



Weather & Climate Summary Wrangell-St. Elias National Park & Preserve Fall 2019

Gulkana and Yakutat Weather Fall 2019

Long-term climate records from Gulkana and Yakutat allow us to put the fall of 2019 into context. The statewide warming trend continued; these two long-term sites had several new daily record high temperatures and no new record lows for the fall season. It was the 5th warmest fall on record for Yakutat and the 4th warmest fall on record for Gulkana. These sites, similar to others around the state, have warmer minimum daily temperatures (warmer nights) than in the past. You can see this on the two graphs at right (Figure 1) where the 2019 daily temperature range in dark blue hovers closer to the warmer records (red line) than the colder temperature records (light blue line). As far as fall precipitation, it did rain more than it did last fall in Yakutat, but the seasonal rainfall total was still below normal; Gulkana, on the other hand, was wetter than normal for the season.

Fall Temperatures

September: The average temperature for the month was above normal at both locations. In Gulkana it was the 3rd warmest September on record, 3.8°F warmer than normal, with new daily record highs on September 8th (71°F) and September 14th (70°F). In Yakutat, there was one new daily record high temperature on September 6th of 67°F. The average monthly temperature was 3.1°F above normal. September 2019 ranked as the 7th warmest on record for Yakutat (Table 1).

October: October temperatures stayed above normal at both locations. The average monthly temperature for Gulkana was 30.5°F, just about 4°F warmer than normal. Yakutat, at 42.3°F, was 1.3°F warmer than normal. The temperatures started to cool off as expected in the beginning of the month, but towards the third week the temperatures started climbing above the normal range and stayed there for the rest of the month.

November: November temperatures were warm statewide. Gulkana was almost 16 degrees warmer than normal with November 2019 coming in as the 4th warmest on record. Yakutat was 7.4°F warmer than normal and also ranked as the 4th warmest on record. Yakutat had two new record daily highs on November 19 and 20 at 50°F.

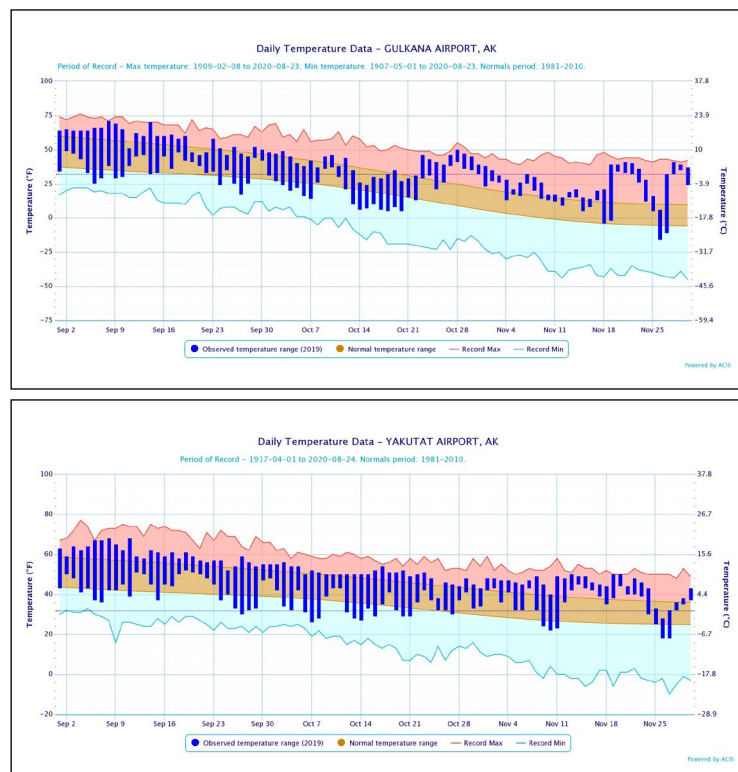


Figure 1. Fall 2019 daily temperatures at Gulkana (top) and Yakutat (bottom) showing record maximum (red), record minimum (blue), normal (brown) and observed range (blue bars).

Table 1. Temperature: Gulkana and Yakutat Fall 2019 temperatures compared to 1981-2010 normals.

Gulkana Fall 2019	Average Monthly Temp (°F)	1981-2010 Normal (°F)	Departure from Normal (°F)	Monthly High (°F / Date)	Monthly Low (°F / Date)
September	47.1	43.3	+3.8	71* / Sep 8	17 / Sep 27
October	30.5	26.6	+3.9	50 / Oct 28	5 / Oct 18, 20
November	21.5	5.8	+15.7	41 / Nov 21, 28	-16 / Nov 26

Fall Season Temperature Departure from Normal: +7.8°F; *Record daily high.

Yakutat Fall 2019	Average Monthly Temp (°F)	1981-2010 Normal (°F)	Departure from Normal (°F)	Monthly High (°F / Date)	Monthly Low (°F / Date)
September	51.5	48.4	+3.1	68 / Sep 8, 11	30 / Sep 27
October	42.3	41.0	+1.3	56 / Oct 3	26 / Oct 7
November	39.7	32.3	+7.4	50 / Nov 13, 19*, 20*	18 / Nov 26, 27

Fall Season Temperature Departure from Normal: +3.9°F; *Record daily high.

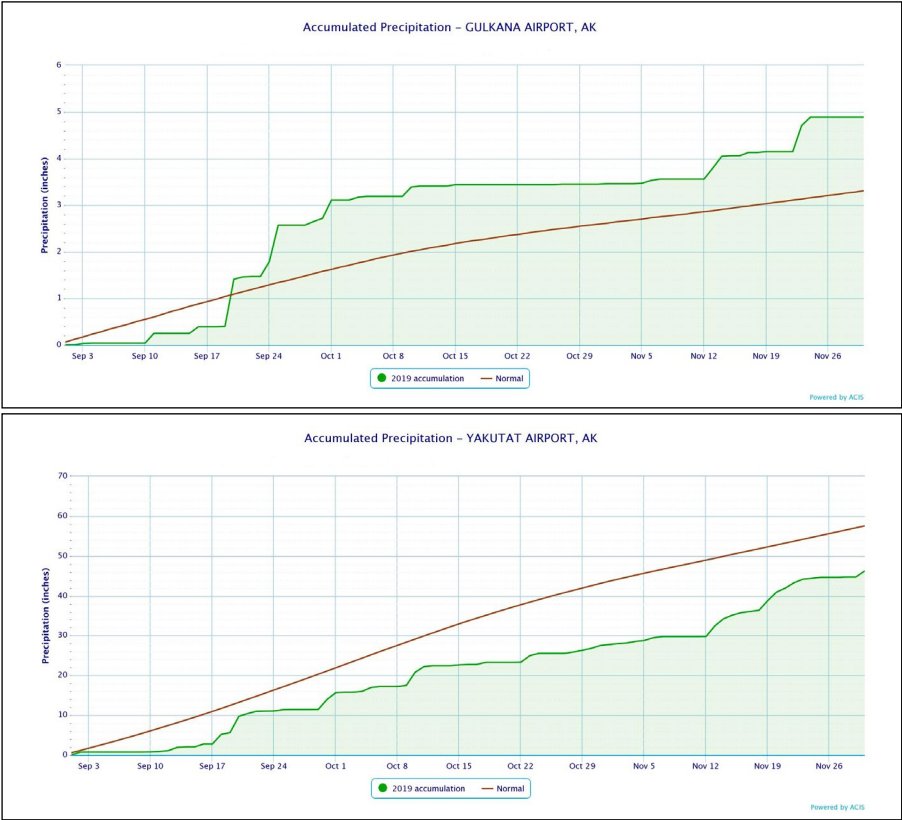
Fall Precipitation 2019 in Wrangell-St. Elias

Yakutat recovered a bit from the drought that persisted through the summer, but the season ended up only 80% of normal with a drier than normal September and October. Gulkana, on the other hand, was ~150% of normal for the season with a wet September and November (Figure 2).

September: Gulkana precipitation was 172% of normal in September with 2.72 inches of rain/melted snow recorded for the month. On September 20th a total of 1.01 inches was recorded over a 24-hour period, that’s a lot of rain for Gulkana and ranks as the 30th wettest day on record at this site with records dating back to 1943. September 2019 ranked as the 10th wettest on record. Yakutat received a total of 13.96 inches of rain in September, normal is 21.11 inches (Table 2).

October: Gulkana was a bit drier than normal in October, with a total of 0.73 inches of rain and snow water equivalent. Yakutat stayed on the dry side with 13.56 inches, 62% of normal.

November: November was wetter than normal in both locations. Usually early fall is wetter than November in Yakutat, but that was not the case this year. November was the wettest month with 18.72 inches of rain and melted snow, which is 130% of normal. Total precipitation was twice as much as normal in Gulkana for November, with a total of 1.44 inches. A new daily record was set on November 23rd with 0.56 of rain or melted snow; the average temperature during this period hovered near freezing.



Although snowfall is not measured at the sites with long-term records, we do have snow data from around the park, which gives us perspective even if we can’t compare it to ‘normal’ (which requires a 30-year record). For the December 1 survey, the snow depth at park headquarters/ Copper Center was 9 inches; there was 3 inches on the ground at Chokosna and 7 inches at Lost Creek. The Chisana and May Creek sites both had 5 inches on the ground at the beginning of December which is 56% and 62% of normal for the period of record, respectively.

Figure 2. Fall 2019 accumulated precipitation (green) at Gulkana (top) and Yakutat (bottom) compared to normal (brown line).

Table 2. Precipitation: Gulkana (top) and Yakutat (bottom) Fall 2019 precipitation totals compared to 1981-2010 normals.

Gulkana Fall 2019	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	2.72	1.58	+1.14	1.01* Sep 20	12
October	0.73	1.01	-0.28	0.39 / Oct 1	7
November	1.44	0.72	+0.72	0.56* / Nov 23	11

Fall Season Departure from Normal: +1.58 inches (148% of normal). *Record daily high.

Yakutat Fall 2019	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	13.96	21.11	-7.15	4.10 / Sep 20	19
October	13.56	21.98	-8.42	3.31 / Oct 10	19
November	18.72	14.45	4.27	2.67 / Nov 13	23

Fall Season Departure from Normal: -11.30 inches (80% off normal).

Climate Monitoring in Wrangell-St. Elias

The NPS climate stations in Wrangell-St. Elias have been recording 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 data at higher elevations which helps characterize climate gradients and patterns affecting resources in Wrangell-St. Elias National Preserve.

Gates Glacier Fall Warmth

2019 was the second warmest fall on record at the Gates Glacier weather station near McCarthy (Figure 3). This follows the warmest fall on record in 2018. We have been recording data continuously at this site since 2005 and this is the second year in a row where the average fall season temperature was above freezing. Over the past 15 years there has been a significant increase in the average fall temperature at this location (Figure 3).

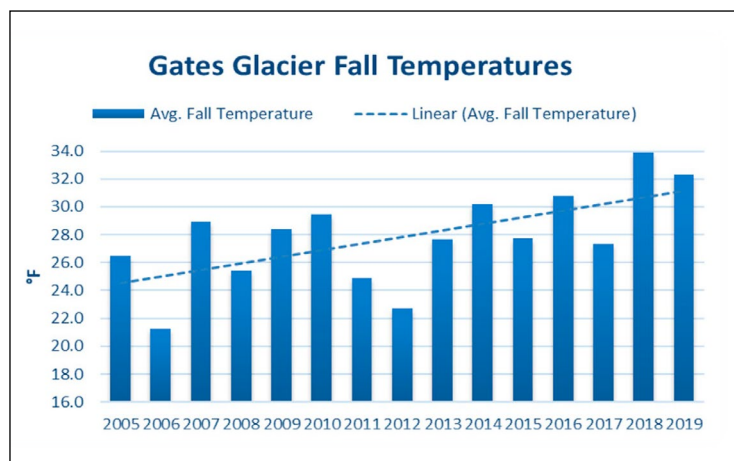


Figure 3. Average fall temperatures at the Gates Glacier climate station in WRST.

Mountain Snow

In the fall, the valley bottom sites like Chokosna and May Creek slowly accumulate snow, while the higher elevations start to develop their deep winter snowpacks. The photo below (Figure 4) is from Gates Glacier on November 27th; there was 43 inches of snow that day. The Chugach Range sites, Tana Knob and Tebay, had ~two feet of snow at the end of November.



Figure 4. Camera image from Gates Glacier climate station November 27, 2019 with 43 inches of snow on the ground.

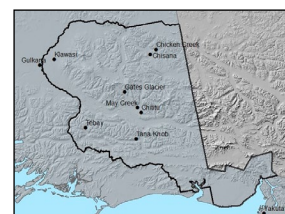
More Information

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

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

[CAKN Climate Monitoring](#)

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



Data disclaimer: Please note that the near-real time data used to generate these reports is subject to change. QA/QC data from the NPS CAKN climate stations are available at [NPS Data Store](#)