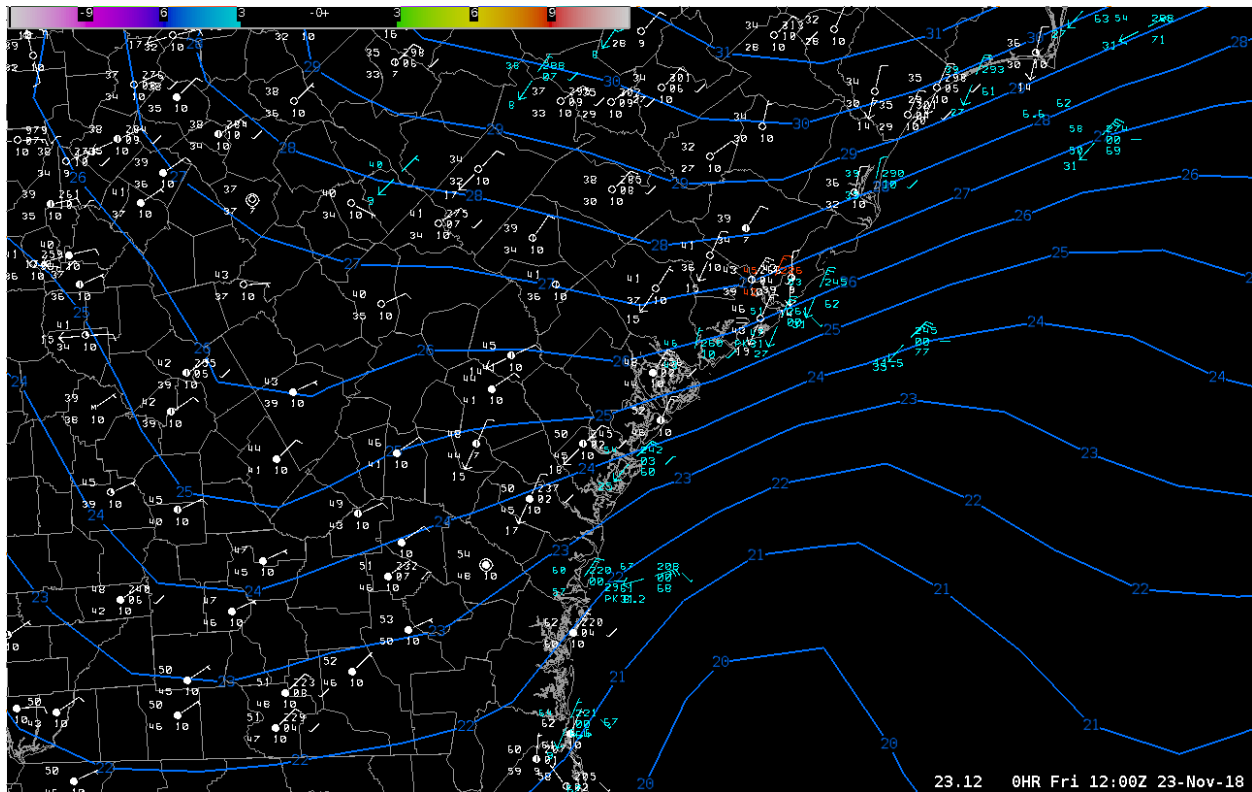


November 23, 2018 Coastal Flood Event Post Mortem

Overview: The combination of a strong, inland wedge of high pressure and a developing coastal trough off the Northeast Florida coast produced frequent gale-force wind gusts across the coastal waters of Southeast South Carolina and Southeast Georgia during the morning hours of 23 November. These winds combined with some of the highest predicted tides of the year to produce moderate to major coastal flooding across the coastal counties with the mid-morning high tide cycle. Tide levels at both the Charleston Harbor and Fort Pulaski tide gages breached major flooding thresholds. This was the first major coastal flooding event experienced since Tropical Storm Irma impacted the region in September, 2017.

23/12Z Surface Map Showing a Classic, Pinched Gradient Surface Pattern Associated with CAD



Forecast Critique: Forecasters first identified the potential for coastal flooding as much as 5 days ahead of the event. Emergency Managers were initially briefed on the potential for coastal flooding during the routine weekly briefing that was conducted on 19 November. Although forecasters were confident that minor to moderate coastal flooding would occur, it was unclear whether levels would reach major thresholds for the 23 November morning tide cycle as suggested by some of the extratropical surge guidance, including the P-ETSS. As the week progressed, the P-ETSS continued to show warning level tide levels, but forecasters were hesitant to forecast total waters levels to that degree given the high bias of the P-ETSS for the past several coastal flooding events. It was not until the passage of the

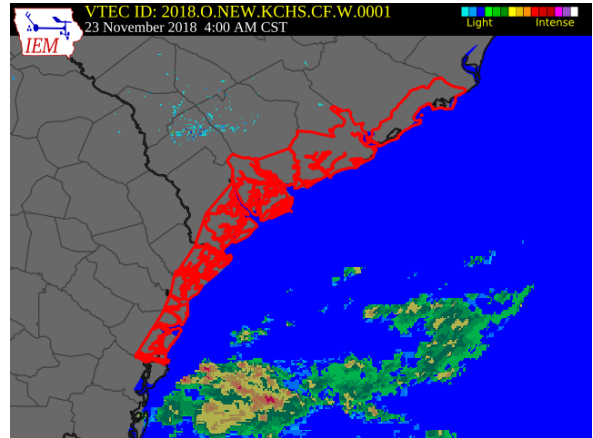
evening high tide on 22 November did Forecasters gain enough confidence based on observed tidal anomalies and 22/18z P-ETSS guidance that warning thresholds could be reached. A Coastal Flood Watch was subsequently issued with the late-evening forecast package and a 1-pager was sent to external partners to address the potential for major coastal flooding. A DSS call was also placed with Chatham County Emergency Management (CEMA) to brief them on the likely closure of Highway 80. Confidence further increased during the early morning hours on 23 November and the Coastal Flood Watch was upgraded to a Coastal Flood Warning.

Watches/Warnings and Lead Times

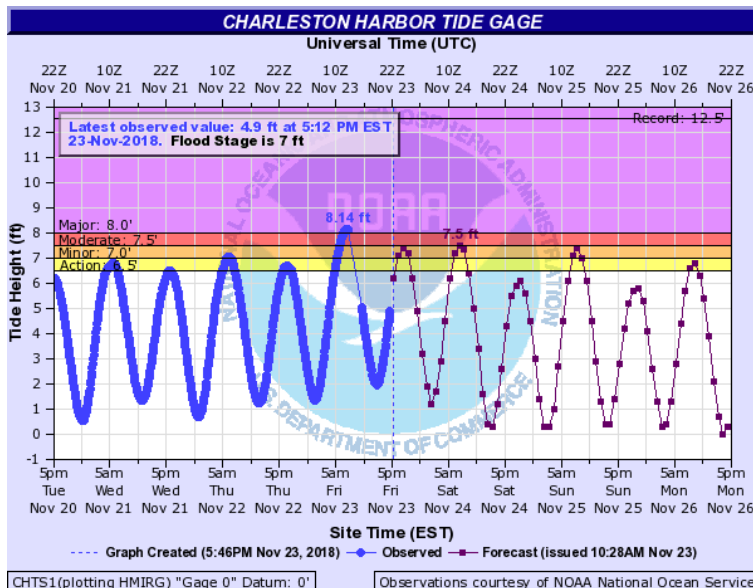
Coastal Flood Watch issued:
941 PM EST 11/22/2018

Coastal Flood Warning issued:
341 AM EST 11/23/2018

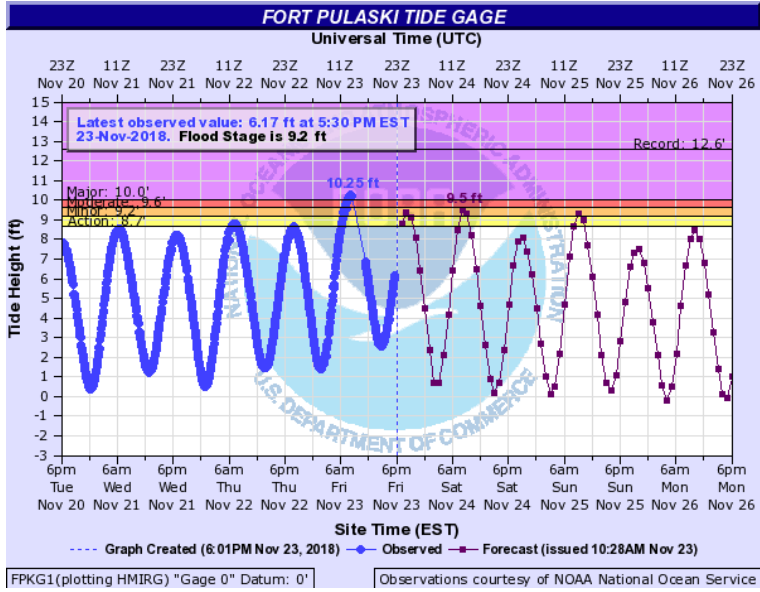
Lead time to first report:
4 hrs, 13 min.



Tide Gages



Charleston Harbor Tide Gage	
Time:	800 AM EST
Peak Tide:	8.14 ft MLLW
	2.37 ft MHHW



Fort Pulaski Tide Gage

Time: 806 AM EST

Peak Tide: 10.25 ft MLLW

4.45 ft MHHW

Coastal Flood Pictures

North Charleston: Docks submerged along the Cooper River at Park Circle



Isle of Palms: 41st Street Flooded



Mount Pleasant: Old Village near Williams Street



Edisto Beach: Palmetto Blvd near Pavillion



Fort Pulaski National Monument



Tybee Island: Beach Erosion



Tybee Island: Houses submerged



Summary Local Storm Report

PRELIMINARY LOCAL STORM REPORT...SUMMARY
NATIONAL WEATHER SERVICE CHARLESTON SC
433 PM EST FRI NOV 23 2018

..TIME...	...EVENT...	...CITY LOCATION...	...LAT.LON...
..DATE...	...MAG....	..COUNTY LOCATION..ST..	...SOURCE....
	..REMARKS..		
0754 AM 11/23/2018	COASTAL FLOOD	2 WNW TYBEE ISLAND CHATHAM	32.02N 80.88W GA BROADCAST MEDIA
	CHATHAM COUNTY POLICE HAVE CLOSED HIGHWAY 80 NEAR TYBEE ISLAND. SOCIAL MEDIA PICTURES INDICATE THAT PORTIONS OF HIGHWAY 80 WERE COMPLETELY COVERED BY WATER.		
0800 AM 11/23/2018	COASTAL FLOOD	1 E CHARLESTON CHARLESTON	32.78N 79.93W SC TIDE GAGE
	MAJOR COASTAL FLOODING: A MAXIMUM TIDE LEVEL OF 8.14 FT MLLW (2.37 FT MHHW) WAS OBSERVED AT THE CHARLESTON HARBOR TIDE GAGE. MAJOR COASTAL FLOODING TYPICALLY BEGINS ALONG THE LOWER SOUTH CAROLINA COAST WHEN TIDE LEVELS REACH 8.0 FT MLLW (2.24 FT MHHW) IN THE CHARLESTON HARBOR.		
0800 AM 11/23/2018	COASTAL FLOOD	1 S MOUNT PLEASANT CHARLESTON	32.78N 79.86W SC SOCIAL MEDIA
	SOCIAL MEDIA PICTURES AND POST INDICATED FLOODING ON WILLIAM STREET AND AREAS NEAR THE PITT STREET BRIDGE.		
0800 AM 11/23/2018	COASTAL FLOOD	2 NNW EDISTO ISLAND CHARLESTON	32.59N 80.30W SC SOCIAL MEDIA
	FLOODING WAS REPORTED ON PALMETTO BLVD AND JUNGLE ROAD. THE WATER MAY HAVE BEEN SOURCED FROM BOTH WASH UP FROM THE BEACH AND FROM THE MARSH AROUND THE WADMALAW RIVER.		
0800 AM 11/23/2018	COASTAL FLOOD	CHARLESTON CHARLESTON	32.78N 79.94W SC SOCIAL MEDIA
	VARIOUS SOCIAL MEDIA POSTS INDICATED FLOODING ON BARRE, WENTWORTH, EAST BAY, PRESIDENT, LINE, HAGOOD, AND CALHOUN.		
0806 AM 11/23/2018	COASTAL FLOOD	3 WNW FORT SCREVEN CHATHAM	32.03N 80.90W GA TIDE GAGE
	MAJOR COASTAL FLOODING: A MAXIMUM TIDE LEVEL OF 10.25 FT MLLW (4.45 FT MHHW) WAS OBSERVED AT THE FORT PULASKI TIDE GAGE LOCATED NEAR THE SAVANNAH RIVER ENTRANCE. MAJOR COASTAL FLOODING TYPICALLY BEGINS ALONG MUCH OF THE GEORGIA COAST WHEN TIDE LEVELS REACH 10.0 FT MLLW (2.5 FT MHHW) AT FORT PULASKI.		
0815 AM 11/23/2018	COASTAL FLOOD	2 S SKIDAWAY ISLAND CHATHAM	31.91N 81.05W GA SOCIAL MEDIA
	SALTWATER FLOODING OBSERVED IN A NUMBER OF PLACES THROUGHOUT THE PLANTATION GOLF COURSE. WATER AROUND SEVERAL HOMES AND SOME ROADWAYS AS WELL AS YARDS		

FLOODED. TIME ESTIMATED BASED ON TIDE GAGE REPORTS.

0815 AM COASTAL FLOOD 1 NW SULLIVANS ISLAND 32.77N 79.85W
11/23/2018 CHARLESTON SC SOCIAL MEDIA

SALTWATER FLOODING ALONG WILLIAMS STREET IN THE OLD VILLAGE. IMAGE SHOWED EXTENSIVE FLOODING IN YARDS WITH WATER AROUND SEVERAL HOMES. ONE ROADWAY ALSO FLOODED. TIME ESTIMATED BASED ON TIDE GAGE.

0815 AM COASTAL FLOOD 2 N NORTH CHARLESTON 32.88N 79.97W
11/23/2018 CHARLESTON SC SOCIAL MEDIA

PIERS INUNDATED BY THE COOPER RIVER IN PARK CIRCLE. SEVERAL DOCKS DAMAGED. TIME ESTIMATED BASED ON TIDE GAGE.

0815 AM COASTAL FLOOD 1 WSW MOUNT PLEASANT 32.79N 79.88W
11/23/2018 CHARLESTON SC BROADCAST MEDIA

EXTENSIVE COASTAL FLOODING ALONG SHEM CREEK. PARKING LOTS OF VARIOUS BUSINESSES FLOODED AND NOT USABLE. TIME ESTIMATED FROM TIDE GAGE.

0815 AM COASTAL FLOOD FOLLY BEACH 32.66N 79.94W
11/23/2018 CHARLESTON SC BROADCAST MEDIA

PARKING LOTS FLOODED OF VARIOUS BUSINESSES NEAR THE MARSH ON FOLLY BEACH. TIME ESTIMATED BASED ON TIDE GAGE.

0815 AM COASTAL FLOOD 5 ENE SULLIVANS ISLAND 32.80N 79.76W
11/23/2018 CHARLESTON SC LAW ENFORCEMENT

SEVERAL ROADS FLOODED DUE TO COASTAL FLOODING, INCLUDING 41ST STREET NEAR THE MARINA. WATER HALF WAY UP CARS IN PLACES. TIME ESTIMATED BASED ON TIDE GAGE.

0819 AM COASTAL FLOOD 1 ENE CHARLESTON 32.78N 79.93W
11/23/2018 CHARLESTON SC SOCIAL MEDIA

SOCIAL MEDIA PICTURES INDICATED ROADWAY FLOODING NEAR THE INTERSECTION OF WASHINGTON STREET AND SOCIETY STREET.

0845 AM COASTAL FLOOD CHARLESTON 32.78N 79.94W
11/23/2018 CHARLESTON SC EMERGENCY MNGR

COUNTY OFFICIAL REPORTED THAT THE BERM LOCATED NEAR THE INTERSECTION OF MORRISON DRIVE AND JACKSON STREET WAS BREACHED. WHITE POINT GARDEN WAS FLOODED WITH THE WATER REACHING WITHIN SIX INCHES OF BREACHING THE SEA WALL OF THE BATTERY. PORTIONS OF LOCKWOOD DRIVE WAS COVERED BY WATER.

0852 AM COASTAL FLOOD 2 NNE NORTH CHARLESTON 32.88N 79.97W
11/23/2018 CHARLESTON SC SOCIAL MEDIA

SOCIAL MEDIA PICTURE INDICATED FLOODING OF A DOCK AND BOAT SLIP NEAR PARK CIRCLE.

0900 AM COASTAL FLOOD DARIEN 31.37N 81.43W
11/23/2018 MCINTOSH GA LAW ENFORCEMENT

DARIEN POLICE CLOSED HIGHWAY 17 FROM HIGHWAY 99 TO THE DARIEN BRIDGE DUE TO COASTAL FLOODING. TIME ESTIMATED BASED ON TIDE GAGE.

0905 AM COASTAL FLOOD 3 WNW TYBEE ISLAND 32.02N 80.90W
11/23/2018 CHATHAM GA PARK/FOREST SRVC

THE FORT PULASKI NATIONAL MOUNMENT WAS CLOSED UNTIL 10:30 AM DUE TO HIGHWAY 80 BEING IMPASSABLE DUE TO FLOODING.

0930 AM COASTAL FLOOD 2 N SHADOWMOSS 32.87N 80.08W
11/23/2018 CHARLESTON SC BROADCAST MEDIA

SOCIAL MEDIA PICTURES AND POST INDICATED FLOODING ALONG THE ASHLEY RIVER NEAR MAGNOLIA GARDENS.

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EVENT NUMBER CHS1800966 CHS1800968 CHS1800971 CHS1800972 CHS1800973
CHS1800969 CHS1800977 CHS1800978 CHS1800979 CHS1800981 CHS1800982
CHS1800983 CHS1800967 CHS1800970 CHS1800975 CHS1800980 CHS1800974
CHS1800976

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