

## **Hazard Services - Probabilistic Hazard Information (HS-PHI): Three Years of Experiments in the HWT**

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Forecasting a Continuum of Environmental Threats (FACETs) is a proposed next-generation severe weather watch and warning framework that is modern, flexible, and designed to communicate clear and simple hazardous weather information to serve the public. One of the underlying aspects of FACETs is rapidly-updating probabilistic hazard grids, known as Probabilistic Hazard Information (PHI). PHI can be used to provide custom user-specific products that can be tailored to adapt to a variety of needs – for example, providing longer lead times, at lower confidence, for more vulnerable populations with a lower tolerance for risk.

We are adapting an experimental version of the NWS Advanced Weather Information Processing System (AWIPS) Hazard Services (HS) software to include the capabilities for forecasters to provide PHI at the 0-2 hour “warning” scale. The software has undergone testing for three years in the Hazardous Weather Testbed (HWT). Forecasters participated in the HWT testing the software on six archive case scenarios. These cases were specifically chosen to first familiarize the forecasters to the software and concepts, and eventually introducing them to more complexity in the scenario –single isolated supercells, splitting and decaying storms, quasi-linear convective system tornadoes, low-shear summertime microbursts, and more. Meteorologists, software developers, and human factors experts collected data on the effectiveness of the software and the concepts of PHI for NWS warning operations.

We will summarize the testing over the past three years, including information about the various features that have been incorporated. We have been granted additional funds to begin the incorporation of new functionality, including intermediate “Threats-In-Motion” warnings (without PHI), warning product generation, lightning PHI, inter-WFO collaboration, and new probabilistic plume models based on storm and environmental climatology.