



Spring Breakup Outlook for Alaska

Valid March 29, 2024

[Alaska-Pacific River Forecast Center](#)

Next Product Issuance: April 5, 2024

www.weather.gov/aprfc

EXPERIMENTAL PRODUCT

Spring Breakup Outlook for Alaska

Updates to the previous Spring Breakup Outlook

- Recent river ice observations confirm jumbled ice, suggesting normal to above normal thicknesses in reaches on the Middle and Upper Yukon River. Kuskokwim River ice thickness is reported as normal to slightly below normal between Aniak and Bethel.

Statewide Flood Potential Overview

The outlook for Alaska spring ice breakup and snowmelt flood potential is currently rated as normal for the majority of the state.

The spring breakup flood potential for major rivers in Alaska:

- ..Yukon River: **Normal**
- ..Koyukuk River: **Normal**
- ..Kuskokwim River: **Above Normal**
- ..Tanana and Chena Rivers: **Normal**
- ..Copper Basin Rivers: **Above Normal**
- ..Susitna River: **Normal**
- ..North Slope Rivers: **Normal**

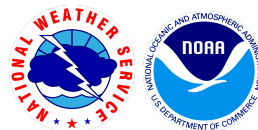
This outlook is based on observed snowpack, ice thickness reports, and seasonal temperature outlooks. The term 'normal' is defined as being at or near the climatological value, which is typically defined over a 30-year period of record.

River Ice Observations

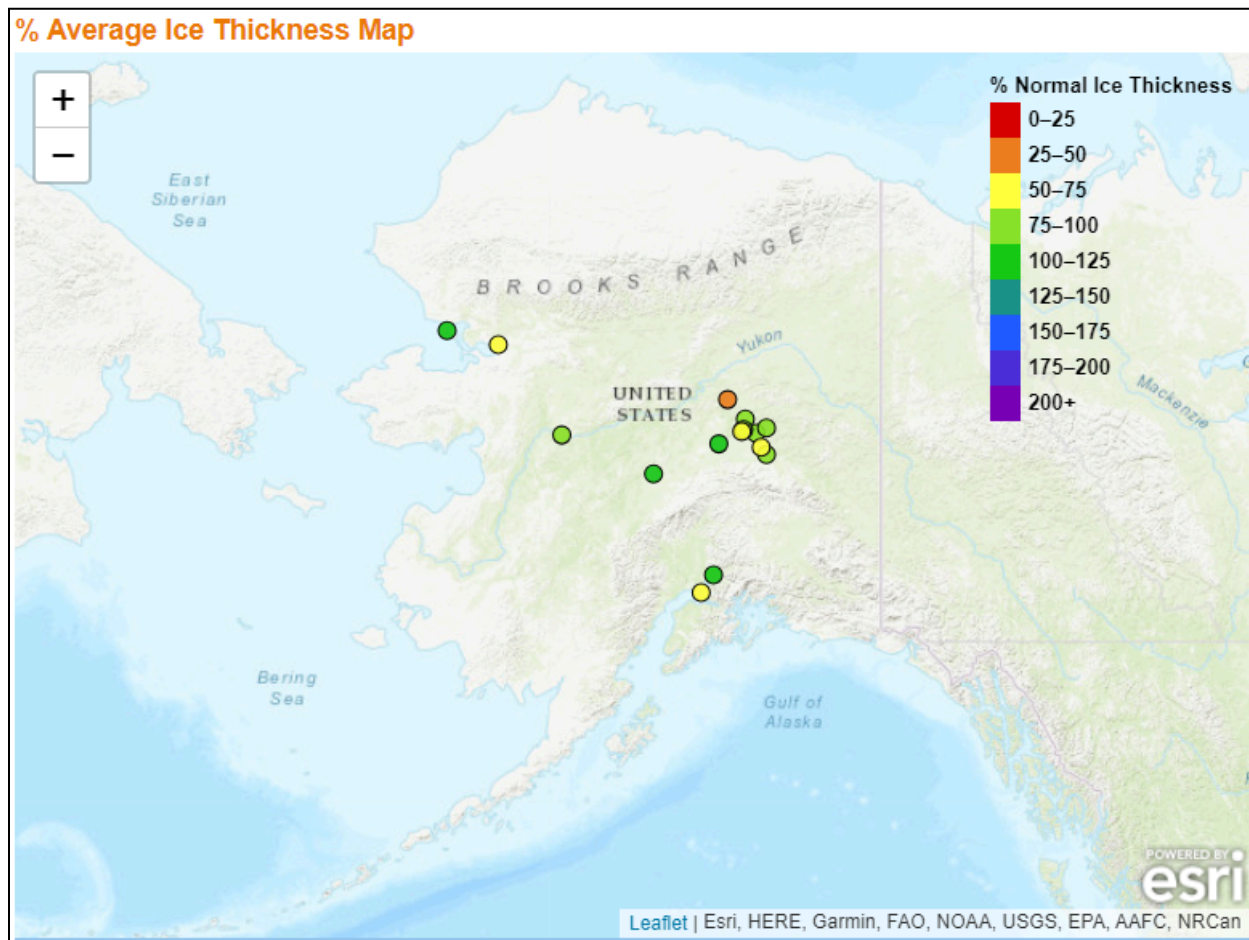
River ice observations are available for a limited number of observing sites in Alaska. Late February and early March measurements indicate that ice thickness is near-to-below normal across the state. Observations from the Interior range from 65%-95% of normal, with observations along the mid-Yukon River approximately 85% normal. However, dense jumble ice has been observed on the Yukon River between Rampart and Tanana. Recent UAF Fresh Eyes On Ice team (FEOI) reconnaissance confirmed that ice this year (2024) along the middle Yukon and Tanana River was on average thicker than last year (2023). Yukon River ice thickness at Eagle appears to be thicker than the past two winters (2022-2023). Observers on the Kuskokwim River have reported normal to slightly below normal ice thicknesses between Aniak

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and Bethel, with recent reports indicating that river ice has begun to deteriorate, and/or soften in some locations. No freeze-up jams or mid-winter breakups were reported across the Yukon and Kuskokwim River basins.



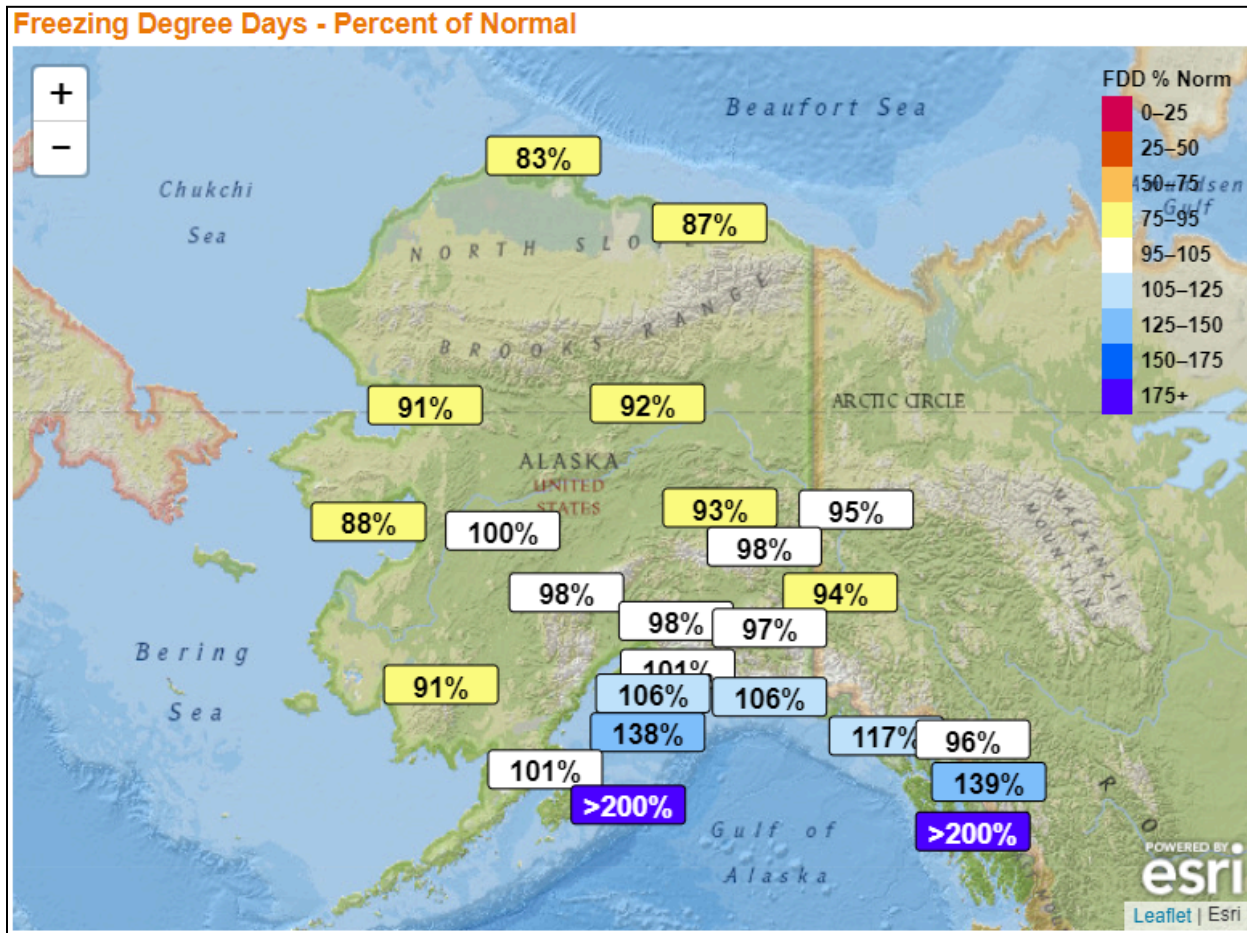
[Link to % Average ice thickness map](#)

Freezing Degree Days

Cumulative freezing degree days (FDD), which can serve as a proxy for river ice thickness, are near normal across most of Alaska due to fairly mild winter air temperatures. Colder conditions were observed across coastal sites along the Gulf of Alaska (Homer to Sitka), where FDD was reported to be 139% to 200% of normal. Near normal FDD conditions have been observed across Southcentral and Copper River Valley, averaging approximately 98% of normal. The West Coast, Interior, and North Slope observed near normal FDD, ranging from 85% to 100% of normal.

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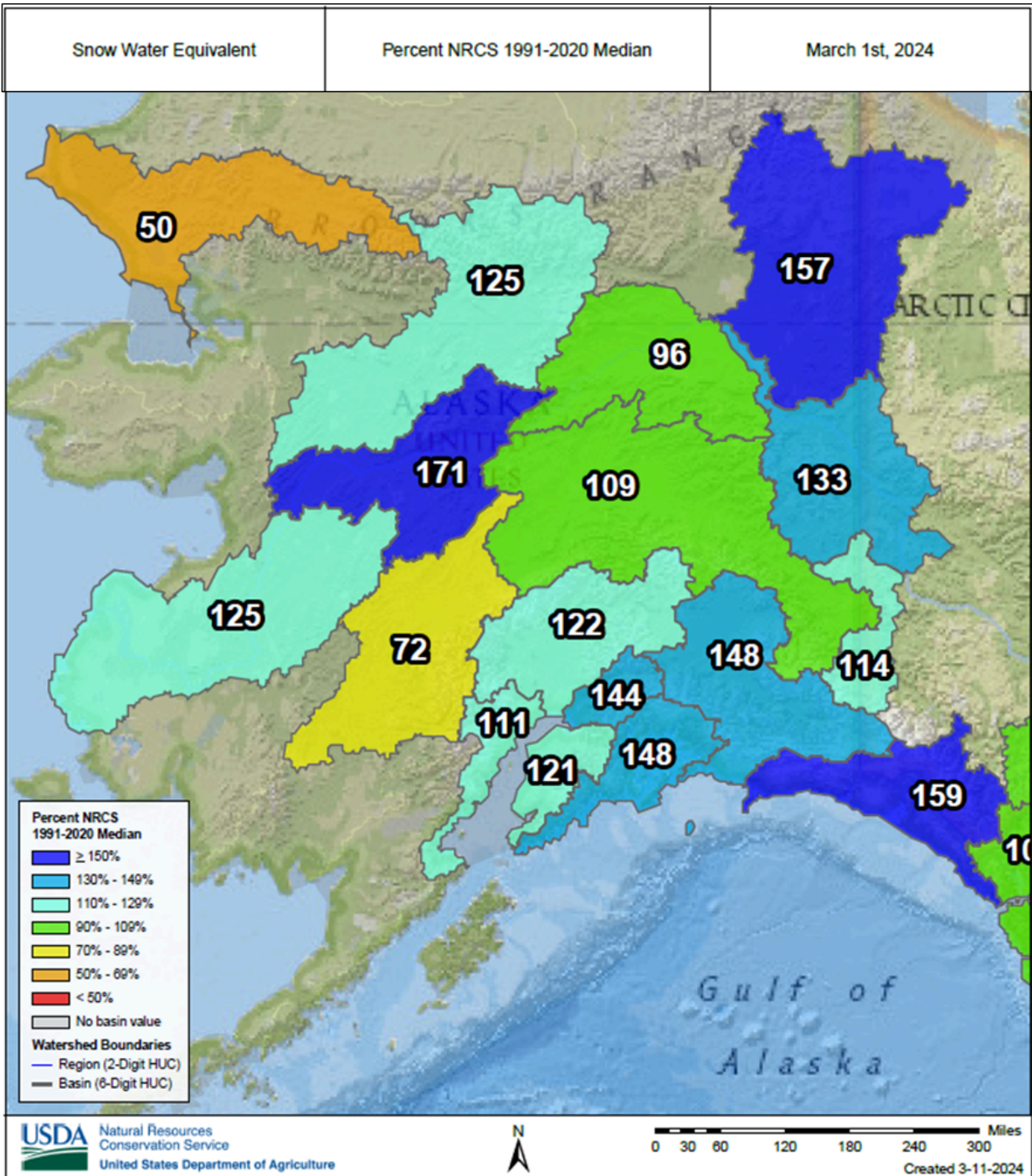
[Link to freezing degree day \(FDD\) map](#)

Snowpack

Analysis of the March 1st snowpack by the [Natural Resources Conservation Service \(NRCS\)](#) indicates a variable snowpack; but generally the statewide snowpack is above normal for the majority of the state. Since March 1st, there has been a 10-25% increase in snowpack for Eastern AK along the Alcan Border. The NRCS snowpack map is included below, and can also be accessed [here](#).

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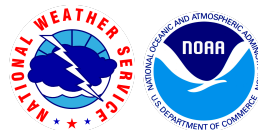
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The snowpack for the Upper Yukon (largely in Canada) is reporting near normal. A handful of sites in the perimeter of the basin are 100-125% of normal, but the vast majority are 60-90% of normal, bringing the basin total to 92% of normal. The Central Yukon Basin, which includes

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Eagle, Circle, and Ft Yukon is above normal, at 133%. The Porcupine and the Fortymile Rivers are reporting well above normal, with 157 and 137% or normal respectively. The Tanana Basin, which includes Fairbanks and Delta Junction, is near normal at 109% of normal. The Koyukuk Basin has a variable snowpack; along the Dalton Highway it is well below normal, extending to near period-of-record maximum near the Yukon River; overall the basin is 125% of normal. The Lower Yukon Basin, which includes the villages of Tanana, Ruby, Galena, and Anvik, have stations reporting between 150 and 200% of normal at the lower elevations and closer to normal at the higher elevations.

The Kuskokwim Basin has a normal to above normal snowpack. Telaquana Lake in the far southeast Kuskokwim headwaters is below normal due to a mid-February warm up; McGrath avoided the warm up and is reporting a near normal snowpack down to around Aniak; between Aniak and Bethel, observers are reporting above normal snowpack.

For the Arctic, the three stations along the Dalton Highway are reporting below normal snowpack.

In Southcentral Alaska, the snowpack in the Copper Basin is notably above normal, ranging between 120-140% of the March 1st average. All monitoring sites in the basin are reporting above-normal snowpack levels. Notably, eight sites in the basin rank within the top five of historical records for snowpack levels, with three sites reporting record highs. However, despite this above-average snowpack, it's worth noting that the basin's average snowpack remains lower than the levels observed in 2022 (175-200%) and 2023 (160-180%). Glennallen experienced flooding both of those years. The Susitna Basin is reporting 122% of normal, with the snowiest locations in the eastern headwaters, bordering the Copper Basin. Stations in the Kenai Basin are reporting generally above normal with the highest returns in the Kenai River specifically. The basin-wide snowpack can be approximated at 121% of normal.

The next NRCS statewide snowpack summary is expected after the first week of April.

Climate Outlook

The most important factor determining the severity of ice breakup remains the weather during April and May. Dynamic breakups, with a high potential for ice jam flooding, typically require cooler than normal temperatures in early April followed by an abrupt transition to warm, summer-like temperatures in late April to early May.

NOAA's Climate Prediction Center outlook favors above normal temperatures through April for all of Alaska. Across interior locations from the Alcan Border to the West Coast, there's a 40-50% chance of above-normal temperatures. In southwest and southcentral Alaska, the

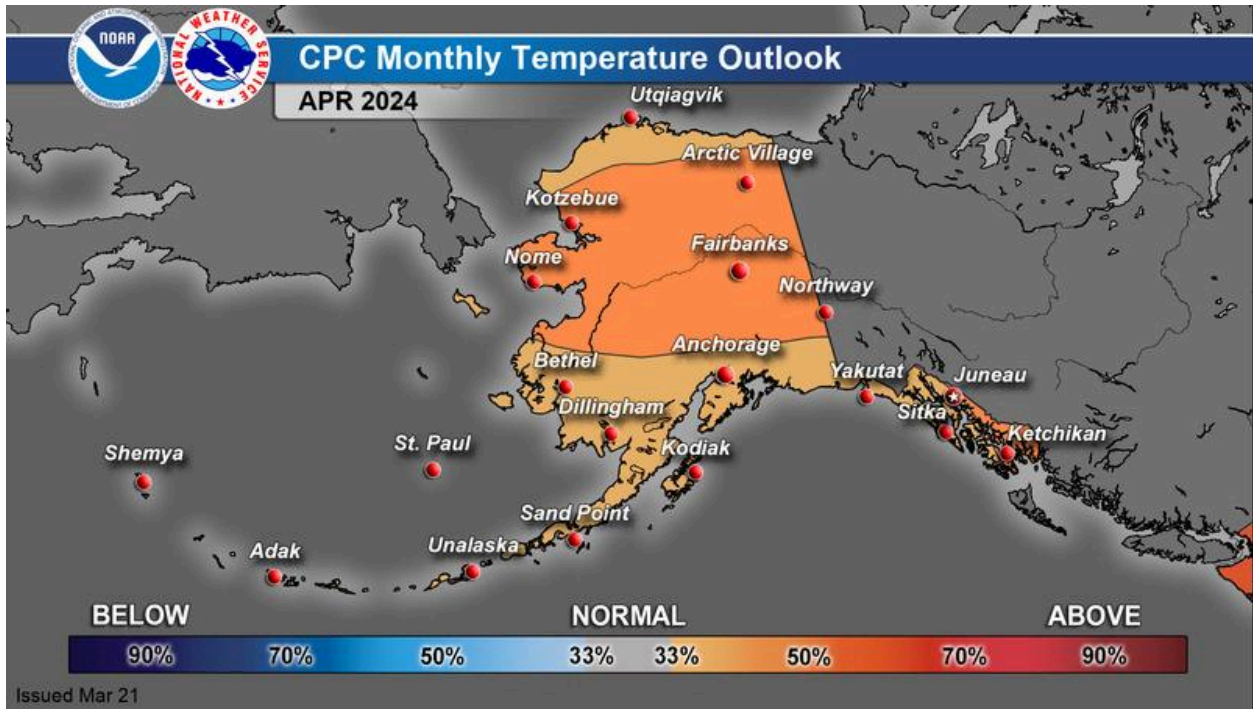
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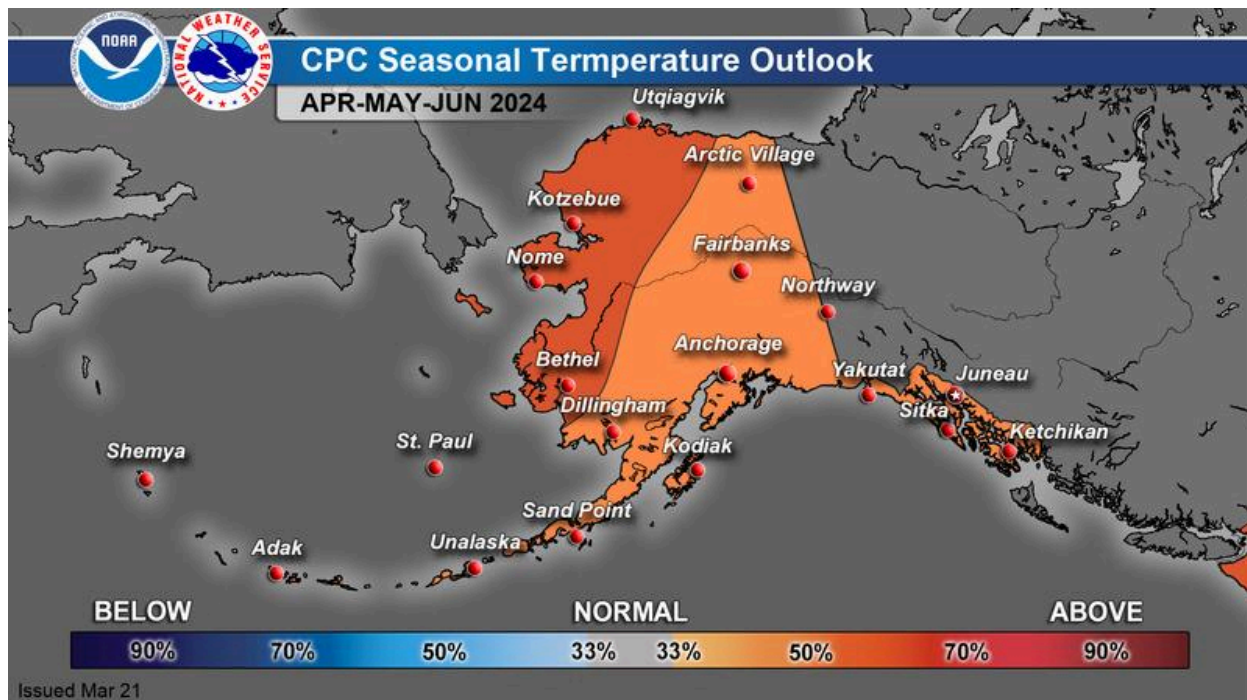
probability is slightly lower, with a 33-40% chance still favoring above-normal temperatures. Looking ahead for the next three months, including April, May, and June, there's an elevated probability (40-60% chance) of above-normal temperatures across all of Alaska.

This temperature pattern would reduce ice jam related flood risk along the Kuskokwim and Yukon Rivers. These larger rivers are westward flowing and warmer temperatures on the west coast would result in ice degradation prior to the arrival of snowmelt runoff, decreasing the chances for a dynamic breakup.



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This product is experimental. For more information and to submit comments, please contact:

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