



IHC UPDATE

SPRING 2003

The International Hurricane Center (IHC) is a Type I research center serving the State of Florida. This designation was approved at the Florida Board of Regents meeting on March 15, 1996 and makes the center Florida's official hurricane research center for 11 universities comprising the state system. The IHC is also designated as the formal liaison for NOAA's Tropical Prediction Center and National Hurricane Center, co-located on the campus of Florida International University in Miami.

The International Hurricane Center is an interdisciplinary research center focused on the mitigation of hurricane damage to people, the economy, and the built and natural environments. The citizens of the U.S. East and Gulf Coasts and Caribbean islands are severely impacted by hurricanes, and the IHC promotes an interdisciplinary, large-scale disaster research agenda to address this vulnerability. Disciplines such as architecture, business, economics, engineering, finance, geosciences, insurance, political science, sociology, and urban planning are involved in a long-term, integrated research program which helps Florida, the nation, and its regional neighbors to mitigate hurricane exposure.

Airborne Laser Project

In mid-December the IHC team began data acquisition for Miami-Dade County, under the airborne laser mapping project, which is funded by FEMA through FLDCA. About 90% of the area or 200,000 acres was imaged, before the laser malfunctioned. Another field deployment will be needed and should be completed this summer.

Data collection for Manatee County is finally underway after delays with laser maintenance and U.S. Customs upon

the reentry of the system into the United States from Canada.

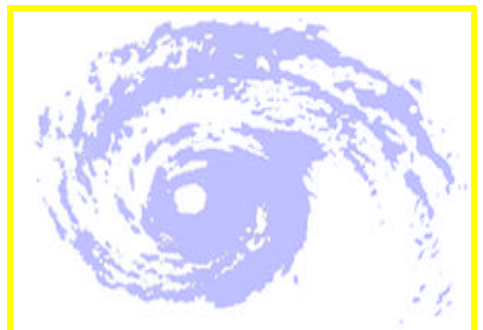
The evaluation of storm surge models continues and includes: SLOSH, ADCIRC, EFDC/HEM3D, and UnTRIM.

Researchers are producing computer animations of storm surges. System architecture presently includes processing, construction of 3D elements extracted from the LIDAR data, and automatic animation.

A virtual component is currently being developed to provide greater detail to the computer animations. Development of this capability will greatly enhance the public's perception of the dangers involving storm surges, especially when associated with major hurricanes.

May Board Meeting

The next meeting of the IHC Board of Directors is scheduled for May 14, 2003 at 5:00 p.m. on the 5th floor of the MARC Building on the University Park Campus at Florida International University.



National Science Foundation Science and Technology Center

We are seeking to establish a National Science Foundation Science and Technology Center (NSF STC) for hurricane research that will focus on economic, environmental and human impacts. STCs are funded at a multiple of millions of dollars annually for ten years. The review process is thus competitive and exhaustive. The NSF is looking for the best and most relevant science backed up by strong partnerships, including matching support from participating institutions.

The announcement of opportunity was posted on the NSF web site on March 4, 2003. Pre-proposals are due at 5:00 p.m. on June 3, 2003, and full proposals will be due on February 10, 2004.

Experts predict that major hurricanes will strike the U.S. Atlantic and Gulf coasts during the next two or three decades as often as they did in the 1940s and '50s, which was the highest level of activity in the past century. This is expected to provoke crises in construction, land use, disaster recovery, public health, and especially windstorm insurance.

The key to managing the exigencies of hurricane landfall lies in non-meteorological facets of preparedness, response, and recovery.

The following foci will define the STC scientific program:

1) **Landfall meteorology** Atmospheric scientists will focus on hurricane surface winds and rain-fall; 2) **Coastal vulnerability**:

Researchers will pioneer techniques for coastline forecasting, environmental effects, airborne laser mapping, storm surge modeling, redrawing of evacuation boundaries and computer animation; 3) **Economic impacts and insurance**: Two key goals will be (a) comprehensive, well-documented accounting for the costs of hurricane warnings; and (b) development of the Florida public-domain catastrophe model as a premier risk evaluation tool; 4) **Urban and regional planning**: We will focus on improving hurricane resilience through more effective human responses and more sustainable networks and institutions; 5) **Structural damage mitigation**: We will engage in design, testing and evaluation of innovative, cost-effective hurricane-resistant structural components and building techniques; 6) **Landfall scenarios**: We will integrate the gamut of expertise required to deal with the problem of hurricane landfall.

These studies will result in detailed evaluations of hurricane effects on selected segments of coastline as well as software and basic science required for similar investigations in areas not studied by our researchers. Integrated simulation and animation capabilities will be highlights of these programs.

Miami lies at the center of the most vulnerable coastline in North America. It is also home to key federal laboratories, academic programs and a well-established local mitigation strategy--all of which make South Florida an ideal location from which to address all aspects of the hurricane problem.



Hurricane Loss Reduction Project

The Hurricane Loss Reduction Project is funded by FLDCA through the CAT fund.

The interdisciplinary team consists of 12 professors and experts from Florida International University, Clemson University, University of South Florida, University of North Texas and Texas A&M University. In addition, about a dozen graduate students are involved in the project.

Recent work under this project involved the destructive testing of roof sheathing panels under simulated hurricane wind load. The testing used two different types of nails for comparative purposes, common bright and ring shank.

As a practical outcome of these tests, the IHC will submit a recommendation to the Florida Building Code Commission to change the current type of nail specified for roof sheathing for one that improves the uplift resistance of the roof by a factor of at least 80%.

Comings and Goings

Dr. Betty Morrow is retiring after a long and fruitful career at FIU. We look forward to our continued working relationship with her, as she becomes Professor Emeritus. Dr. James Rivers will take over from Betty as Director of the IHC Laboratory for Social and Behavioral Research.

International Hurricane Center

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