



Alaska Statewide Climate Summary January 2020

JANUARY 2019 HIGHLIGHTS:

- **COLDER THAN NORMAL TEMPERATURES WERE OBSERVED OVER MUCH OF ALASKA. KING SALMON WAS 18.4°F COLDER THAN NORMAL.**
- **PRECIPITATION HAS BEEN NEAR TO SIGNIFICANTLY BELOW NORMAL OVER MOST OF THE STATE. NINE STATIONS RECEIVED LESS THAN 50% OF NORMAL PRECIPITATION DURING THE MONTH.**
- **SNOWFALL WAS ABOVE NORMAL IN ANCHORAGE AND JUNEAU. CONVERSELY, BETTLES AND FAIRBANKS RECEIVED LESS SNOW THAN NORMAL.**
- **THERE ARE NO LONGER DROUGHT CONDITIONS IN THE PANHANDLE. THE PANHANDLE CONTINUES TO BE UNDER ABNORMALLY DRY CONDITIONS. THERE IS A NEW AREA OF ABNORMALLY DRY CONDITIONS AROUND COOK INLET AND ANCHORAGE.**
- **SEA ICE EXTENT HAS INCREASED BY 9.38% DURING THE LAST MONTH. SEA ICE EXTENT IS ABOVE THE LEVEL OBSERVED OVER THE PAST FEW YEARS.**
- **KODIAK RECEIVED 22 INCHES OF SNOW OVER A 24 HOUR PERIOD STARTING ON THE AFTERNOON OF TUESDAY, JANUARY 28TH.**

The following report provides an overview of the January 2020 weather. The report is based on data from selected weather stations throughout the state of Alaska. “Departure from normal” refers to the climatological average over the 1981-2010 period.

Temperature

In January 2020, most of Alaska, with the exception of Utqiagvik and St. Paul Island, recorded colder than normal temperatures (Figure 1, Table 1). The coldest station compared to normal was King Salmon at -2.2°F, 18.4°F below normal. This is followed by McGrath, Talkeetna, and Delta Junction with temperatures of -24.4°F, -1.7°F, and -15.2°F, which corresponds to temperature departures of 17.9°F, 15.9°F, and 14.1°F colder than normal, respectively. Fairbanks, Gulkana, and Homer reported mean temperatures of -21.4°F, -16°F, and 11.8°F, corresponding to temperature departures of -13.5°F, -13.2°F, and -13.0°F, respectively. Bethel, Bettles, and Anchorage were also significantly colder than normal with temperature departures of -12.1°F, -

11.1°F, and -10.9°F. The mean monthly temperatures in Utqiagvik and St Paul Island were -13°F and 25.2°F, respectively, which corresponds to temperature departures of 0.5°F and 0.1°F warmer than normal.

Multiple stations set new records for highest mean, minimum and maximum daily temperatures on specific days during January 2020. Talkeetna set a new record for lowest mean daily temperature on a specific day and Cold Bay set a new record for highest mean daily temperature on a specific day. All values and dates are listed in Table A1, A2 and A3 in the appendix.

Figures 2 and 3 show mean daily temperature departures from normal for 2019 in Talkeetna and in Cold Bay. While red and blue bars represent positive and negative departures from normal, red and blue lines represent the highest and lowest values of mean daily temperature on record for each day of the year. Days in which red bars (positive departures) are higher than the red line indicate high mean daily temperature records. The mean daily temperature in Cold Bay on January 10, 2020, was the highest ever recorded there on this specific day. Conversely, the mean daily temperature in Talkeetna on January 5, 2020 was the lowest ever recorded there on this specific day since the beginning of the time series (Figure 2, Table A1). Talkeetna also set lowest maximum daily temperature records on January 4th and 5th with a high temperature on both days of -16°F (Table A3).

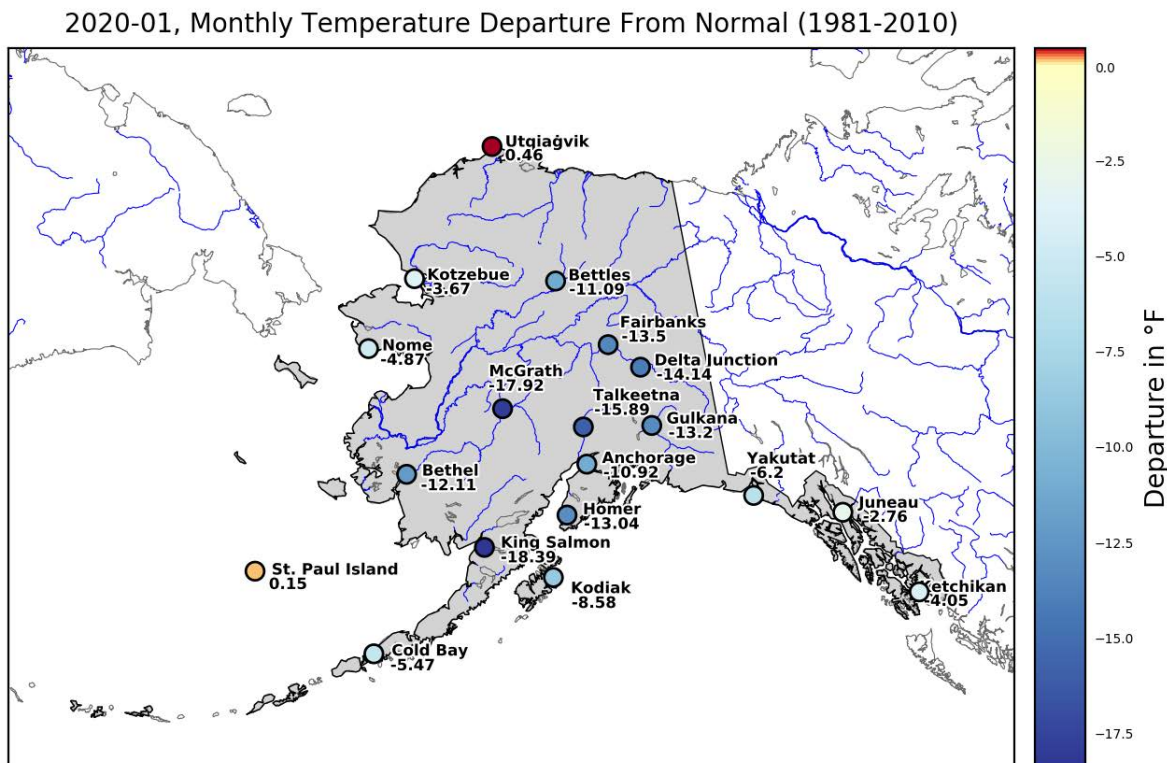


Figure 1: Monthly mean temperature departure from normal, January 2020.

Table 1: Mean monthly air temperature, normal (1981-2010) and departure for selected stations throughout the state, January 2020.

Station	Observed (°F)	Normal (°F)	Departure (°F)
Anchorage	6.2	17.1	-10.9
Bethel	-5.5	6.6	-12.1
Bettles	-21.1	-10.1	-11.0
Cold Bay	22.8	28.2	-5.4
Delta Junction	-15.2	-1.1	-14.1
Fairbanks	-21.4	-7.9	-13.5
Gulkana	-16	-2.9	-13.1
Homer	11.8	24.8	-13
Juneau	25.5	28.3	-2.8
Ketchikan	30.9	34.9	-4
King Salmon	-2.2	16.2	-18.4
Kodiak	21.8	30.4	-8.6
Kotzebue	-6.5	-2.8	-3.7
McGrath	-24.4	-6.5	-17.9
Nome	0.3	5.1	-4.8
St. Paul Island	25.2	25.1	0.1
Talkeetna	-1.7	14.2	-15.9
Utqiagvik	-13	-13.4	0.4
Yakutat	21.9	28.1	-6.2

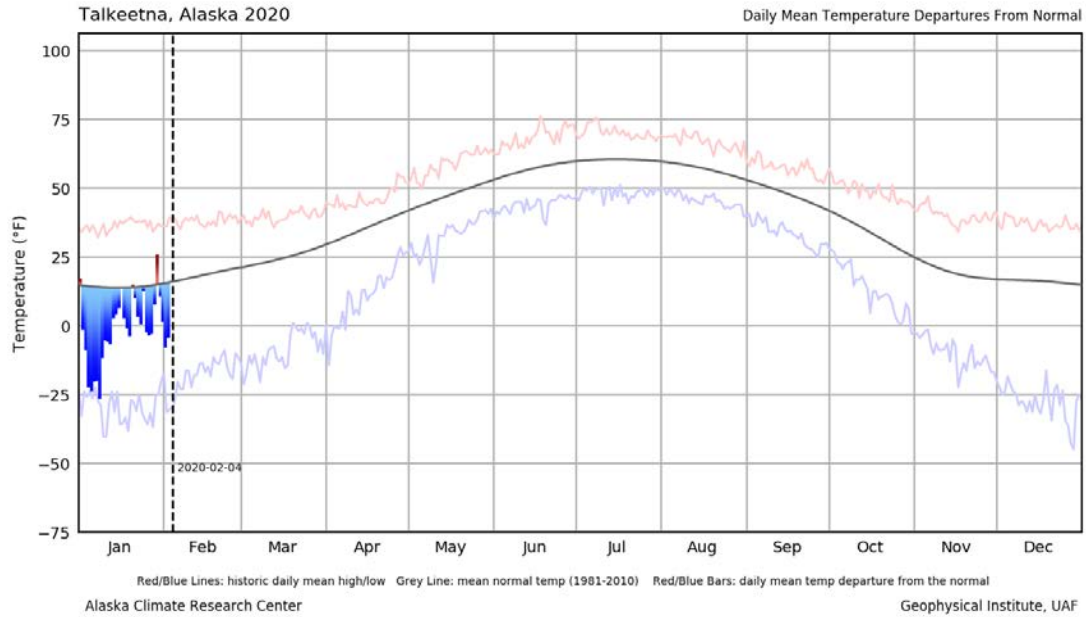


Figure 2: Talkeetna daily mean temperature departures from normal (1981-2010) for 2020. Red and blue bars represent positive and negative temperature departures. Grey line represents the mean normal temperature, red and blue lines represent respectively the historic highest and lowest records of mean daily temperature.

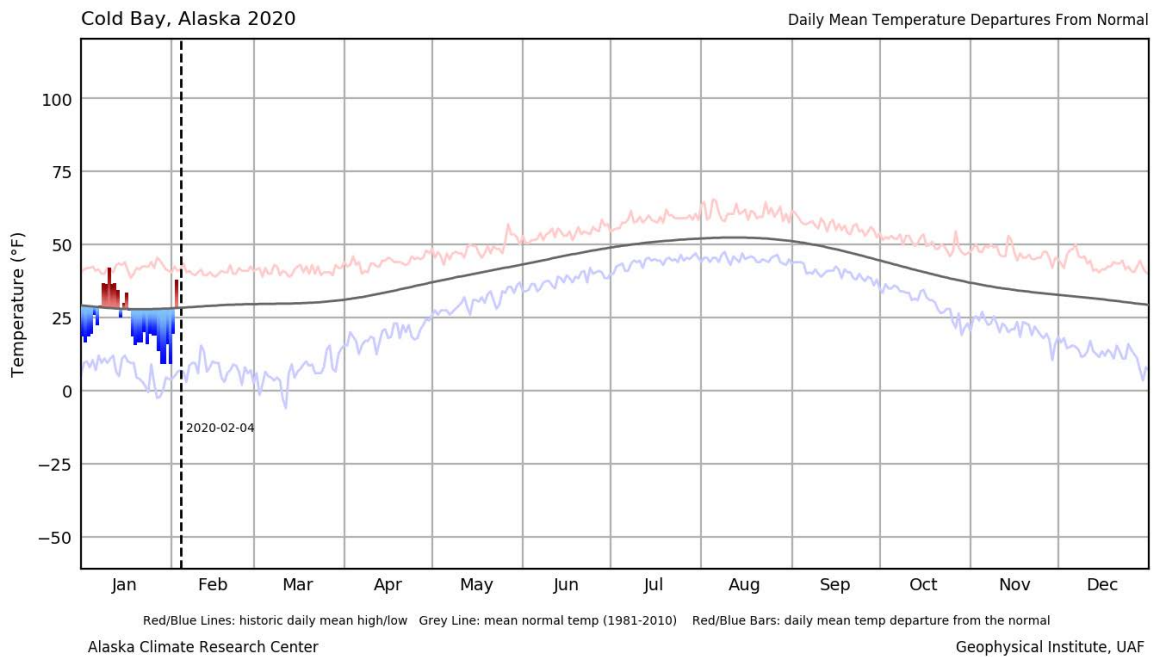


Figure 3: Cold Bay daily mean temperature departures from normal (1981-2010) for 2020. Red and blue bars represent positive and negative temperature departures. Grey line represents the mean normal temperature, red and blue lines represent respectively the historic highest and lowest records of mean daily temperature.

Daily mean temperature, departure from normal (1981-2010), 2020-01

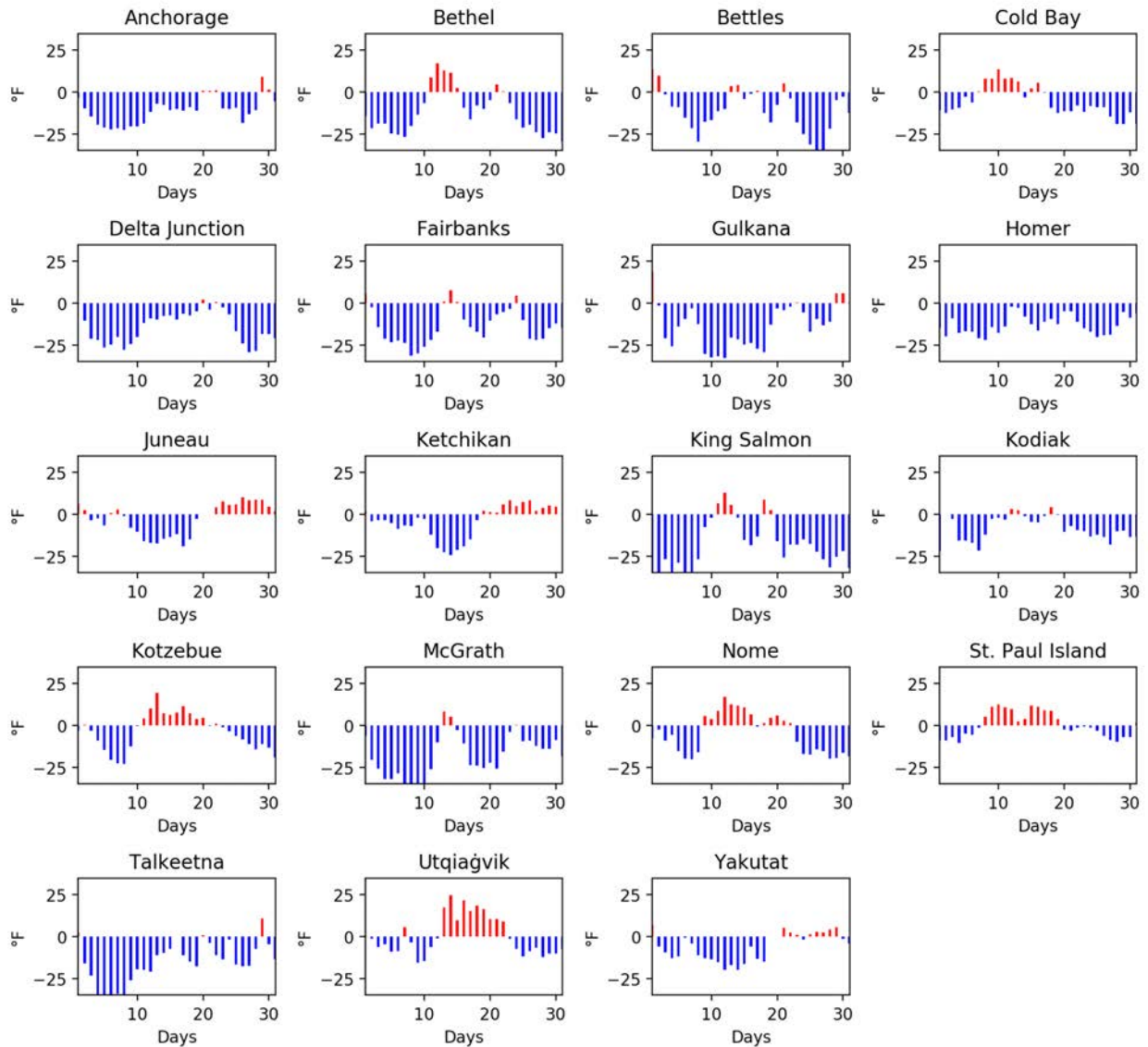


Figure 4: Daily mean temperature departures for each day in January 2020, at the selected stations.

Kotzebue, Nome, and St Paul Island started the month out cold, but then warmed to above normal temperatures near January 10th before returning to below normal temperatures around January 20th (Figure 4). Bethel, Cold Bay, and Utqiagvik followed a similar pattern of below normal temperatures, followed by above normal temperatures and then returning to colder conditions, but on different days. Talkeetna and McGrath were mostly colder than normal, with a couple of days of above normal temperatures. However, there is a warming trend in both stations during the month with larger temperature deviations towards the beginning of the month and smaller deviations at the end of the month. Ketchikan, Juneau, and Yakutat were mostly colder than normal until the 20th, when temperatures rose above normal. Homer experienced colder than normal temperatures during the entire month.

Precipitation

Much of Alaska was drier than normal in January, with the exception of St. Paul Island, Delta Junction, Ketchikan, and Utqiagvik. Nine of the 19 stations received less than 50% of normal precipitation during the month (Figure 5, Table 2).

McGrath reported 0.1 inch of precipitation during January (Table 2). Talkeetna followed with 15.4% of normal precipitation. Bettles and Homer followed closely with 22.2% and 22.4% of normal precipitation, respectively. St. Paul Island measured the highest deviation from normal precipitation, with 111.4% of the average value for the period 1981-2010. Delta Junction, similarly, received 110% of normal precipitation.

St. Paul Island recorded the highest positive departure from normal in absolute terms, reporting 0.2 inches above normal precipitation (Figure 6, Table 2). Yakutat reported 9.4 inches less precipitation than normal. Kodiak receiving 5.9 inches below normal precipitation.

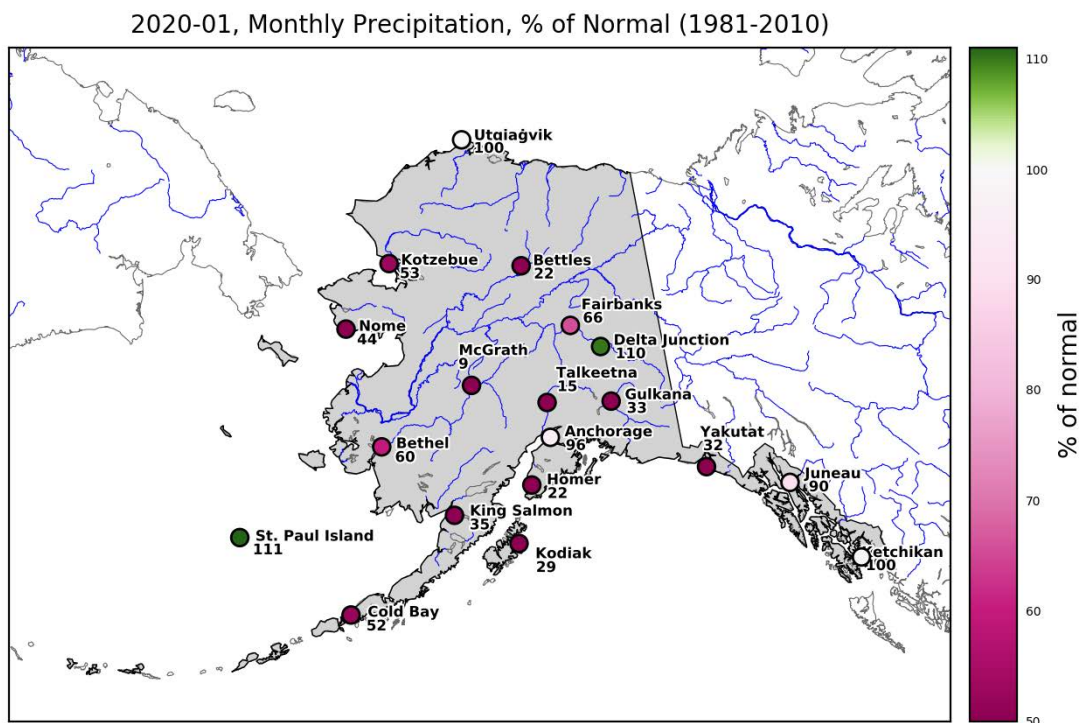


Figure 5: Monthly precipitation sums expressed as percent of normal (1981-2010), January 2020.

Table 2: Monthly precipitation sum, normal (1981-2010) and departure expressed as a percentage of the normal (1981-2010) for selected stations throughout the state, January 2020.

Station	Precipitation (in)	Normal (in)	% of normal
Anchorage	0.7	0.7	95.9
Bethel	0.5	0.8	60.3
Bettles	0.2	0.8	22.2
Cold Bay	1.6	3.2	51.6
Delta Junction	0.3	0.3	109.7
Fairbanks	0.4	0.6	65.5
Gulkana	0.2	0.5	32.6
Homer	0.6	2.6	22.4
Juneau	4.8	5.4	89.9
Ketchikan	15.4	15.4	100.3
King Salmon	0.4	1	35.3
Kodiak	2.4	8.3	28.7
Kotzebue	0.3	0.6	53.2
McGrath	0.1	1.1	9.1
Nome	0.4	0.9	43.6
St. Paul Island	1.8	1.6	111.4
Talkeetna	0.2	1.4	15.4
Utqiagvik	0.1	0.1	100
Yakutat	4.3	13.7	31.8

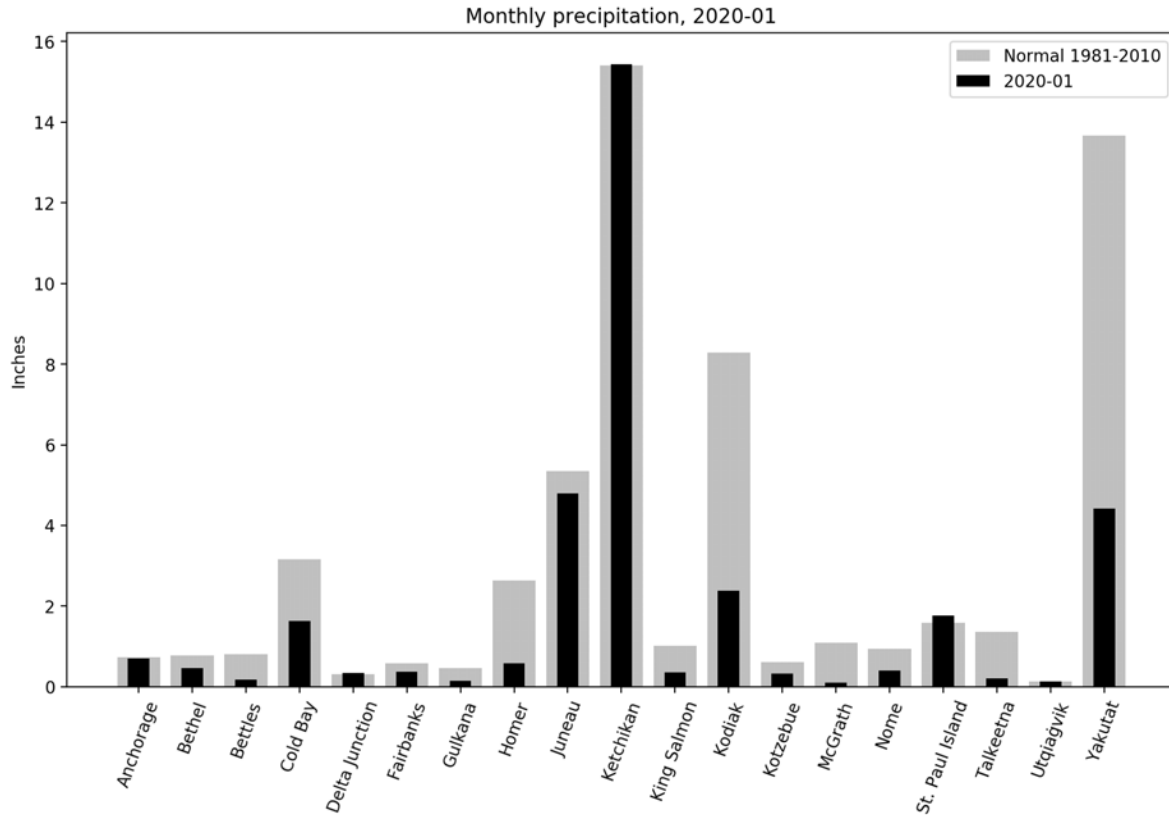


Figure 6: Monthly precipitation sums for October 2019 at the selected stations compared to the normal (1981-2010), in inches.

Snow

There was above average snowfall in Anchorage and Juneau in January 2020. Conversely, Bettles and Fairbanks received less snow than normal (Table 3).

Anchorage reported 17.1 inches of snow, 151.3% of the normal snowfall for January. Juneau received 3.2 inches above normal snowfall. Conversely, Fairbanks received 66% of normal snowfall and Bettles recorded 5.1 inches of snow, significantly less than the normal snowfall total of 13.9 inches.

Table 3: Monthly snowfall sum, normal (1981-2010) and departure expressed as a percentage of the normal (1981-2010) for the selected stations that measure snowfall, January 2020.

Station	Snowfall (in)	Normal (in)	% of normal
Anchorage	17.1	11.3	151.3
Bettles	5.1	13.9	36.7
Fairbanks	6.8	10.3	66.0
Juneau	30.9	27.7	111.6

Drought Conditions

The drought which began in Ketchikan in the summer of 2018 has ended after 18 months as of the January 21 US Drought Monitor Summary, however the Panhandle is still classified as abnormally dry. Some communities had to use supplemental generators when reservoir levels were low at the height of the drought. There was also widespread damage to trees from insects due to the drought. Dry conditions in the south-central area, around Cook Inlet and Anchorage, combined with low snow water equivalent values, have caused that area to be classified as abnormally dry. (source: <https://droughtmonitor.unl.edu/>).

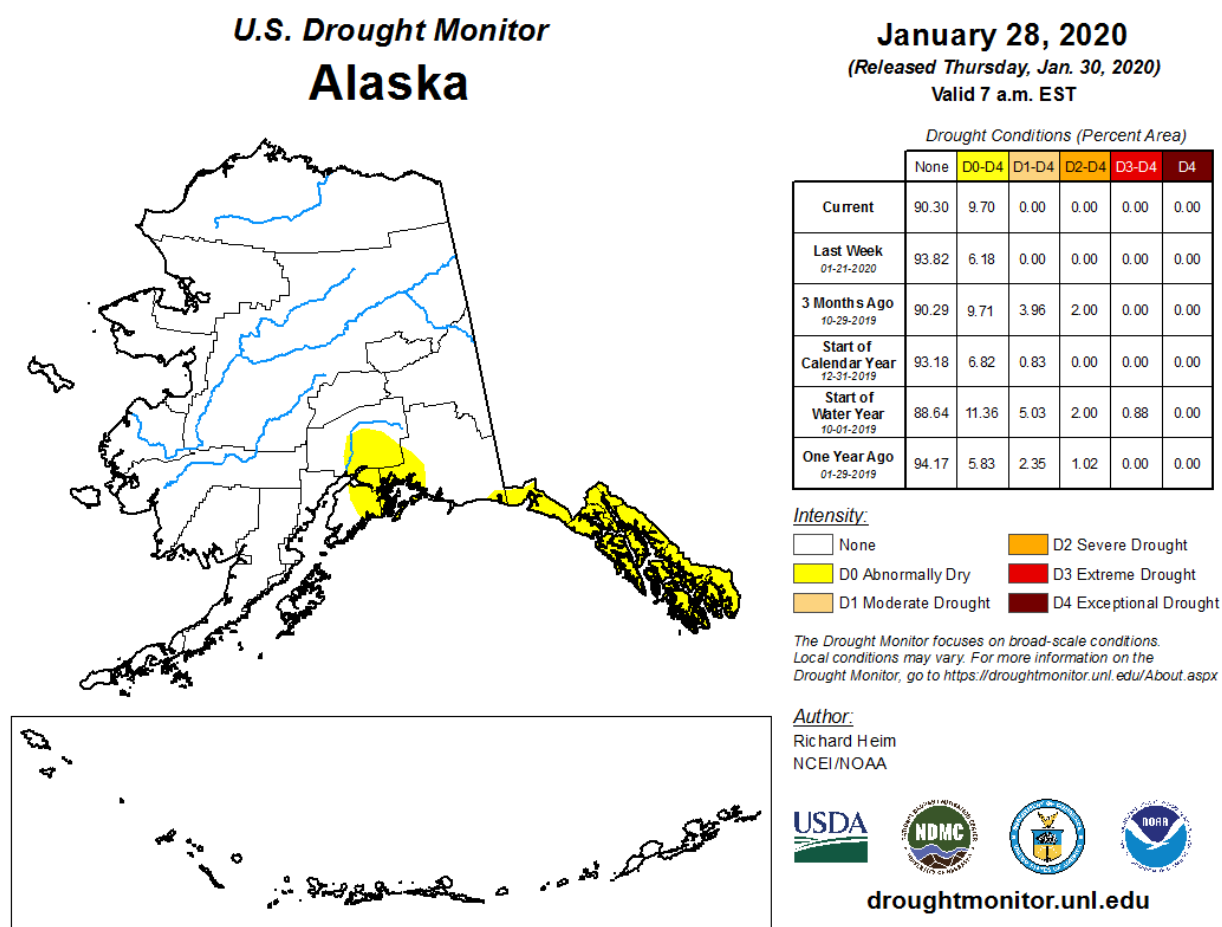


Figure 7: U.S. Drought Monitor map for Alaska, updated on January 7, 2020. The table on the right shows the percent area affected by different categories of drought intensity. Figures and data produced and released by the U.S. Drought Monitor, a partnership between the National Drought Mitigation Center at the University of Nebraska-Lincoln, the United States Department of Agriculture, and the National Oceanic and Atmospheric Administration (<https://droughtmonitor.unl.edu/>).

Arctic Sea Ice

Figure 8 and Figure 9 show the time series of daily Arctic sea ice extent and the ice concentration updated respectively until January 30 and February 3, 2020, respectively.

Over the month, sea ice has increased by 9.39% from the level on January 2, 2020 of 13.074 M km² to 14.301 M km² on January 30th. At this point the sea ice extent (light blue line in Figure 8) is above the level observed over the past few years.

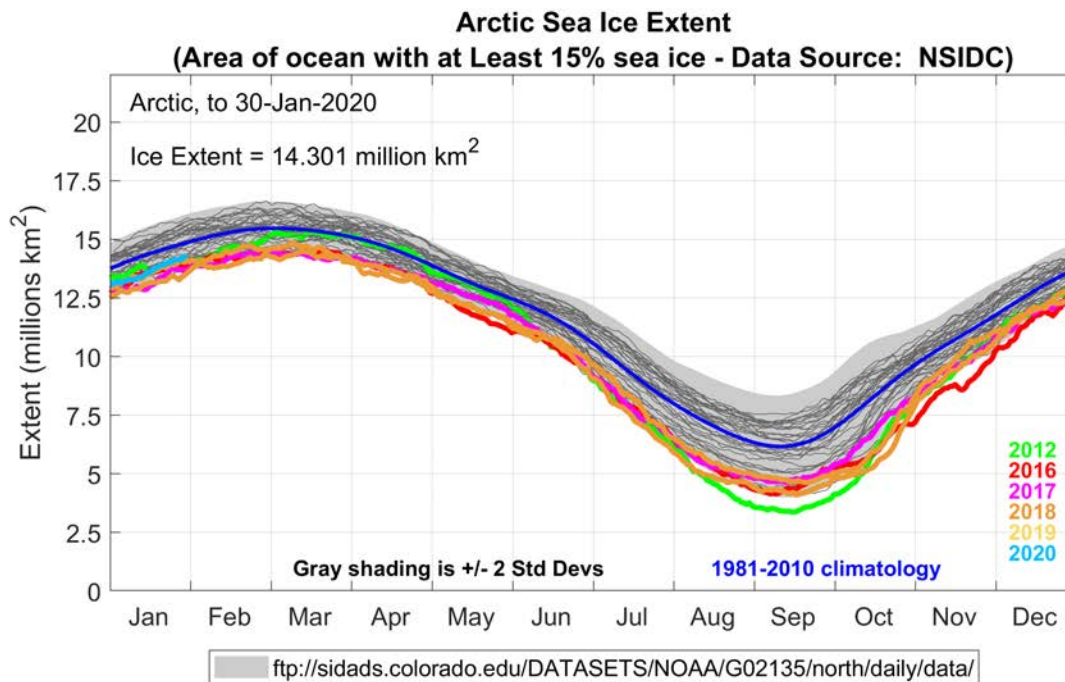


Figure 8: Time series of daily Arctic sea ice extent. This year's data (light blue) are updated until January 30, 2020. The median sea ice extent for the 1981-2010 reference period is depicted in blue. Specific years are highlighted in colors. Plot Compiled by: Howard J. Diamond, PhD; Climate Science Program Manager at NOAA's Air Resources Laboratory Data Source: National Snow & Ice Data Center (NSIDC; <https://nsidc.org/>).

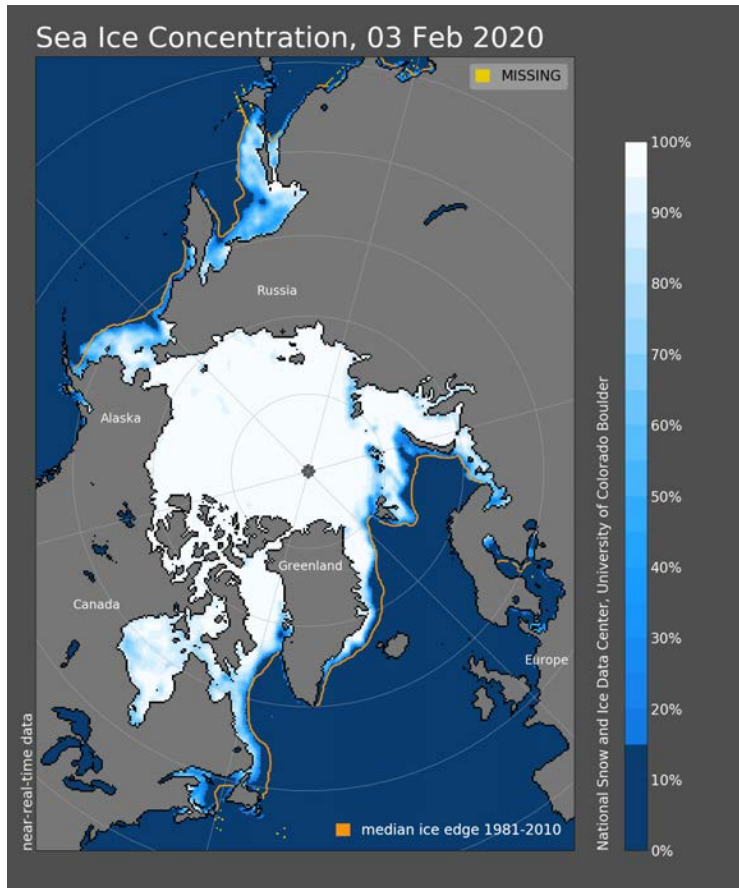


Figure 9: Daily Arctic Sea Ice concentration for February 3, 2019. Median ice edge for the 1981-2010 reference period is depicted in yellow. Image: NSIDC (nsidc.org)

Newsworthy information

Fairbanks has had a longer than average cold spell of days below 5°F. The temperature was below 5°F for 34 days from December 30, 2019 until February 2, 2020. This is the fourth longest streak of days below 5°F. The last time a similar event happened was in the winter of 1974-75, however that event had much colder temperatures. The longest stretch of days below 5°F is 49 days in the winter of 1942-43.

Kodiak had a snowfall of 22 inches over the 24 hour period from the afternoon of Tuesday, January 28th to the afternoon of Wednesday, January 29th causing the Kodiak Island Borough School District to cancel classes for the first time in more than a decade. Many businesses also closed, including the borough offices, medical centers, the senior center, and the airport.

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.

Appendix

Table A1: January 2020 daily records of mean daily temperature, i.e. highest/lowest values of mean daily temperature ever recorded on specific days. Records are computed since the beginning of the respective time series. One lowest record and one highest record was set this month.

Lowest Mean Daily Temperature on record

Station	Date	New Record (°F)	Year of old record	Old record (°F)
Talkeetna	2020-01-05	-24	1933	-21

Highest Mean Daily Temperature on record

Station	Date	New Record (°F)	Year of old record	Old record (°F)
Cold Bay	2020-01-10	42	1963	40.5

Table A2: January 2020 daily records of minimum daily temperature, i.e. highest/lowest values of minimum daily temperature ever recorded on specific days. Records are computed since the beginning of the respective time series. Only lowest records were set this month.

Lowest Minimum Daily Temperature on record

Station	Date	New Record (°F)	Year of old record	Old record (°F)
Ketchikan	2020-01-14	2	1913	4
Kodiak	2020-01-05	2	1949	3
Kodiak	2020-01-06	2	1998	8
Kodiak	2020-01-07	-1	1983	2

Table A3: January 2020 daily records of maximum daily temperature, i.e. highest/lowest values of maximum daily temperature ever recorded on specific days. Records are computed since the beginning of the respective time series. Two lowest records and one highest record were set this month.

Lowest Maximum Daily Temperature on record

Station	Date	New Record (°F)	Year of old record	Old record (°F)
Talkeetna	2020-01-04	-16	1930	-10
Talkeetna	2020-01-05	-16	1982	-11

Highest Maximum Daily Temperature on record

Station	Date	New Record (°F)	Year of old record	Old record (°F)
Cold Bay	2020-01-10	50	1952	47