

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.

Fall 2017

Weather & Climate Summary Wrangell-St. Elias National Park & Preserve Fall 2017

Gulkana and Yakutat Fall 2017 Temperatures

Fall 2017 was slightly warmer and drier than normal in both Gulkana and Yakutat. Warm anomalies were strongest in September (Yakutat) and October (Gulkana), whereas November was colder than normal at both locations. November was exceptionally dry in Yakutat with only 2.14 inches of water equivalent for the month.

In Gulkana, September temperatures were remarkably stable throughout the month with highs in the 50's and 60's. The high temperature of 62°F occurred on both September 6th and 17th. The high of 58°F on September 24 was a record high for the day. Overall, the month was 2.5°F warmer than normal. October was cooler than normal mid-month before reaching near-record highs during the last week of October. The minimum monthly temperature of 1°F occurred on October 23rd. November ended colder than normal with an average monthly temperature of 2.6°F. Normal is 5.8°F. Overall, fall 2017 averaged 26.6°F; normal is 25.2°F (Figure 1, Table 1).

In Yakutat, fall started off warm with a record high temperature of 74°F on September 5th. Temperatures moderated for most of the rest of the month, but were still warmer than normal. The average monthly temperature for September was 51.2°F compared to a normal of 48.4°F. October high temperatures were in the 40's and 50's throughout the month. The warmest anomalies were the last week of October, including a record daily high of 52°F on the 26th. Overall, the average temperature of 42.8°F was 1.8°F warmer than normal. Cool conditions dominated the middle two weeks of November, with a big dump of dry

snow on the 17th. The relatively clear conditions contributed to a cooler than average month coming in -1.5°F cooler than normal (Figure 1, Table 1).

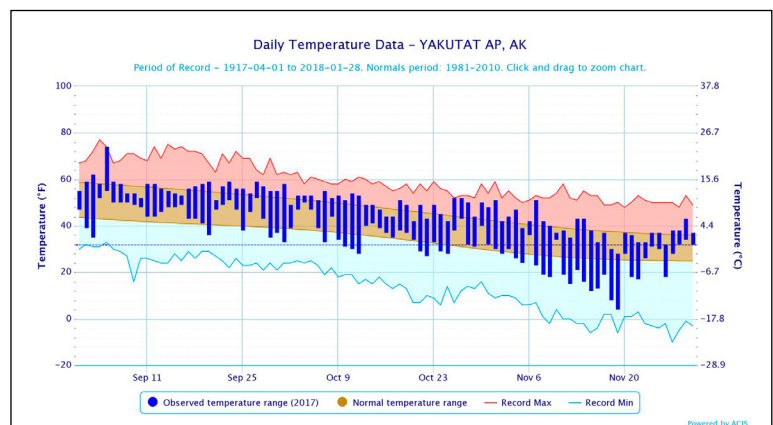
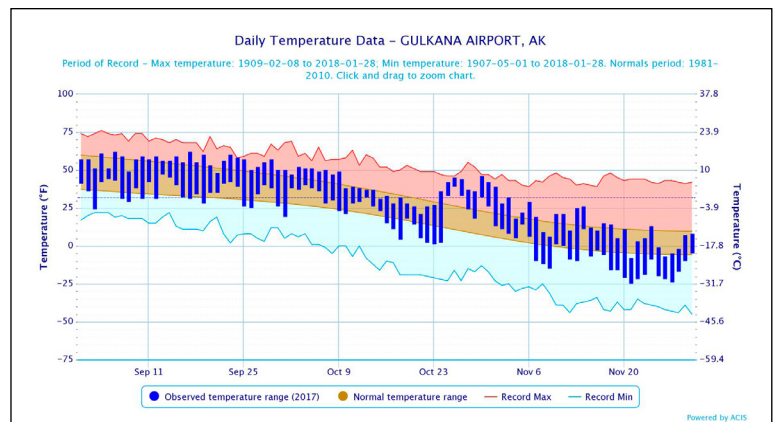


Figure 1. Fall 2017 daily temperatures at Gulkana and Yakutat showing record maximum (red), record minimum (blue), normal (brown) and observed range (blue bars).

Gulkana and Yakutat Fall 2017 Precipitation

Precipitation was near-normal for all three months at Gulkana. The biggest rainfall event of the season occurred on September 5th, with 0.65 inches for the day. The first few weeks of October were relatively wet, with 7 out of the first 13 days recording measurable precipitation. The remainder of the month was dry with precipitation recorded only on the 17th, 30th, and 31st. November precipitation was near average with 0.69 inches, bringing the seasonal total to 3.07 inches (93% of normal), (Figure 2, Table 2).

In Yakutat, September precipitation was 92% of normal with rain recorded 24 out of 30 days. The highest daily total was 3.70 inches on September 5th, which didn’t even come close to the record of 6.57 inches set in 1991. The first half of October was near-normal with 11.52 inches of rainfall recorded during the first two weeks of the month. Overall, 20.83 inches of precipitation were recorded in October compared to a normal total of 21.98 inches. Almost all of the precipitation fell as rain except of 0.1 inches of snow on the 20th. November was exceptionally dry with only 2.14 inches of liquid precipitation recorded for the month – the 2nd driest on record. Despite the dry conditions, due to cold surface conditions, snowfall was well-above normal. The total of 26.7 inches of snowfall was well above the expected normal of 18.2 inches (Figure 2, Table 2).

Yakutat ended up at 74% of normal for precipitation (liquid equivalent) and 129% of normal for snowfall. Compared to last year (4.3 inches), the fall season for 2017 was decidedly snowier

(26.8 inches), (Figure 4). Snowfall is highly variable in the fall months, ranging from a low total of less than 1.0 inch in 2002 to 94.4 inches in 1956.

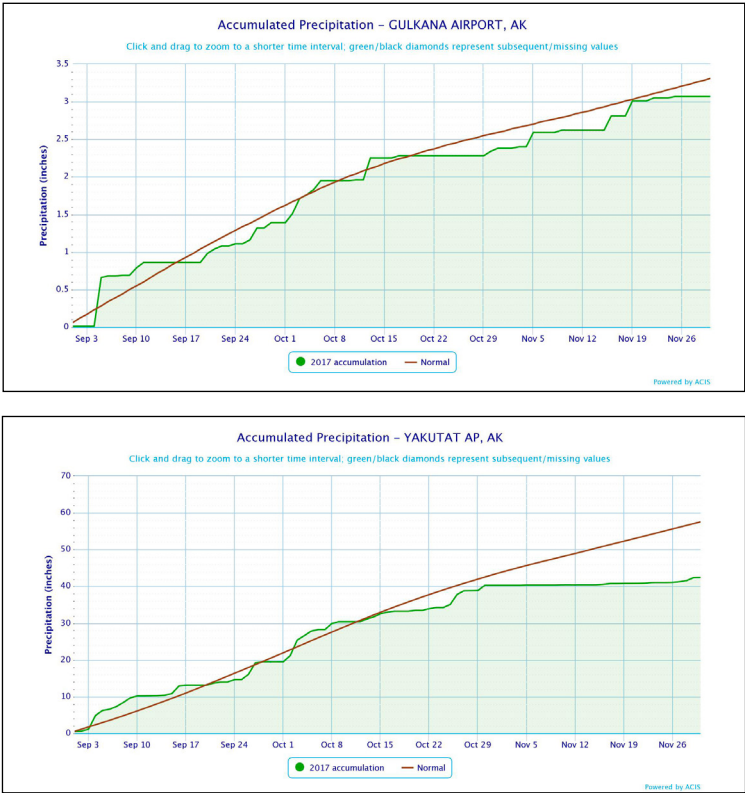


Figure 2. Fall 2017 accumulated precipitation (green) at Gulkana (top), and Yakutat (bottom) compared to normal (brown line).

Climate Monitoring in Wrangell-St. Elias

The NPS climate stations in Wrangell-St. Elias have been collecting climate data for the past decade as part of the Central Alaska Network climate monitoring program (Figure 3). The NPS stations complement long-term records available from the National Weather Service stations in Gulkana and Yakutat. The NPS stations are providing critical data at higher elevations which helps characterize climate gradients and patterns affecting resources in Wrangell-St. Elias National Park and Preserve.

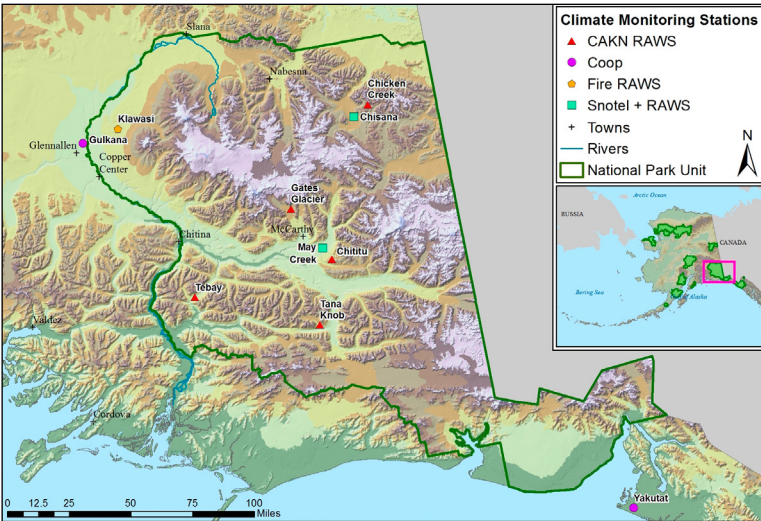


Figure 3. NPS climate stations in Wrangell-St. Elias NP&P.

Featured Station: Chisana

At an elevation of 3,369 feet, Chisana is one of the highest communities in Alaska. Adjacent to rivers and glaciers, yet surrounded by high mountains, Chisana has a unique climate. Strong inversions dominate the winter months, with temperature differences between Chisana and the nearby Chicken Creek site (5240’) regularly exceeding 40°F. There are two instrumented sites in Chisana. The fire RAWS site measures air temperature, rainfall, relative humidity, solar radiation, and wind speed/direction. The SNOTEL site measures year-round precipitation, snow water equivalence, air temperature, and snow depth (Figure 4). The lowest temperature recorded since the RAWS station was installed in 1992 is -53°F.



Figure 4. Chisana SNOTEL.

Table 1. Temperature: Gulkana (top) and Yakutat (bottom) fall 2017 temperatures compared to 1981-2010 normals.

Gulkana Fall 2017	Average Monthly Temp °F	1981-2010 Normal °F	Departure from Normal °F	Monthly High °F / Date	Monthly Low °F / Date
September	45.8	43.3	+2.5	62 / Sept. 6 & 17	24 / Sept. 3
October	31.3	26.6	+4.7	52 / Oct. 3	1 / Oct. 23
November	2.6	5.8	-3.2	39 / Nov. 1	-25 / Nov. 21

Fall Season Temperature Departure from Normal: +1.3°F.

Yakutat Fall 2017	Average Monthly Temp °F	1981-2010 Normal °F	Departure from Normal °F	Monthly High °F / Date	Monthly Low °F / Date
September	51.2	48.4	+2.8	74* / Sept. 5	35 / Sept. 3 and 29
October	42.8	41.0	+1.8	58 / Oct. 1	27 / Oct. 22
November	30.8	32.3	-1.5	51 / Nov. 1 & 7	4 / Nov. 19

Fall Season Temperature Departure from Normal: +1.0°F. *Record Daily High.

Table 2. Gulkana (top) and Yakutat (bottom) fall 2017 precipitation totals compared to 1981-2010 normals.

Gulkana 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	1.39	1.58	-0.19	0.65 / Sept. 5	13
October	0.99	1.01	-0.02	0.29 / Oct. 13	10
November	0.69	0.72	-0.03	0.20 / Nov. 19	7

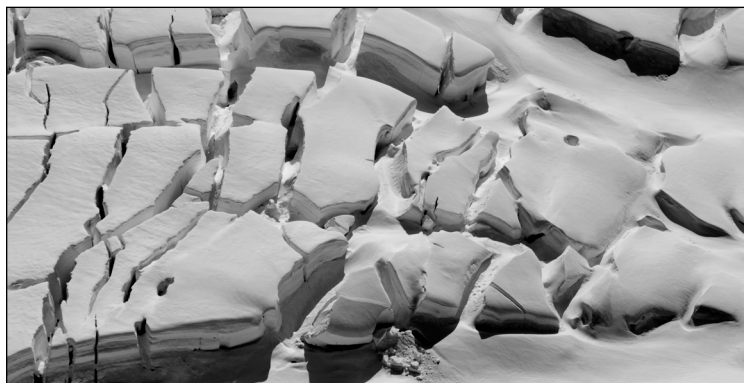
Fall Season Precipitation Percent of Normal: -0.24 inches (93% of normal).

Yakutat 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	19.46	21.11	-1.65	3.70 / Sept. 4	24
October	20.83	21.98	-1.15	4.21 / Oct. 3	21
November	2.14	14.45	-12.31	0.82 / Nov. 29	13

Fall Season Precipitation Percent of Normal: -15.11 inches (74% of normal).

Table 3. Snowfall: Fall 2017 monthly snowfall totals at Yakutat compared to normal (snow is not measured at Gulkana).

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	0	--	--	0
October	0.1	2.5	-2.4	0.1 / Oct. 20	0.1
November	26.7	18.2	+8.5	12.0 / Nov. 17	26.8



More Information

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[Current weather in Wrangell-St. Elias](#)