

DAAR

Observation Array, Alaska Region Newsletter

Issue: 2, May 2021

What do cicadas and climate normals have in common?



They only happen every decade or so and are anticipated with much enthusiasm by many.

After 17 years of hiding underground, cicadas are emerging across much of the eastern U.S. Periodical cicadas emerge when the soil temperature reaches 64 degrees, which usually happens in May.

Like the much anticipated return of the cicadas, we have also waited 10 years for the release of the new climate normals, which also happened in May. The climate normals are averages collected over a period of 30 years and the most common weather elements we consider are temperature, rainfall, and snowfall. The staff at NOAA's National Center for Environmental Information (NCEI) recently released the updated dataset which includes weather observations collected from 1991 through 2020. What does that mean? Did anything change?

Some changes in the new climate normal dataset are slight. Other changes are significant. For Southeast Alaska, the damaging Thanksgiving storm of 1984 is no longer included in the climate normal dataset. Check out the article by Brian Brettschneider, our Regional Climate Program Manager, for more information on the changes around Alaska.

You can find individual station data at [xmACIS2](#).

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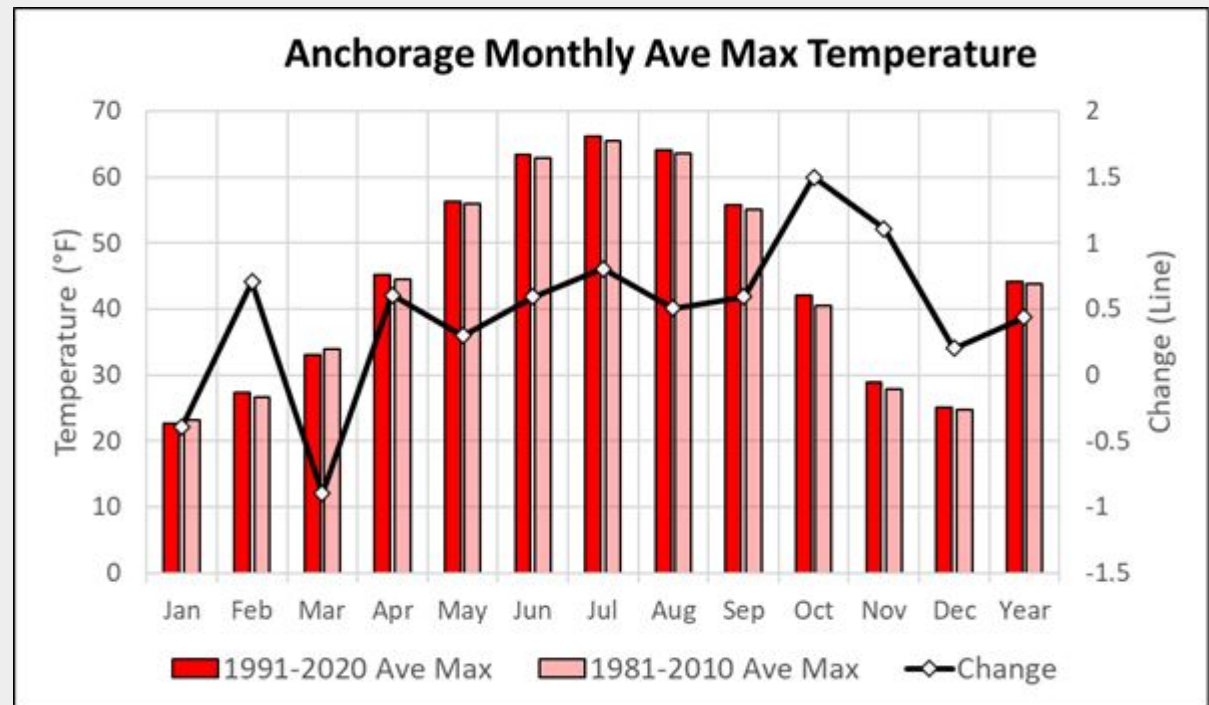
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New Climate Normals

Brian Brettschneider

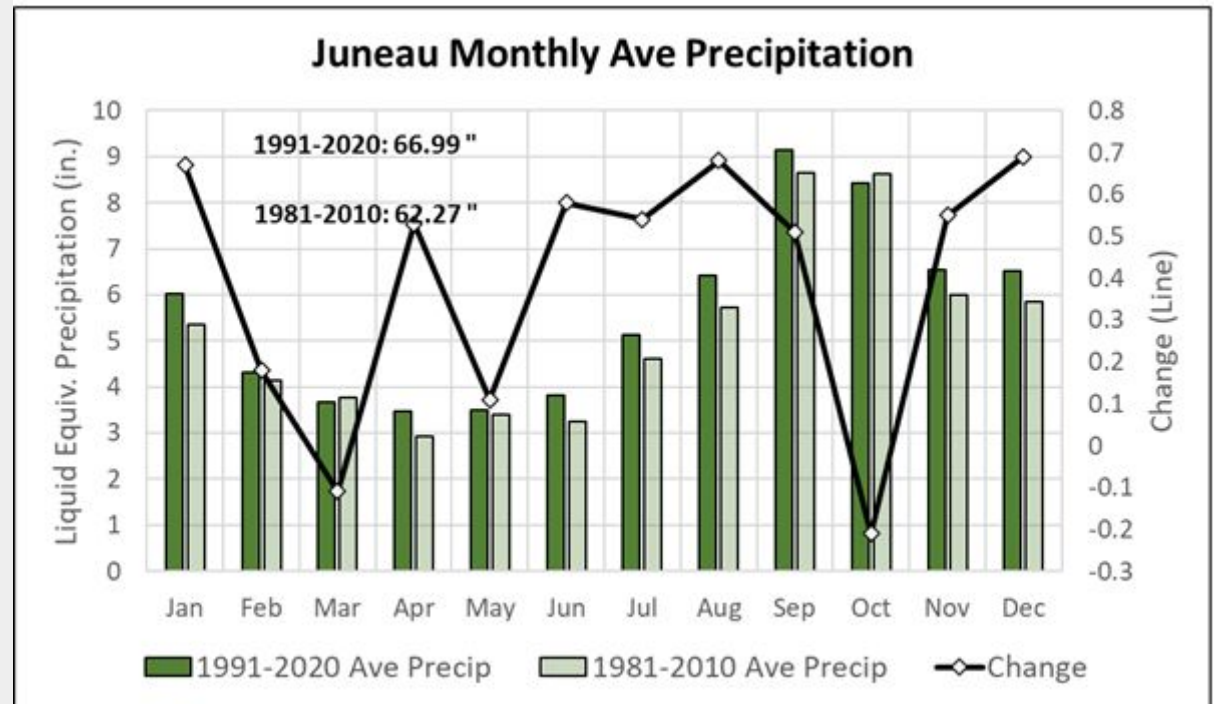
2021 is an exciting year for all those climate followers. Every 10 years, the National Center for Environmental Information (NCEI) computes new daily, monthly, seasonal, and annual climate normals for thousands of stations around the U.S. and hundreds in Alaska. As of May 4th of this year, the new normals are fully in effect. What does that mean for Alaska? Nearly every place is now warmer and most places are wetter.



New Climate Normals

Brian Brettschneider

The 30-year period shares 20 years with the previous period (1981-2010), so the changes reflected in the new normals are somewhat tempered. Still, the overall changes (statewide) and the regional changes are dramatic in many cases and highlight the rapidity of the warming we see in the Alaska environment.



Sea Ice Program

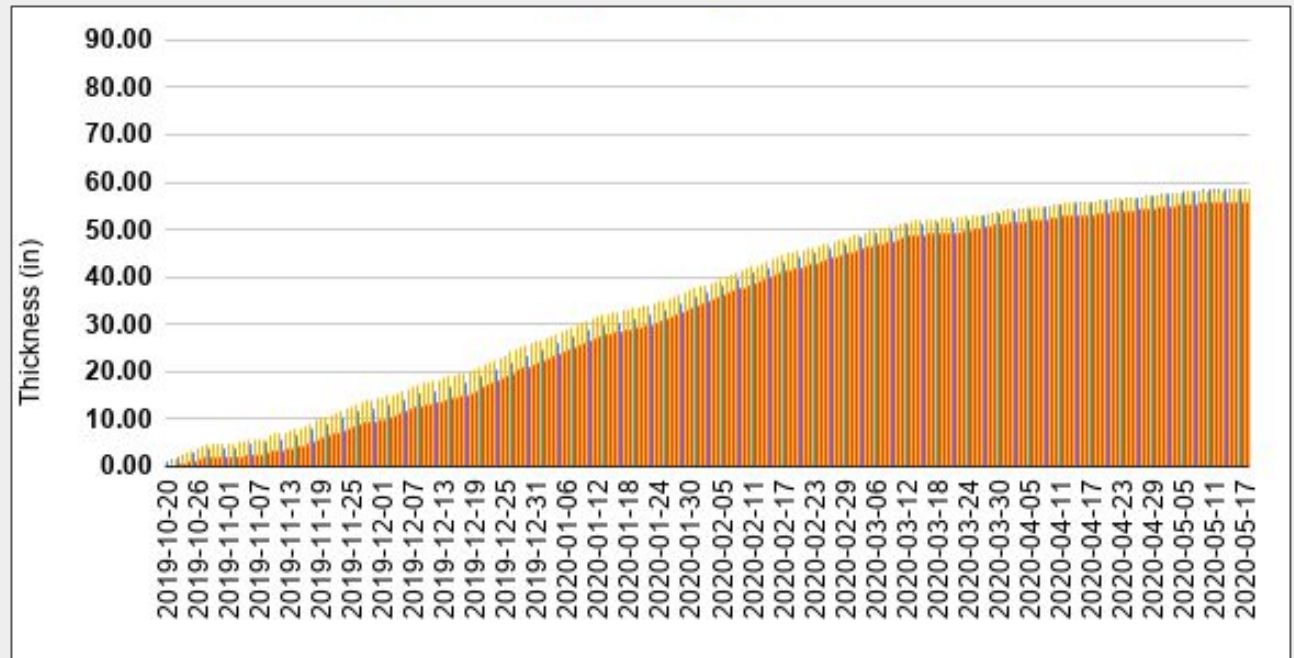
Michael Lawson

Estimating Ice Thickness Using Temperature Observations

The Alaska Sea Ice Program uses temperature observations in a way you might not think of.

We track the thickness of shorefast ice around the coast of Alaska using something called a freezing degree day.

Freezing degree days are a way to track not only how cold it has been, but also for how long.



Graphic: Tracking ice thickness at Utqiagvik during the 2019-2020 ice season using freezing degree days. The three colors are different approximation equations.

Estimating Ice Thickness Using Temperature Observations

Freezing Degree Days (FDD)

An FDD would be how much the average temperature is below zero for a 24-hour period.

To calculate an FDD we need to know a couple of things:

Average temp = (max temp+min temp) ÷ 2

Freezing point of seawater = -1.8° Celsius

Sea water freezes at lower temperature because of the salt content.

FDD = -1.8° - Average temperature

Ice Observations and Spotters Needed

The methods we described above are just estimates. While they can work well, and certainly help our mission, they are no substitute for an actual observation on the ice.

- Do you know of anyone who recreates or works on the Alaskan ice?
- Do they take observations of ice thickness?

We'd love to know about it!

Send us an email at nws.ar.ice@noaa.gov and let us know!



Northern and Interior Alaska

Karen Endres

National Weather Service Alaska River Observation

The NWS receives information about water and rivers from many sources throughout the year. Summertime monitoring includes river surveys and gage site visits along with daily or hourly water level measurements from automated and manual instrumentation. Wintertime includes snow and ice monitoring.



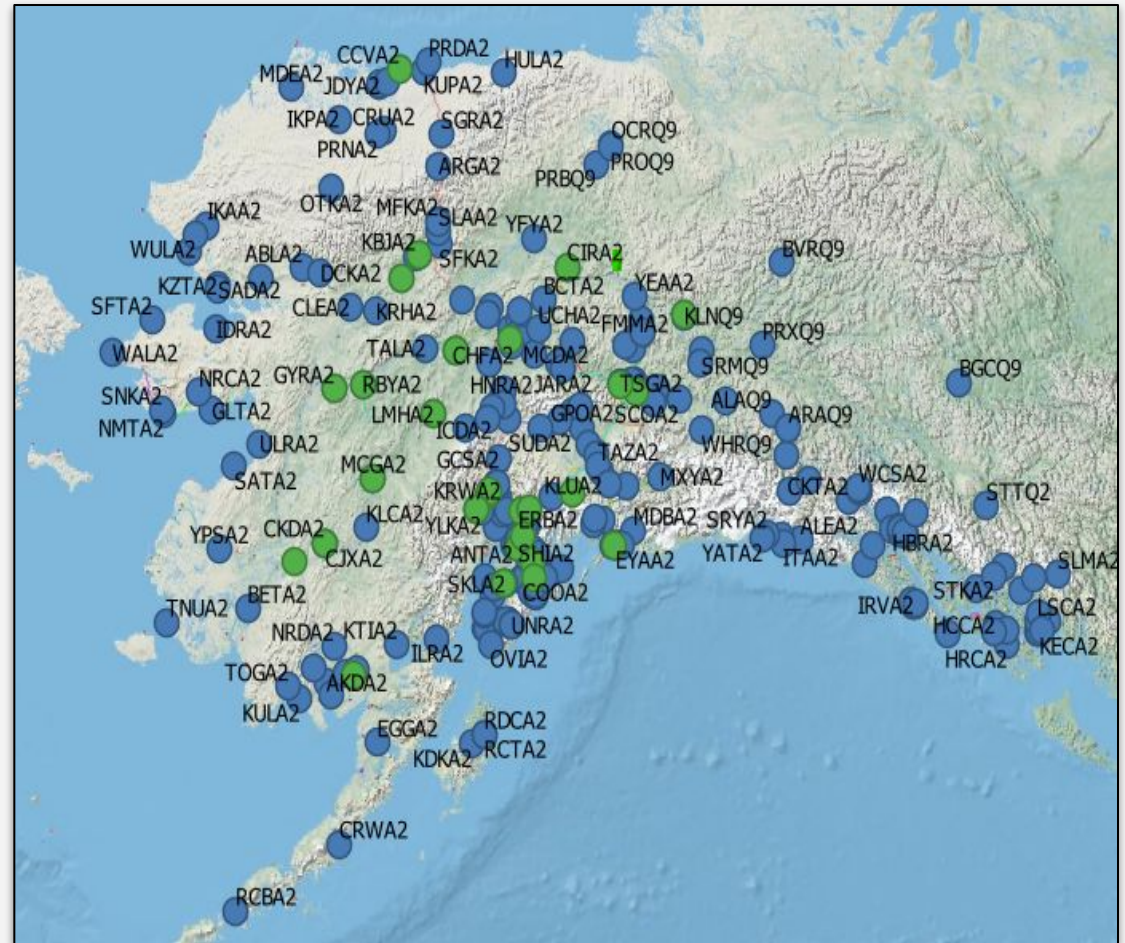
Northern and Interior Alaska

Karen Endres

There are many gages located across the state.

Here you can also see gages in Western Canada. Some of those rivers flow into Alaska.

- Automated gages
- Provide by people daily or situational



River Watch 2021

Every Spring, the NWS Alaska-Pacific River Forecast Center (APRFC) and Alaska Department of Homeland Security and Emergency Management (DHS&EM) conduct aerial observations of rivers prone to ice jam flooding. The team provides flood warnings and assists communities in responding to flood emergencies. The River Watch partnership has existed for more than 30 years.

The River Watch team began surveillance flights on the Upper Yukon and Kuskokwim Rivers the first week of May.



Stony River; Civil Air Patrol Aerial Recon flight on 4/26/2020

River Watch 2021



Above: Ice blocks and flooding inundate Eagle in May 2009. Image-US National Park Service



Left: Upper Yukon River Watch May 5th Yukon River between Rampart and Tanana.



Right: Ice jam on the Melozitna River April 30th
Photo credit: US Fish and Wildlife Service

Springtime Chores for COOP Stations Across the State

Snowboard

By May, it is pretty safe to put away the snowboard until late Fall. However, observers at some stations may need to keep an eye on the forecast.

1. Ensure the snowboard is clean and in good condition.
2. Put it away in a safe place to prevent damage that is easy to get to when you need it again.

Rain gauge

This is a good time to give the rain gauge a thorough inspection.

1. Funnel: Are there any chips or cracks?
2. Inner tube: Is it clean and not leaking?
3. Overflow can: Does the funnel fit on it properly? Is it clean? Check for leaks.
4. Stand: Is it secured? All the bolts snug?

Springtime Chores for COOP Stations Across the State

Temperature

The elements and animals can do funny things to equipment.

1. Is the pole standing straight?
2. Is the temperature sensor (beehive) in good condition?
3. Do the plugs look to be in good condition?
4. Are there any visible issues with the cable?
5. Do you know where your spare 9V battery is?

Miscellaneous Equipment

Some stations have additional equipment such as soil temperature sensors, sea surface thermometers, etc. Ensure they are in good working order, as well.

It is important to let your Observing Program Leader (OPL) or designee know anytime there are any issues. They may be able to send out new supplies and equipment or may need to schedule a trip... someday. When is someday?

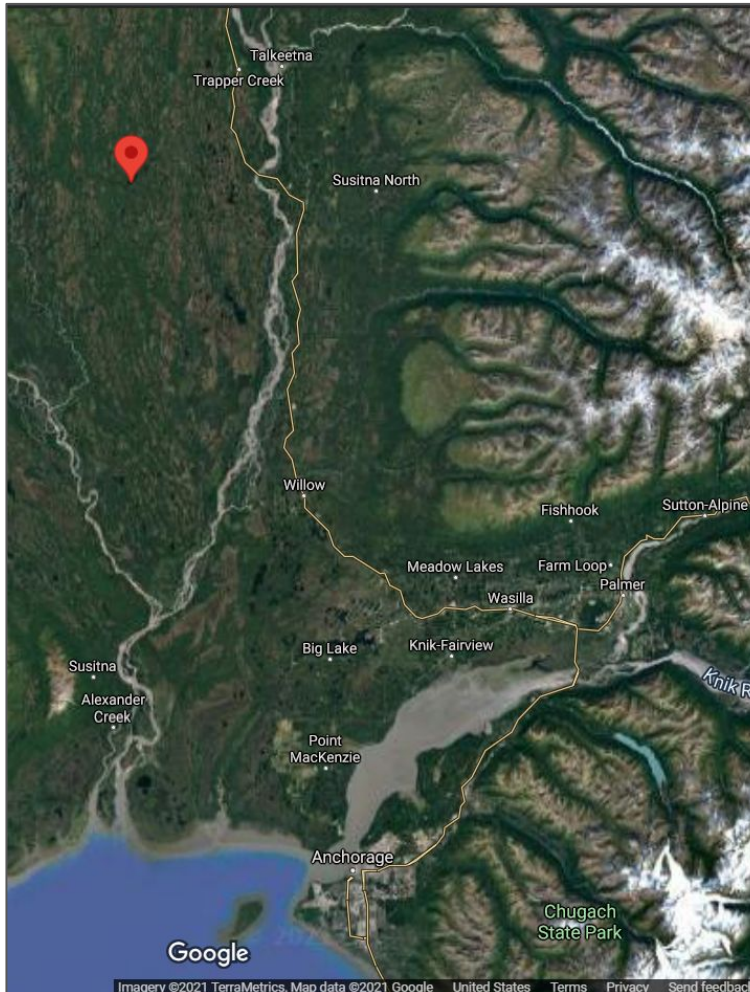
Springtime Chores for COOP Stations Across the State

Trips
Speaking of trips, COVID-19 put a stop to travel in 2020. Although not ideal, we were impressed by the dedication and attention of our COOP observers. Even without an in-person site visit, most COOP stations have continued to operate well. However, we have received reports of a few small issues, such as observers needing a new rain stick because the numbers were wearing off to bigger challenges, such as a snowplow taking out an entire temperature system.

The new year holds hope for COOP travel, but as of May 2021, travel continues to be on hold. We can not express enough how much the staff misses coming out to see the stations and the volunteers that make the COOP program work. Stay in touch!

Our COOP observers are important in so many ways. Their contributions go well beyond even the smallest of community or village, including contributing data used to calculate the climate normals for our nation. Thank you!

Check out [THIS](#) article about it.



COOP Observer Spotlight: Amber Lake

Nestled along the foothills of the Alaska Range in northern Susitna Valley lies Amber Lake. A good 3-hour drive north of Anchorage, Amber Lake is rural and off the grid.

In this remote location, COOP observer Joan Medbery and her husband Ray have been collecting climate, soil, and river observations for over 24 years. Observing the weather in this remote location certainly has its challenges, one of which is the Alaskan wildlife!

In addition to closely monitoring daily weather conditions, Joan and Ray have also spotted a year-long occupied black bear den not far from their house.

Part 1 of 3

COOP Observer Spotlight: Amber Lake

There's certainly a lot to look out for around Amber Lake. Together, Joan and Ray have reported some of the most active weather events in their area, including:

- All-time High Temp: 97° on June 17th, 2013
- All-time Low Temp: -34° on January 19th, 2017
- Greatest 24-hour Rain: 3.04" on October 28th, 2013
- Greatest Monthly Rain: 10.23" on October 2013
- Greatest Annual Rain: 40.46" on January through December 2013
- Greatest 24-hour Snow: 19.5" on November 8th, 2020
- Greatest Monthly Snow: 57.4" on December 2011
- Greatest Snow Season: 174.0" Winter 2011-2012
- Greatest Snow Depth: 66" on March 8th, 2020

COOP Observer Spotlight: Amber Lake

The NWS relies on dedicated COOP observers to not only report daily weather observations but also to alert forecasters of changing conditions. Joan regularly maintains contact with the staff at the Weather Forecast Office in Anchorage and helps to verify significant weather events. By providing these observations in real-time, Joan serves as a vital component of the forecasting process and stands ready day and night to take the calls for observations. Forecasters are able to use this information in real-time to provide updates, make short-term adjustments, and recap the event to improve forecasts for the future. Weather reports from locations like Amber Lake are especially critical given the remote, data-sparse area.

Joan also uses a weather system to gather information for a long-term air pollution project at the Trapper Creek School in addition to the climate observations for NWS. She has also been lauded by Susitna Borough government officials for her weather work, willingness to share the information, and community activities, with decision-makers. That's the way to do it!

If you are interested in serving as a volunteer COOP observer, please visit www.weather.gov/afc/coop for more information.

Alaska Weather TV Program

David Kramer

Did you know the National Weather Service has a nightly TV program? *Alaska Weather* airs seven days per week on public broadcasting stations throughout Alaska.

- Focus on rural Alaska
- Public, marine, and aviation forecasts
- Seasonally specific forecasts
 - Sea ice
 - Spring breakup
 - Fire weather

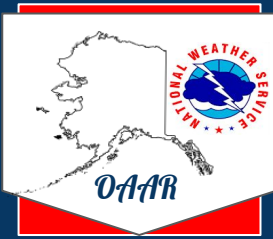


Alaska Weather TV Program

David Kramer

Channel	Time	Service Area
Alaska Rural Communications Service (ARCS)	5:30 PM	Over 200 communities in Rural Alaska
KUAC-TV 9.4 (UATV)	5:30 PM	Fairbanks and Interior Alaska
KTOO 360TV	6:30 PM*	Many areas statewide over the air, on cable, and on satellite
YouTube	After 6:00 PM	www.youtube.com/user/akwxtv

* Starting May 20, 2021, *Alaska Weather* will have a new time. *Alaska Weather* will air at seven days per week at 6:30 PM on KTOO 360TV.



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Resources



Cooperative Observer Program: <https://www.weather.gov/coop/>



CoCoRaHS: <https://www.cocorahs.org/state.aspx?state=ak>



Voluntary Observing Ship Program: <https://www.vos.noaa.gov/>

Weather Forecast Offices

Alaska Region: <https://www.weather.gov/alaska/>

WFO Anchorage: <https://www.weather.gov/anchorage/>

Sea Ice Program: <https://www.weather.gov/afc/ice>

WFO Fairbanks: <https://www.weather.gov/fairbanks/>

Alaska-Pacific RFC: <https://www.weather.gov/aprfc/>

WFO Juneau: <https://www.weather.gov/juneau/>

Climate Prediction Center: <https://www.cpc.ncep.noaa.gov/>

National Centers for Environmental Information: <https://www.ncei.noaa.gov/>