

Context-Aware Weather Warning Systems

Dr. Brenda Philips (University of Massachusetts, Amherst, MA)

The current severe warning system is largely a broadcast system, where warnings are initiated by the National Weather Service and reach the general public through different channels. Individuals have to ensure they receive the warning, place themselves, property and loved ones in the area of risk, and determine if protective action behavior is necessary. Warning systems are moving from a broadcast-based paradigm towards a user-centered, context-aware paradigm. In this new paradigm, important locations and alerting preferences are provided directly by users, or through data analysis techniques, and when a hazard will impact an individual, a personalized alert is delivered. Ubiquitous sensing linked to the internet (IoT), mobility-enabled networking platforms, the proliferation of smartphones, and changing attitudes towards privacy makes this paradigm feasible. This talk will present an innovative platform, the CASA DFW Living Lab Warning for Severe Weather, to research new warning paradigms, including the context-aware, user-centered warning system described above. The living lab is a sensors-to-human warning infrastructure where research can be conducted during live severe weather events that involve the whole warning system. Our lab includes both the technology (radars, sensors, networks, computing, weather products) and key actors (Emergency managers, NWS forecasters, media, industry and the publics). As part of this research platform, we have created a mobile phone app that delivers real-time, context-sensitive weather alerts to the public and also functions as a tool for researching individual perception and warning response. On-going research in creating the context aware system for flash floods and severe weather will be shown as examples.