PUBLISH DATE: AUGUST 1, 2023

EASTERN NORTH CAROLINA MONTHLY CLIMATE REPORT

JUNE 2023

WEATHER FORECAST OFFICE
NEWPORT/MOREHEAD CITY, NC

National Weather Service
NEWPORT/MOREHEAD CITY, NC

MONTHLY SUMMARY

June brought another month of below average temperatures and precipitation across eastern North Carolina. Severe weather was in no short supply with a confirmed EF-1 tornado in Kinston on June 22nd and multiple days of severe thunderstorm wind gusts. Even with below average precipitation, the CWA improved its drought conditions once again and is now free of abnormally dry areas as outlined by the Drought Monitor at the University of Nebraska-Lincoln.

The Atlantic has been relatively quiet so far with three named storms as of the end of June, none of which have directly impacted the Carolinas. Global sea surface temperatures hit a record high for the third month in a row, and June 2023 had the highest monthly sea surface temperature anomaly of any month since record keeping began in 1849.

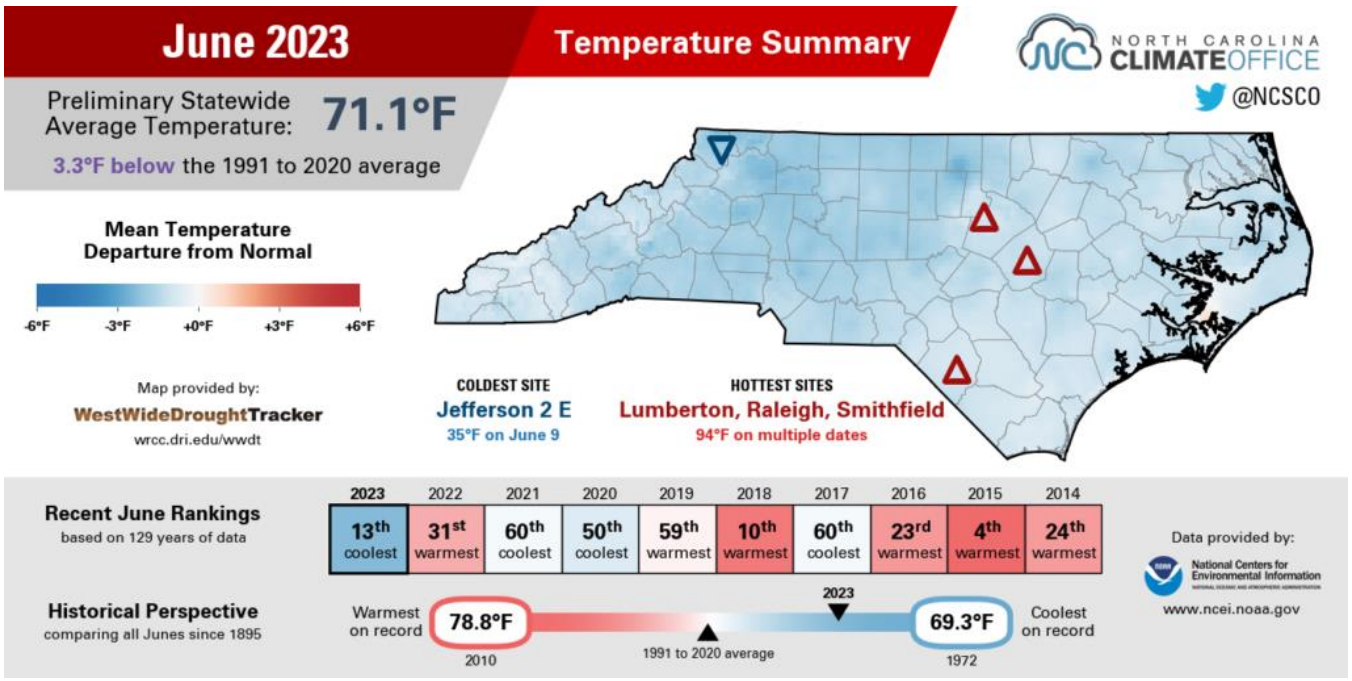
Smoke from Canadian wildfires caused several days of sub-optimal air quality. In fact, nearly 87% of June (26 out of 30 days) had counties in eastern NC in code yellow (moderate) or code orange (unhealthy for sensitive groups). Area-wide, temperatures were around 2 to 4 degrees below the 20th century average. Upper level troughing over the northeastern CONUS kept eastern North Carolina cooler due to long periods of northerly and northwesterly winds. This atmospheric setup exacerbated the wildfire smoke problem by funneling it into the Carolinas and even further south.

Seasonal drought outlook indicates no change in drought conditions through the next few months. Seasonal CPC outlooks favor above average temperatures (50-60%) and above average precipitation (33-40%).

The July 2023 report will be published around September 1st, 2023.

TEMPERATURES

The average June statewide temperature was 71.1°F, or 3.3°F below the 1991 to 2020 average. May 2023 is the 13th coldest June since record keeping began in 1895.



May 2023 Temperature Summary | Source: NC State Climate Office

The average temperatures in eastern North Carolina were a few degrees warmer than the statewide average but multiple minimum low records were broken. Pamlico County had the greatest average temperature anomaly for all of North Carolina for the second month in a row with an average temperature 2.4°F ***below*** the 1901-2000 mean temperature. This was its 11th coldest June on record. Multiple sites across eastern North Carolina had below average temperatures for more than 20 days out of the month (65%). Additional observations can be found in Appendix A.

MHX Select Site Temperature Statistics: June 2022

Site	Avg. High (°F)	Avg. Low (°F)	Avg. Temp (°F)	Normal (°F)	Departure (°F)
Beaufort (KMRH)	81.1	67.7	74.4	77.3	-2.9
Hatteras (KHSE)	78.8	67.4	73.1	77.5	-4.4

MHX Select Site Temperature Statistics: June 2022

Site	Avg. High (°F)	Avg. Low (°F)	Avg. Temp (°F)	Normal (°F)	Departure (°F)
New Bern (KEWN)	84.8	65.0	74.9	77.0	-2.1

Normals are based on a period from 1990-2020.

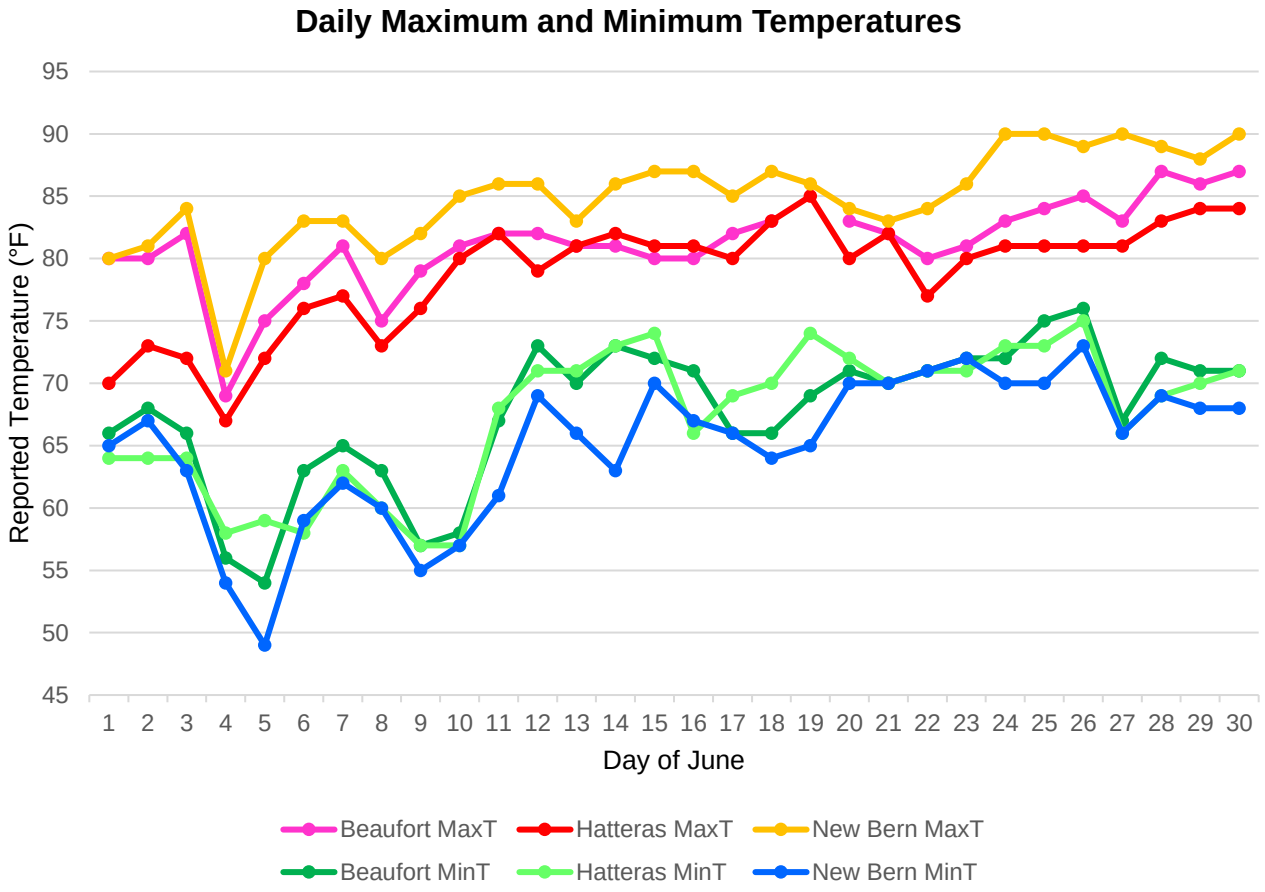
County-averaged statistics are presented in the following table. Note that mean temperature and anomaly calculations are based on a period of 1901-2000, rather than 1990-2020. Data courtesy of the National Centers for Environmental Information (NCEI).

County	Avg. Temperature (°F)	Mean (°F)	Departure (°F)	Rank
Beaufort	73.4	75.5	-2.1	13 C
Carteret	73.8	75.9	-2.1	12 C
Craven	73.6	75.3	-1.7	20 C
Dare	73.1	74.9	-1.8	20 C
Duplin	73.7	75.4	-1.7	20 C
Greene	73.5	75.5	-2.0	16 C
Hyde	73.6	75.7	-2.1	14 C
Jones	73.4	75.1	-1.7	20 C
Lenoir	73.4	75.4	-2.0	15 C
Martin	72.8	74.8	-2.0	18 C
Onslow	74.0	75.4	-1.4	27 C
Pamlico	73.6	76.0	-2.4	11 C
Pitt	73.3	75.4	-2.1	16 C
Tyrrell	73.1	75.0	-1.9	20 C
Washington	72.7	74.8	-2.1	19 C
Area Average	73.4	75.3	*-1.9*	

County	Avg. Temperature (°F)	Mean (°F)	Departure (°F)	Rank

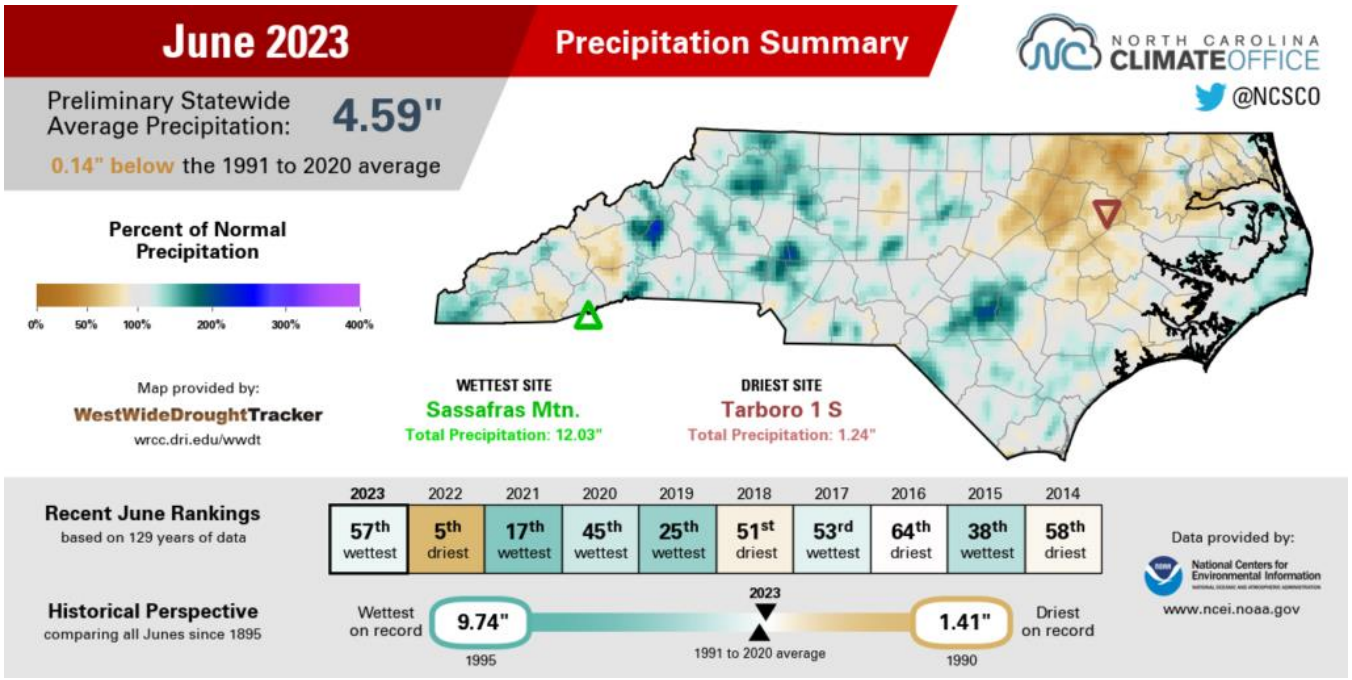
Means are based on a period from 1901-2000. For rankings, "C" designates coldest and "W" designates warmest.

New Bern set a new record low minimum temperature on the morning of June 5th when it dropped to 49°F, breaking the previous record of 51°F set in 1988. The Morehead City WFO also set a new June 5th record low minimum temperature of 48°F, which broke the previous record of 51°F set in 1997.



PRECIPITATION

Analysis conducted by the North Carolina State Climate Office indicated average statewide precipitation was 4.59” for June, or about 0.14” inches below average. This ended up being the 57th driest June for the state since records began in 1895.



Most of eastern North Carolina was generally close to or slightly above the statewide average with the exception of the northeast corner of the state. The driest spot in all of North Carolina was barely outside of the northwestern CWA border in Tarboro where they received only 1.41” of rain in June.

MHX Select Site Precipitation Statistics: June 2022

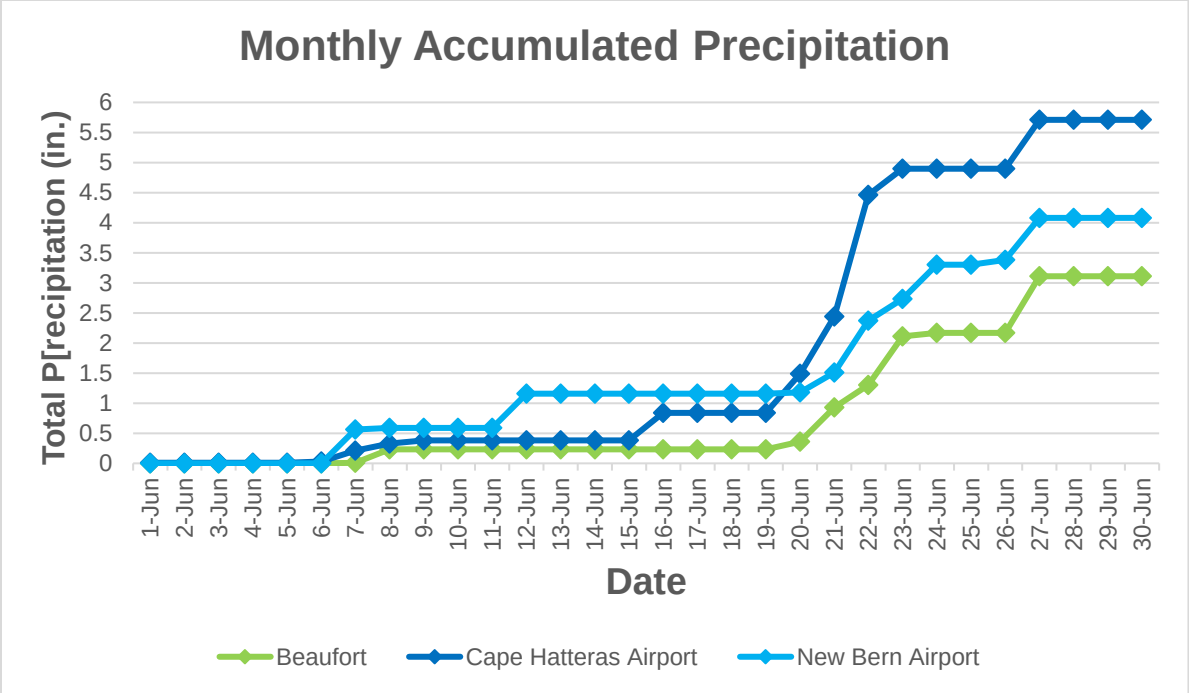
Site	Total Precipitation (in.)	Normal (in.)	Departure (in.)
Beaufort (KMRH)	3.11	4.06	-0.95
Hatteras (KHSE)	5.71	4.41	1.30
New Bern (KEWN)	4.08	4.60	-0.52

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).

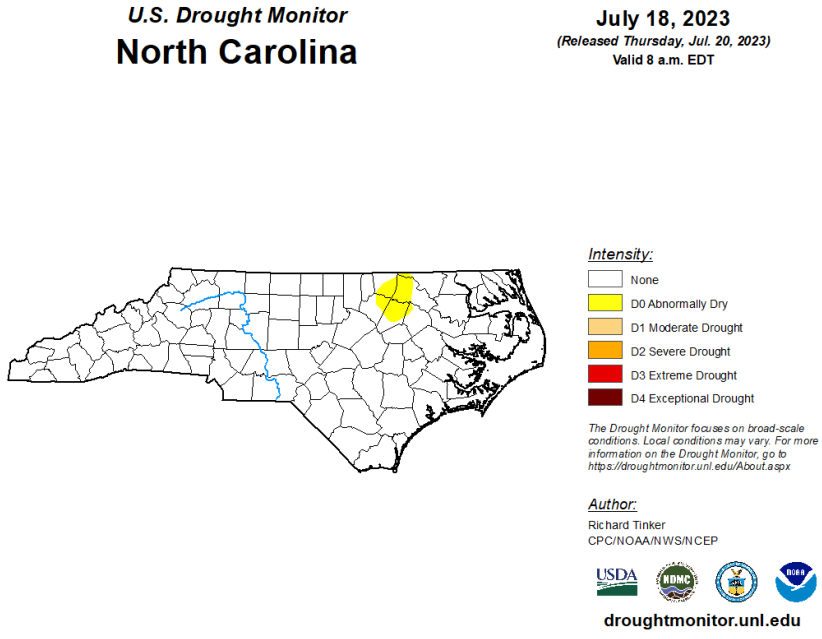
County	Avg. Accum. (in.)	Mean (in.)	Departure (in.)	Rank
Beaufort	3.58	5.03	-1.45	37 D
Carteret	4.66	4.91	-0.25	55 W
Craven	3.80	5.13	-1.33	39 D
Dare	5.77	4.65	1.12	34 W
Duplin	4.12	5.04	-0.92	49 D
Greene	2.87	4.81	-1.94	23 D
Hyde	5.24	4.83	0.41	50 W
Jones	3.96	5.21	-1.25	40 D
Lenoir	3.10	5.02	-1.92	28 D
Martin	3.21	4.83	-1.62	31 D
Onslow	4.73	5.30	-0.57	62 D
Pamlico	3.98	5.03	-1.05	45 D
Pitt	2.87	4.93	-2.06	24 D
Tyrrell	4.42	4.76	-0.34	60 W
Washington	3.66	4.86	-1.20	43 D
Area Average	4.00	4.96	-0.96	

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

Dare County had the highest average accumulation (5.77"), which was 1.12" above the 1901-2000 June average. The greatest accumulation at a single station was in Hyde County (Ocracoke 0.2 ESE) where 7.07" of rain was recorded, which helped it earn the spot as the only other county that had above average precipitation for the month of June.



Drought conditions improved across the CWA and for the first time in a while, no areas within the CWA are abnormally dry. The seasonal drought outlook isn't calling for drought development and the Climate Prediction Center has given all of North Carolina a 33-40% above average precipitation forecast for the next three 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: June 2023

Site	Avg. High (°F)	Avg. Low (°F)	Avg. Temp (°F)	Normal (°F)	Departure (°F)
Greenville	84.3	64.4	74.4	77.3	-3.0
Kinston	84.2	64.1	74.1	77.7	-3.6
Williamston	83.4	63.2	73.3	76.3	-3.0
Plymouth	82.9	62.8	72.9	76.5	-3.6
Bayboro	82.6	63.3	73.0	75.7	-2.7
Manteo	79.3	65.6	72.5	75.5	-3.0

Normals are based on a period from 1990-2020.

Maximum and Minimum Monthly Temperatures: June 2023

Site	Max High (°F)	Date Observed	Min Low (°F)	Date Observed
Beaufort (KMRH)	87	June 28, 30	54	June 5
Hatteras (KHSE)	85	June 19	57	June 9, 10
New Bern (KEWN)	90	June 24, 25, 30	49	June 5
Greenville	91	June 26	50	June 5
Kinston	91	June 27	49	June 5
Williamston	90	June 19, 26, 27	49	June 5
Plymouth	88	June 25, 26	46	June 5
Bayboro	90	June 26	48	June 5
Manteo	88	June 25	52	June 6

APPENDIX B: ADDITIONAL PRECIPITATION DATA

Cooperative Observation Site Precipitation Statistics: June 2023

Site	Total Precipitation (in.)	Normal (in.)	Departure (in.)
Bayboro	3.64	5.40	-1.76
Greenville	2.54	4.36	-1.82
Kinston	2.70	5.53	-2.83
Plymouth	3.88	5.42	-1.54
Williamston	4.15	5.13	-0.98

Sites in red have missing data in their record.

CoCoRaHS Monthly Accumulated Precipitation: June 2023

Site	County	Amount (in.)
Pantego 0.4 WSW	Beaufort	5.96
Bath 1.6 SSE	Beaufort	4.89
Washington 1.0 SSW	Beaufort	3.74
Chocowinity 0.2 W	Beaufort	3.68
Beaufort 3.8 N	Carteret	5.48
Cape Carteret 1.5 NE	Carteret	4.79
Beaufort 5.3 N	Carteret	4.45
Cedar Island 0.3 SSE	Carteret	3.94
Stella	Carteret	3.86
Cedar Point 0.9 WSW	Carteret	3.83
Newport 0.2 SW	Carteret	3.75

CoCoRaHS Monthly Accumulated Precipitation: June 2023

Site	County	Amount (in.)
Emerald Isle 2.3 WSW	Carteret	3.69
Beaufort 12.1 N	Carteret	3.31
Morehead City 0.6 NW	Carteret	3.30
Newport 2.5 W	Carteret	3.28
Swansboro 2.7 NE	Carteret	3.25
Newport 1.0 N	Carteret	2.92
Morehead City 2.9 WNW	Carteret	2.89
Swansboro 3.7 NE	Carteret	2.84
Beaufort 0.5 W	Carteret	2.81
Morehead City 5.7 W	Carteret	2.80
Morehead City 6.0 WNW	Carteret	2.55
Pine Knoll Shores 1.4 E	Carteret	2.41
Pine Knoll Shores 0.3 NE	Carteret	2.12
New Bern 2.6 SW	Craven	5.21
Trent Woods 1.0 ENE	Craven	5.19
Trent Woods 1.3 SSE	Craven	4.62
New Bern 1.3 NNE	Craven	4.50
Havelock 1.9 SSE	Craven	4.34
New Bern 4.2 S	Craven	4.27
New Bern 7.3 ESE	Craven	3.89
Bridgeton	Craven	3.59

CoCoRaHS Monthly Accumulated Precipitation: June 2023

Site	County	Amount (in.)
New Bern 5.2 SE	Craven	3.48
Rodanthe 1.0 SSE	Dare	5.66
Southern Shores 0.5 NNE	Dare	4.10
Wallace 14.8 E	Duplin	5.48
Rose Hill 0.1 NNW	Duplin	4.50
Albertson 1.2 WNW	Duplin	4.21
Mount Olive 2.4 SW	Duplin	3.46
Mount Olive 6.0 SE	Duplin	1.38
Snow Hill 3.1 NNE	Greene	3.93
Ayden 6.5 WNW	Greene	2.76
Ocracoke 0.2 ESE	Hyde	7.07
SQ Tower	Hyde	5.13
Kinston 4.7 ESE	Lenoir	3.71
Pink Hill 2.5 NE	Lenoir	3.65
Kinston 7.0 SW	Lenoir	3.48
Kinston 5.1 WNW	Lenoir	3.09
Kinston 4.4 WNW	Lenoir	2.71
Williamston 8.9 SSE	Martin	5.07
Jamesville 6.1 SW	Martin	3.70
Jacksonville 5.4 WSW	Onslow	5.41
Jacksonville 2.4 NNE	Onslow	5.21

CoCoRaHS Monthly Accumulated Precipitation: June 2023

Site	County	Amount (in.)
Holly Ridge 9.0 ENE	Onslow	4.58
Swansboro 2.8 WSW	Onslow	4.04
Sneads Ferry 1.2 SSW	Onslow	3.40
Sneads Ferry 3.3 SW	Onslow	3.29
Merritt 1.5 WSW	Pamlico	5.23
Oriental 4.3 NNW	Pamlico	5.04
Lowland 0.2 SE	Pamlico	4.93
Oriental 2.1 WSW	Pamlico	4.46
Greenville 7.1 SSE	Pitt	3.89
Winterville 2.8 WNW	Pitt	3.51
Greenville 2.8 ESE	Pitt	3.36
Winterville 3.5 W	Pitt	2.99
Greenville 5.0 SE	Pitt	2.91
Fountain 0.1 NE	Pitt	1.79
Columbia 0.8 NNE	Tyrell	4.41
Roper 2.4 NE	Washington	2.52

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