Visual Expressions of Flood Forecast Uncertainty

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Probabilistic forecasts of flood elevations arising from ensemble streamflow forecasts are becoming more and more prevalent. Probabilistic forecast are often presented as exceedance forecasts (e.g. 90% chance of exceeding a stage of 10 feet, 50% chance of exceeding 14 feet, and 10% chance of exceeding 18 feet.) Interpretation of this information by local decision makers is sometimes difficult.

Flood inundation mapping is an excellent tool to help decision makers visualize what areas of a community are threatened by a given flood. They can see what areas may flood as well as the timing of inundation at certain locations. However, inundation maps tied to a specific flood elevation may imply a level of accuracy that is not warranted. The “hard” edge to a projected inundation area may imply that the flooding will stop at a particular spot or along a particular line. Current flood forecasts simply have too much uncertainty to warrant that much confidence.

This presentation will examine different ways flood inundation maps can be used to visually express reasonable ranges of potential inundation areas; enabling decision makers to see uncertainties in potential inundation.

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