



Alaska Climate Research Center  
The Alaska State Climate Center



# STATEWIDE CLIMATE SUMMARY APRIL 2024

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Rebecca Cole enjoying the sunshine and snow in Denali State Park on April 21. Photo courtesy of Carl Schmitt.



**A**laska’s Statewide Climate Summary for April 2024 provides an overview of weather for the month based on data from selected weather stations throughout the state. “Departure from normal” refers to the climatological average over the 1991-2020 normal period. Here, we report on temperature, precipitation and drought conditions in the state, as well as the condition of the Arctic sea ice.

## **HIGHLIGHTS**

**Warmest in the Interior and Northwest, near normal temperatures elsewhere**

**Above average precipitation in the North and Northwest**

**River break up is underway**

**Rapid snow melt brought on by prolonged period of warm weather during the second half of April**

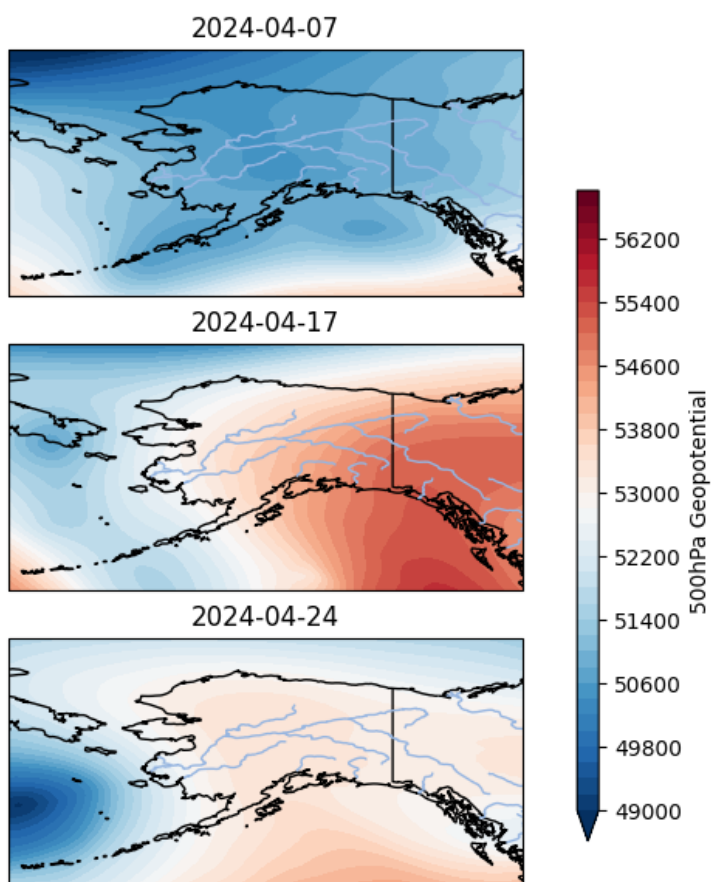
### Significant Weather Events and Synoptics

April began with upper level troughing over much of Alaska and stormy weather on the west coast. Strong winds and blowing snow led to blizzard conditions in coastal areas and much of the state saw snow and unsettled weather during the first week of the month. Colder air masses moved into western and northern Alaska in the following days (Fig. 1, top panel) before the next Bering Sea storm brought a return of warmer temperatures and stormy conditions on the coast. A cut off low in the Gulf of Alaska produced a few very wet days on the Panhandle before sunny, warm weather moved in towards mid-month.

By April 15, high pressure extended well into northern Alaska and temperatures rose to above average values throughout the state. While many regions saw warm, sunny weather during this period (Fig. 1, middle panel), conditions on the west coast remained blustery with repeated winter weather advisories issued for the Kuskokwim Delta area, the Aleutians and the western Gulf coast. Kodiak saw exceedingly wet conditions around April 18 and 19, with flood advisories issued for Kodiak city and reports of minor landslides due to saturated ground.

High pressure over southeast and Interior Alaska and troughing in the Bering Sea remained the characteristic upper-level pattern through the third week of April (Fig. 1, bottom panel), resulting in consistently warmer than average temperatures and mostly dry weather.

For the final days of the month, slightly cooler conditions returned as low



**Figure 1.** 500hPa Geopotential over Alaska on April 7, 17, and 24. ERA5 reanalysis data courtesy of [copernicus.eu](https://copernicus.eu)

pressure moved into the state from the west along with cloud cover and some precipitation.

The extended period of warm weather starting in mid-April led to rapid snow melt. River break-up season also got underway, leading to increased concerns about spring flooding. To date, no impactful ice jams have occurred. Flood watch alerts were issued for Manley Hotsprings and Gulkana late in the month (Fig. 2). The Nenana Ice Classic tripod fell over on April 27th this year, adding another data point to the long time series of break up dates from this location (see newsworthy events at the end of the report).

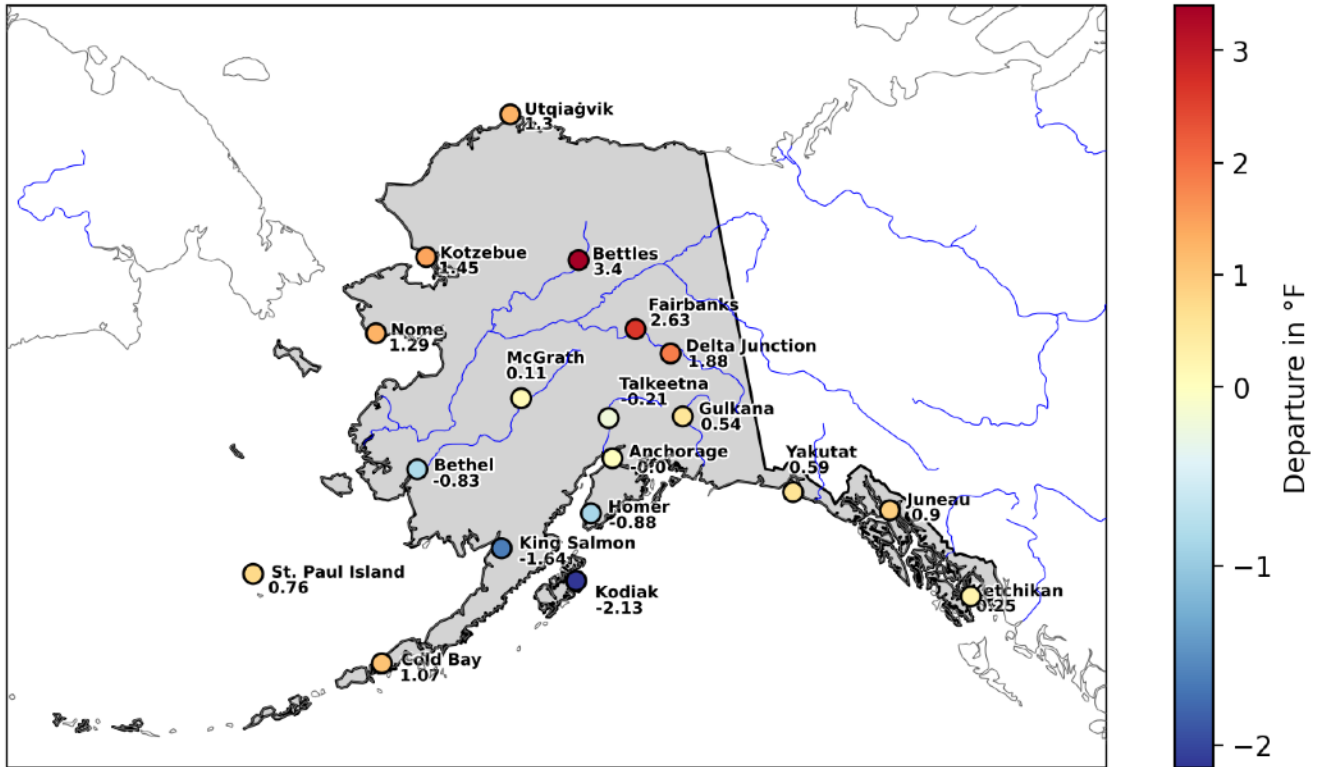
**APRFC Breakup Map - 1 May 2024 7:46:31 AM AKDT**




\*\*\*\*\*  
 \* EVEN THOUGH A PARTICULAR RIVER OR REACH MAY BE DESCRIBED AS MOSTLY \*  
 \* OPEN OR OPEN... IT IS STILL POSSIBLE FOR RUNS OF ICE AND DEBRIS TO \*  
 \* MOVE THROUGH AS HEADWATERS UPSTREAM BREAKUP. PLEASE USE CAUTION AT \*  
 \* ALL TIMES WHEN ATTEMPTING TO NAVIGATE RIVERS. \*  
 \*\*\*\*\*

**Figure 2.** Break up map, status May 1. River ice break up is well underway and ice conditions are rapidly deteriorating on Alaska's rivers.

2024-04, Monthly Temperature Departure From Normal (1991-2020)



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**Figure 3** Monthly mean temperature departure from normal (°F), April, 2024, at the selected First Order stations in Alaska.

## Temperature

April temperatures were relatively close to the 1991-2020 normal in much of the state. The First Order stations in the Interior stand out as warmest in relative terms with deviations of 3.4°F, 2.6°F and 1.9°F in Bettles, Fairbanks, and Delta Junction, respectively. The northwestern coastal areas were next warmest with deviations between about 1.3°F and 1.4°F above normal. Kodiak and King Salmon were the coldest of the selected stations this month with negative deviations of -2.1°F and -1.6°F, respectively. King Salmon had a data outage lasting a few days early in the month and the mean value may change if and when the missing data becomes available. The remaining stations were all within about ±1°F from normal.

In February and March, fairly moderate monthly mean temperature deviations “hid” some very pronounced temperature swings with deep cold snaps followed by unusually warm weather or vice versa. This was not the case to the same extent this month. Daily temperature deviations (Fig. 4) in the Southeast and South-central were largely near normal throughout April. In the Interior and along the northern and western coasts, daily anomalies were more pronounced but also lack the extreme temperature contrasts of previous months. Summarizing broadly, April started with a few cooler than average days and saw another colder period during the second week of the month in the north and west. Utqiagvik ended the month with another relatively cool period, while temperatures remained slightly above or near normal elsewhere.

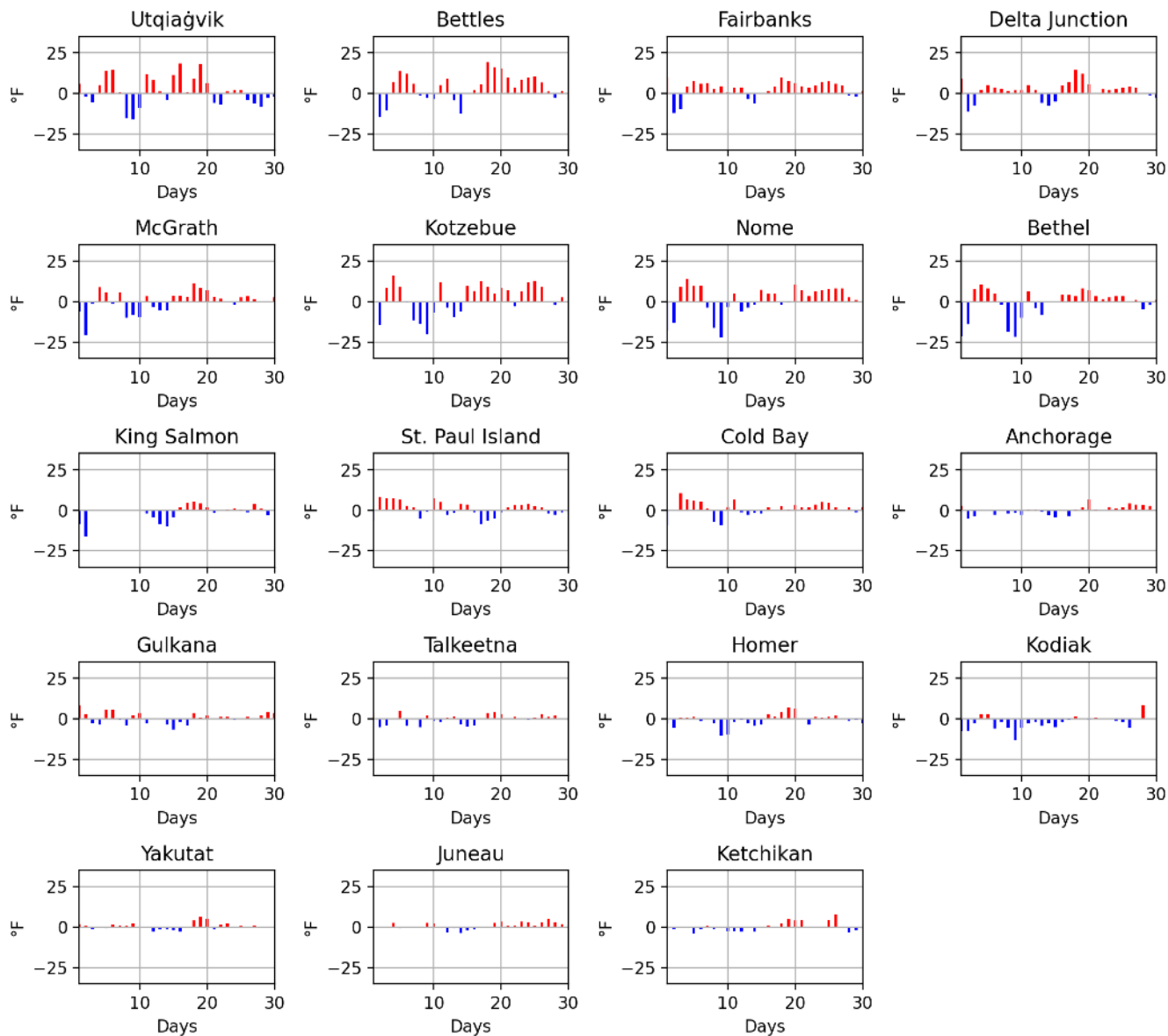
A number of new daily temperature records were set between April 18 and April 20, mostly in Bettles, Delta Junction, McGrath, Homer, and Yakutat. Utqiagvik had a record for daily maximum temperature on April 16. Bethel and Bettles set new daily low records on April 1 and 2, respectively.

Station	Observed (°F)	Normal (°F)	Departure (°F)
Anchorage	37.5	37.5	0.0
Bethel	28.2	29.1	-0.8
Bettles	28.0	24.6	3.4
Cold Bay	36.1	35.0	1.1
Delta Junction	35.6	33.8	1.9
Fairbanks	36.3	33.7	2.6
Gulkana	33.0	32.6	0.5
Homer	37.7	38.7	-0.9
Juneau	41.7	40.8	0.9
Ketchikan	43.8	43.5	0.3
King Salmon*	36.1	36.1	-1.6
Kodiak	37.0	39.1	-2.1
Kotzebue	17.8	16.3	1.4

Station	Observed (°F)	Normal (°F)	Departure (°F)
McGrath	32.3	32.2	0.1
Nome	23.9	22.6	1.3
St. Paul Island	30.9	30.1	0.8
Talkeetna	35.9	36.2	-0.2
Utqiagvik	5.4	4.1	1.3
Yakutat	39.2	38.6	0.6

**Table 1.** Mean monthly air temperature, normal (1991-2020) and departure for selected stations throughout the state, April 2024. Color-coded to match Figure 2 (yellow-orange-red = warmer than usual; shades of blue = cooler than usual). \* several days of missing data early in the month

Daily mean temperature, departure from normal (1991-2020), 2024-04



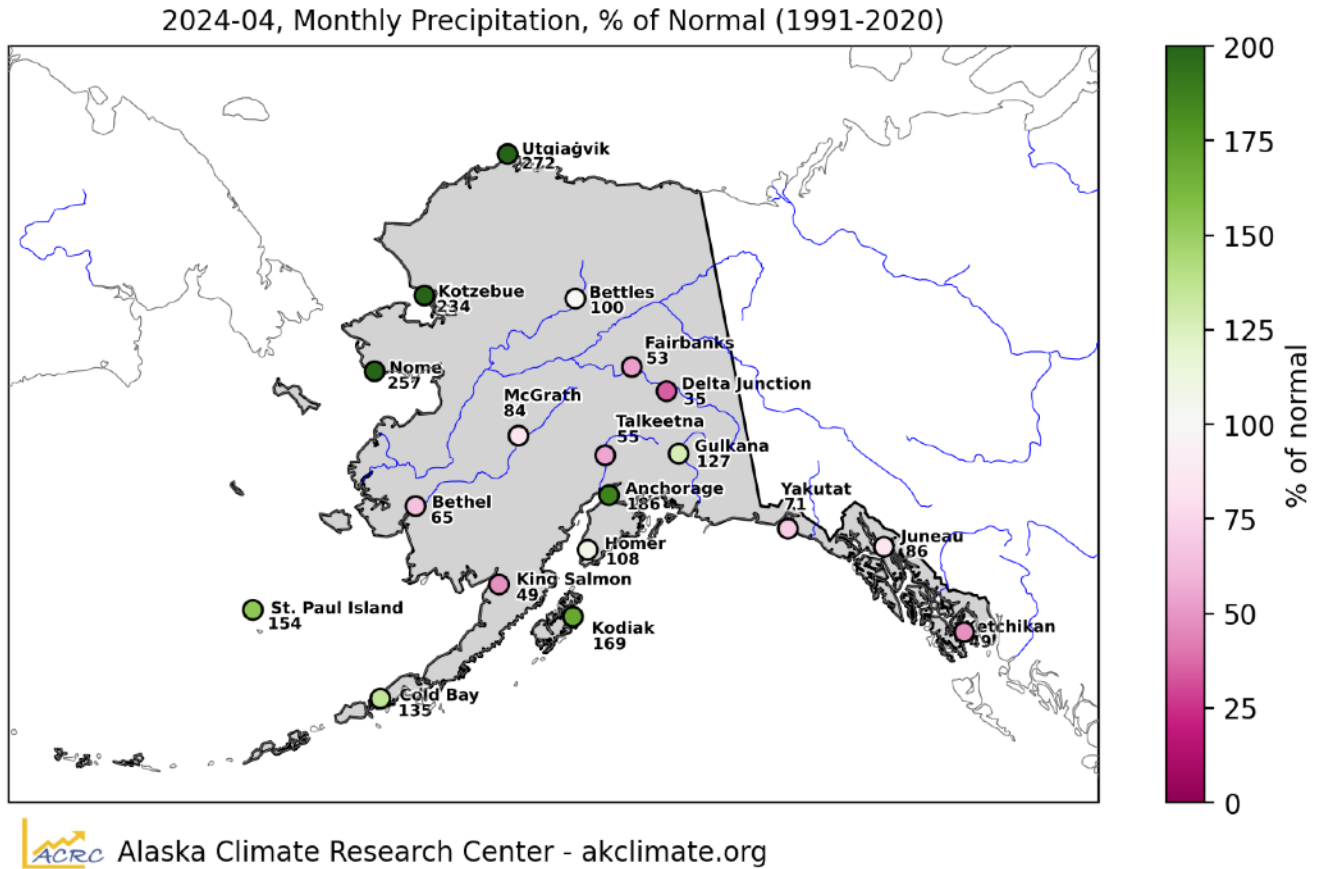
**Figure 4.** Daily mean temperature departures for each day in April 2024 at the selected stations.

**Precipitation and snow**

April was unusually wet on the North Slope and on the Chukchi and northern Bering coast. Utqiagvik, Nome, and Kotzebue were the wettest stations in relative terms with 272%, 257%, and 234% of normal, respectively. For all three stations, this April ranks in the top 10 of the period of record at the sites. Anchorage and Kodiak are next in the monthly



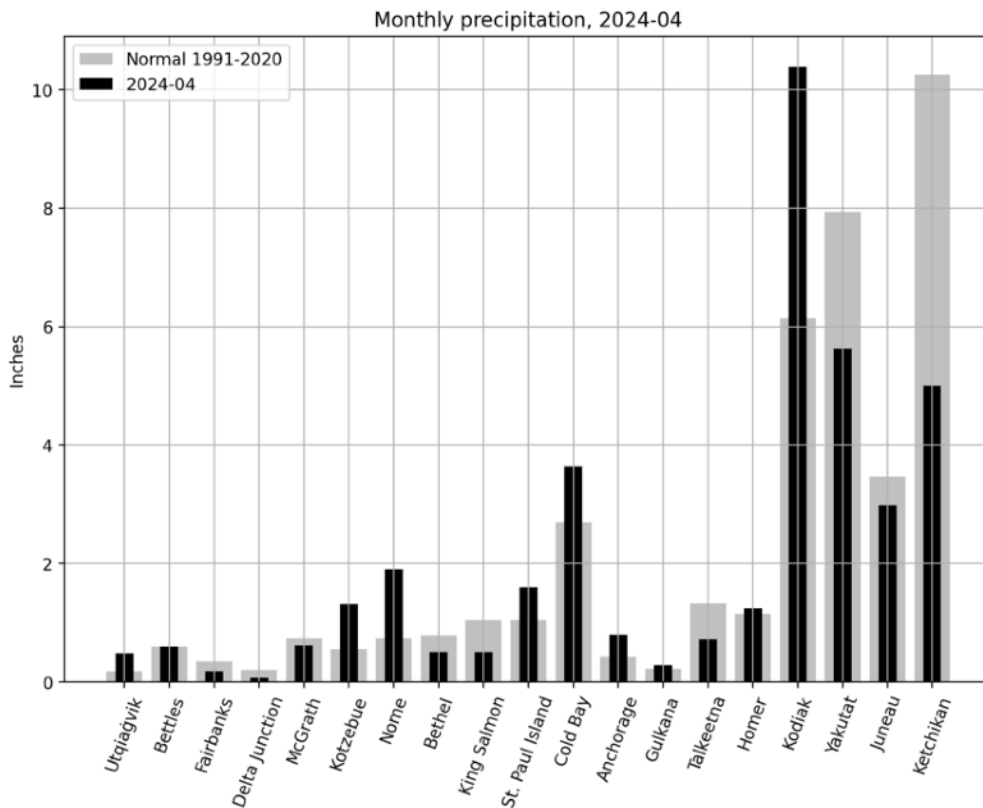
statistics with 186% and 169% of normal. Kodiak had their fourth wettest April on record. The Aleutians and St. Paul Island were also moderately wetter than average. Bristol Bay, much of Interior Alaska, and the Panhandle were largely drier than average or near normal. Delta Junction was the driest station this month with 35% of normal, followed by King Salmon and Ketchikan with 49% each (Fig. 5 & 6, Table 2).



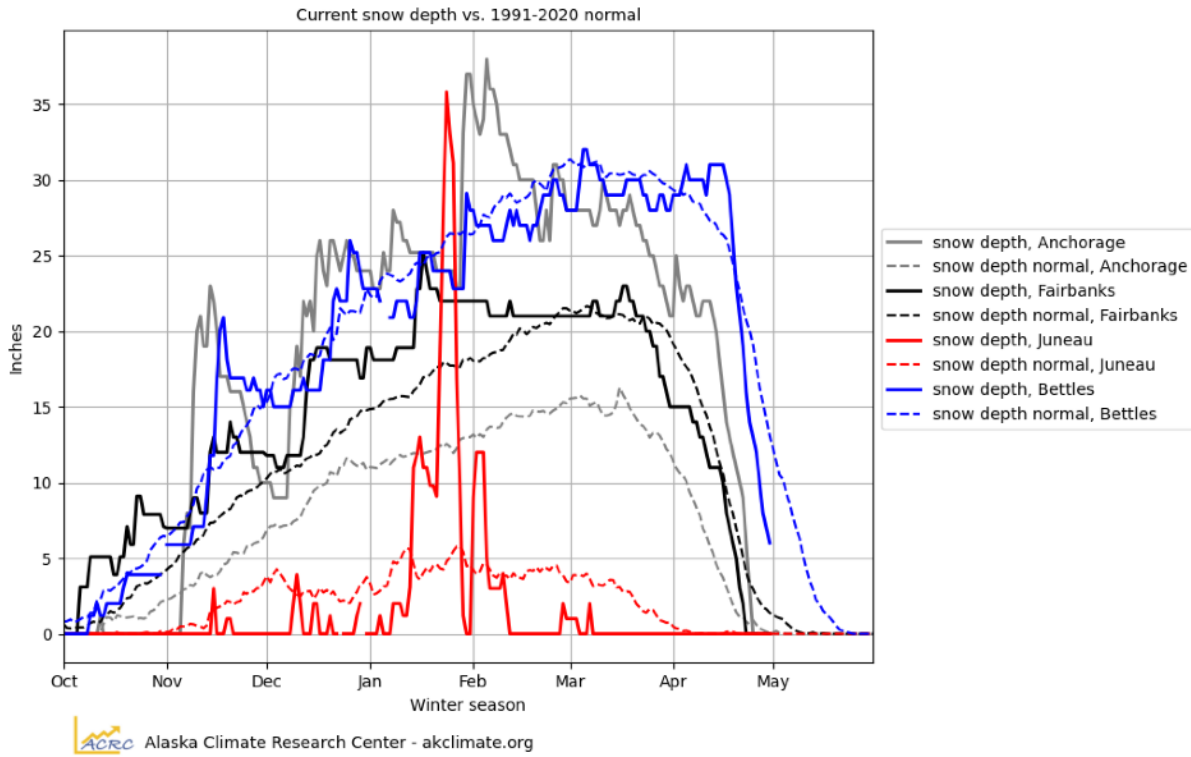
**Figure 5.** Monthly precipitation in percentage of normal (°F, 1991-2020 reference period), April, 2024, at the selected First Order stations in Alaska.

Snow depth at the four stations with long term records has declined sharply (Fig. 7). Fairbanks and Anchorage lost their seasonal snow pack during the second half of April, which is fairly average timing at both locations. Juneau has been snow free for some time, aside from short lived snow cover brought by spring flurries. As of April 30, around 6 inches of snow remain on the ground at the airport station in Bettles, but snow depth has

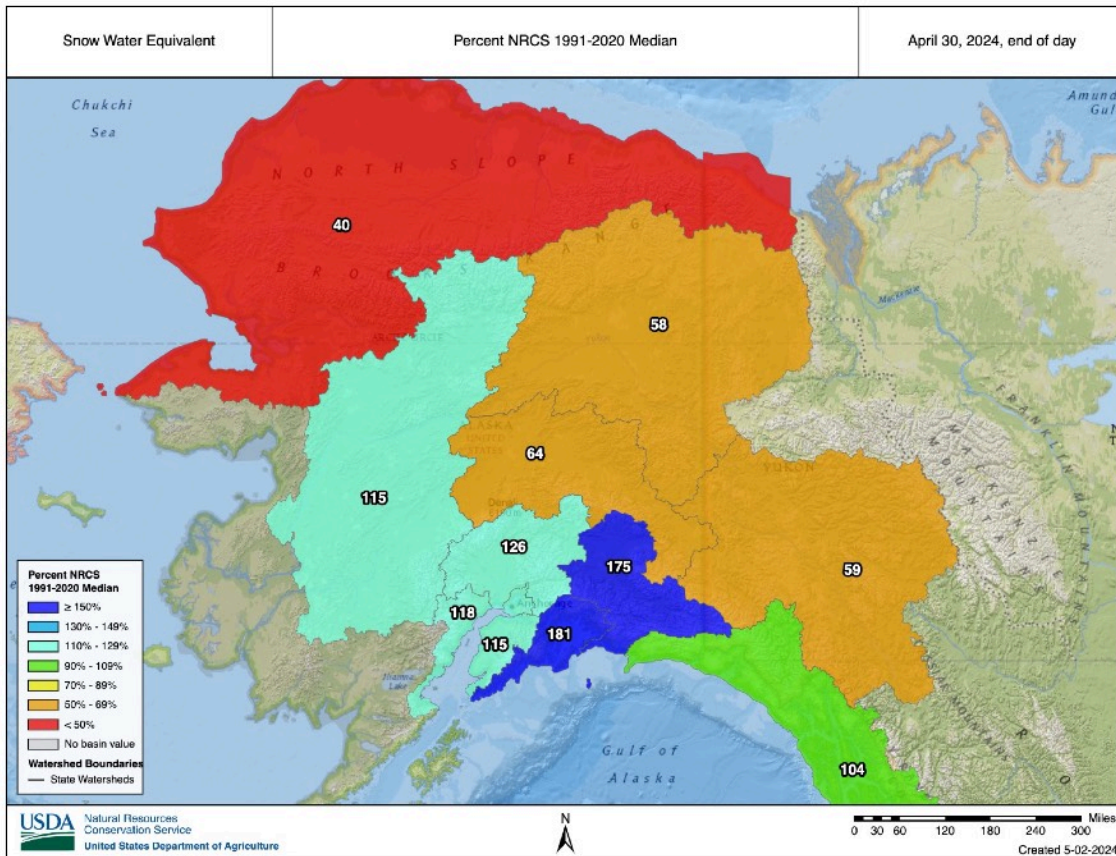
been decreasing rapidly here since mid April and this trend is likely to continue. Fairbanks, Anchorage, and Bettles had an unusually snowy April with between 150 and over 200% of normal snow fall. However, as the snow depth plot shows, these snow falls quickly settled and did not lead to a lasting increase in snow depth. Snowfall in Juneau was far below average with only 16% of normal because most of this month’s precipitation fell as rain. Looking back on the snow season as it comes to a close, Fairbanks and Bettles had a relatively average season with several large snowfalls between November and January and near normal snow depths for most of the winter. Juneau struggled to build a lasting seasonal snow pack but had an extremely snowy January. Anchorage had far more snow than usual from early November until snowmelt in April thanks to multiple record breaking storms between November and late January. Anchorage looks to have had its second snowiest season on record, tying with 1955 for total snowfall amount. Basin wide snow water equivalent (SWE) data (Fig. 8) indicate above average snow remaining in Southcentral around Anchorage, while the rest of the state is near normal (south east and western AK) or below (eastern Interior, North Slope).



**Figure 6.** Monthly precipitation sum (black bars) compared to the 1991-2020 normal (grey bars) at the First Order stations.



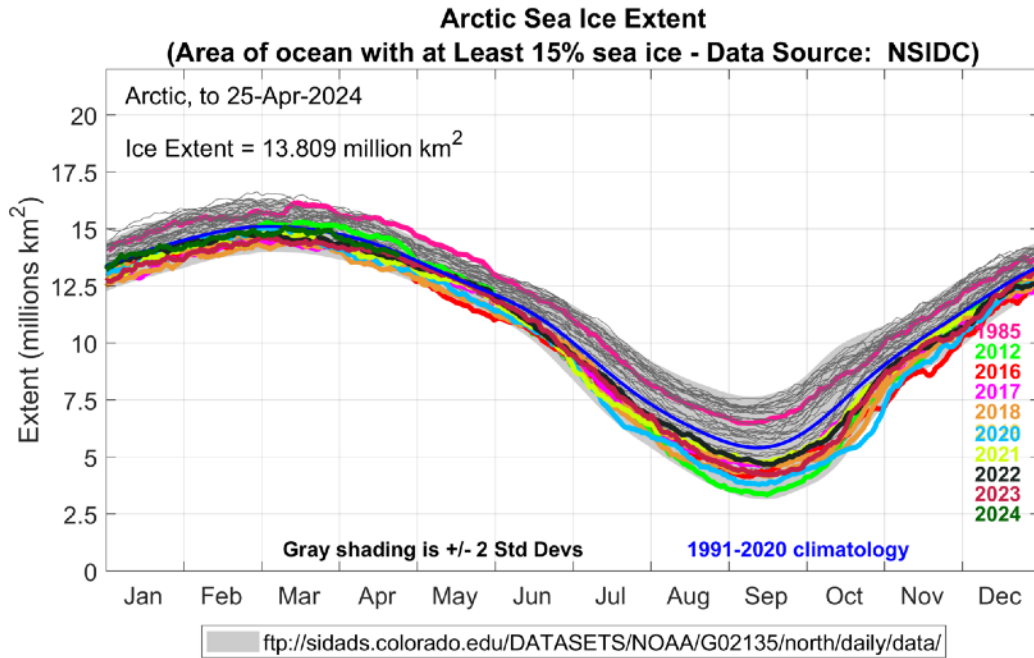
**Figure 7.** Current snow depth (as of April 30, 2024) compared to the 1991-2020 climatological mean in Anchorage (grey), Fairbanks (black), Juneau (red) and Bettles (blue).



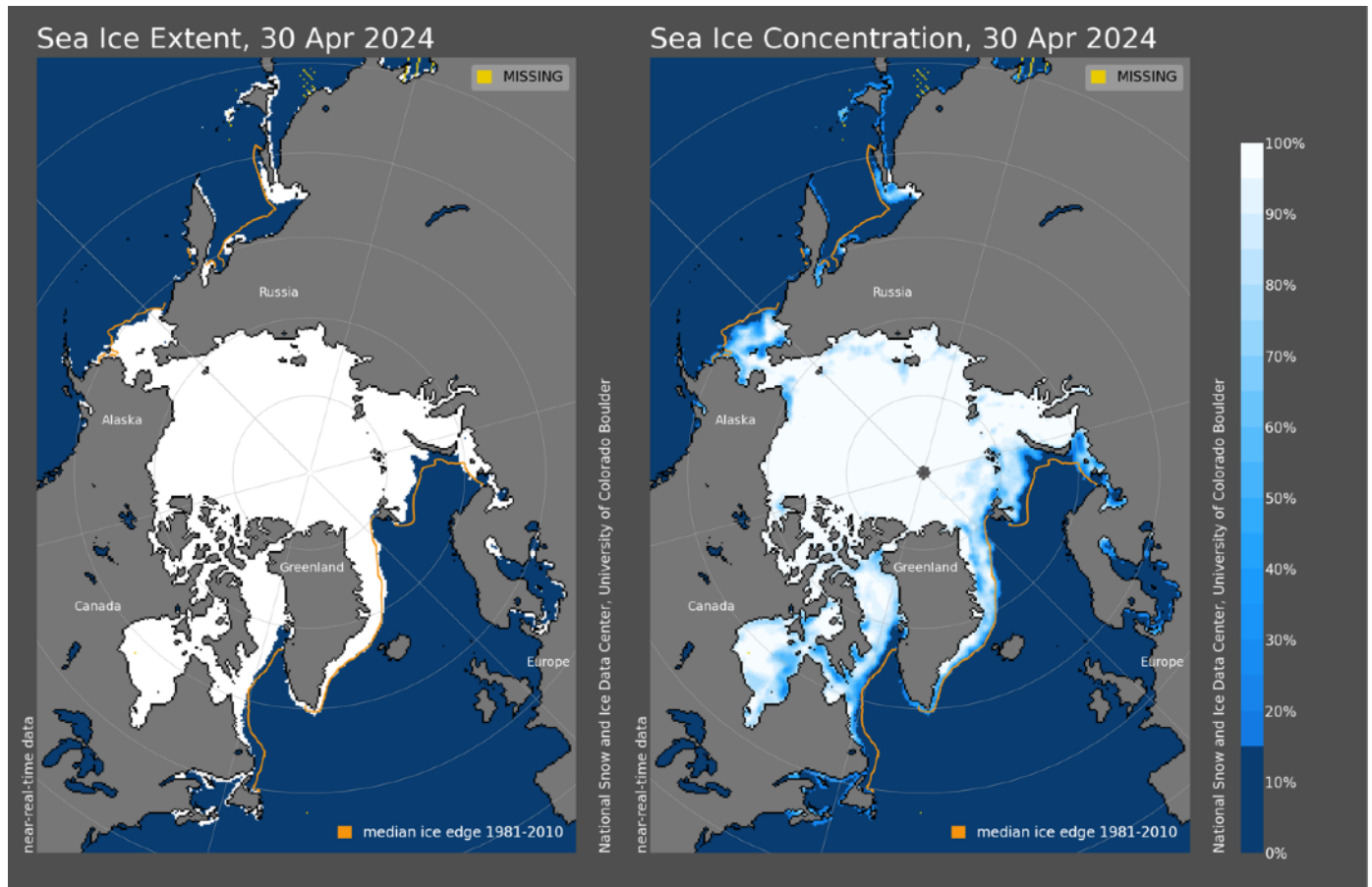
**Figure 8** Basin wide snow water equivalent estimates on April 30 as percentage of the 1991-2020 median (NRCS)

Station	Precipitation (in)	Normal (in)	% of Normal
Anchorage	0.8	0.4	186.0
Bethel	0.5	0.8	64.6
Bettles	0.6	0.6	100.0
Cold Bay	3.6	2.7	134.8
Delta Junction	0.1	0.2	35.0
Fairbanks	0.2	0.3	52.9
Gulkana	0.3	0.2	127.3
Homer	1.2	1.2	107.8
Juneau	3.0	3.5	85.9
Ketchikan	5.0	10.3	48.9
King Salmon	0.5	1.0	49.0
Kodiak	10.4	6.1	169.1
Kotzebue	1.3	0.6	233.9
McGrath	0.6	0.7	83.8
Nome	1.9	0.7	256.8
St. Paul Island	1.6	1.0	153.8
Talkeetna	0.7	1.3	54.5
Utqiagvik	0.5	0.2	272.2
Yakutat	5.6	7.9	70.9

**Table 2.** Monthly precipitation sum, normal (1991-2020) and departure expressed as a percentage of the normal (1991-2020) for selected stations throughout the state, April 2024. Colors match the color scale in Figure 4.



**Figure 9.** Time series of daily Arctic sea ice extent. This year's data (dark red) are updated until April 25, 2024. The median sea ice extent for the 1991-2020 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.org/)



**Figure 10.** A (left) Arctic sea ice extent and B (right) concentrations as of April 30, 2024 compared to the average from 1981-2010 (Data and images: NSIDC)

## **Arctic Sea Ice**

Arctic sea ice extent decreased throughout April after reaching the seasonal maximum mid-March. The sea ice decrease proceeded at weekly rates between 3% in early April and 1-2% later in the month. As of April 25, Arctic sea ice extent was 13.809 M km<sup>2</sup> compared to 14.885 M km<sup>2</sup> on March 28. The sea ice extent remains near the long term average for the time of year.

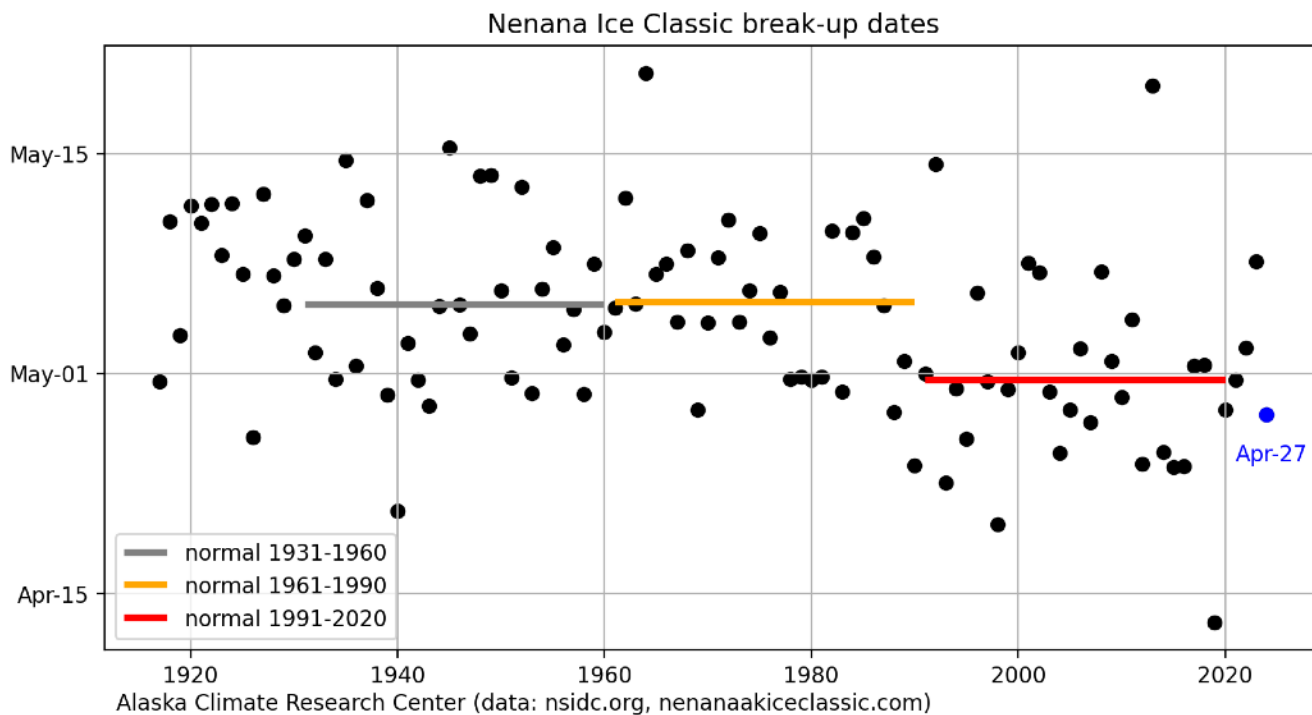
Figure 9 shows time series of sea ice extent while Figures 10 A and B show the Arctic sea ice extent and concentrations for April 30, 2024, compared to the average for the period 1981-2010.

**Newsworthy Information**

**Break up on the Tanana river at Nenana**

The tripod on the Tanana river at Nenana fell over on April 27, 2024, at 05:18 am, triggering the clock that ends this year’s [Nenana Ice Classic](#). The long standing tradition of betting on the day and time of the river break up at Nenana has produced a long and unique climatological time series of river break up dates.

This year’s break up date (April 27) is about two days earlier than average when compared to the 1991-2020 reference period. See our [blog post](#) for more information.



**Figure 11.** Break up dates on the Tanana at Nenana as recorded by the Nenana Ice Classic since 1917. Colored lines indicate the average over the 30-year climate reference periods

**New satellite antenna installed at UAF, will aid environmental monitoring in the state**

A new antenna was installed on the roof of a building on the UAF campus this month and will be integrated into operations at the Geographic Information Network of Alaska (GINA). The antenna will downlink data from satellites that produce imagery using microwaves, in the X and L bands. [More information.](#)

## Appendix

Highest Mean Daily Temperature on Record				
Station	Date	New Record (°F)	Year of Old Record	Old Record (°F)
Bettles	2024-04-18	46.0	1998	42.0
Bettles	2024-04-19	44.0	2010	43.0
Bettles	2024-04-20	44.0	1993	43.0
Delta Junction	2024-04-18	50.5	1953	49.0
Delta Junction	2024-04-19	49.0	1998	48.0
Homer	2024-04-20	46.5	1936	44.5
McGrath	2024-04-20	43.5	1999	43.0

**Table A1:** April 2024 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. Seven new high records and no new low records were set.

Highest Maximum Daily Temperature Record				
Station	Date	New Record (°F)	Year of Old Record	Old Record (°F)
Anchorage	2024-04-20	57.0	2014	55.0
Bettles	2024-04-19	56.0	2021	55.0
Bettles	2024-04-20	55.0	1993	54.0
Ketchikan	2024-04-20	65.0	1934	64.0
McGrath	2024-04-20	59.0	1978	57.0
Utqiagvik	2024-04-16	36.0	1988	31.0
Yakutat	2024-04-19	64.0	2021	60.0
Yakutat	2024-04-20	61.0	1989	58.0



Lowest Maximum Daily Temperature Record				
Bethel	2024-04-01	2.0	2004	3.0
Bettles	2024-04-02	6.0	1960	7.0

**Table A2:** April 2024 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. Eight new highest and two new lowest maximum daily temperature records were set.

Highest Minimum Daily Temperature Record				
Station	Date	New Record (°F)	Year of Old Record	Old Record (°F)
Bettles	2024-04-18	39.0	1998	34.0
Bettles	2024-04-20	33.0	1993	32.0
Delta Junction	2024-04-18	45.0	1953	40.0
Homer	2024-04-19	42.0	2020	41.0
Homer	2024-04-20	41.0	2005	40.0
King Salmon	2024-04-18	39.0	1993	37.0
McGrath	2024-04-18	41.0	2015	39.0

**Table A3:** April 2024 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. Seven new records for highest minimum daily temperature were set. One was set for lowest minimum daily temperature.

**ALASKA CLIMATE RESEARCH CENTER**

*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 comments, ideas or errors to [uaf-climate@alaska.edu](mailto:uaf-climate@alaska.edu).*