



Bering Land Bridge N Pres. • Cape Krusenstern NM
Gates of the Arctic NP & Pres. • Kobuk Valley NP • Noatak N Pres.

Winter 2024



Weather & Climate Summary Gates of the Arctic National Park & Preserve Winter 2024

Bettles Winter Weather 2024

Overall, winter was cooler and drier than normal in Bettles. Weather highlights for the season include a cold January followed by warm temperatures in February. The average temperature for the 2023-2024 winter season was -7.2°F, which is 0.5°F cooler than the 1991-2020 normal. Winter precipitation (melted snow) totaled 1.92 inches, only 65% of normal (Table 1 and 2, Figures 1 and 2).

December

December was warm and dry. The average temperature for the month was 1.6°F warmer than normal at -4.4°F. The December temperatures were close to normal throughout most of the month with a few warm days just before Christmas. The high temperature on December 24 was 28°F approaching the record high of 31°F set in 1985. The total precipitation for December (melted snow) was 0.95 inches, 83% of normal. The daily snowfall total (how much it snowed each day) was not recorded for most of the month, but the snow depth (how much snow was on the ground) was noted. At the start of the month the snow depth was 16 inches and the month ended with 23 inches on the ground.

January

January was cold and dry in Bettles. The air temperatures plummeted the third week of the month and stayed cold through the end of the month. The daily low temperatures bottomed out at -57°F on January 27 and 28, a few degrees warmer than the record lows. No records were broken but it the last time it was colder was back in 2012. The record low for the month of January is -70°F set on January 4, 1975. The average monthly temperature for 2024 was 5.6°F colder than normal. The total precipitation was only 62% of normal with 0.54 inches. The total snowfall for the month was 12.3 inches, normal is 14 inches.

Dog mushing in the northern regions of Gates of the Arctic National Park and Preserve. NPS photo/Jayme Dittmar.

February

February ended up warmer and drier than normal. The month started out cold but warmed considerably after the first week of the month. The high temperature on February 13 reached 31°F, a new daily record. It was 30 degrees warmer than the normal high for that day. The average temperature for the month was -1.1°F, which is 2.3°F above normal. February precipitation totaled 0.43 inches, normal is 0.96 inches. The snow depth averaged about 28 inches throughout the month. The total snowfall for the month was 10.9 inches, normal is 15.9 inches.

Table 1. Bettles winter 2024 average monthly temperatures compared to the 1991-2020 normal.

Winter 2024	Average Monthly Temp (°F)	1991-2020 Normal (°F)	Departure from Normal (°F)
December	-4.4	-6.0	+1.6
January	-16.2	-10.6	-5.6
February	-1.1	-3.4	+2.3

Winter temperature departure from normal: -0.5°F

Table 2. Bettles winter 2024 monthly precipitation totals compared to normal

Winter 2024	Total Monthly Precip. (in.)	1991-2020 Normal (in.)	Departure from Normal (in.)
December	0.95	1.14	-0.19
January	0.54	0.87	-0.33
February	0.43	0.96	-0.53

Winter precipitation departure from normal: -1.05 inches. (65% of normal).

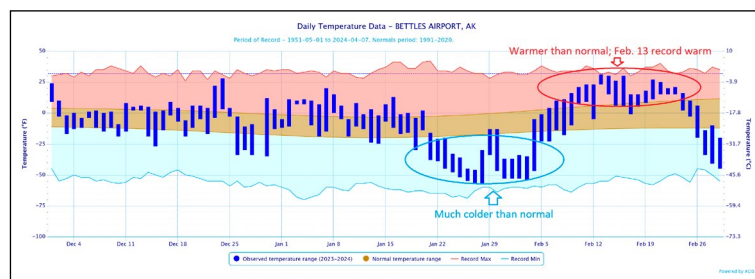


Figure 1. Winter 2023-2024 daily temperatures at Bettles showing record maximum (red), record minimum (blue), normal (brown) and observed range (blue bars). Data from: <http://xmacis.rcc-acis.org/>



Figure 2. Winter 2023-2024 accumulated precipitation at Bettles (green) compared to normal (brown line). Data from: <http://xmacis.rcc-acis.org/>

Winter Snowfall

The map below shows the snowfall ranking for all of Alaska for the winter season between December 1 and February 29. The shading in and around Gates of the Arctic is light to medium blue which indicates that this winter's snowfall total ranked higher than half of the winters since 1940 (see color scale in Figure 3 for ranking). Areas with pink shading, like southwest Alaska, had the snowiest year on record, while brown shading (in Canada) had the least snowy winter on record.

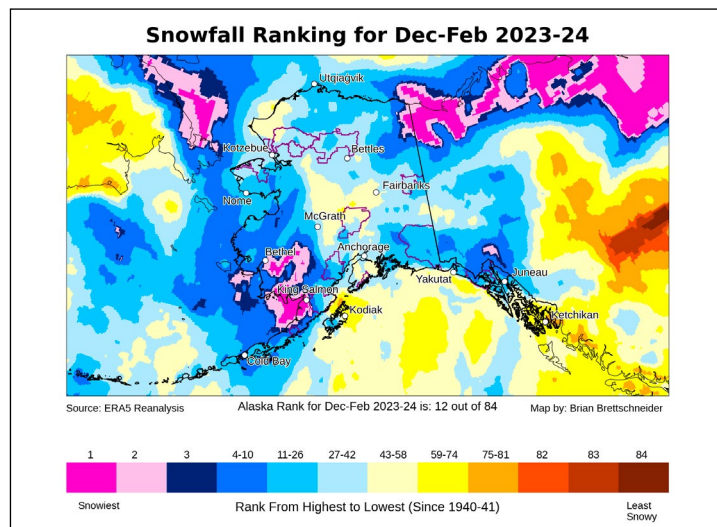


Figure 3. Statewide snowfall ranking map for December – February 2024 (back to 1940). Map courtesy of Brian Brettschneider using ERA5 reanalysis data. Dark pink shading indicates the snowiest winter season on record.

Arctic Network Climate Stations

We monitor weather and climate in Gates of the Arctic to help understand seasonal weather patterns and shifting climate averages (Figure 4).

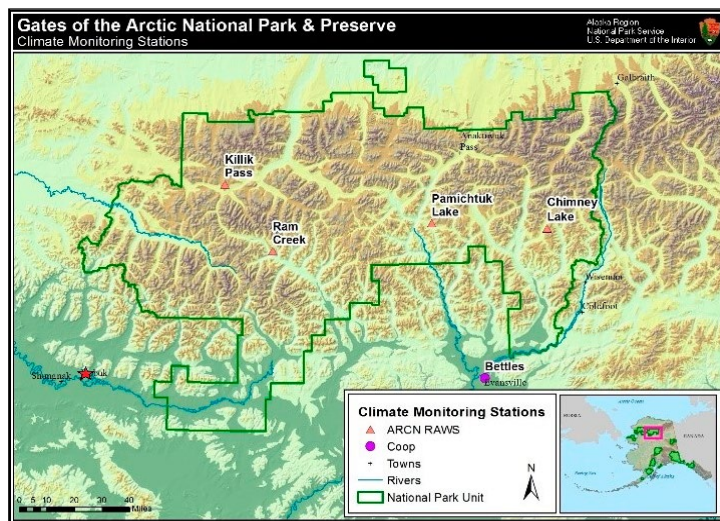


Figure 4. Arctic Inventory and Monitoring Network climate stations in Gates of the Arctic National Park and Preserve. Click here to get the [Current Weather in Gates of the Arctic](#).

The average temperature for the winter season at the Chimney Lake climate station was 2.1°F, which is 4°F colder than the 12-year average for this site. Because of persistent winter temperature inversions, winters are much warmer up in the mountains of the Brooks Range than at the lower elevation communities like Bettles. The winters have been variable at Chimney Lake since we started the measurements. In 2013 the winter temperature was 1.5°F. For the next six years (2014-2019) the winter temperatures averaged a balmy 7.3°F. These warmer winters were experienced around the state. La Niña settled in after that and the next three winters were cool, averaging about -1.0°F. The past two winters have been warmer, averaging 2.7°F, but still much cooler than the “teenage warm years” (Figure 5).

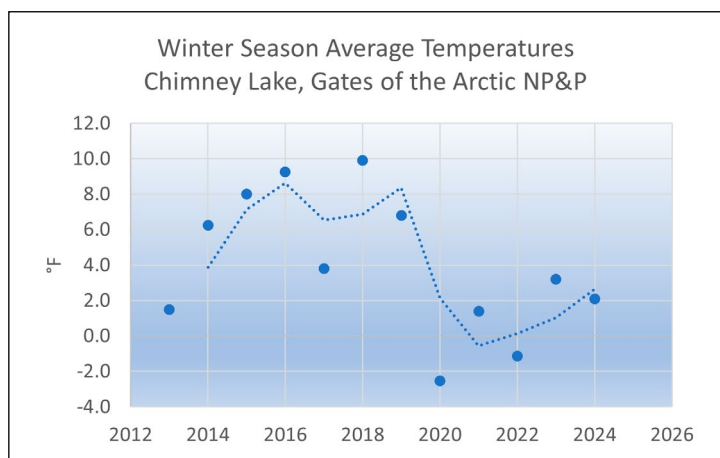


Figure 5. Winter season average temperatures at the Chimney Lake climate station in Gates of the Arctic National Park and Preserve 2013-2024.

More Information

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Data disclaimer: Please note that the near-real time data used to generate these reports is subject to change. QA/QC data from the NPS ARCN climate stations are available at [NPS Data Store](#)