

**Communication Challenges and the Use of Climate Tools:
A Survey of Emergency Managers and
Broadcast Meteorologists in Coastal Louisiana**

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government officials rely. Broadcast meteorologists communicate weather and climate information to the public daily. EMs enter the process when weather is severe.

Communication difficulties are especially likely to occur and to create problems in crisis situations. An exercise in crisis communication found mistakes including incomplete, contradictory, and incorrect information, which can occur due to poor or misinterpreted information (Abbink et al., 2004). This highlights the importance of interpreting climate tools correctly and communicating those interpretations clearly and accurately.

Research Questions

In order to better understand the communication of emergency managers and broadcast meteorologists related to weather and climate tools, this project conducted a survey to assess the understanding of weather and climate, primary sources of information, perceptions of climate tools, and preferences for training.

Method

Participants and Procedures

The participants ($N = 19$) were EMs ($n = 11$) and broadcast meteorologists ($n = 8$) in coastal Louisiana. The study was conducted by sending links to an online survey to the primary EMs in 26 parishes along or south of the I-10 and I-12 corridor in Louisiana in Fall of 2018. The response rate for EMs was 42%. Links were also sent to 38 broadcast meteorologists at 11 different stations that serve coastal Louisiana, for a response rate of 21%.

The meteorologists had more education than the EMs ($t(17) = 2.14, p = .04$).

during past floods, hurricanes, drought, tornadoes, other damaging wind, hailstorms, heat advisories, hard freezes, and frozen precipitation.

Measures

Participants completed scaled items to describe their understanding of weather and climate, and the understanding of their primary audience. They rated their reliance on sources of information such as local and national media, the internet, and government sources. The questionnaire described and presented examples of nine climate tools such as the hurricane cone of uncertainty, the sea level rise viewer, and marine forecasts. Participants rated the tools based on their usefulness, their personal understanding, and audience understanding. Participants also identified their preferred forms of obtaining new information about weather and climate tools.

Results

Understanding: Meteorologists rated their understanding as strong to excellent and EMs rated their understanding as moderate to strong. The participants believe their primary audience has a moderate to strong understanding of weather and climate.

Information Sources: Federal sources and local media are the most commonly used sources of information about weather and climate. Sources used least frequently include phone apps, social media, and experts at a local university. Broadcasters are more likely to use small, specialty internet sources, while EMs are more likely to use local and state officials,

Weather and Climate Tools: The most frequently used tools, when they are relevant, are the Hurricane Cone of Uncertainty, Surface Weather Maps, and Convective Outlooks. The least used tools are SurgeDat and the Sea Level Rise Viewer.

The tools judged to have the highest quality and

Not surprisingly, considering their training and job responsibilities, meteorologists believe they have greater understanding of weather and climate than do EMs. Interestingly, however, the understanding of the primary audience is judged to be as strong as it is for EMs. This may be a function of the location of the survey. Coastal Louisiana has experienced multiple extreme events in the past 15 years, and this may lead experts to believe that the public has an improved understanding of weather and climate as a result of those events.

Federal sources are used regularly by EMs and broadcast meteorologists. Because NOAA agencies such as the National Weather Service and the Storm Prediction Center are the primary source of data about weather and climate, the stakeholders appear to be using the best-available source. EMs and broadcast meteorologists also rely heavily on local media, a finding that is consistent with research by Edwards et al. (2019) who found that water managers in the same region rely heavily on commercial sources. Because decision-makers use local media, this finding highlights the need for meteorologists to interpret climate tools correctly and to communicate information effectively.

EMs and broadcast meteorologists have a finite amount of time and energy to examine climate tools for their jobs and, consequently, must prioritize some tools over others. These stakeholders in coastal Louisiana show a high degree of consistency in their perceptions of nine different climate tools. The tool that emerged as the “favorite” is the Hurricane Cone of Uncertainty. It is used with regularity, is well-understood by the stakeholders and their audience, and is relatively easy to explain. Interestingly, all of tools were judged to have at least moderately valuable information. All of the tools address weather and climate concerns that are important to coastal Louisiana.

The less-favored tools include the future-oriented Sea Level Rise Viewer. This may reflect the stakeholders' focus on the "here and now" of weather and climate events.

Additionally, the Sea Level Rise Viewer did not include data about the Louisiana coastline until

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