Storm Analysis

As of 10/10/2018 05:00 CDT, water levels at stations along the Gulf of Mexico coastline are elevated and continue to rise at most locations. Measured water levels from central Florida to Louisiana range from 2.0 to 4.4 feet above tidal predictions as strong Hurricane Michael approaches the Florida panhandle.
In general, the northern Gulf of Mexico experiences small daily tidal ranges and the potential exists for significant flooding due to Michael regardless of the phase of the tide.

Winds at many locations from southeast Louisiana to southern Florida range between 10 and 20 knots with gusts up to 25 knots. However, winds from Panama City to Apalachicola have increased in the past hours with gusts from 30 to 45 kts. Barometric pressure continues to fall across the region.

Water Level and Meteorological plots available below are updated automatically. A line denoting Mean Higher High Water (MHHW) is displayed to provide an approximate indication of when flooding inundation may occur.

For additional real-time and historical inundation information for select stations affected by this storm, please visit Coastal Inundation Dashboard. For additional data, please see the Center for Operational Oceanographic Products & Services website.

For more information or archived products and reports, please visit the Storm QuickLook Homepage.

Analyst: CRD

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Select National Hurricane Center Advisory Hurricane Michael Advisory Number 15
NWS National Hurricane Center Miami FL
400 AM CDT Wed Oct 10 2018

...EXTREMELY DANGEROUS CATEGORY 4 MICHAEL STRENGTHENS
FURTHER AS IT HEADS NORTHWARD TOWARD THE FLORIDA PANHANDLE...
...LIFE-THREATENING STORM SURGE...HURRICANE FORCE WINDS...AND HEAVY
RAINFALL EXPECTED ALONG THE NORTHEASTERN GULF COAST...

SUMMARY OF 400 AM CDT.....INFORMATION
----------------------------------------------
LOCATION...28.3N 86.5W
ABOUT 140 MI...225 KM SSW OF PANAMA CITY FLORIDA
ABOUT 130 MI...215 KM SW OF APALACHICOLA FLORIDA
MAXIMUM SUSTAINED WINDS...140 MPH
PRESENT MOVEMENT...N OR 360 DEGREES AT 13 MPH
MINIMUM CENTRAL PRESSURE...943 MB

WATCHES AND WARNINGS
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CHANGES WITH THIS ADVISORY:

A Tropical Storm Warning is now in effect from South Santee River, South Carolina to Surf City, North Carolina.

The Storm Surge Watch has been discontinued west of the Okaloosa/Walton County Line Florida.

SUMMARY OF WATCHES AND WARNINGS IN EFFECT:
A Storm Surge Warning is in effect for...
* Okaloosa/Walton County Line Florida to Anclote River Florida

A Storm Surge Watch is in effect for...
* Anclote River Florida to Anna Maria Island Florida, including Tampa Bay

A Hurricane Warning is in effect for...
* Alabama/Florida border to Suwannee River Florida

A Tropical Storm Warning is in effect for...
* Alabama/Florida border to the Mississippi/Alabama border
* Suwanee River Florida to Chassahowitzka Florida
* North of Fernandina Beach Florida to Surf City North Carolina

A Tropical Storm Watch is in effect for...
* Chassahowitzka to Anna Maria Island Florida, including Tampa Bay
* Mississippi/Alabama border to the Mouth of the Pearl River
* Surf City North Carolina to Duck North Carolina
* Pamlico and Albemarle Sounds

A Storm Surge Warning means there is a danger of life-threatening inundation, from rising water moving inland from the coastline, during the next 36 hours in the indicated locations. For a depiction of areas at risk, please see the National Weather Service Storm Surge Watch/Warning Graphic, available at hurricanes.gov. This is a life-threatening situation. Persons located within these areas should take all necessary actions to protect life and property from rising water and the potential for other dangerous conditions. Promptly follow evacuation and other instructions from local officials.

A Hurricane Warning means that hurricane conditions are expected somewhere within the warning area, in this case within the next 12 hours. Preparations to protect life and property should be rushed to completion.

A Tropical Storm Warning means that tropical storm conditions are expected somewhere within the warning area, in this case during the next 12 hours.

A Storm Surge Watch means there is a possibility of life-threatening inundation, from rising water moving inland from the coastline.

A Tropical Storm Watch means that tropical storm conditions are possible within the watch area.

Interests elsewhere across the southeastern United States should monitor the progress of Michael.

For storm information specific to your area, including possible inland watches and warnings, please monitor products issued by your local National Weather Service forecast office.

DISCUSSION AND OUTLOOK
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At 400 AM CDT, the eye of Hurricane Michael was located near latitude 28.3 North, longitude 86.5 West. Michael is moving toward the north near 13 mph. A turn toward the north-northeast is expected this morning, with a turn toward the northeast expected this afternoon or tonight. A motion toward the northeast at a faster forward speed is forecast on Thursday and Friday. On the forecast track, the eye of Michael is expected to move ashore over the Florida Panhandle later today, move northeastward across the
southeastern United States tonight and Thursday, and then move off the Mid-Atlantic coast away from the United States on Friday.

Reports from an Air Force Reserve Hurricane Hunter aircraft indicate that maximum sustained winds have increased to near 140 mph with higher gusts. Michael is an extremely dangerous category 4 hurricane on the Saffir-Simpson Hurricane Wind Scale. Some additional strengthening is possible before landfall. After landfall, Michael should weaken as it crosses the southeastern United States.

Hurricane-force winds extend outward up to 45 miles from the center and tropical-storm-force winds extend outward up to 185 miles. NOAA buoy 42039 to the northeast of the center recently reported sustained winds of 54 mph and a wind gust of 63 mph.

The estimated minimum central pressure based on Hurricane Hunter aircraft data is 943 mb.

HAZARDS AFFECTING LAND
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STORM SURGE: The combination of a dangerous storm surge and the tide will cause normally dry areas near the coast to be flooded by rising waters moving inland from the shoreline. The water has the potential to reach the following heights above ground if peak surge occurs at the time of high tide...

Tyndall Air Force Base FL to Keaton Beach FL...9-13 ft
Okaloosa/Walton County Line FL to Tyndall Air Force Base FL...6-9 ft
Keaton Beach FL to Cedar Key FL...6-9 ft
Cedar Key FL to Chassahowitzka FL...4-6 ft
Chassahowitzka to Anna Maria Island FL including Tampa Bay...2-4 ft

WIND: Hurricane conditions are expected within the hurricane warning area along the U.S. Gulf Coast today, with tropical storm conditions expected to begin during the next few hours. Hurricane conditions will also spread well inland across portions of the Florida Panhandle, southeastern Alabama and southwestern Georgia.

Tropical storm conditions are expected in the tropical storm warning area during the next several hours, and are possible within the tropical storm watch area by that time. Hurricane conditions are possible within the hurricane watch area today.

Tropical storm conditions are expected to spread northward within the warning area along the southeast U.S. coast beginning tonight, and are possible in the watch area by late Thursday and Thursday night.

RAINFALL: Michael is expected to produce the following rainfall amounts through Friday...

Florida Panhandle and Big Bend, southeast Alabama, and portions of southwest and central Georgia...4 to 8 inches, with isolated maximum amounts of 12 inches. This rainfall could lead to life-threatening flash floods.

The remainder of Georgia, the Carolinas, and southern Virginia...3 to 6 inches, with isolated maximum amounts of 8 inches. This rainfall could lead to life-threatening flash floods.

Florida Peninsula, eastern Mid Atlantic, southern New England coast...1-3 inches.

SURF: Swells generated by Michael are affecting the coasts of the eastern and northern Gulf of Mexico, and will spread to portions of the northwestern and western Gulf of Mexico coast during the next day or so. These swells are likely to cause life-threatening surf and rip current conditions. Please consult products from your local weather office.
TORNADOES: A few tornadoes will be possible across parts of the Florida Panhandle and the northern Florida Peninsula through this afternoon. This risk will spread into parts of central and southern Georgia and southern South Carolina this afternoon and tonight.

NEXT ADVISORY
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Hourly position estimates will begin at 500 AM CDT.
Next intermediate advisory at 700 AM CDT.
Next complete advisory at 1000 AM CDT.

Forecaster Beven

For the purpose of timely release, data contained within this QuickLook have undergone a "limited" NOS Quality Assurance/Control; however, the data have not yet undergone final verification. All data subject to NOS verification.

Jump to: Apalachicola - Water Level, Apalachicola - Winds, Apalachicola - Barometric, Panama City Beach - Water Level, Panama City Beach - Winds, Panama City Beach - Barometric, Panama City - Water Level, Panama City - Winds, Panama City - Barometric, Cedar Key - Water Level, Cedar Key - Winds, Cedar Key - Barometric, Clearwater Beach - Water Level, Clearwater Beach - Winds, Clearwater Beach - Barometric, Old Port Tampa - Water Level, Old Port Tampa - Winds, St. Petersburg, Tampa Bay - Water Level, St. Petersburg, Tampa Bay - Winds, Fort Myers, Caloosahatchee River - Water Level, Fort Myers, Caloosahatchee River - Winds, Naples, Gulf of Mexico - Water Level, Pensacola - Water Level, Pensacola - Barometric, Dauphin Island - Water Level, Dauphin Island - Winds, Dauphin Island - Barometric, Coast Guard Sector Mobile - Water Level, Coast Guard Sector Mobile - Winds, Pascagoula NOAA Lab - Water Level, Bay Waveland Yacht Club - Water Level, Bay Waveland Yacht Club - Winds, Shell Beach - Water Level, Shell Beach - Winds, Fernandina Beach - Water Level, Charleston, Cooper River Entrance - Water Level
Last Observed Sample: 10/10/2018 08:12 (EDT). Data relative to MHHW
Historical Maximum Water Level: Jul 10 2005, 6.43 ft.
   Next High Tide: 10/10/2018 18:10 (EDT), 0.11 ft.

Last Observed Sample: 10/10/2018 08:12 (EDT)
Wind Speed: 35 knots Gusts: 46 knots Direction: 147° T
NOAA/NOS/CO-OPS 8728690 Apalachicola, FL

Last Observed Sample: 10/10/2018 08:12 (EDT)
Barometric Pressure: 999.3 mb

NOAA/NOS/CO-OPS 8729210 Panama City Beach, FL

Last Observed Sample: 10/10/2018 07:06 (CDT). Data relative to MHHW
Observed: 2.38 ft. Predicted: -0.70 ft. Residual: 3.08 ft.
Next High Tide: 10/10/2018 13:24 (CDT), -0.19 ft.
NOAA/NOS/CO-OPS 8729210 Panama City Beach, FL

Wind Speed / Gusts / Direction

Last Observed Sample: 10/10/2018 07:06 (CDT)

Wind Speed: 10 knots Gusts: 23 knots Direction: 103° T

Barometric Pressure

Last Observed Sample: 10/10/2018 07:06 (CDT)

Barometric Pressure: 999.8 mb
Last Observed Sample: 10/10/2018 07:06 (CDT). Data relative to MHHW

Observed: 2.11 ft. Predicted: -0.76 ft. Residual: 2.87 ft.


Next High Tide: 10/10/2018 22:30 (CDT), 0.23 ft.

Last Observed Sample: 10/10/2018 07:06 (CDT)

Wind Speed: 15 knots  Gusts: 25 knots  Direction: 66° T
NOAA/NOS/CO-OPS 8729108 Panama City, FL

Last Observed Sample: 10/10/2018 07:06 (CDT)
Barometric Pressure: 999.5 mb

NOAA/NOS/CO-OPS 8727520 Cedar Key, FL

Last Observed Sample: 10/10/2018 08:12 (EDT). Data relative to MHHW
Observed: 0.50 ft. Predicted: -3.54 ft. Residual: 4.04 ft.
Historical Maximum Water Level: Sep 2 2016, 5.98 ft.
Next High Tide: 10/10/2018 15:36 (EDT), 0.16 ft.
Wind Speed / Gusts / Direction

- Wind Speed: 21 knots
- Gusts: 25 knots
- Direction: 126° T

Barometric Pressure

- Barometric Pressure: 1006.6 mb

Last Observed Sample: 10/10/2018 08:12 (EDT)
Last Observed Sample: 10/10/2018 08:06 (EDT). Data relative to MHHW
Observed: 0.18 ft. Predicted: -2.40 ft. Residual: 2.58 ft.
Historical Maximum Water Level: Mar 13 1993, 4.00 ft.
Next High Tide: 10/10/2018 13:25 (EDT), 0.08 ft.

Wind Speed / Gusts / Direction

Last Observed Sample: 10/10/2018 08:06 (EDT)
Wind Speed: 18 knots Gusts: 26 knots Direction: 146° T
NOAA/NOS/CO-OPS 8726724 Clearwater Beach, FL

Barometric Pressure

Last Observed Sample: 10/10/2018 08:06 (EDT)
Barometric Pressure: 1007.9 mb

NOAA/NOS/CO-OPS 8726607 Old Port Tampa, FL

Preliminary Water Level, relative to Mean Higher High Water (MHHW)

Last Observed Sample: 10/10/2018 08:12 (EDT). Data relative to MHHW
Observed: 0.64 ft. Predicted: -1.62 ft. Residual: 2.26 ft.
Historical Maximum Water Level: Oct 8 1996, 3.60 ft.
Next High Tide: 10/10/2018 16:41 (EDT), 0.01 ft.
NOAA/NOS/CO-OPS 8726607 Old Port Tampa, FL

Wind Speed / Gusts / Direction

Last Observed Sample: 10/10/2018 08:12 (EDT)
Wind Speed: 12 knots Gusts: 19 knots Direction: 148° T

NOAA/NOS/CO-OPS 8726520 St. Petersburg, Tampa Bay, FL

Preliminary Water Level, relative to Mean Higher High Water (MHHW)

Last Observed Sample: 10/10/2018 08:00 (EDT). Data relative to MHHW
Observed: 0.67 ft. Predicted: -1.69 ft. Residual: 2.36 ft.
Historical Maximum Water Level: Aug 31 1985, 4.00 ft.
Next High Tide: 10/10/2018 16:06 (EDT), -0.08 ft.
NOAA/NOS/CO-OPS 8726520 St. Petersburg, Tampa Bay, FL

Wind Speed / Gusts / Direction

Last Observed Sample: 10/10/2018 08:00 (EDT)
Wind Speed: 12 knots Gusts: 18 knots Direction: 154° T

NOAA/NOS/CO-OPS 8725520 Fort Myers, Caloosahatchee River, FL

Preliminary Water Level, relative to Mean Higher High Water (MHHW)

Last Observed Sample: 10/10/2018 08:06 (EDT). Data relative to MHHW
Observed: 0.93 ft. Predicted: -0.46 ft. Residual: 1.39 ft.
Historical Maximum Water Level: Nov 23 1988, 3.41 ft.
Next High Tide: 10/10/2018 17:48 (EDT), -0.07 ft.
NOAA/NOS/CO-OPS 8725520 Fort Myers, Caloosahatchee River, FL

Wind Speed / Gusts / Direction

Wind Speed: 7 knots  Gusts: 10 knots  Direction: 148° T

NOAA/NOS/CO-OPS 8725110 Naples, Gulf of Mexico, FL

Preliminary Water Level, relative to Mean Higher High Water (MHHW)

Last Observed Sample: 10/10/2018 08:06 (EDT)

Data relative to MHHW


Historical Maximum Water Level: Sep 10 2017, 4.02 ft.

Next High Tide: 10/10/2018 14:05 (EDT), 0.35 ft.
Last Observed Sample: 10/10/2018 07:06 (CDT). Data relative to MHHW.

- Observed: 2.31 ft.
- Predicted: -0.76 ft.
- Residual: 3.07 ft.

Historical Maximum Water Level: Sep 16 2004, 9.54 ft.

Next High Tide: 10/10/2018 23:58 (CDT), 0.28 ft.

Last Observed Sample: 10/10/2018 07:06 (CDT)

Barometric Pressure: 1002.0 mb
Last Observed Sample: 10/10/2018 07:06 (CDT). Data relative to MHHW
Observed: 2.00 ft. Predicted: -0.62 ft. Residual: 2.62 ft.
Historical Maximum Water Level: Sep 12 1979, 7.96 ft.
Next High Tide: 10/10/2018 23:23 (CDT), 0.23 ft.

Last Observed Sample: 10/10/2018 07:06 (CDT)
Wind Speed: 27 knots  Gusts: 31 knots  Direction: 9° T
Last Observed Sample: 10/10/2018 07:06 (CDT)
Barometric Pressure: 1003.7 mb

Last Observed Sample: 10/10/2018 07:06 (CDT). Data relative to MHHW
Historical Maximum Water Level: Oct 8 2017, 5.38 ft.
Next High Tide: 10/11/2018 00:22 (CDT), -0.35 ft.
NOAA/NOS/CO-OPS 8736897 Coast Guard Sector Mobile, AL

Wind Speed / Gusts / Direction

Last Observed Sample: 10/10/2018 07:06 (CDT)
Wind Speed: 10 knots Gusts: 14 knots Direction: 4° T

NOAA/NOS/CO-OPS 8741533 Pascagoula NOAA Lab, MS

Preliminary Water Level, relative to Mean Higher High Water (MHHW)

Last Observed Sample: 10/10/2018 07:06 (CDT). Data relative to MHHW
Observed: 1.55 ft. Predicted: -0.92 ft. Residual: 2.47 ft.
Historical Maximum Water Level: Oct 8 2017, 6.20 ft.
Next High Tide: 10/10/2018 22:44 (CDT), 0.20 ft.
Last Observed Sample: 10/10/2018 07:12 (CDT). Data relative to MHHW
- Observed: 1.43 ft.
- Predicted: -0.81 ft.
- Residual: 2.24 ft.
Historical Maximum Water Level: Sep 1 2008, 9.10 ft.
Next High Tide: 10/11/2018 00:45 (CDT), 0.25 ft.

Wind Speed: 12 knots
Gusts: 15 knots
Direction: 22° T
Last Observed Sample: 10/10/2018 07:12 (CDT). Data relative to MHHW

- **Observed:** 2.61 ft.  
- **Predicted:** -0.12 ft.  
- **Residual:** 2.73 ft.  

**Historical Maximum Water Level:** Aug 29 2012, 9.37 ft.

**Next High Tide:** 10/11/2018 03:46 (CDT), 0.28 ft.
NOAA/NOS/CO-OPS 8720030 Fernandina Beach, FL

Last Observed Sample: 10/10/2018 08:06 (EDT). Data relative to MHHW
Observed: -1.07 ft. Predicted: -0.88 ft. Residual: -0.19 ft.
Historical Maximum Water Level: Oct 2 1898, 6.91 ft.
Next High Tide: 10/10/2018 10:28 (EDT), 1.21 ft.

NOAA/NOS/CO-OPS 8665530 Charleston, Cooper River Entrance, SC

Last Observed Sample: 10/10/2018 08:06 (EDT). Data relative to MHHW
Observed: 0.70 ft. Predicted: 0.27 ft. Residual: 0.43 ft.
Historical Maximum Water Level: Sep 21 1989, 6.76 ft.
Next High Tide: 10/10/2018 09:32 (EDT), 0.96 ft.
<table>
<thead>
<tr>
<th>Station ID</th>
<th>Station Name</th>
<th>Date/Time</th>
<th>Observed Water Level</th>
<th>Predicted Tide</th>
<th>Residual Water Level</th>
<th>24 Hour Maximum Storm Tide</th>
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<tr>
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<td>Apalachicola, FL</td>
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<td>4.18 ft</td>
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