

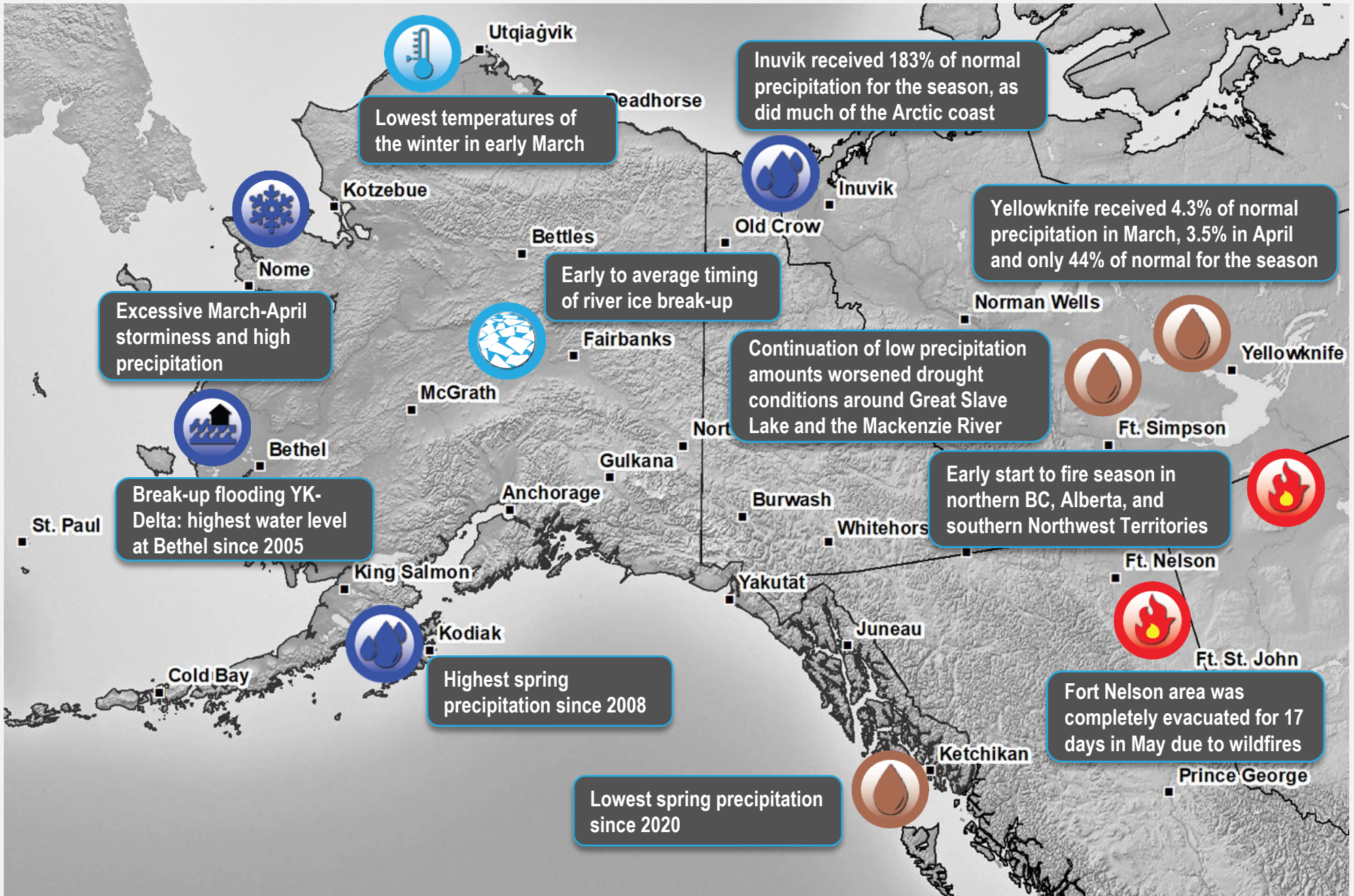
ALASKA and NORTHWESTERN CANADA

Weather and Climate Highlights and Impacts, March 2024 to May 2024
Climate Outlook, July 2024 to September 2024

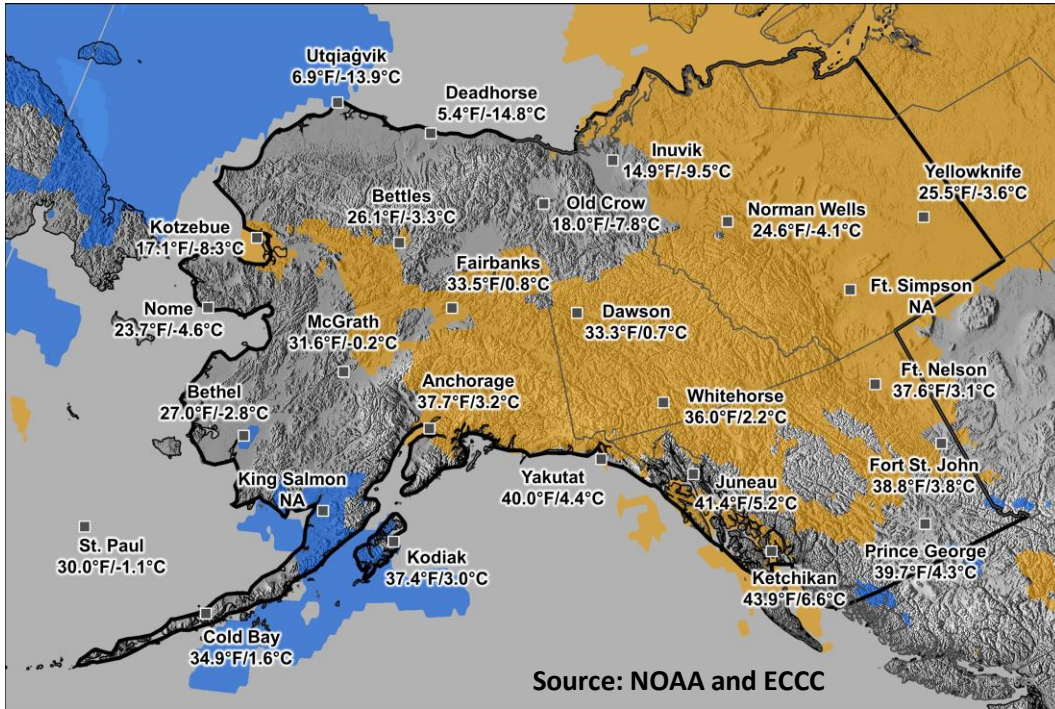


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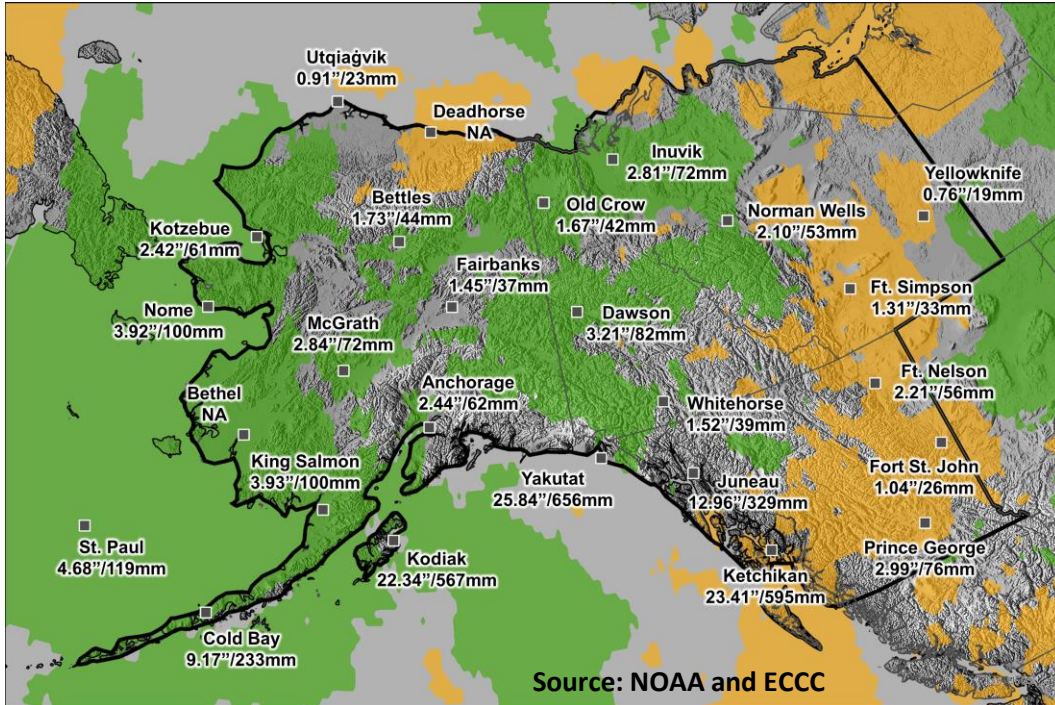
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March to May 2024 Temp Averages (°F/°C) & Anomalies **Below** / **Above** / Normal



March to May 2024 Precipitation Totals (inches/mm) & Anomalies - **Dry** / **Wet** / Normal



Breakup flooding on Alaska's Lower Yukon and Kuskokwim Rivers



Napaskiak, Alaska, on May 9, 2024.

Photo credit: K. Van Peurse, U.S. National Weather Service

River ice breakup in spring is a frequent time of flooding in rural Alaska, and 2024 was no exception. On the lower Kuskokwim River, the communities of Tuluksak, Kwethluk, Bethel, and Napaskiak all experienced moderate flooding, including impacts to airports, schools, homes, drinking water, and a landfill. Four more communities experienced minor flooding. On the lower Yukon River, both Pilot Station and Emmonak experienced moderate flooding, and three other Yukon River communities experienced minor flooding caused by either ice jams or snowmelt.

The drivers for this year's flooding on the "Y-K Delta," as it is called, are thought to be the relatively cool air temperatures in the area and some regions upriver. The U.S. Geological Survey gauge at Pilot Station, about 120 river miles from the mouth of the Yukon, went into freeze up in November at average discharge levels. However, prolonged air temperatures below freezing in the first half of April kept water levels low due to minimal snow melt. Instead of river ice weakening as the temperatures warmed and local snowmelt water lifting the ice in place, the ice was still largely grounded when the pulse of waters from the breakup front reached the area from upriver. While warming trends have made this flooding mechanism less frequent than it was historically, the cool temperatures this spring were within the range of long term normals (30 year averages). In discussing their Spring Outlook product, the Alaska-Pacific River Forecast Center emphasized that a year that is anticipated to be "normal," still puts some of Alaska's riverine communities at risk for flooding.

Drought and low water levels in Northwest Territories



Houseboats sitting on the lake bottom of Great Slave Lake on May 5, 2024 due to record low water levels. Photo credit: Government of Northwest Territories

The Northwest Territories is entering its third year of a multi-year drought, as summer 2024 begins. Both 2022 and 2023 had below normal precipitation, with the total 2023 precipitation in Hay River being less than 50% of normal. The drought conditions during the summer of 2023 had significant impacts last summer and continue to have impacts for the Northwest Territories this year.

Hydropower is the primary source of electricity for the territory and typically provides all required power to the territorial capital, Yellowknife. Due to low water levels, it has been necessary to use diesel backup since the fall of 2022 to provide about half of the city's power requirements. These low water levels are also reflected in Great Slave Lake, which remains at record low levels that began in the summer of 2023, notable after the record high year of 2020. The Mackenzie River, flowing out of Great Slave Lake, is a critical freight corridor for the north of the territory, with barges used to transport freight to communities lacking all-season road access. In the summer of 2023, late season barges had to be cancelled due to the low water levels, and with those low levels continuing into 2024, all Mackenzie River barges from Hay River have been cancelled for the coming summer.

Summer of 2023 was the most significant fire season in Canada, and particularly in Northwest Territories, with 70% of the population of the territory being evacuated from 12 communities and 3.5 million hectares of forest burned last year, which is more than the entire area that typically burns across all of Canada in one year. Drought continues to contribute to wildfire activity in the region, with an early start to the wildfire season this spring, and these conditions are likely to continue through the summer.

Extremely high snowfall in Anchorage

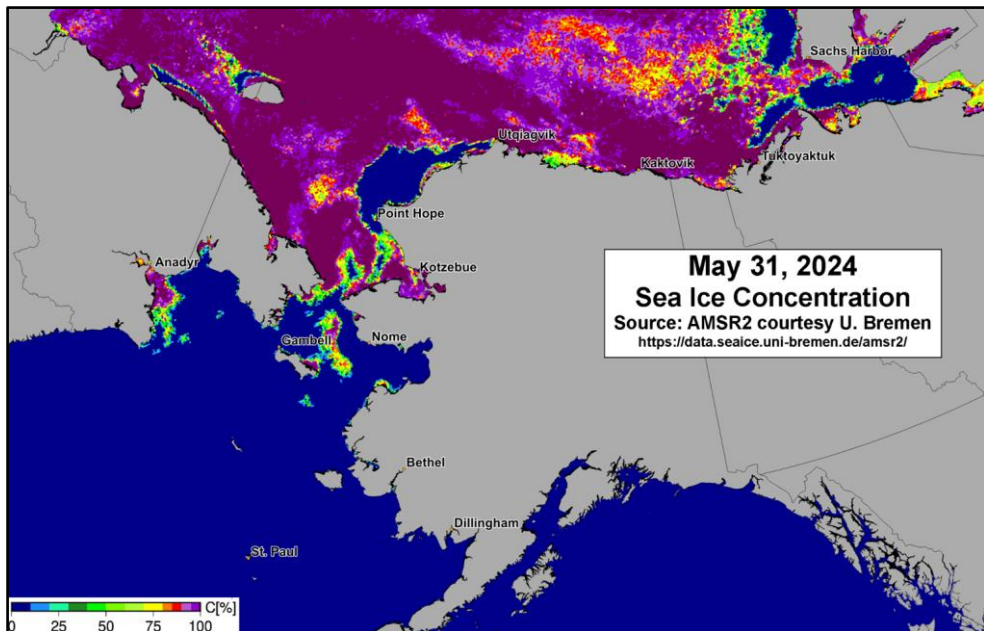


Record high snowpack in the city of Anchorage.
Photo credit: Brian Brettschneider

For the second year in a row, Anchorage, Alaska, received much heavier than normal snowfall. In the 2023-24 season, a total of 133.3" (3383 mm) fell. This places 2023-24 in second place for the snowiest season on record, with only the 134.5" (3416 mm) received in 2011-12 exceeding this amount. Two consecutive years with over 100" (2540 mm) of snow have not occurred in nearly 70 years.

While the spring (March-May) snowfall was unremarkable, at only 10% of the seasonal total, the cumulative impact of repeated snowfalls throughout the winter led to a large number of structure collapses in January through March. At least 19 roof collapses were recorded within the Municipality of Anchorage. The city even recommended that owners of buildings with a certain design built during the 1980s should clear snow off of the roof. In response to this situation, Anchorage is developing a monitoring program within the city to track roof snow loads and is in the process of revising their municipal codes for new construction design.

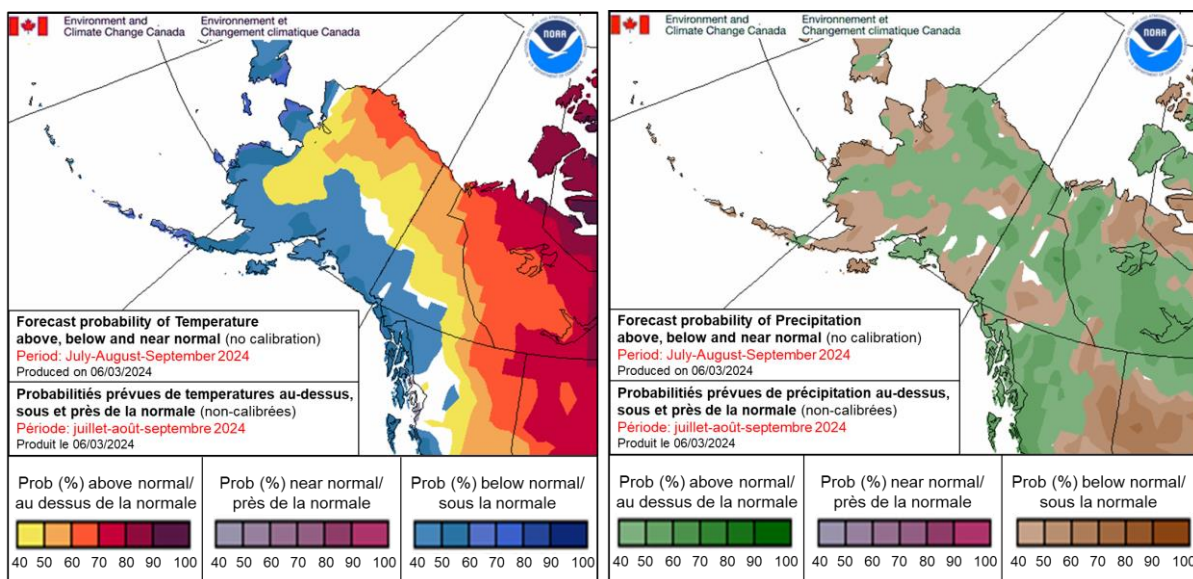
Sea Ice Concentration Conditions 31 May 2024 in the Bering, Chukchi and Beaufort Seas



The spring season was fairly normal by modern standards for the Bering, Chukchi, and Beaufort Seas this year. The Bering Sea seasonal maximum ice extent occurred on March 19, reaching St Paul Island for only a few days. While not historically unusual, this is the latest date for maximum ice extent since 2016. Reductions in sea ice coverage were gradual during April, and in early May ice cleared from eastern Norton Sound. Ice loss in the open Bering Sea accelerated during the second half of May, and by May 31 sea ice extent in the Bering Sea was the lowest for this date since 2020.

In the Chukchi Sea, open water areas were slow to develop until mid-May when easterly winds led to a large area of open water, west of the North Slope coast, which expanded westward. This spring the Beaufort Sea was a roughly equal mix of old and first year ice, with predominantly old ice in the north and first year ice in the south. Similar to the Chukchi, southeast winds created several areas of open water and caused younger ice formation on the southeast edge of the consolidated ice in the northeast of the sea. Sea ice breakup in the eastern Beaufort occurred 1 – 2 weeks earlier than normal this year.

Temperature Outlook: July to Sept 2024 Precipitation Outlook: July to Sept 2024



A southwest to northeast pattern of temperature probabilities is forecast for July through September, with a moderate probability of below normal temperatures along western and southern Alaskan coast, the southwest corner of the Yukon and northwestern British Columbia. This transitions to probabilities of above normal temperatures that increase further east, with strong probabilities of above normal temperatures in eastern and coastal Northwest Territories.

The precipitation forecast for much of the region is somewhat mixed, with pockets of moderate probabilities of below normal precipitation scattered within moderate probabilities of above normal precipitation. Central Northwest Territories and the North Slope of Alaska have slightly higher probabilities of above normal precipitation, and the western and southern coasts of Alaska, excluding the panhandle, have a moderate probability of below normal precipitation.

Content and graphics prepared by NOAA's National Weather Service and National Center for Environmental Information; the Alaska Center for Climate Assessment and Policy at the University of Alaska; and Environment and Climate Change Canada, as well as our regional partners: Alaska Climate Research Center, Alaska Climate Science Center, National Snow and Ice Data Center, and Scenarios Network for Alaska + Arctic Planning.

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