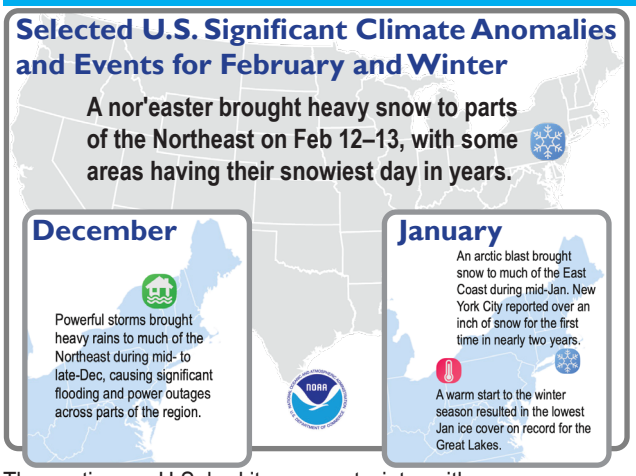
Quarterly Climate Impacts and Outlook

Northeast Region

March 2024

National Significant Events – *December 2023–February 2024*

Selected U.S. Significant Climate Anomalies and Events for February and Winter



The contiguous U.S. had its warmest winter with an average temperature at 5.4°F above the 20th-century average. Average temperatures for December, January, and February were 7.3°F above average (record warm), 1.6°F above average, and 7.2°F above average (third warmest), respectively. Globally, it was the warmest December, the warmest January, the warmest February, and the warmest winter. The contiguous U.S. winter precipitation was 0.92 inches above average. During December, January, and February, precipitation was 0.21 inches above average, 0.87 inches above average (10th wettest), and 0.27 inches below average, respectively.

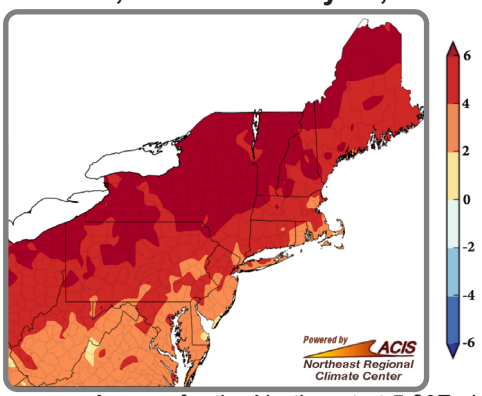
Highlights for the Northeast

- **December** was **mild and wet**, with **below-normal snowfall** for much of the region. Delaware and New Jersey were **record wet** along with sites like Allentown, PA, and Bridgeport, CT. Islip, NY, had its **wettest December day** with 3.04 inches of precipitation. Much of the **precipitation fell as rain**, leading to significant flooding. This December tied as the **least snowy** for Worcester, MA, and Hartford, CT, both with a trace.
- **January** was **warmer and wetter than normal** for most areas, but **snowfall was variable**. Washington, D.C., had a high of 80°F in January for the **first time** since 1872, while Dulles Airport, VA, reached 79°F, its **warmest January temperature**. A few storms produced **significant flooding**. Some sites had their **first inch of snow** in nearly two years.
- **February** was **warm and dry** with **below-normal snowfall** for most areas. Maine was **record dry**, while some New York sites like Albany were **record warm** and/or had **record low snowfall**. However, a few sites, generally in the Mid-Atlantic, saw their **largest snowfall** of the past few years.
- **Winter** was **record warm** for the Northeast, three states, and several climate sites including Burlington, VT, and Syracuse, NY. This winter had the **fewest freezing days** at a few sites like Worcester, MA, and Buffalo, NY. Winter was **record wet** for some sites such as Scranton, PA, and Hartford, CT, but featured **below-normal snowfall** for most areas.
- The **coldest temperature** of February or winter ranked as the **warmest on record** for several sites. For example, Burlington, VT, did not fall below 3°F all winter, its warmest low temperature for the season and only the second winter (along with winter 2001–02) without a subzero temperature

Regional Climate Overview – *December 2023–February 2024*

Temperature

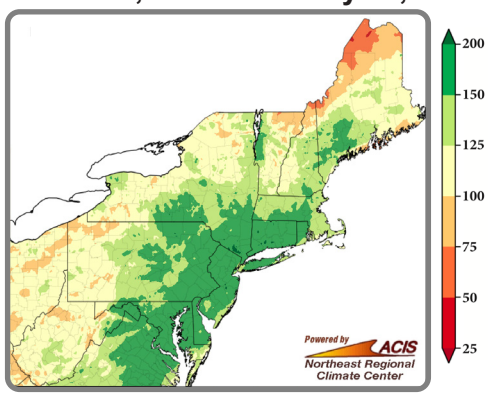
Departure from Normal (°F)
December 1, 2023–February 29, 2024



Climate normals based on 1991–2020 data; rankings based on 1895–2023.

Precipitation

Percent of Normal (%)
December 1, 2023–February 29, 2024



Winter was **record warm** for the Northeast at 5.3°F above normal, as well as for three states. It was among the 10 warmest for nine states. The region had its **second-warmest December** at 6.1°F above normal. It was among the 10 warmest Decembers for all 12 states. The region had its **17th-warmest January** at 3.9°F above normal. It was among the 20 warmest Januarys for eight states. The region had its **fourth-warmest February** at 5.7°F above normal. It was among the 10 warmest Februarys for all 12 states.

Winter was the **12th wettest** for the Northeast at 121% of normal and among the 20 wettest for nine of 12 states. The region had its **seventh-wettest December** at 146% of normal. It was **record wet** for two states and among the 20 wettest Decembers for nine other states. **January** was the **sixth wettest** for the region at 156% of normal and among the 20 wettest for 10 states. The region had its **sixth-driest February** at 43% of normal. It was **record dry** for Maine and among the 20 driest Februarys for nine other states.

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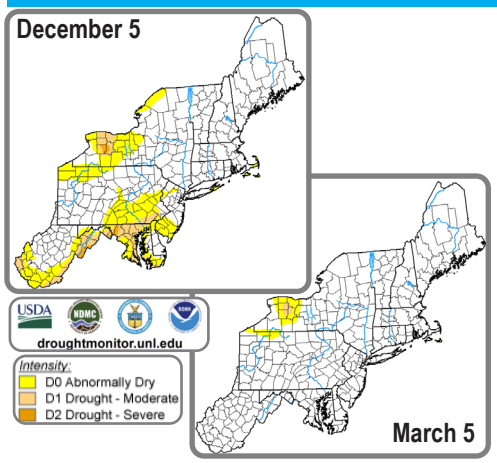
Regional Climate Overview – *December 2023–February 2024*



Drought in the Northeast

As of December 5, the U.S. Drought Monitor showed 6% of the Northeast in drought and 19% as abnormally dry. During winter, **drought and abnormal dryness was erased** in wetter-than-normal areas like the Mid-Atlantic. Areas that were drier or saw reduced groundwater levels like western New York, northwestern Pennsylvania, and southeastern Massachusetts saw **some improvement but drought and dryness persisted**. The March 5 U.S. Drought Monitor showed less than 1% of the Northeast in drought and 3% as abnormally dry.

Reduced streamflow and/or groundwater levels caused some Pennsylvania water suppliers to maintain mandatory water use restrictions during much of winter. A western New York town declared a State of Emergency due to a **water shortage** that left homes without water and caused the fire department and some farms to truck in water. For current conditions, see the Northeast DEWS Dashboard.

Regional Impacts and Updates – *December 2023–February 2024*

Flooding along Neshaminy Creek in Pennsylvania on December 18. Credit: USGS

Winter Conditions

December ranked among the **10 mildest and wettest Decembers** for multiple states and climate sites, with some being record wet. However, the entire Northeast had **snowfall deficits**, ranking as the **least snowy December** for Worcester, MA, and Hartford, CT. Notably, from **December 17–19**, a storm brought warm, unusually moist air into the region. An area from eastern Maryland to New England saw up to 6 inches of rain, with December 18 among the **10 wettest December days** for multiple sites including Newark, NJ, and Philadelphia, PA. The heavy rain on top of saturated or frozen ground, along with melting snowpack, led to **extreme runoff**. Several waterways reached one of their **ten highest water levels**. Floodwaters inundated buildings and swamped roads, resulting in evacuations and water rescues. At least 100 state roads and bridges were impacted in Maine where storm damage estimates exceeded $20 million. Coastal areas also experienced tidal flooding. Wind gusts of up to 72 mph downed trees and wires, blocking roads and causing widespread power outages including over 400,000 Maine customers. The storm resulted in at least four fatalities.

January was **warmer than normal** and among the **10 wettest Januarys** for many locations. **Monthly snowfall** was within 6 inches of normal for most areas but ranged from more than 24 inches below normal to 24 inches above normal. **January** was an **active month for storms**, with wet conditions resulting in **record high streamflow and groundwater levels** in some of the wettest areas.

- **January 9–10**: An area from southern Maryland to southern New England saw up to 4 inches of precipitation, mostly in the form of rain, with some sites having one of their **10 wettest January days**. With the precipitation, saturated or snow-covered ground, higher-than-usual streamflows, and warm temperatures, multiple waterways reached one of their **10 highest water levels** on record. Buildings and roads took on water, leading to water rescues and evacuations. Wind gusts of up to 60 mph were common, with locally higher gusts. Downed trees and power lines blocked roads, damaged buildings, and caused power outages. The winds also contributed to **record- or near-record high water levels** at coastal sites from Maryland to Maine. **Major coastal flooding** inundated roads, buildings and homes, and other structures, causing **significant damage**. There were a few storm-related injuries.
- **January 13–14:** A storm brought precipitation, damaging wind gusts, and more coastal flooding to the region. Water levels along the New England coastline surpassed those of a few days prior, reaching their **all-time highest levels** in parts of Maine and near-record levels in places like Boston, MA. Once again, **significant coastal flooding** caused extensive damage to roads and buildings, with some homes condemned and other structures completely destroyed or washed away. Behind the storm, Arctic air moved across the unusually warm Great Lakes, producing **up to 41 inches of snow** east of Lake Erie and up to 22 inches east of Lake Ontario in New York. A travel ban was enacted in Erie County, where a NFL game was postponed due to weather.
- **January 15–17:** A storm produced the **first inch of snow in nearly two years** for several major cities along the Interstate 95 corridor. For instance, it was the first inch of snow since late January 2022 for Baltimore, MD, and Philadelphia, PA, since mid-February 2022 for Central Park, NY, and since mid-March 2022 for Dulles Airport, VA. Another **major lake-effect event** occurred behind the storm in New York through January 19, with **snow totals around 50 inches** east of Lake Ontario and 43 inches east of Lake Erie. Travel bans were enacted in Erie County, where at least three storm-related deaths occurred. A plane slid off a taxiway in Rochester amid snowy conditions. Snow totals for the back-to-back lake effect events between **January 13 and 19** totaled around 80 inches east of Lake Erie and around 70 inches east of Lake Ontario.

Damage in coastal Massachusetts in mid-January. Credit: Essex County Storm Report/MyCoast MA

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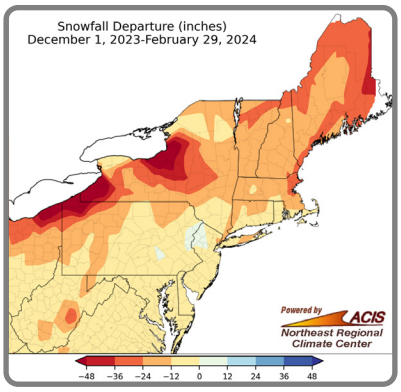
Regional Impacts and Updates – *December 2023–February 2024*

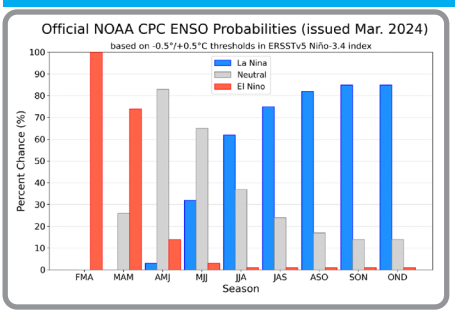


Winter Conditions Continued

February was among the **10 warmest Februarys** for multiple sites, with a few being record warm. There were **limited storms**, with most areas being drier than normal and seeing **snowfall deficits** of up to 24 inches, setting records in a few spots. However, **back-to-back storms** in mid-February provided parts of the Mid-Atlantic over 12 inches of snow, falling at a rate of up to 5 inches per hour. This was the **largest snowfall in recent years** for a few locations. For instance, New Brunswick, NJ, saw 11.0 inches of snow on February 17, its largest daily snowfall since January 2016. The storms gave some sites in eastern Pennsylvania, northern New Jersey, and southeastern New York a monthly **snowfall surplus** of up to 6 inches. Meanwhile, the Great Lakes experienced **record-low ice cover** during February, contributing to a lake-effect event on **February 29** that brought Syracuse, NY, 10 inches of snow, its largest daily snowfall since March 2018. In addition, on **February 28**, Broome County, NY, saw its **first winter tornado** since 1950.

This winter was **the warmest** or among the 10 warmest in many places, a continuation of record- or near-record warmth in 2023. The season was also **record wet** or among the 10 wettest for some sites but featured **below-normal snowfall** for most areas. These conditions had several impacts. The USA National Phenology Network noted that the first signs of spring leaf-out arrived **three weeks early** in Washington, D.C., and two weeks early in Atlantic City, NJ. The maple season started earlier than usual for some New England and New York maple syrup producers. Little snowfall and/or thin ice on waterways **limited winter recreation activities** like snowmobiling, ice fishing, pond hockey, and sled dog racing, with some events cancelled and **revenue losses expected** for local businesses. However, public works departments **saved money** on snow and ice removal.

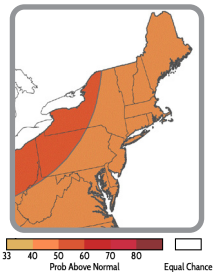
Regional Outlook – *Spring 2024*



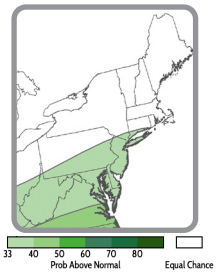
ENSO

El Niño conditions were present but weakening in the equatorial Pacific Ocean during February. NOAA's Climate Prediction Center indicates there is a 83% chance of El Niño transitioning to ENSO-neutral conditions by spring, with a 62% chance of La Niña developing by summer.

Temperature and Precipitation

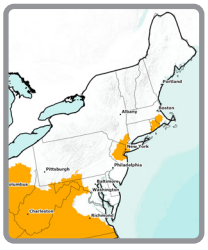


Normal April–June average temperatures range from the upper 40s in northern New England to the mid 60s in parts of the Mid-Atlantic. NOAA's Climate Prediction Center (CPC) favors **above-normal temperatures** for **April–June** for the entire Northeast (map left), driven by several factors including long-term climate trends.



Normal April–June precipitation ranges from 9 inches in western New York to more than 15 inches in parts of West Virginia. **Above-normal precipitation** is favored for **April–June** in much of the Mid-Atlantic, southeastern New York, and southern Connecticut (map right). This is due in part to lingering effects from El Niño and long-term climate trends. **Equal chances** of below-, near-, or above-normal precipitation were forecast for the remainder of the Northeast.

Spring Flooding



NOAA's Spring Flood Outlook indicates **minor flooding is possible** in parts of the Mid-Atlantic, southeastern New York, and southern New England. Higher elevations of northern New York and northern New England "may also be vulnerable to flooding from steady snowmelt through the spring, particularly if heavy rainfall occurs in the next few weeks." As of March 21, the **ice jam flood risk** is **above normal** for northern Maine but **has passed** elsewhere in the region. Very heavy rain can cause flooding at any time of the year, even in areas that have little to no snow cover.

Northeast Partners

National Oceanic and Atmospheric Administration offices including:

- NESDIS/National Centers for Environmental Information
- NWS, Eastern Region
- NWS, Climate Prediction Center
- NWS, National Operational Hydrologic Remote Sensing Center
- NMFS, Fisheries Science Centers and Regional Office, Atlantic
- NOS, Office for Coastal Management
- NOS, National Centers for Coastal Ocean Science
- OAR, Climate Program Office and Geophysical Fluid Dynamics Lab
- OAR, National Sea Grant Office
- NOAA's North Atlantic and Great Lakes Regional Collaboration Teams

And the following other offices:

- Northeast Regional Climate Center
- National Integrated Drought Information System
- Consortium of Climate Risk in the Urban Northeast
- Cooperative Institute for the North Atlantic Research
- Northeast Region State Climatologists
- Mid-Atlantic RISA

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