



NEWS RELEASE

July 31, 2006

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UH MĀNOA SCIENTIST ADVANCES CLIMATE MODELING

HONOLULU – The American Geophysical Union (AGU), which publishes 19 different scientific journals covering the earth, atmospheric, oceanic and space sciences, has selected a paper by Kevin Hamilton, professor and chair of the Department of Meteorology and a research team leader at the University of Hawai‘i at Mānoa’s International Pacific Research Center, as a featured article in its “Journal Highlights.”

The paper, coauthored with Japanese colleagues at Hokkaido University and at the Earth Simulator Center, represents a breakthrough in global circulation modeling, the main tool for studying climate and climate change.

Current high-resolution Global Circulation Models (GCMs) perform very differently in their ability to realistically simulate winds and horizontal atmospheric motions and their dissipation or, in scientific terminology, the kinetic energy spectrum. This is a serious drawback, since one can only have confidence in the model-generated climate and its response to imposed perturbations to climate if the model dissipates motions realistically down to the smallest scale.

The team of researchers studied outputs from the Atmospheric GCM for the Earth Simulator (AFES), and they compared model output with aircraft observations. They found that AFES spontaneously simulates a realistic horizontal kinetic energy spectrum in the upper troposphere for a decade and longer. Moreover, the team constructed a reliable way to adjust the horizontal diffusion coefficient in the model so that the kinetic energy spectrum at all model resolutions converges to realistic values.

The editors of the AGU Journals select particularly outstanding articles to be featured on the AGU Media Services website as “Journal Highlights.” Roughly 15 articles of the several hundred published each month by AGU are selected as such highlights.

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Article Title: Explicit global simulation of the mesoscale spectrum of atmospheric motions systems

http://www.agu.org/sci_soc/prl/jh060724.html#1

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Source:

Geophysical Research Letters (GL) paper 10.1029/2006GL026429, 2006

The International Pacific Research Center (IPRC) of the School of Ocean and Earth Science and Technology (SOEST) at the University of Hawai'i at Mānoa, is a climate research center founded to gain greater understanding of the climate system and the nature and causes of climate variation in the Asian-Pacific region, and to develop information on how global climate changes may affect the region. Established under the "U.S.-Japan Common Agenda for Cooperation in Global Perspective" in October 1997, the IPRC is a collaborative effort between Japan and the United States.

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