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The Willis Hurricane Index

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There is a growing need for timely information on the damage caused to off-shore assets by hurricanes for insurance and reinsurance industry response and planning purposes. This has led to a number of specific indices being developed that estimate damage from standard hurricane information; index values can subsequently be related to corresponding levels of insured loss. Here we report on the development of a new, more comprehensive index, the Willis Hurricane Index (WHI). The guiding principles for the WHI are that it should be useable world-wide and must use information readily available in advisory reports from the relevant hurricane warning center. Given the relatively small amount of available quality damage data, which makes it difficult to develop an adequate statistical approach, the basic index was developed primarily on physical principles, including previously published work, and very little "tuning" was done. All available data were used in the development and independent verification is achieved by comparison to an existing major catastrophe model and through testing under real-time conditions. The index incorporates hurricane intensity, size and translational speed and accurately reproduces the historical damage from hurricanes moving through off-shore facilities in the Gulf of Mexico. Extension to other regions and to climate models will be discussed.