



Alaska Climate Research Center
Alaska State Climate Center

STATEWIDE CLIMATE SUMMARY MAY 2021

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Alaska’s Statewide Climate Summary for May 2021 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 new normal, 1991-2020 period. Here, we report on temperature, precipitation and drought conditions in the state, as well as the condition of the Arctic sea ice.

HIGHLIGHTS

Colder May throughout the Interior of the state and **warmer than usual temperatures** along the West coast.

Much less precipitation than usual for areas along the west coast and the North Slope for the month.

Juneau and Anchorage set **new precipitation records** for the month of May.

At the end of the month, **121 fires had burned** across the state of Alaska.

Sea ice extent is the **9th lowest in the satellite record** for the month of May.

Temperature

Colder than normal temperatures were recorded for first order stations across the Panhandle, Bristol Bay & Cook Inlet, and a few locations in the Interior of the state for the month of May 2021. Notable lower than usual temperature deviations include Delta Junction (-1.9 °F), Kodiak (-1.6 °F) and Yakutat (-1.6 °F). Warmer than usual temperatures were recorded along the west coast of the state with notable temperature deviations including Nome (+5.1 °F), Bethel (+2.7 °F) and St. Paul Island (+2.2 °F), as seen in Figures 1, 2 and Table 1. Figure 3 shows the daily temperature deviations for each of the first-order stations. Nome had significantly higher than normal temperatures for the majority of the month (which has continued on from mid-April), while Delta Junction, despite having some warmer than usual days, had significantly colder temperatures than normal for about a week out of the month, leading to an overall colder than normal month. The warmer than usual temperatures along the west coast are tied to near to above-normal sea surface temperatures in the Bering Sea. Close to near-normal temperatures were found within parts of the interior of the state. No new high temperature records were set for the month, but a few low temperature records were broken, most notably in Delta Junction which set a new record on May 15, recording a lowest minimum of 9 °F for the day compared with 25 °F back in 1972.

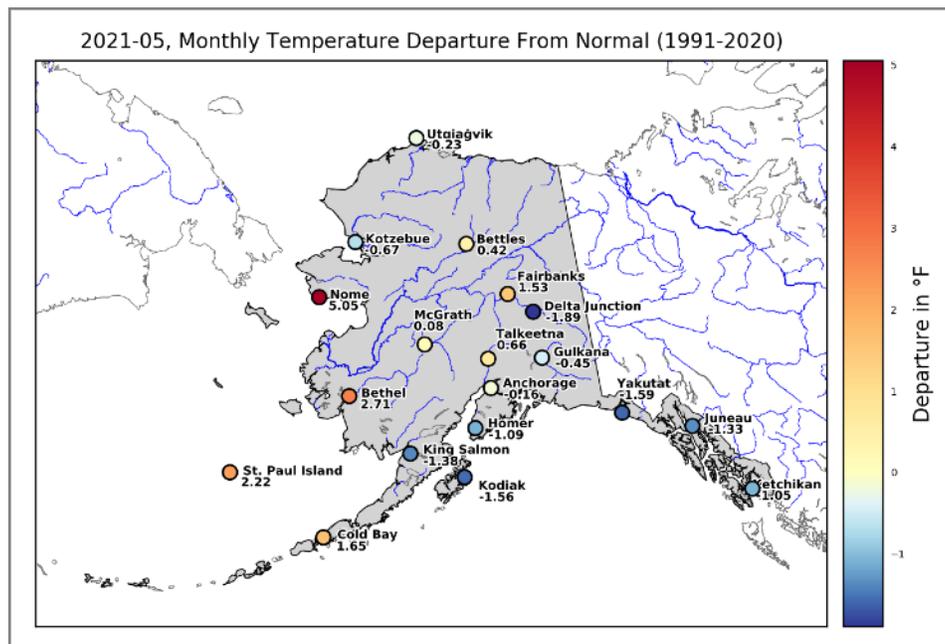


Figure 1. Monthly mean temperature departure from normal, May 2021, for selected stations around the state of Alaska.

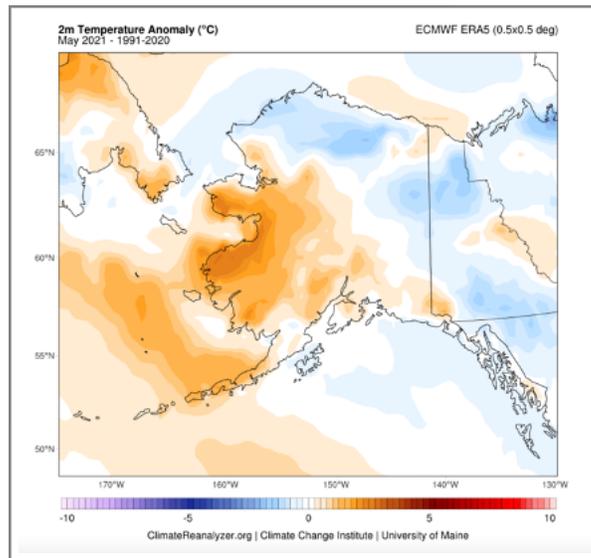


Figure 2. Temperature anomaly for the month of May 2021 relative to the 1991 to 2020 temperature normal as derived from ECMWF ERA5 4th generation reanalysis data, showing warmer than normal temperatures along the west coast and colder than normal temperatures in the Interior and North Slope (data source: Climate Reanalyzer, Climate Change Institute, University of Maine).

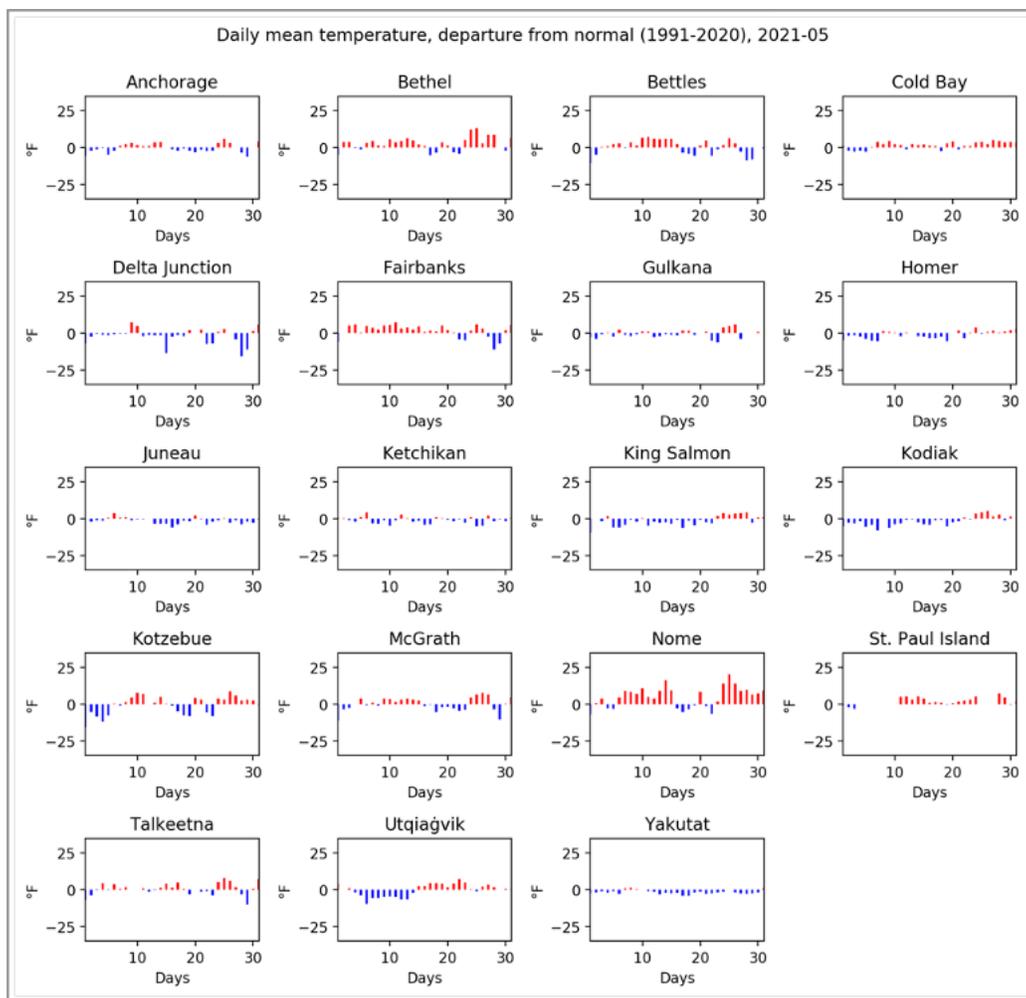


Figure 3: Daily mean temperature departures for each day in May 2021, at the selected stations.

Station	Observed (°F)	Normal (°F)	Departure (°F)
Anchorage	48.0	48.1	-0.2
Bethel	45.8	43.1	2.7
Bettles	45.4	45.0	0.4
Cold Bay	42.9	41.2	1.6
Delta Junction	46.5	48.4	-1.9
Fairbanks	51.9	50.3	1.5
Gulkana	44.8	45.8	-0.4
Homer	44.9	46.0	-1.1
Juneau	47.6	48.9	-1.3
Ketchikan	49.0	50.1	-1.1
King Salmon	44.3	45.7	-1.4
Kodiak	44.2	45.8	-1.6
Kotzebue	33.7	34.4	-0.7
McGrath	48.5	48.4	0.1
Nome	42.3	37.3	5.1
St. Paul Island	39.0	36.5	2.2
Talkeetna	48.5	47.7	0.7
Utqiagvik	23.0	23.2	-0.2
Yakutat	44.1	45.7	-1.6

Table 1: Mean monthly air temperature, normal (1991-2020) and departure for selected stations throughout the state, May 2021. Color-coded to Figure 1 (yellow-orange-red = warmer than usual; shades of blue = cooler than usual).

Precipitation

Most reporting stations across the state, especially the west coast and the North Slope, showed lower than normal amounts of precipitation for the month. Significant below-normal precipitation was recorded in Nome (16.9% of normal), Utqiagvik (25% of normal), Kotzebue (27.3% of normal), and St. Paul Island (32.4% of normal). Above-normal precipitation was recorded in Delta Junction (240.8% of

normal), Juneau (196.9% of normal), and Anchorage (167.7% of normal) (Figure 4; Table 2). Figure 5 shows the monthly precipitation sums for May 2021 at the selected stations compared to the normal (1991-2020), in inches. On May 11, 0.5” of rain fell in the Donnelly Dome area south of Ft. Greely (Delta Junction), which, in combination with other precipitation during the month, led to an overall above normal precipitation anomaly for the entire month. Snowfall was observed over Bettles on May 19, with 1.5 inches falling by 10 AM, but it all melted due to above average temperatures. Juneau had its 2nd wettest May on record, as well as its 2nd wettest January-May period on record. On May 28, Anchorage set a daily record for rainfall with 0.28” falling, beating the previous record of 0.27” set in 1985. The following day, May 29th, Anchorage set another record, with 0.58” falling, breaking the previous record of 0.48” set in 1985.

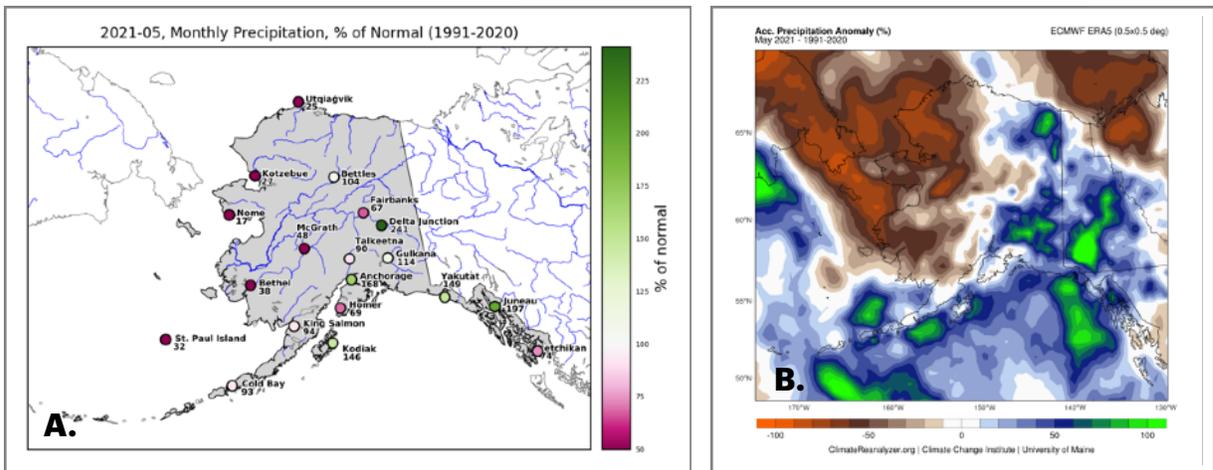


Figure 4. (A) Monthly mean precipitation departure from normal (in percent), May 2021, for selected stations around the state of Alaska. (B) Precipitation anomaly for the month of May 2021 relative to the 1991 to 2020 precipitation normal as derived from ECMWF ERA5 4th generation reanalysis data, showing drier than normal conditions along the west coast and North Slope, and wetter than normal in parts of the Interior and Panhandle (data source: Climate Reanalyzer, Climate Change Institute, University of Maine).

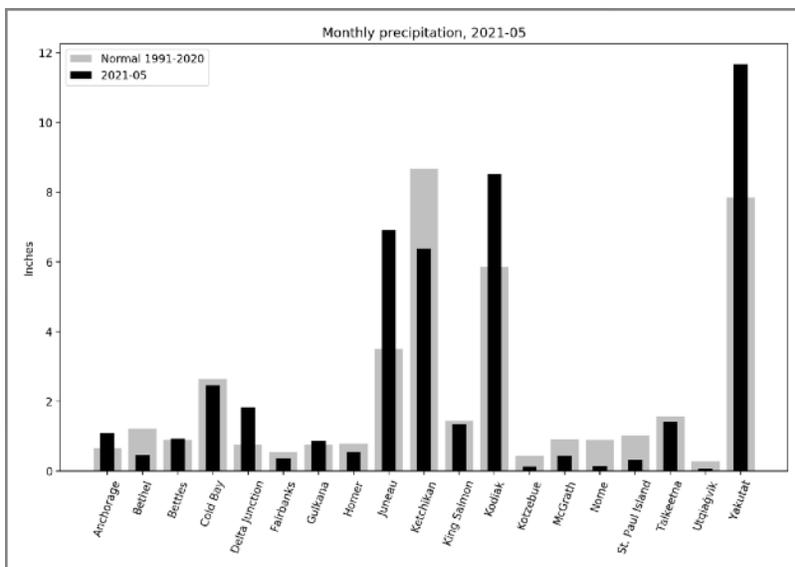


Figure 5. Monthly precipitation sums for May 2021 at the selected stations compared to the normal (1991-2020), in inches.

Station	Precipitation (in)	Normal (in)	% of Normal
Anchorage	1.1	0.7	167.7
Bethel	0.5	1.2	38.0
Bettles	0.9	0.9	104.5
Cold Bay	2.5	2.6	93.2
Delta Junction	1.8	0.8	240.8
Fairbanks	0.4	0.5	66.7
Gulkana	0.9	0.8	114.5
Homer	0.5	0.8	69.2
Juneau	6.9	3.5	196.9
Ketchikan	6.4	8.7	73.5
King Salmon	1.3	1.4	93.7
Kodiak	8.5	5.9	145.6
Kotzebue	0.1	0.4	27.3
McGrath	0.4	0.9	48.4
Nome	0.2	0.9	16.9
St. Paul Island	0.3	1.0	32.4
Talkeetna	1.4	1.6	90.4
Utqiagvik	0.1	0.3	25.0
Yakutat	11.7	7.8	148.7

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, May 2021. Shades of purple and green correlate with Figure 4A.

Drought

Despite below normal precipitation in multiple regions along the west coast, only the North Slope is showing abnormally dry conditions for May 2021. Figure 6 has

been produced through a collaboration of the USDA, NOAA and the National Drought Mitigation Center.

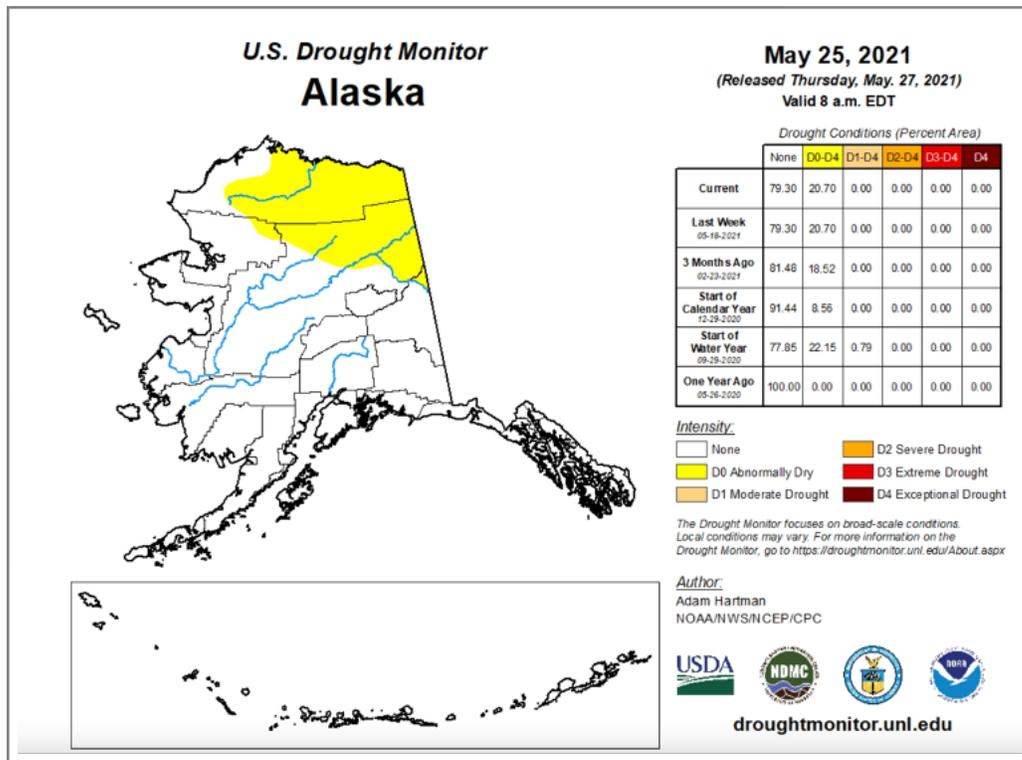


Figure 6: U.S. Drought Monitor map for Alaska, updated on May 25, 2021. The table on the right shows the percent area affected by different categories of drought intensity. Figures and data produced and released by the U.S. Drought Monitor, a partnership between the National Drought Mitigation Center at the University of Nebraska-Lincoln, the United States Department of Agriculture, and the National Oceanic and Atmospheric Administration (<https://droughtmonitor.unl.edu>).

Wildfire Activity

Over the past 20 years, Alaskans have seen several years with extreme wildfire activity across the state. From increased lightning and wildfires extending into the Arctic and other regions affected by drought occurrence, it is clear that Alaska’s wildfire environment is changing. As of June 1, 2021, 121 total fires had burned in Alaska, totaling 5,539.6 acres. Of these, 111 were human-caused, burning 4,173 acres while only four were lightning-sparked, burning 11 acres, and five fires (burning 1,356 acres) had undetermined causes.

Please check our UAFSmoke website at <http://smoke.alaska.edu> for current and updated fire information. UAFSmoke shows current wildfire status information and

up to 72 hours forecast of concentration of black carbon and particulate matter included in wildfire smoke.

Arctic Sea Ice

In the first week of the month, the sea level extent decreased by a large rate of 4.2%, while the following two weeks, sea ice extent loss slowed down, with a rate of only 1.5% and 1.6%. It was a bit more anomalously negative for this time of year. The slower pace of sea ice loss this month is tied to a series of storms that migrated over the pole in May. In the last week of the month, sea ice extent decrease was at a higher rate: 3.2%. Over the course of May 2021, sea ice extent decreased from 12.994 to 12.193 M km². The average extent for the month ranks 9th lowest in the passive microwave satellite record. Figure 7 shows the time series for 2021 of daily Arctic sea ice extent, up to May 27, 2021, while Figure 8 shows the sea ice extent for the month of May 2021, as compared with the median edge (1981 – 2010).

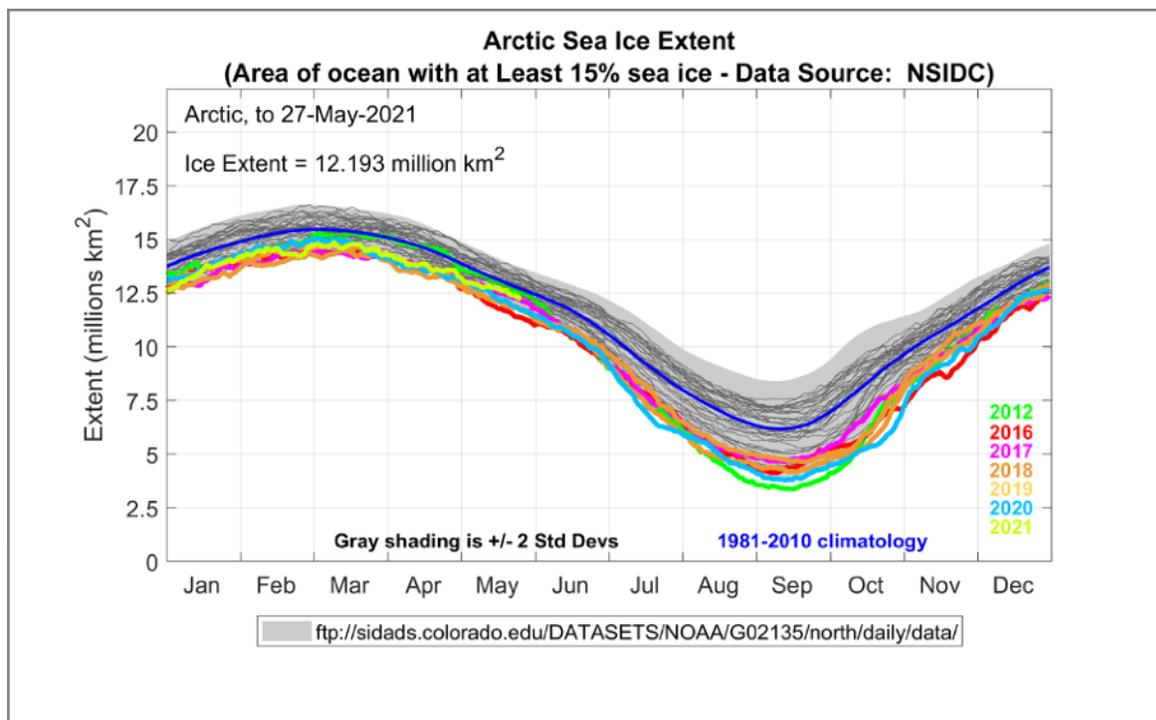


Figure 7. Time series of daily Arctic sea ice extent. This year's data (lime green) are updated until May 27, 2021. The median sea ice extent for the 1981-2010 reference period is depicted in blue. Specific years are highlighted in colors. Plot Compiled by: Howard J. Diamond, PhD; Climate Science Program Manager at NOAA's Air Resources Laboratory Data Source: National Snow & Ice Data Center (<https://nsidc.org/>).

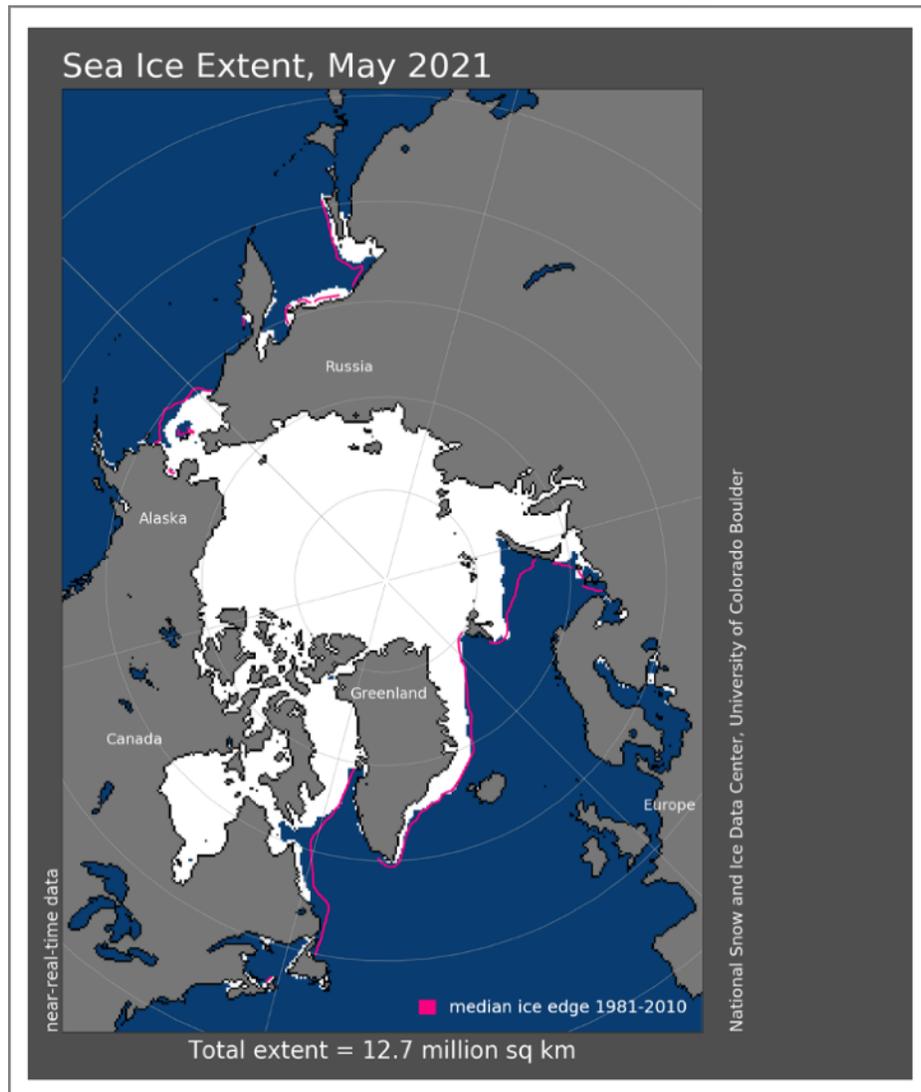


Figure 8. Arctic sea ice extent for the month of May 2021.
Image: National Snow and Ice Data Center (nsidc.org).

Newsorthy Information

Ice melts out at famous Alaska river betting site

Ice on the Tanana River in the Alaska community of Nenana melted enough on April 30, 2021 to send a wooden tripod adrift, tripping an alarm and adding another valuable data point to a century-old record of climate change in America's far north. The ice broke up at 12:50 p.m. Alaska Standard Time, and those who correctly guessed the day and time will split a large jackpot.

<https://www.dailymail.co.uk/wires/reuters/article-9531989/Ice-melts-famous-Alaska-river-betting-site.html>



Appendix

Table A1: May 2021 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. No new records were set for highest mean daily temperatures was set and one was set for lowest mean daily temperature record.

Lowest Mean Daily Temperature on Record				
Station	Date	New Record (°F)	Year of Old Record	Old Record (°F)
Delta Junction	2021-05-28	36.5	1976	39.5

Table A2: May 2021 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. No new highest maximum daily temperature records were set and one was set for lowest maximum daily temperature records.

Lowest Maximum Daily Temperature Record				
Station	Date	New Record (°F)	Year of Old Record	Old Record (°F)
Delta Junction	2021-05-28	41.0	2007	47.0

Table A3: May 2021 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. Two new records for highest minimum daily temperatures were set and two new records for lowest minimum daily temperature.

Highest Minimum Daily Temperature on Record				
Station	Date	New Record (°F)	Year of Old Record	Old Record (°F)

Cold Bay	2021-05-24	44.0	1968	42.0
Cold Bay	2021-05-25	43.0	1970	42.0

Lowest Minimum Daily Temperature on Record				
Station	Date	New Record (°F)	Year of Old Record	Old Record (°F)
Delta Junction	2021-05-15	9.0	1972	25.0
Delta Junction	2021-05-06	20.0	1949	21.0

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 any errors to webmaster@akclimate.org.