

Dorian conjures up numerous threats for Southern states

September 2 2019, by Chrystian Tejedor



Credit: National Oceanographic and Atmospheric Administration

A high pressure system is pulling Dorian away from mainland Florida, but its affects will still be felt along the coast.

Waves could be up to 8 feet high, giving them enough speed to come in farther than they normally would.

"Usually we see waves of around 2 to 3 feet," said Earth and Environment professor Stephen Leatherman. "It's going to cause severe problems with [beach erosion](#)—which is an issue for Florida and for the

coast up to the Carolinas."

Flooding will still be a concern for South Florida.

"Dorian—even if the center is offshore—could yield a significant amount of rain," said Jayantha Obeysekera, director of FIU's Sea Level Solutions Center. "That, compounded by high [tide](#) and [storm](#) surge, could result in extensive flooding particularly in low lying areas."

For areas now threatened by Dorian, FIU meteorologist Haiyan Jiang doesn't expect the storm to exceed the National Hurricane Center's intensity forecast.

"The intensity forecast is fairly close because Dorian is so close to land and there is moderate shear that could inhibit rapid intensification," said Jiang, whose research focuses on hurricane intensity estimation and rapid intensification prediction.

No matter where Hurricane Dorian makes landfall, Florida is about to get hit with the perfect storm.

It's a rare combination of rising seas, record rainfall, and [king tide](#) all happening at the same time. How bad it really gets comes down to timing, said Jayantha Obeysekera, director of the FIU Sea Level Solutions Center.

"If Dorian makes landfall during the peak of king tide, it could be bad because the [storm surge](#) will be higher," he said. "Storm surge is going to be felt by both inland and coastal communities."

There are three things at play as Dorian makes its approach, Obeysekera said. The rate of sea level has doubled over the last few years. We're at the time of year where the moon will be closest to earth, causing king

tide. Storm surge on top of the higher tide could make flooding worse.

It will be a problem especially for coastal communities already prone to flooding. The problem could be so bad that water control systems might not be able to keep up with the rain, the tides and the storm, Obeysekera warns.

As of now, forecasters predict that Dorian will dump at least 15" of rain over the peninsula. This could cause significant flooding as the ground is already saturated and can only absorb so much more water.

It's also possible for Dorian to further slow or stall over the state, according to FIU hurricane researcher Haiyan Jiang. Dorian is at the mercy of a high pressure system over Bermuda and another coming from the midwest.

There's another threat to consider. Beach and dune erosion along with dune breaching and storm generated over wash would occur, pushing sand and saltwater into neighborhoods, said Earth and Environment professor Stephen Leatherman, known as Dr. Beach for his annual ranking of the country's best beaches.

Still, the official forecast is the best estimate of what could happen, said FIU meteorology professor Hugh Willoughby, a former director of the National Oceanographic and Atmospheric Administration's Hurricane Research Division. The best advice is to heed official warnings.

Provided by Florida International University

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