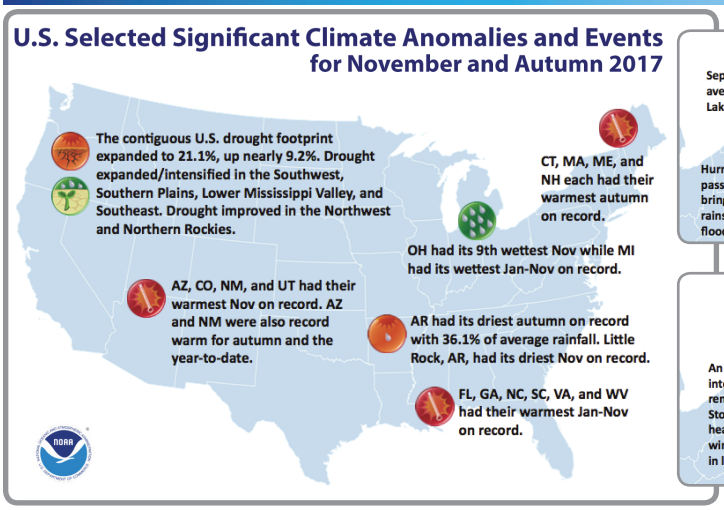
Quarterly Climate Impacts and Outlook

Northeast Region

December 2017

National - *Significant Events for September–November 2017*



The contiguous U.S. had its 10th warmest autumn on record with an average temperature of 55.7°F, 2.1°F above the 20th century average. September's average temperature of 66.3°F was 1.4°F above average, and October's average temperature of 55.7°F was 1.6°F above average. The U.S. had its seventh warmest November with an average temperature of 45.1°F, 3.4°F above average. Globally, it was the fourth warmest September on record, the fourth warmest October, and the fifth warmest November. According to NOAA, November was "the 395th consecutive month with a global temperature at least nominally above the 20th century average. The 10 warmest Novembers have occurred during the 21st century." During autumn, the contiguous U.S. received 6.43 inches of precipitation, 0.45 inches below average. September precipitation totaled 2.22 inches, 0.27 inches below average, and October precipitation totaled 2.53 inches, 0.37 inches above average. The U.S. had its 19th driest November with 1.58 inches of precipitation, 0.65 inches below average.

Highlights for the Northeast

During autumn, moderate drought conditions eased, but abnormal dryness lingered in some areas. The dry conditions mainly affected streamflow, groundwater, and some water supplies. See Impacts section for details.

The region experienced unusually hot temperatures of up to 94°F from September 23–27. Several sites had their latest-occurring heat wave (three or more consecutive days of at least 90°F) in the calendar year. It was Albany, NY's first recorded heat wave in astronomical autumn.

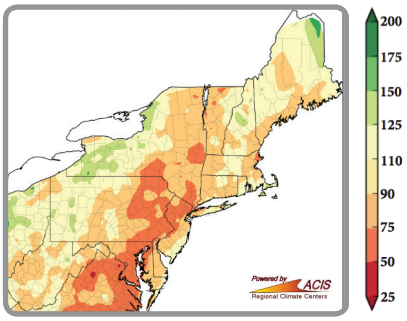
The six New England states, as well as 11 major climate sites, had their warmest October on record. In addition, four states, as well as four major climate sites, had their warmest autumn on record. The unusual warmth affected fall foliage and led to a late fall freeze for most of the Northeast. See Impacts section for details.

New England and New York received up to 8.42 inches of rain from October 24–26, causing flash flooding. From October 28–30, a storm brought up to 6.38 inches of rain, up to 8.4 inches of snow, and wind gusts of up to 93 mph to the Northeast, with the most significant impacts in New England. Nearly 1.5 million customers lost power in the Northeast, some for almost a week. Central Maine Power had its "largest number of outages in the company's history." Hundreds of schools were closed, with some already having to extend the school year farther into summer.

Regional - *Climate Overview for September–November 2017*

Precipitation and Temperature Anomalies

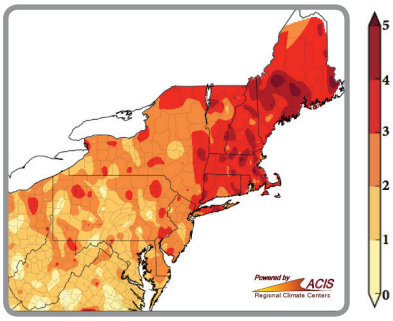
Percent of Normal Precipitation (%)
September 1–November 30, 2017



The Northeast received 92% of normal precipitation during **autumn**. Ten of the twelve states were drier than normal. The Northeast had its 19th driest **September** since 1895 with 62% of normal precipitation. All twelve states received below-normal precipitation, with New York and West Virginia ranking this September among their 20 driest. The Northeast had its 10th wettest **October** with 149% of normal precipitation. All twelve states were wetter than normal. This October ranked among the 20 wettest Octobers on record for eight states. **November** precipitation was 66% of normal. All twelve states were drier than normal, with five states ranking this November among their 20 driest.

Normals based on 1981–2010

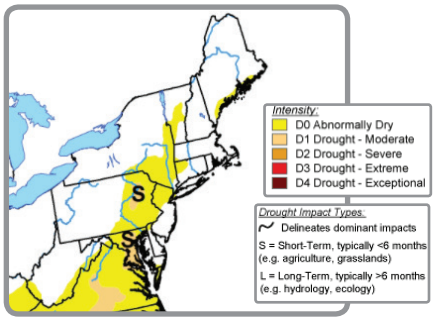
Departure from Normal Temperature (°F)
September 1–November 30, 2017



At 2.6°F above normal, the Northeast had its fifth warmest **autumn** since 1895. Four states had a record warm autumn, and the other eight states ranked this autumn among their 20 warmest. The Northeast had its ninth warmest **September** on record at 2.9°F above normal. All twelve states were warmer than normal. This September ranked among the 20 warmest Septembers for eight states. It was the second warmest **October** on record for the Northeast at 6.3°F above normal. Six states had a record warm October, and the other six states ranked this October among their ten warmest. **November** was 1.4°F below normal, with all twelve states seeing normal or below normal temperatures.

Drought in the Northeast

U.S. Drought Monitor
December 21, 2017



The U.S. Drought Monitor from **September 5** showed 5% of the Northeast in a moderate drought and 8% as abnormally dry. Conditions deteriorated in September and most of October. The **October 24** Drought Monitor showed 12% of the region in a moderate drought and 51% as abnormally dry. However, two late-month storms erased moderate drought and eased dryness, with the **October 31** Drought Monitor showing 10% of the region as abnormally dry. Conditions varied in November and worsened in December. The **December 21** Drought Monitor showed 3% of the region in a moderate drought and 20% as abnormally dry. NIDIS, NOAA, and the NRCC are partnering to launch a Drought Early Warning System (DEWS) in the Northeast.

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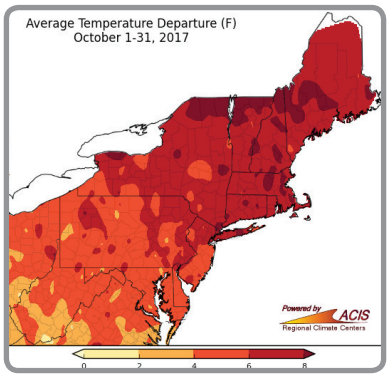
Regional - *Impacts and Updates for September–November 2017*

Dry Conditions

Drier-than-normal weather contributed to below normal streamflow in parts of the region in September and much of October. A few waterways in New England were at near-record low flows in mid-October. Groundwater was also below normal in some areas, particularly New England. In fact, there were some reports of shallow wells going dry in Maine in October. A few water companies issued voluntary water conservation notices in mid-October. Aquarion Water Company asked its Connecticut customers to reduce indoor use and to stop using irrigation systems and sprinklers. A press release stated "the lack of precipitation and increased irrigation water demand, due to unseasonably warm weather, are reducing reservoir levels." The company's Greenwich system was at 48% of capacity compared to its average of 67%, while the Stamford reservoir was at 61% of capacity compared to its average of 71%. Due to declining water levels, the Pennsylvania American Water company asked customers in its Nazareth service area to reduce their water usage "to avoid a more serious situation if the dry weather continues." The dry conditons also contributed to elevated fire danger in New England and several wildfires in Maine in October, as well as decreased honey production in Maine.



Above: October average temperatures ranged from 2°F to more than 8°F above normal.
Below: Fall foliage on Long Island, NY, on November 5, 2016 (left) compared to November 2, 2017 (right). Credit: Chris Stachelski.

Record Warm October

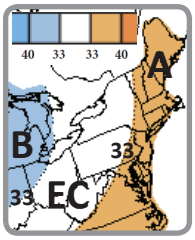
October was extremely warm, with some sites being record warm and others ranking it among the five warmest. Low temperatures on October 8 and 9 were particularly warm, with ten major climate sites having their warmest minimum temperature for October. In fact, Caribou, ME's three warmest minimum temperatures for October were all set/tied in October 2017.

Warm, dry conditions during September and October caused foliage to peak later than usual and colors to be muted. The subdued display affected tourism in parts of the region. With leaves staying on the trees later than usual, several communities extended their leaf pickup programs.

The first fall freeze arrived on November 10 or 11 for much of the region, which was later than usual, in some instances by more than 3 weeks. With a freeze on November 10, Dulles Airport, VA, was one day shy of tying its record for latest first frost. It was the first time on record (since 1963) that both Dulles Airport and Washington National, DC, had their first freeze on the same date. New Brunswick, NJ, had a low of 20°F on November 11, which was the site's lowest first freeze temperature on record (since 1896). The previous lowest first freeze temperature was 25°F.

Regional - *Outlook for Winter 2017-18*

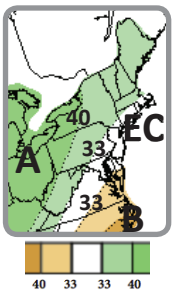
Temperature and Precipitation



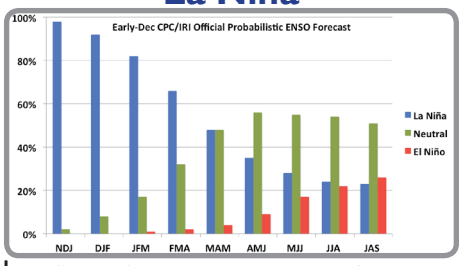
A: Above-normal
B: Below- normal
EC: Equal chances of above-, near, or below-normal
#: Probability of above- or below-normal

Normal January–March average temperatures range from the teens in northern New England and northern New York to the 40s in southern parts of Delaware and Maryland. For January–March 2018, NOAA's Climate Prediction Center (CPC) is calling for an increased chance of above-normal temperatures (left map) for New England, southeastern New York, southeastern Pennsylvania, New Jersey, Delaware, and most of Maryland. Equal chances of below-, near-, or above-normal temperatures were forecast elsewhere.

The precipitation outlook (bottom map) calls for increased chances of above-normal precipitation for an area stretching from West Virginia to Maine, an increased chance of below-normal precipitation for southeastern Maryland, and equal chances elsewhere. Normal January–March precipitation ranges from less than 6 inches in portions of central and northeastern New York to more than 13 inches in southeastern Massachusetts and higher elevations in eastern West Virginia.



La Niña



La Niña conditions were present in the equatorial Pacific Ocean as of mid-December. According to NOAA's Climate Prediction Center, there is a greater than 80% chance that La Niña will continue through winter 2017–18.

During a La Niña winter, the jet stream tends to be wave-like, with the active storm track along the northern states. This increases the likelihood of cooler, stormier conditions. This La Niña is expected to be weak to moderate, so its impacts may be more variable and other factors may dominate the Northeast's weather patterns this winter. These factors include climate variability associated with the Arctic Oscillation, the North Atlantic Oscillation, and the Madden-Julian Oscillation. These patterns are less able to be forecast far in advance compared to La Niña, meaning that it is uncertain how they will affect the upcoming winter season. Long-term climate trends can also play a role. For instance, the Northeast has an increased chance for warmer-than-normal temperatures primarily due to long-term climate trends. For more information, see the Northeast Winter Climate Patterns and Outlook document.

Northeast Region Partners

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