

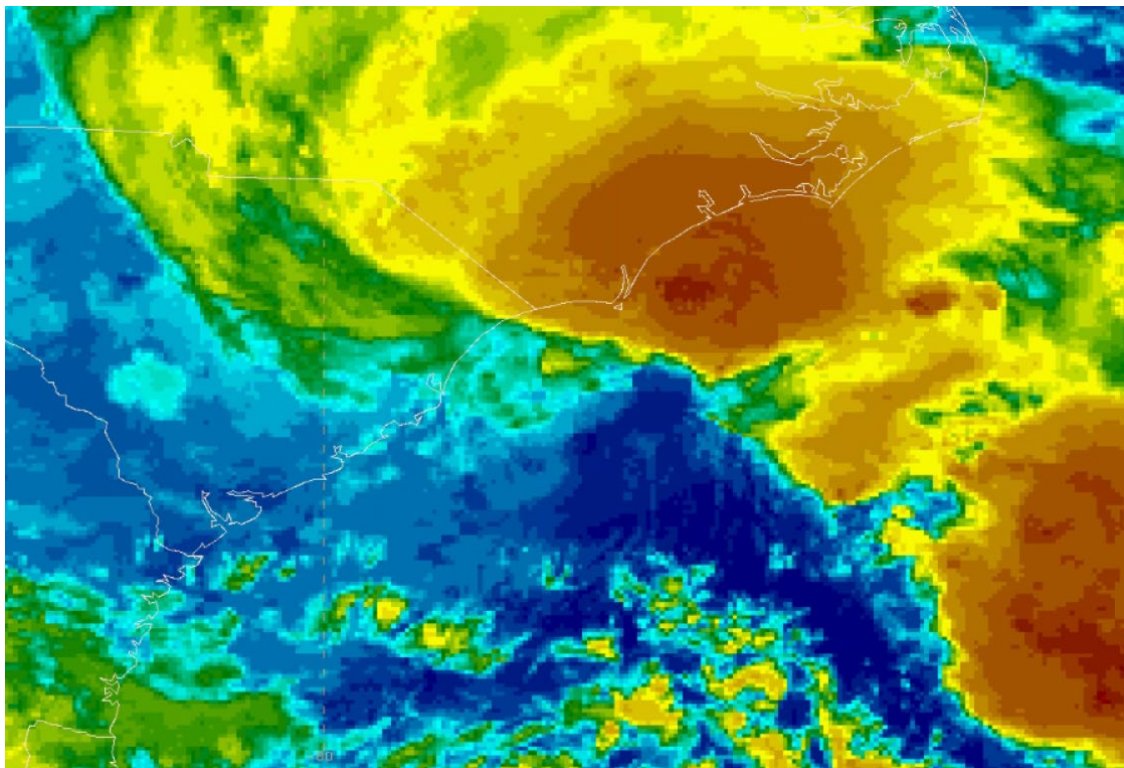


# NATIONAL HURRICANE CENTER TROPICAL CYCLONE REPORT

## POTENTIAL TROPICAL CYCLONE EIGHT (AL082024)

15–17 September 2024

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National Hurricane Center  
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GOES-EAST INFRARED SATELLITE IMAGE AT 1200 UTC 16 SEPTEMBER 2024 OF POTENTIAL TROPICAL CYCLONE EIGHT, NEAR THE TIME OF PEAK INTENSITY.

Potential Tropical Cyclone Eight was an extratropical low that formed offshore of the Carolinas but failed to develop a well-defined circulation or shed its frontal character before moving onshore. However, very heavy rainfall from the system led to serious flooding with 100 people rescued and one indirect death.

# Potential Tropical Cyclone Eight

15–17 SEPTEMBER 2024

## SUMMARY

The extratropical low originated from a stalled frontal boundary offshore of the Carolinas during the second week of September. An extratropical, gale-force low initially formed around 0000 UTC 15 September, about 230 n mi south-southeast of Wilmington, North Carolina. The strongest winds were located north of the center along the pre-existing front. The system moved slowly to the west-northwest and gradually strengthened with increasing deep convection over the warm Gulf Stream waters. The National Hurricane Center commenced advisories on Potential Tropical Cyclone Eight and tropical storm warnings were issued for portions of northeastern South Carolina and southeastern North Carolina at 2100 UTC 15 September. At the time of initiating advisories, the disturbance was assessed to have a 70% chance of tropical cyclone formation in the next 48 h and was predicted to track toward the Carolinas and gradually strengthen. A track of the low, which follows the area of lowest pressure and greatest turning in the low-level wind field, is listed in Table 1 and illustrated in Figure 1.

While gradual strengthening occurred early on 16 September, aircraft and surface observations indicated that the low was not able to shed its frontal character and also remained without a well-defined center. NHC issued the final advisory at 2100 UTC 16 September, after the poorly defined system had moved inland. It should be noted that one final position in the best track at 0000 UTC 17 September is included to show that the system moved onshore, though with an elongated and ill-defined circulation.

Although the system never underwent tropical cyclogenesis, the system was first mentioned in the Tropical Weather Outlook product about 4 days before advisories were initiated.

The peak intensity of 50 kt (Fig. 2) and the minimum pressure of 1004 mb (Fig. 3) are based on surface observations from Wrightsville Beach and Frying Pan Shoals, respectively. Winds of gale-force are included in Table 2. Tropical storm warnings associated with the disturbance are provided in Table 3.

Very heavy rainfall was noted over the Carolinas, especially southeastern North Carolina (Fig. 3), with multiple storm-total areas of 7 inches or greater. The storm total maximum was 20.81 inches in Carolina Beach on Ocean Blvd. A complete list of rainfall totals used to make Fig. 3 is available for download on the NHC website at: [www.nhc.noaa.gov/data/tcr/supplemental/eight.zip](http://www.nhc.noaa.gov/data/tcr/supplemental/eight.zip)

The system produced a minor storm surge with elevated water levels along the U.S. southeast coast. The highest observed water levels occurred in Wrightsville Beach and Wilmington, North Carolina, where the NOS tide gauges measured 2.55 and 2.42 ft above Mean Higher High Water (MHHW), respectively.



Two EF0 tornadoes were reported in eastern North Carolina from the system, with minor damage noted.

## CASUALTY AND DAMAGE STATISTICS

According to media sources, flooding from heavy rainfall led to one indirect death in North Carolina. More than 100 people were rescued from the flooding, with many roads washed away and over 100 homes destroyed. Damage estimates have varied widely, but are generally in the \$50-100 million (USD) range.

## ACKNOWLEDGMENTS

Data for this report was taken from reports issued by National Weather Service offices in Wilmington and Morehead City, North Carolina. Supplemental information can also be found at: <https://www.weather.gov/ilm/2024PTC8> and <https://www.weather.gov/mhx/PotentialTropicalCycloneEightReview2024>



Table 1. Best track for Potential Tropical Cyclone Eight, 15–17 September 2024.

Date/Time (UTC)	Latitude (°N)	Longitude (°W)	Pressure (mb)	Wind Speed (kt)	Stage
15 / 0000	30.7	76.1	1008	35	extratropical
15 / 0600	30.8	76.7	1008	35	"
15 / 1200	31.3	77.3	1007	40	"
15 / 1800	31.8	77.8	1006	45	"
16 / 0000	32.1	77.9	1005	45	"
16 / 0600	32.3	78.0	1005	45	"
16 / 1200	32.8	78.2	1004	50	"
16 / 1800	33.5	78.5	1006	40	"
17 / 0000	34.2	79.2	1008	25	"
17 / 0600					dissipated
16 / 1200	32.8	78.2	1004	50	minimum pressure and maximum winds



Table 2. Selected surface observations for Potential Tropical Cyclone Eight, 15–17 September 2024.

Location	Minimum Sea Level Pressure		Maximum Surface Wind Speed			Total rain (in)
	Date/time (UTC)	Press. (mb)	Date/time (UTC) <sup>a</sup>	Sustained (kt)	Gust (kt)	
<b>North Carolina</b>						
<b>International Civil Aviation Organization (ICAO) Sites</b>						
Wilmington Intl. AP (KILM) (34.27N 77.90W)	16/1950	1008.9	16/1413	36 (10 m, 2 min)	42	
<b>National Ocean Service (NOS) Sites</b>						
Wrightsville Beach (JMPN7) (34.21N 77.79W)	16/1948	1008.6	16/1412	50 (8 m, 8 min)	58	
<b>Coastal-Marine Automated Network (C-MAN) Sites</b>						
Cape Lookout (CLKN7) (34.62N 76.52W)			16/2200	34 (10 m, 10 min)	39	
<b>Remote Automated Weather Stations (RAWS)</b>						
Sunny Point (SUNN7) (34.00N 78.00W)			16/1218		67 6.1 m	
<b>Wunderground Mesonet</b>						
Bald Head Island			16/1711		52	
<b>Offshore</b>						
<b>NOAA Buoys</b>						
41013 – Frying Pan Shoals (33.44N 77.76W)	16/1100	1004.8	16/1050	35 (3.8 m, 8 min)	49	
41038 – Wrightsville Nearshore (34.14N 77.72W)	16/2308	1006.1	16/1408	35 (3 m, 8 min)	51	
41037 – Wrightsville Offshore (33.99N 77.36W)	16/2008	1008.9	16/1308	35 (3 m, 8 min)	49	
<b>Coastal Ocean Research and Monitoring Program (CORMP)</b>						
Masonboro Island (MBIN7) (34.09N 77.87W)	16/1406	1006.7	16/1354	39 (3.4 m, 8 min)	56	
UNCW Center for Marine Science			16/1402		54	

<sup>a</sup> Date/time is for sustained wind when both sustained and gust are listed.



Table 3. Coastal wind watch and warning summary for Potential Tropical Cyclone Eight, 15–17 September 2024.

<b>Date/Time (UTC)</b>	<b>Action</b>	<b>Location</b>
<b>15 / 2100</b>	Tropical Storm Warning issued	Edisto Beach to Ocracoke Inlet
<b>16 / 1500</b>	Tropical Storm Warning modified to	South Santee River to Ocracoke Inlet
<b>16 / 2100</b>	Tropical Storm Warning discontinued	All

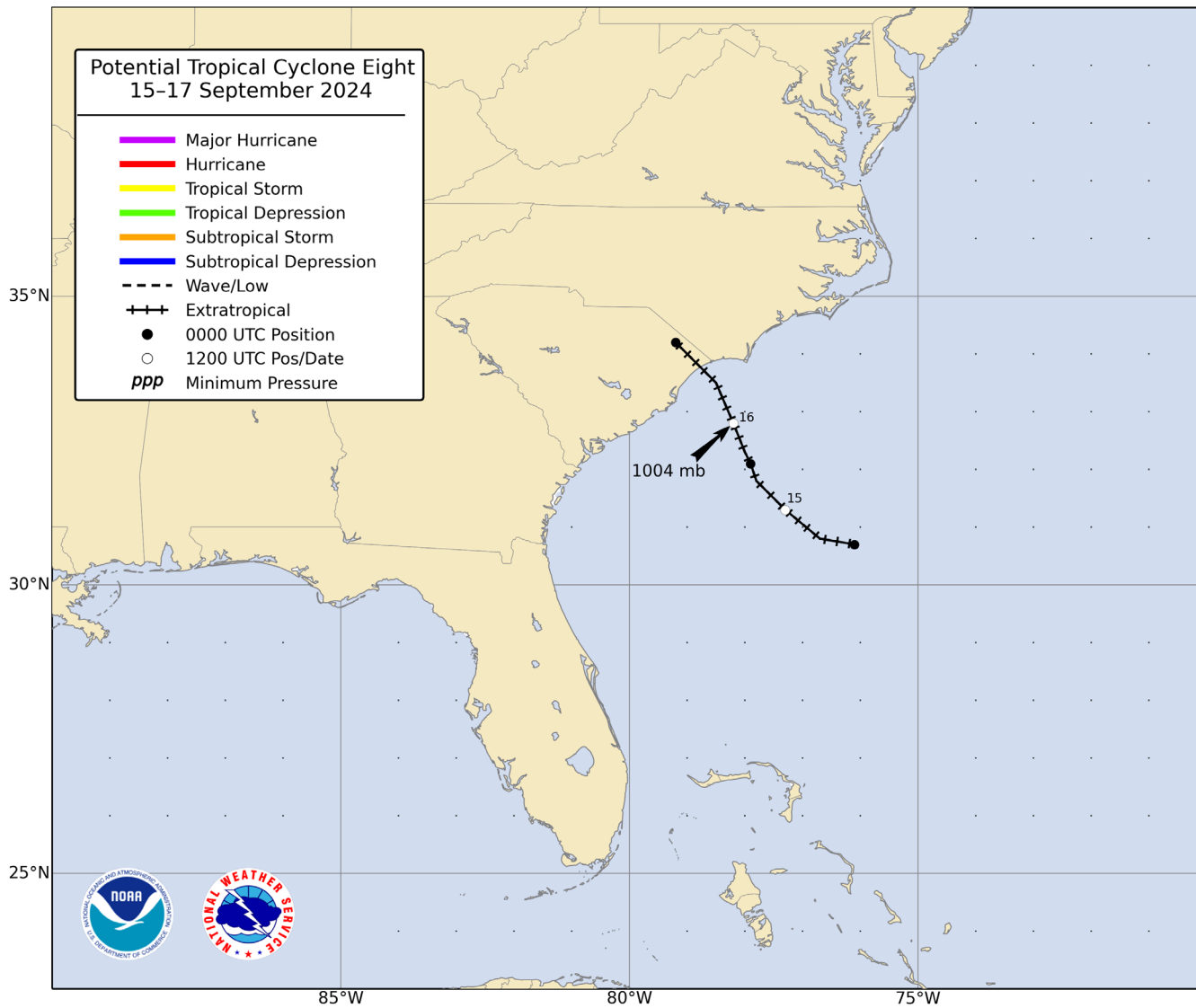


Figure 1. Best track positions for Potential Tropical Cyclone Eight, 15-17 September 2024.

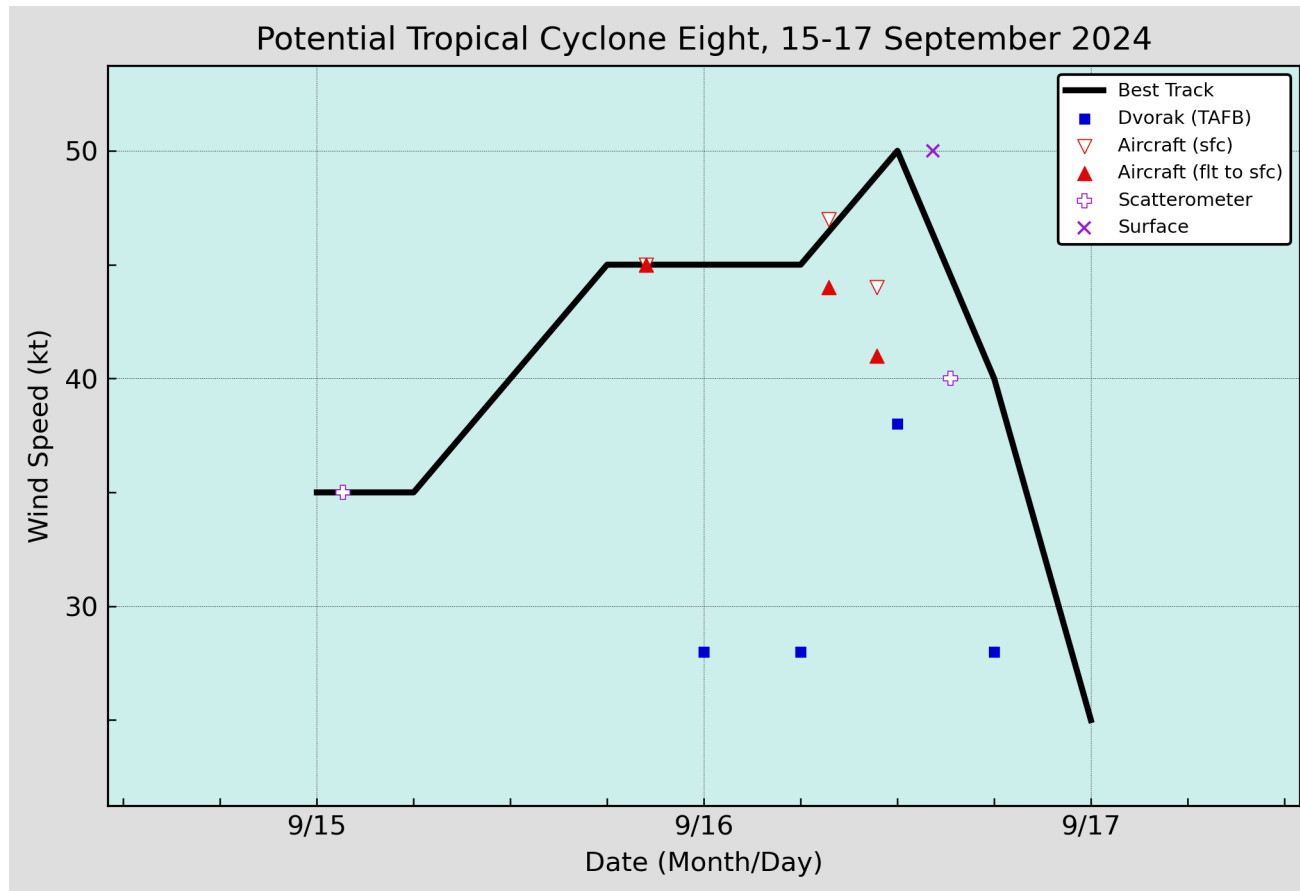


Figure 2. Selected wind observations and best track maximum sustained surface wind speed curve for Potential Tropical Cyclone Eight, 15–17 September 2024. Aircraft observations have been adjusted for elevation using an 80% adjustment factor for observations from 850 mb. Dashed vertical lines correspond to 0000 UTC.



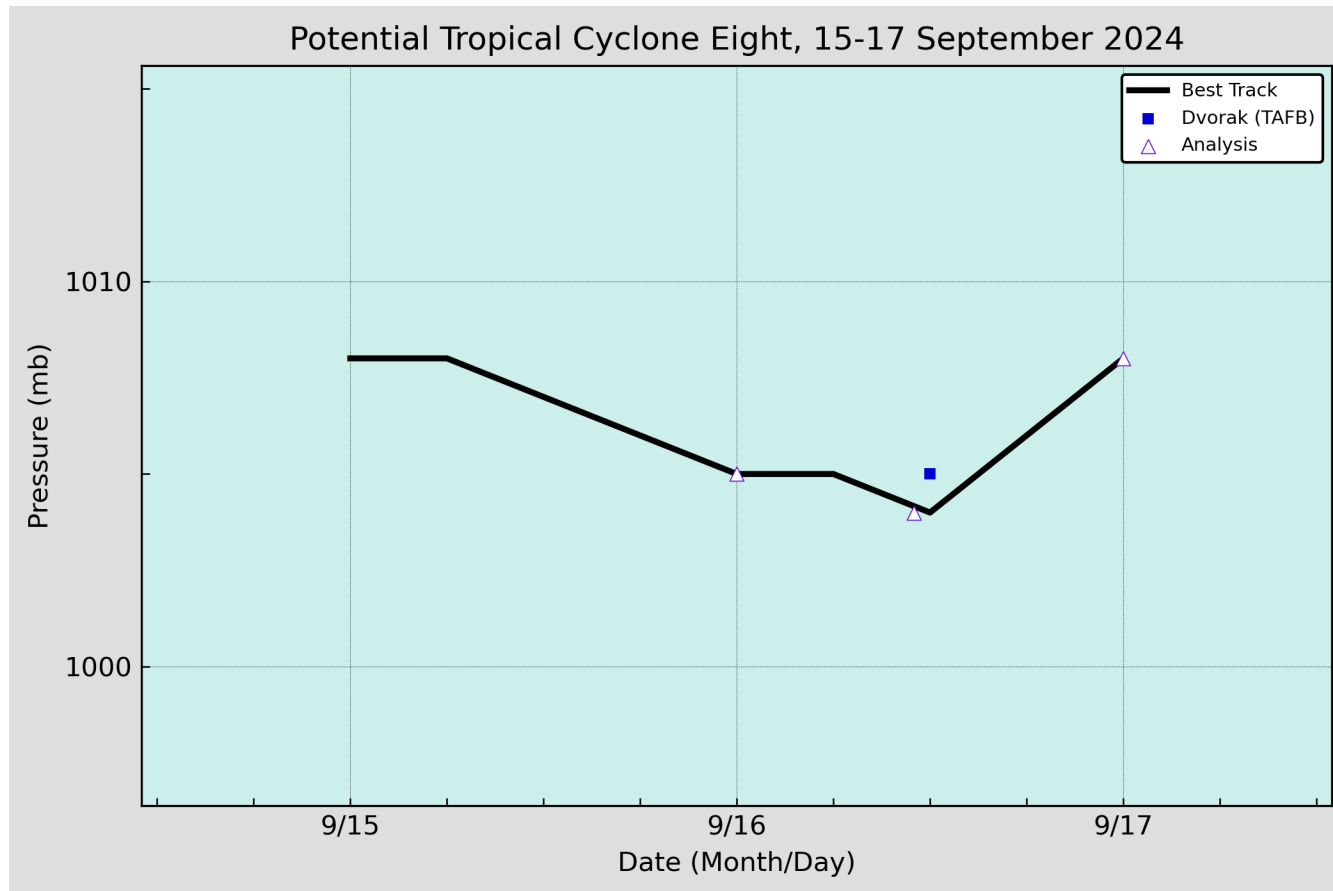


Figure 3. Selected pressure observations and best track minimum central pressure curve for Potential Tropical Cyclone Eight, 15–17 September 2024. Dashed vertical lines correspond to 0000 UTC.

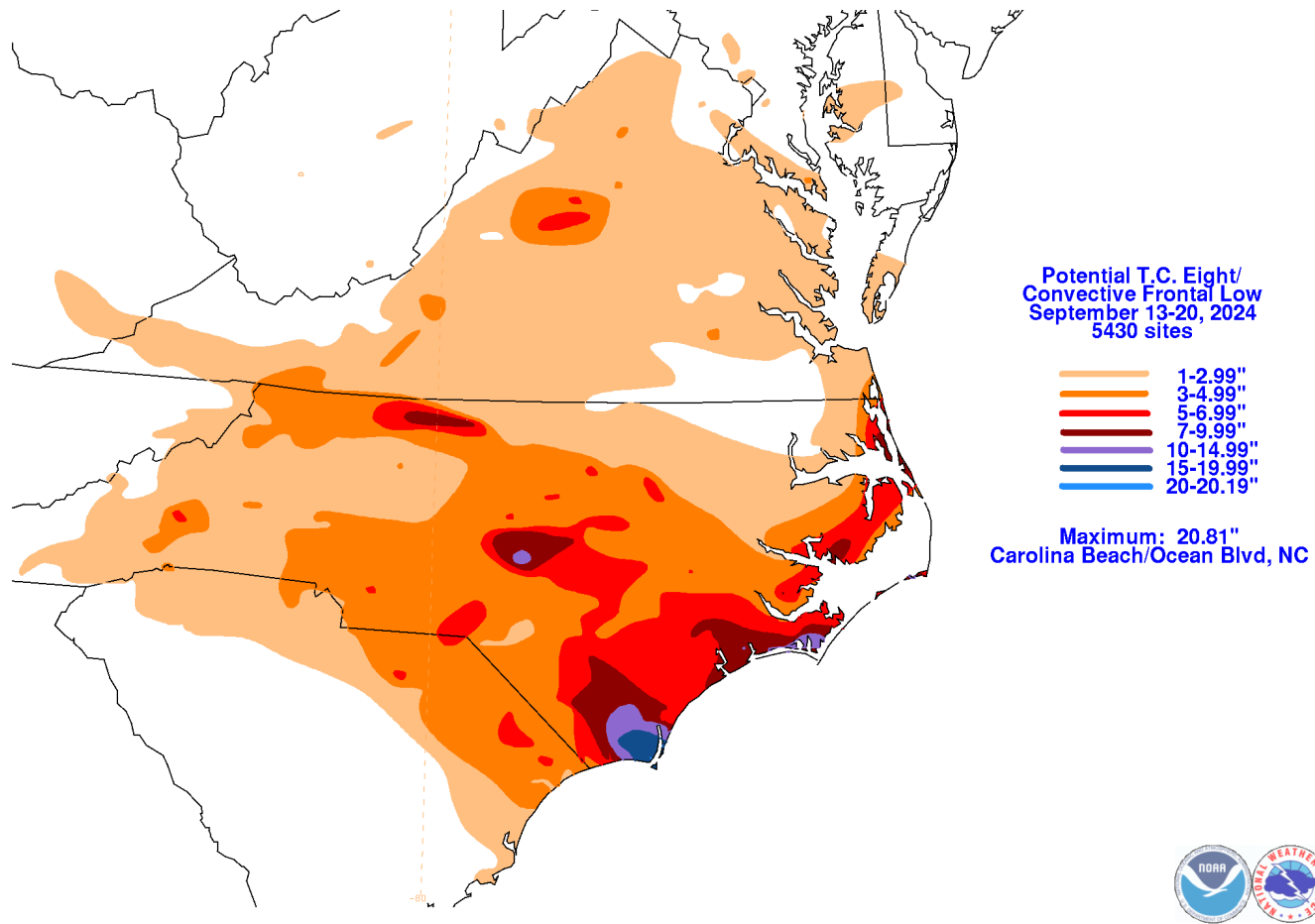


Figure 4. Rainfall from 13-20 September 2024 over a portion of the eastern United States, mostly associated with Potential Tropical Cyclone Eight. Map courtesy David Roth, Weather Prediction Center. Data used to produce this map can be found at: [www.nhc.noaa.gov/data/tcr/supplemental/eight.zip](http://www.nhc.noaa.gov/data/tcr/supplemental/eight.zip).