



Weather & Climate Summary Gates of the Arctic National Park & Preserve Summer 2018

Bettles Summer Weather 2018

The summer was cooler than normal in Bettles, mostly driven by cool temperatures in mid-June and early August. The average temperature for the summer season was 56.2°F, which is 0.7°F below normal. Total summer precipitation was 7.11 inches, 111% of normal. June was much wetter than normal and August had a near-record number of rainy days (Figures 1 and 2; Tables 1 and 2).

June was cool and wet compared to normal. The average monthly temperature was 56.4°F, compared to a normal of 58.5°F. Temperatures were above normal the first week of June and much cooler mid-month. The high of 49°F on June 14th was the lowest on record for that day. The high temperature for the month was 81°F on the solstice. June saw 2.62 inches of rainfall, the 6th wettest June on record. On June 22 a total of 1.35 inches of rain was recorded, a new daily record. Measureable precipitation occurred on 17 days. Only two Junes have had more days with rain; 2014 had 20 days.

The average temperature for July was 61.4°F, which is +1.7°F warmer than normal. The first three weeks of July were near or below normal, but it warmed up the last ten days of the month. The high temperature of 85°F on July 23 was the warmest of the summer. Total precipitation for July was 1.53 inches, 65% of normal. A good chunk of that fell on July 8, with 0.61 inches measured, a new daily record.

August was cool and wet for the second consecutive year. Last year, there were a record 23 days with measureable precipitation totaling 4.50 inches. This year came in one day short, with 22 days, but the total was only 2.96 inches (112% of normal). The highest rainfall totals for 2018 came during storms the first week and the last week of August. The average

temperature for August was 50.9°F. Normal is 52.5°F. Two new low temperature records were set this month on August 15th at 29°F and August 19th at 31°F.

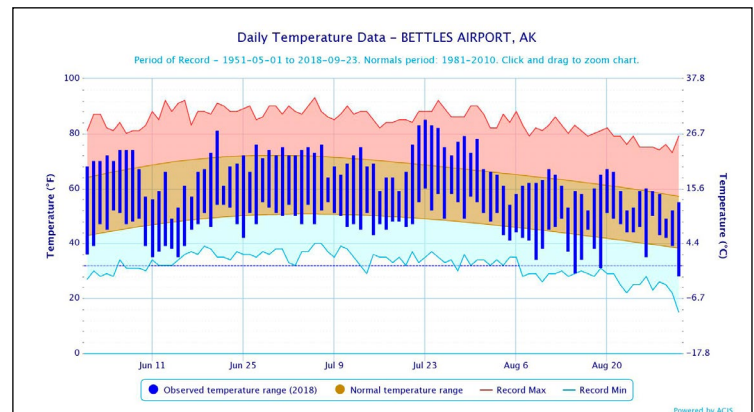


Figure 1. Summer 2018 daily temperatures at Bettles showing record maximum (red), record minimum (blue), normal (brown) and observed range (blue bars).

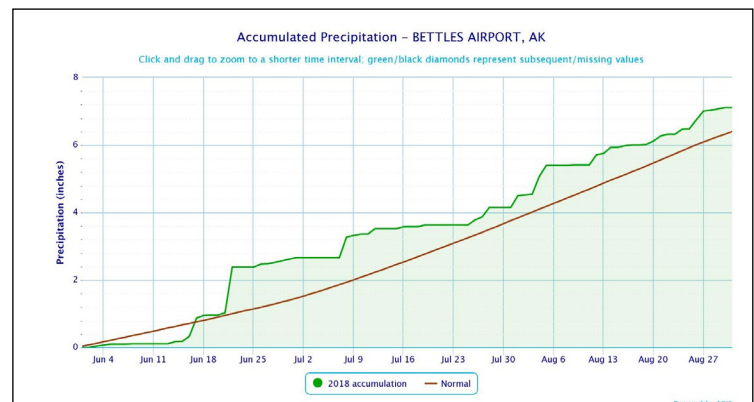


Figure 2. Summer 2018 accumulated precipitation at Bettles (green) compared to normal (brown line).

Table 1. Temperature: Summer 2018 average monthly temperatures compared to the 1981-2010 normal.

Summer 2018	Average Monthly Temp (°F)	1981-2010 Normal (°F)	Departure from Normal (°F)	Monthly High (°F / Date)	Monthly Low (°F / Date)
June	56.4	58.5	-2.1	81 / Jun 21	35 / June 11 & 15
July	61.4	59.7	+1.7	85 / July 23	42 / July 17
August	50.9	52.5	-1.6	67 / Aug 1, 11, 20	28 / Aug 31

Summer Season Temperature Departure from Normal: -0.7°F.

Table 2. Precipitation: Summer 2018 monthly precipitation totals compared to normal.

Summer 2018	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	2.62	1.40	+1.22	1.35 / June 22*	17
July	1.53	2.36	-0.83	0.61 / July 8*	10
August	2.96	2.64	+0.32	0.53 / Aug 4*	22

Summer Season Precipitation Departure from Normal: +0.71 inches (111% of normal); *Record daily rainfall.

What About the Ocean?

Summer ocean surface temperatures in waters surrounding the Seward Peninsula were more than 4°C above normal and the warmest on record dating back to 1901 (Figure 3). Zooming out, sea surface temperatures in the Central and Eastern Bering Sea region were also much warmer than normal. Nine of the ten warmest summers have occurred in the last two decades (Figure 4). Arctic-wide, the annual sea ice minimum occurred in September 2018 and ranks as the 6th lowest in the 39-year satellite record. Researchers are documenting rarely seen species of invertebrates, fish, and marine mammals and fewer individuals for some common marine species in these ocean waters indicating changes throughout the food web. For the third consecutive year, a seabird die-off event has been documented in the northern Bering and southern Chukchi Sea and 2018 marks the seventh mass die-off in Alaska since 2013. Scientists are working hard to understand the linkages between the climate, ocean, and terrestrial ecosystems both near-shore and farther inland.

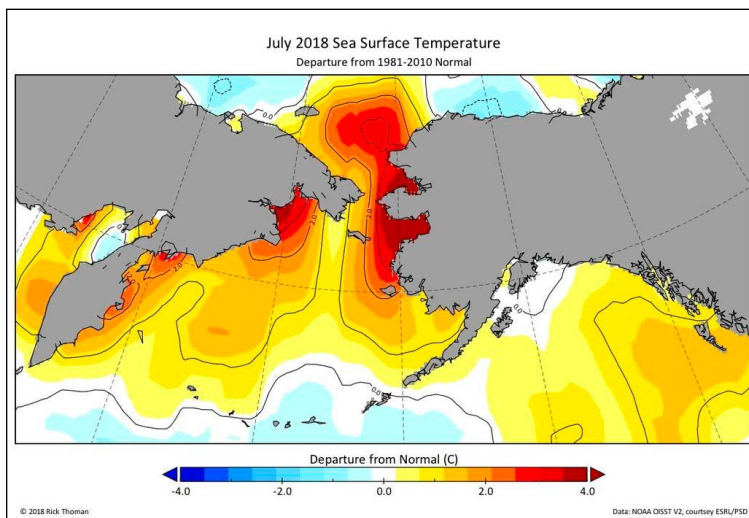


Figure 3. Sea surface temperature departure from normal July 2018. The northern Bering Sea ranked as the warmest summer on record since 1901. Graphic courtesy Rick Thoman, NOAA.

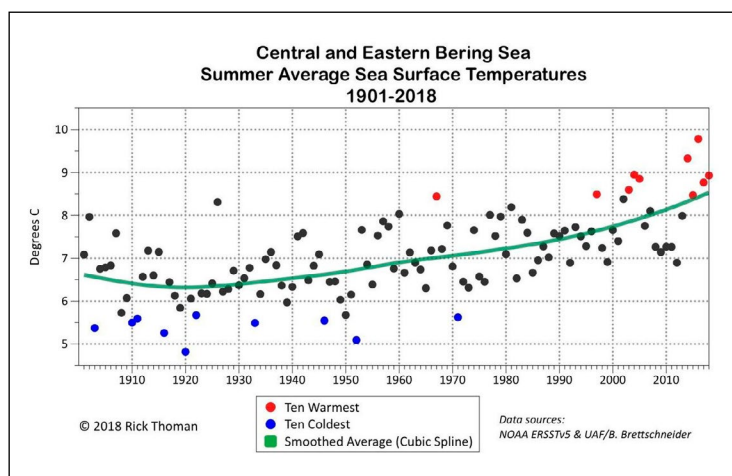


Figure 4. Summer sea surface temperatures for Central and Eastern Bering Sea, 1901-2018. The ten warmest summers are indicated in red. Graphic courtesy Rick Thoman and Brian Brettschneider, NOAA.

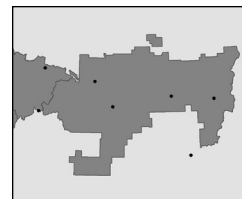
Climate Monitoring in Gates of the Arctic

NPS climate stations in Gates of the Arctic National Park & Preserve complement the long-term record from the National Weather Service station in Bettles. NPS stations are located near Chimney Lake, Pamichtuk Lake, Ram Creek, and Killik Pass.

More Information

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[Current Weather in Gates of the Arctic NP & Pres.](https://science.nature.nps.gov/im/units/arcn)

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