

UF Researchers Take Pulse Of Hurricane Dennis

July 12 2005



University of Florida researchers working on at least two separate projects helped gauge Hurricane Dennis' fury Saturday and Sunday. In the first, a team of research engineers from UF and two other Florida universities deployed five mobile wind towers in Dennis' projected path, then monitored and recorded the hurricane's winds as it powered ashore. In the second project, UF Institute of Food and Agriculture Sciences

researchers followed the hurricane's impact on UF's "hurricane house" near Pensacola, built to withstand winds exceeding 140 mph.

Image: University of Florida civil engineering students (from left) Johann Weeks, Dustin Davison and Luis Aponte prepare to raise a 30-foot hurricane tower to test it before taking it to meet Hurricane Dennis on Thursday, July 7, 2005. The towers are equipped with anemometers, or wind meters, and other instrumentation designed to gather data on hurricanes. The goal is to learn more about low-level hurricane winds and the forces they exert on homes and other structures. (University of Florida/Kristen Bartlett)

The 3,000-square-foot house adjacent to the Escambia County extension office in Cantonment was all but undamaged. The top wind gust the engineers measured was about 120 mph, about the same as reported by meteorologists.

With both projects, data and experience from the storm's strike will add to the growing body of knowledge about how to build homes to withstand hurricanes.

“Overall, the idea is to learn the most efficient way to make houses stronger without costing a lot more,” Kurt Gurley, a UF associate professor of civil engineering, said of the tower project.

Gurley's team of 17 research engineers and students from UF, Florida International University and the Florida Institute of Technology left Gainesville on Friday and Saturday, towing the towers behind Ford F-250 trucks. The project is part of a larger hurricane research effort called the Florida Coastal Monitoring Program, sponsored by the Florida Department of Community Affairs.

Designed for quick setup and able to withstand 200-mph winds, the

5,500-pound structures stand more than 33 feet tall when erected. They house instruments measuring wind speed and direction, barometric pressure, humidity and rainfall.

The team put up the towers between Navarre, just east of Pensacola, and Panama City. They also placed instrumentation designed to measure hurricane wind forces on four pre-selected homes in Navarre, Destin and Santa Rosa Beach. Dennis made landfall Sunday afternoon between Pensacola Beach and Navarre Beach.

Team members spent Saturday and Sunday nights safely ensconced in a hotel east of Pensacola in Mary Esther, but they were able to gauge the tower data in real time thanks to a cell phone connection to three of the towers' onboard computers. The peak preliminary wind gust of 120 mph was recorded by the Navarre tower, probably located in or near the eye Hurricane Dennis, Gurley said.

The National Oceanic and Atmospheric Administration also tapped the tower data. NOAA uses the UF data, as well as data from other sources such as satellites and research aircraft, to produce detailed maps of hurricane wind forces used by the Federal Emergency Management Agency and other responders to hurricanes.

The tower data “is probably the most accurate wind measurement we can use in our analysis, so we’re very happy to have it,” said Mark Powell, a NOAA atmospheric scientist based in Miami.

The hurricane house, officially known as the Escambia Windstorm Damage Mitigation, Training and Demonstration Center, was undamaged with the exception of some wet carpet, said Lamar Christenberry, Escambia County extension director.

The house shows how existing homes can be made more hurricane-

resistant. For example, its features include impact-resistant doors, a steel “safe room” and a garage door that will withstand winds of more than 150 mph.

“Our hurricane house demonstrates that it is possible to build a home that will come through hurricanes such as Dennis and Ivan with little or no damage” Christenberry said.

The house is one of three facilities located at UF/IFAS Extension Service offices around the state. Other hurricane houses are in Fort Pierce and St. Augustine, and a fourth house will be completed in August at the UF/IFAS Fort Lauderdale Research and Education Center. The Florida Department of Financial Services provided \$2.3 million for the houses, and UF’s Shimberg Center for Affordable Housing in the College of Design, Construction and Planning supervised their design and construction.

In the wake of four devastating hurricanes in 2004 and with the likelihood of another active hurricane season this year, the houses are becoming magnets for educating builders and residents about wind-loss mitigation, energy efficiency and environmentally sensitive construction, said Pierce Jones, director of the UF/IFAS Florida Energy Extension Service.

Source: UF

Citation: UF Researchers Take Pulse Of Hurricane Dennis (2005, July 12) retrieved 14 May 2024 from <https://phys.org/news/2005-07-uf-pulse-hurricane-dennis.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is

provided for information purposes only.