

# 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

Winter 2016-2017

## Weather & Climate Summary Denali National Park & Preserve Winter 2016-2017

### Denali Winter Weather 2016-2017

December was cooler than normal in Denali. The average temperature for December was 1.1°F compared to a normal of 6.9°F. The low temperature for the month was -26.0°F on December 1. It was cool the first few weeks of December, but the second and third weeks had much warmer temperatures. Snowfall totals were well above normal at 22.9 inches, normal is 15.4 inches. Most of the snow fell during the last few days of the month. Total precipitation (water equivalent) was 161% of normal for the month.

January started off on the warm side, but temperatures mid-month cooled off and were below normal and reached a low of -36°F. Note the dramatic temperature swing towards the end of the month (graph at right) when temperatures climbed and were well above normal during the last week of the month. The average temperature for the month was 0.8°F compared to a normal monthly mean of 3.1°F. The high temperature for the month was 40°F on January 27. Snowfall was just above normal with 10.5 inches of total snow for the month, normally January snowfall totals average ~9 inches. Monthly precipitation totaled 0.68 inches; normal is 0.63 inches.

February was 2.9°F warmer than normal. Temperatures were again variable for the month with a warm stretch mid-month with high temperatures >40°F. Snowfall totals were well above normal at 25.9 inches, compared to the normal 8.4 inches. Most of the snow fell during the last week of the month. The total precipitation (water equivalent) was 1.48 inches, which is 274% of normal.

The average winter temperature at Denali was 4.1°F which is -1.7°F cooler than the 1981-2010 normal. The total winter precipitation was 3.64 inches, 174% of normal. The winter of

2016-2017 ranked as the 10th wettest winter on record (Figures 1 and 2; Table 1, 2, and 3).

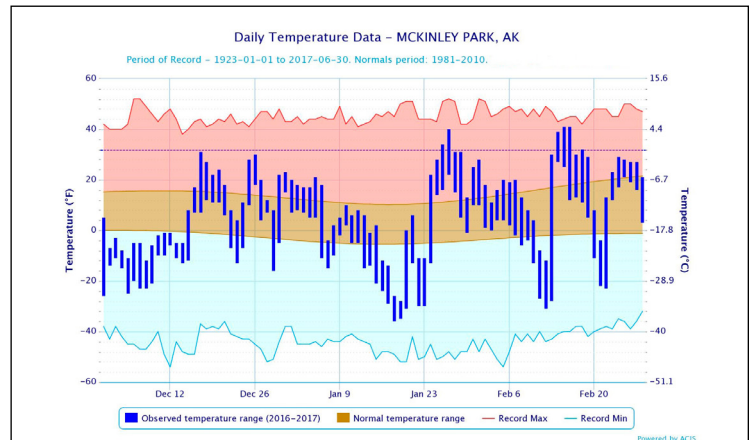


Figure 1. Winter 2016-2017 daily temperatures at Denali showing record maximum (red), record minimum (blue), normal (brown) and observed range (blue bars).

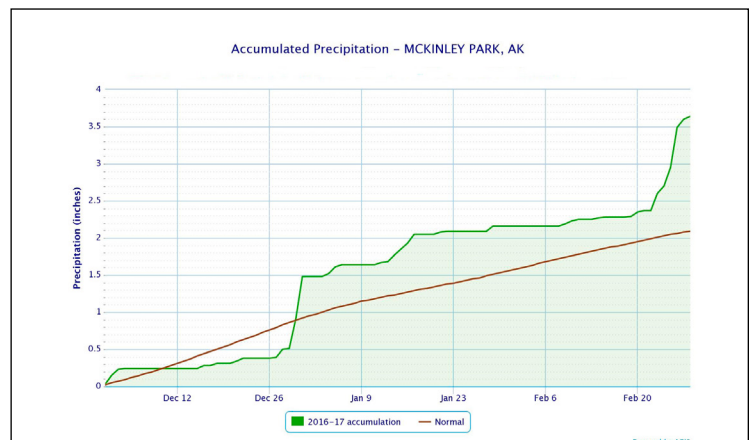


Figure 2. Winter 2016-2017 accumulated precipitation at Denali (green) compared to normal (brown line).

Table 1. Temperature: Winter 2016-2017 average monthly temperatures compared to the 1981-2010 normal.

| Winter 2016-2017 | Average Monthly Temp (°F) | 1981-2010 Normal (°F) | Departure from Normal (°F) | Monthly High (°F / Date) | Monthly Low (°F / Date) |
|------------------|---------------------------|-----------------------|----------------------------|--------------------------|-------------------------|
| December         | 1.1                       | 6.9                   | -5.8                       | 31-Dec-17                | -26 / Dec 1             |
| January          | 0.8                       | 3.1                   | -2.3                       | 40 / Jan 27              | -36 / Jan 18            |
| February         | 10.5                      | 7.6                   | +2.9                       | 41 / Feb 15, 16          | -31 / Feb 12            |

Winter Season Temperature Departure from Normal: -1.7°F.

Table 2. Precipitation: Winter 2016-2017 monthly precipitation totals compared to normal.

| 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         | 1.48                        | 0.92                   | +0.56                       | 0.57 / Dec 31                      | 13                                |
| January          | 0.68                        | 0.63                   | +0.05                       | 0.12 / Jan 17                      | 12                                |
| February         | 1.48                        | 0.54                   | +0.94                       | 0.54 / Feb 26                      | 14                                |

Winter Season Precipitation Departure from Normal: +1.55 inches (174% of normal).

Table 3. Snowfall: Winter 2016-2017 monthly snowfall totals compared to normal.

| Winter 2016-2017 | Total Monthly Snowfall (in.) | 1981-2010 Normal (in.) | Departure from Normal (in.) | Greatest 24-hr snowfall total (in. / Date) | Seasonal Cumulative Snowfall (in.) |
|------------------|------------------------------|------------------------|-----------------------------|--------------------------------------------|------------------------------------|
| December         | 22.9                         | 15.4                   | +7.5                        | 7.7 / Dec 31                               | 30.3                               |
| January          | 10.5                         | 9                      | +1.5                        | 2.0 / Jan 5                                | 40.8                               |
| February         | 25.9                         | 8.4                    | +17.5                       | 9.6 / Feb 26                               | 66.7                               |

## Climate Monitoring in Denali

NPS climate stations in Denali complement the long-term record available from the National Weather Service station at park headquarters (Figure 3).

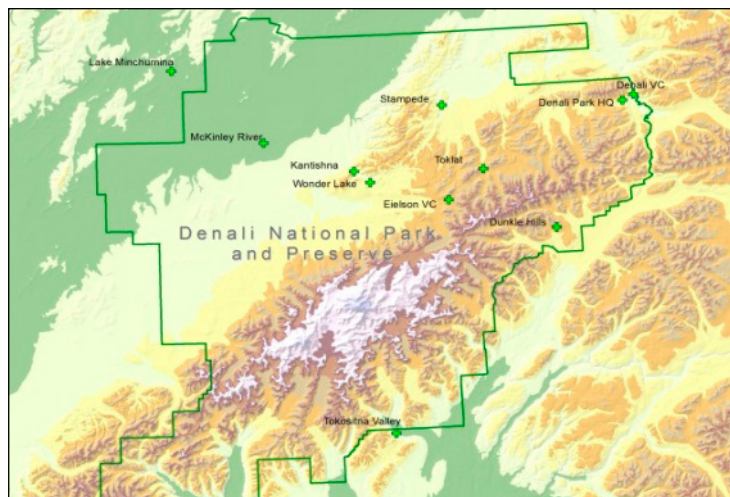


Figure 3. NPS climate stations in Denali National Park & Preserve.

## Featured Station: Kantishna SNOTEL

The Kantishna SNOTEL site was installed in 2005 and is one of the few sites in the park that measures year-round precipitation, including rain and snow (Figure 4). It is operated in partnership with the Natural Resources Conservation Service (NRCS). Figure 5 shows the annual precipitation totals for Kantishna from 2006-2016 by water year (October 1 – September 30).



Figure 4. (right) Kantishna SNOTEL site.

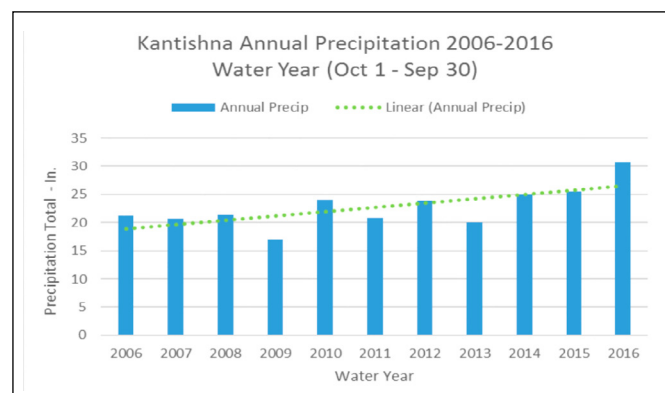


Figure 5. Annual precipitation at Kantishna.

## More Information

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