



**Research Meets with Early Successes**  
*RAINEX runs rings around hurricane intensity puzzle*

**UNIVERSITY OF MIAMI ROSENSTIEL SCHOOL OF MARINE AND ATMOSPHERIC SCIENCE, VIRGINIA KEY, FL (August 30, 2005)** –Real-time radar data and high-tech communications were the keystones to success this weekend as the Rainband and Intensity Change Experiment (RAINEX) began its research with Hurricane Katrina and became the first hurricane research project to fly planes nearly simultaneously inside and outside the hurricane’s principal rainband, gathering information that will help understand hurricane intensity change significantly.

RAINEX is studying the interaction between hurricane winds and rain, using data recorded from hurricane research flights. For six weeks of this year’s active hurricane season, two NOAA P3 aircraft, along with a U.S. Navy P3 aircraft are to fly simultaneously into hurricanes before making landfall. Flying in the hurricane’s outer bands and punching into the eyewall on most flights, the aircraft are using sophisticated Doppler radar and GPS dropsondes to record wind speed and direction, temperature, humidity, atmospheric pressure, and other critical data.

“While forecasting of hurricane tracks has come a long way, that kind of information results from a variety of variables external to the hurricane and more accessible to study,” said Robert A. Houze Jr., a professor in atmospheric sciences at the University of Washington and a RAINEX principal investigator. “Intensity is driven in part by internal dynamics between the rainbands and the eyewall – something that is very hard to get to – so this is landmark information that will help us to understand this phenomenon better.”

Shuyi Chen, an associate professor of meteorology and physical oceanography at Rosenstiel School and a RAINEX principal investigator, developed a fine resolution, coupled atmosphere-wave-ocean computer model to study hurricane intensity change problem. While most models estimated atmospheric activity down to tens of kilometers, her model went further – down to a kilometer or two, filling in information gaps to provide very realistic rainband and eyewall structure simulation. The accuracy of the model was impressive enough that researchers are able to use the model in combination with airborne Doppler radar measurements to tackle the hurricane intensity change problem.

“The airborne radar data come into our operations center at Rosenstiel School in real-time. We process it, and we share it with the other planes within a few minutes,” Chen said. “This helps the planes navigate and position themselves appropriately, and it helps us guide all planes to exactly the area of the hurricane we want to take measurements. It’s the first time we have ever tried this new way of communicating from the ground about all aircraft in a hurricane.” This technique was developed in partnership with NOAA’s National Environmental Satellite, Data and Information Service (NESDIS). The RAINEX research team uses a chat room to communicate and coordinate research flight information rapidly in real-time among all scientists on the ground and planes.

RAINEX features expertise from the University of Miami Rosenstiel School of Marine & Atmospheric Science, the University of Washington, the National Center for Atmospheric Research (NCAR), the National Oceanic and Atmospheric Administration (NOAA), and the U.S. Navy. The National Science Foundation (NSF) provided \$3 million in funding to shed light on how and why a storm can change in strength in only a matter of hours.

For more information about RAINEX, visit: <http://www.joss.ucar.edu/rainex> or <http://orca.rsmas.miami.edu/rainex> .

*Rosenstiel School is part of the University of Miami and, since its founding in the 1940s, has grown into one of the world’s premier marine and atmospheric research institutions.*

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