

# IHRC NEWS UPDATE

## International Hurricane Research Center



Florida International University

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***Public Hurricane Loss Model Released, Wall of Wind Phase I Testing Completed, New Orleans Flooding Report Released, Social Science Team Kept Busy by Hurricanes***



*Dr. Shahid Hamid, Principal Investigator, Professor and Director, IHRC Laboratory for Insurance, Financial and Economic Research*

### ***PUBLIC HURRICANE LOSS MODEL RELEASED; NOW BEING USED BY THE STATE OF FLORIDA***

The first public model to project hurricane losses has been completed by the IHRC team of meteorologists, wind engineers, computer scientists, statisticians, financial analysts, and actuary scientists. FIU Professor Shahid Hamid was the Principal Investigator of this \$2.7 million project as funded by the State of Florida during the past four years. Many leading experts in their fields from Florida International University, Florida Institute for Technology, Florida State University, University of Florida, Hurricane Research Division of NOAA's Atlantic Oceanographic and Meteorological Laboratory, and University of Miami were involved in the development of this computer catastrophe (cat) model.

Catastrophe models provide estimates of future insured losses that can be used by insurance companies as input in determining homeowners' insurance rates. The estimates are also used by regulators to help evaluate requests for rate changes. Insurance rates in Florida have been rapidly rising in recent years because of eight hurricanes striking the State in a 14-month period in 2004 and 2005.

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The principal objective of the computer model is to estimate annual expected insured losses as a result of hurricanes, but it can also provide immediate estimates of losses from specific hurricane events, such as Katrina, Wilma and Charley. The new model has already produced excellent figures on Hurricane Wilma's insurance losses for South Florida.

At the FIU Press Conference on May 9, Insurance Commissioner Kevin McCarty noted that private, proprietary models used by the insurance industry do not allow one to see the underlying assumptions, making it difficult to evaluate requested rate increases by various companies in the different geographic regions of Florida. This project was initiated by U.S. Senator Bill Nelson when he was Insurance Commissioner; the Honorable Tom Gallagher was responsible for actually securing the funding with the help of State Senator Rudy Garcia who recognized the need and importance of a "transparent" model to Florida homeowners. Robert Epling, President of Community Bank of Florida and Chair of the IHRC Board of Trustees, stated that "The IHRC model will aid in the objective evaluation and mitigation against our ever-present hurricane exposure." which is one of the principal reasons that the We Will Rebuild Foundation started the Center at Florida International University in the wake of Hurricane Andrew.

The Office of Insurance Regulation and FIU requested, and the IHRC has been recently granted, \$1.1 million by the Florida Legislature to expand the applicability of the Cat Model to include commercial structures such as condominiums and apartment buildings; presently only single-family houses, including manufactured houses, are included in the analysis. We salute Professor Hamid and his team of 15 senior researchers and many graduate students for making this excellent contribution in hurricane research that is of paramount importance to all Floridians.

## ***SOCIAL SCIENCE TEAM KEPT BUSY BY HURRICANES***

Professor Dario Moreno, Director of the IHRC Laboratory for Social Science Research and the FIU Metropolitan Center, and his team conducted four major projects during the 2005 hurricane season. The research included three polls—a nationwide poll on Katrina, a state-wide poll on hurricane mitigation, and a local poll (Miami-Dade, Broward and Palm Beach Counties) following Wilma. The social science team also interviewed victims in Texas in the aftermath of Hurricanes Rita and Wilma.

The Florida Mitigation Survey showed that unfortunately Floridians have yet to embrace a “culture of preparedness.” Less than half of all Florida residents will begin preparing their homes when a hurricane warning is issued, and only one in five Floridians in flood-prone areas would evacuate in this same situation.

Hurricane Wilma, despite being a cat 1/2 storm, seriously disrupted the lives of South Florida residents; 59% of those polled said that Wilma had a serious or devastating impact on their lives. In contrast to past reluctance to invest money in mitigation, most respondents now favor such activities in order to reduce future storm disruptions. One of the many lessons of Hurricane Wilma is that even minor storms in densely populated areas can cause major economic and social consequences.

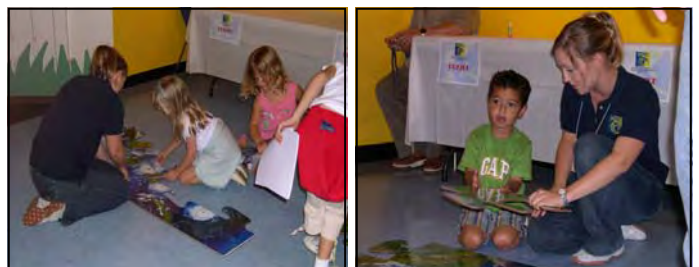
## ***HURRICANE AWARENESS EXHIBIT AT MIAMI CHILDREN’S MUSEUM***



IHRC sponsored a Hurricane Awareness Exhibit at Miami Children’s Museum on Sunday, May 21, 2006 during National Hurricane Awareness Week (May 21 – 27). The exhibit consisted of four stations that took the child through the hurricane experience, answering the questions:

- What is a hurricane?
- How should one prepare for a hurricane?
- What steps should be taken to reduce damage caused by a hurricane?
- What should we do after a hurricane strikes?

Each station displayed informative graphics and involved an interactive game. At the conclusion, each child received an activity packet and a certificate of participation. IHRC’s Educational Outreach Program is funded, in part, through the Florida Department of Community Affairs.



IHRC’s focus on the mitigation of hurricane damage and loss of life is made ever more resolute following the disasters brought upon the Gulf States last season. We address storm impacts and recovery from multiple perspectives and disciplines through our four Laboratories:

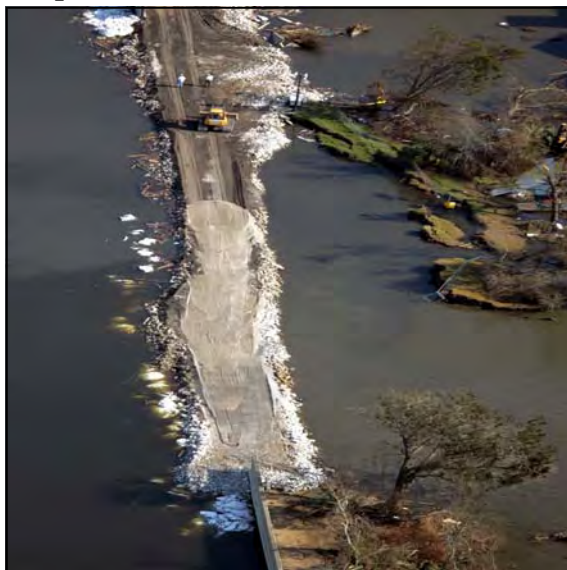
- Coastal Research
- Insurance, Financial and Economic Research
- Social Science Research
- Wind Engineering Research

For more information, visit us at: [www.ihrc.fiu.edu](http://www.ihrc.fiu.edu)

## ***NEW ORLEANS FLOODING REPORT RELEASED***

The much-anticipated report on the cause of the flooding of New Orleans was released on June 2, making the front page of the *Miami Herald*, *New York Times*, *USA Today*, and other newspapers nationwide. IHRC Director Stephen Leatherman was the National Academy Review Coordinator for this \$19.7 million report that details the engineering and design failures that allowed the storm surge generated by Hurricane Katrina to overwhelm New Orleans' levees and floodwalls on August 29, 2005.

Dr. Leatherman stated in an extended interview on the Fox News O'Reilly Show just a few days after this tragedy unfolded that the 17<sup>th</sup> Street Canal levee breach was caused by failure of the structure itself, not overtopping by the storm surge as originally maintained by the U.S. Army Corps of Engineers. Leatherman was the first scientist to pinpoint in *Science* magazine that this critical breach, causing the devastating flooding of downtown New Orleans, was due to lateral water pressure and flow-through of the earthen levees; subsequent post-storm surveys showed that the debris lines of Katrina's storm surge did not reach the top of the still intact levees along Lake Pontchartrain as commonly assumed. Lt. General Carl Strock, the Corps Chief, said that "This is the first time that the Corps has had to stand up and say, we've had a catastrophic failure."



## ***SECOND ANNUAL FLORIDA HURRICANE ALLIANCE WORKSHOP***



The 2<sup>nd</sup> Annual Florida Hurricane Alliance Research Program Workshop was held at FIU on March 2-4. The workshop was attended by researchers from the eight participating universities (Florida A&M University, Florida Atlantic University, Florida International University, Florida State University, University of Central Florida, University of Florida, University of North Florida, University of South Florida) and NOAA scientists. This meeting provided an opportunity for Alliance members to present their findings and exchange ideas regarding future research topics and techniques. Additional information on the Florida Hurricane Alliance can be found at <http://www.ihrc.fiu.edu/fha/>.

## ***MIAMI-DADE LOCAL MITIGATION STRATEGY MEETING***

The IHRC hosted the Miami-Dade Local Mitigation Strategy (LMS) team on June 14, 2006. The LMS Working Group is composed of representatives from Miami-Dade municipalities, county departments, state and federal agencies, schools, colleges and universities, hospitals, and private for profit and not-for-profit organizations dedicated to reducing hazards within the local community. During the meeting, Carolyn Robertson invited the participants to review a draft form of the FIU Hazard Mitigation Plan posted at <http://dru.ihrc.fiu.edu>. This effort is part of the FIU Disaster Resistant University Program.

## WALL OF WIND PHASE I TESTING COMPLETED



The 2-fan Wall of Wind prototype has demonstrated the proof-of-concept for full-scale wind testing of structures as guided by Dr. Forrest Masters of the IHRC and Assistant Professor in FIU's Department of Civil & Environmental Engineering. The IHRC team has been greatly assisted by Dr. Tim Reinhold, VP for Research for the Institute for Business & Home Safety (IBHS). Injecting rain water into wind up to 120 mph, the Wall of Wind researchers watched as soffits failed, allowing water to enter under the roof of a full-size structure; considerable damage during recent hurricanes hitting Florida has been due to water penetration, causing ceilings to collapse and dry wall to become saturated with water. Houses that became mold infested were total losses.

The IHRC wind engineering team, which will shortly be joined by in-coming Assistant Professor Arindam Chowdhury, is now constructing the Renaissance Re Wall of

Wind (WoW) that will be located at Homestead Air Reserve Base (HARB). This 6-fan instrumentation will greatly increase our testing capabilities and will lead to the development of the WoW facility that will consist of 18 fans—a row of six fans, stacked three high. Our plan is to develop this world-class facility on the tarmac at HARB where noise pollution is not a problem, considering that F16 fighter jets are regularly taking off and landing at this air base. We are on the fast-track to obtain a permit to use the Homestead site, which is only a 20-minute drive down the Florida Turnpike from FIU, and Miami-Dade County Mayor Carlos Alvarez recently pledged his full support for this first-of-its-kind facility in the world during a meeting with IHRC Board Chair Bob Epling, VP George Dambach, and IHRC Director Stephen Leatherman.

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