



## **National Hurricane Center's views on the use of scales to communicate the storm surge hazard**

The Saffir-Simpson Hurricane Wind Scale (SSHWS) categorizes hurricanes only by wind speed. Tropical cyclones cannot be easily categorized by storm surge because the surge is not a characteristic of the storm alone, being also dependent on the shape and bathymetry of the affected coastline, the storm's forward motion, angle of approach, and so on. A hurricane striking the Gulf coast of Florida, for example, would cause a much greater surge than an identical storm striking Florida's Atlantic coast. This is why storm surge was formally removed from the original Saffir-Simpson Hurricane Scale in 2010.

A number of new and more complicated scales have been proposed over the past several years. Most, if not all of these, consider the combined effects of hurricane strength and size, or of wind and surge. However, the National Hurricane Center (NHC) does not believe that combined or integrated hurricane scales help local emergency managers or members of the public make informed decisions about their particular vulnerabilities.

Hurricanes pose a variety of hazards to life and property; these include strong winds, storm surge, heavy rains with inland flooding, and tornadoes. The relative risk among these hazards varies from storm to storm and place to place, with each threat requiring a different response. Combined scales tell users nothing about which hazard(s) are threatening them nor provide any guidance about an appropriate response. NHC believes that the clearest way to communicate each of the hurricane hazards is to do so directly and distinctly, and not to conflate them as the proposed integrated scales do.

NHC has recognized the importance of storm surge since our inception and has been a part of several significant advances in forecasting storm surge. Currently, the NHC is experimenting with two new approaches intended to help communities prepare for and respond to surge threats. The first is the application of a Storm Surge Warning, which would be issued by the National Weather Service to highlight exclusively the expectation of life-threatening surge. The second is an easy-to-understand high-resolution map showing the forecast inundation from storm surge. Both approaches are being developed with input from communications and social science experts to maximize the clarity and utility of the new products.

The new approaches to surge are being designed to reinforce instructions from local emergency managers. We cannot overstate the importance of following evacuation orders and other instructions from local officials, regardless of the category or strength of a tropical storm or hurricane. Ignoring evacuation orders risks not only the lives of those who stay behind, but also the lives of first responders who may be called upon to rescue them.

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*September, 2012*