

National Significant Events – March–May 2021

Selected U.S. Significant Climate Anomalies and Events for May and Spring

Severe weather on May 26 across PA, NY, VT, VA, and MD brought down trees and powerlines, and damaged structures. At least five people were injured.

March

Moderate drought and abnormal dryness expanded due to below-normal precipitation.

This March tied as the least snowy March on record for several climate sites.

April

A late-season snowstorm on Apr 20–22 brought record snow for this time of year across parts of the Ohio Valley and Northeast. This storm snapped trees and caused power outages and travel problems.

The contiguous U.S. spring average temperature was 52.6°F, 1.7°F above the 20th-century average. Average temperatures for March, April, and May were 4.0°F above average, 0.9°F above average, and 0.2°F above average, respectively. Globally, it was the eighth-warmest March, the ninth-warmest April, the sixth-warmest May, and the eighth-warmest spring. The contiguous U.S. spring precipitation total was 7.53 inches, 0.41 inches below average. March, April, and May precipitation were 0.06 inches below average, 0.49 inches below average (14th driest), and 0.03 inches above average, respectively.

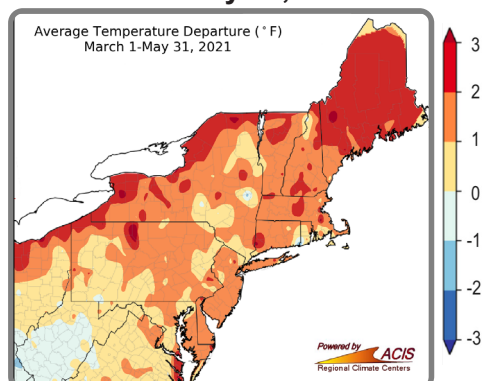
Highlights for the Northeast

- Abnormal dryness and **drought conditions expanded** in the Northeast during **March and April**. See Climate Overview for details.
- This **March** was the **least snowy on record** for New Jersey and [several climate sites](#) across the region. This **spring** was the **least snowy on record** for [several climate sites](#) that received no measurable snowfall. It was the **first time on record** that Bridgeport, CT, received **no snow during March and spring**. See Climate Overview for details.
- There were several **notable storms** during spring. On **March 26 an EF-1 tornado** touched down in Vermont, making it the state's **first March tornado** since 1950. An **April 21–22** storm produced **two tornadoes** and damaging winds in areas closer to the coast and **up to 9 inches of snow** in interior areas. An **April 29–30** storm dropped up to 4 inches of rain on New York and New England. Wind gusts of up to 66 mph **knocked down trees and powerlines**, particularly from Maryland to Massachusetts. On **May 3 and 4**, **six tornadoes** touched down in the region, **damaging buildings** and snapping/uprooting **at least 150 trees**. As much as **5 inches of rain** caused **flash flooding** in northeastern Pennsylvania. A **large waterspout** formed in [Barnegat Bay, NJ](#), on **May 8**. On **May 26**, **strong thunderstorm winds** downed trees, damaged buildings, and resulted in **at least four injuries**. A slow-moving storm system from **May 28 to 31** dropped **as much as 4.50 inches of rain** on the region, particularly in coastal areas, helping to alleviate abnormally dry conditions in some locations. Islip, NY, saw three consecutive days with at least an inch of rain, tying its **longest streak on record**.

Regional Climate Overview – March–May 2021

Temperature

Departure from Normal (°F) March 1–May 31, 2021

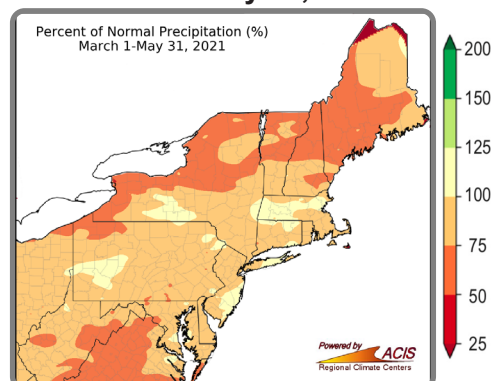


Climate normals based on 1991–2020 data; rankings based on 1895–2021.

The Northeast had its **15th-warmest spring** at 1.3°F above normal. This spring was among the 20 warmest springs on record for 11 of the 12 Northeast states. It was the region's **16th-warmest March** at 3.3°F above normal. Nine states had one of their 20 warmest Marches on record. It was the region's **20th-warmest April** at 1.5°F above normal. Seven states had one of their 20 warmest Aprils on record. **May** was 0.7°F colder than normal, ranking in the **middle third** of all years.

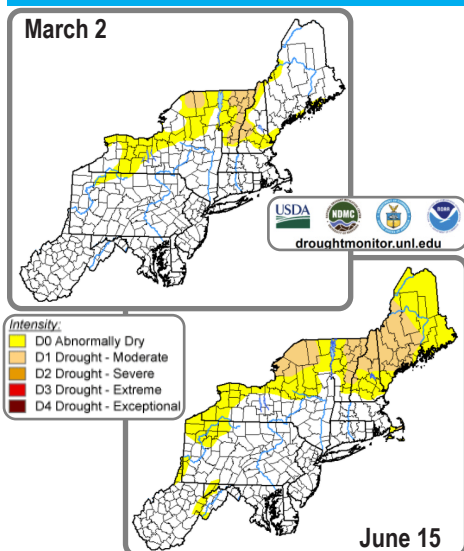
Precipitation

Percent of Normal (%) March 1–May 31, 2021



The Northeast saw 81% of normal **spring** precipitation, ranking in the **driest third** of all years. Two states had one of their 20 driest springs on record. **March** precipitation was 71% of normal, in the **driest third** of all years. It was among the 20 driest Marches for four states. **April** precipitation was 86% of normal, in the **middle third** of all years. Delaware had its 20th-driest April. **May** precipitation was 85% of normal, in the **middle third** of all years. However, this May was among the 20 wettest Mays on record for two states.

Regional Climate Overview – March–May 2021

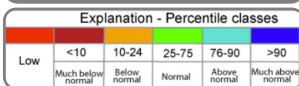
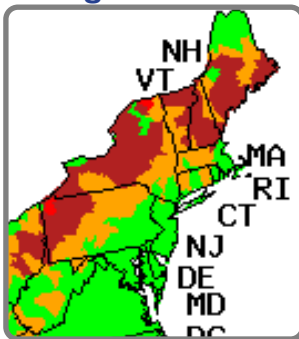


Drought in the Northeast

As of March 2, the [U.S. Drought Monitor](#) showed 4% of the Northeast in moderate drought and 14% as abnormally dry. During March, moderate drought and abnormal dryness expanded in New England, Pennsylvania, and New York, with the [March 30 U.S. Drought Monitor](#) showing 9% of the Northeast in moderate drought and 28% as abnormally dry. Moderate drought and abnormal dryness expanded during April, with moderate drought found in New England, Pennsylvania, and New York, and abnormal dryness found in 10 of the 12 Northeast states. The [April 27 U.S. Drought Monitor](#) showed 14% of the Northeast in moderate drought and 41% as abnormally dry. During May, dryness persisted in areas such as northern New England but improved in areas such as southern New England. The [June 1 U.S. Drought Monitor](#) showed 3% of the Northeast in moderate drought and 37% as abnormally dry. During June, dryness expanded in New England and New York but improved in southern parts of the region. Vermont set a new record for longest drought duration, experiencing 46 consecutive weeks of drought from June 23, 2020, through May 4, 2021. As of June 15, the record grew to 52 weeks. For current conditions, see the [Northeast DEWS Dashboard](#).

Regional Impacts and Updates – March–May 2021

Drought Conditions



April average streamflow.
Credit: USGS.

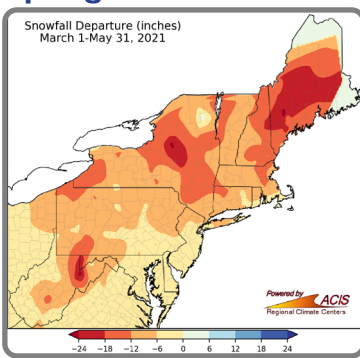
Below-normal precipitation during March and April led to the expansion of abnormal dryness and moderate drought in the Northeast, particularly New York and New England, where several impacts were noted. Dryness persisted in some areas during May, with an absence of dew and increased evaporation.

Fire: Dry, windy conditions on March 14 and 15 helped fuel several brush fires in southern New England, as well as an unusually large wildfire in New Jersey that consumed 170 acres and damaged homes. Dry conditions enhanced the risk of fires during spring in many areas, with an early start to the season and a large number of fires in Maine. During April, some fire wardens in Vermont did not issue burn permits. In May, New Jersey implemented fire restrictions in 11 counties and the state saw a few large fires.

Agriculture: During March, farmers in New Hampshire noted low groundwater levels were not able to meet the demands of livestock. Dry conditions in Vermont led some farmers to purchase feed for their livestock and could cause maple syrup production to be reduced by 30%–40%. During May, the dry weather was good for planting and reduced diseases in crops such as strawberries and apples; however, some growers had to irrigate more frequently.

Water Resources: Daily low streamflow records were set on some waterways in New Hampshire and Maine. The aquifers that provide drinking water to Dover, NH, were around two feet below normal, and some locations such as Ipswich and Falmouth, MA, enacted water restrictions. Reduced streamflow affected recreational activities in Vermont and Maine. Below-normal precipitation and reduced snowpack contributed to lower-than-normal water levels on Lake Ontario.

Spring Snowfall



With above-normal temperatures and, in many locations, below-normal precipitation, March snowfall was also below normal. The largest deficits of more than 12 inches were found in parts of almost every Northeast state. New Jersey's average snowfall was zero inches, which has happened only eight other Marches in the past 127 years. The past two Marches are the only ones with back-to-back zero totals for that state. This March was the least snowy on record (tying several years) at several climate sites. It was the first time on record that Bridgeport, CT, received no snow during March. April snowfall ranged from more than 3 inches below normal to more than 3 inches above normal. Most areas saw little to no snowfall during May, which is typical. However, some sites in Vermont, New York, and Pennsylvania had a snowfall surplus, seeing measurable snow on May 1 and/or May 9. Spring snowfall was below normal for the entire Northeast, with the largest deficits approaching 24 inches (map left). It was the least snowy spring on record (tying several years) for

several sites, including Bridgeport, CT, which recorded no spring snowfall for the first time on record. New Jersey's spring snowfall total was a trace, making it only the sixth spring without measurable snow since 1895. Snowfall for the entire snow season (October–May) ranged from more than 48 inches below normal in central New Hampshire and northern New York to 36 inches above normal in northern Pennsylvania.

Regional Impacts and Updates – March–May 2021

What is Normal? It is all Relative!

When it is 72°F today it is...
2°F warmer than old normal
but 2°F colder than NEW normal



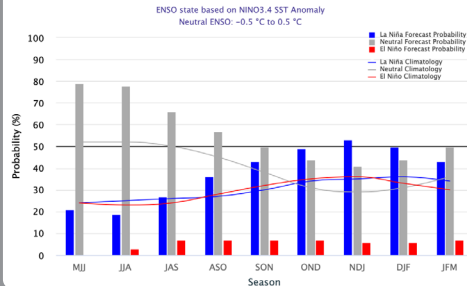
74°F NEW normal
(1991-2020)
70°F Old normal
(1981-2010)

Updated Climate Normals

Climate “normals” are **three-decade averages of climatological variables** that represent average climate conditions at a location and serve as a baseline to show how current (and predicted) conditions compare to those average conditions. [Normals were recently updated](#) for the **30-year period of 1991–2020**. The updated normals show that the **Northeast U.S. has warmed**, [due in large part to climate change](#), with the spring season warming by as much as 2°F at some sites. With warmer normals, the Northeast [may not see as many above-normal days](#). Let's say the normal high temperature on May 1 was 70°F (based old normals from 1981–2010) but now it's 74°F (based on new normals from 1991–2020). If the actual high temperature on May 1, 2021, reached 72°F, based on the old normals it would have been 2°F warmer than normal but based on the updated normals it was 2°F colder than normal. The actual high temperature didn't change but the **baseline for comparison got warmer**. Those **above-normal days** of the past **have become more normal** as the **climate continues to warm**. In the Northeast, **annual precipitation** normals generally **trend wetter**. Changes in monthly and seasonal [precipitation normals vary](#), with [spring getting drier in coastal areas](#) of the Northeast and wetter in interior areas. Normal **spring snowfall increased** in [much of the Northeast](#), driven by an increase in March snowfall. However, **spring snowfall decreased** in the southwestern corner of the region, generally driven by a decrease in April snowfall. For more information, see the NOAA Eastern Region Climate Services [webinar recording from May 2021](#).

Regional Outlook – Summer 2021

Early-June 2021 CPC/IRI Official Probabilistic ENSO Forecasts



ENSO

During May, **ENSO-neutral conditions** continued in the equatorial Pacific Ocean. NOAA's [Climate Prediction Center indicates](#) there is a 78% chance ENSO-neutral conditions **will continue** during summer and a 50% chance of ENSO-neutral conditions during fall.

Atlantic Hurricane Season

	2021 Atlantic Season Outlook	1991-2020 Average Season	1981-2010 Average Season
Number of Named Storms	13-20	14	12
Number of Hurricanes	6-10	7	6
Number of Major Hurricanes	3-5	3	3

Thirty-year averages were updated for the **Atlantic hurricane season**. Based on 1991–2020 data, [the average season](#) now has 14 named storms, of which seven typically become hurricanes, including three major hurricanes. This is an **increase of two named storms and one hurricane** compared to the 1981–2010 averages. In mid-May, NOAA released the **2021 Atlantic hurricane season outlook** which indicates an **above-average season** is most likely, with “a [likely range of 13–20 named storms](#), of which 6–10 could become hurricanes, including 3–5 major hurricanes.” An above-average season is favored due to several factors including ENSO-neutral conditions and warmer-than-normal sea surface temperatures. The season runs from June 1–November 30, peaking from mid-August to late October. The **season started early** for the **seventh consecutive year**, with Tropical Storm Ana forming on May 22. The NOAA Eastern Region Climate Services [webinar in August 2021](#) will focus on the updated hurricane outlook.

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](#)

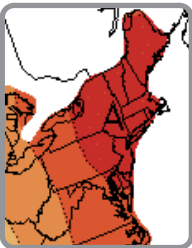
[Consortium of Climate Risk in the Urban Northeast](#)

[Cooperative Institute for the North Atlantic Research](#)

[Northeast Region State Climatologists](#)

[Mid-Atlantic RISA](#)

Temperature and Precipitation



Normal July–September average temperatures range from the low 60s in northern New York and northern New England to the mid 70s in several coastal areas. [NOAA's Climate Prediction Center \(CPC\)](#) favors **above-**

normal temperatures for July–September for the Northeast (map left).

Above-normal precipitation is favored for **July–September** (map below). Normal July–September precipitation ranges from less than 10 inches in western New York to more than 15 inches in eastern New York, eastern Pennsylvania, and central West Virginia. With wetter-than-normal conditions favored, [drought is expected to ease](#) in New York and New England.

