

National Significant Events – March–May 2019

Selected U.S. Significant Climate Anomalies and Events for May and Spring 2019

Subtropical Cyclone Andrea formed on May 20—record 5th consecutive season for a named storm to form in the N. Atlantic Basin before the official start of the hurricane season on June 1.

March

A major winter storm in early March dropped over a foot of snow across CT, RI, and MA.

April

Caribou, ME: New record—163 consecutive days with at least 1 inch of snow on the ground (Nov 10–Apr 21).

The average spring temperature for the contiguous U.S. was 0.1°F below the 20th century average. Average temperatures for March, April, and May were 0.8°F below average, 1.8°F above average, and 0.7°F below average, respectively. Globally, it was the second warmest March, the second warmest April, and the fourth warmest May. The contiguous U.S. had its sixth wettest spring as precipitation was 1.91 inches above average. March, April, and May precipitation was 0.31 inches below average, 0.65 inches above average, and 1.50 inches above average (second wettest), respectively.

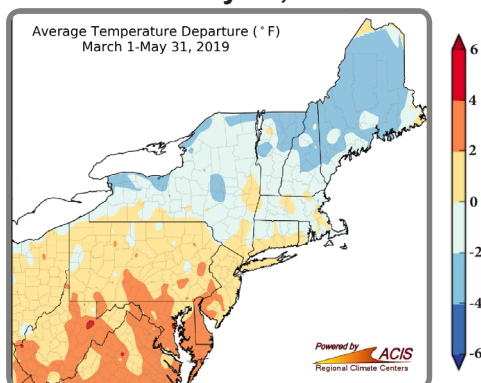
Highlights for the Northeast

- From **March 3–4** snow totals of over 12 inches were reported in New Jersey, New York, and New England. Several climate sites, including Central Park, NY, set/tied their **greatest number of consecutive days with measurable snowfall** (at least 0.1 in.) from February 28–March 4. A storm from **March 21–23** dropped up to 26 inches of snow (greatest in Vermont) and up to 3.90 inches of rain (greatest in Pennsylvania and Maryland). Dulles Airport, VA, received 2.69 inches of rain on March 21, making it the site's **wettest March day** on record (since 1960).
- Several **severe weather outbreaks** occurred during spring. With 14 tornadoes, Pennsylvania had its **greatest number of April tornadoes** since records began in 1950. See Regional Impacts for details.
- Caribou, ME, had a **record 163 consecutive days** with at least 1 inch of snow on the ground from November 10, 2018–April 21, 2019. The previous record was 155 days from November 17, 2002–April 20, 2003.
- In April and May, several climate sites, including Boston, MA, Harrisburg, PA, and Hartford, CT, had their **greatest number of days with measurable precipitation (at least 0.01 in.) for any month**. A few climate sites also had their **greatest number of spring days with measurable precipitation**. Islip, NY, Kennedy Airport, NY, and Hartford had their **greatest number of consecutive days with measurable precipitation** from mid-April to early May. See Regional Impacts for details.
- In 2018, Parsons, WV, received 96.99 inches of precipitation and Catonsville, MD, received 84.56 inches, setting **new annual precipitation records** for [West Virginia](#) and [Maryland](#).

Regional Climate Overview – March–May 2019

Temperature

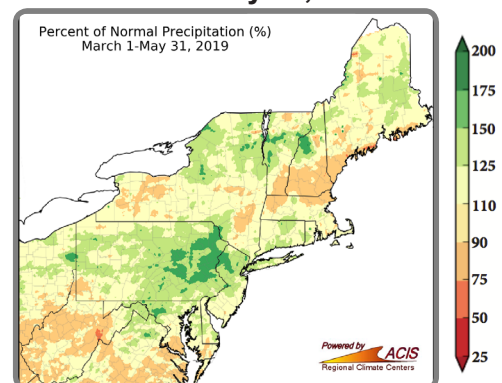
Departure from Normal (°F)
March 1–May 31, 2019



Climate normals based on 1981–2010 data; Rankings based on 1895–2019.

Precipitation

Percent of Normal (%)
March 1–May 31, 2019

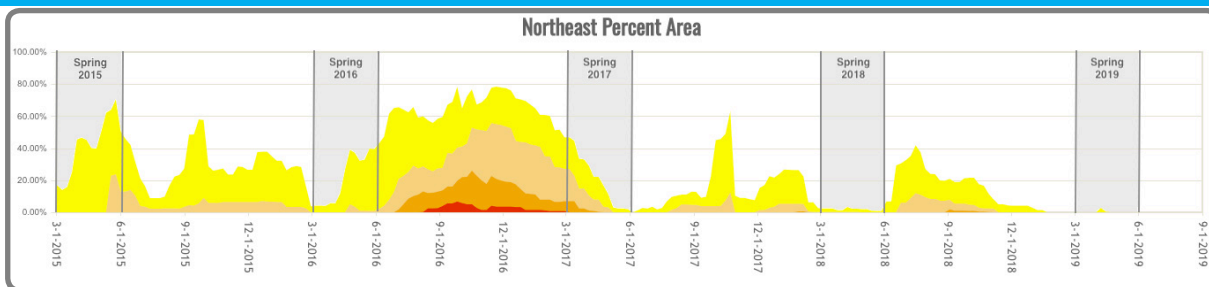
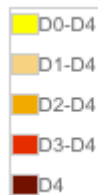


The Northeast's **spring** average temperature was **near normal**, ranking in the middle third of all years. This spring was among the 20 warmest for four states. **March** was 2.1°F **below normal**, in the middle third of all years. **April** was 1.3°F **above normal**, ranking in the warmest third of all years. This April was among the 20 warmest for eight states. **May** was 0.7°F **above normal**, in the middle third of all years. This May was Maine's 18th coldest but among the 20 warmest for five states.

The Northeast received 112% of normal precipitation during **spring**, ranking in the **wettest third** of all years. This spring was among the 20 wettest for three states. **March** precipitation was 72% of normal, ranking in the **driest third** of all years. This March was among the 20 driest for two states. It was the **16th wettest April** with 128% of normal precipitation. This April ranked among the 20 wettest for seven states. It was the **14th wettest May** with 132% of normal precipitation. This May ranked among the 20 wettest for four states.

Regional Climate Overview – March–May 2019

Drought in the Northeast



The Northeast was **drought-free during March**; however, below-normal precipitation during that month and into early April allowed **abnormal dryness to develop** in central West Virginia and western New York. The [U.S. Drought Monitor](#) released on **April 11** showed 3% of the Northeast as abnormally dry. An **active weather pattern brought above-normal precipitation** from mid- to late April, with the U.S. Drought Monitor released on **April 25** showing the region once again free of drought and abnormal dryness. **Wet conditions continued in May**. In fact, the U.S. Drought Monitor released on May 16 showed only 2.4% of the U.S. was in a drought, the [lowest in the Drought Monitor's 20-year history](#). The following week, the U.S. Drought Monitor released on May 23 showed **no severe, extreme, or exceptional drought** in the Lower 48 states, a **Drought Monitor first**; however, [extreme drought was reported in Alaska](#) for the first time in Drought Monitor history. In **June**, the Northeast remained **free of drought and abnormal dryness**.

Regional Impacts and Updates – March–May 2019



Damage from an EF-2 tornado in Sussex County, DE, on April 15. Image courtesy of National Weather Service Mount Holly.



Damage from an EF-2 tornado in Franklin County, PA, on April 19. Image courtesy of National Weather Service State College.

Severe Weather

A 3-inch (baseball-sized) hailstone fell near Princeton, WV, on April 8, making it the largest hailstone to fall in the state during April. From **April 14–15, 13 tornadoes** touched down: [nine in Pennsylvania](#), two in Delaware, and one each [in New York](#) and Maryland. These were the first April tornadoes in Delaware in over 25 years. Thunderstorms also produced straight-line (non-tornadic) winds of up to 105 mph. The [storms damaged](#) homes and other structures, destroyed outbuildings, and downed trees. Heavy rain, over 2 inches in some areas, led to flooding and closed roads. This severe weather outbreak was also unusual because many of the thunderstorms and tornadoes [occurred overnight](#).

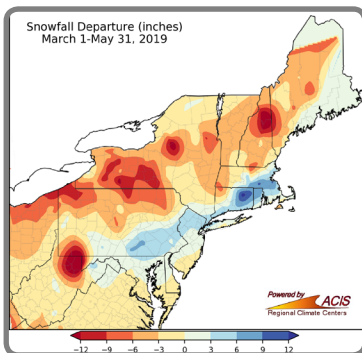
A few days later, on **April 19, five tornadoes** [moved through Pennsylvania](#), with Fulton County having its first April tornado. Hundreds of trees were snapped or downed, and numerous homes and buildings were damaged. More severe weather occurred on **April 26** when a **tornado** touched down in Maryland and strong thunderstorm winds caused damage in Pennsylvania and New Jersey. It was [only the third time since 1950](#) that golf ball-sized hail fell in Massachusetts during April, with the last time being in 1969.

With 14 tornadoes during April, Pennsylvania had its **greatest number of April tornadoes** since records began in 1950. While Pennsylvania [typically sees the most tornadoes](#) of all the Northeast states, it averages only two tornadoes in April and 15 annually. With two tornadoes, Delaware, which averages zero April tornadoes and one annually, also reached tornado quota. In addition, Maryland had two tornadoes in April, one more than average.

The second half of May was also **very active in terms of severe weather** in the Northeast. Preliminary data indicated that a total of **16 tornadoes** touched down in Pennsylvania during May, **more than five times the 1989-2013 average** of three tornadoes. Eleven of those tornadoes touched down in a two-day period [from May 28](#) to 29. There were also three [tornadoes in Maryland](#) and [one in New Jersey](#), which was above average for both states. Severe storms produced damaging straight-line winds of up to 100 mph and heavy rain, which led to flash flooding. [Softball-sized hail](#) was [reported in Pennsylvania](#) for **only the fifth time** since 1950. West Virginia had baseball-sized hail for only the second time in May (since 1950), with the last time being in 1967. For the spring season, Pennsylvania's tornado count was 30, which was **six times greater than the spring average** and double the state's annual average.

Regional Impacts and Updates – March–May 2019

Location	Record April 2019 Days w/ Meas. Precip	Record May 2019 Days w/ Meas. Precip	Record Spring 2019 Days w/ Meas. Precip	Greatest for Any Month
Boston, MA	21	19	50	Apr. 2019
Bridgeport, CT	19	18		
Central Park, NY	18			
Concord, NH	19			
Harrisburg, PA		21		May 2019
Hartford, CT	21			Apr. 2019
Islip, NY	22	19	50	Apr. 2019
Kennedy Airport, NY	19	21		May 2019
LaGuardia Airport, NY	17	19		
Newark, NJ	16			
Providence, RI	21	21	51	
Worcester, MA	21			Apr. 2019



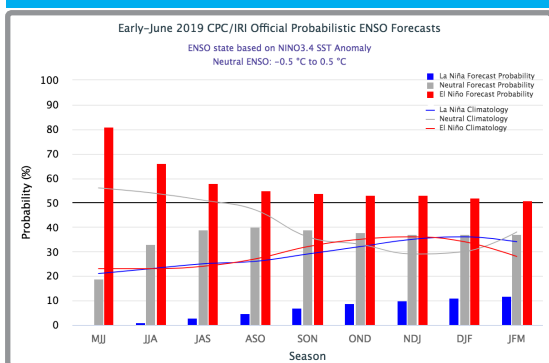
Spring Conditions

The jet stream frequently steered storms through the Northeast during April and May. For instance, Islip, NY, had a record 22 days in April with measurable precipitation and three days with a trace, leaving only five dry days. The site then saw a record 19 days with measurable precipitation in May. Despite numerous days with precipitation, daily amounts were generally small and **monthly precipitation totals varied** in the region. Even still, the persistent wetness [hindered field work](#) and [planting](#). During April, the combination of [rainfall and snowmelt](#) led to **heavy runoff** into New England's waterways, which [resulted in flooding](#). USGS data showed that peak streamflow ranked among the

[10 largest on record](#) at 21 long-term streamgages, with the St. John River at Ninemile Bridge, ME, having its **highest peak streamflow** in its 67-year period of record. In May, Lake Erie had its [highest monthly mean water level for any month](#) on record. **High water levels** also affected Lake Ontario, where **shoreline flooding** forced the closure of some businesses and roads, and water entered some lakeshore properties. For more information see the [Great Lakes Spring 2019 Quarterly](#).

Spring snowfall was below-normal for the Northeast except in an area from eastern West Virginia to eastern Massachusetts, which saw back-to-back snowstorms during the first half of March. **March snowfall varied**, ranging from 12 inches below normal to 12 inches above normal. **April snowfall was below normal** except in Maine. As is normal, most areas saw **little, if any, snowfall in May**.

Regional Outlook – Summer 2019



ENSO

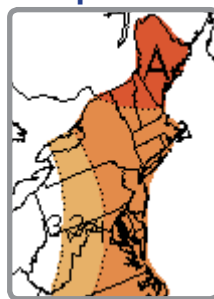
Weak El Niño conditions formed in January and **persisted through May**. NOAA's Climate Prediction Center indicates there is a 66% chance that the weak El Niño [will continue through summer](#) and a 50% to 55% chance it will continue through fall and winter.

Atlantic Hurricane Season

	2019 Atlantic Season Outlook	Average Season
Number of Named Storms	9–15	12
Number of Hurricanes	4–8	6
Number of Major Hurricanes	2–4	3

[NOAA's 2019 Atlantic hurricane season outlook](#) indicates a **near-normal season is most likely**, with “a likely range of 9–15 named storms (winds of 39+ mph), of which 4–8 could become hurricanes (winds of 74+ mph), including 2–4 major hurricanes (Category 3, 4, or 5; winds of 111+ mph).” This year, while El Niño is expected to suppress storm formation, above-average sea surface temperatures and an enhanced west African monsoon favor increased storm activity. For the fifth consecutive year the season started early, with the short-lived Subtropical Storm Andrea forming on May 20. The season runs from June 1–November 30, peaking from mid-August–late October.

Temperature and Precipitation



Normal July–September average temperatures range from the upper 50s in northern New England to the mid 70s in the Mid-Atlantic. NOAA's Climate Prediction Center (CPC) favors **above-normal temperatures** (map above) for **July–September** for most of the Northeast. CPC is calling for **equal chances** of below-, near-, or above-normal **precipitation** for **July–September** for the entire region. Normal July–September precipitation ranges from less than 10 inches in parts of New York to more than 15 inches in higher elevations of northern New England.

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](#)

[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](#)