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J13.1: Expressing forecast uncertainty: NOAA/NWS progress report

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The National Research Council (NRC) Report, *Completing the Forecast: Characterizing and Communicating Uncertainty for Better Decisions Using Weather and Climate Forecasts* (2006) and the AMS Ad-Hoc Committee on Uncertainty in Forecasts (ACUF) Strategic Implementation Plan For Generating and Communicating Forecast Uncertainty Information (2010) both target the National Weather Service (NWS) to become the lead organization in moving the Weather Enterprise toward a better and more comprehensive expression of uncertainty information in weather, water, and climate forecasts. There is a strong argument, supported by the AMS, that providing uncertainty information can improve decision-making, help in the assessment of risk, and reduce loss of life and property, while enhancing the national economy. Expression of uncertainty includes both the generation of forecast uncertainty (e.g., probabilities, range of values, alternative scenarios, forecaster confidence) and the communication of uncertainty (e.g., verbal, web-based, text, and graphics).

Efforts within the NWS and NOAA as a whole have and are continuing to mature in direct response to the NRC report and ACUF plan. As the agency that the Weather Enterprise is relying on to take major steps forward in the move from predominantly deterministic (i.e., most likely scenario) toward a well-balanced blend of deterministic and probabilistic forecast information, it is critically important that the NWS examine recent operational successes, current developmental efforts, and near-term plans for improving the generation and communication of forecast uncertainty. NWS's efforts on these fronts will empower the entire Weather Enterprise to leap forward in this paradigm shift. However, significant challenges exist for moving forward. This AMS presentation will focus on how the NWS conceptualizes uncertainty information, examples of uncertainty expressions communicated to NWS partners and the public, and where knowledge gaps exist for better communicating uncertainty information to users.

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