Ideas for Analyzing and Using Your Results

This material began with a few good ideas we had seen in the NWS before. I hope to add to it as we hear your good ideas. Email them to nws.wdtb.risk-comm@wdtb.noaa.gov.

This document has a handful of ideas about how to approach the data you collected during the exercise for the Communicating Risks in High-Impact Events course. There are whole books — several of them — written about analyzing data, so please don't expect the world from this document.

Organizing All That Data

Organize by interview question. Collecting responses to each interview question helps you see variation in answers. If you build it as you go along, it can also help you see when you are no longer hearing anything new with multiple interviews.

Organize by your research questions/goals. Your underlying research questions or goals are usually different than your interview questions. Consider collecting data from any part of an interview that answers each of your main research questions / goals.

Collect important or interesting data. In addition to either one above, start new categories when something interesting or important comes up. Return to previous interviews to look for additional information on that topic.

Distilling Your Data

Identify commonalities. To what extent are answers common among all participants? On what factors do they vary?

Begin the process of distilling your data and cross-referencing or analyzing across categories.

Example: You might discover that the size and nature of the jurisdiction of an emergency manager affects their responsibilities, decisions and action. You might further discover that their decisions are related to the timing of weather and what parts of their community are impacted.

Idea: Build Timelines to Identify Mismatches

Take a set of grouped responses and from them identify a sort of average or typical timeline for their decision processes and related information-seeking. On the other side, mark when the relevant products your office issues become available to them. Look for mismatches in timing, and brainstorm how to better provide decision support.

Example (Simplified to Fit) Timeline—Severe

EM   **NWS**

Up to 6 days out (4 might be typical)

EM	NWS
Look ahead at staffing schedules; email connections	First mention in AFD, HWO (sometimes) Graphicasts, Social Media Conference call with EM, public safety Multimedia briefings *Continue thru event*
Check supply levels; generators; notify CERT	

Day of

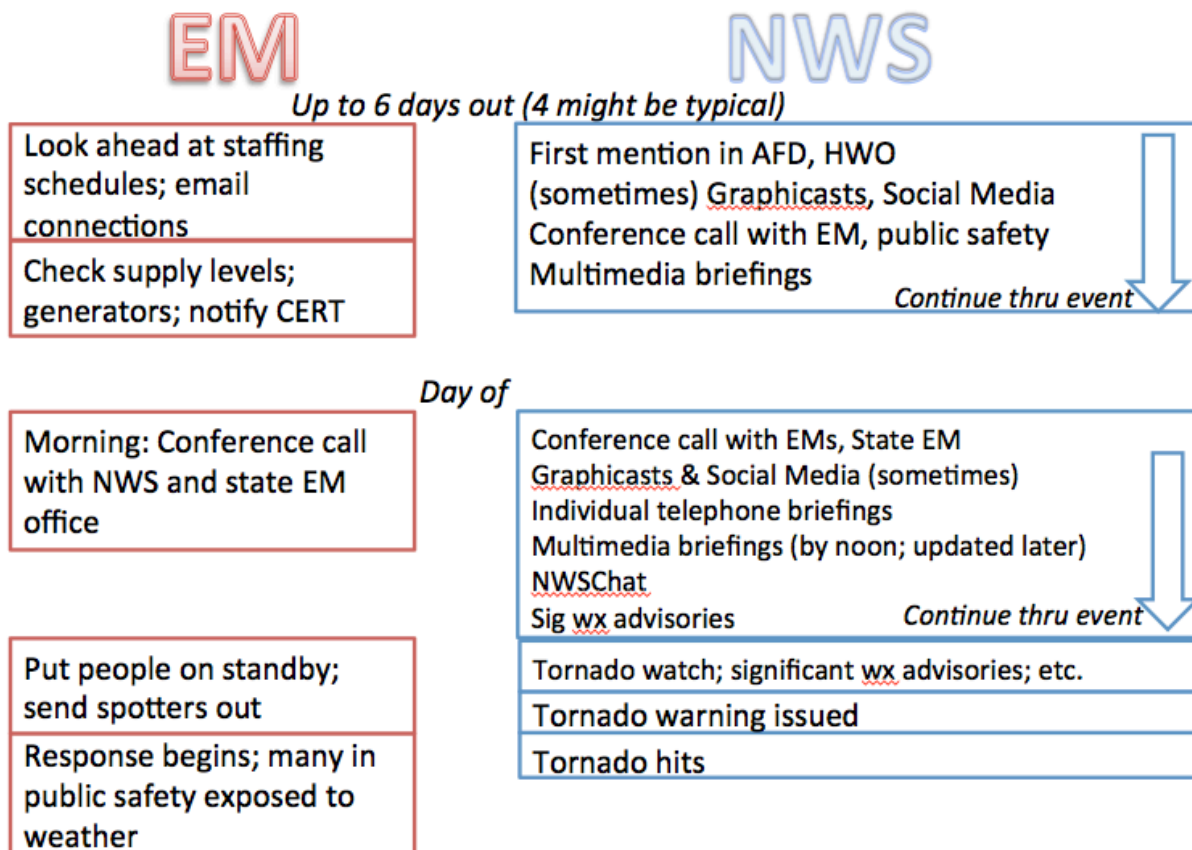| EM	NWS
Morning: Conference call with NWS and state EM office	Conference call with EMs, State EM Graphicasts & Social Media (sometimes) Individual telephone briefings Multimedia briefings (by noon; updated later) NWSChat Sig wx advisories *Continue thru event*
Put people on standby; send spotters out	Tornado watch; significant wx advisories; etc.
Response begins; many in public safety exposed to weather	Tornado warning issued
	Tornado hits

Figure 1: Emergency manager decision making on the left lined up with relevant NWS products on the right, beginning up to six days out and continuing through a tornado event.

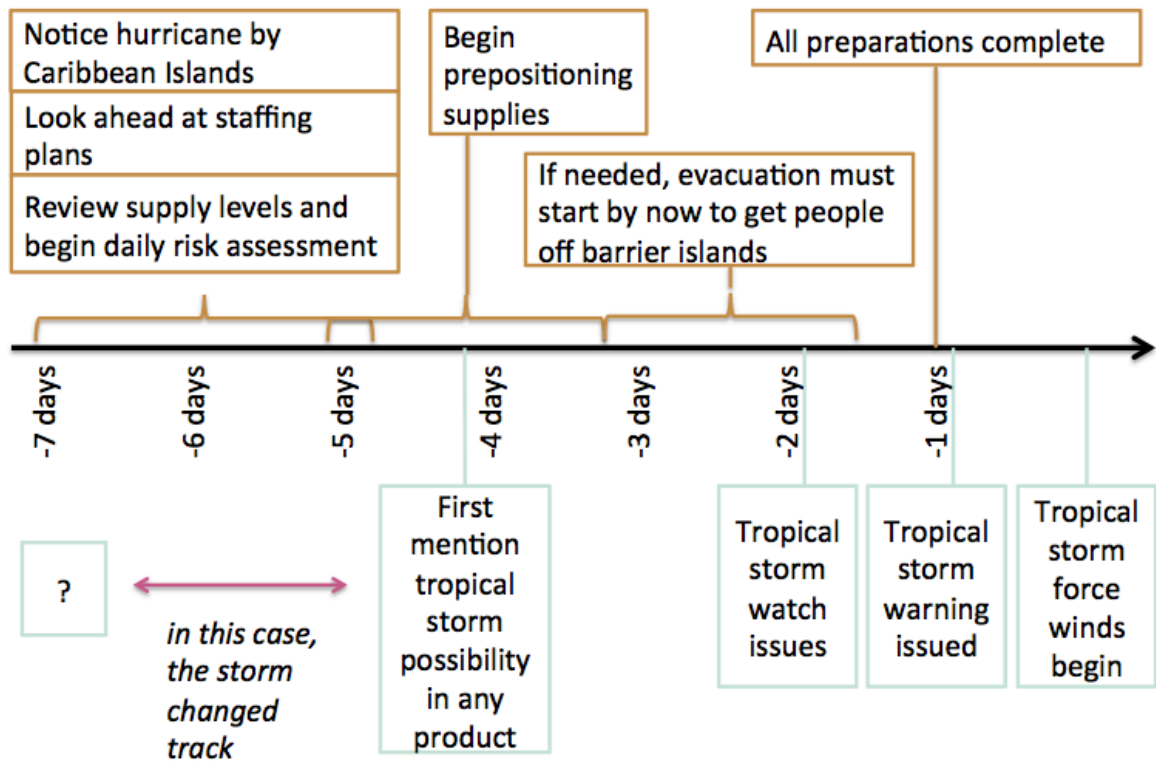# Example (Simplified to Fit) Timeline—Tropical

Notice hurricane by Caribbean Islands

Look ahead at staffing plans

Review supply levels and begin daily risk assessment

Begin prepositioning supplies

All preparations complete

If needed, evacuation must start by now to get people off barrier islands

-7 days   -6 days   -5 days   -4 days   -3 days   -2 days   -1 days

?

in this case, the storm changed track

First mention tropical storm possibility in any product

Tropical storm watch issues

Tropical storm warning issued

Tropical storm force winds begin

Figure 2: Timeline with emergency manager decision processes above the line, related NWS product issue times below the line.

Idea: Building a Situation Awareness Display to Monitor Key Signals

One of many ways to use information gained from the Pre-Mortem and Post-Mortem is to identify which types of data and information provide the most critical signals. Are you monitoring useful data streams, ones that will help you catch early signals of potential problems?
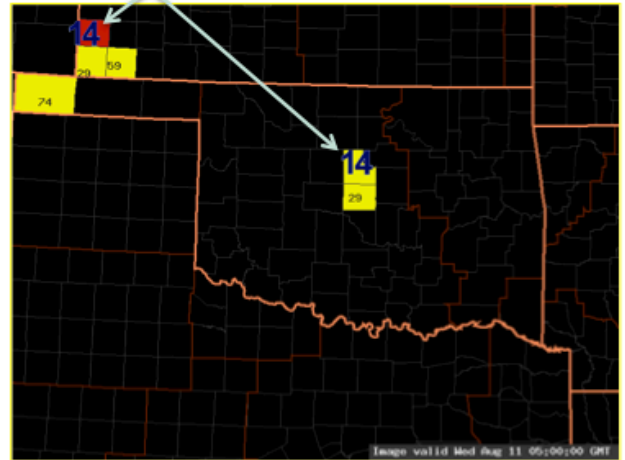

Figure 3: Two of many ideas for a situation awareness display. On the left, a way to know that weather warning products were successfully transmitted. On the right, the remaining time in a weather warning updates every minute, and the font becomes larger as the remaining time becomes short.

Additional Resources

If you found data analysis to be a lot of fun, here are a few books to consider reading.

Miles, M. B., and A. M. Huberman, 1994: *Qualitative Data Analysis: An Expanded Sourcebook.* Second ed. SAGE Publications.

Richards, L., 2005: *Handling Qualitative Data: A Practical Guide.* SAGE, 207 pp.