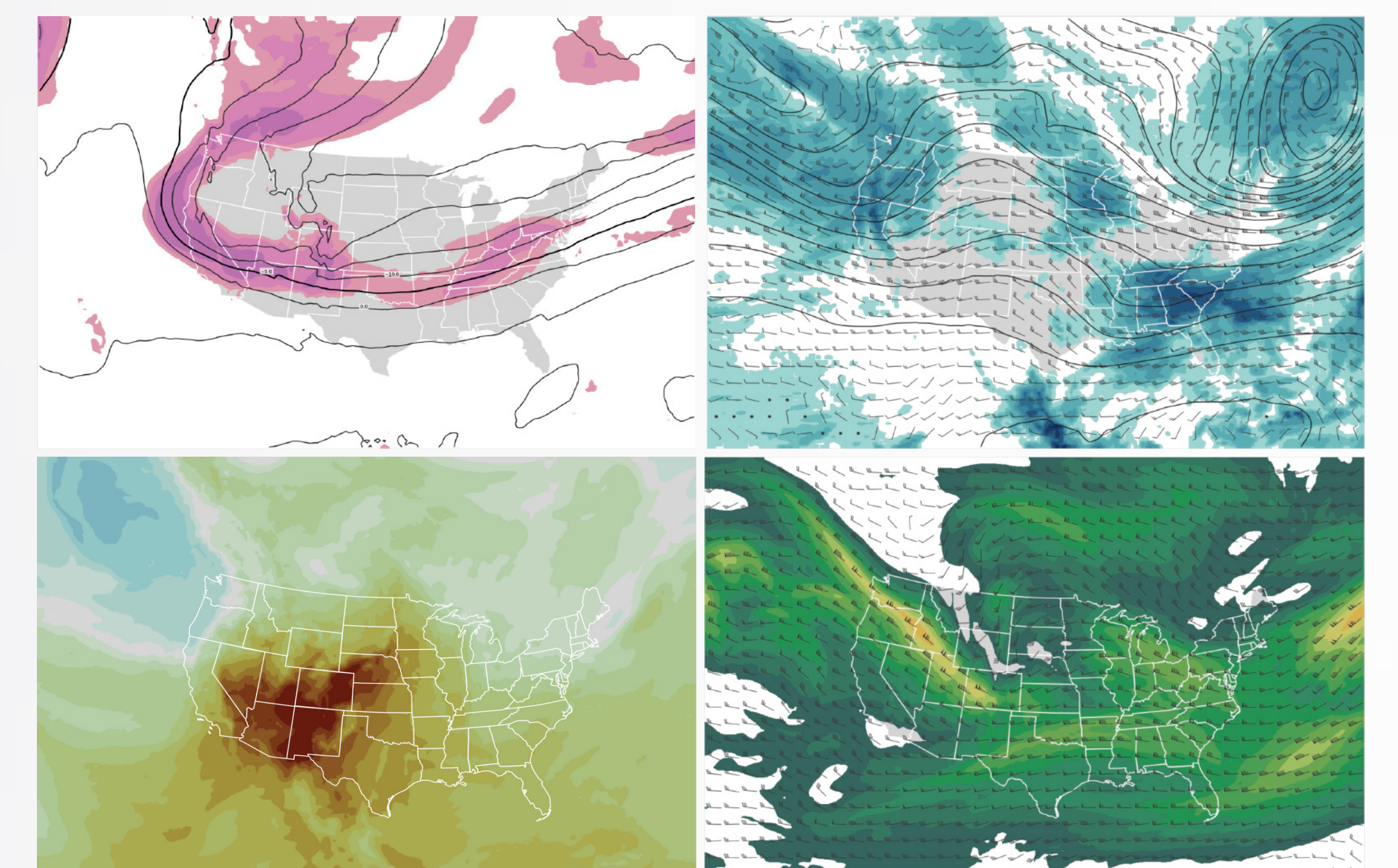
Whitaker, et al.'s **contour boxplots** (2014) provide scalable boxplot-like descriptive statistics for sets of 2D contours.

BEFORE

AFTER



Source: NOAA / NWS



Examples of visualizations generated by WeaVER using our informed defaults.