

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

Winter 2019-2020

Weather & Climate Summary Denali National Park & Preserve Winter 2019-2020

Denali Winter Weather 2019-2020

It was cold! We haven't reported a colder than normal season for quite some time. Winter 2019-2020 was 7.6 °F colder than the 1981-2010 normal, mostly due to a chilly January. It ranked as the 11th coldest winter on record and the coldest since 1998-1999. The snowfall total for the winter (Dec 1 – Feb 29) was 30.4 inches, just a few inches shy of normal. The water equivalent of that snow was 1.9 inches. The seasonal total (since July 1) was 61.8 inches on February 29. See Figures 1 and 2; Tables 1, 2, and 3.

December temperatures were quite variable, with warmer than normal temperatures during the second week and a new daily record high of 47 °F on December 10. On six days out of the month the daily maximums climbed above freezing. However, on the 19th temperatures dropped below normal and it stayed cold until the last few days of the month. Overall, it was 1.6 °F cooler than normal for the month. 9.4 inches of snow fell during December, which is only 61 % of normal.

January was cold. The average temperature for the month was -13.4 °F, which is 16.5 °F colder than normal. It was the 6th coldest January on record and the coldest since 2012. The cold was persistent; January 1 was the only day of the month above normal. There were 18 days in January with minimum temperatures ≤ -20 °F. An additional 8.8 inches of snow accumulated in January, normal is 9 inches.

The cold temperatures continued through February, although temperatures were much more variable. The

Fresh snow blankets Purkeypile on the western boundary of Denali. NPS Photo.

warmest temperature departures occurred late in the first week of the month and the coldest departures were around Valentine's Day. The average monthly temperature was -4.7 °F cooler than normal. The snowfall total was 12.2 inches; almost 7 inches of that fell on February 10. Normal is 8.4 inches for the month.

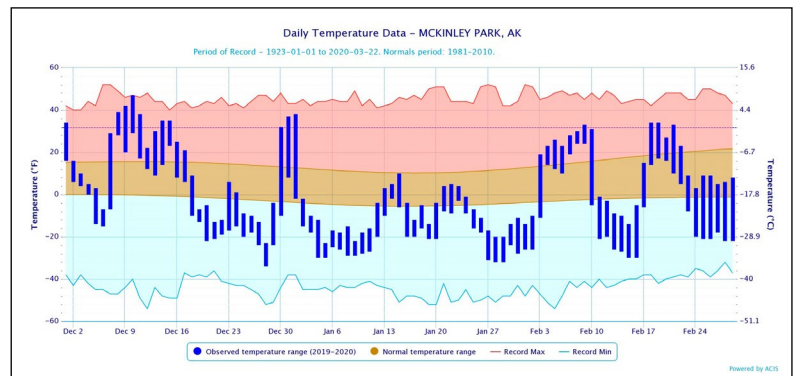


Figure 1. Winter 2019-2020 daily temperatures at Denali showing record maximum (red), record minimum (blue), normal (brown) and observed range (blue bars).

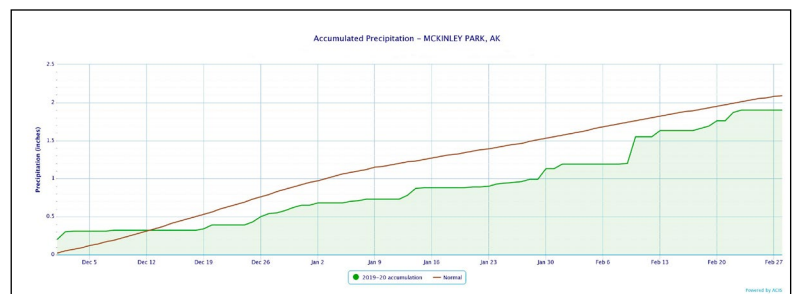


Figure 2. Winter 2019-2020 accumulated precipitation at Denali (green) compared to normal (brown line).

Table 1. Temperature: Winter 2019-2020 average monthly temperatures compared to the 1981-2010 normal.

Winter 2019-2020	Average Monthly Temp (°F)	1981-2010 Normal (°F)	Departure from Normal (°F)	Monthly High (°F / Date)	Monthly Low (°F / Date)
December	5.3	6.9	-1.6	47* / Dec 10	-34 / Dec 28
January	-13.4	3.1	-16.5	38 / Jan 1	-32 / Jan 28, 29
February	2.9	7.6	-4.7	34 / Feb 18, 19	-30 / Feb 15, 16

Winter Season Temperature Departure from Normal: -7.6°F; *Record daily high.

Table 2. Precipitation: Winter 2019-2020 monthly precipitation totals compared to normal.

Winter 2019-2020	Total Monthly Precip. (in.)	1981-2010 Normal (in.)	Departure from Normal (in.)	Greatest 24 -hr. total (in. / Date)	# Days with >=0.01 in. water
December	0.65	0.92	-0.27	0.20 / Dec 1	13
January	0.48	0.63	-0.15	0.14 / Jan 30	15
February	0.77	0.54	+0.23	0.35 / Feb 10	9

Winter Season Precipitation Departure from Normal: -0.19 inches (91% of normal)

Table 3. Snowfall: Winter 2019-2020 monthly snowfall totals compared to normal (*Record daily high).

Winter 2019- 2020	Total Monthly Snowfall (in.)	1981-2010 Normal (in.)	Departure from Normal (in.)	Greatest 24-hr snow-fall total (in. / Date)	Cumulative snow-fall since 1-July in.
December	9.4	15.4	-6.0	3.2 / Dec 1	40.8
January	8.8	9.0	-0.2	2.6 / Jan 14	49.6
February	12.2	8.4	+3.8	6.8* / Feb 20	61.8

Lots of Snow South of the Alaska Range

The Tokositna Valley snow telemetry (SNOTEL) site reported 84 inches of snow on March 1. We have been measuring snow continuously at this site since 2005 and this is the most substantial snowpack in its 14-year record (Figure 3). At a nearby snow marker in the Dutch Hills, near the southern boundary of the park, we recorded more than eight feet of snow on the ground on the first of March.

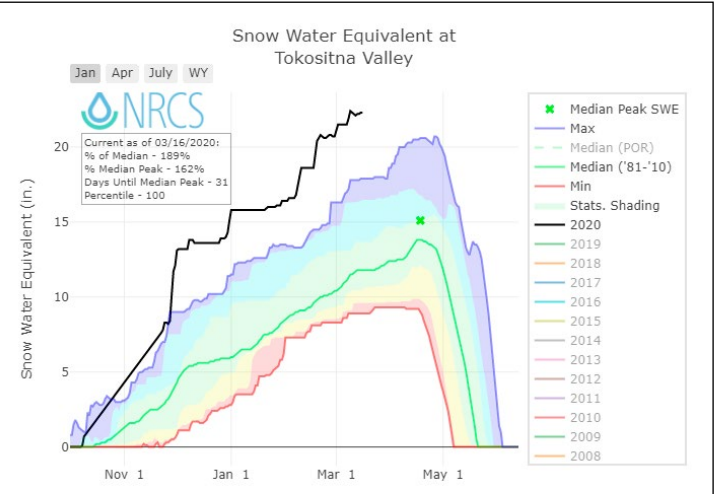


Figure 3. 2019-2020 snow water equivalent at Tokositna Valley (black line). Graph courtesy of NRCS.

Cold Winter for Most of Alaska

It’s the first time in seven years that the winter season was cooler than normal over most of the state (Figure 4). The statewide anomaly was -2.9 °F for winter 2019-2020. The last seven winter seasons in Alaska (prior to this winter) have,

(Cold Winter continued...) on average, been 6.6 °F warmer than normal. We haven’t had a chilly winter in a while, perhaps that is why this one felt so cold.

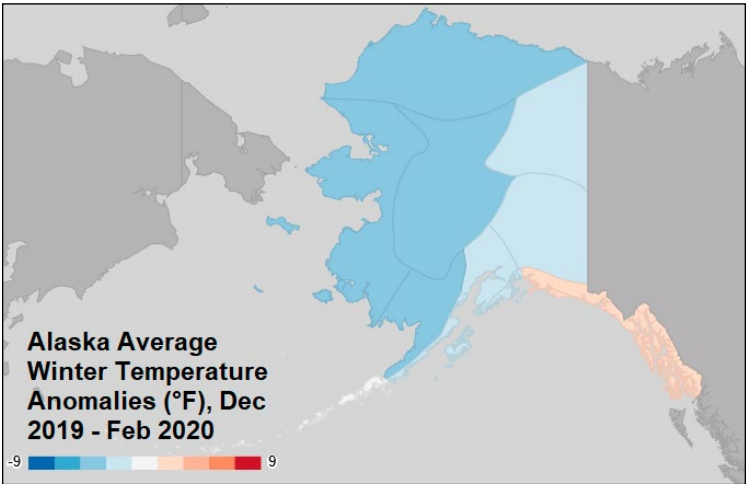


Figure 4. Alaska divisional average temperature anomalies (°F), December 2019- February 2020. <https://www.ncdc.noaa.gov/climate-monitoring/>

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[Current Weather in Denali](#)
<https://www.nps.gov/im/cakn/index.htm>

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](#)

