

# News Release

Contact:

Investors: Kerry K. Calaiaro  
+1 212 837-0880  
Email: [kerry.calaiaro@willis.com](mailto:kerry.calaiaro@willis.com)

Media: Dan Prince  
+1 212 837-0806  
Email: [daniel.prince@willis.com](mailto:daniel.prince@willis.com)

## **Willis Research Network Uses Japanese Supercomputer to Help Insurers Predict Typhoons, Hurricanes and Climate Change.**

**London, February 12, 2007** – In an industry-first, the Willis Research Network (WRN) has joined forces with internationally renowned universities to harness the immense power of the NEC Earth Simulator in Yokohama, Japan to help insurers understand the frequency and severity of natural catastrophes in the face of climate change. The ability to use the Earth Simulator in conjunction with the expertise of the WRN and its partners, focussed for the first time on the direct needs of the insurance industry, marks a major step from global modelling towards regional and local impact and promises to be of profound significance to the international reinsurance and insurance industry.

Over the next three years the Willis Research Network will work with teams of researchers in Japan and the UK to help apply the Earth Simulator to the needs of the Japanese and international insurance market across a range of hazards. The ultimate aim of the research programme is to provide improved inputs into catastrophe models and realistic disaster scenarios giving underwriters much greater confidence in understanding future risk across key regions and weather perils.

The Earth Simulator, one of the world's most powerful supercomputers is used to run the Hadley Centre's climate model, HadGEM, under the UK-Japan Climate Collaboration (UJCC). The University of Reading's Walker Institute and the Met Office Hadley Centre are both involved and the whole project is funded by the Natural Environment Research Council (NERC) and the UK Department for Environment, Food and Rural Affairs (DEFRA). The Hadley Centre's model has provided major inputs into the recent Intergovernmental Panel on Climate Change report.

Recently UJCC scientists have performed climate simulations with HadGEM at unprecedented detail, enabling the study of important processes, such as the El Niño-Southern Oscillation (ENSO), and of climate extremes, such as cyclones, typhoons and hurricanes. It is this that has led to particular interest from the Willis Research Network.

According to **Rowan Douglas, Chairman of the Willis Research Network**, "We are just reaching the stage where the power of this immense computer platform, coupled with improvements in simulation techniques and climate modelling allow us to model regional weather and extreme events rather than just the mean climate. This has

profound implications for insurers. It opens the possibility for the insurance market to better prepare for the level of events that may arise from climate change.”

**Professor Julia Slingo of the Walker Institute and NERC’s National Centre for Atmospheric Science** said, “Being able to use the Earth Simulator has had a huge impact on our climate research and allowed us to begin to address questions such as the likely frequency and severity of typhoons and hurricanes under climate change scenarios. We are seeing, for the first time, the importance of resolving these types of weather systems on many aspects of climate, including El Niño. There is no doubt that in the next few years the increased skill of our models, as a result of being able to work with the Earth Simulator, will lead to improved seasonal forecasts and climate change projections, both of significant value to the insurance industry.”

The research programme has received widespread support from the insurance market. **Vinay Mistry, Manager of Lloyd's Exposure Management** commented, "We welcome joint international research endeavours such as the Earth Simulator project. Further insights into the complex interactions within the climatic system will ultimately help the insurance industry to better understand atmospheric hazard and inform portfolio management strategies."

The Earth Simulator initiative represents another first from the rapidly growing Willis Research Network, launched last September.

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## **Notes to Editors**

### **Willis Research Network (WRN) - [www.willisresearchnetwork.com](http://www.willisresearchnetwork.com)**

The WRN is the largest ever collaboration between the academic and the insurance industry to evaluate the frequency, severity and impact of catastrophes such as hurricanes, earthquakes, floods and terrorism. For the first time it brings together a unique group of the world’s leading research institutions across the earth sciences, engineering and mathematics to bring comprehensive, practical and consistent answers to these challenges.

### **Earth Simulator - [www.es.jamstec.go.jp/esc/eng/](http://www.es.jamstec.go.jp/esc/eng/)**

The Earth Simulator is one of the world’s largest computers and was built by the Japanese government in 2002 under the Japanese Agency for Marine-Earth Science and Technology (JAMSTEC). It is the first powerful supercomputer that has made it possible to simulate the evolution of an entire system at once and for this reason it has

been selected to run the world's most advanced climate change models. Because of this treatment of the entire system, the future evolution of a system can be predicted by simulation, and hence the future world is turned from science fiction into scientific reality.

**Walker Institute - [www.walker-institute.ac.uk](http://www.walker-institute.ac.uk)**

The Walker Institute for Climate System Research was established at the University of Reading in Autumn 2006. It draws together a number of internationally renowned climate system research groups and centres with expertise across a wide range of core disciplines central to climate system science. Their vision is to be a world leader in integrated climate system research in order to deliver better knowledge and understanding of future climate and its impacts for the benefit of society.

**UK-Japan Climate Collaboration (UJCC) - [www.earthsimulator.org.uk](http://www.earthsimulator.org.uk)**

The UJCC is a joint project between the Hadley Centre (DEFRA) and NERC's National Centre for Atmospheric Research at the University of Reading.