

## BREAKTHROUGH IN FORECASTING US HURRICANE ACTIVITY

The strength of hurricane activity striking the United States during the main hurricane season can now be predicted with significant accuracy thanks to a new computer model developed by BHRC scientists. The model, unveiled in the April 21st issue of the journal *Nature*, will enable governments, the public, emergency planning bodies and insurers with US interests to receive warning in early August of the likelihood of either high or low hurricane damage during the subsequent main hurricane season, which runs from August to October. This scientific breakthrough offers the potential to reduce the financial risk and uncertainty associated with each hurricane season.

The model, developed by Mark Saunders and Adam Lea of the BHRC and Tropical Storm Risk forecasting venture, uses anomalies in wind patterns from six regions over North America and the east Pacific and North Atlantic oceans during July to predict the wind energy of US striking hurricanes for the main hurricane season. The large year-on-year variability in the number of hurricanes making US landfall means that skilful seasonal forecasts of activity would benefit both individuals and a range of decision-makers. Hurricanes afflict Florida, the eastern seaboard and the Gulf Coast. They rank as the US's most expensive natural disaster and are responsible for eight of the 10 most costly catastrophes to have affected the country. The annual average damage bill from hurricane strikes on the continental US between 1950 and 2004 is estimated at \$5.6 billion (at 2004 prices).

The model correctly anticipated whether US hurricane losses were above-median or below-median in 74% of the years between 1950 and 2003. It also performed well in 'real-time' operation in 2004, predicting US landfalling hurricane wind energy in the upper quartile for this active and damaging hurricane season. Insurers and others would have reduced their losses in 2004 by acting upon the forecast.

"For over two decades scientists have been attempting - with limited success - to deliver seasonal predictions of hurricane activity reaching the coast of the United States," said Saunders. "This study is the first to offer forecast precision which is high enough to be practically beneficial. Our use of height-averaged winds as a predictor is innovative for seasonal weather forecasting and may benefit the seasonal prediction of tropical storm landfalls elsewhere in the world. All those with an interest may access our forecast for the 2005 US hurricane season from [www.tropicalstormrisk.com](http://www.tropicalstormrisk.com) on the 4th August. Reference: Saunders, M. A. and A. S. Lea, Seasonal prediction of hurricane activity reaching the coast of the United States, *Nature*, 434, 1005-1008, 2005.

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