



# Alaska Statewide Climate Summary February 2020

## **FEBRUARY 2020 HIGHLIGHTS:**

- **EXTREME COLD WEATHER PERSISTS OVER MOST OF ALASKA RANKING THIS WINTER (DEC- FEB.) AS THE COLDEST WINTER SINCE 1992 IN THE ARCTIC. KOTZEBUE WAS 13°F COLDER THAN NORMAL.**
- **PRECIPITATION WAS ABOVE NORMAL IN LARGE PARTS OF THE STATE. SNOWFALL WAS ABOVE NORMAL IN ANCHORAGE, BETTLES, AND JUNEAU. FAIRBANKS RECEIVED NEAR NORMAL SNOWFALL.**
- **HEAVY PRECIPITATION ON THE EASTERN KENAI PENINSULA HAVE ELIMINATED THE ABNORMALLY DRY CONDITIONS THERE. DROUGHT CONDITIONS HAVE SLOWLY IMPROVED ALSO OVER THE PANHANDLE, BUT LONG-TERM DEFICITS STILL REMAIN SO THE AREA IS STILL CLASSIFIED AS ABNORMALLY DRY.**
- **SEA ICE EXTENT HAS INCREASED BY 3.80% DURING THE LAST MONTH. THE SEA ICE EXCENT IS ABOUT THE SAME AS THE 2012 LEVEL.**
- **COLD BAY BROKE THE PREVIOUS RECORD MAXIMUM DAILY TEMPERATURE ON FEBRUARY 29<sup>TH</sup> OF 45°F BY 9°F. THE NEW RECORD FOR THAT DAY IS 54°F.**
- **ANCHORAGE SETS NEW DAILY SNOWFALL RECORD ON FEBRUARY 18<sup>TH</sup>, THE SAME DAY AS IT TIED THE DAILY RECORD FOR MAXIMUM HIGH TEMPERATURE.**

The following report provides an overview of the February 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 February 2020, most of Alaska, with the exception of the Peninsula, Cold Bay, and St. Paul Island, recorded colder than normal temperatures (Figure 1, Table 1). The coldest station compared to normal was Kotzebue at -13.7°F, 13°F below normal. Utqiagvik, Bettles, and Nome were 11.9°F, 10.5°F, and 9.3°F colder than normal respectively. On the contrary, the mean monthly temperature departures in Juneau, Cold Bay, and St Paul Island were 3.7°F, 3°F, and 2.9°F warmer than normal respectively.

Cold Bay set new records for highest mean and maximum daily temperatures on specific days during February 2020. The previous record maximum daily temperature of 45°F in Cold Bay on February 29, 1960 was beaten by 9°F with a new record maximum daily temperature of 54°F on that day. St. Paul Island set new records for highest mean and minimum daily temperatures on specific days. Gulkana set a new record for lowest maximum daily temperature on February 25<sup>th</sup>. 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 2020 in St. Paul Island and in Utqiagvik (Barrow). 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 St. Paul Island on February 3, 2020, was the highest ever recorded there on this specific day (Figure 2, Table A1).

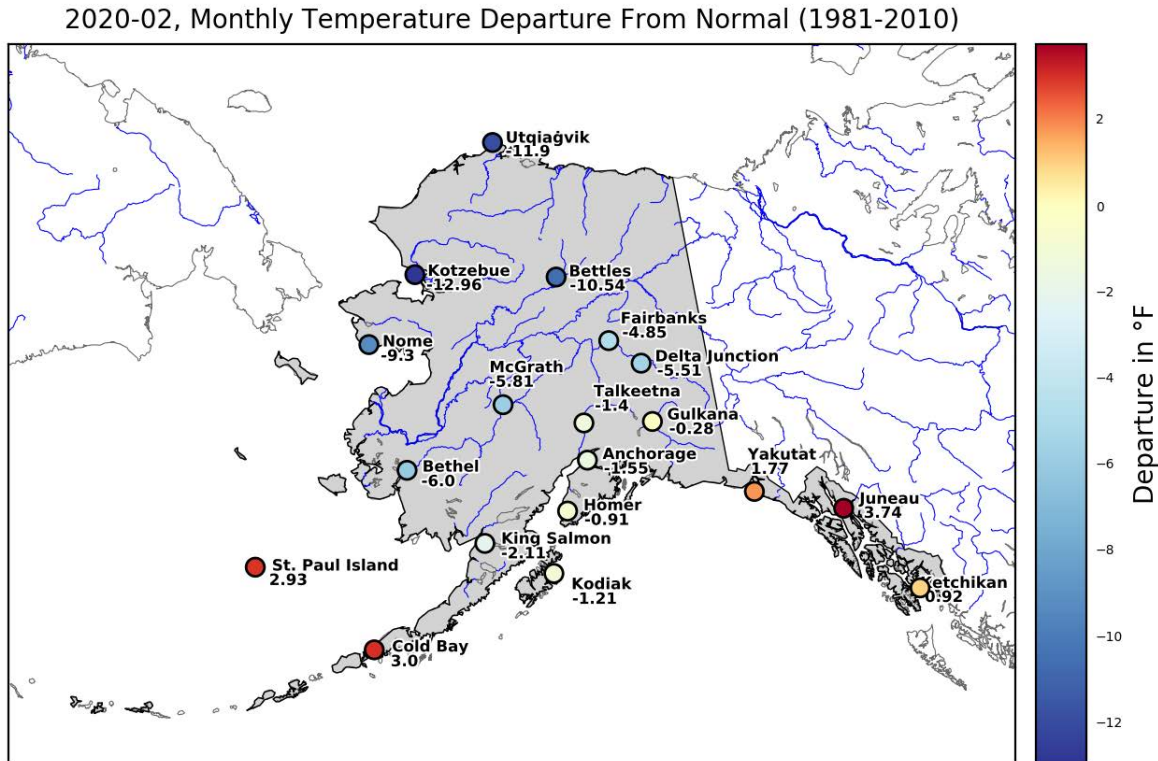


Figure 1: Monthly mean temperature departure from normal, February 2020.

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

<b>Station</b>	<b>Observed (°F)</b>	<b>Normal (°F)</b>	<b>Departure (°F)</b>
Anchorage	18.7	20.3	-1.6
Bethel	5.1	11.1	-6
Bettles	-15.4	-4.9	-10.5
Cold Bay	32	29	3
Delta Junction	-0.4	5.1	-5.5
Fairbanks	-6	-1.2	-4.8
Gulkana	5.4	5.7	-0.3
Homer	25.4	26.3	-0.9
Juneau	33.9	30.1	3.7
Ketchikan	36.7	35.8	0.9
King Salmon	16.8	18.9	-2.1
Kodiak	29.6	30.8	-1.2
Kotzebue	-13.7	-0.7	-13
McGrath	-4.2	1.6	-5.8
Nome	-1.8	7.5	-9.3
St. Paul Island	27.3	24.4	2.9
Talkeetna	16.8	18.2	-1.4
Utqiagvik	-26.1	-14.2	-11.9
Yakutat	31.5	29.7	1.8

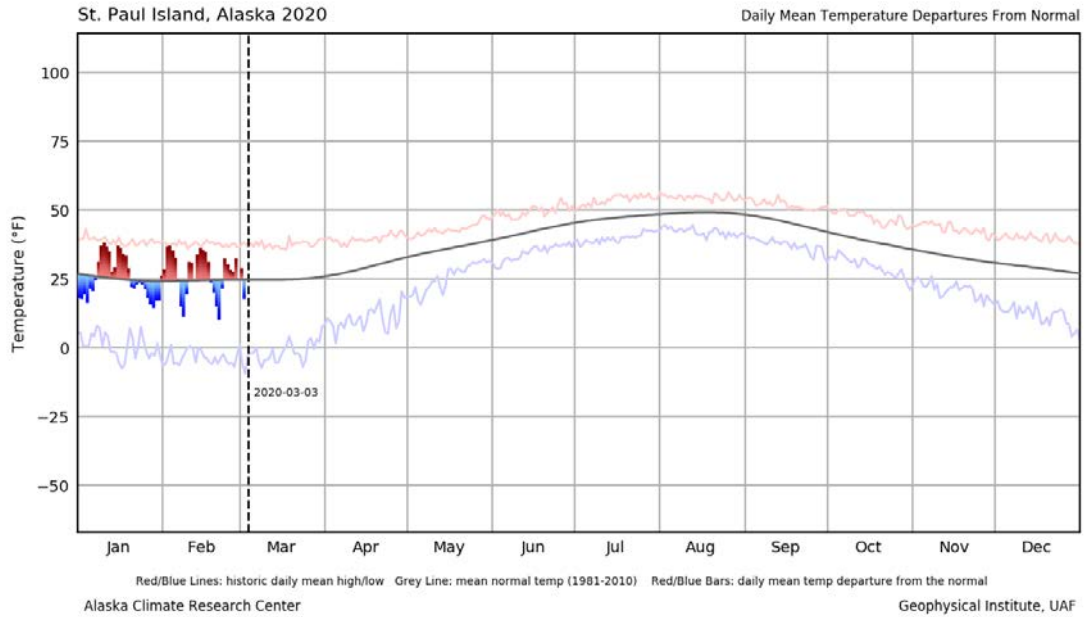


Figure 2: St. Paul Island daily mean temperature departures from normal (1981-2010) for 2020. Red and blue bars represent positive and negative temperature departures. Grey line represents the mean normal temperature, red and blue lines represent respectively the historic highest and lowest records of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

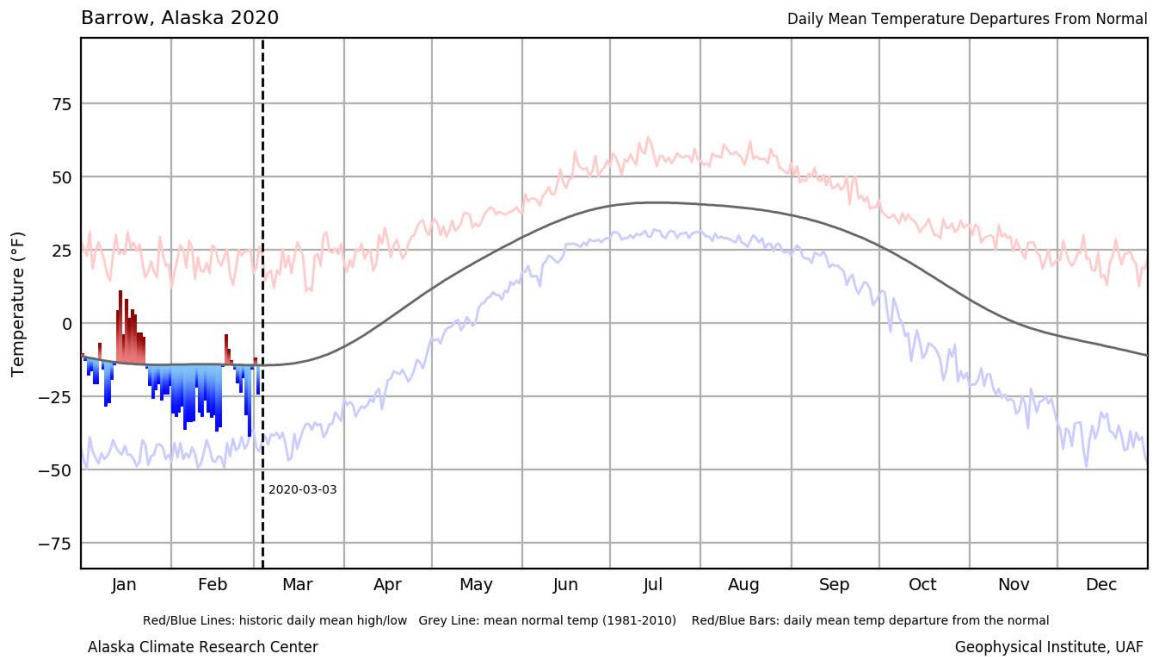


Figure 3: Utqiagvik (Barrow) daily mean temperature departures from normal (1981-2010) for 2020. Red and blue bars represent positive and negative temperature departures. Grey line represents the mean normal temperature, red and blue lines represent respectively the historic highest and lowest records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

Daily mean temperature, departure from normal (1981-2010), 2020-02

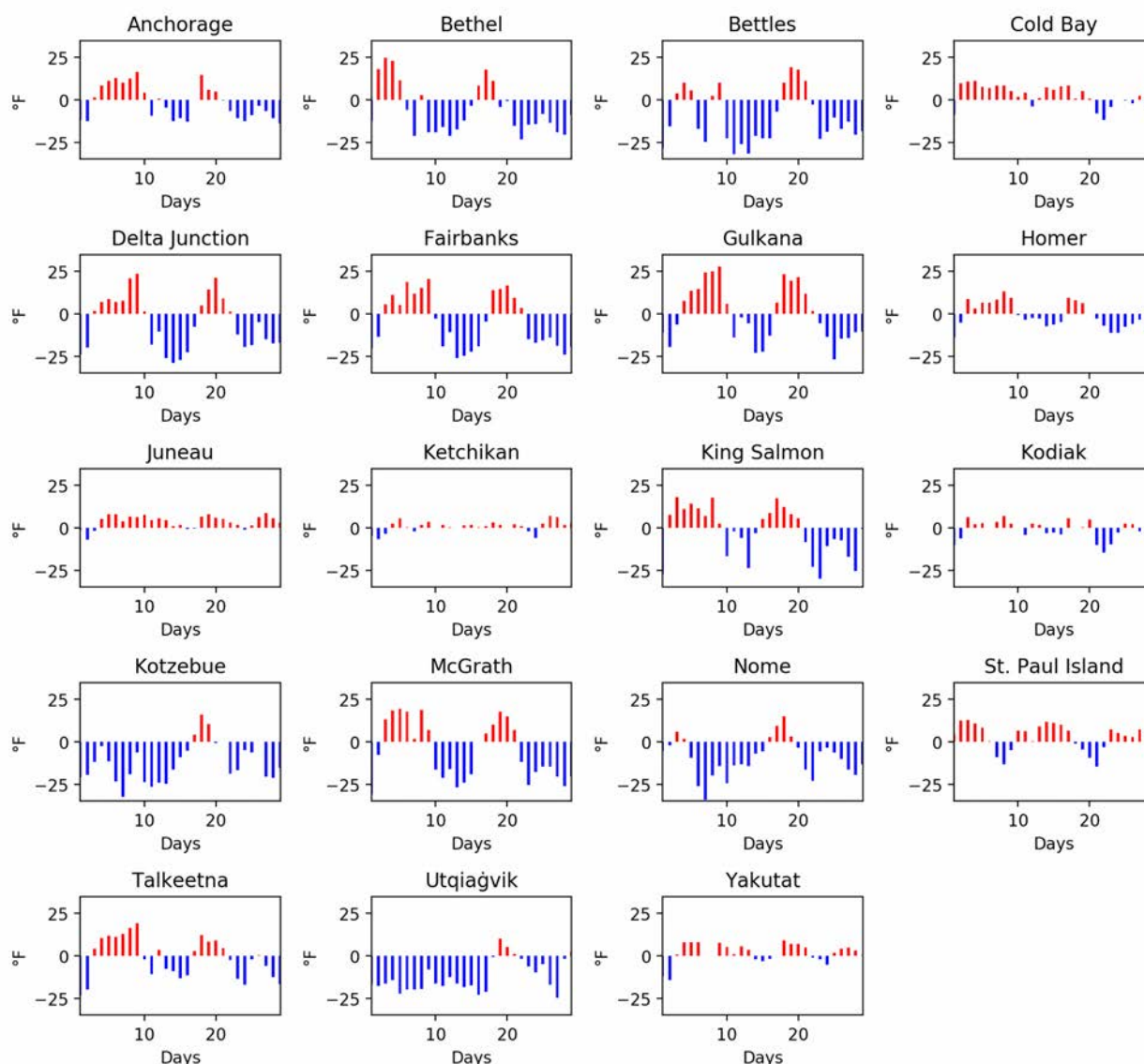


Figure 4: Daily mean temperature departures for each day in February 2020, at the selected stations.

Utqiagvik, Kotzebue, and Nome were colder than normal for most of the month except for a few days before the 20<sup>th</sup>. A strong weather system moved north through the Bering Sea, bringing snow and strong winds along the west coast from February 17<sup>th</sup> through the 20<sup>th</sup>. Stations in the Interior, Copper River Basin, Cook Inlet and Bristol Bay had a similar pattern with below average temperatures on the first of the month, followed by warmer than normal temperatures until around February 10<sup>th</sup>, this was followed by approximately a week of below average temperatures which then warmed to above average temperatures for a few days around the 20<sup>th</sup> before becoming cooler than normal towards the end of the month. Ketchikan, Juneau, and Yakutat were warmer than normal for most of the month, except for the first couple of days and two or three days around February 25<sup>th</sup>.



## Precipitation

Precipitation in February has been near to above normal in large regions of Alaska. On the contrary, Delta Junction, Kodiak, Nome, and Yakutat were drier than normal.

Delta Junction reported 0.1 inch of precipitation, which is half of the normal precipitation for the month (Table 2, Figure 5). Kodiak and Yakutat received 69.7% and 81.7% of normal precipitation respectively.

Bethel reported the highest deviation from normal precipitation, receiving 261.1% of normal precipitation. Gulkana and King Salmon followed, recording 256.9% and 252.6% of normal precipitation respectively. McGrath received 233.3% of normal precipitation. Similarly, Anchorage and Juneau received well above average precipitation, with 223.6% and 188.4% of normal precipitation respectively.

In terms of absolute precipitation, Juneau received 3.7 inches above normal precipitation (Table 2, Figure 6). Ketchikan, Bethel, and King Salmon all received more than an inch above normal precipitation. On the contrary, Yakutat received 2 inches less than normal precipitation and Kodiak recorded 1.8 inches below normal precipitation.

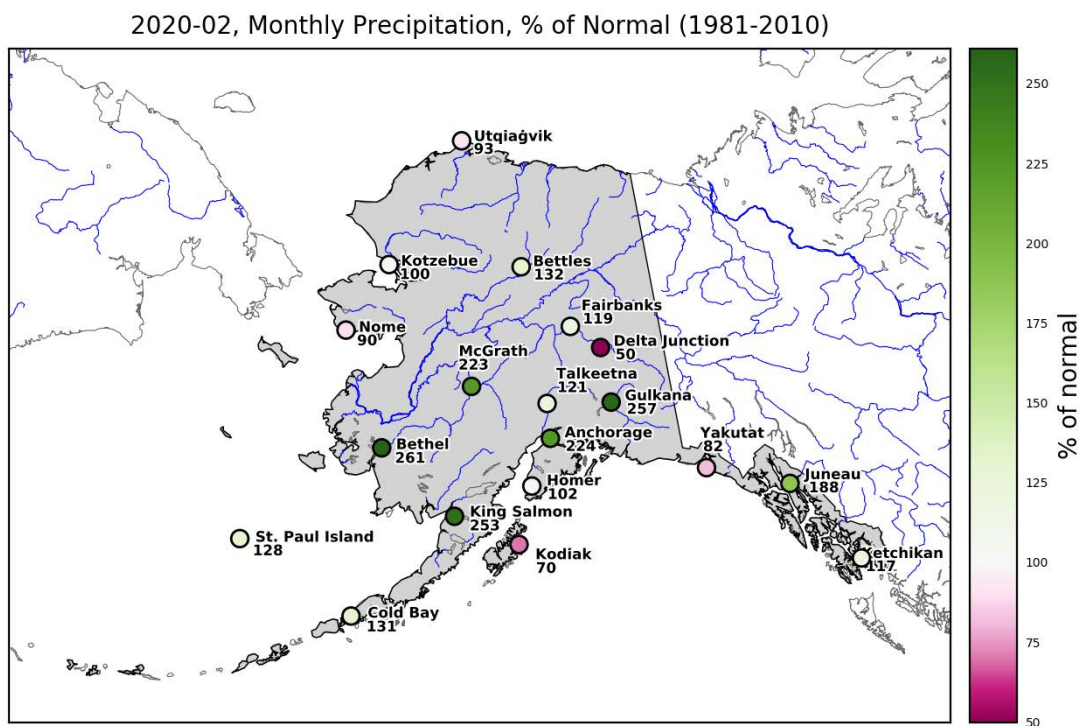


Figure 5: Monthly precipitation sums expressed as percent of normal (1981-2010), February 2020.

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, February 2020.

<b>Station</b>	<b>Precipitation (in)</b>	<b>Normal (in)</b>	<b>% of normal</b>
Anchorage	1.6	0.7	223.6
Bethel	1.9	0.7	261.1
Bettles	1.1	0.8	131.8
Cold Bay	3.9	3	130.5
Delta Junction	0.1	0.3	50
Fairbanks	0.5	0.4	119
Gulkana	1.3	0.5	256.9
Homer	1.8	1.7	102.3
Juneau	7.8	4.1	188.4
Ketchikan	12.3	10.5	117.2
King Salmon	1.9	0.8	252.6
Kodiak	4.3	6.1	69.7
Kotzebue	0.7	0.7	100
McGrath	2.1	0.9	233.3
Nome	0.8	0.9	90.3
St. Paul Island	1.7	1.3	128.5
Talkeetna	1.8	1.5	120.7
Utqiagvik	0.1	0.1	92.9
Yakutat	8.9	10.9	81.7

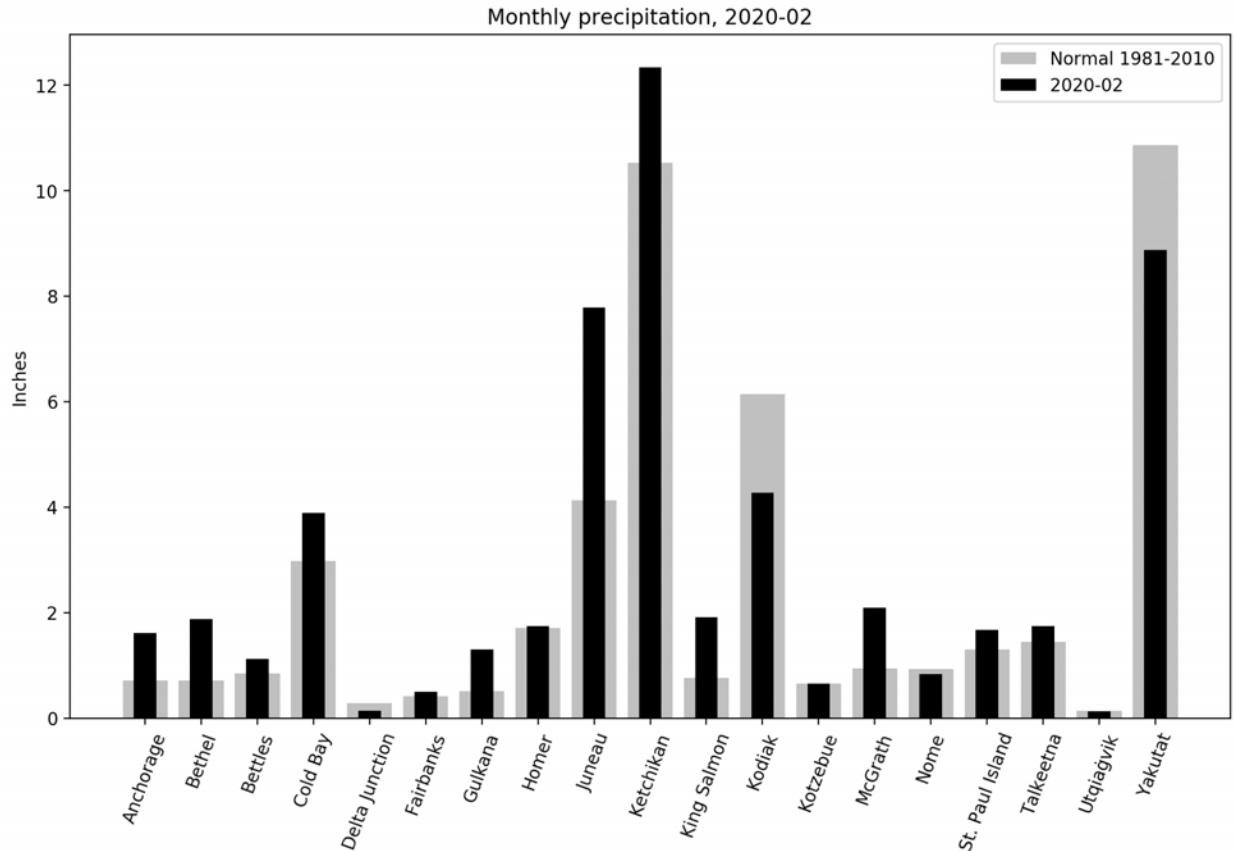


Figure 6: Monthly precipitation sums for February 2020 at the selected stations compared to the normal (1981-2010), in inches.

## Snow

Anchorage, Bettles, and Juneau received above average snowfall in February 2020. Fairbanks received slightly less snow than normal, receiving 0.1 inch less snowfall than normal.

Juneau reported 32.5 inches of snow, 193.5% of the normal snowfall for February. Anchorage received 18.9 inches, or 173.4% of normal snowfall, and Bettles received 22.9 inches of snowfall, which is 163.6% of the normal.

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, February 2020.

Station	Snowfall (in)	Normal (in)	% of normal
Anchorage	18.9	10.9	173.4
Bettles	22.9	14	163.6
Fairbanks	8	8.1	98.8
Juneau	32.5	16.8	193.5



## Drought Conditions

Heavy precipitation on eastern Kenai Peninsula and areas to the east and north eliminated the abnormally dry conditions there. Moderate precipitation fell on many locations of the Panhandle and conditions have slowly improved during the past several months, but long-term large deficits (1-year and longer) still remain so that area is still classified as Abnormally Dry (source: <https://droughtmonitor.unl.edu/>).

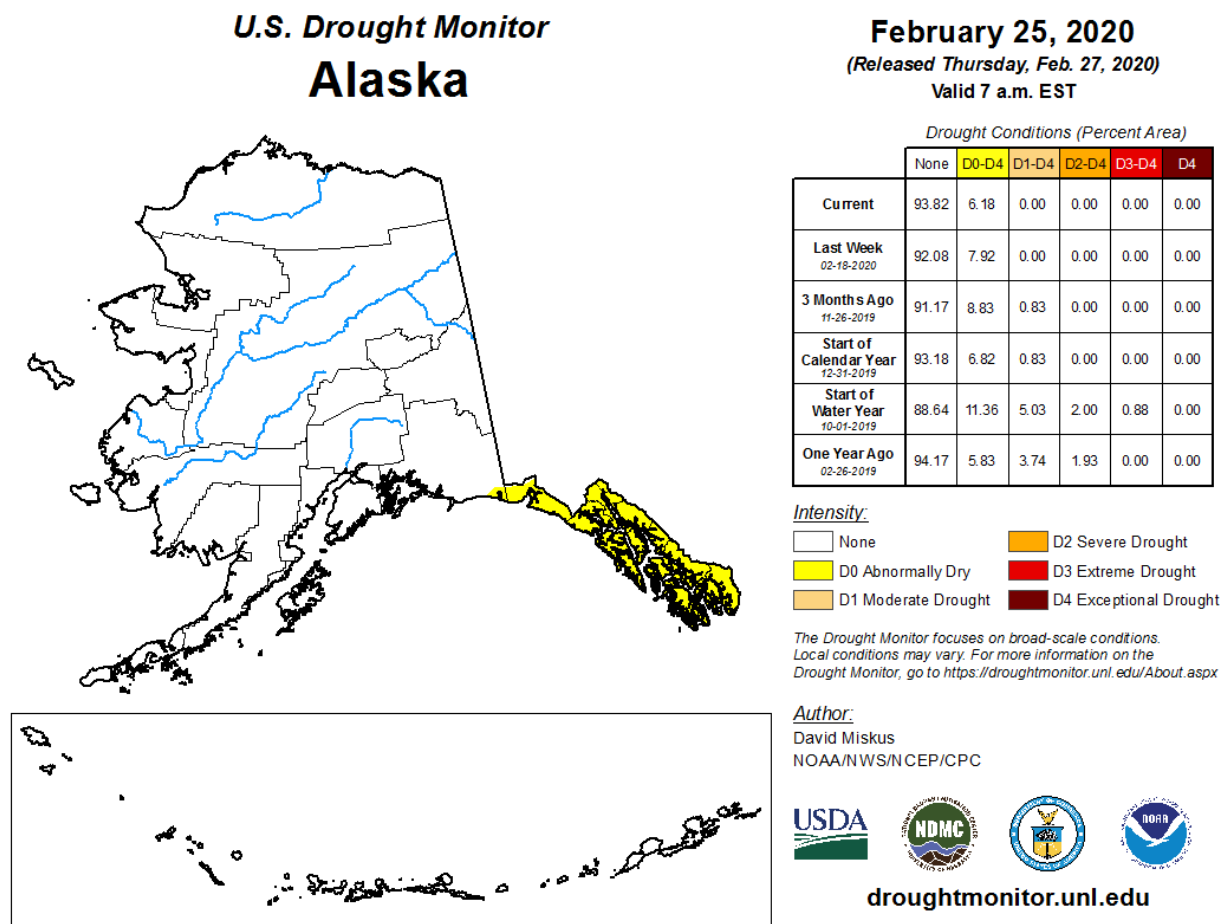


Figure 7: U.S. Drought Monitor map for Alaska, updated on February 25, 2020. The table on the right shows the percent area affected by different categories of drought intensity. Figures and data produced and released by the U.S. Drought Monitor, a partnership between the National Drought Mitigation Center 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 February 27 and March 2, 2020, respectively.

Over the month, sea ice has increased by 3.80% from the level on January 30, 2020 of 14.301 M km<sup>2</sup> to 14.844 M km<sup>2</sup> on February 27<sup>th</sup>. The sea ice extent (light blue line in Figure 8) is about even with the 2012 level (green line), however there is some variability in the last two weeks. A very high positive Arctic Oscillation index (4 to 6), which has been associated with warm air and stormy weather, occurred during portions of February. This is a probable cause of the week-long pause in sea ice growth for the Arctic as a whole during the middle of the month.

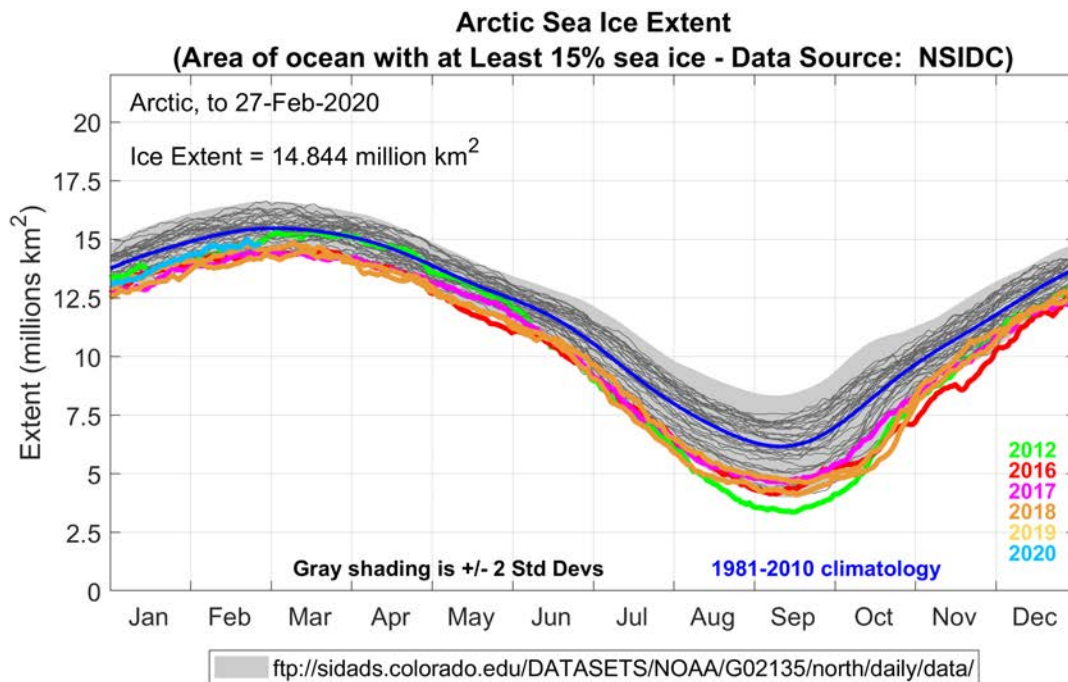


Figure 8: Time series of daily Arctic sea ice extent. This year's data (light blue) are updated until February 27, 2020. The median sea ice extent for the 1981-2010 reference period is depicted in blue. Specific years are highlighted in colors. Plot Compiled by: Howard J. Diamond, PhD; Climate Science Program Manager at NOAA's Air Resources Laboratory Data Source: National Snow & Ice Data Center (NSIDC; <https://nsidc.org/>).

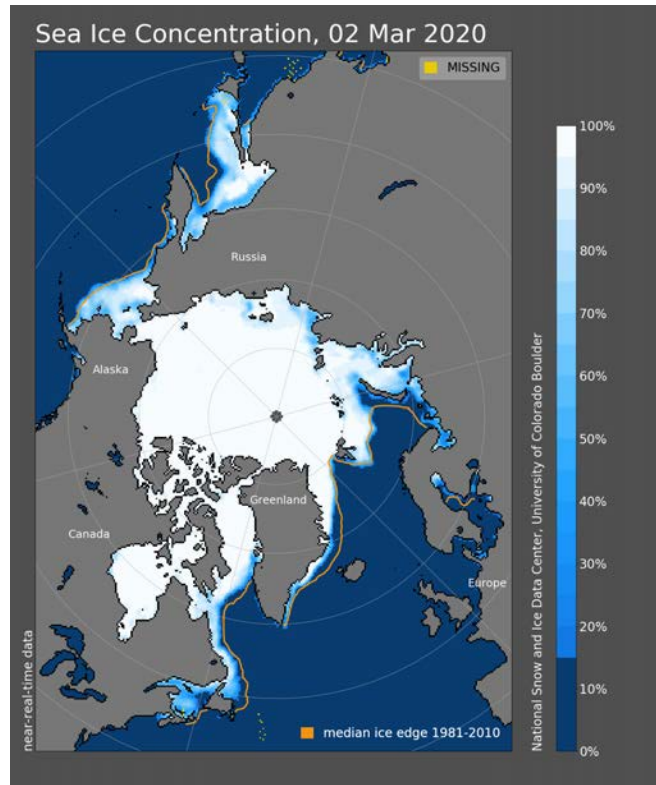


Figure 9: Daily Arctic Sea Ice concentration for March 2, 2020. Median ice edge for the 1981-2010 reference period is depicted in yellow. Image: NSIDC (nsidc.org)

## Newsworthy information

Snowfall, locally strong winds and blowing snow created regional extreme avalanche conditions. A snow machine rider was buried in an avalanche and died near Cooper Lake on the Kenai Peninsula on February 10<sup>th</sup>. Heavy winds and blowing snow likely contributed to the avalanche according to Wendy Wagner, director of the Chugach National Forest Avalanche Information Center.

Anchorage set a new daily snowfall record on February 18<sup>th</sup>, the same day it tied the daily record for maximum high temperature. Temperatures were briefly to 44 degrees in Anchorage early on February 18 during the midnight hour, tying the daily record high for the date. However, a cold front then pushed through Anchorage, causing temperatures to drop. Snow fell throughout the day due to the cold front and another low that was approaching from the south. By the end of the day 8.9 inches of snow fell, setting a new daily snowfall record.

*This information consists of 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 website at <http://akclimate.org>. Please report any errors to [webmaster@akclimate.org](mailto:webmaster@akclimate.org).*

## Appendix

Table A1: February 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. Only highest records were set this month.

### Highest Mean Daily Temperature on record

Station	Date	New Record (°F)	Year of old record	Old record (°F)
Cold Bay	2020-02-29	44.5	1960	41
St. Paul Island	2020-02-03	37	1985	36

Table A2: February 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. One highest record was set this month.

### Highest Minimum Daily Temperature on record

Station	Date	New Record (°F)	Year of old record	Old record (°F)
St. Paul Island	2020-02-03	36	2017	35

Table A3: February 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. One lowest record and two highest records were set this month.

### Lowest Maximum Daily Temperature on record

Station	Date	New Record (°F)	Year of old record	Old record (°F)
Gulkana	2020-02-25	-4	1971	0

### Highest Maximum Daily Temperature on record

Station	Date	New Record (°F)	Year of old record	Old record (°F)
Cold Bay	2020-02-16	44	2016	43
Cold Bay	2020-02-29	54	1960	45