

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 2019

Weather & Climate Summary Denali National Park & Preserve Spring 2019

Photo: NPS, Ken Hill.

Denali Spring Weather 2019

It was a warm, dry spring. Spring 2019 was the 2nd warmest spring on record at Denali Park headquarters, with March coming in almost 17°F warmer than normal! Total precipitation between March 1 and May 31 was only 1.12 inches, which is 67% of normal (Figures 1 and 2; Table 1 and 2).

The snowfall total was well below normal for the spring with only 4.6 inches recorded at park headquarters (Table 3). The cumulative snowfall for the entire season from July 1 through June 30 was only 38.2 inches, one of the lowest on record. The snow melted out at park headquarters on March 31, the earliest on record by far (more on this later).

March: Five new daily record high temperatures were set during the last few weeks of March. It was the 3rd warmest March on record, behind 1965 and 1926. It was more than 16°F warmer than normal in March! Statewide it was the warmest March on record. The only day with measurable snow at park headquarters was on March 3rd with a scant 0.3 inches. Normal snowfall for May is about 7 inches.

April: April temperatures were 3.4°F above normal at 31.3°F, with three new daily high temperature records set during the first week of April. Temperatures were cooler than normal later in the month. April did see a bit more snow, with a total of 4.3 inches falling during the month, about 70% of normal. With temperatures in the high 30s and 40s the snow did not stick around.

May: May was warmer than normal by 2.6°F. The first 70°F temperature of the year was recorded on May 23rd. The monthly precipitation fell almost entirely as rain, with just a trace of snow recorded during the first week of the month. May precipitation was 90% of normal.

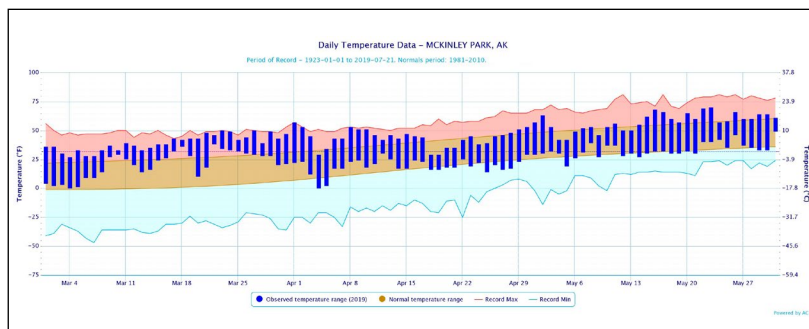


Figure 1. Spring 2019 daily temperatures at Denali showing record maximum (red), record minimum (blue), normal (brown) and observed range (blue bars).

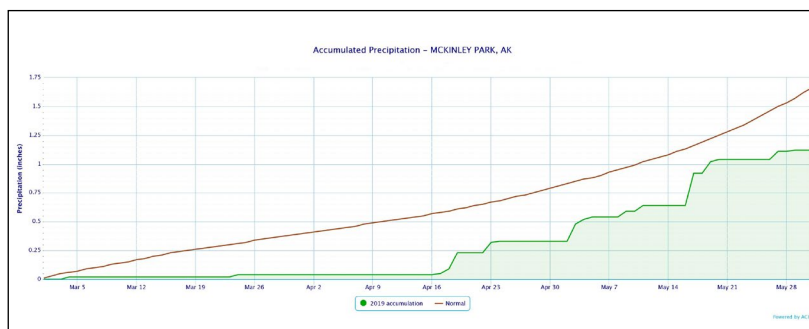


Figure 2. Spring 2019 accumulated precipitation at Denali (green) compared to normal (brown line).

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

Spring 2019	Average Monthly Temp (°F)	1981-2010 Normal (°F)	Departure from Normal (°F)	Monthly High (°F / Date)	Monthly Low (°F / Date)
March	30.0	13.4	+16.6	50* / Mar 23, 27	0 / Mar 4
April	31.3	27.9	+3.4	57* / Apr 1	0 / Apr 4
May	45.4	42.8	+2.6	70 / May 23	19 / May 5

Spring Season Temperature Departure from Normal: +7.5°F; *Daily record high.

Table 2. Precipitation: Spring 2019 monthly precipitation totals compared to normal.

Spring 2019	Total Monthly Precip. (in.)	1981-2010 Normal (in.)	Departure from Normal (in.)	Greatest 24 -hr. total (in. / Date)	# Days with >=0.01 in. water
March	0.04	0.39	-0.35	0.02 / Mar 24	2
April	0.29	0.40	-0.11	0.14 / Apr 19	5
May	0.79	0.87	-0.08	0.28 / May 17	10

Spring Season Precipitation Departure from Normal: -0.54 inches (67% of normal).

Table 3. Snowfall: Spring 2019 monthly snowfall totals compared to normal.

Spring 2019	Total Monthly Snowfall (in.)	1981-2010 Normal (in.)	Departure from Normal (in.)	Greatest 24-hr snowfall total (in. / Date)	Cumulative snow-fall since 1-July in.
March	0.3	6.8	-6.5	0.3 / Mar 4	33.9
April	4.3	6.1	-1.8	2.2 / Apr 19	38.2
May	0	3.1	-3.1	–	38.2

State of the Climate - Spring 2019

The recent increase in Alaska annual average temperatures is alarming. Each of the last 5 years is among the warmest (Figure 3). We are breaking temperature records left and right; this spring March 2019 ranked as record warmest over most of the state (Figure 4). A major factor influencing Alaska temperatures is the warmer than normal ocean temperatures off the coast of Alaska. As a result of the warmer waters and persistent southerly storm tracks, sea ice extent around Alaska reached record low extents in spring 2019 (Figure 5).

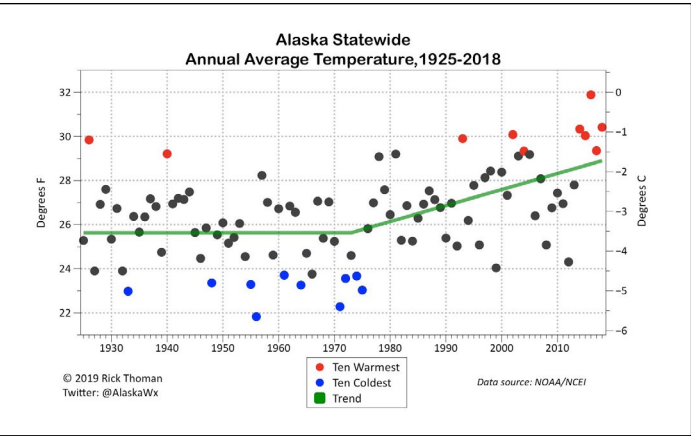


Figure 3. Alaska statewide temperatures. Graph courtesy of Rick Thoman ACCAP.

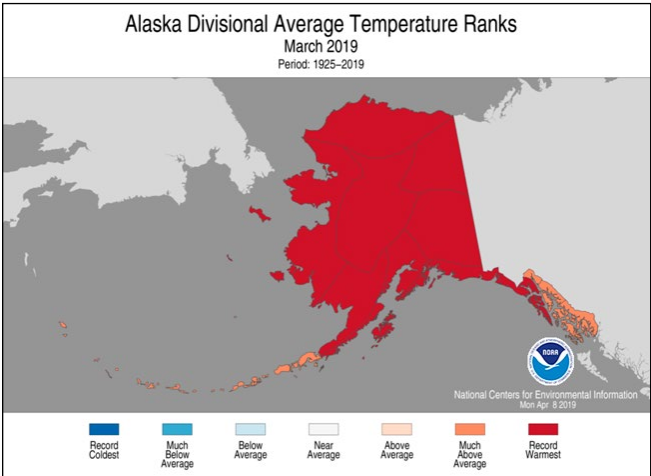


Figure 4. March 2019 ranked as warmest on record for most of Alaska. <https://www.ncdc.noaa.gov/cag/>

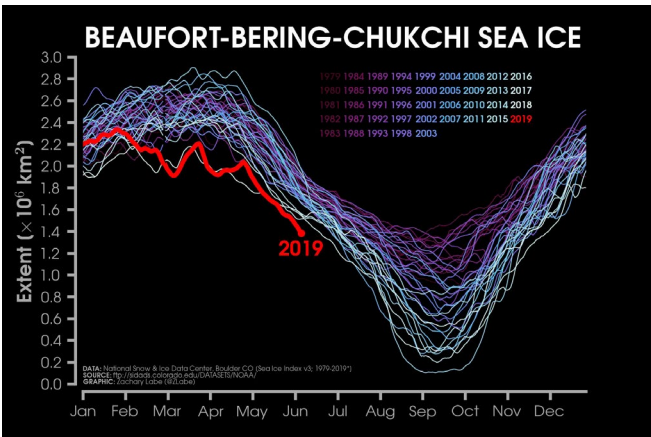


Figure 5. Sea ice extent around Alaska has been at or near record lows for 2019. Graph courtesy of Zach Labe (@ZLabe).

Extremes the New Normal?

Last year we had near record snow and a late spring melt, this year it was the exact opposite (Figure 6).

Spring 2018: One of the snowiest springs in modern times. Snowfall total for the spring months was 35.3 inches and for the whole 2017-2018 season 115 inches. The melt-out date of May 17, 2018 was ~ 1 week later than normal.

Spring 2019: One of the least snowy seasons on record with only 4.6 inches during spring and a mere 38.2 inches

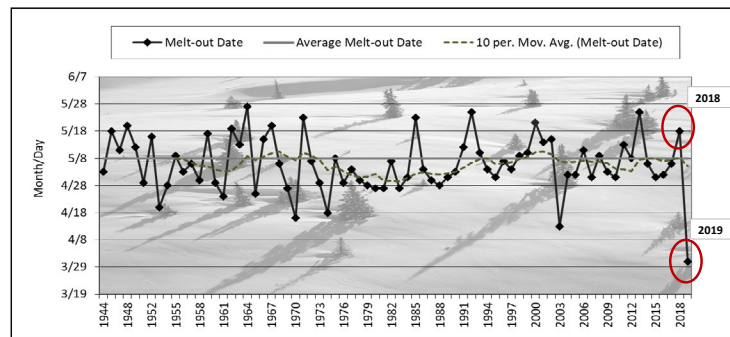


Figure 6. Spring melt-out dates at Denali Park HQ.

for the entire 2018-2019 season. The melt-out date at park headquarters was March 31!! Two weeks earlier than the previous record and 6 weeks earlier than normal. The snowpack has never melted out in March before. As a result of the early melt, the park kennel's crew were forced to improvise on their return from Wonder Lake this spring (Figure 7).

The snowfall season is July 1 through June 30. The normal (1981-2010) snowfall total for park headquarters is 77 inches.



Figure 7. Denali Park Sled Dogs on the Toklat River bar March 27, 2019. "We trucked the dogs, sleds and humans home from Toklat Ranger Station on March 29 - that is a first to my knowledge". Jen Raffaelli - Denali National Park Kennels Manager.

Kantishna and Tokositna Valley Spring Snow

Snow depth is recorded daily at the Kantishna and Tokositna Valley weather stations; this allows us to track the snowpack development through the season at these locations. The

(Kantishna and Tokositna Valley Spring Snow, continued)

western regions of the park and the south side near Tokositna Valley had a more robust snowpack this spring. There was still 12 inches of snow on the ground at Kantishna on March 30, just a day before melt-out at park headquarters. We were able to land a plane on skis at the Kantishna airstrip and snowshoe into the site on a beautiful spring day (Figure 8). The melt-out date at Kantishna was May 11 and the Tokositna Valley site melted-out on May 22 (Figure 9).



Figure 8. Twelve inches of snow at Kantishna on March 30, 2019.

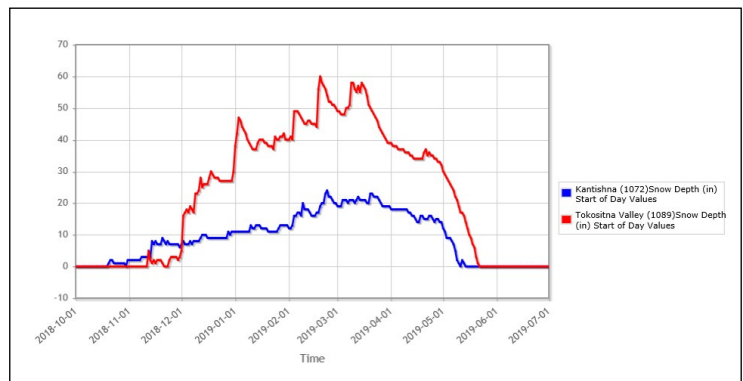


Figure 9. Kantishna (blue) and Tokositna Valley (red) daily snow depth for 2018-2019 season.

More Information

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Current Weather in Denali

<http://science.nature.nps.gov/im/units/cakn>

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](https://www.nps.gov/datastore/)

