



Weather & Climate Summary Wrangell-St. Elias National Park & Preserve Fall 2018

Snow-capped Mountains, Wrangell-St. Elias National Park & Preserve. Photo: NPS, Ken Hill.

Gulkana and Yakutat Weather Fall 2018

Long-term climate records from Gulkana and Yakutat allow us to put the fall of 2018 into context. It was the warmest fall on record in Yakutat and the 5th warmest fall on record for Gulkana. September was exceptionally dry in Yakutat, with a long stretch without rain. There was no snow recorded in Yakutat between September 1 and November 30 – this is a first! Trace amounts were recorded in both 1937 and 2002. The rain returned in October bringing the total precipitation closer to normal for the fall season, but it all fell as rain rather than snow.

Fall Temperatures:

September: The average temperature for the month was above normal at both locations. In Gulkana it was 2.7°F warmer than normal for September, with a new daily record high on September 10 of 69°F. In Yakutat, there were six new daily record high temperatures in September. Every day between September 7th and 11th had record high temperatures! The average monthly temperature was 2.2°F above normal. Despite the record warm week, September 2018 was not among the top ten warmest in Yakutat. The persistent high pressure brought warm days, but chilly nights.

October: This October was the warmest on record for many locations around Alaska. It was the 2nd warmest October in Gulkana. The average monthly temperature was 35.9°F, more than 9°F warmer than normal. Yakutat had its warmest October on record! The average temperature for the month was more than 5°F warmer than normal at 46.5°F.

November: The warmth continued through November with both locations more than 6°F above normal for the month. Overall, the average fall temperature at Gulkana was 6.2°F above the 1981-2010 normal and in Yakutat it was 4.7°F warmer than normal (Figure 1, Table 1).

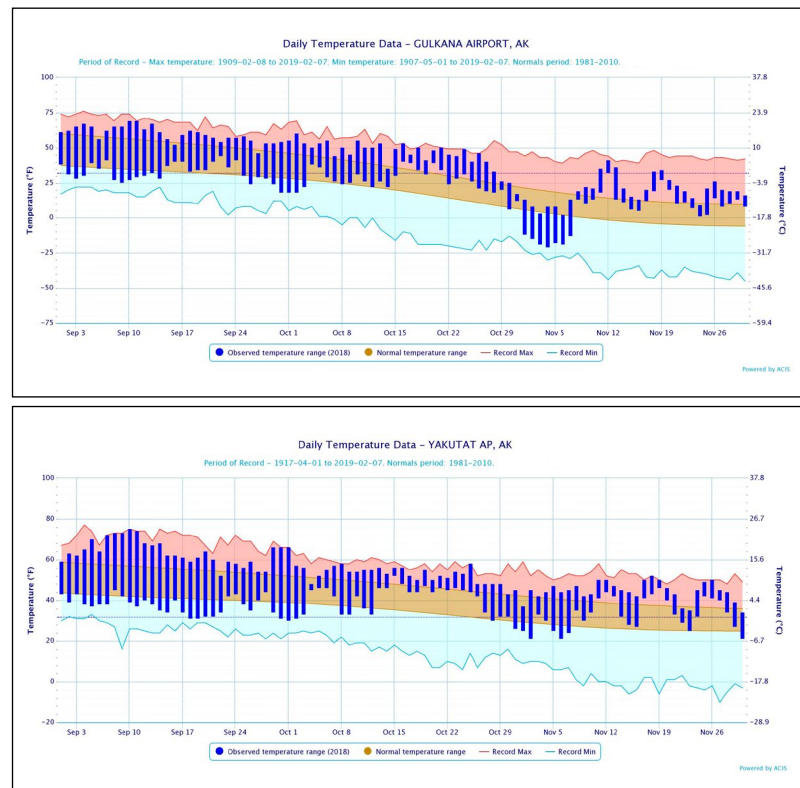


Figure 1. Fall 2018 daily temperatures at Gulkana (top) and Yakutat (bottom) showing record maximum (red), record minimum (blue), normal (brown) and observed range (blue bars).

Table 1. Temperature: Gulkana (top) and Yakutat (bottom) Fall 2018 temperatures compared to 1981-2010 normals.

Gulkana Fall 2018	Average Monthly Temp (°F)	1981-2010 Normal (°F)	Departure from Normal (°F)	Monthly High (°F / Date)	Monthly Low (°F / Date)
September	46.0	43.3	+2.7	69 / Sep 9, 10*	18 Sep 30
October	35.9	26.6	+9.3	60 / Oct 2	6 / Oct 30
November	12.4	5.8	+6.6	41 / Nov 12	-21 / Nov 4

Fall Season Temperature Departure from Normal: +6.2°F; *Record daily high.

Yakutat Fall 2018	Average Monthly Temp (°F)	1981-2010 Normal (°F)	Departure from Normal (°F)	Monthly High (°F / Date)	Monthly Low (°F / Date)
September	50.6	48.4	+2.2	75* / Sep 10	31 / Sep 18, 19
October	46.5**	41.0	+5.5	66* / Oct 1	26 / Oct 30
November	38.6	32.3	+6.3	52 / Nov 18	21 / Nov 2, 6

Fall Season Temperature Departure from Normal: +4.7°F; *Record daily high; **Record monthly high.

Fall Precipitation 2018 in Wrangell-St. Elias

Yakutat is usually a wet place in the fall. September is usually the second wettest month behind October, yet this September there was a dry spell that lasted for 20 consecutive days! No rain for that long, at that time of year, is unprecedented. According to local climatologists this was likely a 'once in a lifetime event', which statistically has less than a 1% chance of occurring during the early fall season. No snow was recorded in Yakutat this fall, but rain in October and November brought fall totals to 72% of normal. In Gulkana, it was the 8th driest fall on record, with a particularly dry September.

September: Gulkana precipitation was about 6% of normal in September with only 0.10 inches of rain or snow recorded for the month. It was the 3rd driest September on record. Yakutat received a total of 3.17 inches of rain in September, normal is 21.11 inches. The persistent high pressure kept the rain away and September 2018 was the second driest September on record for Yakutat.

October: Gulkana was drier than normal again in October, with about half as much precipitation as normal with a total of 0.51 inches of rain and snow water equivalent. Yakutat was back to normal with 22.79 inches of rain falling during the month, which is just above normal.

November: Total precipitation was up in November for Gulkana. A total of 1.17 inches was recorded, about 162%

of normal. The rain kept falling in Yakutat through November and ended with 15.26 inches, just above the normal of 14.45 inches. All of the precipitation in Yakutat was rain, no snow was recorded for the month. On average, ~18 inches of snow falls during November (Figure 2, Table 2).

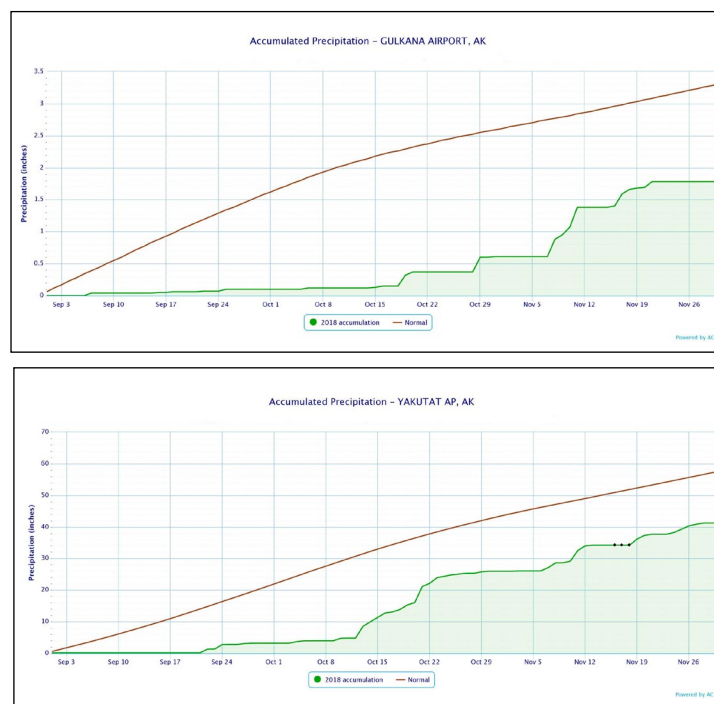


Figure 2. Fall 2018 accumulated precipitation (green) at Gulkana (top) and Yakutat (bottom) compared to normal (brown line).

Table 2. Precipitation: Gulkana (top) and Yakutat (bottom) Fall 2018 precipitation totals compared to 1981-2010 normals.

Gulkana Fall 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
September	0.10	1.58	-1.48	0.04 / Sep 7	5
October	0.51	1.01	-0.50	0.23 / Oct 29	7
November	1.17	0.72	+0.45	0.31 / Nov 11	10

Fall Season Departure from Normal: -1.53 inches (54% of normal).

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Yakutat Fall 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
September	3.17	21.11	-17.94	1.41 / Sep 24	7
October	22.79	21.98	+0.81	5.06* / Oct 21	22
November	15.26	14.45	0.81	3.35 / Nov 11	17

Fall Season Departure from Normal: -16.32 inches (72% off normal); *Record daily high.

Table 3. Snowfall: Fall 2018 monthly snowfall totals at Yakutat compared to normal (snow is not measured at Gulkana).

Yakutat Fall 2018	Total Monthly Snowfall (in.)	1981-2010 Normal (in.)	Departure from Normal (in.)	Greatest 24 -hr. total (in. / Date)	Cumulative snow since 1-July in.
September	0	0	0.0	–	0
October	0.0	2.5	-2.5	–	0.0
November	0.0	18.2	-18.2	–	0.0

Gates Glacier Fall Warmth

2018 was the warmest fall on record at the Gates Glacier weather station near McCarthy. We have been recording data continuously at this site since 2005 and this is the first time that the average fall temperature was above freezing. Over the past 14 years there has been a significant increase in the average fall temperature at this location (Figure 3).

Even with the warm fall temperatures, snow still accumulates up in the mountains. The photo below (Figure 4) is from last year (2017) on November 26th with 16 inches of snow. This year there was 14 inches of snow on the

ground at the weather station at the end of November. Note: The camera images are stored on site and retrieved once a year in the summer.

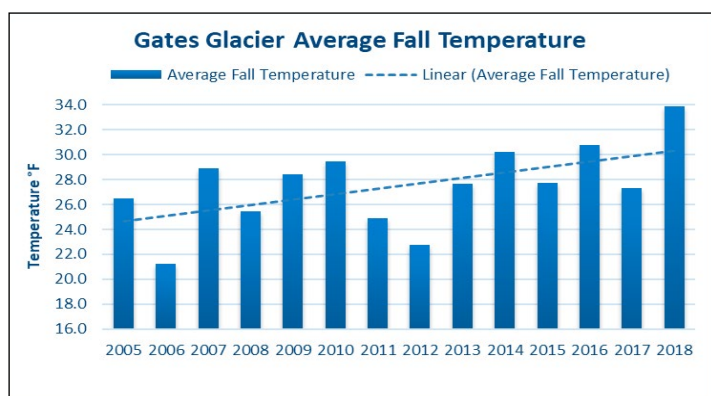


Figure 3. Average fall temperatures at Gates Glacier 2005-2018 in Wrangell-St. Elias National Park & Preserve.



Figure 4. Image from camera at Gates Glacier - November 2017, Wrangell-St. Elias National Park & Preserve.

Climate Monitoring in Wrangell-St. Elias

The NPS climate stations in Wrangell-St. Elias (WRST) have been collecting climate data for over a decade as part of the Central Alaska Network climate monitoring program. 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 Preserve.

More Information

Pam_Sousanes@nps.gov;
ph 907-455-0677

Kenneth_Hill@nps.gov;
ph 907-455-0678

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

<http://science.nature.nps.gov/im/units/cakn>

