

@article{Witt2023,

abstract = {Hurricane forecasts are often communicated through visualizations depicting the possible future track of the storm. The Cone of Uncertainty (COU) is a commonly used visualization, but the graphic is prone to misinterpretation such as thinking only locations contained within the cone's boundary are at risk. In this study, we investigated the utility of conveying hurricane forecast tracks using a set of animated icons, each representing an instance of a possible storm path. We refer to this new visualization as Animated Risk Trajectories (ARTs). We measured non-experts' perception of risk when viewing simplified, hypothetical hurricane forecasts presented as ARTs or COUs. To measure perception of risk for each visualization type, we designed experiments to have participants make decisions to evacuate individual towns at varying distances from the most likely forecast path of a storm. The ARTs led to greater risk perception in areas that fell beyond the cone's boundaries. Non-experts' interpretation of risk was impacted by the visual properties of the ARTs, such as the distribution of the icons, including their density and whether the distribution was unimodal or bimodal. This supports the suggestion that ARTs can have value in communicating spatial-temporal uncertainty.},

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