

# Alaska Statewide Climate Summary

## December 2018

The following report provides an overview of the December 2018 weather. The report is based on preliminary data from selected weather stations throughout the state of Alaska. “Departure from normal” refers to the climatological average over the 1981-2010 period.

### Temperature

December 2018 was comparatively cool compared to the exceptionally warm preceding months. Generally speaking, the Interior and southern coastal areas were on the warm side of things in December, while the Bering Sea coast was cooler than average (see Fig. 1).

Of our selected stations, five recorded below average monthly temperatures. With  $-4.8^{\circ}\text{F}$  below normal, Nome was the coldest station this month. Delta Junction and Anchorage were warmest with positive deviations of  $6.1$  and  $6.6^{\circ}\text{F}$ , respectively. In October and November, all stations recorded monthly deviations well above average with several locations reaching values over  $10^{\circ}\text{F}$  above normal. Hence, December temperatures represent a return to conditions closer to the seasonal norm for many regions in the state after a very warm fall season. Monthly temperature deviations for all stations are listed in Table 1.

Figure 2 shows temperature deviations at all of the selected stations for each day of the month. After a warm first third of the month, stations in the Interior and western regions of the state saw a prolonged cold snap during the following weeks with daily temperature deviations reaching  $-20^{\circ}\text{F}$  and lower. Warmer temperatures returned during the last days of the year in most locations. In the south and south east and in Utqiagvik, temperatures remained above average or close to normal for most of the month, without the pronounced cold spell recorded in the rest of the state.

Yakutat and Anchorage recorded mean December temperatures in the top 10 of their respective time series. New daily temperature records (daily average, minimum, and maximum) are listed in Table 2. All temperature records set in December were high records.

Table 1: Mean monthly air temperature, normal (1981-2010) and departure for selected stations throughout the state, December 2018, preliminary values.

Station	Observed ( $^{\circ}\text{F}$ )	Normal ( $^{\circ}\text{F}$ )	Departure ( $^{\circ}\text{F}$ )
Anchorage	25.6	19.0	6.6
Bethel	9.0	10.4	-1.4
Bettles	-0.6	-5.7	5.1
Cold Bay	30.3	31.1	-0.8
Delta Junction	8.2	2.1	6.1

Fairbanks	0.1	-4.0	4.1
Gulkana	5.0	0.5	4.5
Homer	29.0	27.1	1.9
Juneau	33.3	29.8	3.4
Ketchikan	37.5	35.3	2.2
King Salmon	17.8	18.6	-0.8
Kodiak	32.3	31.2	1.1
Kotzebue	2.5	2.3	0.2
McGrath	-0.6	-3.2	2.6
Nome	4.7	9.5	-4.8
St. Paul Island	26.8	28.8	-2.1
Talkeetna	19.9	16.0	3.9
Utqiagvik	-5.9	-7.8	1.9
Yakutat	35.2	29.7	5.6

2018-12, Monthly Temperature Departure From Normal (1981-2010)

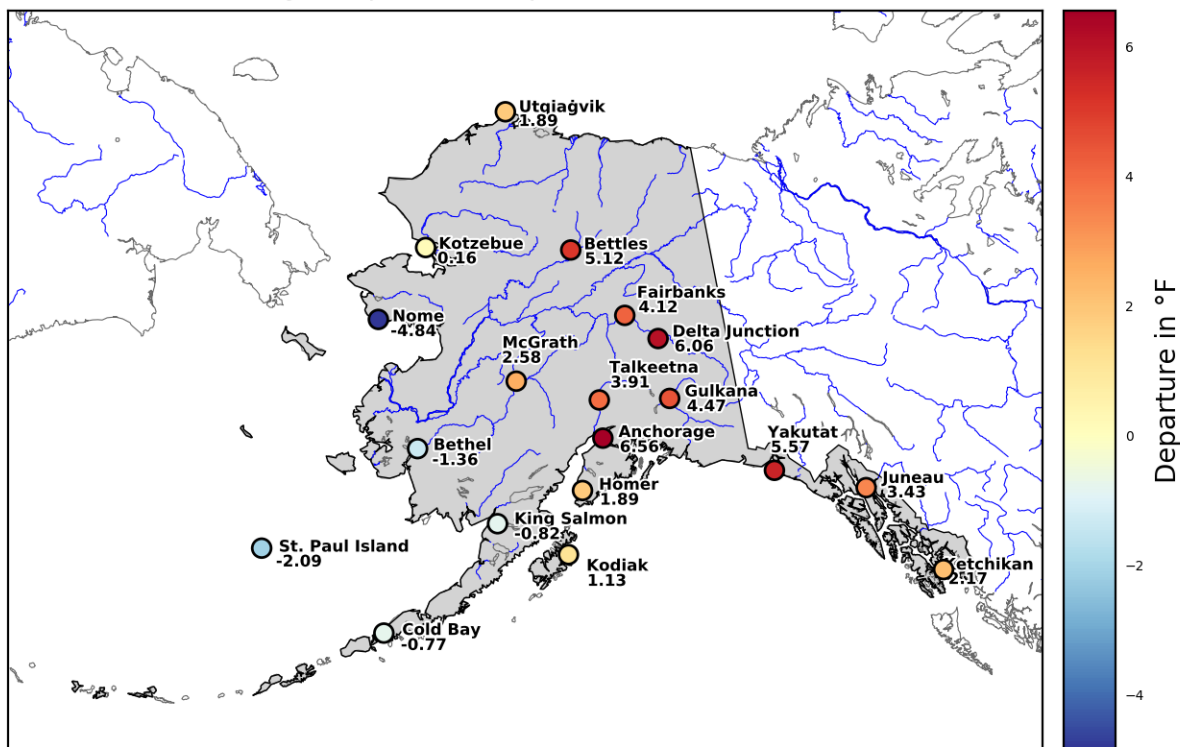


Figure 1: Monthly mean temperature departure from normal, December 2018.

Daily mean temperature, departure from normal (1981-2010), 2018-12

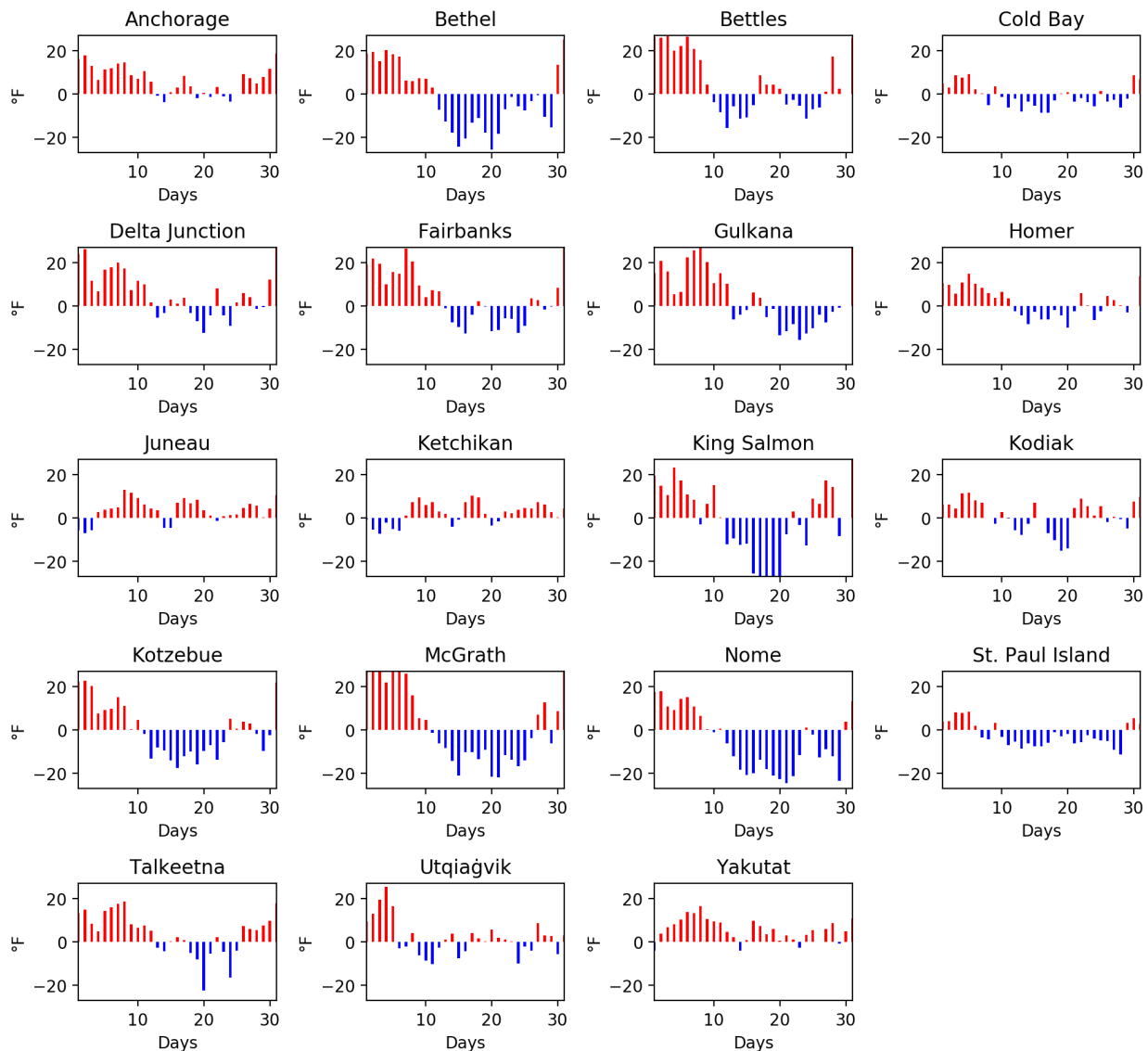


Figure 2: Daily mean temperature departures for each day in December 2018, at the selected stations.

Table 2: Daily temperature records, December 2018, since the beginning of the respective time series. avgt = daily mean temperature, mint = daily minimum temperature, maxt = daily maximum temperature.

Station	Date	Element	New Record	Year of old record	Old record
<b>High records</b>					
Anchorage	2018/12/31	maxt	44	1980	43
Bettles	2018/12/01	avgt	22	1979	20.5
Bettles	2018/12/01	maxt	26	1979	25
Bettles	2018/12/01	mint	18	1979	16
Homer	2018/12/01	maxt	48	1992	46
Homer	2018/12/04	maxt	46	1947	45
Homer	2018/12/05	mint	39	2000	38
King Salmon	2018/12/04	avgt	43	2008	40
King Salmon	2018/12/31	avgt	44.5	1984	42
King Salmon	2018/12/27	maxt	49	1990	46
King Salmon	2018/12/28	maxt	49	1990	47
King Salmon	2018/12/31	maxt	51	2016	46
King Salmon	2018/12/04	mint	41	1958	37
Kodiak	2018/12/04	avgt	43	1947	42
Kodiak	2018/12/04	mint	41	1947	40
Kotzebue	2018/12/02	avgt	27.5	2006	23
Kotzebue	2018/12/03	avgt	25	1972	24.5
Kotzebue	2018/12/03	maxt	32	2002	29
Kotzebue	2018/12/02	mint	23	2017	21
McGrath	2018/12/01	avgt	28.5	1978	26.5
McGrath	2018/12/02	avgt	32.5	2014	27.5
McGrath	2018/12/01	mint	22	1978	20
McGrath	2018/12/02	mint	28	2014	22
Utqiagvik	2018/12/04	mint	18	1972	14
Yakutat	2018/12/04	mint	37	1940	36
Yakutat	2018/12/08	mint	44	2017	43

## Precipitation

December precipitation varied significantly between different locations throughout the state. At 349% of normal precipitation, Bettles was wettest, relatively speaking, while other stations in the Interior – e.g. Fairbanks and Gulkana – recorded values of 66 and 47% of normal, respectively. See Table 3, Figure 3.

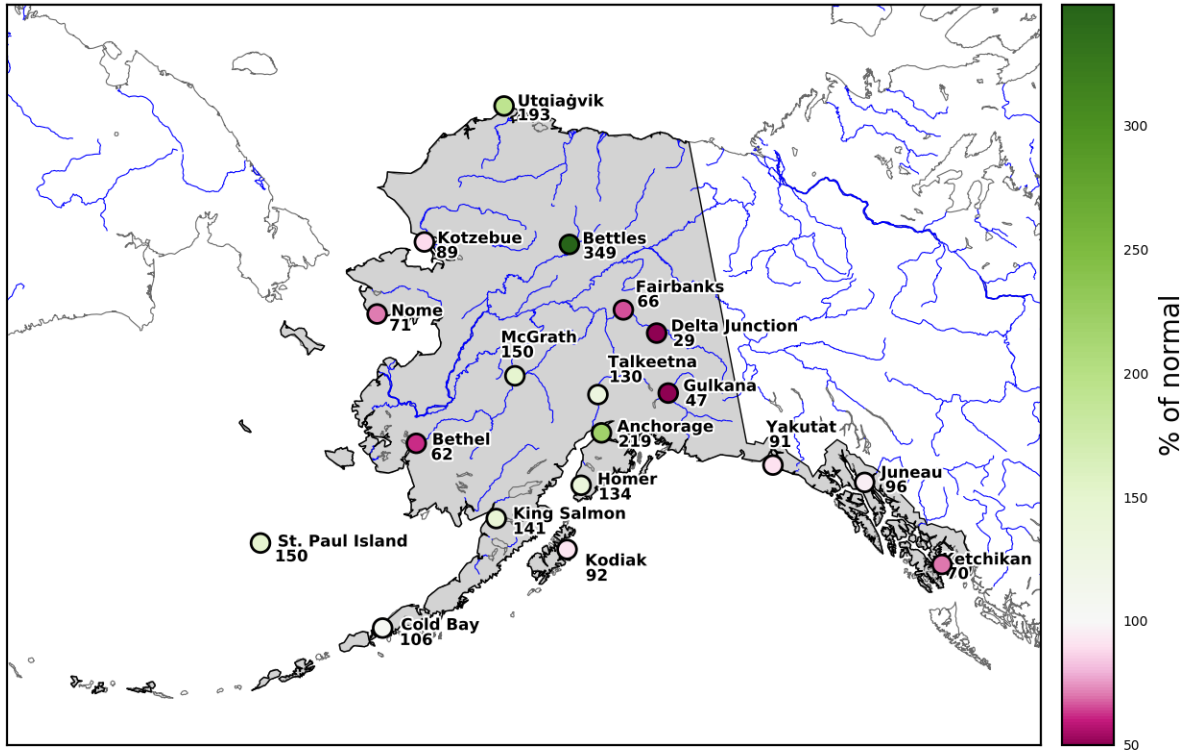
Figure 4 shows the monthly precipitation sums at each station in inches. It can be seen how strongly precipitation varies between stations not only during the past month but also in the climatological mean, due to the diverse climatological conditions that can be found in Alaska.

Table 3: Monthly precipitation sum, normal (1981-2010) and departure expressed as a percentage of the normal (1981-2010) for selected stations throughout the state, December 2018, preliminary values.

Station	Precipitation (in)	Normal (in)	% of normal
Anchorage	2.4	1.1	218.9
Bethel	0.7	1.1	61.6
Bettles	3.2	0.9	348.9
Cold Bay	4.7	4.5	105.6
Delta Junction	0.1	0.4	28.9
Fairbanks	0.4	0.6	65.6
Gulkana	0.4	0.8	47.4
Homer	4.1	3.1	134.1
Juneau	5.6	5.8	96.4
Ketchikan	10.0	14.2	70.1
King Salmon	1.7	1.2	140.7
Kodiak	8.0	8.7	92.2
Kotzebue	0.7	0.8	89.5
McGrath	1.9	1.3	149.6
Nome	0.8	1.1	71.3
St. Paul Island	3.4	2.3	150.2
Talkeetna	2.5	1.9	130.1
Utqiagvik	0.3	0.1	192.9
Yakutat	14.8	16.3	90.9

Figure 3: Monthly precipitation sums expressed as percent of normal (1981-2010), December 2018.

2018-12, Monthly Precipitation, % of Normal (1981-2010)



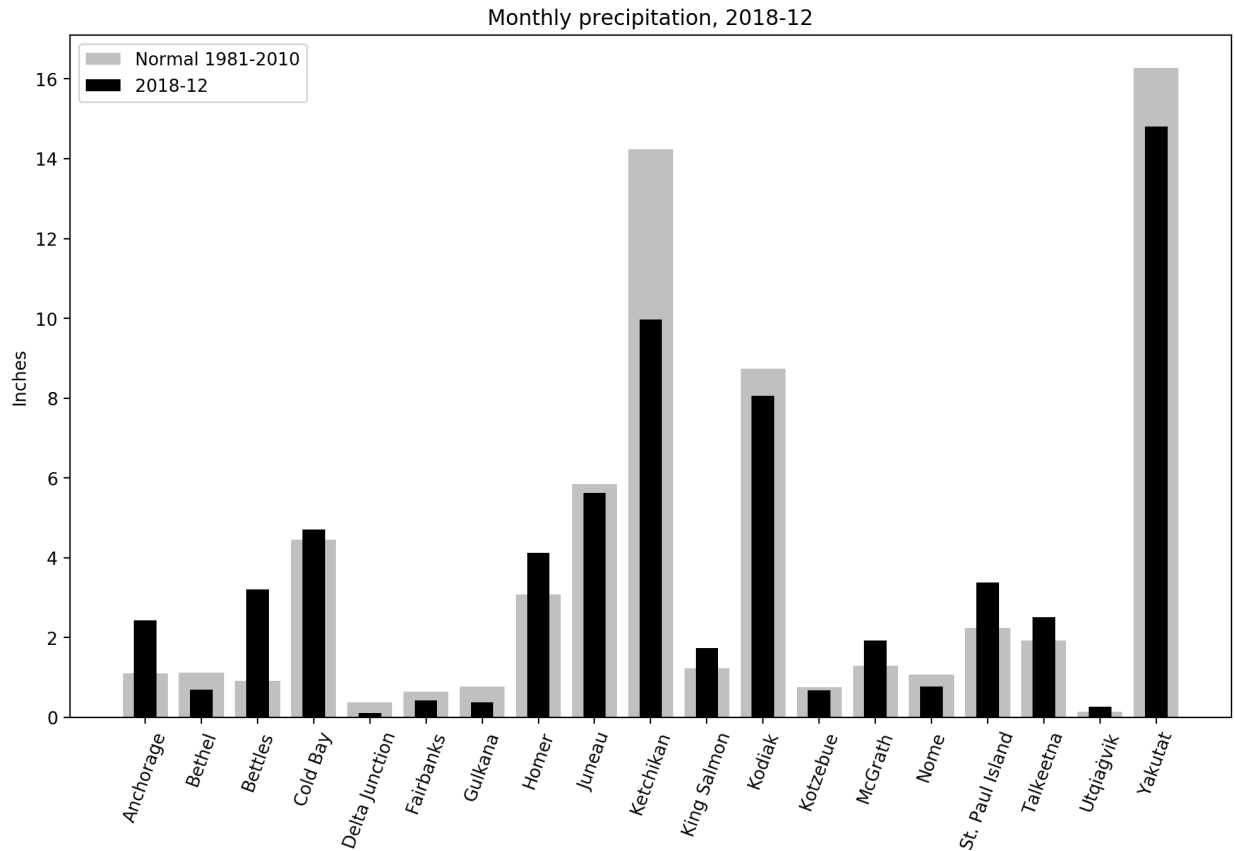


Figure 4: Monthly precipitation sums for December 2018 at the selected stations compared to the normal (1981-2010), in inches.

## Snow

Snowfall was very variable throughout the state. Bettles set a new record for monthly snowfall with well over 300% of normal. Anchorage and Utqiagvik also recorded high snow fall sums at around 200% of normal. In contrast, Bethel, Kodiak, St. Paul Island and Yakutat saw no snow at all this month.

Table 4: Monthly snowfall sum, normal (1981-2010) and departure expressed as a percentage of the normal (1981-2010) for the selected stations that measure snowfall, December 2018, preliminary values.

Station	Precipitation (in)	Normal (in)	% of normal
Anchorage	32.6	16.7	195.2
Bethel	0.0	11.4	0.0
Bettles	56.7	15.6	363.5
Cold Bay	21.5	12.6	170.6
Fairbanks	7.5	12.1	62.0
Juneau	11.9	15.6	76.3

King Salmon	5.6	9.5	58.9
Kodiak	0.0	13.8	0.0
Kotzebue	7.0	11.5	60.9
McGrath	21.8	20.2	107.9
Nome	13.0	14.5	89.7
St. Paul Island	0.0	12.1	0.0
Utqiagvik	7.0	3.5	200.0
Yakutat	0.0	23.2	0.0

## Newsworthy Events

High winds associated with a storm in the Gulf of Alaska caused some damage in parts of the panhandle on December 10<sup>th</sup> and 11<sup>th</sup>. Gusts of up to 61mph felled trees, which temporarily blocked a road in Craig. High winds also affected the Aleutians and Alaska Peninsula on December 30<sup>th</sup> and 31<sup>st</sup>.

Sea ice in the Bering Sea increased with the return of colder temperatures and reached almost 90% of normal by the end of the year. The Chuckchi Sea iced over by the middle of the month.

*This information consists of preliminary climatological data compiled by the Alaska Climate Research Center, Geophysical Institute, University of Alaska Fairbanks. For more information on weather and climatology, visit the center web site at <http://akclimate.org>. Please report any errors to [webmaster@akclimate.org](mailto:webmaster@akclimate.org).*