



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

4th Quarter Fall 2016

Weather & Climate Summary Gates of the Arctic National Park & Preserve Fall 2016



Fall images captured at the Pamichtuk site: September (left), October (middle), and November (right).

Bettles Fall Weather

The average temperature for the fall season was +1.4°F warmer than normal in Bettles at 20.9°F. October was the only month well above average. September was really, really wet. The fall precipitation overall was 152% of normal with a total of 5.85 inches of precipitation, 91% of that fell in September. The snowfall total for the fall season was well below normal at 14 inches, normal is 31 inches (Figures 1 and 2; Tables 1, 2, and 3).

September was a bit cooler and much wetter than normal. The average monthly temperature was 39.9°F, compared to a normal of 40.6°F. It was the wettest September on record in Bettles. A total of 5.34 inches fell during the month, normal is 1.91 inches. The previous record was 4.80 inches in 2002. A total of 2.1 inches was recorded during the 48-hour period between September 12 and 13 and 2.2 inches of rain fell between September 20 and 23. Overall the total was 280% of normal.

October was warmer than normal with a monthly average temperature of 23.0°F, normal is 18.9°F. On October 12 the high temperature reached 53°F, a new daily record. October was dry after the soggy September. A total of 0.26 inches of precipitation was recorded for the month, a mere 25% of normal. Only 4.2 inches of snow was recorded for the month, normally the total is ~12.4 inches.

November was +0.9°F warmer than normal at -0.1°F. Temperatures were near normal, to slightly above normal, for the first half of November and then cooled off dramatically for the last week. Temperatures were well below normal the last 3 days of the month. Precipitation totals were once again low for November. The precipitation total was 27% of normal. The total snowfall was 6.8 inches, normal is 16.1 inches.

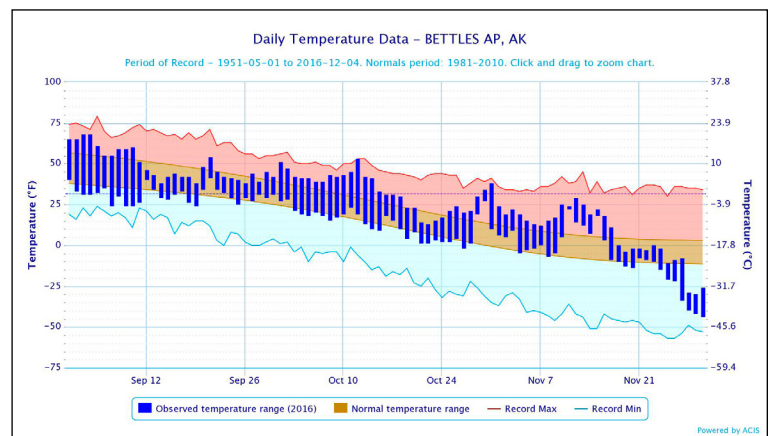


Figure 1. Fall 2016 daily temperatures at Bettles showing **record maximum** (red), **record minimum** (blue), **normal** (brown) and **observed** range (blue bars).

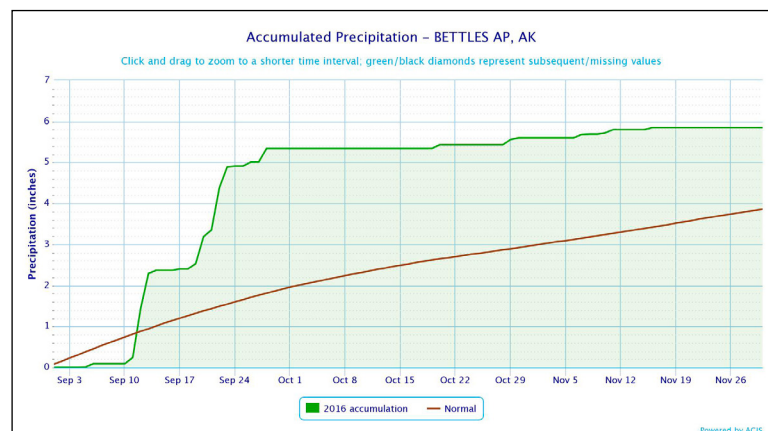


Figure 2. Fall 2016 accumulated precipitation at Bettles (green) compared to **normal** (brown line).

Table 1. Temperature: Fall 2016 average monthly temperatures compared to the 1981-2010 normal.

Fall 2016	Average Monthly Temp °F	1981-2010 Normal °F	Departure from Normal °F	Monthly High °F / Date	Monthly Low °F / Date
September	39.9	40.6	-0.7	68 / Sept. 3 & 4	24 / Sep 7, 9, 10, 19
October	23.0	18.9	+4.1	53* / Oct. 12	-2 / Oct. 27
November	-0.1	-1.0	+0.9	29 / Nov. 12	-44 / Nov. 30

*Record for that Date; Fall Season Temperature Departure from Normal: +1.4°F

Table 2. Precipitation: Fall 2016 monthly precipitation totals compared to normal.

Fall 2016	Total Monthly Precip. in.	1981-2010 Normal in.	Departure from Normal in.	Greatest 24 -hr. total in. / Date	# Days with >=0.01 in. water
September	5.34	1.91	+3.43	1.19 / Sept. 12	15
October	0.26	1.04	-0.78	0.13 / Oct. 29	3
November	0.25	0.91	-0.66	0.08 / Nov. 7 & 11	5

Fall Season Precipitation Departure from Normal: +1.99 inches (152% of normal)

Table 3. Snowfall: Fall 2016 monthly snowfall totals compared to normal.

Fall 2016	Total Monthly Snowfall in.	1981-2010 Normal in.	Departure from Normal in.	Greatest 24 -hr. snowfall total in. / Date	Cumulative snowfall since 1-July in.
September	3.2	2.5	+0.7	1.3 / Sept. 28	3.2
October	4.2	12.4	-8.2	2.4 / Oct. 20	7.4
November	6.8	16.1	-9.3	2.3 / Nov. 16	14.2

ARCN Climate Notes – Fall 2016

The Koyukuk River was higher than normal in September as a result of record rainfall, with a late season peak flow ~September 25th (Figure 3).

The seasonal transition from fall to winter in the Brooks Range marks the shift in temperature gradients in the mountains. In the cold season, the higher elevations are often warmer than

the valley bottoms due to persistent inversions. Figure 4 shows the annual variation in fall season temperatures for Bettles (low elev.) and Chimney Lake (high elev.) over the past five years. Notice that Chimney Lake was warmer during the fall in 2012 and 2016. Figure 5 shows the location of the high elevation ARCN climate sites in GAAR.

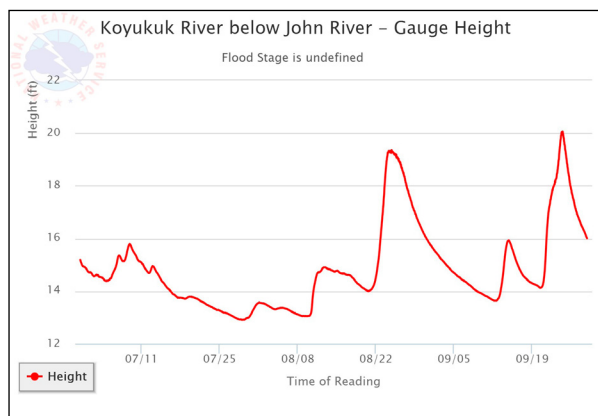


Figure 3. Koyukuk River gauge showing peak flow in late September.

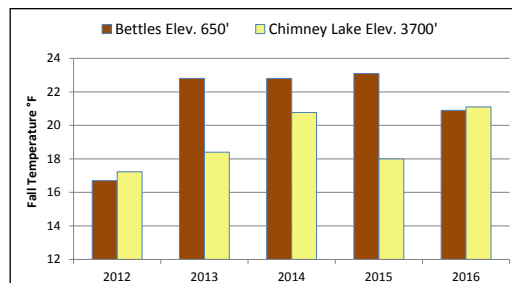


Figure 4. Fall seasonal temperatures at Bettles and Chimney Lake.

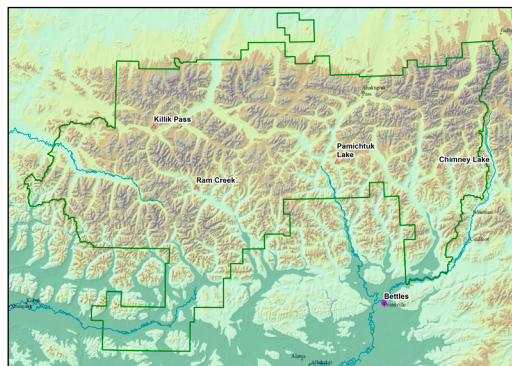


Figure 5. NPS Climate stations in Gates of the Arctic NP & Pres.

More Information

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[Current weather in GAAR](#)