

## Storm Data and Unusual Weather Phenomena - October 2018

Location	Date/Time	Deaths & Injuries	Property & Crop Dmg	Event Type and Details
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### ALABAMA, Central

(AL-Z046) BULLOCK, (AL-Z048) RUSSELL, (AL-Z049) PIKE, (AL-Z050) BARBOUR

10/10/18 17:00 CST	0	Tropical Storm
10/10/18 20:30 CST	0	

The center of Tropical Cyclone Michael come ashore as a high end category four hurricane just east of Panama City, Florida, during the early afternoon on Wednesday, October 10th. The southeast portions of Central Alabama were under a Tropical Storm warning and experienced heavy rainfall and wind gusts of 35 to 45 mph.

### ALABAMA, Southeast

(AL-Z065) COFFEE, (AL-Z066) DALE, (AL-Z067) HENRY, (AL-Z068) GENEVA

10/10/18 07:00 EST	1.42M	Tropical Storm
10/10/18 20:00 EST	0	

(AL-Z069) HOUSTON

10/10/18 07:00 EST	2.94M	Hurricane
10/10/18 20:00 EST	0	

Hurricane Michael started as typical weak October Caribbean tropical system. However, after approximately a week of slow development, the system moved into warm Gulf of Mexico waters and rapidly intensified into a major hurricane as it moved north towards the Florida Panhandle. After a 2-day long intensification period over the eastern Gulf, Michael made landfall as an unprecedented (for the region) high-end category 4 hurricane on the Saffir-Simpson Hurricane Wind Scale in the Florida Panhandle with maximum sustained wind speed of 155 mph and a minimum pressure 919 mb. Based on wind, Michael is the fourth most powerful hurricane to hit the United States, behind the Labor Day Hurricane (1935), Hurricane Camille (1969) and Hurricane Andrew (1992), and the most powerful storm to impact the Florida Panhandle in recorded history. Based on central pressure, Michael is the third most powerful hurricane to hit the United States, behind only the Labor Day Hurricane (1935) and Hurricane Camille (1969). The storm caused catastrophic damage from wind and storm surge, particularly in the Panama City Beach to Mexico Beach to Cape San Blas areas. The widespread catastrophic damage spread well inland as Hurricane Michael remained at category 3 strength into southwest Georgia.

One of the hardest hit locations was from Mexico Beach to Indian Pass where 9 to 14 feet of peak storm surge inundation was observed. In addition, wave action caused even higher total water values and this resulted in waves destroying the second story of multiple buildings in Mexico Beach.

At St. Joseph Peninsula State Park on Cape San Blas, the storm surge cut through the peninsula, creating two inlets, resulting in portions of the park no longer being accessible by vehicle. These new inlets truly demonstrate the power of storm surge.

While preliminary peak storm surge inundation was slightly less east of Indian Pass, values were still life-threatening and caused significant damage. Along the coast, portions of U.S. 98 and Alligator Drive were washed out and had to be patched/repaved. In Carrabelle, water was high enough to enter a restaurant, resulting in damage to furniture. In addition, numerous homes along the coast were destroyed or damaged as water slammed against the structures.

In addition to the life-threatening storm surge, structural damage was extensive particularly across the Florida Panhandle. Preliminary data assessments indicate almost 50,000 structures were affected across the Florida Panhandle, western Big Bend, southwest Georgia and southeast Alabama. Of these, more than 3,000 structures were destroyed. Homes and businesses were not the only structures impacted. The Hurricane Michael Preliminary Virtual Assessment Team (P-VAT) report from the Structural Extreme Event Reconnaissance Network indicated that two hospitals in Bay County, Bay Medical Sacred Heart and Gulf Coast Regional Medical Center also sustained significant damage. One hospital had glass crack and cladding stripped off the building while the other hospital had issues with power and water. Tyndall Air Force Base (AFB), that experienced the eye of Hurricane Michael, experienced catastrophic damage with every building on base experiencing some roof damage. A nearby elementary school had a portion of its roof ripped off. During the height of the storm, before the transmission stopped, a sensor at Tyndall AFB measured a gust to 139 mph.

The wind damage was not confined to the coastline, but extended well inland. In Marianna, businesses lost their roofs and the exterior wall of some buildings collapsed as the roof was lost. In Donalsonville, GA, where a 115 mph gust was measured, roof damage was also observed and at least one silo was flipped over. Even in Albany, GA, signs were blown down and roofs were peeled off buildings.

In addition to extensive structural damage, hurricane force winds caused widespread power outages across a large portion of the tri-state region. Nearly 100% of customers across a large portion of the Florida Panhandle lost power, with some of these outages

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lasting weeks. These widespread power outages extended into southwest Georgia with 100% of customers losing power all the way up to Lee County, GA!

Property damage estimates were still being calculated at the time of this publication and will likely rise further from what is indicated here. However, one estimate of insured losses from the state of Florida alone was as high as \$4.2 billion.

The catastrophic winds also resulted in damage to the timber and agricultural communities across Florida and Georgia. According to the Florida Forest Service, in Florida, timber damage costs estimates were over \$1.2 billion dollars with almost 3 million acres of forested land damaged. In addition to damage costs, replanting in the more severely damaged areas could be an addition \$240 million. This damage also has impacts to the wildfire potential with additional forest fuels from downed trees. According to Florida Commissioner of Agriculture Adam Putnam, the state suffered nearly \$1.5 billion in agricultural damages due to Michael. The estimated damages were as follows: Forestry \$1.3 billion, Cotton \$49.9 million, Cattle \$43.3 million, Peanuts \$23 million, Nurseries and Floriculture \$16.1 million, Poultry and Eggs \$10 million, Vegetables \$8.6 million, Other Field Crops \$7.3 million, Dairy \$6.4 million, Aquaculture \$5 million, Fruit \$4.4 million, Tree Nuts \$4.1 million, and Apiary \$2 million.

In Georgia, 2,368,226 acres of forestland was impacted by Hurricane Michael. The estimated value of this land is \$762,683,909. Catastrophic damage was mainly confined to Seminole, Decatur and Miller Counties with severe damage extending into Dougherty and Terrell Counties. Additional crop damage occurred in Georgia to cotton, vegetables, pecans, poultry, peanuts, and timber. According to Georgia Agriculture Commissioner Gary Black, estimated damages were as follows: Cotton \$300-\$900 million, Vegetables \$480 million, Pecans \$560 million, Poultry \$25 million, Peanuts \$10-\$20 million, and Timber \$1 billion.

Inland flooding associated with Hurricane Michael across the tri-state region was limited as the hurricane quickly tracked across the area. A maximum rainfall total of 6.84 inches was observed near Crossroads, GA (Quitman County) with the second highest amount for the region recorded in Calhoun County, FL with 6.66 inches. With these higher rainfall amounts isolated, only a few areas of inland flooding were observed. In Bay County, record flooding was observed on the Econfina Creek at State Road 20 with 26.17 feet (NAVD88). This resulted in the SR-20 bridge being overtopped. In addition, in Calhoun County, FL, moderate flooding occurred on the Chipola River near Altha. A few homes were impacted downstream from the gauge and significant damage was sustained to the fish camps along the river. There were no recorded tornadoes across the Florida Panhandle, Big Bend, southwest Georgia or southeast Alabama associated with Hurricane Michael.

### ALABAMA, Southwest

#### (AL-Z266) BALDWIN COASTAL

	10/10/18 09:00 CST	0	Storm Surge/Tide
	10/10/18 19:00 CST	0	

#### (AL-Z060) COVINGTON, (AL-Z264) BALDWIN CENTRAL, (AL-Z266) BALDWIN COASTAL

	10/10/18 12:00 CST	0	Tropical Storm
	10/10/18 17:00 CST	0	

Major Hurricane Michael made landfall near Mexico Beach, FL around 1 PM CDT on October 10, 2018 with estimated maximum winds on 155 mph. Michael then tracked northeast in southern Georgia by that evening.

Michael produced minimal tropical storm force winds in coastal Okaloosa County with gusts to 60 mph. Further inland and to the west toward Pensacola, tropical storm force gusts were reported. The winds resulted in the downing of some trees and power lines. 10 to 15 foot surf caused significant beach erosion and closed Highway 399 between Pensacola Beach and Navarre, damaging portions of the road. Minor coastal flooding was reported with several small piers damaged and destroyed on Choctawhatchee Bay.

Storm surge inundation peaked between 2 to 2.5 feet across coastal Alabama and Northwest Florida. This resulted in some minor coastal flooding. This was largely the result of persistent easterly winds well to the north of the hurricane as it was over the southern and central Gulf of Mexico.

Rainfall totals less than one-quarter of an inch near Gulf Shores to a little over 3 inches in Florala.