



Bering Land Bridge N Pres. • Cape Krusenstern NM
Gates of the Arctic NP & Pres. • Kobuk Valley NP • Noatak N Pres.

Summer 2023

Weather & Climate Summary Gates of the Arctic National Park & Preserve Summer 2023

Alatna River, Gates of the Arctic National Park and Preserve. NPS/Ken Hill

Bettles Summer Weather Summary 2023

Overall, summer was warmer than normal with near normal rainfall for the season. Weather highlights for the season include a warm August, with warm summer nights, and a wetter than normal June. The average temperature for the 2023 summer season was 58.6°F, which is 1.6°F above the 1991-2020 normal. It was the ninth warmest summer on record (Bettles record began in 1951). Summer rainfall totaled 6.98 inches, +0.49 inches above normal (Table 1 and 2, Figures 1 and 2).

June

It was a cool and rainy June. The average temperature for the month was 2.6°F cooler than normal at 56.0°F. It was especially cold during the first week of June with temperatures averaging 12°F colder than normal. The 30°F minimum temperature recorded on June 2 was a record low for that day. Light snowfall was reported on June 2 and 3. The total precipitation for the month (melted snow and rain) was 2.63 inches, normal is 1.46 inches.

July

The month started out cool and wet and ended hot and dry. The average monthly temperature ended up 2.8°F warmer than normal. The average temperatures for most days through July 16th were cooler than normal. After that things really warmed up and high temperatures climbed above 80°F for more than a week between July 18-26. The total rainfall for July was 1.45 inches, which is 63% of normal. Most of that rain fell during the first half of the month.

August

Temperatures stayed warm through August. The average for the month was 57.3°F, which is an impressive 4.6°F above normal.

It was the 4th warmest August on record. The first half of the month was much warmer than normal. The second half of the month had near normal average daily temperatures, but the minimum temperatures were higher than normal leading to unusually warm late summer nights. August precipitation was just above normal with 2.90 inches. Most of the rain fell during the second half of the month. August 24-26 was a particularly wet period with 1.52 inches falling during the three day period.

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

Summer 2023	Average Monthly Temp (°F)	1991-2020 Normal (°F)	Departure from Normal (°F)
June	56.0	58.6	-2.6
July	62.6	59.8	+2.8
August	57.3	52.7	+4.6

Summer Temperature Departure from normal: +1.6°F

Table 2. Bettles summer 2023 monthly precipitation totals compared to normal

Summer 2023	Total Monthly Precip. (in.)	1991-2020 Normal (in.)	Departure from Normal (in.)
June	2.63	1.46	+1.17
July	1.45	2.32	-0.87
August	2.90	2.71	+0.19

Summer Precipitation Departure from normal: +0.49 in. (108% of normal).

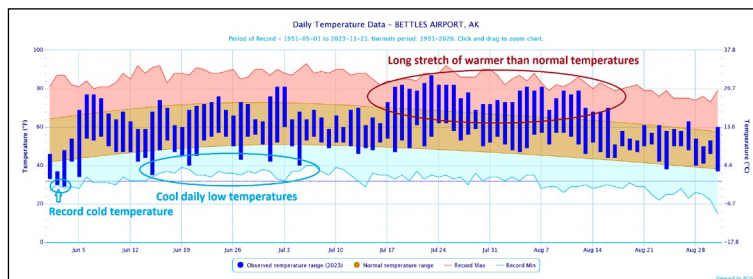


Figure 1. Summer 2023 daily temperatures showing record maximum (red), record minimum (blue), normal (brown) and observed range (blue bars). Data from: <http://xmacis.rcc-acis.org/>.

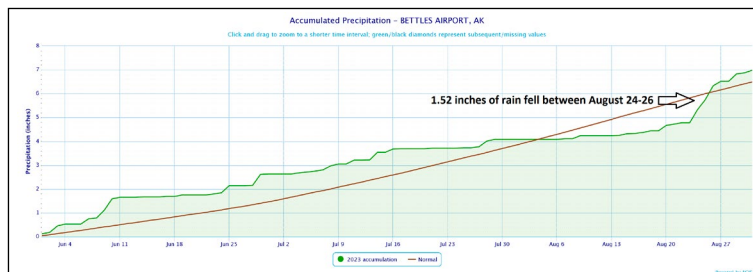


Figure 2. Summer 2023 accumulated precipitation at Bettles (green) compared to normal (brown line). Data from: <http://xmacis.rcc-acis.org/>

Summer in the Brooks Range

The mountain weather at the Arctic Inventory and Monitoring climate stations (Chimney Lake, Pamichtuk Lake, Ram Creek and Killik Pass) is typically cooler and wetter than Bettles due to topography and elevation (Figure 3).



Figure 3. Arctic Inventory and Monitoring Network climate stations in Gates of the Arctic National Park and Preserve. Dahl Creek Snotel is west of the park near Kobuk (red star).

The average summer temperature of the four sites was 47°F, ranging from 44°F at Killik Pass, the highest site (~4,300') to 49.5°F at Pamichtuk Lake (~3,300'). The summer temperatures averaged about 1°F warmer than average, with August temperatures having the greatest departure from average (Figure 4).

Summer rainfall was more variable; the sites to the east had more rain than the sites near the western boundary. Chimney

Lake had the most rain with just over ten inches for the summer and Ram Creek had the lowest rainfall total with just under seven inches for the summer season. The sites received about two inches more rain than average this summer. August was the wettest month at most of the sites.

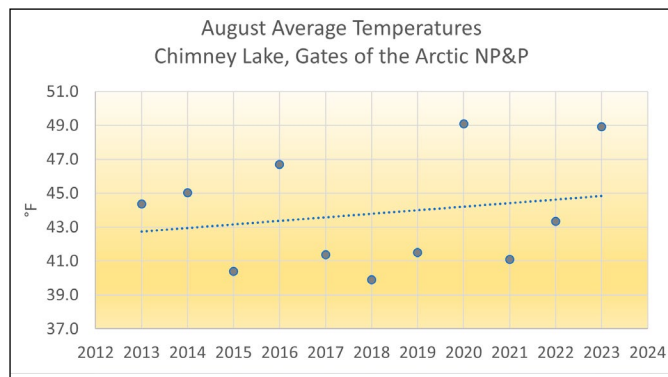


Figure 4. Average August temperatures at the Chimney Lake climate station in Gates of the Arctic National Park and Preserve 2013-2023.

We had the first full season of rainfall measurements from the Dahl Creek Snotel site, just west of the park near the community of Kobuk and it happened to be the wettest summer on record for this region of the state (Figure 5). A total of 21.6 inches of rain fell between June 1 and Aug 31, three times more rain than Bettles. August was the wettest month of the summer with a total of 9.9 inches recorded at the site.

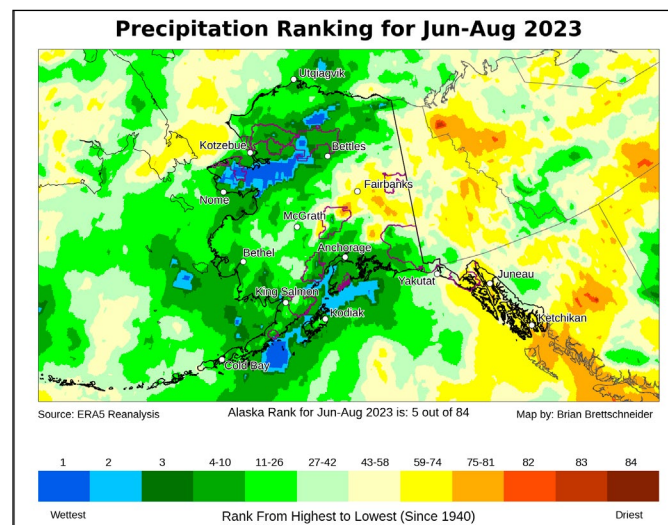


Figure 5. Statewide precipitation ranking map courtesy of Brian Brettschneider. Areas in dark blue indicate the wettest summer of record (back to 1940).

More Information

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<https://www.nps.gov/im/arcn/climate.htm>
 Latest weather conditions in Gates of the Arctic

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 ARCN climate stations are available at [NPS Data Store](https://www.nps.gov/im/arcn/climate.htm)