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EASTERN NORTH CAROLINA
MONTHLY CLIMATE REPORT

# DECEMBER 2024

WEATHER FORECAST OFFICE
NEWPORT/MOREHEAD CITY, NC

# National Weather Service
## NEWPORT/MOREHEAD CITY, NC

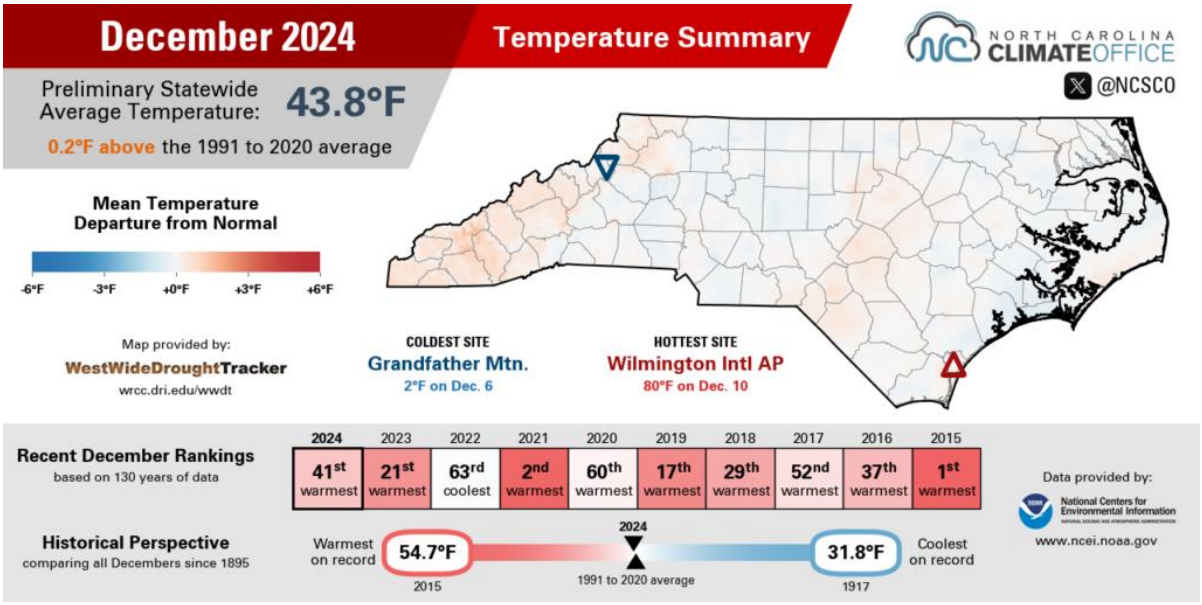
# MONTHLY SUMMARY

Temperatures returned to near normal to close out 2024 in eastern North Carolina, but dry weather continued to hold strong. The first half of December remained very dry apart from beneficial rainfall ahead of a strong cold front on Dec 10-11th, while the second half of the month saw a few small-scale rounds of rain, capped by a stronger coastal trough shortly after Christmas. The inner coastal plain ended up seeing the most rain of the region, and on average our region saw 2.13" of rain, ranging from 25-75% of climatology. Near normal precipitation across the inner coastal plain modestly ate into drought conditions, but the vast majority of eastern North Carolina remains in at least Moderate (D1) drought.

Although average temperatures were close to the 1991-2020 normals, Eastern NC was subjected to a roller coaster of temperature swings in December as the region swung between mid-level troughing and ridging. The changes were dramatic enough that New Bern set multiple low temperature records, while Cape Hatteras managed to tie a record high. The average temperature across the region was 47.3°F, or just over 2 degrees above the 20th-century average.

# TEMPERATURES

Winter started off on a decidedly average note across North Carolina, according to the North Carolina State Climate Office. The average temperature statewide for December was 43.8°F or a mere 0.2°F above the 1991-2020 average. This was the 41st warmest December statewide since records began in 1895, with 130 years of data.




December 2024 Temperature Summary | Source: NC State Climate Office

Eastern North Carolina was close to the statewide average and 2.4°F above the 20th-century average. Since their respective records ban, December 2024 was the 48th warmest for Cape Hatteras and 39th warmest for New Bern. Additional observations can be found in Appendix A.

**MHX Select Site Temperature Statistics: December 2024**

| Site | Avg. High (°F) | Avg. Low (°F) | Avg. Temp (°F) | Normal (°F) | Departure (°F) |
|---|---|---|---|---|---|
| **Beaufort (KMRH)** | 59.4 | 42.1 | 50.8 | 50.0 | 0.8 |
| **Hatteras (KHSE)** | 57.0 | 44.9 | 51.0 | 52.1 | -1.1 |
| **New Bern (KEWN)** | 58.8 | 36.7 | 47.8 | 47.7 | 0.1 |

Normals are based on a period from 1990-2020.

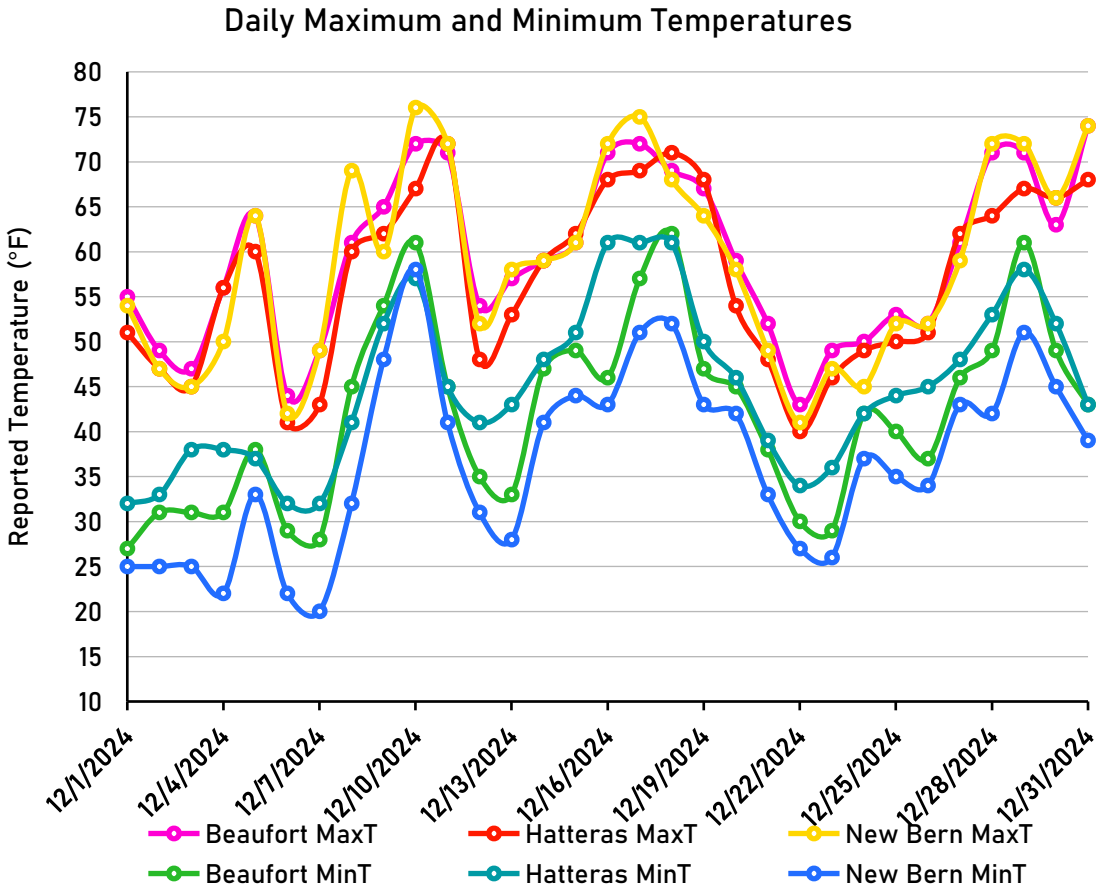
County-averaged statistics are presented in the following table. Note that mean temperature and anomaly calculations are based on a period of 1901-2000, rather than 1990-2020. Data courtesy of the National Centers for Environmental Information (NCEI).

| County | Avg. Temperature (°F) | Mean (°F) | Departure (°F) | Rank |
|---|---|---|---|---|
| **Beaufort** | 47.2 | 44.6 | 2.6 | 37 W |
| **Carteret** | 49.1 | 47.1 | 2.0 | 46 W |
| **Craven** | 47.4 | 45.2 | 2.2 | 40 W |
| **Dare** | 48.6 | 46.0 | 2.6 | 36 W |
| **Duplin** | 46.9 | 44.4 | 2.5 | 38 W |
| **Greene** | 45.9 | 43.5 | 2.4 | 37 W |
| **Hyde** | 48.7 | 46.1 | 2.6 | 40 W |
| **Jones** | 47.0 | 44.7 | 2.3 | 41 W |
| **Lenoir** | 46.6 | 44.0 | 2.6 | 37 W |
| **Martin** | 45.2 | 42.8 | 2.4 | 39 W |
| **Onslow** | 47.6 | 45.8 | 1.8 | 47 W |
| **Pamlico** | 48.5 | 46.1 | 2.4 | 39 W |
| **Pitt** | 45.8 | 43.5 | 2.3 | 38 W |
| **Tyrrell** | 47.7 | 44.8 | 2.9 | 33 W |
| **Washington** | 46.6 | 43.7 | 2.9 | 32 W |
| **Area Average** | 47.3 | 44.8 | 2.4 | |

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

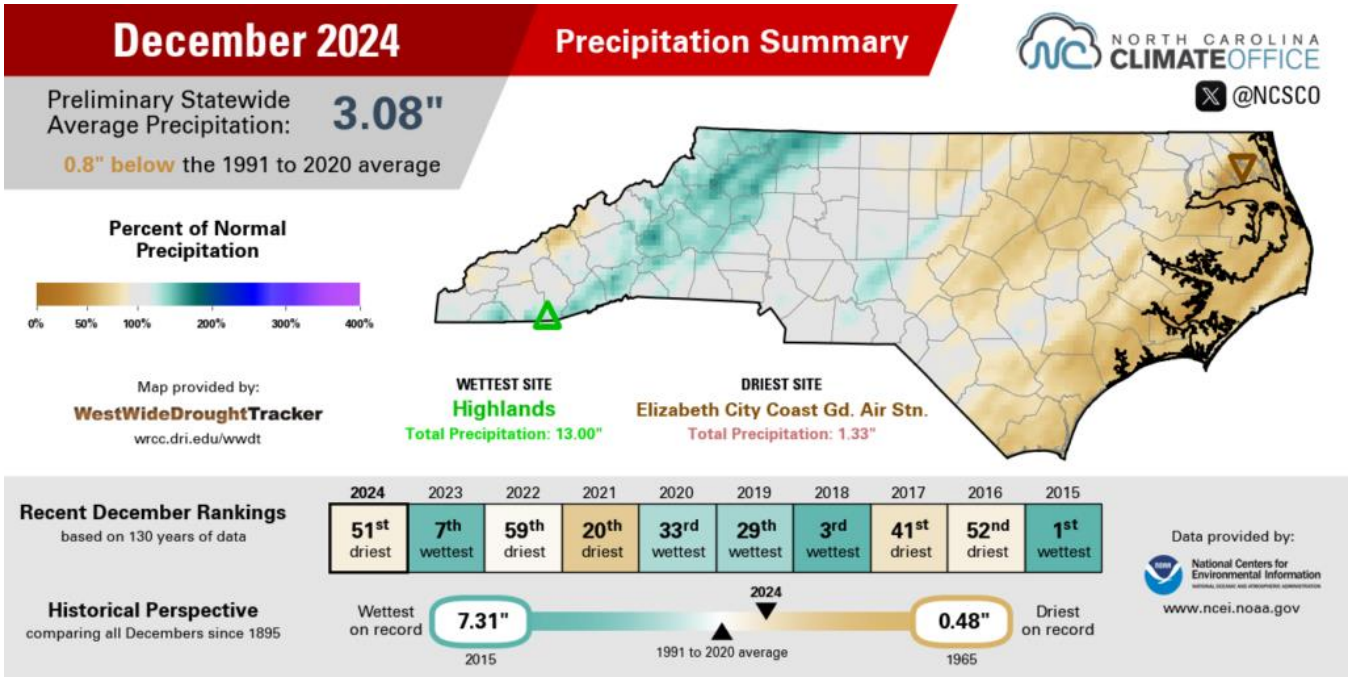
The near-normal temperature average belies the roller coaster of temperatures Eastern NC experienced in December. Our upper air pattern was highly progressive, bouncing between strong troughing in the first half of the month to a weekly flip between ridging and troughing all the way into the New Year. Per analysis from NCEI, the period between Dec 15-20 saw temperatures as much as 9-12 degrees above normal, but by Dec 21-25 anomalies were 6-9 degrees *below* average. New Bern set multiple record

lows on the 4th (22, old record 22 – 1940/1963/1966), the 6th (22, old record 24 – 1969), and the 7th (20, old record 20 – 1937/1954). Cape Hatteras conversely set a record high on the 11th (72, old record 72 – 1897).



# PRECIPITATION

Analysis conducted by the North Carolina State Climate Office indicated average statewide precipitation was 3.08” for December, or about 0.8” inches below average. This ended up being the 51st driest December for the state since records began in 1895.




December 2024 Precipitation Summary | Source: NC State Climate Office

Eastern North Carolina was well below the statewide average, although the coastal plan did see closer-to-normal precipitation compared to the coast. Cape Hatteras recorded its 31st driest December, while New Bern experienced its 11th driest. The average accumulation across the MHX forecast area was 2.13”, or 0.88” below the 20th century average.

**MHX Select Site Precipitation Statistics: December 2024**

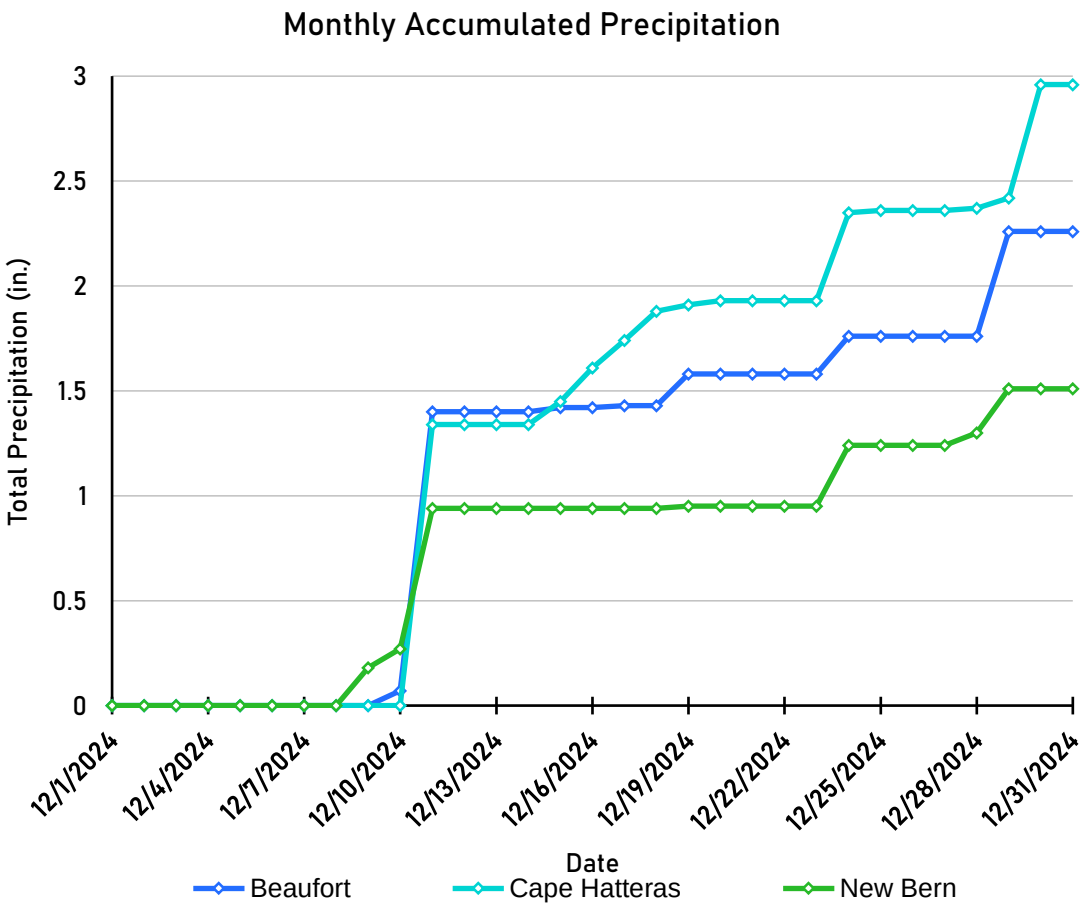
| Site | Total Precipitation (in.) | Normal (in.) | Departure (in.) |
|---|---|---|---|
| **Beaufort (KMRH)** | 2.26 | 3.79 | -1.53 |
| **Hatteras (KHSE)** | 2.96 | 4.73 | -1.77 |
| **New Bern (KEWN)** | 1.51 | 3.63 | -2.12 |

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).

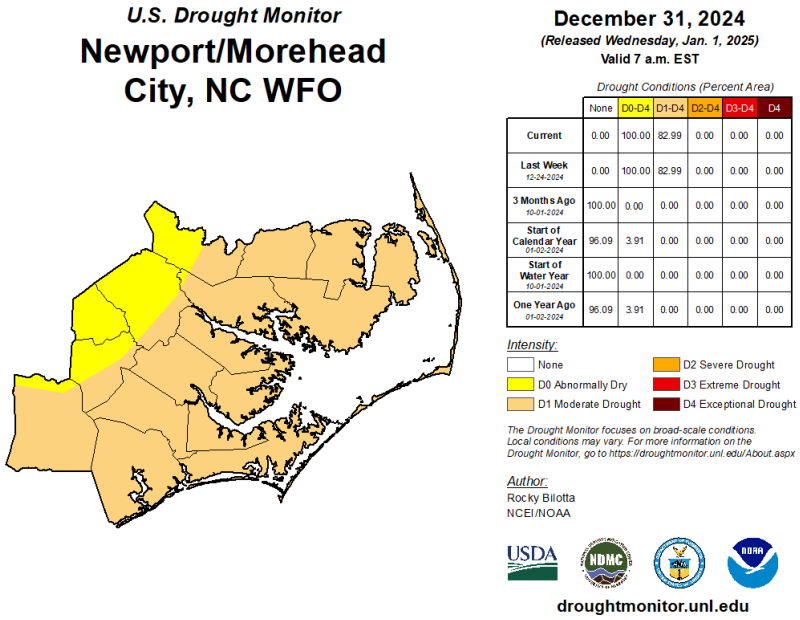
| County | Avg. Accum. (in.) | Mean (in.) | Departure (in.) | Rank |
|---|---|---|---|---|
| **Beaufort** | 2.22 | 2.98 | -0.76 | 21 D |
| **Carteret** | 1.88 | 3.40 | -1.52 | 10 D |
| **Craven** | 1.92 | 3.00 | -1.08 | 13 D |
| **Dare** | 2.28 | 3.40 | -1.12 | 20 D |
| **Duplin** | 2.03 | 2.73 | -0.70 | 27 D |
| **Greene** | 2.55 | 2.82 | -0.27 | 42 D |
| **Hyde** | 2.33 | 3.32 | -0.99 | 19 D |
| **Jones** | 1.87 | 2.88 | -1.01 | 15 D |
| **Lenoir** | 2.31 | 2.79 | -0.48 | 35 D |
| **Martin** | 2.38 | 2.82 | -0.44 | 31 D |
| **Onslow** | 1.72 | 2.95 | -1.23 | 13 D |
| **Pamlico** | 1.88 | 3.19 | -1.31 | 11 D |
| **Pitt** | 2.61 | 2.78 | -0.17 | 44 D |
| **Tyrrell** | 2.01 | 3.15 | -1.14 | 18 D |
| **Washington** | 1.99 | 3.00 | -1.01 | 21 D |
| **Area Average** | 2.13 | 3.01 | -0.88 | |

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

The bulk of December's rainfall was confined to the first half of the month, and almost all of it in association with a strong cold front that pushed across the Carolinas on Dec 10-11$^{th}$. Rainfall amounts ranged from an inch to an inch-and-a-half. Per analysis from NCEI, this is near to slightly above average precipitation for the Dec 1-14$^{th}$ period. For the second half of the month, the main rain-maker was a weak coastal trough on Dec 27-28$^{th}$ which brought a between a quarter to half inch of rain. Overall, December precipitation for eastern NC was between 25-75% of normal.




Most of eastern North Carolina saw no change in drought conditions during December, although the coastal plain did see some modest improvement. On Dec 31st, roughly 83% of the MHX forecast area was in Moderate (D1) drought or worse, compared to 100% of the region on December 3rd.



# 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 2024

| Site | Avg. High (°F) | Avg. Low (°F) | Avg. Temp (°F) | Normal (°F) | Departure (°F) |
|---|---|---|---|---|---|
| **Greenville** | 55.6 | 35.3 | 45.5 | 45.9 | -0.4 |
| **Kinston** | 56.0 | 35.3 | 45.7 | 48.5 | -2.9 |
| **Williamston** | 55.1 | 34.7 | 44.9 | 45.8 | -0.9 |
| **Plymouth** | 56.6 | 36.8 | 46.7 | 46.7 | 0.0 |
| **Bayboro** | 59.8 | 38.5 | 49.2 | 47.7 | 1.5 |
| **Manteo** | -- | -- | -- | -- | -- |

Normals are based on a period from 1990-2020.

### Maximum and Minimum Monthly Temperatures: December 2024

| Site | Max High (°F) | Date Observed | Min Low (°F) | Date Observed |
|---|---|---|---|---|
| **Beaufort (KMRH)** | 74 | Dec 31 | 27 | Dec 1 |
| **Hatteras (KHSE)** | 72 | Dec 11 | 32 | Dec 1, 6-7 |
| **New Bern (KEWN)** | 76 | Dec 10 | 20 | Dec 7 |
| **Greenville** | 72 | Dec 10 | 20 | Dec 7 |
| **Kinston** | 75 | Dec 11 | 22 | Dec 4,7 |
| **Williamston** | 72 | Dec 29 | 20 | Dec 7 |
| **Plymouth** | 71 | Dec 10 | 19 | Dec 7 |
| **Bayboro** | 75 | Dec 11,18 | 24 | Dec 7-8 |
| **Manteo** | -- | -- | -- | -- |

# APPENDIX B: ADDITIONAL PRECIPITATION DATA

Cooperative Observation Site Precipitation Statistics: December 2024

| Site | Total Precipitation (in.) | Normal (in.) | Departure (in.) |
|---|---|---|---|
| Greenville | 3.18 | 3.55 | -0.37 |
| Kinston | 2.27 | 3.29 | -1.02 |
| Williamston | 2.45 | 3.57 | -1.12 |
| Plymouth | 1.82 | 3.64 | -1.82 |
| Bayboro | 1.72 | 4.10 | -2.38 |

Sites in red have missing data in their record.

CoCoRaHS Monthly Accumulated Precipitation: December 2024

| Site | County | Amount (in.) |
|---|---|---|
| Pantego 0.4 WSW | Beaufort | 2.19 |
| Aurora 4.8 NE | Beaufort | 1.92 |
| Morehead City 6.0 WNW | Carteret | 3.01 |
| Beaufort 0.5 W | Carteret | 2.69 |
| Beaufort 3.8 N | Carteret | 2.35 |
| Newport 1.0 N | Carteret | 2.34 |
| Newport 7.1 ENE | Carteret | 2.31 |
| Newport 2.3 SE | Carteret | 2.30 |
| Beaufort 12.1 N | Carteret | 2.24 |
| Morehead City 2.9 WNW | Carteret | 2.19 |
| Beaufort 5.3 N | Carteret | 2.16 |

CoCoRaHS Monthly Accumulated Precipitation: December 2024

| Site | County | Amount (in.) |
|---|---|---|
| Cape Carteret 1.5 NE | Carteret | 2.15 |
| Newport 0.2 SW | Carteret | 2.13 |
| Indian Beach 0.0 W | Carteret | 2.09 |
| Pine Knoll Shores 0.3 NE | Carteret | 2.08 |
| Cedar Point 0.4 WSW | Carteret | 2.05 |
| Newport 2.5 W | Carteret | 2.02 |
| Beaufort 1.5 NNW | Carteret | 1.98 |
| Cedar Island 0.3 SSE | Carteret | 1.93 |
| Cedar Point 0.9 WSW | Carteret | 1.76 |
| Cedar Point 0.7 NNE | Carteret | 1.73 |
| New Bern 1.3 NNE | Craven | 1.79 |
| Trent Woods 1.2 ENE | Craven | 1.71 |
| Trent Woods 1.3 SSE | Craven | 1.70 |
| New Bern 3.8 S | Craven | 1.70 |
| New Bern 2.9 SSE | Craven | 1.62 |
| Trent Woods 1.3 WNW | Craven | 1.57 |
| New Bern 7.3 ESE | Craven | 1.50 |
| New Bern 5.3 SW | Craven | 1.34 |
| Bridgeton 0.3 SSE | Craven | 1.25 |
| New Bern 4.2 S | Craven | 1.11 |
| Southern Shores 1.9 NNW | Dare | 2.46 |

CoCoRaHS Monthly Accumulated Precipitation: December 2024

| Site | County | Amount (in.) |
|---|---|---|
| Rodanthe 1.0 SSE | Dare | 2.38 |
| Southern Shores 0.5 NNE | Dare | 2.28 |
| Duck 0.7 SSE | Dare | 2.10 |
| Faison 3.3 SSE | Duplin | 2.66 |
| Mount Olive 2.4 SW | Duplin | 2.47 |
| Rose Hill 0.1 NNW | Duplin | 2.06 |
| Wallace 14.8 E | Duplin | 1.57 |
| Snow Hill 3.1 NNE | Greene | 2.50 |
| Ayden 6.5 WNW | Greene | 2.33 |
| Ocracoke 0.6 SW | Hyde | 3.84 |
| SQ Tower | Hyde | 2.14 |
| Kinston 4.4 WNW | Lenoir | 2.80 |
| Kinston 5.1 WNW | Lenoir | 2.38 |
| Pink Hill 2.5 NE | Lenoir | 2.27 |
| Kinston 7.0 SW | Lenoir | 2.13 |
| Kinston 1.2 NW | Lenoir | 1.93 |
| Kinston 4.6 ESE | Lenoir | 1.87 |
| Williamston 8.9 SSE | Martin | 2.40 |
| Jamesville 6.1 SW | Martin | 2.34 |
| Holly Ridge 5.0 E | Onslow | 2.38 |
| Swansboro 2.8 WSW | Onslow | 1.91 |

CoCoRaHS Monthly Accumulated Precipitation: December 2024

| Site | County | Amount (in.) |
|---|---|---|
| **Jacksonville 5.4 WSW** | Onslow | 1.75 |
| **Hubert 4.9 SE** | Onslow | 1.74 |
| **Jacksonville 1.0 NW** | Onslow | 1.72 |
| **Sneads Ferry 3.3 SW** | Onslow | 1.63 |
| **Sneads Ferry 1.2 SSW** | Onslow | 1.58 |
| **Jacksonville 2.4 NNE** | Onslow | 1.50 |
| **Lowland 0.2 SE** | Pamlico | 1.68 |
| **Oriental 4.3 NNW** | Pamlico | 1.60 |
| **Merritt 1.5 WSW** | Pamlico | 1.59 |
| **Oriental 1.7 WNW** | Pamlico | 1.51 |
| **Oriental 2.1 WSW** | Pamlico | 1.44 |
| **Oriental 5.2 NE** | Pamlico | 1.29 |
| **Fountain 0.1 NE** | Pitt | 2.78 |
| **Winterville 3.5 W** | Pitt | 2.77 |
| **Greenville 7.1 SSE** | Pitt | 2.02 |
| **Greenville 5.0 SE** | Pitt | 1.70 |
| **Greenville 2.8 ESE** | Pitt | 1.53 |
| **Columbia 0.8 NNE** | Tyrrell | 1.80 |
| **Roper 2.4 NE** | Washington | 1.76 |

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