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The legacy of Florida's year of 4 hurricanes

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For six weeks, Florida reeled under the assault of four hurricanes.

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First Charley struck Port Charlotte Aug. 13, 2004, with 150-mph winds. It blasted its way into Central Florida five hours later with winds clocked at 105 mph at Orlando International Airport.

Hurricane Frances followed on Sept. 5 with lashing winds and drenching rains that would total 14 inches in metro Orlando. Tree limbs tore down power lines. Roofs were peeled from homes. Thousands sweltered without electricity.

Then Ivan came ashore near Pensacola with 120-mile-per-hour winds and a storm surge that swamped coastal towns. And Jeanne struck the same area as Frances on Sept. 25, adding insult to injury.

It came to be known as the Year of the Four Hurricanes.

Following that beating, and another one the next year with Hurricanes Wilma and Katrina, there have been dramatic improvements to our electric grid, shelters, forecasting abilities and ability to communicate. And while another season like 2004 still would be disastrous, we would have more warning and stand a better chance of returning faster to normal life.

What's better

COMMUNICATIONS: When the 2004 storms struck, Twitter did not exist. Neither did the iPhone. A new web site called TheFacebook had just been created in a Harvard dorm room. When it came to hurricanes, the latest news arrived via television and radio. Today, when a storm gets close, text alerts can go out to anyone within range of Central Florida cellphone antennas, even if their phone has a Cleveland or New York City area code.

Orange County provides disaster information at <http://www.facebook.com/OrangeCountyFlorida> and at <http://www.twitter.com/OrangeCoFL>.

Residents can also sign up to receive emergency texts on their mobile devices at ocalert.net.

The federal government's Wireless Emergency Alerts system, which went online in 2012, passed an important test in April when it dispatched a severe-weather warning about an approaching tornado to the mobile phones of thousands of Central Florida residents – and visiting tourists.

At the Orange County Emergency Operations Center, a small cadre of people has been trained to monitor Facebook and Twitter during disasters for information on people trapped, in need of food or dealing with other emergency situations, said assistant emergency manager Ron Plummer.

"We're looking for certain key words," he said. "They might be looking for something hash-tagged power out or trapped."

After a storm, county workers can put together faster damage assessments using geocoding.

EVACUATIONS: These actually may be less frequent, thanks to new storm-surge models that more precisely establish which areas could be in danger. Residents of coastal areas may be directed to evacuate inland – and will likely end up in Orange County, the state's largest inland county.

ELECTRICITY: Florida's electric providers invested billions to harden their delivery systems after hurricanes in 2004 and 2005 caused massive outages.

Duke Energy spokesman Sterling Ivey said the company has cleared vegetation from thousands of miles of line and conducts regular inspections of power poles, replacing those that fail tests. Many utilities have installed smart meters and other devices that give immediate notification of outages.

"I think the industry learned a lot from those hurricane seasons as did the whole state of Florida," Ivey said.

FOOD AND GAS: After the 2004 storms, power outages kept many grocery stores and gas stations closed for days, even though they had no damage. This is unlikely to happen again.

Gas stations with eight pumps or more are now required to install generators, and many with fewer pumps did so too. All but three of the 89 Publix stores in Brevard, Orange and Seminole counties now have generators to minimize outages, said Dwaine Stevens, spokesman for the Florida-based grocery chain.

"We learned a great deal from the hurricane and storms of 2004 and 2005," he said, describing the infrastructure upgrades as a "necessity" in hurricane-prone communities. "Our customers depend on us and we strive to be their partners and neighbors during times when basic items are needed to support them and their families."

FORECASTING: Predictions are more precise thanks largely to improvements in models, computer power and satellite technology. When a storm is three days out, forecasters can predict its path within 100 miles, down from 170 miles 10 years ago, said James Franklin, National Hurricane Center hurricane specialist unit branch chief. When Hurricane Arthur swept past the Florida coast last month, forecasters felt confident enough to issue hurricane watches for North Carolina and not for Florida.

The hurricane center's warnings to the public also have improved. Some changes enhanced readability, with notices written in mixed-case letters rather than in SCREAMING CAPITALS. New maps show the risk of hurricane-force winds over broad areas to counteract the focus on the skinny black line at the center. And this year, maps show the risk of storm surge, which accounts for more deaths than wind.

The center now issues hurricane warnings 36 hours in advance, up from 24 hours a few years ago. Hurricane watches, which indicate hurricane-force winds are possible, are issued 48 hours in advance, up from 36 hours.

What's not better

INTENSITY FORECASTS: Forecasters still aren't much better at predicting the intensity of a storm – and that can be a big deal.

For instance, a category 3 hurricane headed for Fort Lauderdale would require a much bigger, more disruptive evacuation into Central Florida and other inland areas.

Hurricane Charley, for instance, surprised forecasters with a plunge in pressure and increase in intensity over only a few hours, with maximum sustained winds suddenly speeding up from 110 miles per hour to 150 miles per hour. Today, such a rapid intensification still might catch forecasters by surprise. Studying the mechanisms by which hurricanes intensify is extremely challenging, requiring extensive data at low altitudes from the center of the storm.

"Those cases are still very difficult to predict," Franklin said. "While the physics of hurricane tracks are well understood, the physics of hurricane intensification are not."

COMPLACENCY: Until 2004, Orlando rarely took a direct hit from a hurricane. "It was a little bit of a wake-up call for some people," said hurricane specialist Jack Beven of the National Hurricane Center. The storm aftermath filled Orlando-area hospitals with patients injured in post-hurricane accidents, sickened by tainted drinking water or stricken by heat exhaustion. Some people learned to take warnings seriously.

Others probably haven't.

"We're concerned about that," said Orange County's Plummer, pointing out that the agency has invested a great amount of time and effort to remind people to stay alert.

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