



Gulf of Maine Significant Events – December 2018–February 2019

December:

From **December 17 to 18**, up to 43 cm (17 in.) of **snow and strong winds** disrupted travel and closed schools in northern Maine and the Maritimes. Part of the Cabot Trail in Cape Breton Highlands National Park was [closed for four days](#) due to snow drifts as high as 3.6 m (12 ft.). A low pressure system passing to the west brought a southerly flow of warm air to the region from **December 21 to 23**. Several [daily record temperatures](#) were set as **max temperatures** were up to 18°C (65°F). [Ice jams](#), snow melt, and up to 100 mm (4 in.) of rain caused waterways to rise, leading to [some flooding](#). Wind gusts of up to 103 km/h (64 mph) brought down trees and wires in eastern Massachusetts.

January:

A **series of storms**, including several that produced freezing rain, moved through the region in **January**. A complex storm brought up to 40 mm (1.50 in.) of rain and up to 50 cm (20 in.) snow to the region from **January 8 to 10**. [Peak wind gusts](#) reached 100 km/h (62 mph). Schools in the Maritimes were closed for up to two days, and there were transportation delays at airports and ferry terminals. From **January 19 to 21**, a **major winter storm** brought up to 55 cm (22 in.) of snow, up to 102 mm (4 in.) of rain, and up to 8 mm (0.3 in.) of ice accumulation to the region. Wind gusts of up to 100 km/h (62 mph) accompanied the storm. [Flooding and power outages](#) were reported. Another powerful storm from **January 23 to 24** brought up to 80 mm (3 in.) of **rain and wind gusts** of up to 120 km/h (75 mph) to much of the region. Northern New Brunswick experienced up to 14 hours of freezing rain. The storm resulted in [localized flooding](#) and [power outages](#). Disaster assistance was available in New Brunswick, where there was an [estimated \\$9.5 million in damage](#). The persistent storminess caused Caribou, ME, to have its **snowiest and wettest January** on record.

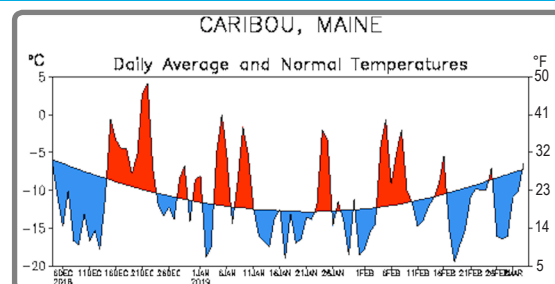
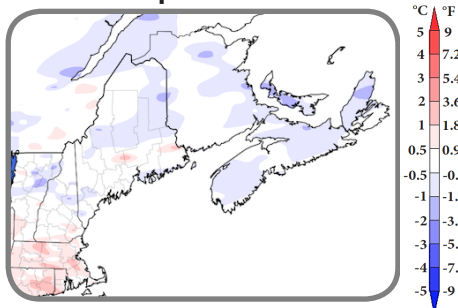
February:

Several storms moved through the region in February. From **February 12 to 13**, a storm brought up to 40 cm (16 in.) of **snow**, with the greatest totals in Maine and New Brunswick. **Wind gusts** were up to 100 km/h (62 mph) for most areas. There were school and business closures, as well as transportation disruptions. A powerful storm brought **high winds** and mixed precipitation, including up to 40 cm (16 in.) **snow**, to the region from **February 24 to 27**. Wind gusts were generally up to 110 km/h (68 mph). [Les Suêtes winds](#) reached 169 km/h (105 mph) at Grand Etang, N.S. Mount Washington, NH, had its [strongest February wind gust on record](#) at 275 km/h (171 mph). Widespread blowing and drifting snow caused **major travel disruptions** in Maine, New Brunswick, and P.E.I. Drifts as high as 3 m (10 ft) created [impassable roads](#), and whiteout conditions led to [vehicle accidents](#). Schools were closed for [up to five days](#). The winds also [damaged buildings](#), downed trees and wires, led to [power outages](#), caused an ice-coated communications tower atop Sugarloaf Mountain, ME, to [bend in half](#), and created [a wall of ice](#) on the eastern shore of Bras D'Or Lake in Cape Breton, N.S.



Regional Climate Overview – December 2018–February 2019

Temperature Winter Departure from Normal



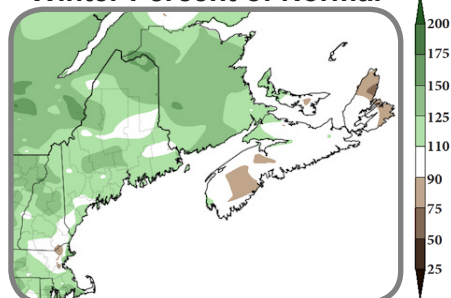
There were several dramatic temperatures swings between above normal (shaded red) and below normal (shaded blue) during winter.

Credit: NOAA CPC

Winter temperatures (averaged over December, January, and February) ranged from 2°C (4°F) below normal to 2°C (4°F) above normal. **December** temperatures ranged from 3°C (5°F) below normal to near normal, with the coldest areas in Nova Scotia. However, southern New Hampshire and eastern Massachusetts were up to 2°C (4°F) warmer than normal. **January** temperatures ranged from 1°C (2°F) below normal in western Maine and parts of New Hampshire to 2°C (4°F) above normal in eastern Maine, Nova Scotia, and eastern P.E.I. **February** temperatures ranged from 3°C (5°F) below normal to near normal, with Cape Breton, N.S. being the coldest spot. However, eastern Massachusetts was up to 1°C (2°F) warmer than normal. Temperature normals based on 1981-2010 data.

Regional Climate Overview – December 2018–February 2019

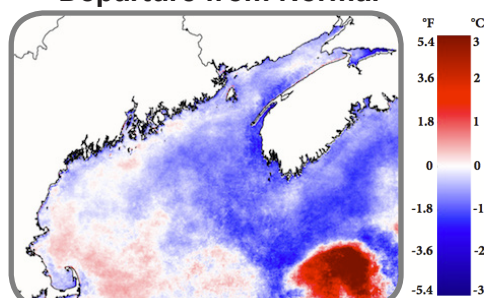
Precipitation Winter Percent of Normal



Winter precipitation (accumulated from December–February) generally ranged from 75% to 150% of normal. **December** precipitation ranged from 50% of normal to near normal, except in northern Maine and western New Brunswick, which received up to 175% of normal. **January** precipitation ranged from near normal to more than 200% of normal, except in parts of Cape Breton, N.S., which was drier. **February** precipitation ranged from 50% to 150% of normal, with the driest areas in Nova Scotia and P.E.I. and the wettest areas in parts of New England.

U.S. precipitation normals based on 1981–2010 data; Canadian precipitation normals based on 2002–2018 data.

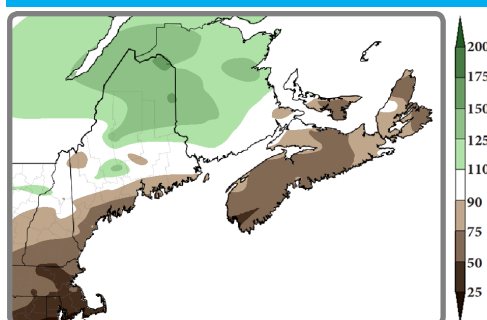
Sea Surface Temperatures Departure from Normal



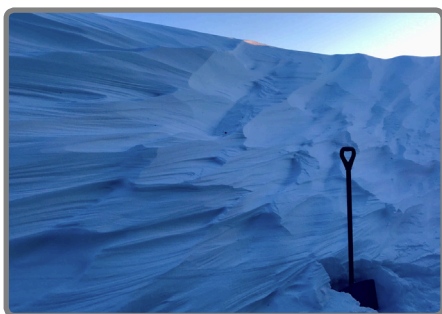
Winter sea surface temperature anomalies were colder than normal over the eastern Gulf of Maine [-0.5 to -1°C (-1 to -2°F)] and Scotian Shelf, where anomalies over -1°C (-2°F) were present. The western Gulf of Maine and Georges Bank regions were at normal, or slightly warm [around 0.5°C (1°F)]. The cold surface temperatures were mostly due to cold December and January values, with February being near normal. Cold anomalies of similar strength, coverage, and duration were last seen in 2009.

SST normals based on 1985–2014 data

Regional Impacts – December 2018–February 2019



Winter percent of normal snowfall.



Snowdrifts were as high as 3 m (10 ft.) in Caribou, ME, in late February. Credit: NWS Caribou.



Strong winds in late February created an ice wall in Cape Breton. Image courtesy of Tom Ayers/CBC.

Winter Conditions

Colder-than-normal December temperatures contributed to **above-normal sea ice** concentration along the eastern shore of New Brunswick by month's end, causing the Canadian Coast Guard to start ice-breaking operations earlier than usual in some areas. Conditions allowed lake ice fishing to **start early** in New Brunswick. **December snowfall was below normal** for most of the region, except in western New Brunswick, Cape Breton, N.S., and P.E.I.

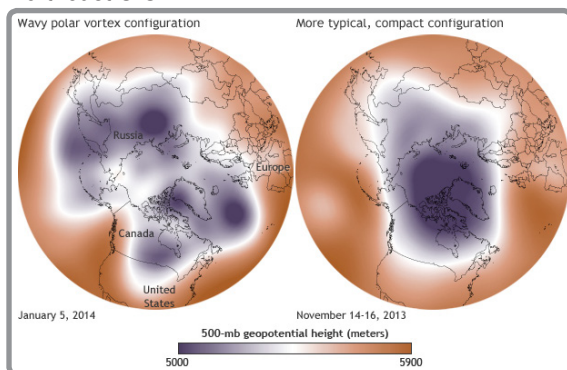
January featured **dramatic temperature swings** with the approach then passage of each storm. The storms produced a variety of precipitation types. For instance, northern and central New Brunswick had both more rain and more snow than normal in January. **Snowfall was also near to above normal** in Maine and much of New Hampshire. It was the **snowiest January** on record for Bas Caraquet, N.B., and Caribou, ME. In fact, January 2019 was 0.25 cm (0.1 in.) short of tying December 1972 as Caribou's all-time snowiest month on record. Snow depths at some New Brunswick sites were more than double normal at the end of the month. **Snowfall was near to below normal** in Massachusetts, P.E.I., Nova Scotia, and southern New Brunswick where temperatures were milder. For example, most sites in southern New Brunswick and Nova Scotia had more days above freezing than normal. Little snow cover and high winds in P.E.I. caused **topsoil to blow off fields**, with crews having to remove soil from the road in Bedeque.

In **February**, temperatures were generally warmer than normal the first half of the month and colder than normal the second half. Much of the region saw **near-to below-normal snowfall** and below-normal snow depth. However, northern Maine and northern and central New Brunswick once again saw **above-normal snowfall** and well-above-normal snow depth. For instance, on February 25, Bas Caraquet, N.B. had a snow depth of 148 cm (58 in.) and Caribou, ME, had a snow depth of 114 cm (45 in.). These ranked among the five highest snow depths for February at both sites.

Regional Impacts – December 2018–February 2019

Winter Conditions Continued

Caribou had its **snowiest October to February** period on record, amassing 373 cm (147 in.) of snow. The **active winter strained snow removal budgets** in Maine but was **good for winter activities**. In P.E.I., road crews had to use **more sand than usual** and there was **increased demand for food banks and heating fuel**. The conditions created **heavy ice buildup** around P.E.I., which caused problems for **oyster growers** and **ferry service**. While the wet conditions **eased abnormal dryness** in northern Maine, drought and abnormal **dryness lingered** in parts of northern New Brunswick due to **long-term deficits**. Boston, MA, Concord, NH, and Portland, ME, had several extra days during winter with temperatures at or above freezing, which is consistent with the **trend of milder winters** in the Northeast U.S.



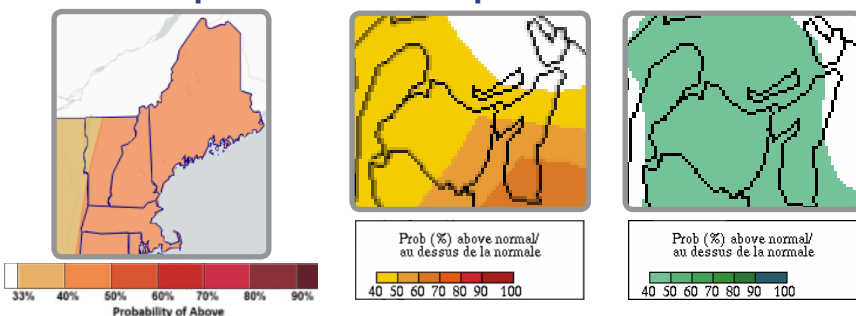
Weak polar vortex (left) and strong polar vortex (right). Credit: NOAA.

Polar Vortex

The **polar vortex** is an area of low pressure and extremely cold air above the Earth's poles. At the outermost edge of this cold air mass is the **polar jet stream**. When the polar vortex is stable, a strong jet stream keeps the cold air contained. Sometimes during winter, the polar vortex is displaced or splits into pieces. Large waves form in the weaker jet stream and cold air moves south (and **warm air moves north in other areas**). The strength of the polar vortex and the phase of the Arctic Oscillation are **closely related**. In January, the region was brushed by Arctic air after the polar vortex weakened. Frigid temperatures and strong winds created dangerously low wind chills, causing some **schools to delay opening**.

Regional Outlook – Spring 2019

Temperature and Precipitation

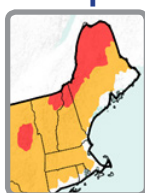


For **March–May**, NOAA's Climate Prediction Center (CPC) and Environment and Climate Change Canada (ECCC) favor above-normal temperatures for New England, New Brunswick, the western half of P.E.I., and most of Nova Scotia, with equal chances of below-, near-, or above-normal temperatures for the eastern half of P.E.I. and Cape Breton. ECCC favors above-normal precipitation for the Maritimes, except in eastern Nova Scotia and Cape Breton, where equal chances were predicted. CPC calls for equal chances for New England.

CPC temperature map (left) produced February 21.

ECCC temperature (center) and precipitation (right) maps produced February 28.

Spring Flood Potential

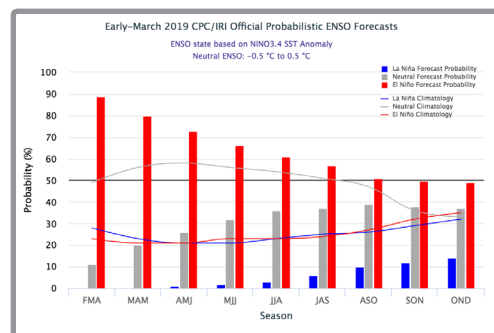


Flood Category
 Major
 Moderate
 Minor

The river flood potential during spring is generally **above normal** for New England, especially parts of Maine and New Hampshire due to "the combination of **existing snowpack**, above normal precipitation, saturated soil conditions, and above normal streamflow..." There is also widespread potential for ice jam flooding in those areas. Very heavy rain can cause flooding at any time of the year in any area.

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ENSO



Weak El Niño conditions formed in January and continued during February. NOAA's Climate Prediction Center indicates there is an 80% chance that the weak El Niño **will continue through spring** and a 60% chance it will continue through summer.

Contacts

[National Oceanic and Atmospheric Administration](#)

[Environment and Climate Change Canada](#)

[Northeast Regional Climate Center](#)

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