PUBLISH DATE: JANUARY 13, 2023

EASTERN NORTH CAROLINA MONTHLY CLIMATE REPORT

DECEMBER 2022

WEATHER FORECAST OFFICE
NEWPORT/MOREHEAD CITY, NC

National Weather Service

NEWPORT/MOREHEAD CITY, NC

MONTHLY SUMMARY

December featured a volatile meteorological close to the calendar year, particularly the last week as arctic air swept across much of the country before giving way to a more spring-like airmass to ring in 2023. On average, temperatures were modestly below normal across Eastern North Carolina while precipitation was anywhere from 50-75% of average - portions of the coastal plain fared closer to 25% of average.

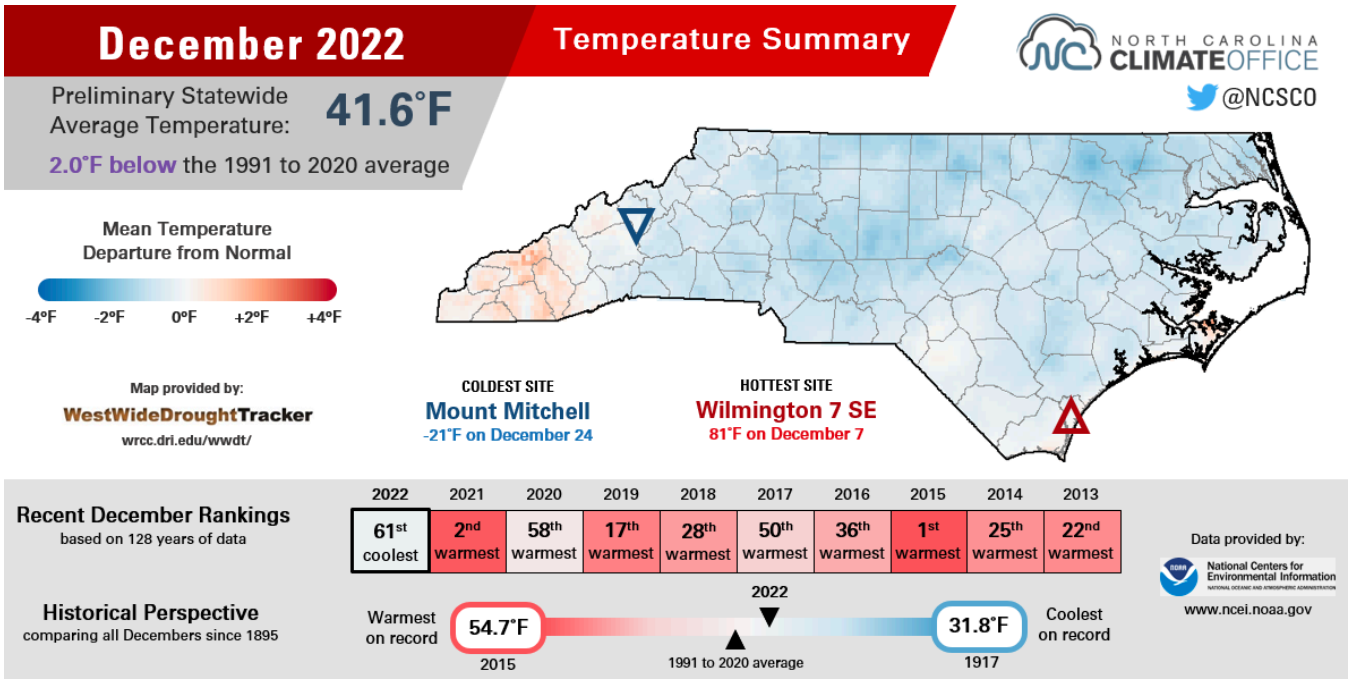
While the first half of the month across North Carolina saw at least modestly above-average temperatures, the script flipped for the second half as frigid arctic air spilled out of Canada and overspread much of the country, bringing temperatures solidly below normal. Drought conditions expanded as a very dry start and end to the month offset brief but notable rounds of precipitation in mid-December.

Seasonal temperature outlooks call for a slight chance (40-50%) of above average temperatures through the next 3 months, and a slight chance (33-50%, highest along the coast) of below average precipitation during the same period. The U.S. Drought Monitor considers drought removal likely for the January-March time frame.

The January 2023 report will be published around February 20th, 2023.

TEMPERATURES

December 2022 was almost universally below average across North Carolina, based on analysis from the NC State Climate Office. The average temperature statewide for December was 41.6°F or 2.0°F below the 1991-2020 average. This was the 61st coolest December statewide since records began in 1895, with 128 years of data.



December 2022 Temperature Summary | Source: NC State Climate Office

Eastern North Carolina temperatures were generally in line with the statewide average, although areas along the coast were slightly warmer. Temperatures at the three primary climate sites in the forecast area were between 1 to 3 degrees below normal. Additional observations can be found in Appendix A.

MHX Select Site Temperature Statistics: December 2022

Site	Avg. High (°F)	Avg. Low (°F)	Avg. Temp (°F)	Normal (°F)	Departure (°F)
Beaufort (KMRH)	58.1	39.9	49.0	50.0	*-1.0*
Hatteras (KHSE)	55.7	43.1	49.4	52.1	*-2.7*

Site	Avg. High (°F)	Avg. Low (°F)	Avg. Temp (°F)	Normal (°F)	Departure (°F)
New Bern (KEWN)	57.8	36.1	47.0	47.7	*-0.8*

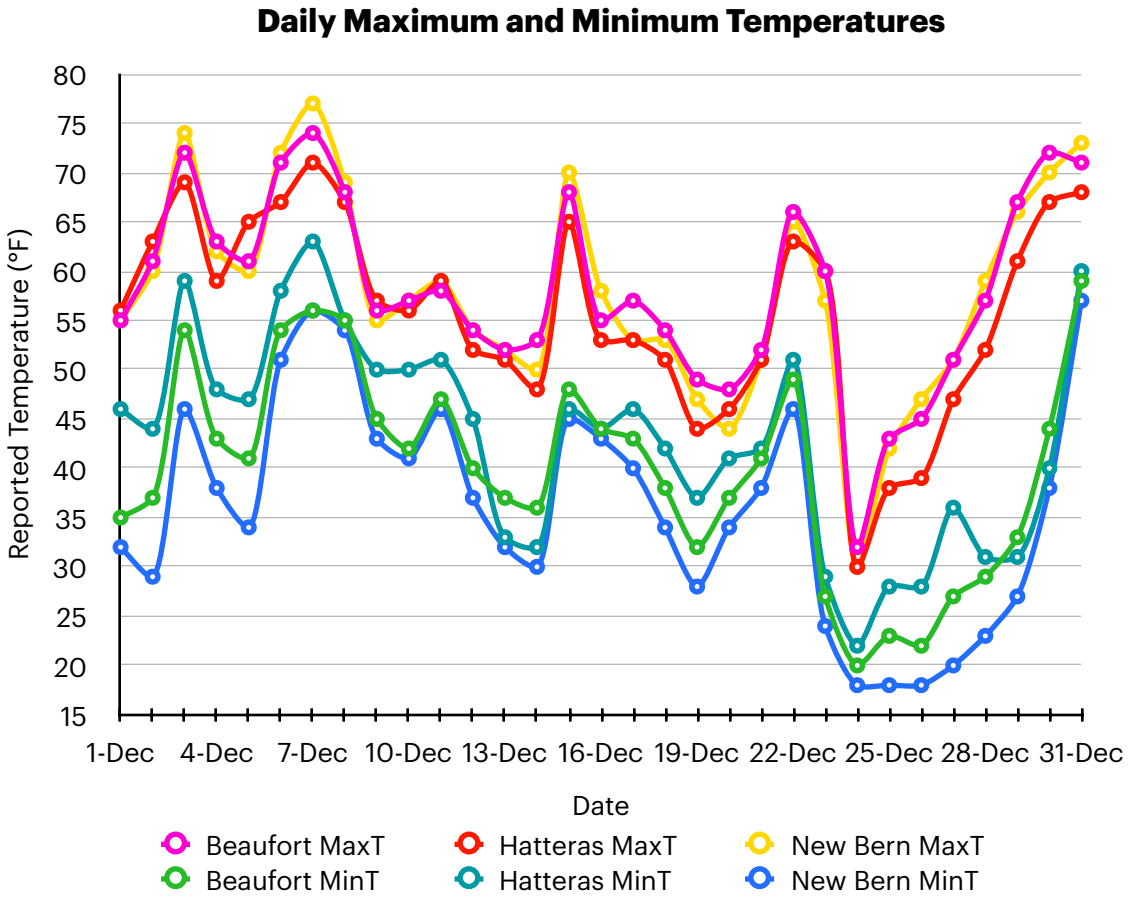
Normals are based on a period from 1990-2020.

County-averaged statistics are presented in the following table. Note that mean temperature and anomaly calculations are based on a period of 1901-2000, rather than 1990-2020. Data courtesy of the National Centers for Environmental Information (NCEI).

County	Avg. Temperature (°F)	Mean (°F)	Departure (°F)	Rank
Beaufort	45.4	44.6	**0.8**	60 W
Carteret	48.0	47.1	**0.9**	63 W
Craven	46.0	45.2	**0.8**	59 W
Dare	45.9	46.0	**-0.1**	51 C
Duplin	44.3	44.4	**-0.1**	56 C
Greene	43.1	43.5	**-0.4**	53 C
Hyde	46.3	46.1	**0.2**	55 C
Jones	45.2	44.7	**0.5**	63 W
Lenoir	43.3	44.0	**-0.7**	49 C
Martin	43.4	42.8	**0.6**	61 C
Onslow	46.4	45.8	**0.6**	59 W
Pamlico	47.2	46.1	**1.1**	58 W
Pitt	43.8	43.5	**0.3**	61 C
Tyrrell	45.2	44.8	**0.4**	58 C
Washington	44.5	43.7	**0.8**	63 W
Area Average	**45.2**	**44.8**	**0.4**	

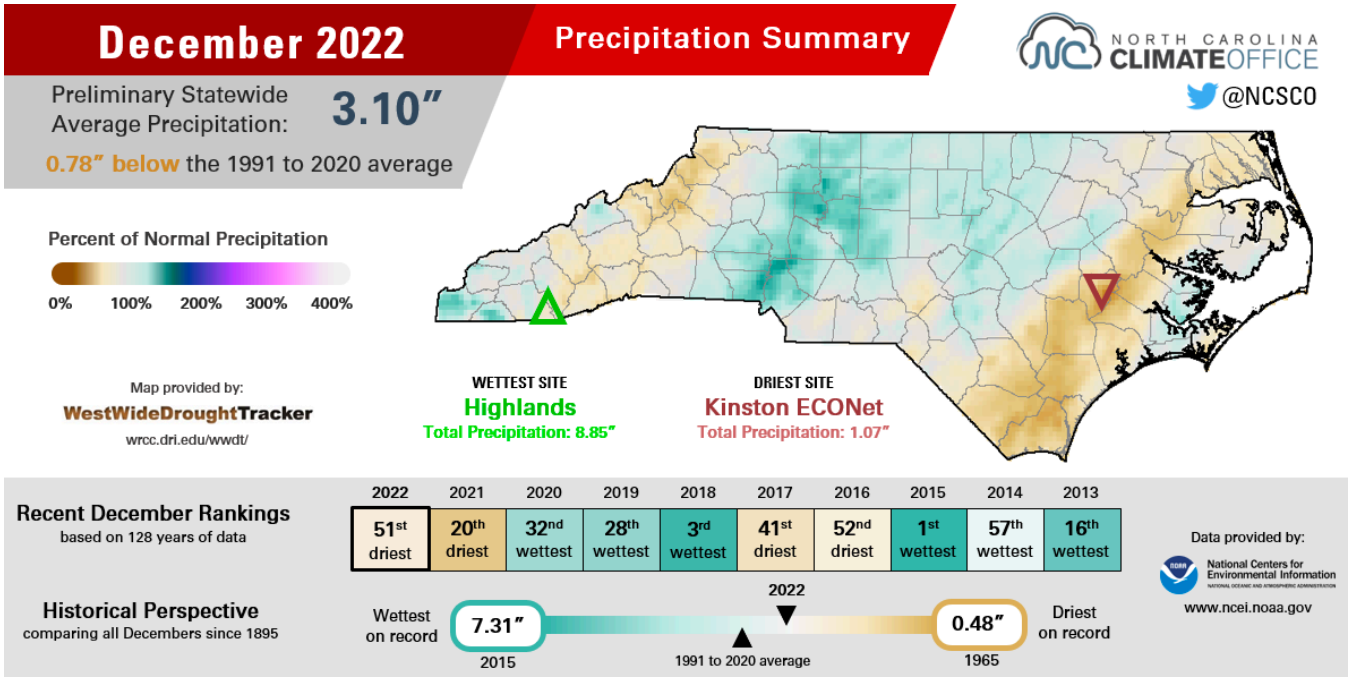
Means are based on a period from 1901-2000. For rankings, “C” designates coldest and “W” designates warmest.

We saw rapid swings in temperature through the month, as short-lived but robust surges of sub-tropical air pushed temperatures well into the 60s and 70s before cold fronts quickly forced cooler air back into the region. By far the most dramatic of these swings were with a coastal storm around Christmas, with an arctic airmass that pushed lows into the mid 10s for many. New Bern's lows hit 18 degrees three nights in a row, having not reached that mark since the 2018-2019 winter season.



PRECIPITATION

Analysis conducted by the North Carolina State Climate Office indicated below-average precipitation statewide, sitting at 3.10" for December, or about 0.78" inches below average. This was the 51st driest December for the state since records began in 1895.



December 2022 Precipitation Summary | Source: NC State Climate Office

Eastern North Carolina was generally in line with the statewide average, although the coastal plain was considerably drier and saw some of the lowest amounts in the state. The ECONet station in Kinston was the driest spot in North Carolina, barely picking up an inch. Areas along the Pamlico Sound fared slightly better, coming in right around average.

MHX Select Site Precipitation Statistics: December 2022

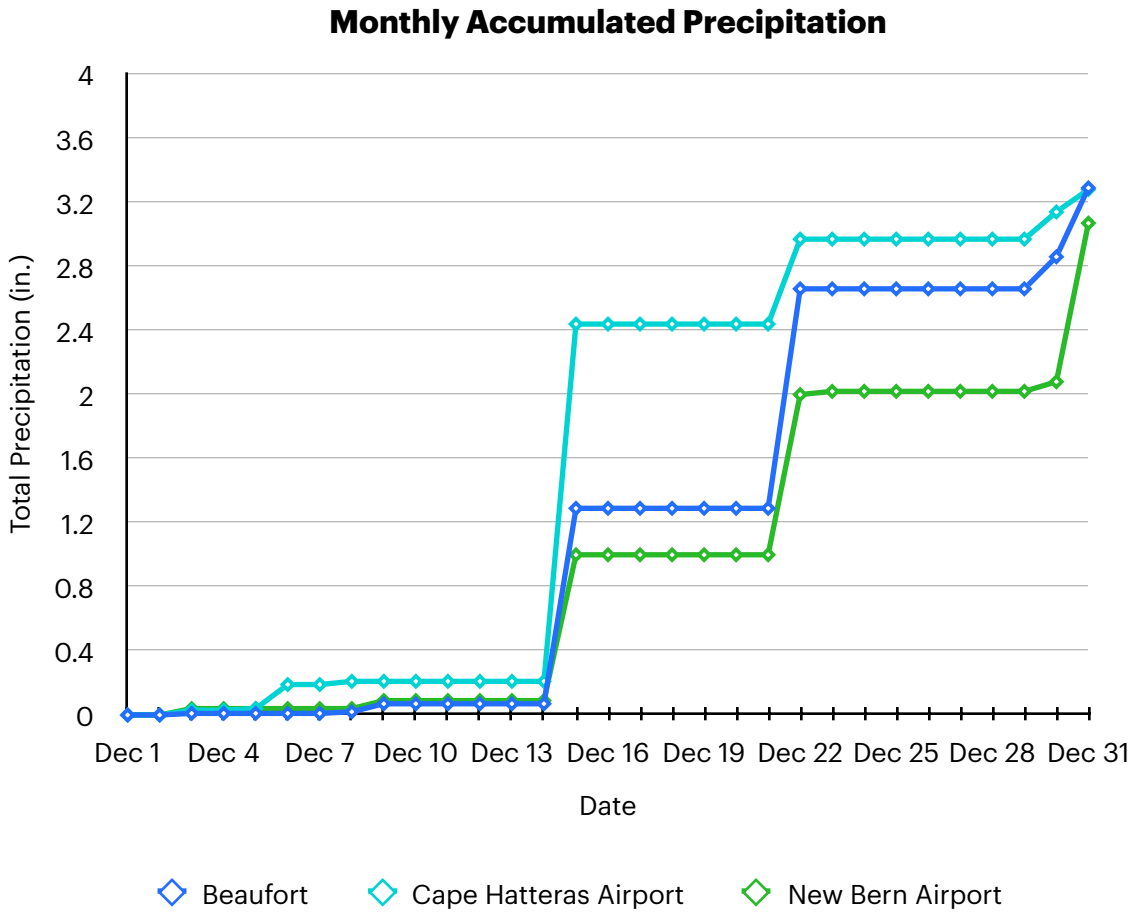
Site	Total Precipitation (in.)	Normal (in.)	Departure (in.)
Beaufort (KMRH)	3.29	3.79	*-0.5*
Hatteras (KHSE)	3.28	4.73	*-1.45*
New Bern (KEWN)	3.07	3.63	*-0.56*

County-averaged statistics are presented in the following table. Like temperatures, mean and anomaly precipitation calculations are based on a period 1901-2000. Data courtesy of the National Centers for Environmental Information (NCEI).

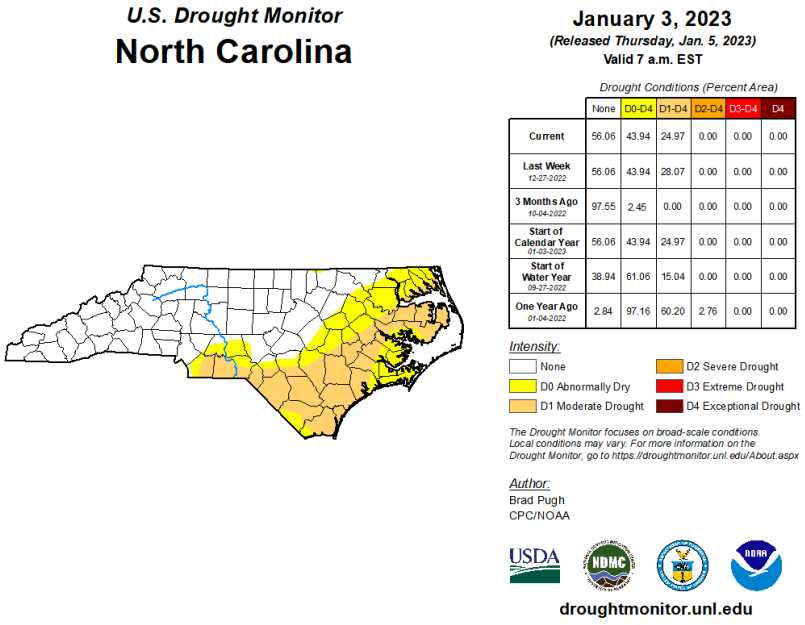
County	Avg. Accum. (in.)	Mean (in.)	Departure (in.)	Rank
Beaufort	1.88	3.55	**-1.67**	15 D
Carteret	3.26	4.04	**-0.78**	45 D
Craven	2.58	3.64	**-1.06**	35 D
Dare	2.11	3.90	**-1.79**	18 D
Duplin	1.91	3.30	**-1.39**	23 D
Greene	1.79	3.30	**-1.51**	16 D
Hyde	2.18	3.83	**-1.65**	17 D
Jones	2.29	3.52	**-1.23**	30 D
Lenoir	1.66	3.29	**-1.63**	12 D
Martin	1.64	3.35	**-1.71**	14 D
Onslow	2.20	3.61	**-1.41**	24 D
Pamlico	3.19	3.83	**-0.64**	47 D
Pitt	1.77	3.36	**-1.59**	15 D
Tyrrell	2.00	3.67	**-1.67**	17 D
Washington	1.54	3.52	**-1.98**	13 D
Area Average	**2.13**	**3.58**	**-1.45**	

Means are based on a period from 1901-2000. For rankings, “W” designates wettest and “D” designates driest.

December precipitation came in 3 main waves, all associated with coastal fronts or developing coastal lows. **Cape Hatteras** received 2.23 inches of rain on Dec 15 as low pressure lifted across the Carolinas, breaking its old record of 2.13 inches. The wettest day for both Beaufort and New Bern were on Dec 22, picking up 1.00 and 1.37 inches respectively.



Drought conditions expanded further across eastern North Carolina in December. As of January 3, moderate drought conditions were in place across much of the coastal plain as well as the Albemarle-Pamlico Peninsula. Abnormally dry conditions continue across the remainder of the region. Seasonal outlooks call for drought improvement over the next 3 months.



ADDITIONAL CLIMATE RESOURCES

For a look at climate on the national scale, as well as statistics from a CONUS-wide to county and city level, please visit the **National Centers for Environmental Information** at https://www.ncei.noaa.gov/. Additional maps and data, as well as teaching materials and a climate resiliency toolkit, can be found at **NOAA's** https://www.climate.gov.

For additional drought information, including a wealth of maps of data focused on topics such as agriculture, fire, and water supply, please visit **NOAA's National Integrated Drought Information System (NIDIS)** at https://www.drought.gov.

For climate statistics and real time observations across the state of North Carolina, please visit the **North Carolina State Climate Office** at https://climate.ncsu.edu/.

For climate forecasts and outlooks, visit the **Climate Prediction Center** at https://www.cpc.ncep.noaa.gov/.

For community-based precipitation observations from across the United States, visit **CoCoRaHS** at https://www.cocorahs.org/.

For climate statistics relevant to various regions of North Carolina, please visit the following climate pages:

Eastern (WFO Morehead City): https://www.weather.gov/wrh/climate?wfo=mhx

Southeastern (WFO Wilmington): https://www.weather.gov/wrh/climate?wfo=ilm

Northeastern (WFO Wakefield, VA): https://www.weather.gov/wrh/climate?wfo=akq

Central (WFO Raleigh): https://www.weather.gov/wrh/climate?wfo=rah

Northwestern (WFO Blacksburg, VA): https://www.weather.gov/wrh/climate?wfo=rnk

Southwestern (WFO Greer, SC): https://www.weather.gov/wrh/climate?wfo=gsp

Cherokee and Clay Co. (WFO Knoxville, TN): https://www.weather.gov/wrh/climate?wfo=mrx

APPENDIX A: ADDITIONAL TEMPERATURE DATA

Cooperative Observation Site Temperature Statistics: December 2022

Site	Avg. High (°F)	Avg. Low (°F)	Avg. Temp (°F)	Normal (°F)	Departure (°F)
Greenville	54.7	34.4	44.6	45.9	*-1.4*
Kinston	55.4	32.6	44.0	48.5	*-4.5*
Williamston	54.0	32.6	43.3	45.8	*-2.5*
Plymouth	55.5	34.8	45.2	46.7	*-1.6*
Bayboro	57.5	37.4	47.5	47.7	*-0.3*
Manteo	54.1	38.2	46.2	47.5	*-1.4*

Normals are based on a period from 1990-2020. Sites in red have missing data.

Maximum and Minimum Monthly Temperatures: December 2022

Site	Max High (°F)	Date Observed	Min Low (°F)	Date Observed
Beaufort (KMRH)	74	Dec 7	20	Dec 24
Hatteras (KHSE)	71	Dec 7	22	Dec 24
New Bern (KEWN)	77	Dec 7	18	Dec 24-26
Greenville	71	Dec 7	15	Dec 24
Kinston	73	Dec 8	15	Dec 24-25
Williamston	71	Dec 8	14	Dec 25
Plymouth	73	Dec 7	15	Dec 24, Dec 26
Bayboro	74	Dec 8	23	Dec 26-27
Manteo	69	Dec 8	18	Dec 25

APPENDIX B: ADDITIONAL PRECIPITATION DATA

Cooperative Observation Site Precipitation Statistics: December 2022

Site	Total Precipitation (in.)	Normal (in.)	Departure (in.)
Bayboro	4.25	4.10	*0.15*
Greenville	1.78	3.55	*-1.77*
Kinston	1.50	3.29	*-1.79*
Plymouth	2.45	3.64	*-1.19*
Williamston	2.06	3.57	*-1.51*

Sites in red have missing data in their record.

CoCoRaHS Monthly Accumulated Precipitation: December 2022

Site	County	Amount (in.)
Pantego 0.4 WSW	Beaufort	4.87
Cedar Island 0.3 SSE	Carteret	3.20
Williston 0.9 SW	Carteret	2.80
Beaufort 5.3 N	Carteret	4.60
Beaufort 3.8 N	Carteret	4.48
Beaufort 3.4 NNW	Carteret	4.49
Beaufort 0.5 W	Carteret	3.52
Morehead City 0.6 NW	Carteret	3.99
Morehead City 2.9 WNW	Carteret	4.76
Morehead City 6.0 WNW	Carteret	4.88
Morehead City 5.7 W	Carteret	5.37

Site	County	Amount (in.)
Newport 0.2 SW	Carteret	5.29
Pine Knoll Shores 0.3 NE	Carteret	4.38
Emerald Isle 2.3 WSW	Carteret	4.10
Cedar Point 0.9 WSW	Carteret	4.42
Cedar Point 0.4 WSW	Carteret	4.55
Cape Carteret 1.0 NNW	Carteret	4.48
Swansboro 3.7 NNE	Carteret	5.78
Stella 2.5 SE	Carteret	5.28
Newport 2.5 W	Carteret	4.37
New Bern 1.3 NNE	Craven	3.79
New Bern 7.3 ESE	Craven	4.60
Havelock 1.9 SSE	Craven	4.91
Trent Woods 0.9 WNW	Craven	3.63
New Bern 2.6 SW	Craven	3.68
Trent Woods 1.0 NNE	Craven	3.62
Trent Woods 1.3 SSE	Craven	4.19
Duck 0.7 SSE	Dare	3.15
Rodanthe 1.0 SSE	Dare	2.25
Rose Hill 0.1 NNW	Duplin	1.59
Ayden 6.5 WNW	Greene	2.07
SQ Tower	Hyde	3.84
Engelhard 0.8 NW	Hyde	4.34
Ocracoke 0.2 ESE	Hyde	3.00

Site	County	Amount (in.)
Kinston 5.1 WNW	Lenoir	2.08
Kinston 4.4 WNW	Lenoir	1.93
Kinston 3.7 WNW	Lenoir	2.72
Kinston 1.2 NW	Lenoir	2.16
Kinston 7.0 SW	Lenoir	1.76
Williamston 8.9 SSE	Martin	2.25
Jamesville 6.1 SW	Martin	2.58
Holly Ridge 3.7 E	Onslow	3.94
Holly Ridge 9.0 ENE	Onslow	3.78
Swansboro 3.3 NW	Onslow	5.46
Jacksonville 5.4 WSW	Onslow	3.27
Jacksonville 3.3 W	Onslow	3.26
Jacksonville 1.0 NW	Onslow	3.64
Jacksonville 2.4 NNE	Onslow	2.49
Lowland 0.2 SE	Pamlico	4.66
Merritt 1.5 WSW	Pamlico	4.69
Oriental 4.3 NNW	Pamlico	4.53
Oriental 5.2 NE	Pamlico	3.38
Fountain 0.1 NE	Pitt	3.67
Farmville 3.1 NW	Pitt	3.92
Greenville 4.6 W	Pitt	3.82
Winterville 3.5 W	Pitt	2.41
Winterville 1.0 ENE	Pitt	2.01

Site	County	Amount (in.)
Greenville 4.4 SSE	Pitt	1.94
Greenville 5.0 SE	Pitt	1.96
Greenville 7.1 SSE	Pitt	1.90

CoCoRaHS inclusion in this table is based on a complete 31-day liquid precipitation record. Thank you to all observers!