

### National Significant Events – September–November 2020

#### Selected U.S. Significant Climate Anomalies and Events for November and Autumn

On Nov 15, a powerful cold front brought widespread wind damage from IN to New England.



#### September

Drought across New England intensified in Sep. Crops suffered widespread losses due to hot and dry conditions.

#### October

Drought persisted across New England resulting in water restrictions and dry wells.



The contiguous U.S. had its 11th-warmest autumn with an average temperature of 55.5°F, 2.0°F above the 20th-century average. Average temperatures for September, October, and November were 1.1°F above average, 0.3°F above average, and 4.7°F above average (fourth warmest), respectively. Globally, it was the warmest September, the fourth-warmest October, the second-warmest November, and the third-warmest autumn. The contiguous U.S. autumn precipitation total was 6.52 inches, 0.36 inches below average. September, October, and November precipitation were 0.11 inches below average, exactly average, and 0.33 inches below average, respectively.

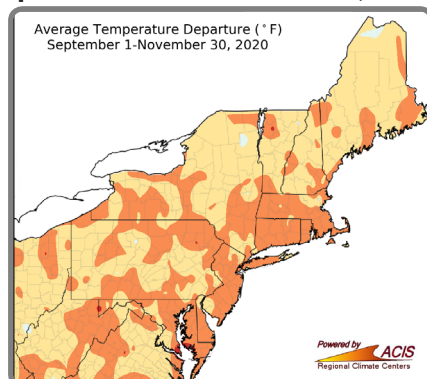
#### Highlights for the Northeast

- Below-normal rainfall and above-normal temperatures caused **drought conditions to intensify** during **September**. In fact, Maine had its **driest September** on record. Wetter weather in **October and November** allowed **conditions to improve**. See Regional Impacts for details.
- On **October 7**, a **derecho** with [wind gusts of up to 100 mph](#) produced a **320-mile-long path of damage** across New York and New England. There were also two EF-0 tornadoes. Numerous trees were downed due to strong winds, drought stress, and being fully leafed. Almost **400,000 customers lost power**, and there were two storm-related fatalities. Another **widespread wind event** occurred on **November 15**. Wind gusts of 40–80 mph damaged buildings, caused flooding along Lake Erie's shoreline, and [downed trees and wires](#), leading to power outages. The [November 30–December 1 storm](#) will be included in the winter report.
- The Northeast experienced **unusual warmth** from **November 6–12**, with some sites having their **warmest November day on record** including Brockton, MA (80°F); Hemlock, NY (79°F); Caribou, ME (75°F); and Portland, ME (74°F). In fact, multiple days ranked [among the 10 warmest for November](#). Burlington, VT (60°F), had its **warmest November low temperature** on record. This November was the **warmest November on record** for LaGuardia Airport and Central Park, NY.
- The **Atlantic hurricane season** had 30 named storms, the **most on record**. Several tropical systems affected the Northeast, with one storm from October 29–30 contributing to **record-setting snowfall** in southern New England. See Regional Impacts for details.

### Regional Climate Overview – September–November 2020

#### Temperature

#### Departure from Normal (°F) September 1–November 30, 2020

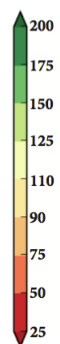
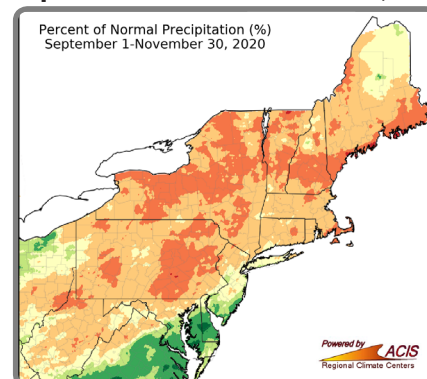


Climate normals based on 1981–2010 data; rankings based on 1895–2020.

The Northeast had its **11th-warmest autumn** at 1.9°F above normal. This autumn ranked among the 15 warmest on record for all 12 Northeast states. **September** was 0.4°F above normal, ranking in the **middle third** of all years. **October** was 1.4°F above normal, ranking in the **warmest third** of all years. It was among the 20 warmest Octobers for three states. The Northeast had its **ninth-warmest November** at 3.7°F above normal. It was among the 13 warmest Novembers for all 12 states.

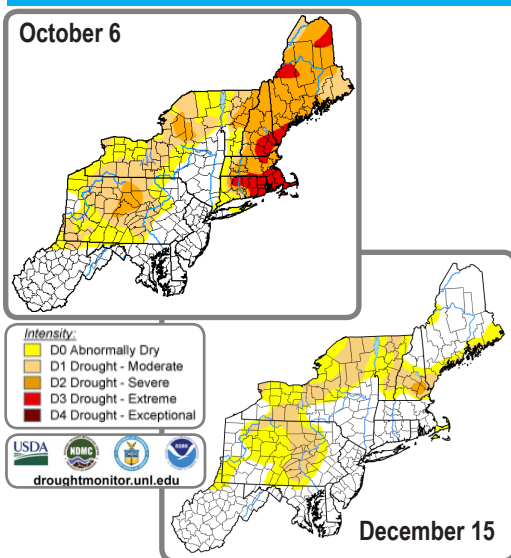
#### Precipitation

#### Percent of Normal (%) September 1–November 30, 2020



The Northeast saw 85% of normal **autumn** precipitation, ranking in the **middle third** of all years. However, Delaware had its eighth-wettest autumn. **September** precipitation was 62% of normal, in the **driest third** of all years. **Maine was record dry** and two other states had a top-12 dry September. **October** precipitation was 114% of normal, in the **wettest third** of all years. It was among the 20 wettest for two states. **November** precipitation was 79% of normal, in the **middle third** of all years. Delaware had its eighth-wettest autumn.

## Regional Climate Overview – September–November 2020



### Drought in the Northeast

On September 1, the [U.S. Drought Monitor](#) showed 28% of the Northeast was in a severe or moderate drought and 26% of the region was abnormally dry. Below-normal precipitation during September led to **intensifying drought conditions**, with **extreme drought** introduced in New England. [As of October 6](#), 49% of the Northeast was in an extreme, severe, or moderate drought and 18% was abnormally dry. A **wetter weather pattern** during the **second half of October** caused **conditions to improve** in much of the region. The [November 3 U.S. Drought Monitor](#) showed 37% of the Northeast in an extreme, severe, or moderate drought and 24% as abnormally dry. During **November**, conditions **continued to improve** in many areas. [As of December 1](#), 21% of the Northeast was in an extreme, severe, or moderate drought and 33% was abnormally dry. Through **mid-December**, drought and abnormal dryness **persisted** in parts of New York, Pennsylvania, and northern New England but **eased** in most of southern New England. The U.S. Drought Monitor [from December 15](#) showed 17% of the Northeast in a severe or moderate drought and 23% as abnormally dry (map bottom left). For current conditions, see the [Northeast DEWS Dashboard](#).

## Regional Impacts and Updates – September–November 2020

### Drought Conditions

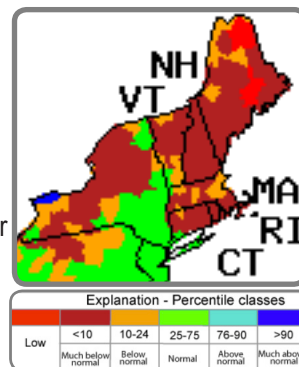
Drought **conditions intensified** in September but **improved** in many areas in October and November. **Many impacts** were observed, particularly in New England.

**Water resources:** Streamflow and groundwater levels were **below normal** in many drought areas.

In fact, the [Aroostook River at Masardis](#) and Washburn, ME, dropped to an **all-time record low flow**.

**Dry wells** were reported in New York and across New England. [Over 1,000 wells were affected](#) in New Hampshire, where some well-drilling contractors had a **6–12 week wait**. **Water restrictions** were in place for **hundreds of locations** in New England. Worcester, MA, [took one of its reservoirs offline](#) due to low water levels. Lower than usual streamflow on the Hudson River in New York led to [increased sodium levels](#) in Poughkeepsie’s water supply.

**Agriculture:** In late September, **topsoil and subsoil were very dry** for 80%–100% of Maine, New Hampshire, and Rhode Island. Pasture and rangeland conditions [were rated very poor](#) (the lowest level) for 70%–90% of southern New England, while 10% of Pennsylvania’s corn crop was rated very poor, making it **some of the worst corn condition ratings in the country**. Forage crop yields were **reduced by up to 60%** in Maine and [up to 75% in New Hampshire](#). With reduced yields, farmers bought hay to feed livestock, with one Vermont farmer spending as much as \$20,000. Potato yields in northern Maine were expected to be down [by at least 20%](#). **Maple syrup production was slowed** in Connecticut, with one producer expecting to [lose around \\$60,000](#) in revenue. Thousands of [Christmas tree saplings died](#) in New England. Massachusetts [cranberry growers reported losses](#). New England farmers saw **increased expenses** due to the drought, with irrigation and labor costs [exceeding \\$50,000](#) at a Massachusetts farm and [around \\$30,000](#) at a New Hampshire farm. Portions of New England were **designated as natural disaster areas** by the USDA, making some farmers eligible for federal assistance.



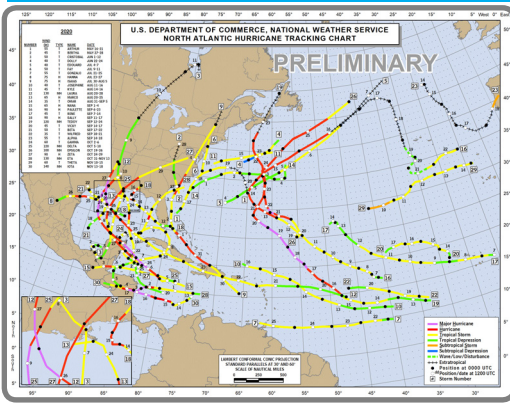
September average streamflow. Credit: USGS

**Wildfires:** Much of New England saw an **unusually high number of fires** or **atypical fire behavior**, with fires [burning deeper](#) and [taking longer to extinguish](#). Maine had its **worst year for fires in 35 years** with [1,150 wildfires](#) as of early December. Massachusetts had more than 1,000 wildfires as of late September, with [52 fires in a nine-day period](#) from late September to early October. The state’s **fire tower network was extended** due to increased fire risk. There were [at least four ground fires](#) in Vermont this year, which is atypical. Rhode Island officials noted that fires were climbing trees and were concerned that [items like lawn mowers and chains could spark fires](#), which is a behavior more typical of western U.S. wildfires and **unusual in the Northeast**. In New Hampshire, an [emergency drought law banning outdoor fires](#) near public woods was in effect for a month, and [several communities](#) and the [White Mountains National Forest](#) had burn bans. Drought conditions also [dried up or reduced water supplies](#) that some firefighters rely on to fight fires.

**Nature:** Low streamflow and warm water temperatures prompted several states to take **actions to protect aquatic species**. [Dam releases were performed](#) in the Lamprey River watershed in New Hampshire, while a section of the Salmon River in New York [was closed to fishing](#) and Connecticut officials [delayed restocking trout and salmon](#) in the Farmington River. There have been **fewer ticks and mosquitoes** in New England [due to a lack of moisture](#). **Fall foliage peaked earlier than usual** in parts of northern New England and New York, while drought-stressed trees in southern New England dropped leaves prematurely. This year’s drought could [reduce next year’s growth](#) of red oak and white pine trees in New Hampshire.



## Regional Impacts and Updates – September–November 2020

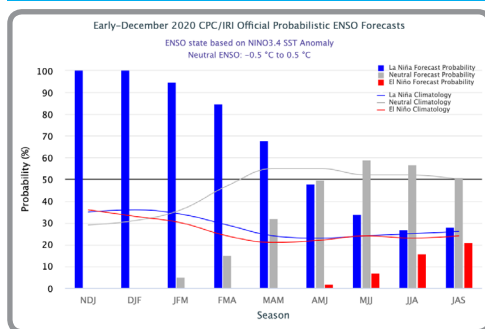


### Hurricane Season

It was the [fifth consecutive year](#) with **above-normal tropical activity** in the Atlantic Ocean, with a [record-setting 30 named storms](#) (map on the left). Of those, 13 became hurricanes, with six major hurricanes. An average season produces 12 named storms, of which six become hurricanes, including three major hurricanes. September had a [record-setting 10 named storms](#), while November had [two major hurricanes](#) for the **first time on record**. Two tropical systems [affected the region during summer](#), and five impacted the region during autumn. From **September 16–18**, **post-tropical storm Sally** brought up to 3 inches of rain to parts of Maryland. **Hurricane Teddy** produced large waves, rough surf, and minor flooding in some coastal areas from **September 21–22**. The **remnants of Hurricane Delta** and a frontal system dropped up to 4 inches of rain on the Northeast from **October 12–14**. **Tropical Storm Zeta** and another storm

system trekked through the Mid-Atlantic from **October 29–30**. Wind gusts of up to 50 mph and minor coastal flooding were reported in Maryland, Delaware, and New Jersey. Rainfall totals were generally less than 3 inches, with locally higher amounts in West Virginia, Maryland, and southern Pennsylvania. [Up to 6.5 inches of snow](#) fell in parts of New England, New York, northern Pennsylvania, and northern New Jersey, with the greatest totals in Massachusetts where branches and wires were downed due to the weight of the snow. [Several sites including Boston, MA](#), and Providence, RI, had their **snowiest October day** and/or **snowiest October** on record. It was among the five earliest measurable snowfalls for Boston, Providence, and Hartford, CT. Combined with late spring snowfall, Boston tied its **shortest time between measurable snowfalls** on record at 194 days (April 18–October 30) and a few other sites including Concord, NH, and Rochester, NY, had one of their five shortest periods between measurable snowfalls. From **November 11–12**, a frontal system fed by tropical moisture from the Atlantic Ocean and **Tropical Storm Eta** brought heavy rain to Maryland, Delaware, and southern New Jersey, with the greatest total of 7.50 inches in St. Mary's County, MD. The main impact was road closures due to flooding.

## Regional Outlook – Winter 2020–21



### La Niña

During November, **La Niña conditions** persisted in the equatorial Pacific Ocean. NOAA's [Climate Prediction Center](#) [indicates](#) there is a 95% chance La Niña **will continue through winter** and around a 50% chance of ENSO-neutral conditions during spring 2021. This La Niña is expected [to be moderate strength](#). For more information on potential impacts

from La Niña in the Northeast, see the [NOAA Northeast Winter Climate Patterns and Outlook](#) from October 2020 and the [NOAA Eastern Region Climate Services webinar recording](#) from November 2020.

## 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:

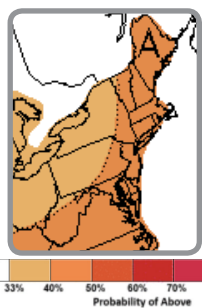
[Northeast Regional Climate Center](#)

[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 January–March average temperatures range from the teens in northern New England and northern New York to the 40s in parts of the Mid-Atlantic. [NOAA's Climate Prediction Center \(CPC\)](#) favors **above-normal temperatures** for **January–March** for the entire Northeast (map left).

**Above-normal precipitation** is favored for interior locations from West Virginia to Vermont for **January–March** (map right). **Equal chances**

of below-, near-, or above-normal **precipitation** were forecast for coastal locations from Maryland to Maine. Normal January–March precipitation ranges from less than 6 inches in central and northeastern New York to more than 13 inches in southeastern Massachusetts and higher elevations of West Virginia.

