



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 Western Arctic Parklands Winter Weather 2023-2024

Winter on Hugo Creek, Noatak National Preserve. NPS Photo

Kotzebue Winter 2023-2024

Overall, winter was warmer than normal with near normal precipitation for Kotzebue. The average temperature for the 2023-2024 winter season was 1.4°F, which is 0.7°F above the 1991-2020 normal. Winter precipitation (melted snow) totaled 2.18 inches, just shy of normal (Table 1 and 2, Figures 1 and 2).

December

It was a cold December with less snow than normal. The average temperature for the month was 3.3°F cooler than normal at -0.9°F. The third week of the month was the coldest with the daily temperatures averaging about 10 degrees below normal. December 26 was the coldest day of the month with a minimum temperature of -29°F. The total precipitation for December was 0.63 inches, normal is 0.73. Snowfall and precipitation totals are low in the winter when daily temperatures are generally well below freezing and the Arctic sea ice has formed for the winter.

January

January ended up warmer and slightly drier than normal. The temperature variation throughout the month was impressive. Temperatures were well above normal the first three weeks of the month and well below normal for the last week of January. Most of the snow fell during the warm period with the highest daily precipitation total (0.22 inches) falling on the warmest day of the month (Jan. 15) when the high temperature reached 32°F. Two weeks later it was 72°F colder (-40°F) on the coldest day of the month (Jan. 28). The total monthly precipitation was 0.55 inches, which is 89% of normal.

February

February was warmer and wetter than normal. The average temperature for the month was 5.6°F, which is 4.2°F above normal. The first few days and last few days of the month were colder than normal, while every day in between was above normal. The warmest day was February 13th with a high temperature of 34°F. The lowest temperature was -30°F on February 3. The total precipitation was above normal with 1.00 inches, 118% of normal.

Table 1. Kotzebue winter 2023-2024 average monthly temperatures compared to the 1991-2020 normal.

Winter 2023-2024	Average Monthly Temp (°F)	1991-2020 Normal (°F)	Departure from Normal (°F)
December	-0.9	2.4	-3.3
January	-0.6	-1.9	+1.3
February	5.6	1.4	+4.2

Winter temperature departure from normal: +0.7°F

Table 2. Kotzebue winter 2023-2024 monthly precipitation totals compared to normal

Winter 2023-2024	Total Monthly Precip. (in.)	1991-2020 Normal (in.)	Departure from Normal (in.)
December	0.63	0.73	-0.10
January	0.55	0.62	-0.07
February	1.00	0.85	+0.15

Winter precipitation departure from normal: -0.02 in. (99% of normal).

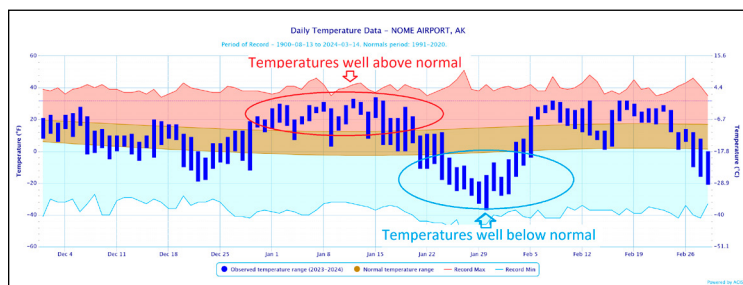


Figure 1. Winter 2023-2024 daily temperatures at Kotzebue showing record maximum (red), record minimum (blue), normal (brown) and observed range (blue bars). Data: <http://xmaxis.rcc-acis.org/>.

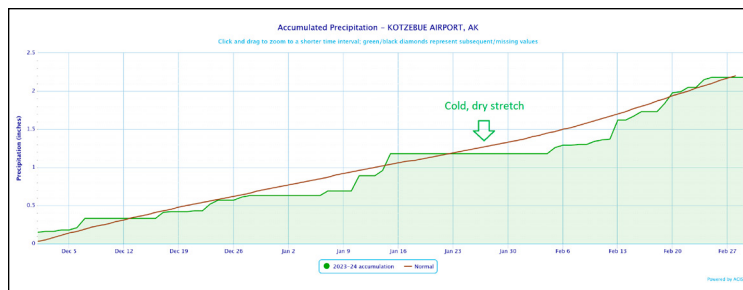


Figure 2. Winter 2023-2024 accumulated precipitation at Kotzebue (green) compared to normal (brown line). Data: <http://xmaxis.rcc-acis.org/>.

Arctic Network Climate Stations

We monitor weather and climate in the Western Arctic Parklands to help understand seasonal weather patterns and shifting climate averages (Figure 3). We have ten years of data from most of these locations, including the Kelly Snotel site near the Kelly Ranger Station at the confluence of the Kelly and Noatak Rivers in Noatak National Preserve.



Figure 3. Arctic Inventory and Monitoring Network climate stations in the Western Arctic Parklands. [Click here](#) to get the current weather.

Snow at Kelly

At the Kelly station site, the snow water equivalent (SWE), or the amount of water in the snowpack, was near record high at the beginning of the winter season, but with little accumulation in January or February ended up near average at the end of the

winter (Figure 4). Late March and April spring storms deposited more snow. Peak SWE occurred on April 19 with 5.7 inches of water, which is 0.7 inches less than the median value. The cumulative precipitation (rain and melted snow) from October 1 through the end of February was 4.7 inches, just shy of the median value for that date.

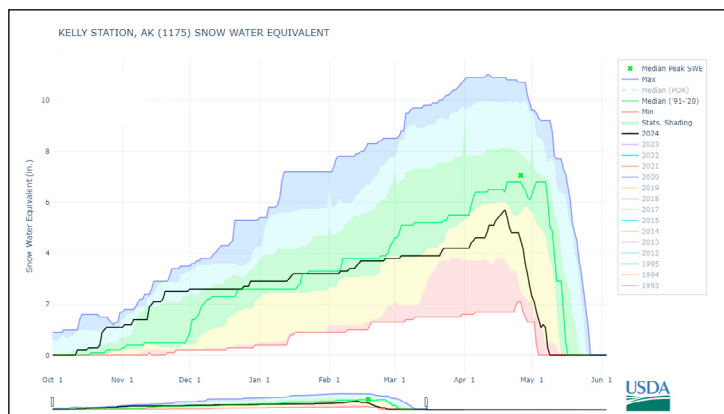


Figure 4. Snow water equivalent October 1, 2023 through June 1, 2024 at Kelly Station (black line) in relation to other years on record.

Mountain Snow in Kobuk Valley

The snow depth at the Salmon River site (1,201') in Kobuk Valley National Park peaked at 35 inches in mid-February. The following week winds gusted >30 mph reducing the snow depth to 17 inches. The phenology camera on site captures the ebb and flow of the snowpack as the storms roll through and deposit snow and the winds blow through and scour it away (Figure 5).



Figure 5. Snow cover at the Salmon River site on February 28, 2024 with ~18 inches of snow on the ground. The camera is facing north up the Salmon River drainage, capturing the shadow of the weather instruments.

More Information

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<https://www.nps.gov/im/arcn/climate.htm>

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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 CANK climate stations are available at [NPS Data Store](#)