



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

Crevasses on the Kennicott Glacier, NPS photo by Ken Hill.

Gulkana and Yakutat Weather Spring 2018

Long-term climate records from Gulkana and Yakutat allow us to put the spring of 2018 into context.

There was quite a bit of daily temperature variability in March in both locations. Despite the temperature swings in the early part of the season, the average spring temperature ended up near normal for Gulkana, while Yakutat was 1.3°F warmer than normal for the spring season (Figure 1, Table 1).

March: The average temperature for the month was above normal at both locations, with the same pattern of variability showing up along the coast and in the interior. March started out cooler than normal, especially the first few days of the month in Yakutat where the low was 1°F. It warmed up in mid-month at both locations and then cooled off again towards the end of the month.

April: In Gulkana, April temperatures were near normal with the warmest temperatures reaching just above 50°F the second week of the month. During that same week, a new daily record high was set in Yakutat with a high temperature of 57°F on April 8th. The second week of April was unseasonably warm in Yakutat with daily temperatures between 5 and 10 degrees (F) above normal.

May: In Gulkana temperatures were a bit cooler than normal in May, without much variability throughout the month. The average monthly temperature was 44.5°F, which is 0.7°F cooler than normal. On average, the minimum daily temperatures are more likely to remain above freezing after May 13th, but that is not always the case. In 2018, there were seven days at the end of May that had daily low temperatures at or below the freezing threshold. Yakutat had near normal

temperatures for most of the month, but a few days were well above normal. The warmest day was May 18th when the high temperature reached 69°F, normal high for that day is 53°F. A few other days were above 60°F in May, which is unusual. Yakutat temperatures ended up 1.5°F warmer than normal for May.

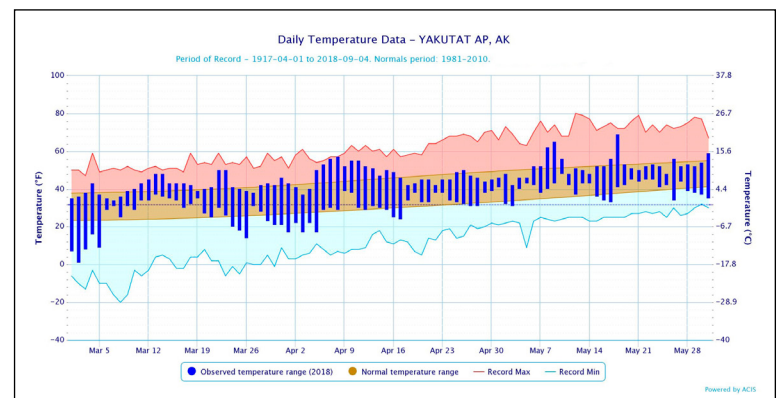
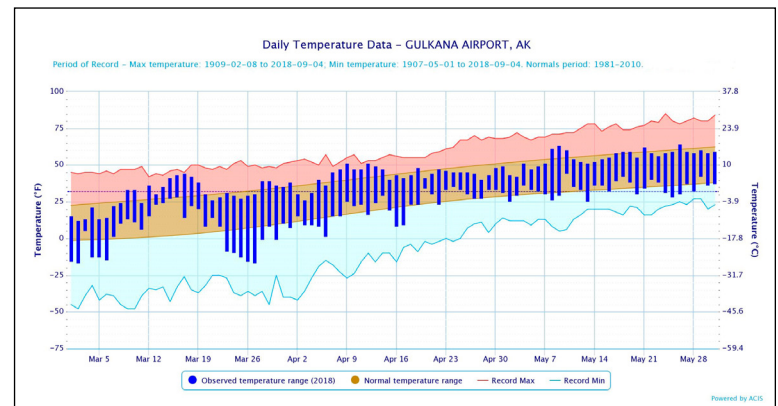


Figure 1. Spring 2018 daily temperatures at Gulkana (top) and Yakutat (bottom) showing record maximum (red), record minimum (blue), normal (brown) and observed range (blue bars).

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

Gulkana Spring 2018	Average Monthly Temp °F	1981-2010 Normal °F	Departure from Normal °F	Monthly High °F / Date	Monthly Low °F / Date
March	16.7	15.6	+1.1	44 / Mar 17	-17 / Mar 2
April	32.1	31.8	+0.3	51 / Apr 9, 12	1 / Apr 6
May	44.5	45.2	-0.7	64 / May 26	25 / May 1, 13

Spring Season Temperature Departure from Normal: +0.2°F.

Yakutat Spring 2018	Average Monthly Temp °F	1981-2010 Normal °F	Departure from Normal °F	Monthly High °F / Date	Monthly Low °F / Date
March	33.2	32.0	+1.2	50 / Mar 22, 23	1 / Mar 2
April	38.9	37.8	+1.1	57* / Apr 8	17 / Apr 1, 3, 5
May	46.2	44.7	+1.5	69 / May 18	31 / May 3

Spring Season Temperature Departure from Normal: +1.3°F. *Record daily high.

Gulkana and Yakutat Spring 2018 Precipitation

After a record amount of precipitation throughout the winter, the spring season precipitation total of 1.19 inches (water equivalent of snow + rainfall) was right at normal for Gulkana. Most of the precipitation came in two pulses, one during the first few weeks of March and the other the first few days of May. Yakutat precipitation was 94% of normal, with a total of 26.84 inches for the spring season; almost all of that precipitation fell as rain. Snowfall totals in Yakutat were well below normal for the spring; only 3.9 inches of snow was recorded, which is 10% of normal and the 5th lowest spring snowfall total on record (Figure 2; Table 2 and 3).

March: Gulkana precipitation was about 227% of normal in March with 0.68 inches of total precipitation measured during the month. Snowfall is not recorded at this location. Yakutat was very different, with the monthly precipitation only 34% of normal. Only 2.6 inches of snow was recorded in Yakutat in March, normal is 28.4 inches. The difference in early spring precipitation accumulation between the two locations is very apparent in the graphs at right (Figure 2).

April: Very little precipitation is ever recorded in Gulkana in April. Normally we would expect around 0.24 inches, in 2018 there was just a trace. In Yakutat, the monthly precipitation total was 7.96 inches, 87% of normal. Snowfall totaled only 1.3 inches for the month, on average April gets 10.2 inches of snow.

May: In Gulkana, the precipitation total for May was just below normal at 0.51 inches, 0.36 inches of that total fell on May 1, which is a new daily record. May is usually one of the drier

months in the coastal town of Yakutat, but May 2018 was wet. The total rainfall was 15.10 inches, which is 184% of normal. Over 7 inches of rain fell between May 3 and 5. On May 4th 3.44 inches of rain was recorded and on May 5th 2.73 inches was recorded, both new daily records. It was the 7th wettest May on record. By the end of the month, the precipitation accumulation was close to normal for the spring.

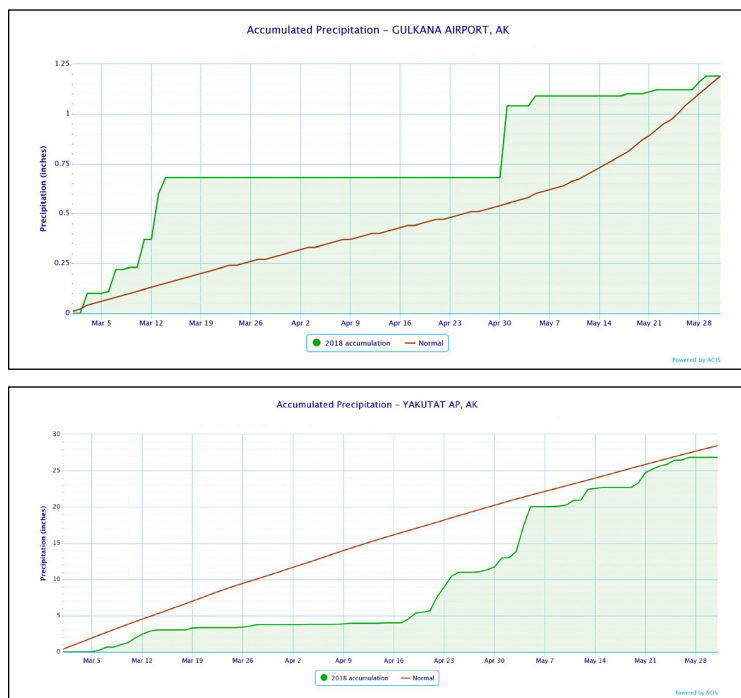


Figure 2. Spring 2018 accumulated precipitation (green) at Gulkana (top) and Yakutat (bottom) compared to normal (brown line).

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

Gulkana Spring 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
March	0.68	0.30	+0.38	0.23 / Mar 13	7
April	T	0.24	-0.24	T / Apr 1, 4, 13	0
May	0.51	0.65	-0.14	0.36* / May 1	7

Spring Season Departure from Normal: 0.00 inches (100% of normal); *Record daily high.

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Yakutat Spring 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
March	3.78	11.04	-7.26	0.65 / Mar 11	17
April	7.96	9.19	-1.23	1.94 / Apr 22	18
May	15.10	8.21	6.89	3.44* / May 4	21

Spring Season Departure from Normal: -1.60 inches (94% off normal); *Record daily high.

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

Spring 2018	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.
March	2.6	28.4	-25.8	3.6 / Mar 7	60.1
April	1.3	10.2	-8.9	1.94 / Apr 22	61.4
May	0.0	0.4	-0.4	-	61.4

Snowpack 2018

The snowpack development for the season was interesting with storms moving in from the Bering Sea and depositing more snow than usual in interior Alaska. Copper Center, Kenny Lake, and Chisana all had peak season snow depths above average, while Chokosna and May Creek were closer to normal.

Higher elevations in the Wrangell Mountains also had a robust

snowpack as indicated by the phenology camera and snow depth sensor at the Gates Glacier climate station. In 2018 the snow depth at the Gates Glacier site was nearly double what it was in 2017 (Figure 3). If we compare images from June 1 at the site over the past four years, we can clearly see that the deeper snowpack and cooler May temperatures delayed the melt-out this spring (Figure 4). The snow-off date at this site did not occur until June 30th this year.

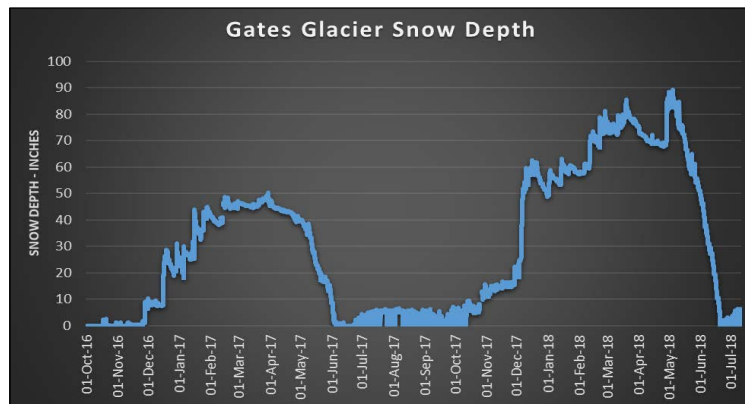


Figure 3. Snow depth at Gates Glacier climate station 2016-2018.



Figure 4. Photos taken on June 1 at the Gates Glacier climate station. Photos from 2015 (top), 2016, and 2017 (bottom) are on the left and the large photo is from 2018.

Climate Monitoring in Wrangell-St. Elias

The NPS climate stations in Wrangell-St. Elias 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 park resources.

More Information

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

