



Weather & Climate Summary Gates of the Arctic National Park & Preserve Fall 2017

Bettles Fall 2017 Weather

The average temperature for the fall season was +3.3°F warmer than normal in Bettles at 22.8°F. September and October were each well above average for temperature and also very wet. Overall, fall precipitation was 181% of normal with a total of 7.00 inches of precipitation, ranking as the 3rd wettest autumn on record (1951-2017). The snowfall total for the fall season was above normal at 39.9 inches, normal is 31 inches (Figures 1 and 2; Tables 1, 2, and 3).

September was warmer and wetter than normal. The average monthly temperature was 44.5°F, compared to a normal of 40.6°F. The high temperature of 66°F on September 17 is a record for the date. A total of 3.77 inches fell during the month, normal is 1.91 inches. Most of the rain fell between September 6 and 14, which also resulted in high flows on rivers throughout the central Brooks Range. Overall the total precipitation was 197% of normal.

October was warmer than normal with a monthly average temperature of 24.4°F, normal is 18.9°F. A total of 2.13 inches of precipitation was recorded for the month, the 5th wettest October on record. Most of the month's precipitation fell as snow during the last week of the month. Snowfall was 173% of normal with 21.9 inches.

November temperatures were near normal with a monthly average of -0.6°F. Temperatures were warmer than normal for the first half of November. A few cool snaps the second half of the month moderated the monthly average. The low temperature for the month was -30°F on the 20th. November snowfall was also near normal with 17.9 inches recorded compared to a normal total of 16.1 inches.

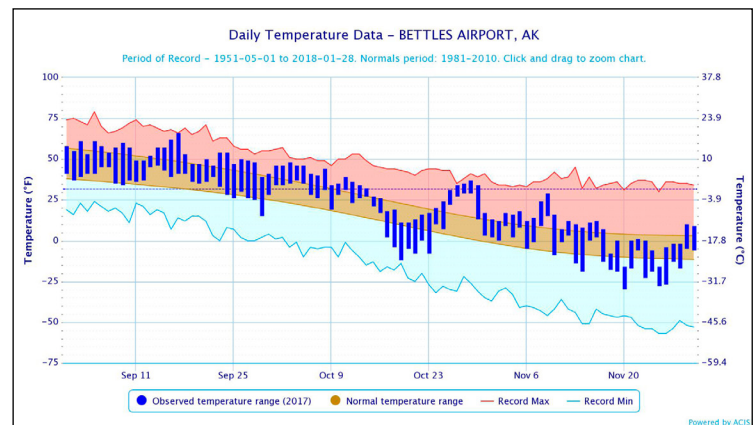


Figure 1. Fall 2017 daily temperatures at Bettles showing record maximum (red), record minimum (blue), normal (brown) and observed range (blue bars).

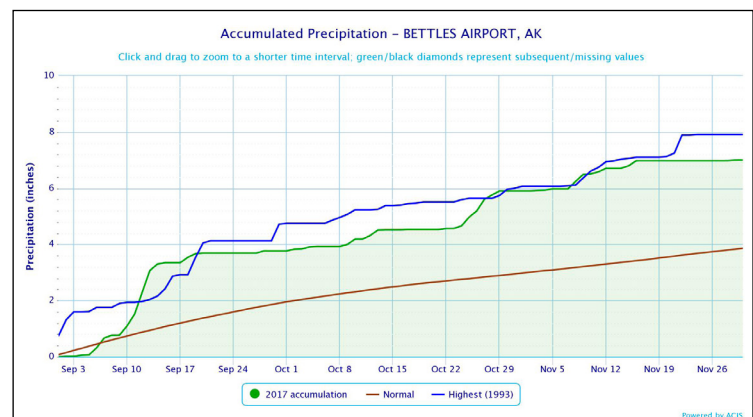


Figure 2. Fall 2017 accumulated precipitation at Bettles (green) compared to normal (brown line). The solid blue line shows the wettest fall on record (1993).

Table 1. Temperature: Fall 2017 average monthly temperatures compared to the 1981-2010 normal.

Fall 2017	Average Monthly Temp °F	1981-2010 Normal °F	Departure from Normal °F	Monthly High °F / Date	Monthly Low °F / Date
September	44.5	40.6	+3.9	66 / Sept 17*	15 / Sept. 29
October	24.4	18.9	+5.5	48 / Oct. 3	-12 / Oct. 19
November	-0.6	-1.0	+0.4	29 / Nov. 9	-30 / Nov. 20

Fall Season Temperature Departure from Normal: +3.3°F. *Record for that date.

Table 2. Precipitation: Fall 2017 monthly precipitation totals compared to normal.

Fall 2017	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	3.77	1.91	+1.86	0.78 / Sept. 12	16
October	2.13	1.04	+1.09	0.41 / Oct. 27	16
November	1.10	0.91	+0.19	0.26 / Nov. 8	12

Fall Season Precipitation Departure from Normal: +3.14 inches (181% of normal).

Table 3. Snowfall: Fall 2017 monthly snowfall totals compared to normal.

Fall 2017	Total Monthly Snowfall in.	1981-2010 Normal in.	Departure from Normal in.	Greatest 24 -hr. snow-fall total in. / Date	Cumulative snowfall since 1-July in.
September	0.1	2.5	-2.4	0.1 / Sept. 30	0.1
October	21.9	12.4	+9.5	4.1 / Oct. 27	22.0
November	17.9	16.1	+1.8	4.0 / Nov. 8	39.9

ARCN Climate Notes Fall 2017

For the second consecutive year, the Koyukuk River peaked after heavy rainfall in September. Typically, the peak flow occurs during snowmelt/break-up in late May or early June. Based on over 30 years of record, an annual peak flow in September has only happened on 4 occasions.

Month of Peak Flow	Number of Occurrences
May	16
June	5
July	6
August	6
September	4

Table 4. Peak flows at Koyukuk River gauge near Bettles.
Source: <http://www.weather.gov/aprfc/rivobs>

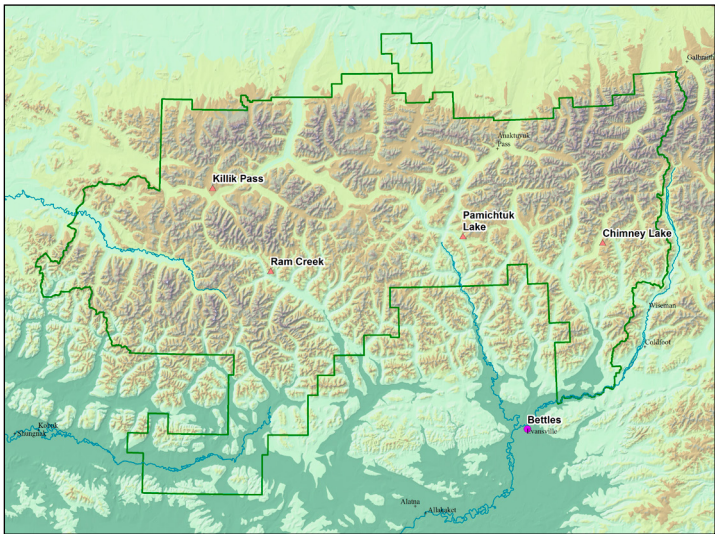


Figure 3. NPS Climate Stations in Gates of the Arctic NP&P.

Record Low Ice Extent in Chukchi Sea

Sea ice extent in the Chukchi Sea at the end of November was the lowest on record based on satellite observations (1979-2017). Warm water from the Bering Sea funneled through the strait and into the Chukchi Sea in early summer 2017. This warm water persisted into the autumn, and combined with regular southwest winds, formation of new ice was sluggish. The lack of ice during the stormy autumn months led to coastal floods and erosion along many parts of the coast. Damage was recorded in Utqiagvik, Shishmaref, Norton Sound and several communities on the Kuskokwim Delta. For the Arctic as a whole, sea ice extent was the third lowest on record (Figure 4).

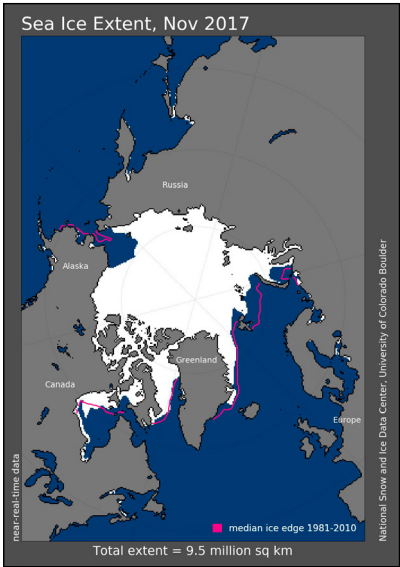


Figure 4. Arctic Sea Ice Extent, Nov. 2017.
Source: <http://nsidc.org/arcticseaicenews/2017/12/>

More Information

Pam Sousanes; pam_sousanes@nps.gov; ph 907-455-0677
 Ken Hill; kenneth_hill@nps.gov; ph 907-455-0678
<http://science.nature.nps.gov/im/units/arcn>
[Current weather in GAAR](#)