IHRC NEWS UPDATE
International Hurricane Research Center

Fall 2004

IHRC Joins in Hurricane Wind Research; "On the Ground" Studies Underway

Tower Deployment in 50 mph Sustained Winds in Fort Myers

New IHRC researcher and wind engineer, Dr. Forrest Masters virtually hit the ground running mid-August, as he joined with a Hurricane Charley investigative team to undertake field experimentation and damage surveys. Masters took over directorship of the Laboratory for Structural Mitigation, and has renamed the lab, **Laboratory for Wind Engineering Research.**

He has studied eleven named tropical cyclones since the 1999 Atlantic Hurricane Season. The research, funded in part by the State of Florida Department of Community Affairs' Florida Coastal Monitoring Program (FCMP) is a joint venture between the University of Florida, Clemson University, and the Institute for Business and Home Safety (IBHS). The research focus is on full-scale experimental methods to quantify near-surface hurricane wind behavior and the resultant pressure loading on residential structures.

Before Charley's landfall, research team members deployed four 10-meter tower systems, designed to withstand 200 mph wind gusts, to measure high-resolution time histories of wind velocity. Summary statistics of these data were transmitted to a web server throughout landfall every 15 minutes. Meteorologists from the NOAA Hurricane Research Division (HRD) and analysts contracted by the Federal Emergency Management Agency ingested these data into surface wind field models (H*Wind and HAXUS, respectively). *(continued, next page)*

NOAA MOU

A new and long awaited Memorandum Of Understanding (MOU) was recently signed by Admiral Conrad Lautenbacher, Jr., Vice Admiral, U.S. Navy (Ret.) and Undersecretary of Commerce for Oceans and Atmosphere, on behalf of NOAA, and Dr. Modesto Maidique, FIU President, on behalf of the IHRC. This MOU recognizes the importance of NOAA's National Hurricane Center on FIU's University Park Campus, and it's collaborative potential with the IHRC.

NHC Director Max Mayfield played an instrumental role in facilitating the MOU. The understanding aims to explore joint programs of education, research and public service for FIU students and faculty, to further the mission of NOAA, and to serve the community at large.

Senator Nelson Visits IHRC - Unveils Measures to Reduce Hurricane Impacts

In a gratifying act of confidence and support, Senator Bill Nelson met with FIU officials and senior staff of the IHRC July 16th, to review the Center's recent accomplishments, and to discuss his current legislative proposal. Nelson, Florida's former insurance commissioner, is an enthusiastic supporter of the IHRC. He detailed his proposal for a National Act to bring together the efforts of four different federal agencies as a coordinated research effort.

The aim is to strengthen construction requirements and techniques to reduce damage and the cost of insurance premiums for home and business owners.

"We live in a land known as paradise" said Nelson, "and paradise happens to be on a peninsula also known as 'hurricane highway'. We're going to have (hurricanes), we always have. We've clearly got to lessen the damages and the costs."

Nelson called IHRC's computer modeling on storm surge "a sobering commentary" and complimented the Center for its follow through on research initiatives.

At the National Hurricane Center (L to R) IHRC meteorologist Hugh Willoughby, FIU V.P. Steve Sauls, National Hurricane Center Director Max Mayfield, Senator Bill Nelson, FIU V.P. George Dambach and IHRC Director Stephen Leatherman after a tour of the Tropical Prediction Center.

Message from the Director:

This season of hurricanes has been stunning. Florida and other affected regions have a long recovery ahead. The damage and struggles forced upon individuals and communities have deepened our resolve to push the IHRC mission forward. Our thanks go out to the agencies and first responders working diligently to help those in need.

Stephen Leatherman

Social Scientists Meet With Hurricane Victims

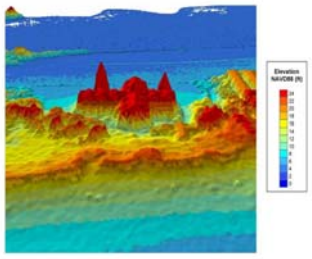
IHRC social scientists headed for southwest Florida after Hurricane Charley to interview storm victims in shelters and on assistance lines in the hardest hit areas. The team was led by Dr. Dario Moreno of the Metropolitan Center, with Dr. Betty Morrow, one of the IHRC's first directors. Morrow, a principal investigator after Hurricane Andrew, is now working with IHRC as a consultant.

"We know from Hurricane Andrew who we can expect to have the fewest resources and the slowest recovery after a catastrophic event of this kind." says Morrow. "With Hurricane Charley, like so many other disasters, that means significant populations of low-income people, the elderly and agricultural laborers."

The Center's studies on populations affected by hurricanes, and the social systems dealing with helping people restore their lives are ongoing. These studies contribute to the planning for improved responses after a large-scale disaster.

LIDAR Workshop

IHRC's Laboratory for Coastal Research hosted a LIDAR workshop July 23 at the GIS Laboratory located in FIU's Green Library. Five counties participated, including Miami-Dade, Broward, Palm Beach, Manatee and Martin. LIDAR & Imagery Applications, Storm Surge Analysis and Animation, and ArcIMS were displayed. A roundtable discussion was also held.



Digital Elevation Model Created from LIDAR data

Tallahassee Report

Late in July Stephen Leatherman and Carolyn Robertson traveled to Tallahassee to meet with Department of Community Affairs representatives, including Thaddeus Cohen, Secretary of DCA. Storm surge modeling and the need for additional airborne laser data in the Florida panhandle was a primary topic. In addition, the IHRC team introduced the idea of a certified product Approval Testing Facility at FIU, which was well received.

Dr. Leatherman presented the Scope of Work (SOW) and budget for the Residential Construction Mitigation Project to the Governor's Advisory Council and officials.

Findings were unanimously accepted and the 2005 SOW and budget approved.

'04 Hurricane Research Studies Underway

(from page 1)

After landfall, Dr. Masters worked on damage surveys along with team leader Tim Reinhold, Vice President for Engineering at IBHS. Teams surveyed residential neighborhoods in Port Charlotte, Punta Gorda, Pine Island and Arcadia over three days. Single-family and manufactured homes were primarily targeted for detailed inspection of components/cladding and structural elements. During these surveys, research personnel:

- Catalogued damage from windborne debris, particularly clay and concrete barrel tiles. In at least one home, tiles punctured Miami-Dade approved storm shutters. During the inspections, researchers also found plywood, timber plank and shingle debris embedded in homes
- Examined manufactured housing to compare performance between newer and older homes. "Pre-HUD" homes, which were built before the 1976 Manufactured Home Construction and Safety Standards, experienced the greatest damage.
- Manufactured housing designed from the revised 1994 wind safety provisions exhibited comparatively less damage.
- Noted that architectural shingles performed well, and in most cases, better than basic three-tab shingles.

Analysis of the recorded ground wind speed data and the damage surveys are currently underway. Future details will be available at the FCMP project website: www.ce.ufl.edu/~fcmp.

2 x 6 ***Missile Impact***

Arcadia's Storm Shelter - Turner Civic Center

Exposed Sheathing and Tile Damage

Manufactured Housing

International Hurricane Research Center
Florida International University . University Park Campus . MARC 360 . Miami, Florida 33199
phone: 305-348-1607 . fax: 305-348-1605 . e-mail: hurrican@fiu.edu . http://www.ihrc.fiu.edu