

The background of the slide is a photograph of a mountain landscape. In the foreground, there is a calm body of water reflecting the sky. The middle ground shows a shoreline with patches of snow and green vegetation. In the background, there are large, rugged mountains with significant snow cover under a blue sky with some clouds.

Alaska's Present & Changing Climate

May 18, 2020

Brian Brettschneider, PhD

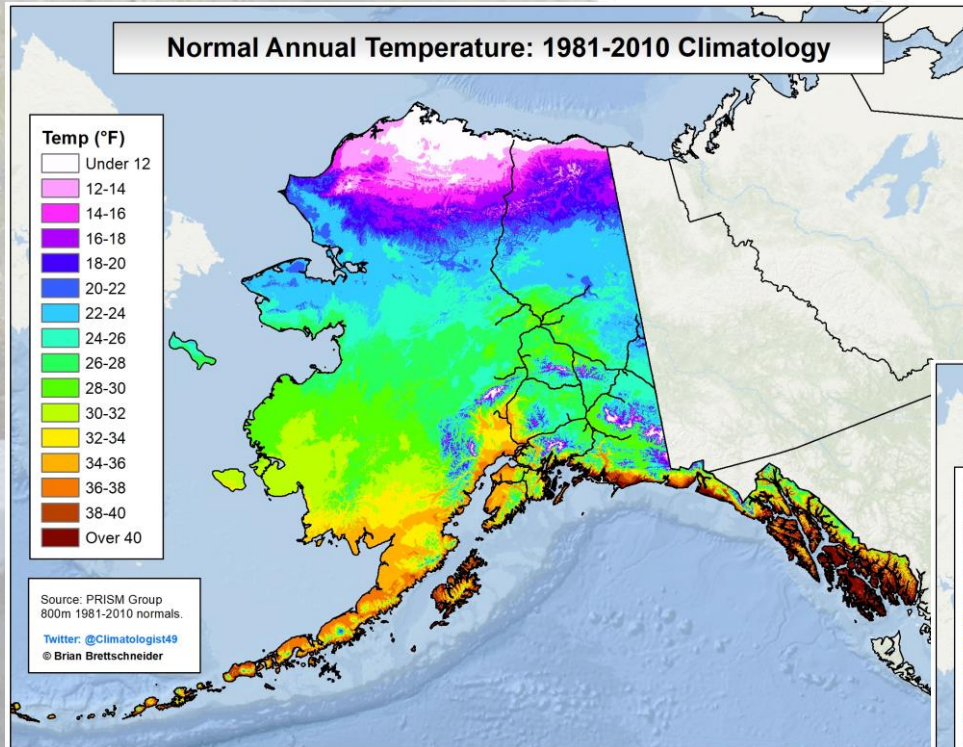
A photograph of a glacier flowing into a body of water, with icebergs floating in the foreground and rocky mountains in the background. The scene is captured in a monochromatic teal color. The glacier is a large, textured mass of ice and rock, flowing from the mountains in the background towards the water. The water in the foreground is dark and filled with numerous icebergs of various sizes. The mountains in the background are rugged and rocky, with some snow or ice patches. The sky is a pale, uniform color.

Climate

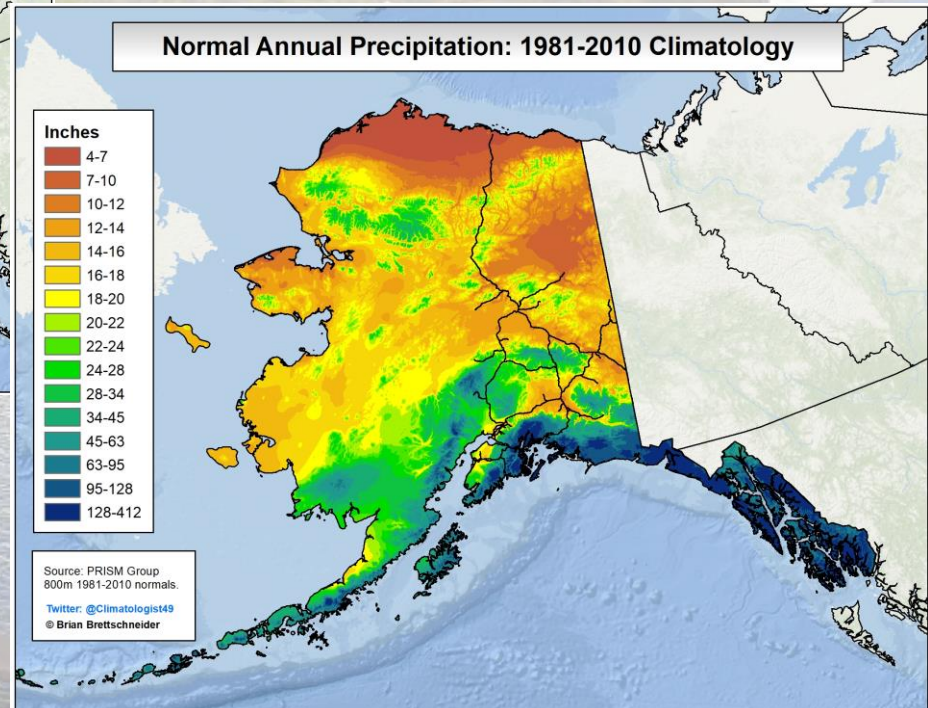
Weather

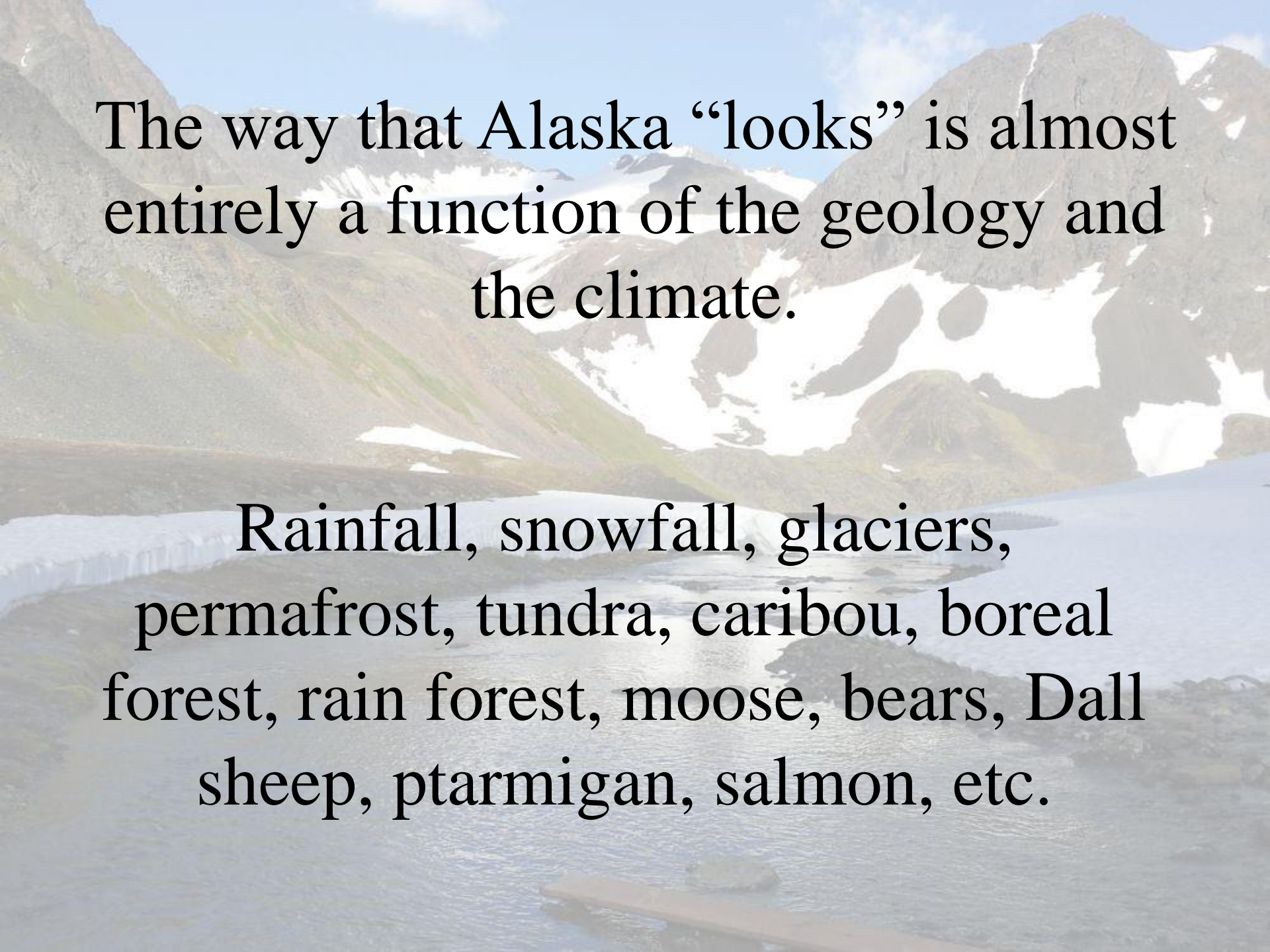
What is the Climate of Alaska Like Today?

Annual Temperature



Annual Precipitation



A scenic view of a snow-capped mountain range with a body of water in the foreground. The mountains are rugged and covered in patches of snow and green vegetation. The water is calm and reflects the surrounding landscape.

The way that Alaska “looks” is almost entirely a function of the geology and the climate.

Rainfall, snowfall, glaciers, permafrost, tundra, caribou, boreal forest, rain forest, moose, bears, Dall sheep, ptarmigan, salmon, etc.

Climate Change Impacts in Alaska

The Climate Determines Where Moose & Caribou Are



They are already moving
in response to a changing
climate.

Climate Change Impacts in Alaska

The Climate Determines Where Salmon Are



A scenic view of a mountain range with snow patches and a body of water in the foreground. The mountains are rugged and covered in patches of snow, with a clear blue sky above. In the foreground, there is a calm body of water reflecting the sky and the surrounding landscape. The text is overlaid on the image, centered horizontally and vertically.

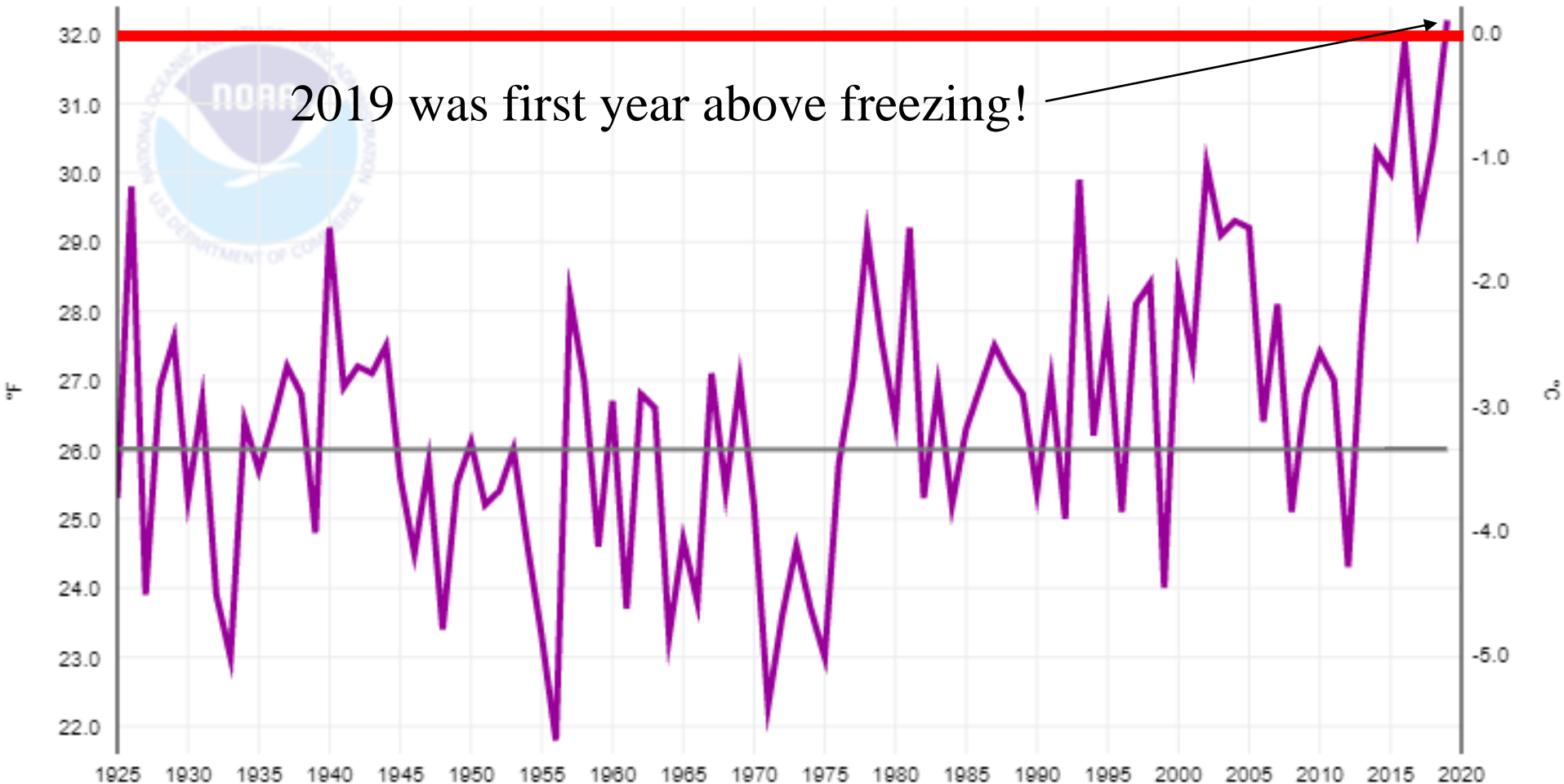
Everything we love about Alaska as a place, is directly tied to the climate.

How Are We Doing?

Alaska, Average Temperature, January-December

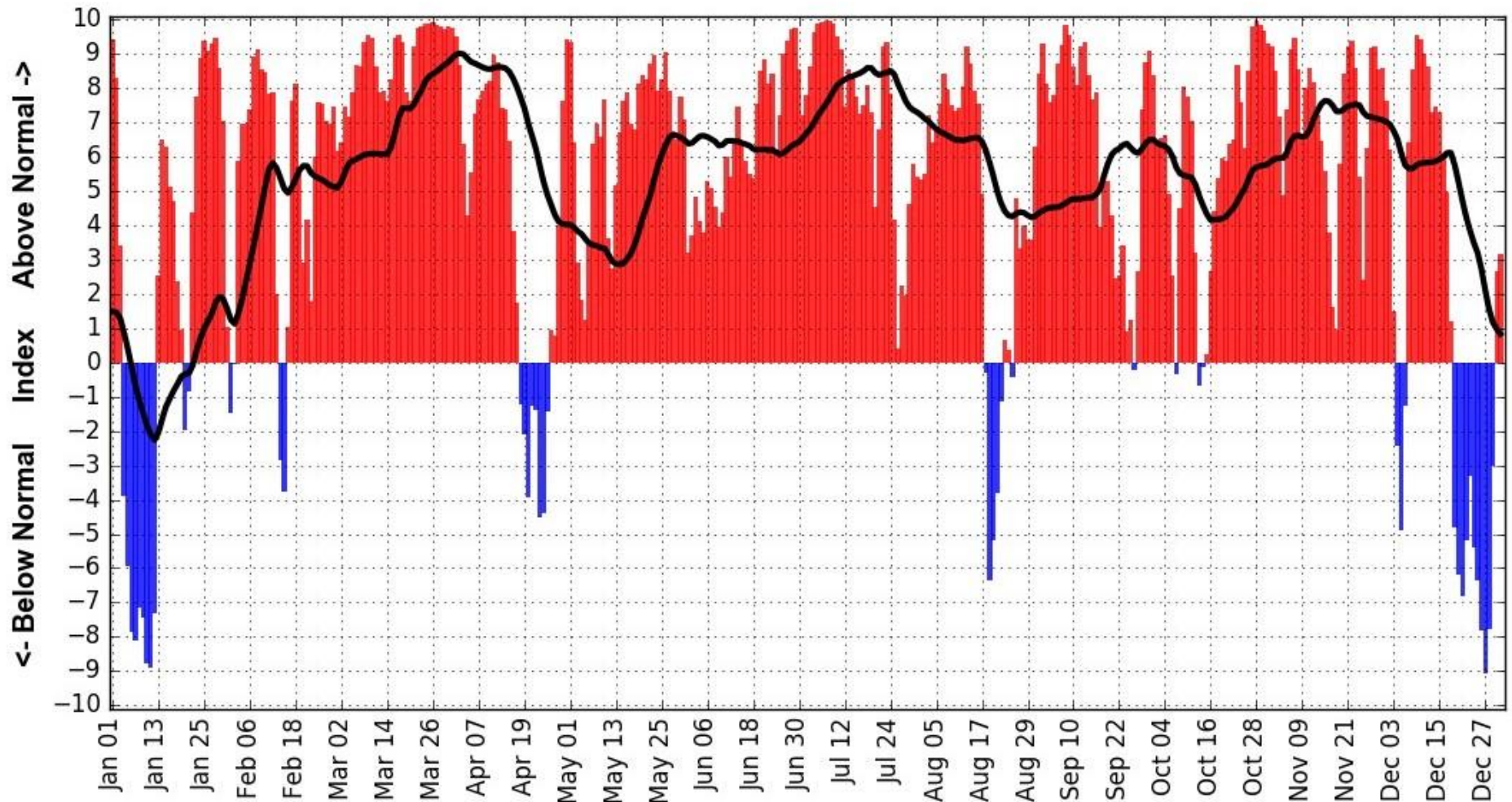
Avg Temperature

1925-2000 Mean: 26.0°F



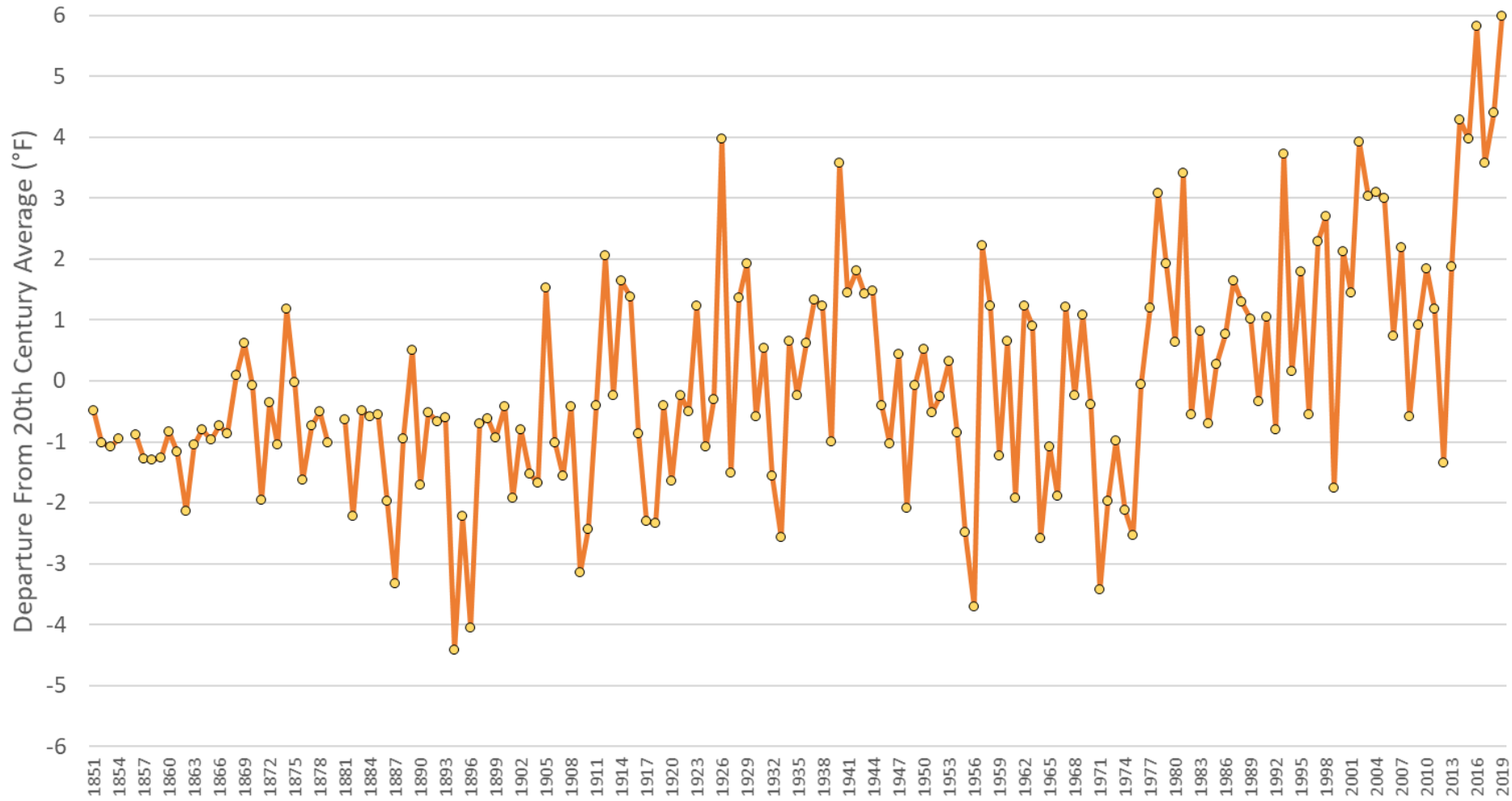
Alaska Statewide Temperature Index: 2019

Alaska Statewide Temperature Index: Jan 01, 2019, to Dec 31, 2019

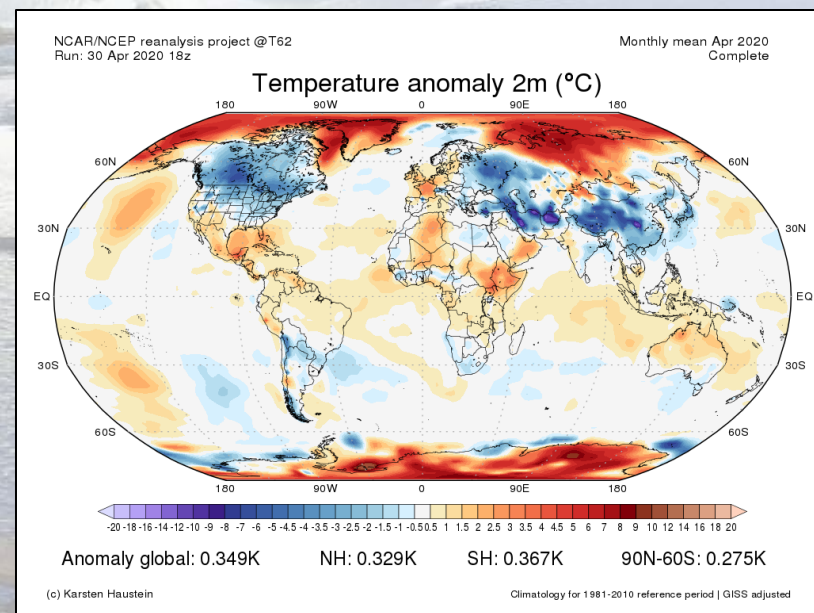
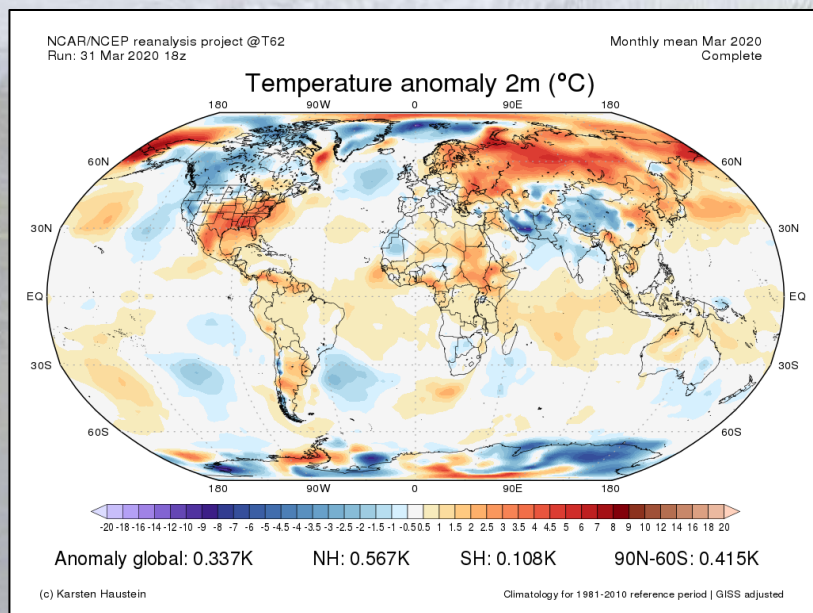
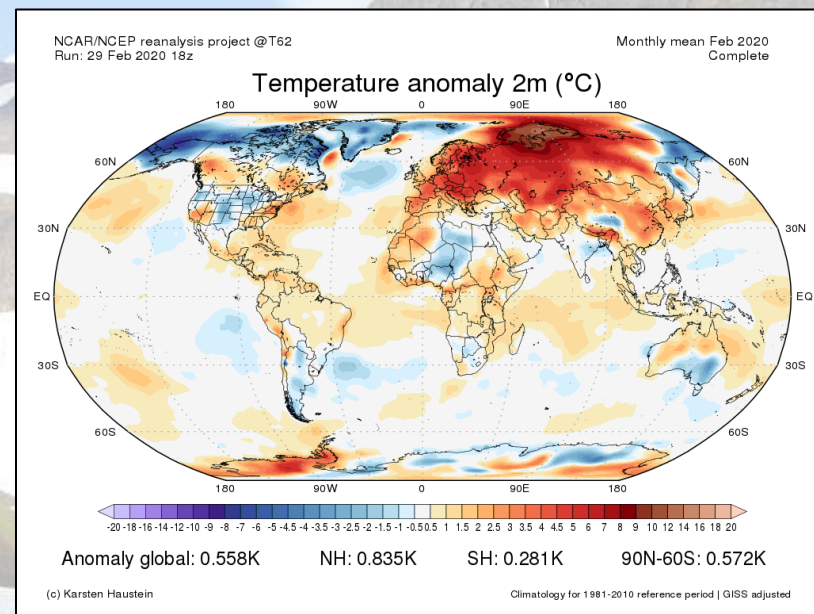
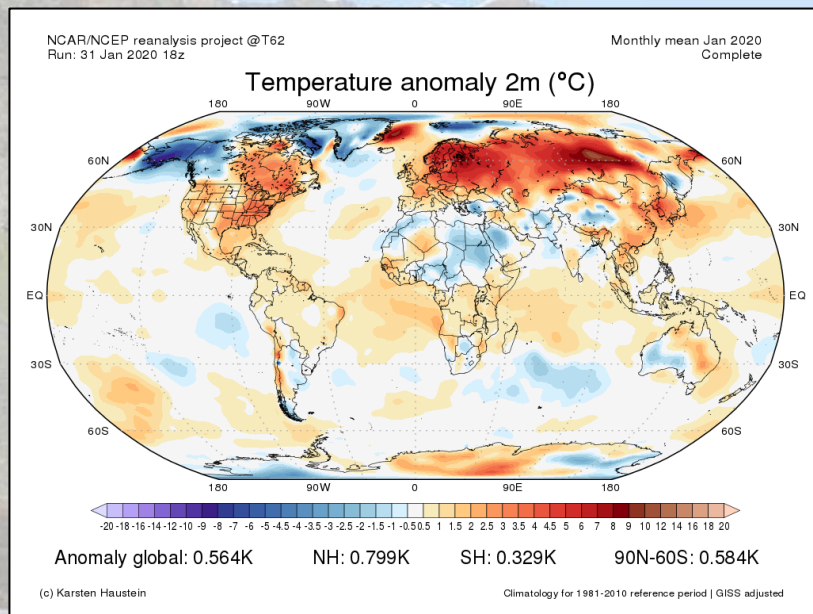


How Are We Doing?

Alaska Statewide Temperature From Berkeley Earth Gridded Data: 1850-2019

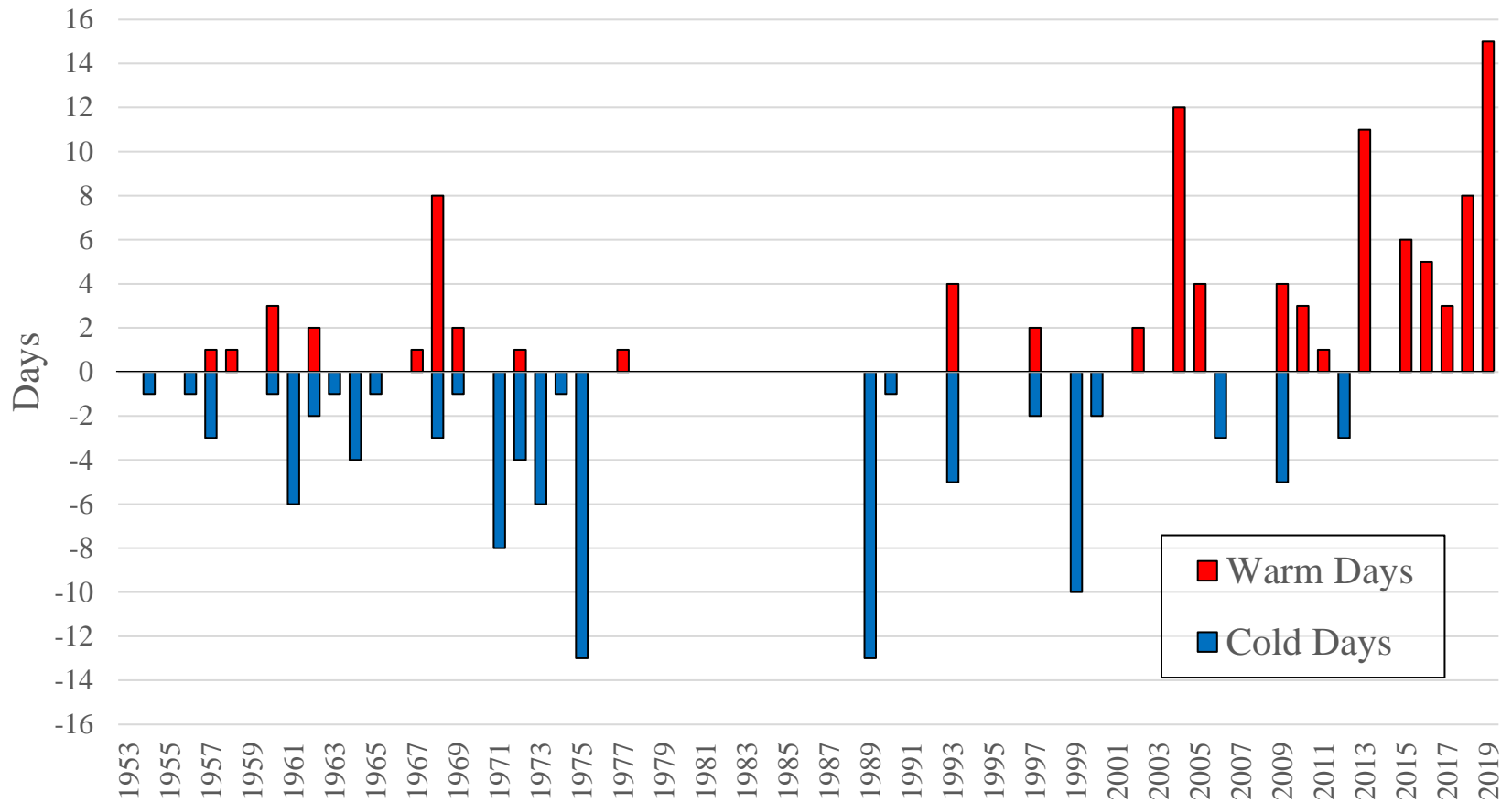


... but it's been cold start to 2020.

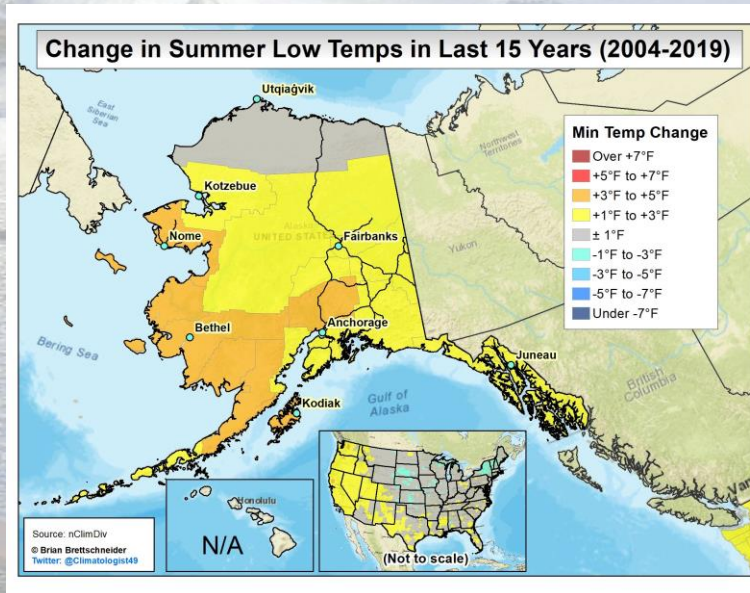
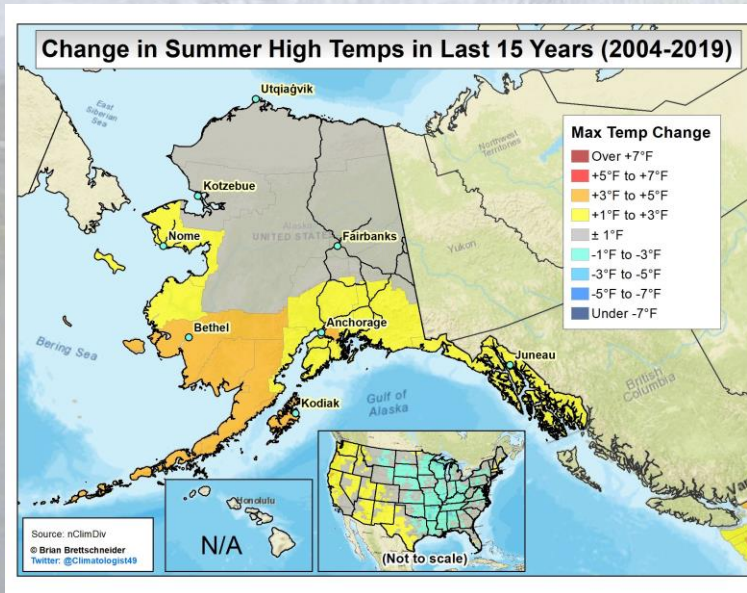
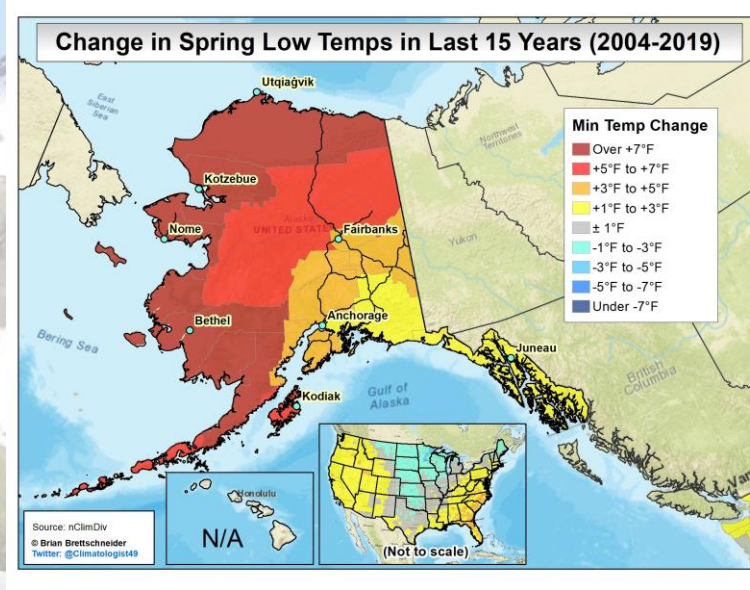
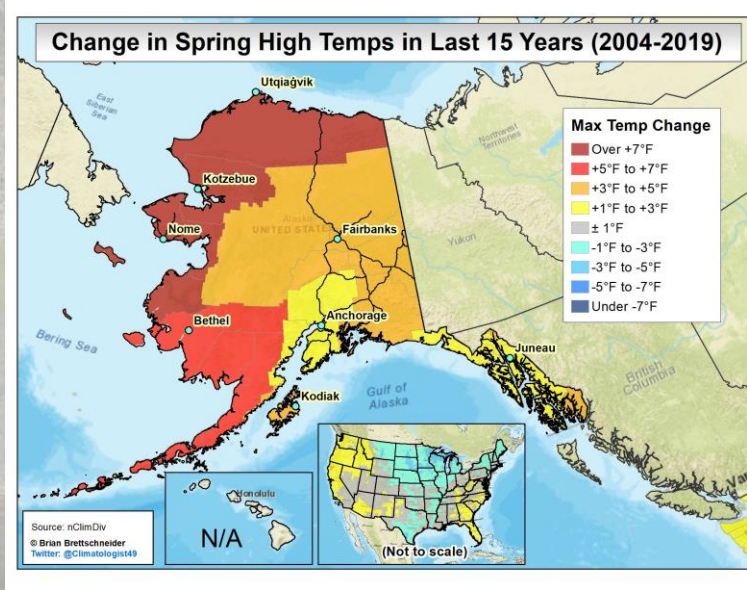


... but it's been cold this year.

When Did The Top 100 Warmest and Coldest Days in Alaska (1953-2020) Occur?

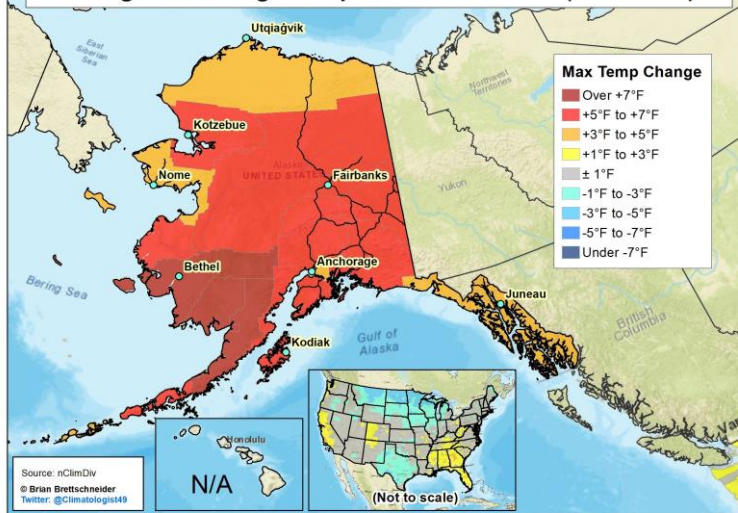


Recent Trends in Alaska: Spring-Summer

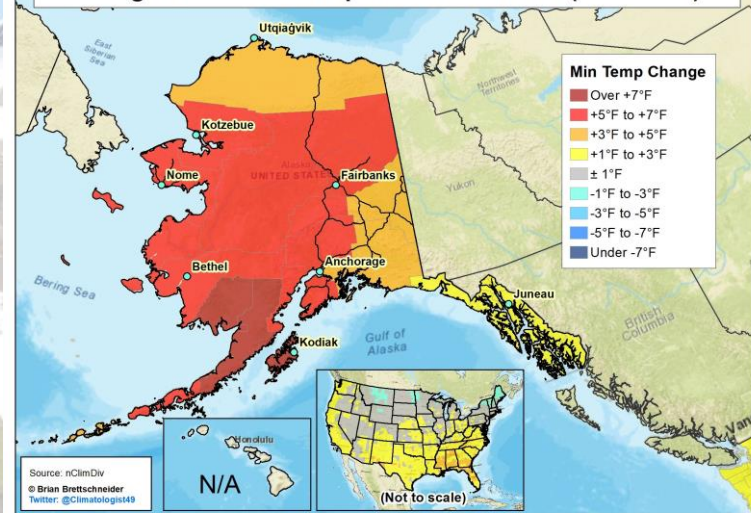


Recent Trends in Alaska: Fall-Winter

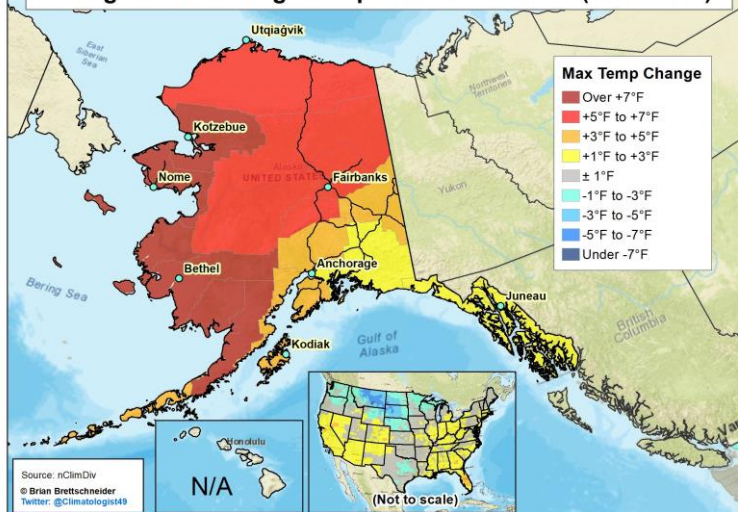
Change in Fall High Temps in Last 15 Years (2004-2019)



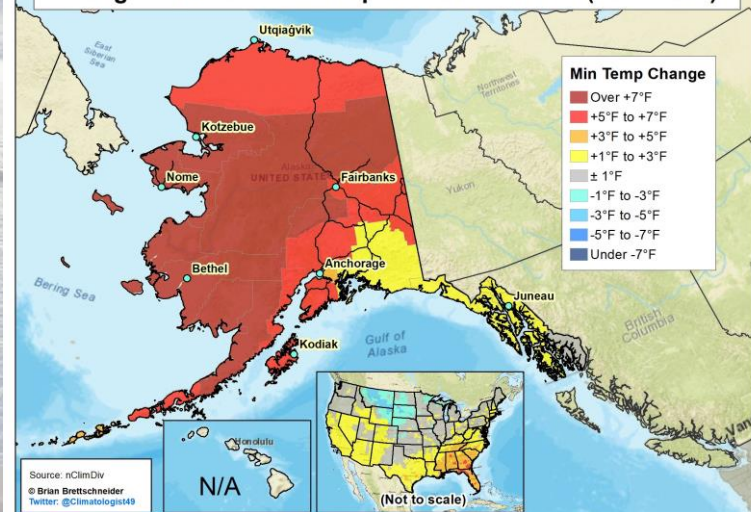
Change in Fall Low Temps in Last 15 Years (2004-2019)



Change in Winter High Temps in Last 15 Years (2004-2019)

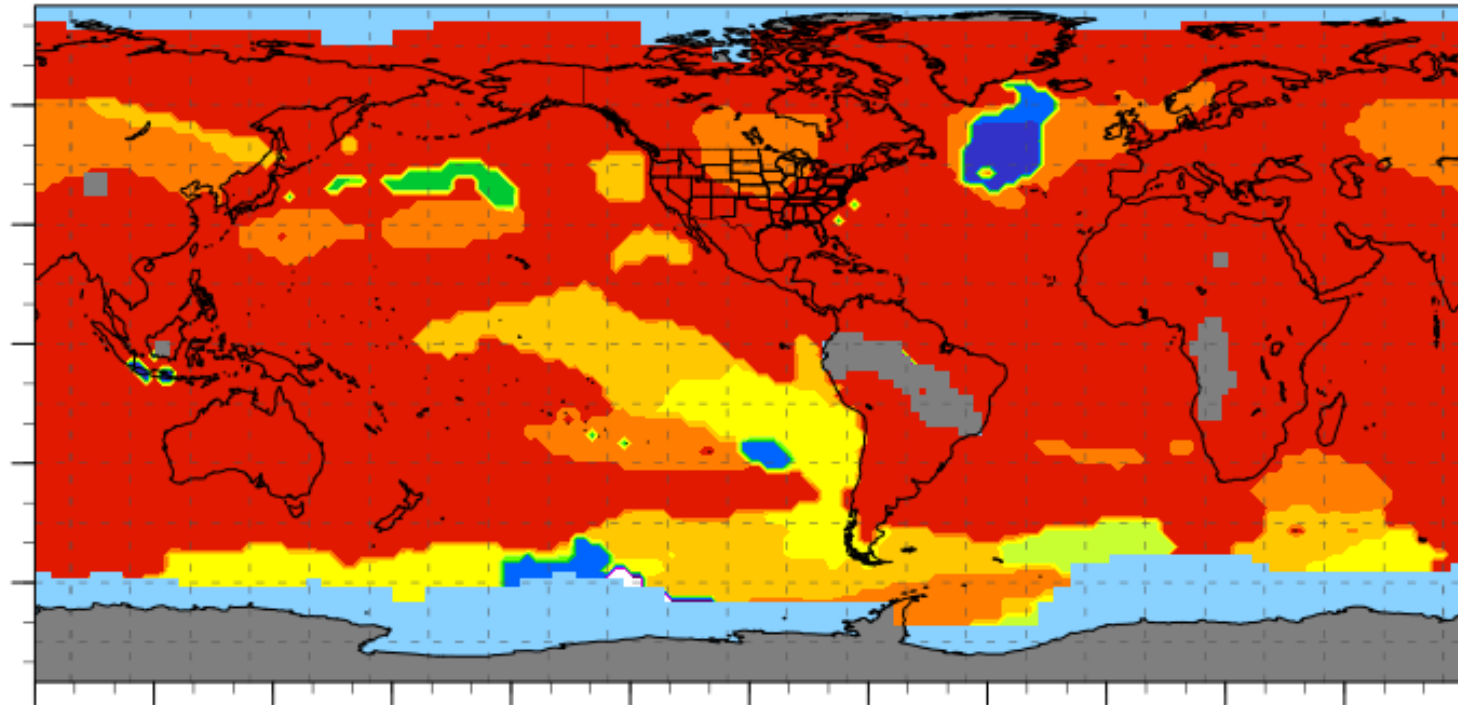


Change in Winter Low Temps in Last 15 Years (2004-2019)

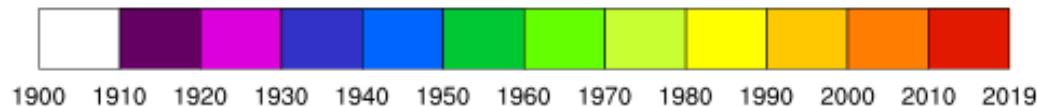


How Are We Doing?

NASA GISS Temp: January - December (Warmest Decade)



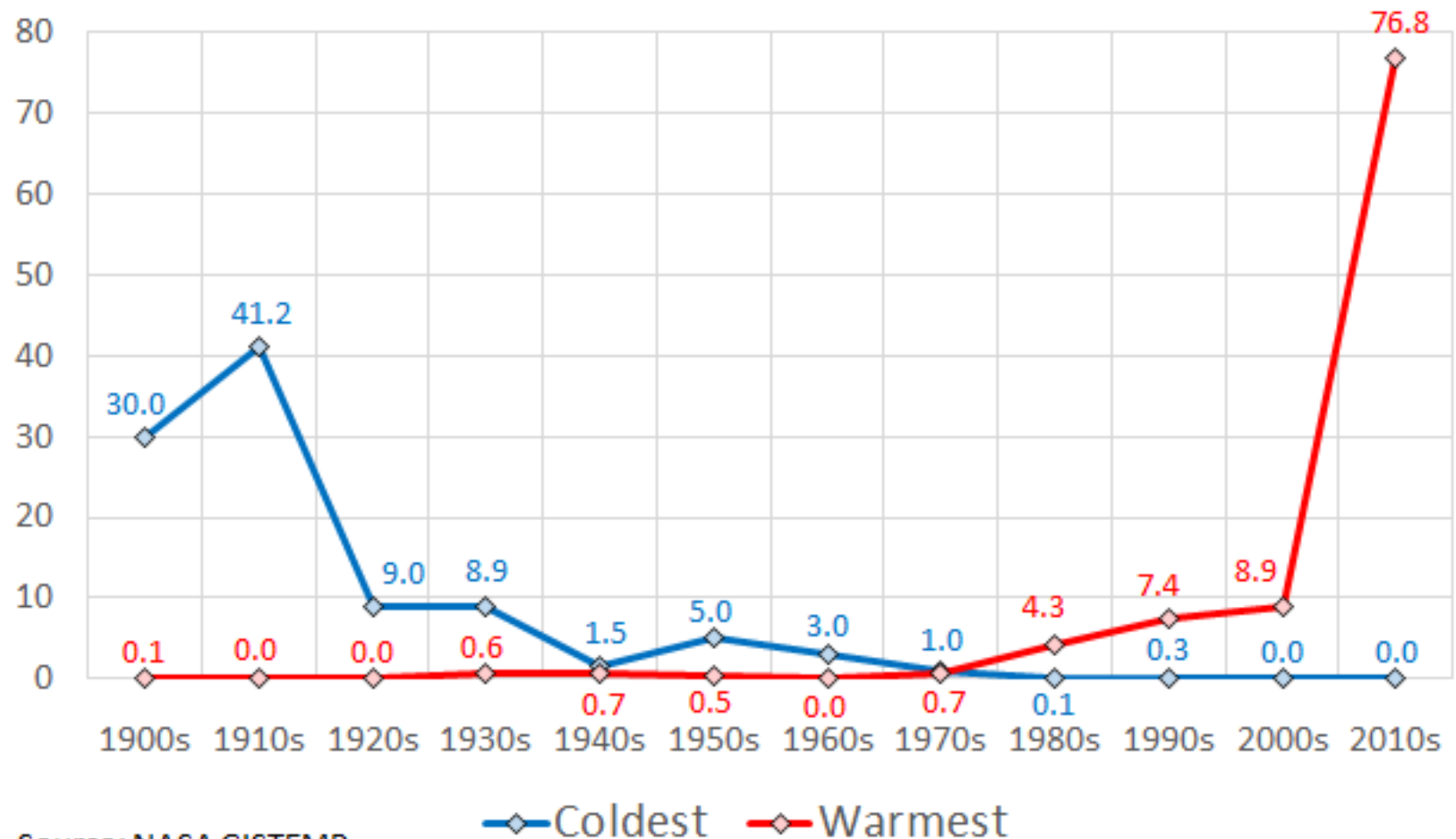
U. Alaska Fairbanks 2019 (Data Source: NASA).
Ranks are based on 120 years of data. [Since 1900]
Compared to all January - December periods.



Map Showing the Max January - December Time Period.
Percent With Max Value 2019 or later is: 76.8%.

How Are We Doing?

Percent of Earth With Warmest & Coldest Decade Since 1900



Source: NASA GISTEMP

A scenic landscape photograph of a mountain lake. In the foreground, a calm body of water reflects the sky and the surrounding mountains. A wooden plank or log lies partially submerged in the water. The middle ground shows a shoreline with patches of snow and dark rocks. In the background, steep, rugged mountains rise, their peaks and slopes covered in snow and patches of green vegetation. The sky is a clear, pale blue with a few wispy clouds.

Questions???