



## Weather & Climate Summary Wrangell-St. Elias National Park & Preserve Winter 2016-2017

### Gulkana and Yakutat Winter Weather 2016-2017

Long-term climate records from Gulkana and Yakutat allow us to put the winter of 2016-2017 into context.

The winter temperatures were near normal for both Gulkana and Yakutat this past winter. The average winter temperature for Gulkana was 1.3°F, +0.3°F warmer than normal. The season started off cool and warmed through January and February. Yakutat average winter temperature was 28.5°F, which is -0.6°F cooler than normal. Yakutat was slightly cooler than normal for all three winter months (Figure 1, Table 1).

**December 2016:** Gulkana had a cold December. The average monthly temperature of -4.9°F was 5.3°F cooler than normal. Temperatures were below normal for most of the first two weeks before warming to near normal temperatures mid-month. Yakutat was 1.3°F cooler than normal with an average monthly temperature of 28.3°F. The warmest day of the month was December 2 with a temperature of 47°F. After that the temperatures dropped and remained below normal for about a week during mid-month.

**January:** The pattern shifted in January in Gulkana; the average monthly temperature was +2.3°F warmer than normal. During the last week of the month temperatures soared into the mid-40s. On January 26th a balmy 47°F was recorded, a record high for that day. In Yakutat temperatures were near normal for the month of January. The average temperature for the month was 27.7°F, normal is 28.1°F.

**February:** The warmth continued into February for Gulkana; the average monthly temperature was 9.3°F, which is 3.8°F

warmer than normal. There were two more daily high records for February. The first was on Valentine's Day with a high of 53°F and the second was the following day, February 15th, with a high of 51°F. Yakutat was -0.1°F cooler than normal at 29.6°F for February.

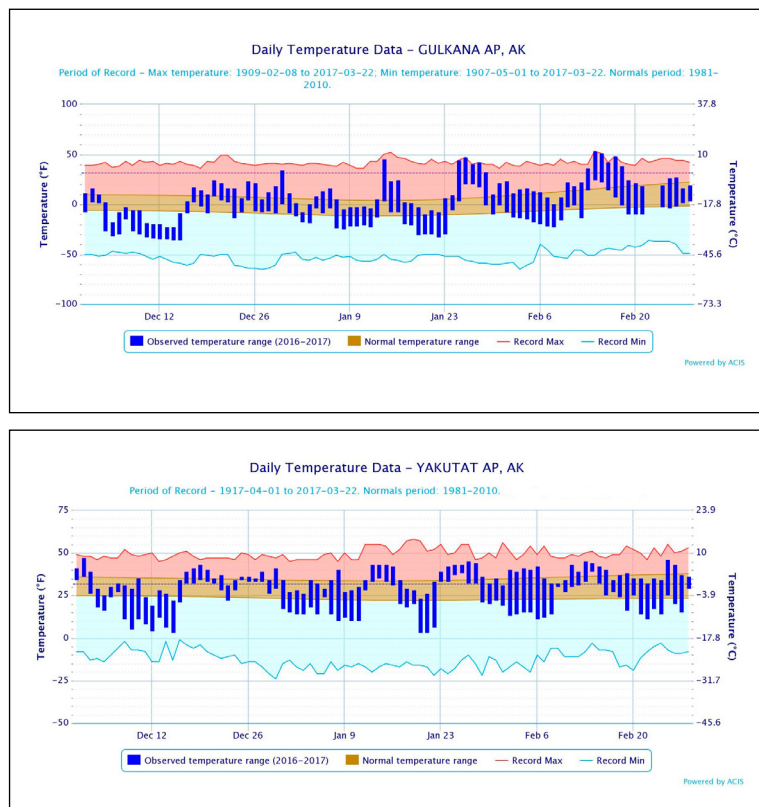


Figure 1. Winter 2016-2017 daily temperatures at Gulkana (top) and Yakutat (bottom) showing record maximum (red), record minimum (blue), normal (brown) and observed range (blue bars).

Table 1. Temperature: Gulkana (top) and Yakutat (bottom) winter 2016-2017 temperatures compared to 1981-2010 normals.

| Gulkana Winter 2016-2017 | Average Monthly Temp °F | 1981-2010 Normal °F | Departure from Normal °F | Monthly High °F / Date | Monthly Low °F / Date |
|--------------------------|-------------------------|---------------------|--------------------------|------------------------|-----------------------|
| December                 | -4.9                    | 0.4                 | -5.3                     | 34 / Dec 30            | -36 / Dec 14, 15      |
| January                  | -0.6                    | -2.9                | +2.3                     | 47 / Jan 26            | -33 / Jan 22          |
| February                 | 9.3                     | 5.5                 | +3.8                     | 53* / Feb 14           | -23 / Feb 8           |

Winter Season Temperature Departure from Normal: +0.3°F; \*Record daily high.

| Yakutat Winter 2016-2017 | Average Monthly Temp °F | 1981-2010 Normal °F | Departure from Normal °F | Monthly High °F / Date | Monthly Low °F / Date |
|--------------------------|-------------------------|---------------------|--------------------------|------------------------|-----------------------|
| December                 | 28.3                    | 29.6                | -1.3                     | 47 / Dec 2             | 3 / Dec 15            |
| January                  | 27.7                    | 28.1                | -0.4                     | 45 / Jan 27            | 3 / Jan 20, 21        |
| February                 | 29.6                    | 29.7                | -0.1                     | 46 / Feb 25            | 11 / Feb 22           |

Winter Season Temperature Departure from Normal: -0.6°F.

## Gulkana and Yakutat Winter 2016-2017 Precipitation

Gulkana had more precipitation than normal over the course of the winter with the seasonal total coming in ~131% of normal. Yakutat was below normal for the winter at 74% of normal. In Yakutat, snowfall totals were about 4 inches shy of normal at 79.3 inches (Figure 2; Table 3 and 4).

**December:** Gulkana precipitation was about 112% of normal in December with 0.87 inches of total precipitation measured during the month. Snowfall is not recorded at this location. Yakutat had near normal snowfall in December, just a few tenths below average at 22.3 inches, but the total precipitation for the month was only 51% of normal.

**January:** Gulkana precipitation was 180% of normal in January with a total snow water equivalent of 0.83 inches. In Yakutat the snowfall totals and water equivalent were near normal. The precipitation total was just shy of normal at 13.39 inches, and 27.6 inches of snow fell, normal is 31.9 inches for January.

**February:** In Gulkana, the precipitation total for February was again above normal at 0.60 inches, which is 118% of normal. In Yakutat, snowfall totals were near normal with 29.4 inches, normal is 29 inches. Total precipitation (snow water equivalent and rain) was 80% of normal.

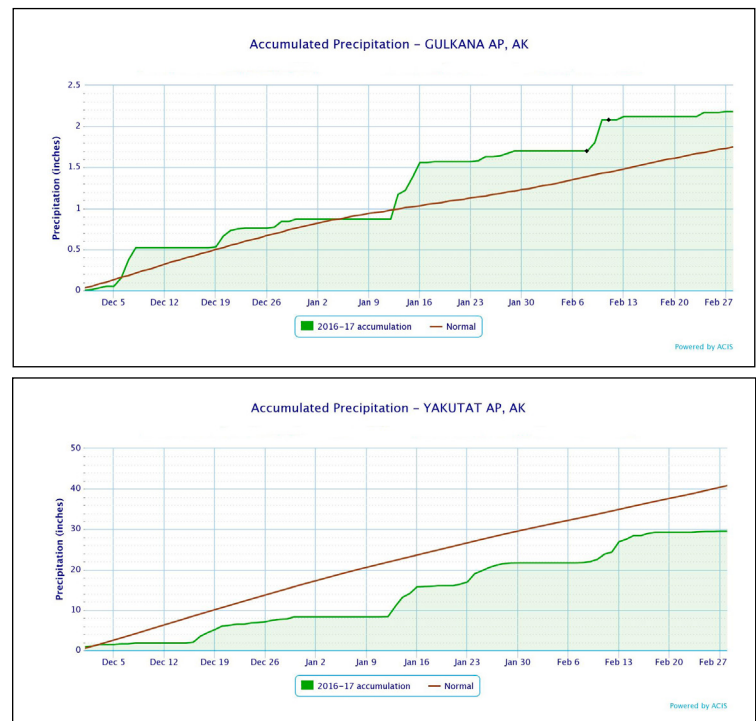


Figure 2. Winter 2016-2017 accumulated precipitation (green) at Gulkana (top) and Yakutat (bottom) compared to normal (brown line).

Table 2. Precipitation: Gulkana (top) and Yakutat (bottom) winter 2016-2017 precipitation totals compared to 1981-2010 normals.

| Gulkana Winter 2016-2017 | Total Monthly Precip. in. | 1981-2010 Normal in. | Departure from Normal in. | Greatest 24-hr. Total in. / Date | # Days with $\geq 0.01$ in. Water |
|--------------------------|---------------------------|----------------------|---------------------------|----------------------------------|-----------------------------------|
| December                 | 0.87                      | 0.78                 | +0.09                     | 0.22 / Dec 7                     | 14                                |
| January                  | 0.83                      | 0.46                 | +0.37                     | 0.30 / Jan 13                    | 10                                |
| February                 | 0.60                      | 0.51                 | +0.09                     | 0.28 / Feb 10                    | 6                                 |

Winter Season Departure from Normal: 131% of normal.

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| Yakutat Winter 2016-2017 | Total Monthly Precip. in. | 1981-2010 Normal in. | Departure from Normal in. | Greatest 24 -hr. Total in. / Date | # Days with $\geq 0.01$ in. Water |
|--------------------------|---------------------------|----------------------|---------------------------|-----------------------------------|-----------------------------------|
| December                 | 8.29                      | 16.28                | -7.99                     | 1.50 / Dec 17                     | 16                                |
| January                  | 13.39                     | 13.66                | -0.27                     | 2.53 / Jan 13                     | 18                                |
| February                 | 8.68                      | 10.86                | -2.18                     | 2.60 / Feb 13                     | 13                                |

Winter Season Departure from Normal: 74% of normal.

Table 3. Snowfall: Winter 2016-2017 monthly snowfall totals at Yakutat compared to normal (snow is not measured at Gulkana).

| Winter 2016-2017 | 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. |
|------------------|----------------------------|----------------------|---------------------------|---------------------------------------------|--------------------------------------|
| December         | 22.3                       | 23.2                 | -0.9                      | 6.4 / Dec 8                                 | 26.6                                 |
| January          | 27.6                       | 31.9                 | -4.3                      | 7.9 / Jan 24                                | 54.2                                 |
| February         | 29.4                       | 28.6                 | 0.8                       | 8.9 / Feb 10                                | 89.2                                 |

### Featured Stations: Chisana and May Creek SNOTEL

The Chisana (elev. 3320') and May Creek (elev. 1610') SNOTEL sites were installed 2005 and 2007, respectively. These are the two sites in the heart of the park that measure year-round precipitation, including rain, snow, and mixed precipitation. They are operated in partnership with the Natural Resources Conservation Service (NRCS). Figure 3 shows the annual precipitation totals for May Creek and Chisana from 2007-2016 by water year (October 1 – September 30).

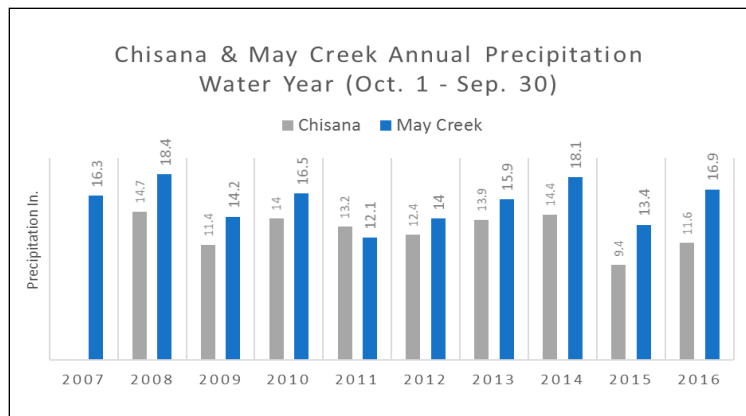


Figure 3. Annual precipitation totals for Chisana and May Creek.



### 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 4). 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.

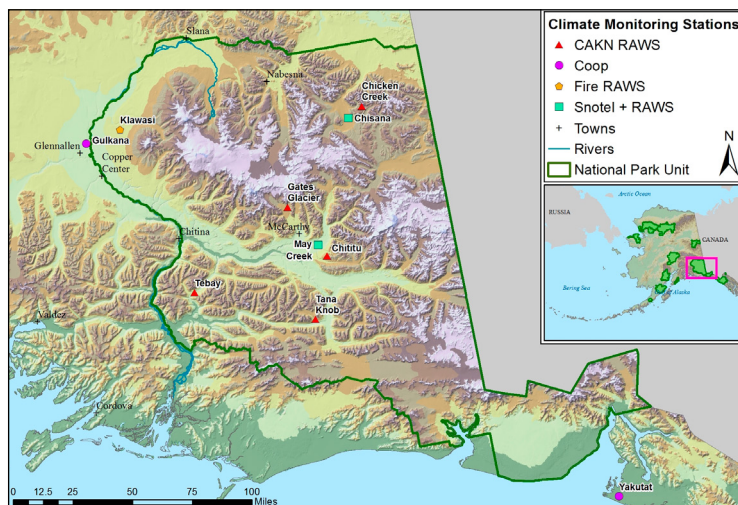


Figure 4. NPS climate stations in Wrangell-St. Elias NP&amp;P.

### More Information

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