



Weather & Climate Summary Denali National Park & Preserve Winter 2024

Aurora over Denali Park Road. NPS photo/Kent Miller

Denali Park HQ Winter Season 2023-2024

Winter 2023-2024 was cooler and snowier than normal at Denali Park Headquarters. The winter season was -0.8°F cooler than the 1991-2020 normal. That does not capture the extreme variability from the mid-January deep freeze to the record breaking warmth of mid-February. The total precipitation (melted snow) for the winter season was 2.47 inches, 115% of normal (Table 1 and 2, Figures 1 and 2). The winter snowfall total between December 1 and February 29 was 39.6 inches, normal is 31.6 inches.

December

December was cooler and snowier than normal. The average monthly temperature was 2.8°F cooler than normal at 2.8°F. Temperatures were cooler than normal for most of the month. December 24 and 25 were the warmest days with high temperatures above freezing. The total snowfall was just under two feet for December, about twice as much as normal. The water content of the snow was 1.54 inches.

January

January was cold with above normal snowfall. The temperatures went from well above normal during the first two weeks of the month to much colder than normal for the last two weeks. The minimum temperature dropped to -41°F on January 28. This is the first 40 below or colder temperature since 2012. The month ended up 3.4°F colder than normal at -1.2°F. A total of 12.9 inches of snow fell during the month, normal is 9.6 inches. The total precipitation (melted snow) was 0.66 inches, 108% of normal.

February

February was warmer and drier than normal. The average

temperature was 30 to 35°F colder than normal for the first three days of the month. After that it started to warm up. Two consecutive record high temperatures were set on February 16th (45°F) and 17th (46°F). Temperatures climbed above freezing ten days out of the month. The monthly temperature was about 4°F degrees above normal at 13.2°F. The snowfall total was low. Only 2.8 inches fell during the month, normal is 9.6 inches.

Table 1. Denali Park HQ 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	2.8	5.6	-2.8
January	-1.2	2.2	-3.4
February	13.2	9.33	+3.9

Winter temperature departure from normal: -0.8°F

Table 2. Denali Park HQ 2023 monthly snowfall totals compared to normal.

Winter 2023-2024	Total Monthly Precip. (in.)	1991-2020 Normal (in.)	Departure from Normal (in.)
December	23.9	12.4	+11.5
January	12.9	9.6	+3.3
February	2.8	9.6	-6.8

Winter snowfall departure from normal: +8.0 in. (125% of normal)

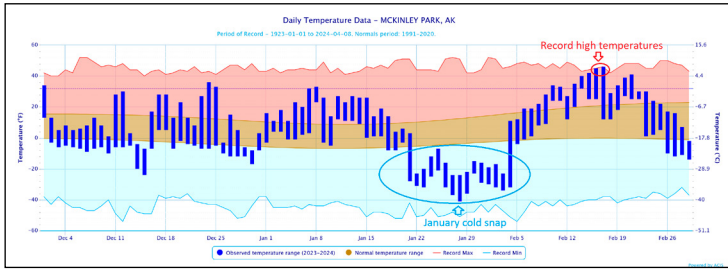


Figure 1. Winter 2023-2024 daily temperatures at Denali Park HQ showing record maximum (red), record minimum (blue), normal (brown) and observed range (blue bars). Data from: <http://xmacis.rcc-acis.org/>.

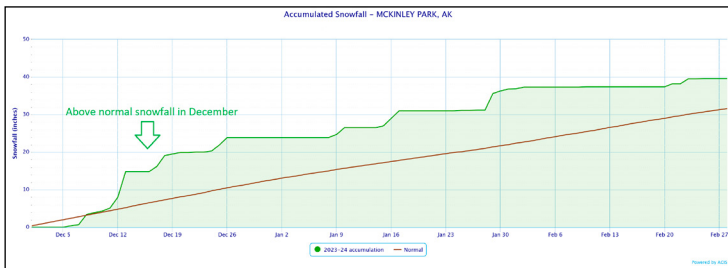


Figure 2. Winter 2023-2024 accumulated precipitation at Denali Park HQ (green) compared to normal (brown line). Data from: <http://xmacis.rcc-acis.org/>.

Talkeetna Winter Season 2023-2024

Talkeetna was cooler than normal, and the total winter precipitation (rain and melted snow) was just above normal. The cold snap in late January/early February brought frigid temperatures to Talkeetna, with a new record daily low of -39°F set on February 1. The winter season ended up 2.6°F colder than the 1991-2020 normal. The normal winter precipitation total is 1.48 inches, this winter the total was 1.41 inches.

First -40°F Temperature in over a Decade

The temperature at Denali Park Headquarters bottomed out at -41°F on January 28, 2024 ending the longest stretch of time without a temperature at or below -40°F since the record started in 1924 (Figure 3). Note that the first few years of the record had more days with very cold temperatures. This was due to the station location near the confluence of Hines and Riley Creek, a lower elevation subject to cold air pooling in winter. The station moved up to the current headquarters area in August of 1925.

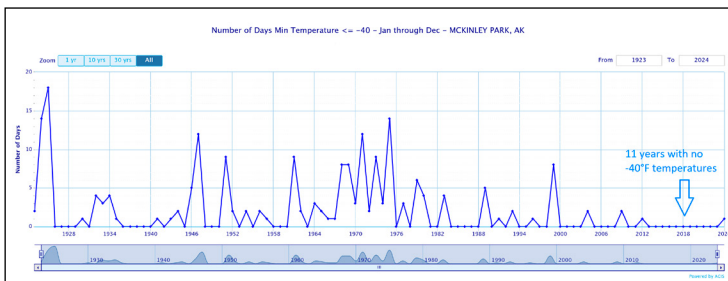


Figure 3. Number of days each year with a temperature $\leq -40^{\circ}\text{F}$ at Denali Park Headquarters, 1924-2024.

Cool Winter Temps During a Strong El Niño

This was not a typical El Niño winter. For most areas of the central and eastern Interior including Denali, it was the first El Niño winter with below normal average winter temperatures since the late 1960s. Almost all El Niño winters between 1976-77 and 2022-23 (16 total) were warmer than normal (Figure 4). Read more about the “underachieving El Niño” [here](#).

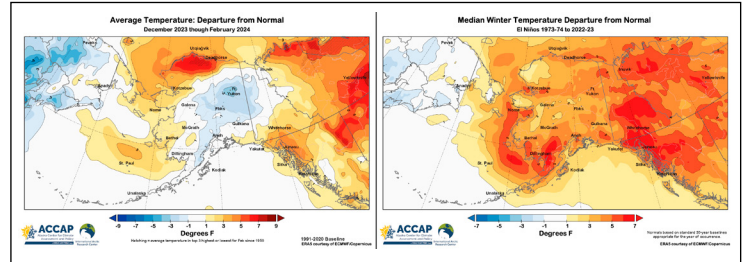


Figure 4. Temperature departure from normal for the 2023-2024 winter (left), median temperature departure during all El Niños between 1974-2023 (right). Graphic courtesy of Rick Thoman, Alaska Center for Climate Assessment and Policy.

Tokositna and Kantishna Snow

The Tokositna Snotel site on the south side of the Alaska Range had above normal snow water equivalent (SWE) for most of the season (Figure 5). Peak snow was on April 17, 2024 with 18.8 inches of SWE (the amount of water the snowpack contains) with 61 inches of snow on the ground (snow depth). The snow depth at Kantishna on the north side of the range was above normal to near normal for the season.

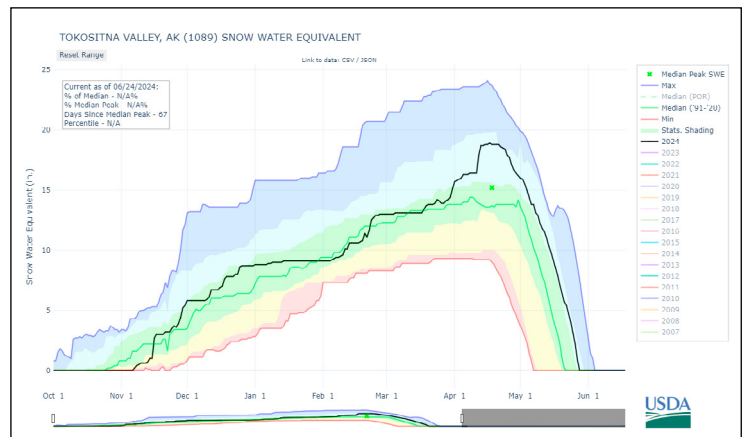


Figure 5. Tokositna Valley snow water equivalent October 1, 2023 through June 1, 2024 with the peak on April 17 (black line).

More Information

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

Current weather in Denali

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