Category 3-5-5: A better storm label?

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Since Hurricane Katrina, a worthwhile discussion has arisen among officials, scientists, journalists, and other professionals regarding the effective communication of risk to the public. Nearly everyone seems to agree that the notorious phrase "100-year storm" misleads people into believing that the occurrence of a powerful hurricane diminishes the chances of a subsequent reoccurrence. The superior phrase "1% storm" reflects the reality that such a system may develop whenever conditions allow.

Similarly, the Saffir-Simpson Scale, created in the early 1970s to communicate storm threat via five set categories, has been criticized for capturing only one aspect of a storm—wind speed. It assumes that the storm's surge, size, and forward-movement speed are all linearly related to wind. But in fact, wind speed may decline disarmingly while surge heights remain dangerously high. We learned this during Hurricane Katrina.

As a replacement, one scientist has proposed a "Hurricane Intensity Index," based on dynamic pressure (Hurricane Katrina would have gauged a 2.9 HII), and a "Hurricane Hazard Index," which bundles wind, size, and speed measurements (Katrina ranked a 19.3 HHI). Both proposals produce open-ended, continuous indexes, like the Richter Scale for earthquakes; there is no maximum.

These are fine proposals for scientific use, but not necessarily for the public. By abandoning the familiar categories 1-through-5, they would require massive public re-education and constant explanation, and may lead to confusion. More significantly, they do not specifically communicate a storm's deadliest aspect, surge height.

It seems to me—a geographer, not a meteorologist, but one who regularly communicates scientific information to the public—that the Saffir-Simpson Scale is not really broken. It's simply incomplete. Why discard a convenient and universally recognized index when expanding it might solve the problem?

Consider an alternative proposal: Keep the famous Saffir-Simpson 1-through-5 categories, but report them for wind speed - surge height - system size, in that order and in that format. Hurricane Katrina, then, would have been categorized as a Category 3-5-5 storm as it neared land: its winds had declined, but its surge and size remained enormous. Hurricane Camille (1969) might be categorized as a 5-5-2: extreme winds and surge, but small and focused. The numerous weaker storms affecting the Gulf Coast over the past decade generally would have fallen around the 1-1-1 range. Scientists can debate and establish the exact cut-offs.

The proposed modification has some drawbacks. It does not report forward movement, precipitation, or the radius in which the highest winds blow (adding additional figures is ill-advised). But consider its advantages. Citizens familiar with the traditional Saffir-Simpson Scale would automatically recognize this one; a minimal amount of public re-education is needed. People who can't remember the order or significance of the figures will still recognize that the closer to "5," the more urgent the news. Those who wish to keep the old scale may do so by speaking only of the first figure. It would also allow people to compare the present threat to earlier ones they've actually experienced, without a conversion table.

True, the proposed modification would fail to gauge the off-the-charts "mega-storms" that an open-ended index would capture. But then again, the infamous number "5" packs such an attention-grabbing rhetorical wallop to coastal residents, that discarding it for an open-ended index might actually weaken the message.

Communicating technical information to the public, particularly during times of emergency, oftentimes means balancing precision, clarity, comprehensiveness, simplicity, and familiarity. Whatever proposals are considered for communicating hurricane risk ought to be tested thoroughly with officials, scientists, broadcasters, and the public.

It's a worthwhile discussion to have.

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