

Storm Surge Risk Products

Among the National Hurricane Program (NHP) decision support tools is storm surge model development and risk products suite. The modeling helps identify areas at risk of storm surge inundation from tropical cyclones – critical information for planning and making operational evacuation decisions. Storm surge planning scenarios and operational storm surge products are available in HURREVAC.

Planning: SLOSH MEOWs and MOMs

The Sea, Lake, and Overland Surge from Hurricanes (SLOSH) storm surge model and associated risk products are developed by National Oceanic and Atmospheric Administration (NOAA) National Hurricane Center (NHC), an NHP partner. SLOSH output products help decision-makers plan for hurricanes by estimating the potential extent and height of inundation from storm surge. The SLOSH model simulates many hurricane scenarios with various angles of approach, Saffir-Simpson categories, forward speeds, sizes, and tide levels. Each modeling run generates an envelope of high water showing the maximum inundation for each location within a coastal region called a basin. A product called Maximum Envelope of Water (MEOW) reflects the reasonable worst-case flooding potential for a particular combination of category, forward speed, and direction. Each MEOW incorporates many possible landfall locations. All MEOWs for a single category are then composited into a Maximum of MEOWs (MOM). MOMs serve as a long-range planning tool for assessing the worst-case storm surge for a given category at any location.

Through the NHP partnership, the NHC develops MEOWs and MOMs for emergency managers to use in planning, training, and exercises. SLOSH output is available for the entire Atlantic and Gulf coastlines of the United States, along with Southern California, Hawaii, American Samoa, Guam, Puerto Rico, and the U.S. Virgin Islands.

Operational Support

As a tropical cyclone approaches, decision-makers can use operational (real-time) inundation products to inform their risk assessment and decision-making. MOMs and MEOWs are not storm-specific but may be considered when the arrival of hazards is more than 48 to 72 hours away (see Figure 1). As forecast certainty increases, the NHC uses SLOSH modelling to generate Potential Storm Surge Flooding map layers that show a reasonable worst-case inundation scenario based on current data. Storm Surge Watches and Warnings and Potential Storm Surge Flooding Maps are released by the NHC concurrently with hurricane watches and warnings. NHC advisories and products from local National Weather Service (NWS) offices also provide important details about expected storm surge hazards.



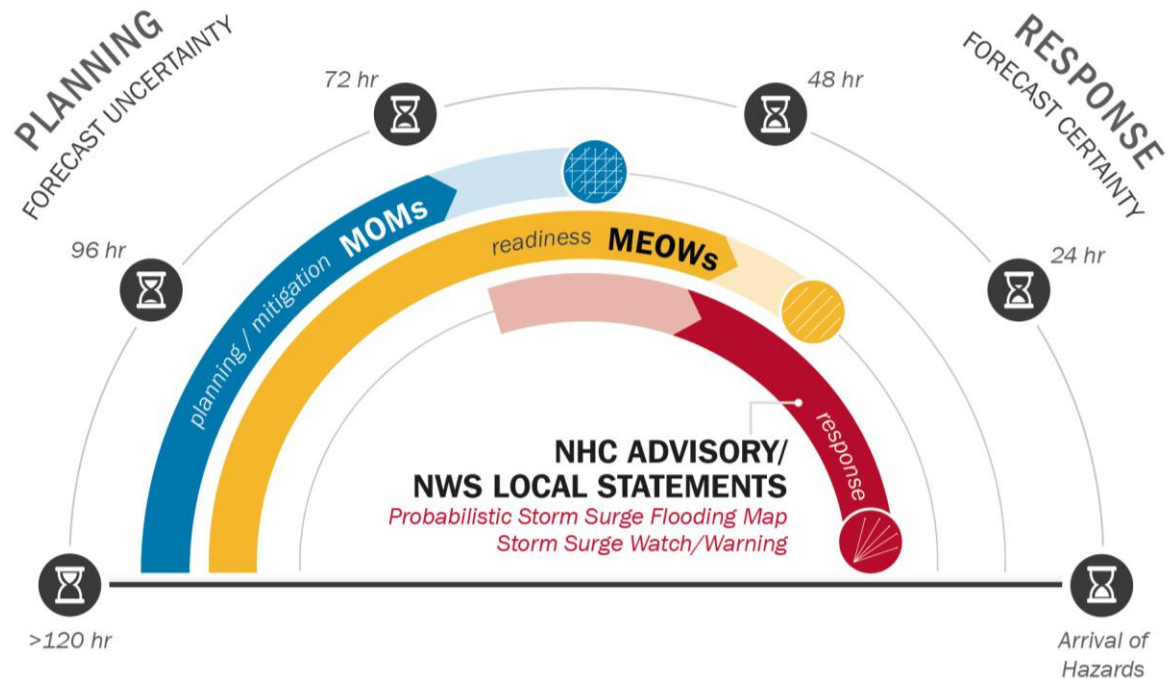


Figure 1: Understanding When to Use SLOSH Risk Products

Storm Surge Explorer

HURREVAC contains several tools for evaluating the entire suite of storm surge risk products. In the Storm Surge (SLOSH) Explorer, users can view the National MOMs or create and blend MEOWs by selecting storm parameters. SLOSH layers can be exported for further analysis in GIS software. HURREVAC's Surge Viewer allows MEOWs for a particular location to be analyzed in chart form by right-clicking on the map. Operational storm surge products (Storm Surge Watches and Warnings and Potential Storm Surge Flooding maps) can be found in the Storm Tools bar to the left of the tracking map. Potential Storm Surge Flooding requires additional processing time and is typically available in HURREVAC 45 minutes to one hour following the regular advisory time. Users can also apply custom labels to surge-related map layers by right-clicking to place Surge Flags. Learn more about these products and tools in the HURREVAC User Guide.

Storm Surge Risk Products create valuable inputs for additional NHP components. It is one of the seven components of the NHP: Storm Surge Risk Products; Hurricane Evacuation Studies and Evacuation Planning; HURREVAC; Training for Emergency Managers; Hurricane Liaison Team Operational Decision Support; Stakeholder Engagement; and Post-Storm Assessments.

For more information about the National Hurricane Program, visit [Hurricane Planning and Response | FEMA.gov](https://www.fema.gov/hurricane-planning-and-response) or email NHP@fema.dhs.gov.