

Central Alaska Network

National Park Service
U.S. Department of the Interior

Alaska Region
Inventory & Monitoring Program



Denali NP & PRES • Wrangell-St. Elias NP & PRES • Yukon-Charley Rivers N PRES

Spring 2023

Weather & Climate Summary Denali National Park & Preserve Spring 2023

Spring in Denali National Park and Preserve. NPS Photo/Pam Sousanes.

Denali Spring 2023 Weather Summary

Spring

Weather observations have been recorded at Denali Park headquarters since August of 1925. We'll look at spring conditions (March, April, May) in respect to the latest climate normal period, 1991-2020, and highlight data from a few of the Central Alaska Inventory and Monitoring Network (CAKN) climate sites.

Overall, spring was cooler and wetter than normal. Weather highlights for the season include a cold April, a later melt-out date than normal, and a rainy end to the month of May. The average temperature for the 2023 spring season was 24.7°F, a chilly 3.4°F below the 1991-2020 normal. There was no measurable precipitation for almost a month (29 days) between April 23 and May 21. However, enough rain fell during the last three days of May to push the spring precipitation total to 2.79 inches, well above the normal seasonal total of 1.78 inches (Table 1 and 2, Figures 1 and 2).

March

March temperatures were near normal, but the precipitation was light. The average monthly temperature was +0.4°F warmer than normal. On March 8th the high temperature reached 47°F, a daily record (tied with 1955). March is usually the second driest month of the year in Denali behind April. March 2023 snowfall total was 4.5 inches, only 55% of normal. The total precipitation (melted snow and rain) for the month was 0.30 inches, which is below the normal 0.51 inches.

April

The average temperature for April was 17.9°F which is much colder than usual. It was the 4th coldest April since 1926 with a monthly average temperature 10.8°F colder than normal. It was especially cold between April 7 and 14 where the daily temperatures averaged about 19°F colder than normal. These cold temperatures were felt statewide. Total precipitation was just above normal for the month. A total of 9.9 inches of snow fell in April, with a liquid water content of 0.46 inches. Normal

for April is 6.9 inches of snow with 0.43 inches of water equivalent.

May

Temperatures warmed to near normal by the second week of May and the seasonal rains started in earnest at the tail end of the month. The average temperature for the month was 43.2°F, just a few tenths shy of normal. It seemed like summer was on the way when the temperature reached a high of 73°F on May 20th, a near record high for that day, but the last few days of May brought cooler temperatures with high temperatures only reaching into the mid-40s. As mentioned above, May was dry for the first three weeks, but ended up much wetter than normal due to four days of rain in late May. May 22 was one of those days, with 0.56 inches falling in 24 hours. Another 1.46 inches fell during the last three days of the month, including a daily record of 0.46 inches recorded on May 31. May precipitation totaled 2.03 inches, which is 242% of normal.

Table 1. Spring 2023 average monthly temperatures compared to the 1991-2020 normal.

Spring 2023	Average Monthly Temp (°F)	1991-2020 Normal (°F)	Departure from Normal (°F)
March	12.9	12.5	+0.4
April	17.9	28.7	-10.8
May	43.2	43	+0.2

Spring Temperature Departure from normal: -3.4°F

Table 2. Spring 2023 monthly precipitation totals compared to normal.

Spring 2023	Total Monthly Precip. (in.)	1991-2020 Normal (in.)	Departure from Normal (in.)
March	0.30	0.51	-0.21
April	0.46	0.43	+0.03
May	2.03	0.84	+1.19

Spring Precipitation Departure from normal: +1.01 in. (157% of normal).

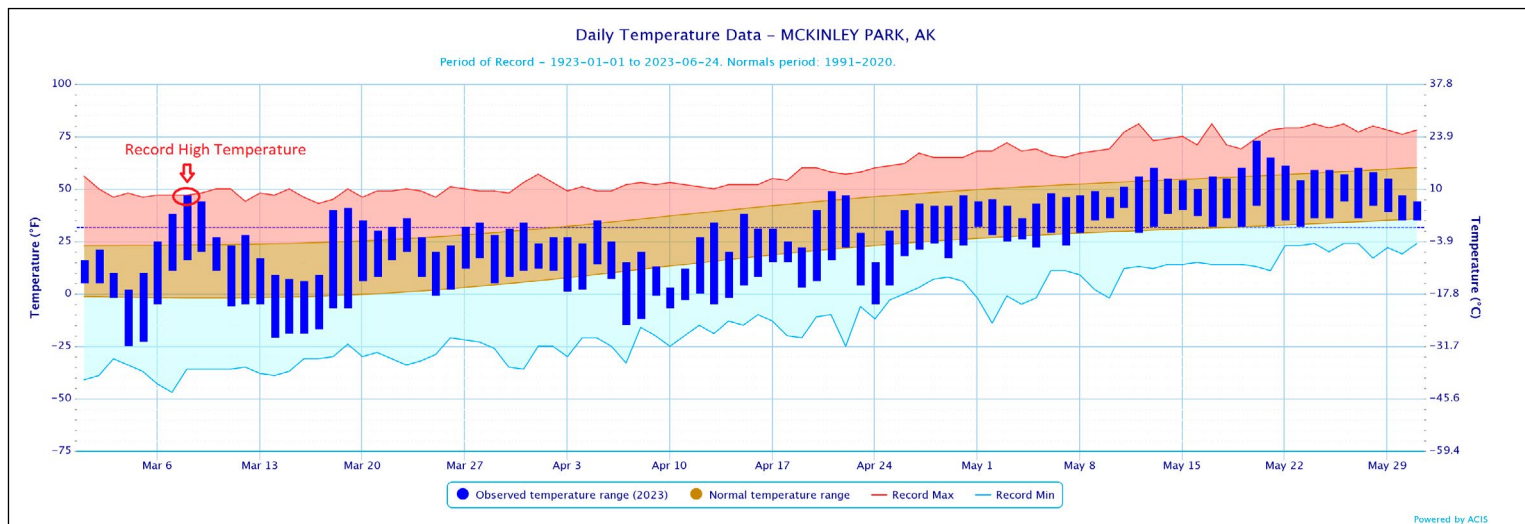


Figure 1. Spring 2023 daily temperatures at Denali Park HQ showing record maximum (red), record minimum (blue), normal (brown) and observed range (blue bars). Data from: <http://xmacis.rcc-acis.org/>.

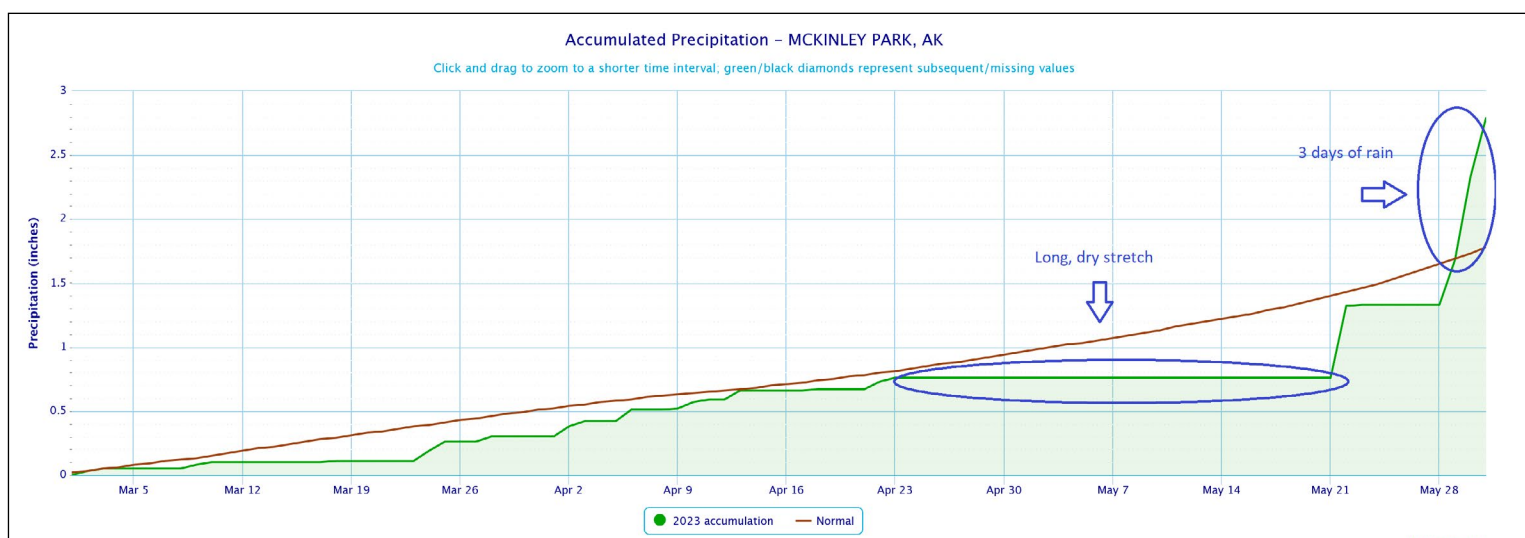


Figure 2. Spring 2023 accumulated precipitation (melted snow and rain) at Denali Park HQ (green) compared to normal (brown line). Data from: <http://xmacis.rcc-acis.org/>.

Snow Accumulation through Spring

The cumulative snowfall total at park headquarters through May 31st for the 2022-2023 snow season was 81.5 inches, just above the normal 76.6 inches. Very different from last season's record snowpack of 176 inches! The snow season held on a bit longer than usual this year due to the cooler than normal April temperatures, and the cool early May temperatures. The melt-out date (snow free date) at park headquarters was May 17, about a week later than normal.

Not as Cold in Talkeetna

Temperatures were below normal across all of Alaska in April with the coldest temperature departures in the central Interior (Figure 3). The Cook Inlet region of the state was also cooler than normal, but not as cold as the central Interior. In Talkeetna the spring seasonal temperature was 33.9°F, 1.9°F cooler than normal. Spring precipitation in Talkeetna was 128% of normal with a total of 5.06 inches of melted snow and rain measured between March 1 and May 31.

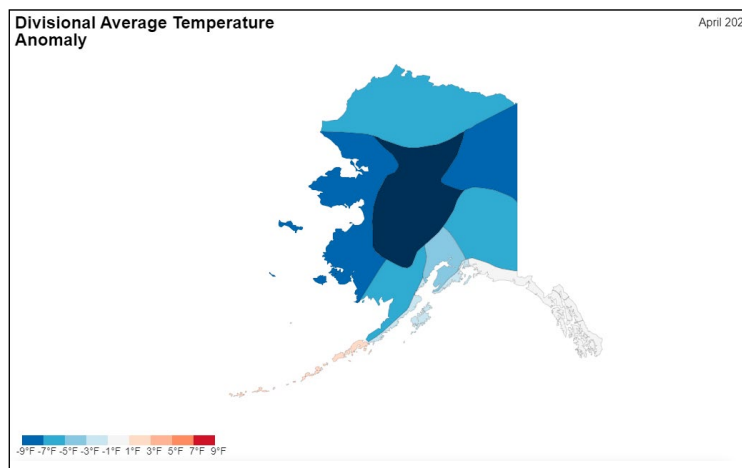


Figure 3. Alaska temperature anomalies for April 2023. All the climate divisions in the state, except the Aleutians, were colder than the 1991-2020 normal (largest departures in darker shades of blue). Graphic from: [NOAA Climate at a Glance](https://www.noaa.gov/climate-at-a-glance).

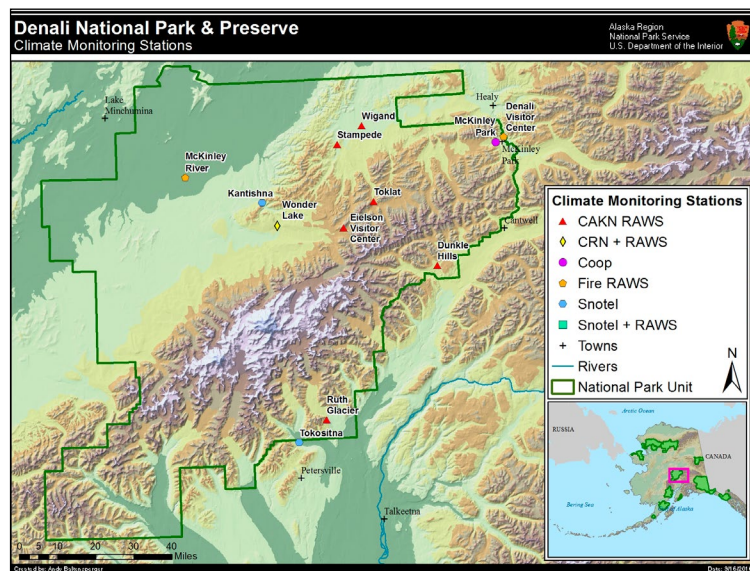


Figure 4. Central Alaska Inventory and Monitoring Network climate stations in Denali.

Central Alaska Inventory and Monitoring Network Climate Stations

We record weather data at additional sites in Denali to help understand daily, monthly, and seasonal weather patterns and shifting climate averages (Figure 4). We track the weather extremes that cause disturbance such as drought, floods, heat waves, cold snaps, and high winds. The data are collected and analyzed along with other park ‘vital signs’ to provide a holistic view of how these high latitude park lands are changing. Here are a few spring highlights from the Kantishna Snotel and Eielson Visitor Center sites:

Kantishna Snotel

The snow telemetry or ‘Snotel’ site in Kantishna measures snow, melted snow, and rain 365 days a year. With more than 18 years of data we are learning more about the timing and amount of snow cover, summer rainfall, and annual precipitation amounts at this location. Peak snow for the 2022-2023 season occurred on April 13 with 42 inches of snow on the ground. Over the past several years the seasonal snowpack has been robust and above the period of record average in

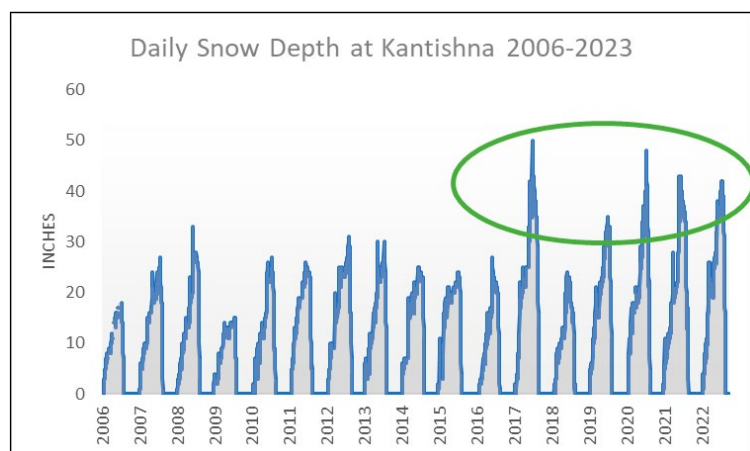


Figure 5. Daily snow depth at the Kantishna Snotel site in Denali National Park and Preserve, 2006-2023. The past several years have had some of the deepest snowpacks measured at the site (green circle).

Kantishna (Figure 5). A total of 10.8 inches of precipitation (melted snow and rain) has been recorded from October 1 through May 31. This is above the average cumulative precipitation of 8.4 inches for that period.

Eielson Visitor Center

We started continuous year-round measurements at Eielson Visitor Center in 2005 and this past spring was one of the cooler springs on record. It was 22.9°F in 2023, the third coldest behind 2013 (19.9°F) and 2007 (22.5°F) (Figure 6). La Niña conditions persisted for the past three years (2020-2023) bringing overall cooler temperatures to Alaska during the cold season. La Niña ended in late spring and El Niño conditions have now developed with warmer-than-average tropical sea surface temperatures. El Niño is forecast to continue into winter and these conditions typically favor warmer than average temperatures in Alaska.

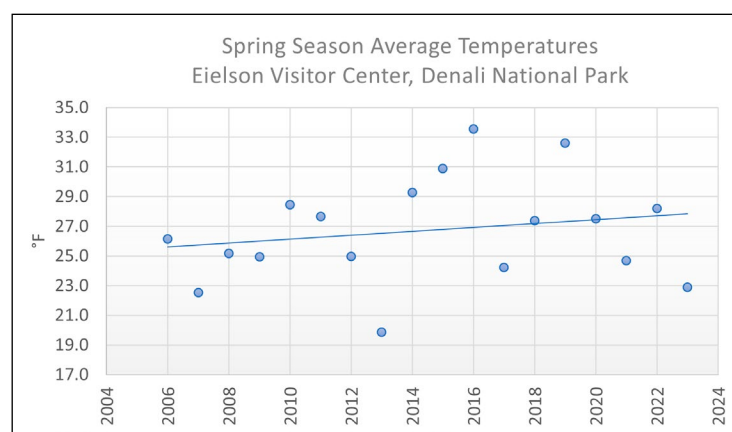
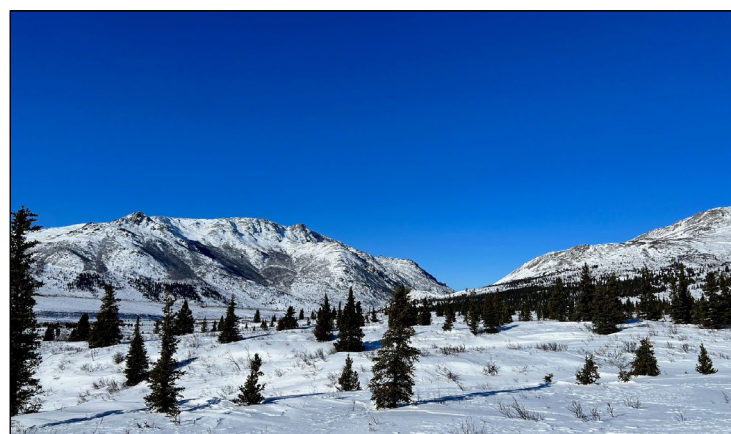


Figure 6. Spring season average temperatures at Eielson Visitor Center 2006-2023. There has been a slight increase in spring temperatures over the past 18 years, although 2023 was one of the colder springs on record.



Late March bluebird day in Denali. NPS Photo.

More Information

[Pam Sousanes@nps.gov](mailto:Pam_Sousanes@nps.gov); ph 907-455-0677

[Kenneth Hill@nps.gov](mailto:Kenneth_Hill@nps.gov); ph 907-455-0678

<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](#)