

Development of a Research-Based Short Message Creation Tool for Wildfire Emergencies

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During imminent threat emergencies, authorities' ability to communicate with the public and provide them with timely and accurate information is imperative. Wireless Emergency Alerts (WEAs) sent via the Integrated Public Alert and Warning System (IPAWS) are short message alerts that authorities can send to devices in specific geographical regions during times of imminent threat. These messages give authorities the ability to distribute important information in a timely manner to those who need it most. Effective May 2019, the Federal Communications Commission (FCC) increased the character limit of WEAs from 90c. to 360c. The extra 270c. available provide authorities with an opportunity to share additional and clarifying information in WEA messages.

Current research regarding best practices for creating short message alerts is available. However, the majority of information is vague and requires interpretation before implementation. This work reviews and analyzes research and evidence-based guidance currently available to those creating short message alerts (i.e., message creators). While the research gathered is applicable to most imminent threat hazards, wildfire-based evacuation messages were chosen as the focus for the remainder of this work. Using the research, evidence-based guidance, and subsequent analysis, fifteen user prompts were developed that inquire relevant and important information about the wildfire-based evacuation. These fifteen prompts were used to build a message creation tool that generates wildfire evacuation messages. A message creator can use this tool by selecting or entering responses to each of the fifteen prompts. The result of the responses is a wildfire-based evacuation message, generated by the tool, that auto-incorporates the research and guidance currently available.

Case studies were completed to observe the validity and contributions of this tool. 90c. WEAs sent during the Thomas Fire, Lilac Fire, and Lake Spokane Fire were analyzed to identify potential problems/shortcomings. Using the message creation tool, new 360c. messages were generated for each fire based off of the original message and additional research gathered. Through a comparison of the 90c. WEA and the tool-generated 360c. WEA, the benefits and limitations of the tool and new message were discussed.

This work helps develop a foundation for the bridge between short message alert research and the practical generation of messages during imminent threat emergencies. Future research is proposed to further develop this tool for purposes other than evacuation, hazards other than wildfires, and systems other than WEA (e.g., mass notification systems).