



Gulf of Maine Significant Events – September–November 2024

September

September was warm and dry for most areas as high pressure dominated the weather pattern. Bathurst, N.B., reached 30°C (86°F) or higher on September 17 and 18, making it the site's **second-latest date** for such temperatures. This September ranked [among the 10 warmest](#) for Caribou, ME; Summerside, P.E.I.; and several New Brunswick sites. Some places in western New Brunswick and northern Maine went **over two weeks without measurable precipitation**. For instance, Caribou did not see measurable precipitation for 17 consecutive days (September 9 to 25), tying as its seventh longest such streak. Boston, MA, went 29 consecutive days (August 21 to September 18) without measurable precipitation, tying its fourth-longest such streak. It was among the 10 driest Septembers for Caribou, as well as Fredericton and Woodstock, N.B., with **moderate drought and abnormal dryness expanding** in the region. However, southeastern Massachusetts saw heavy rain from a coastal storm, pushing monthly totals above normal.

Drought expanded in the region, particularly New England, due to below-normal autumn precipitation.

Autumn was warmer than normal, with record-setting temperatures in October and November.

October

Dry conditions generally continued through October, with the month among the **10 driest** for Caribou, ME, and Boston, MA. Moderate drought and abnormal dryness increased in coverage across the region, while **severe drought was introduced** in New England. Temperatures were changeable, swinging from above normal to below normal and back again. For instance, from October 28 to 29, temperatures fell as low as -8.9°C (16°F) in the Maritimes and the season's first significant snowfall accumulated in the Cape Breton Highlands in Nova Scotia. However, on October 31, temperatures in Nova Scotia and New Brunswick reached 23°C (73°F) or higher, which were the **warmest temperatures this October** for those provinces. This October ranked among the **10 warmest** for Caribou, ME; Summerside, P.E.I.; and Bas-Caraquet, Charlo, and Moncton, N.B.

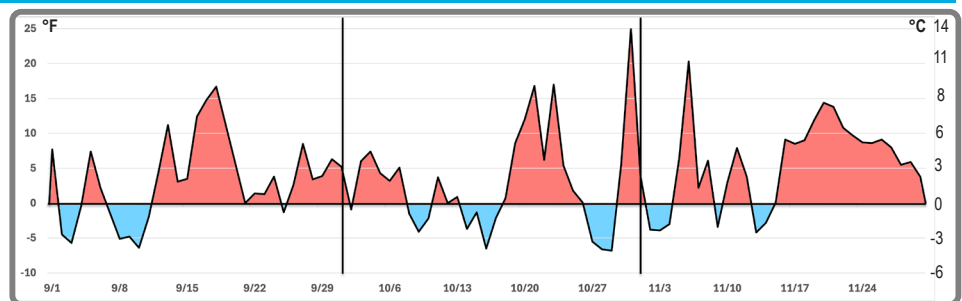
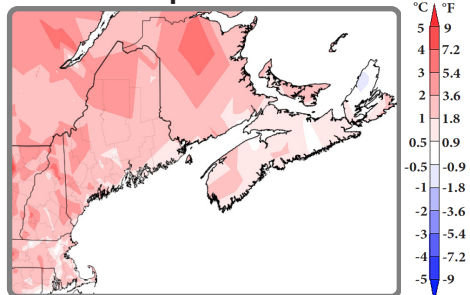
November

After record warmth on October 31, November 1 started off mild; however, a cold front moved through later in the day, dropping temperatures and spawning [three tornadoes](#) in New Brunswick. High temperatures on November 6 reached up to 28°C (82°F), with Concord, NH; Portland, ME; and Sydney, N.S., having their **warmest November temperatures** on record. On the same day, Portland saw its **warmest low temperature for November** of 16°C (60°F). Multiple sites recorded one of their five warmest temperatures for November. Caribou, ME, and Charlo and Bas-Caraquet, N.B., had a **record warm November**, while some other sites had one of their 10 warmest. Multiple sites in the Maritimes saw more than 20 days with measurable precipitation; however, much of the Gulf of Maine region still had below- or near-normal precipitation totals for November, allowing **drought conditions to intensify** in many areas.

This autumn was the **warmest on record** for Caribou and Charlo and among the 10 warmest for multiple sites across the region. Meanwhile, Caribou had its **second-driest autumn**. With the active lightning season wrapping with the end of summer, it is likely that 2024 was the **least active lightning season** on record for Canada and New Brunswick.

Regional Climate Overview – September–November 2024

Temperature Autumn Departure from Normal



Daily average temperature departure from normal during autumn at Caribou, ME. Warmer-than-normal days are shaded red and colder-than-normal days are shaded blue.

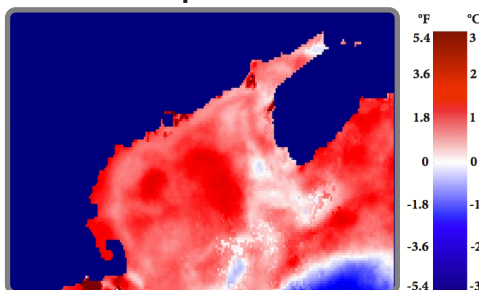
Autumn (averaged over September, October, and November) was up to 4°C (7°F) **warmer than normal***. This autumn was **record warm** for Caribou, ME, and Charlo, N.B., and among the 10 warmest for multiple other sites. Both **September** and **October** were as much as to 2°C (4°F) **warmer than normal**, ranking among the 10 warmest Septembers and/or Octobers for multiple sites. **November** was up to 4°C (7°F) **warmer than normal**. Caribou, ME, and Charlo and Bas-Caraquet, N.B., had their **warmest November** on record, while several other sites had one of their 10 warmest Novembers.

*Normals based on 1991–2020 data.

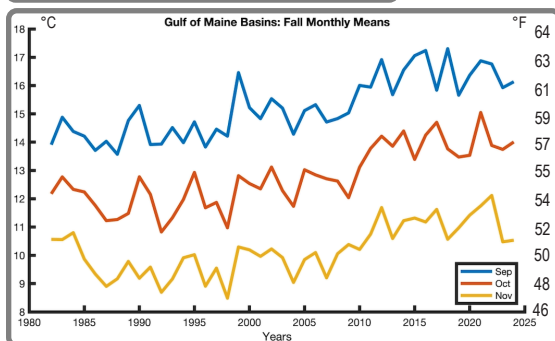
Regional Climate Overview – September–November 2024

Sea Surface Temperature

Autumn Departure from Normal



Autumn sea surface temperature anomalies over the entire region were above normal. Anomalies were up to 0.5°C (0.9°F) over the eastern Gulf of Maine, around 1.5°C (2.7°F) along the Scotian Shelf, and strongest over the deeper basins of the Gulf near 1.8°C (3.2°F).



Monthly mean sea surface temperature averaged over the Gulf of Maine for September, October, and November (1985 to 2024). Credit: University of Maine School of Marine Sciences

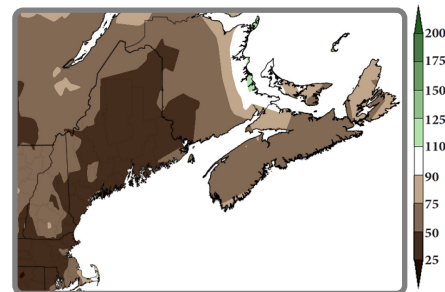
*SST normals based on 1991–2020 data.

Autumn monthly mean sea surface temperatures, averaged over the Gulf of Maine deep basins, showed September to be the 10th warmest in the 43-year time series, October to be the sixth warmest, and November to be the 16th warmest.

The [global average sea surface temperature](#) was second warmest in September, October, and November, making it the **second-warmest autumn**.

Precipitation

Autumn Percent of Normal



Precipitation for autumn (accumulated from September to November) ranged from 25% of normal* to near normal for most areas. Caribou, ME, had its second-driest autumn. Precipitation in **September** and **October** ranged from less than 25% of normal to near normal for most areas, ranking among the **10 driest Septembers and/or Octobers** for several sites. However, southeastern Massachusetts was quite wet in September. **November** precipitation ranged from 25% of normal to near normal for most areas, with Maine being the driest and eastern New Brunswick, western P.E.I., and Cape Breton, N.S., being wetter than normal.

*Precipitation normals based on 1991–2020 data.

Regional Impacts – September–November 2024

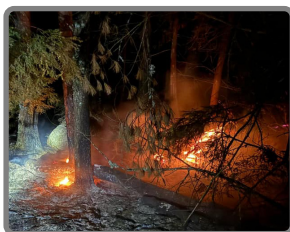
Autumn Conditions

September and October were **dry for most areas**, with moderate drought and abnormal dryness expanding in the region and **severe drought introduced** in New England. During November, multiple sites in the Maritimes saw over 20 days with measurable precipitation. It was the **first wetter-than-normal month** for P.E.I. since June 2024 and eastern New Brunswick since March 2024, with both areas seeing drought and/or abnormal dryness improve. However, New England and western/southern parts of the Maritimes saw below- or near-normal precipitation in November, with severe and/or moderate drought expanding. Additionally, **extreme drought developed** in Massachusetts. There were multiple drought-related impacts, particularly in New England.

Wildfires: During October, Massachusetts saw "about 200 fires—an [increase of about 1,200%](#) over the average, and rivaling the monthly numbers usually seen in the traditional early spring brush fire season." Around half of those occurred in one week. The state had **over 400 wildfires** in November, [well above the six-year average](#) of 20 fires. A [burn ban](#) was enacted in Massachusetts, where fires [damaged several houses](#) and firefighters were injured. **Wildfire smoke reduced air quality** in [multiple areas](#), causing schools to [dismiss or relocate students](#). Maine saw [ten times its average number of fires](#) during October and the first week of November, with low water levels [affecting rural firefighting operations](#). Multiple fires also [broke out in New Hampshire](#). The dry conditions allowed fires that ignited to **grow quickly and burn deeper**.

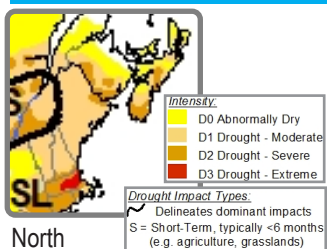
Water resources: Streamflow and [groundwater](#) levels [declined](#), reaching **record-low levels** in New England. Some waterways in Massachusetts [dried up completely](#), while **wells ran dry** in [Maine](#) and [Nova Scotia](#). Several communities in Massachusetts like [Westford](#) and [Peabody](#) enacted **mandatory water restrictions**, while residents in other areas with lower-than-usual water levels like [Dartmouth, N.S.](#), were asked to conserve water. [Maine officials noted](#) that low water levels in a few locations prevented trout from spawning and **caused salmon to die** due to reduced oxygen levels in the water.

Agriculture: In Massachusetts, Christmas tree [saplings died](#) and mature trees had **reduced needle retention**, causing a farm to [not harvest their trees](#) this season. Some Christmas trees in New Hampshire showed [signs of drought stress](#). However, dry conditions were generally favorable for harvest.



Brush fire (top) and charred ground (bottom) in Downeast Maine in early October. Credit: [Maine Forest Rangers Facebook Page](#)

Regional Impacts – September–November 2024



North American Drought Monitor from November 30, 2024.

Autumn Conditions Continued

Despite the overall dryness in September and October, there were **two locally notable precipitation events**. From September 20 to 22, parts of southeastern Massachusetts saw **over 130 mm (5 in.) of rain**, pushing monthly totals above normal, as a storm stalled off the New England coast. This coincided with **King Tides**, resulting in some coastal flooding and rough surf. Between October 7 and 15, **back-to-back heavy rainfall events flooded roadways** in Moncton, N.B.

The second event also produced over 2,400 lightning strokes in Nova Scotia, pushing the monthly total six times higher than normal and making it the province's **highest recorded October value**. New Brunswick's first significant snowfall of the season occurred **later than usual**, from November 28 to 29, with **monthly snowfall totals**



Coastal flooding in Massachusetts on September 20. Credit: [Essex County Storm Report/MyCoast MA](#)

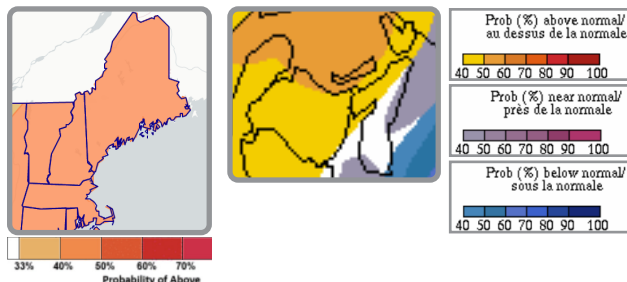
below normal across the Gulf of Maine region. End-of-November snow depth was also below normal for much of the Maritimes.

Hurricane Season

The [2024 Atlantic hurricane season](#) featured **above-average activity**, ending with 18 named storms of which 11 became hurricanes including five major hurricanes. NOAA noted, "Seven hurricanes formed in the Atlantic since September 25—the **most on record for this period**." Overall, September had six named storms including Hurricane Helene, which was likely "the deadliest hurricane to affect the continental U.S. since Katrina in 2005." October had four named storms, with the rate of rapid intensification of Hurricane Milton "**among the highest ever observed**, with a 90-mile-per-hour increase in wind speed during the 24-hour period from early October 6 to early October 7." There were three named storms in November. None of the tropical cyclones during autumn impacted the Gulf of Maine region in any direct way. However, two years after post-tropical storm Fiona, orchards in P.E.I. are [still recovering from storm damage](#) and a Cape Breton [hiking trail finally reopened](#).

Regional Outlook – Winter 2024–25

Temperature and Precipitation

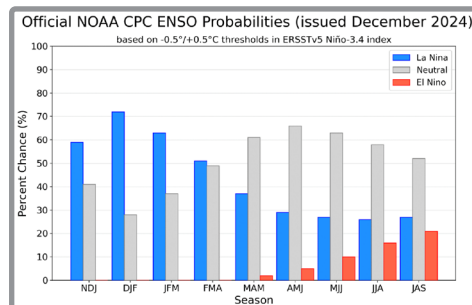


CPC temperature map (above left) produced November 21. ECCC temperature map (above center) produced November 30.

For **December–February**, [NOAA's Climate Prediction Center \(CPC\)](#) and [Environment and Climate Change Canada \(ECCC\)](#) favor **above-normal temperatures** for much of the Gulf of Maine region. This forecast for warmer-than-normal temperatures for winter in New England is tied to long-term climate trends. ECCC slightly favors **below- or near-normal temperatures** for parts of Nova Scotia. Both ECCC and CPC call for equal chances of below-, near-, or above-normal precipitation for the region.

For more information on ENSO and CPC's winter outlooks, see the NOAA Eastern Region Climate Services webinar recording from [December 2024](#).

ENSO



ENSO-neutral conditions were present in the equatorial Pacific Ocean during November. NOAA's [Climate Prediction Center indicates](#) there is a 59% chance that **La Niña conditions**

will emerge during the November 2024–January 2025 period. This **La Niña** is expected to be **weak and short-lived**, meaning it **could still affect weather conditions** but "would be less likely to result in conventional winter impacts." By spring 2025, there is a 61% chance of **ENSO-neutral conditions**.

Gulf of Maine Partners

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