

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

Summer 2019

Weather & Climate Summary Denali National Park & Preserve Summer 2019

Denali Summer Weather 2019

Summer 2019 was the wettest summer on record! A total of 16.61 inches of rain was measured between June 1 and August 31, which is 206% of normal. This beat out the summer of 1967 when 14.92 inches fell. More rain fell in August than usually falls during an entire summer. The average summer temperature was 2.5°F warmer than normal and the 6th warmest summer on record. June and July were much warmer than normal, while August temperatures were right at normal (Figures 1 and 2; Tables 1 and 2).

June was warm and wet. It was 3.7°F warmer than normal with 1.92 inches more rain than normal (normal period 1981-2010). On June 30th the high temperature was 86°F, a new daily record. An astonishing 2.00 inches of rain fell during the first week of June; with more than 0.50 inches of rain falling within a 24-hour period on three of those days. There were 20 days with measureable precipitation (≥ 0.01 inches) in June. With a total of 4.07 inches it was the 8th wettest June on record.

It was the 2nd warmest July on record with an average temperature of 59.4°F. The daily high temperature was $>80^\circ\text{F}$ on six consecutive days starting on July 6th; this is the 2nd longest run of $+80$ degree days in a row. July was the one summer month when the monthly rainfall total was near normal. A total of 3.01 inches of rain fell during the month, normal is 3.22 inches.

It was the wettest August on record (1926-2019). An incredible 9.53 inches of rain fell during the month, which is 352% of normal. There were three days in August where an inch or more of rain fell within a 24-hour period. Two of those on consecutive days during the first week of August when a record breaking deluge was ushered in as part of an atmospheric river event that soaked western and interior Alaska. By the end of the first week of August, 5.44 inches of

rain had already fallen at park headquarters. Another big storm event with ~ 2 inches of additional rain occurred on August 16-17. All of this rain caused sliding, slumping, oozing, and general disruption on the park road. August temperatures, on the other hand, were right at normal.

Eielson Visitor Center Weather Station – August 2019

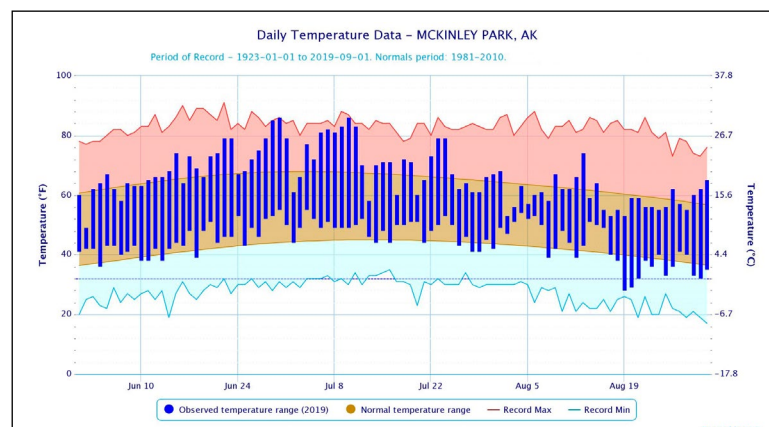


Figure 1. Summer 2019 daily temperatures at Denali showing record maximum (red), record minimum (blue), normal (brown) and observed range (blue bars).

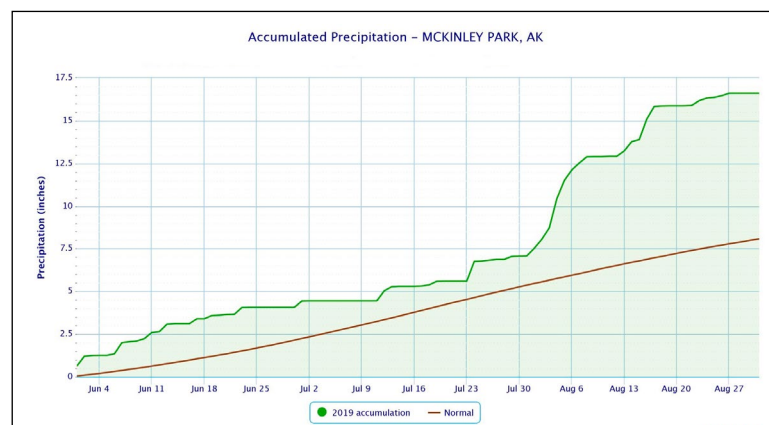


Figure 2. Summer 2019 accumulated precipitation at Denali (green) compared to normal (brown line).

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

Summer 2019	Average Monthly Temp (°F)	1981-2010 Normal (°F)	Departure from Normal (°F)	Monthly High (°F / Date)	Monthly Low (°F / Date)
June	56.5	52.8	+3.7	86* / June 30	36 / Jun 4
July	59.4	55.6	+3.8	86 / Jul 10	41 / Jul 28, 29
August	50.6	50.6	0.0	74 / Aug 13	28 / Aug 19

Summer Season Temperature Departure from Normal: +2.5 °F; *Daily record.

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

Summer 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
June	4.07	2.15	+1.92	0.65 / Jun 7	20
July	3.01	3.22	-0.21	1.15 / Jul 24	16
August	9.53	2.71	+6.82	1.70*** / Aug 4	23

Summer Season Precipitation Departure from Normal: +8.53 inches (206% of normal); *Wettest summer; **Wettest August; ***Daily record.

Rainfall Statistics

Given that summer 2019 was the wettest on record it deserves more attention. Not only was it the wettest summer, with the wettest August, but summer 2019 also had a record number of very wet days (13) where at least 0.50 inches of rain fell within a 24-hour period, the average is four days per summer.

On average there is only one day per summer with a 24-hour total with at least 1.00 inch of rain, this summer there were four. And....on August 4th a total of 1.70 inches of rain was recorded at park headquarters, a daily record. This amount of rainfall in a single day (≥ 1.70) has only been recorded 14 times during the summer months with records going back to 1926.

More Rainy Days

We reported last year that on average since 1951, 43 summer days see at least 0.01 inches of rainfall each year at Denali Park HQ. For the past five years the average is 59 rainy days per summer (Figure 3). The pattern is evident for each summer month, with the largest summer changes driven by the number of wet days in August.

The trend in the total summer rainfall has increased, but the trend is not statistically significant (Figure 4).

Rainy Summer at Eielson Visitor Center

- Summer rainfall total: 28.49 inches
- August rainfall total: 19.01 inches
- August 16, 2019: 4.15 inches in 24 hours!

(see Figure 5)

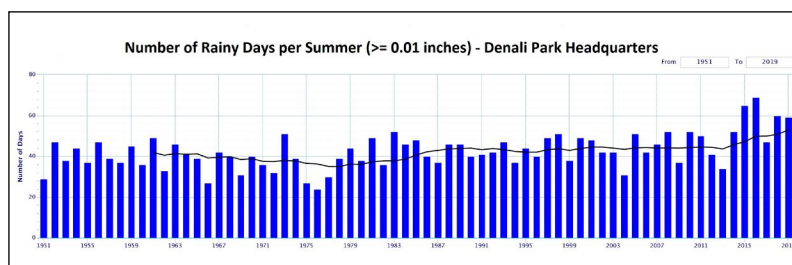
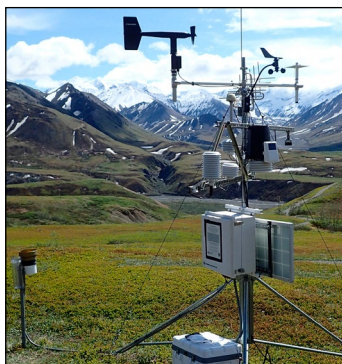


Figure 3. Number of rainy days (≥ 0.01 inches) per summer 1951-2019. 10-yr moving average in black.

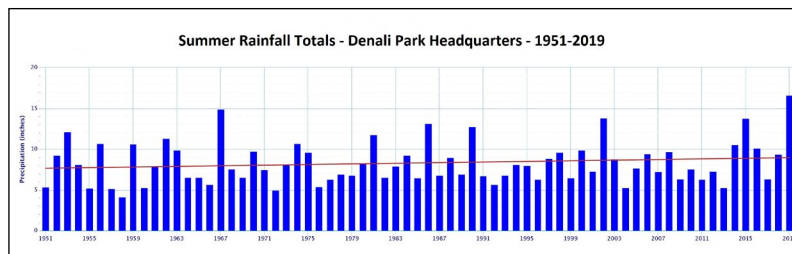


Figure 4. Total summer rainfall at Denali Park Headquarters 1951-2019.

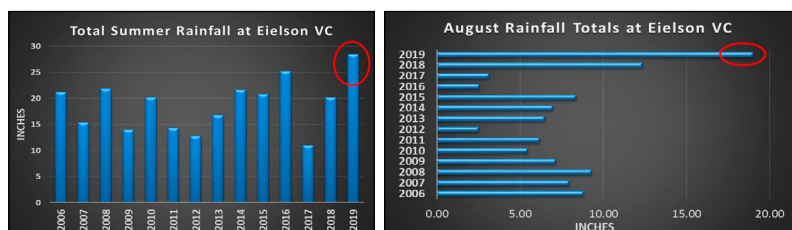


Figure 5. Total summer rain at EVC (left) and August rainfall totals (right).

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](#)

