

UCL Press Release

**EMBARGOED TO 18:00 LONDON TIME, 13:00 US EASTERN TIME ON
WEDNESDAY 30 JANUARY 2008**

Increased hurricane activity linked to sea surface warming

The link between changes in the temperature of the sea's surface and increases in North Atlantic hurricane activity has been quantified for the first time. The research - carried out by scientists at UCL (University College London) and due to be published in *Nature* on January 31 - shows that a 0.5°C increase in sea surface temperature can be associated with a ~40 per cent increase in hurricane activity.

The study, conducted by Professor Mark Saunders and Dr Adam Lea of the Benfield UCL Hazard Research Centre and the UCL Tropical Storm Risk forecasting venture, finds that local sea surface warming was responsible for about 40 per cent of the increase in Atlantic hurricane activity (relative to the 1950-2000 average) between 1996 and 2005.

The study also finds that the current sensitivity of tropical Atlantic hurricane activity to sea surface warming is large, with a 0.5°C increase in sea surface temperature being associated with a ~40 per cent increase in hurricane activity and frequency.

The research focuses on storms that form in the tropical North Atlantic, Caribbean Sea and Gulf of Mexico – a region which produced nearly 90 per cent of the hurricanes that reached the United States between 1950 and 2005. To quantify the role of sea warming it was necessary to first understand the separate contributions of atmospheric circulation and sea surface temperature to the increase in hurricane frequency and activity.

Professor Saunders, the lead author of the study, explained how this was done. “We created a statistical model based on two environmental variables – local sea surface temperature and an atmospheric wind field - which replicated 75-80 per cent of the variance in tropical Atlantic hurricane activity and frequency between 1965 and 2005. By removing the influence of winds from the model we were able to assess the contribution of sea surface temperature and found that it has a large effect. “

“Our analysis does not identify whether greenhouse gas-induced warming contributed to the increase in water temperature and thus to the increase in hurricane activity. However, it is important that climate models are able to reproduce the observed relationship between hurricane activity and sea surface temperature so that we can have confidence in their reliability to project how hurricane activity will respond to future climate change.”

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Notes for Editors

1. *Large contribution of sea surface warming to recent increase in Atlantic hurricane activity*, by Prof Mark A. Saunders and Dr Adam S. Lea, appears in the 31 January issue of the journal *Nature*.

2. This work is supported by the TSR (Tropical Storm Risk) venture sponsored by Benfield (an independent reinsurance intermediary), Royal & Sun Alliance (an insurance group), and Crawford & Company (a claims management solutions company).

3. For further information, to obtain a copy of the paper, or to arrange an interview with Professor Saunders, please contact Dave Weston in the UCL Press Office (d.weston@ucl.ac.uk; +44 20 7679 7678; Out of hours: +44 7971 271 364).

Images:

Figure 1. Composite satellite image of hurricanes Charley, Frances, Ivan and Jeanne ‘targetting’ Florida in August and September 2004. Image courtesy of Univ. Wisconsin-Madison, Space Science and Engineering Center.

Figure 2. Composite satellite image of intense hurricanes Dennis, Emily, Katrina, Rita and Wilma in 2005. The storms all made landfall around the Gulf of Mexico causing nearly US \$180bn in damage. Image courtesy of Univ. of Wisconsin-CIMSS.

About UCL:

Founded in 1826, UCL was the first English university established after Oxford and Cambridge, the first to admit students regardless of race, class, religion or gender, and the first to provide systematic teaching of law, architecture and medicine. In the government’s most recent Research Assessment Exercise, 59 UCL departments achieved top ratings of 5* and 5, indicating research quality of international excellence.

UCL is in the top ten world universities in the 2007 THES-QS World University Rankings, and the fourth-ranked UK university in the 2007 league table of the top 500 world universities produced by the Shanghai Jiao Tong University. UCL alumni include Marie Stopes, Jonathan Dimbleby, Lord Woolf, Alexander Graham Bell, and members of the band Coldplay.