

Data for All Case Sites

Case Site: East Porterville, California

Read About: East Porterville is a town on the east side of the Central Valley of California. Many residents of East Porterville and residents of nearby farms pump water out of an aquifer located beneath the Tulare Basin (the part of the valley where the town is located). Aquifers store water underground. Many aquifers can be refilled when it rains as water seeps through the ground and is stored underground again. Home owners can drill long pipes into the aquifers and pump water out of the aquifers and into their homes. Farmers can also use water stored in aquifers to water their crops.



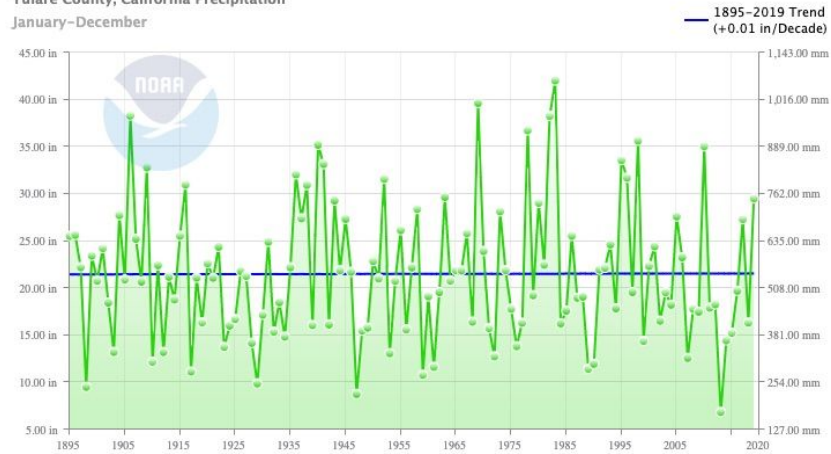
Josh Edelson



Shannon1. CC BY-SA 4.0.

Total Annual Precipitation (1895-2020)

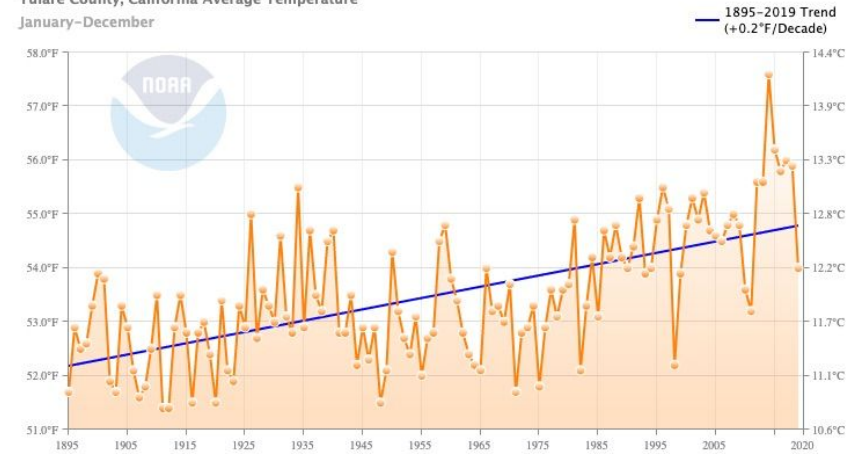
Tulare County, California Precipitation
January-December



Data Source: NCEI/NOAA

Average Annual Temperature (1895-2020)

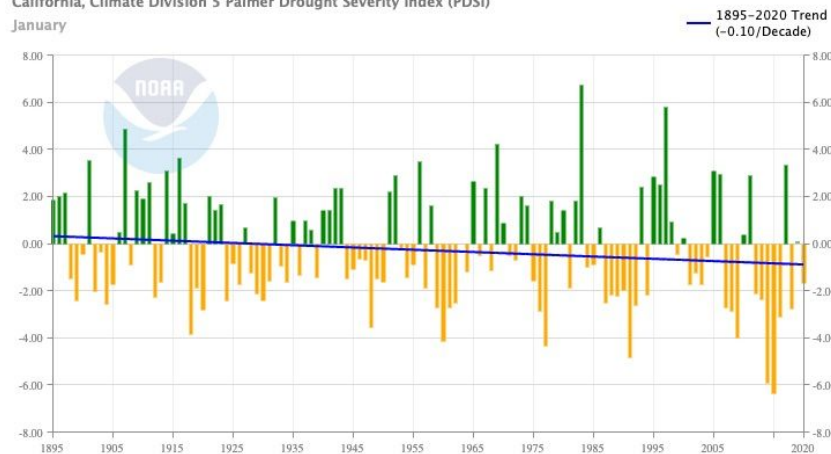
Tulare County, California Average Temperature
January-December



Data Source: NCEI/NOAA

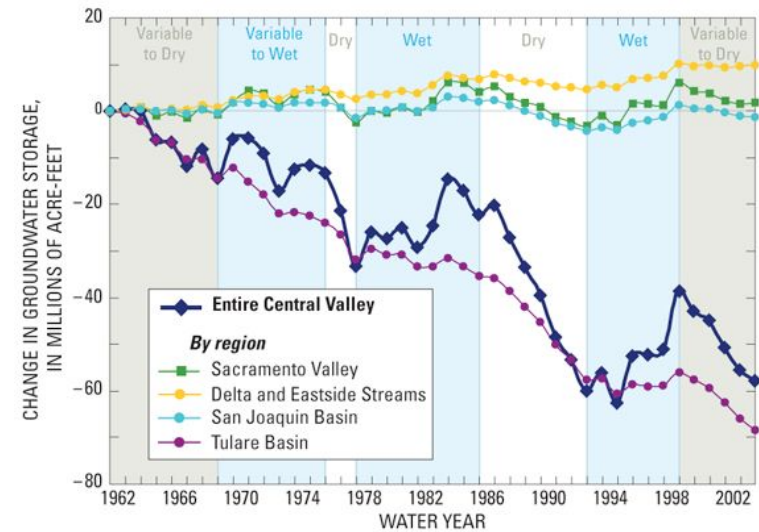
Palmer Drought Severity Index (1895-2020)

California, Climate Division 5 Palmer Drought Severity Index (PDSI)
January



Data Source: NCEI/NOAA

Groundwater Measurements



USGS

Case Site: Vicksburg, Mississippi

Read About: Vicksburg, Mississippi is located on the Mississippi River in the “delta” region of the river, which is a flat portion of the Mississippi River Valley. It is not the actual delta of the river, which is further south in Louisiana. The Vicksburg area is well-known for its fertile soil for farmers' crops. It has regularly flooded for short time periods in the past, but farmers are experiencing the longest-lasting flooding events in the last century, which has caused them to lose entire farms or crops for years or more. They have never seen flooding like this before.



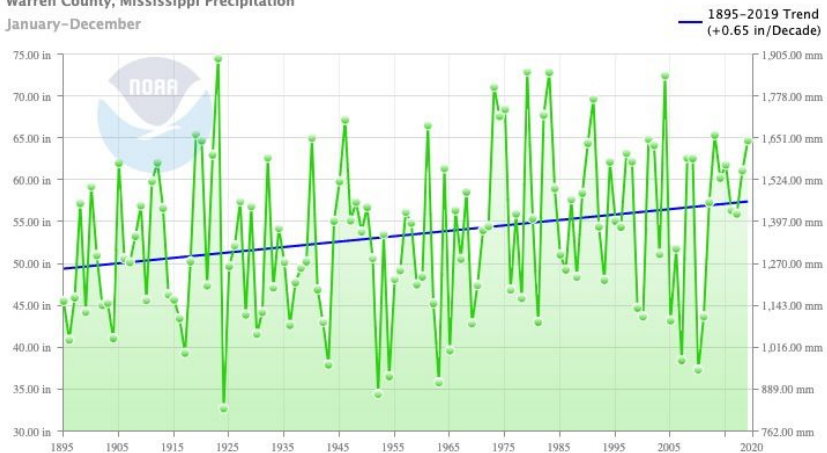
National Archives at College Park - Still Pictures



Howard Greenblatt/FEMA

Total Annual Precipitation (1895-2020)

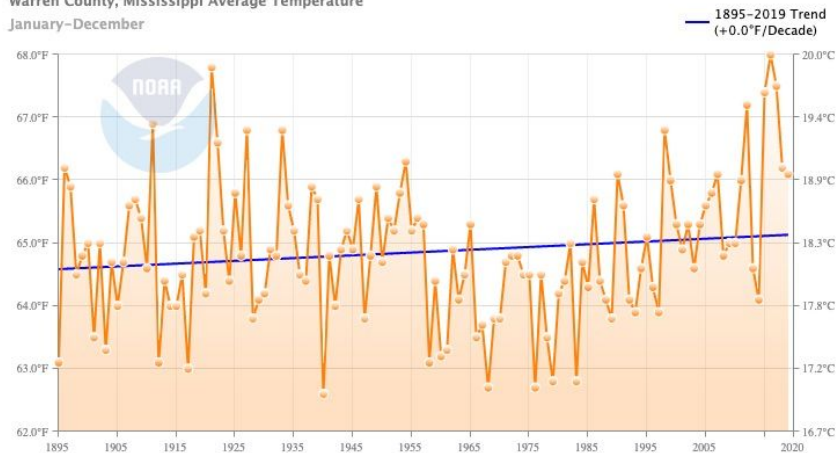
Warren County, Mississippi Precipitation
January-December



Data Source: NCEI/NOAA

Average Annual Temperature (1895-2020)

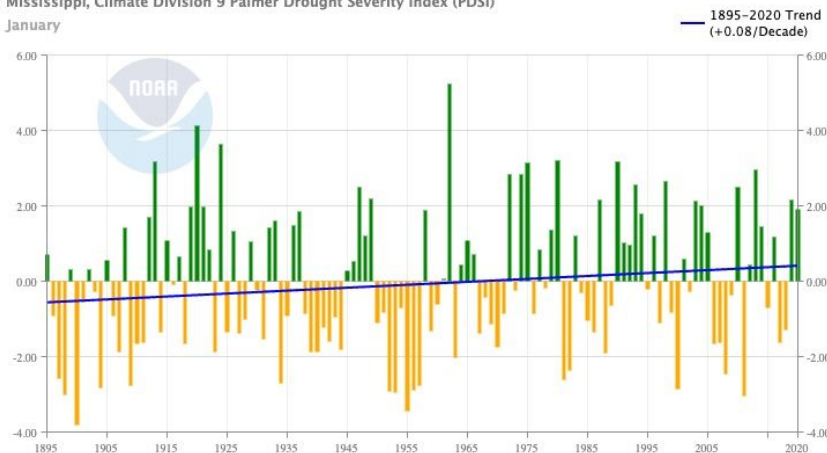
Warren County, Mississippi Average Temperature
January-December



Data Source: NCEI/NOAA

Palmer Drought Severity Index (1895-2020)

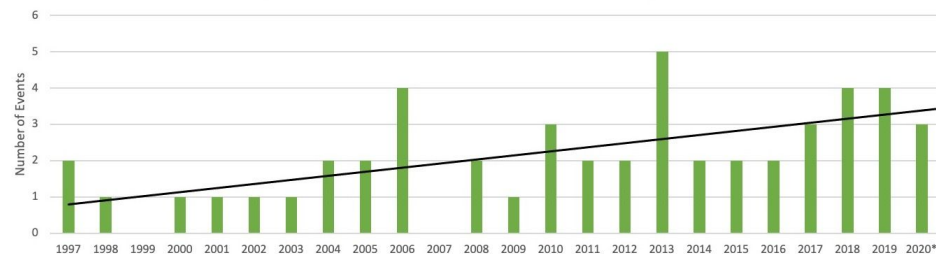
Mississippi, Climate Division 9 Palmer Drought Severity Index (PDSI)
January



Data Source: NCEI/NOAA

Flood and Heavy Precipitation Events

Vicksburg, MS: Number of Floods, Flash Floods, and Heavy Rain Events (by Year)



Data Source: NCEI/NOAA

Case Site: Navajo Nation

Read About: The Navajo Nation spans across three states (New Mexico, Arizona, and Utah) and is home to about 175,000 people. The Navajo Nation relies on water from three sources: precipitation, snowmelt from nearby mountains, and groundwater pumped to the surface. While the area has some deserts, it also consists of mountain forests and high mesas. The Navajo Nation has been experiencing unusually drier and hotter years recently, with more and more residents relying on water accessed from community water tanks.

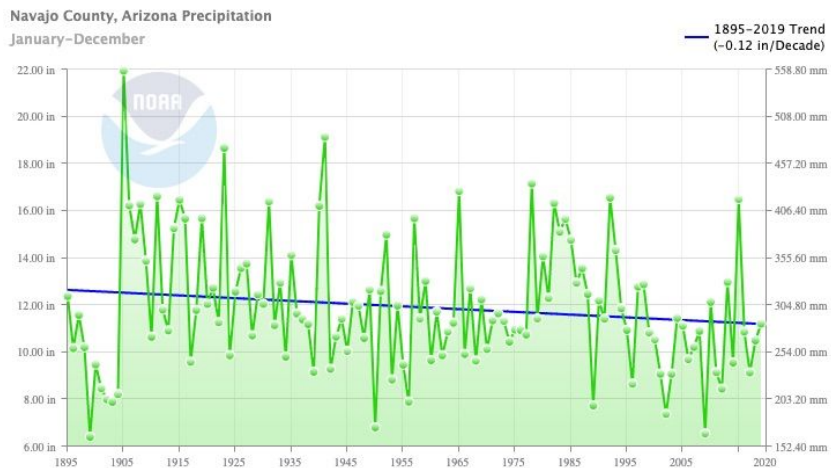


NASA Goddard Space Flight Center CC BY 2.0



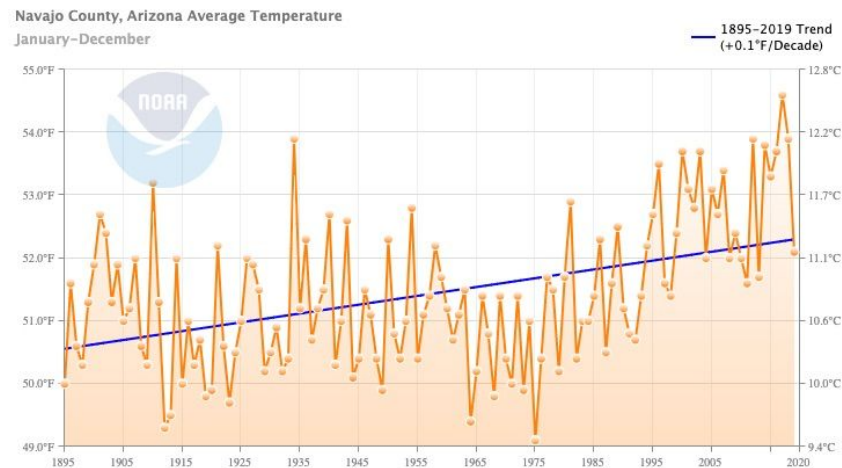
Copyright Erica Gies

Total Annual Precipitation (1895-2020)



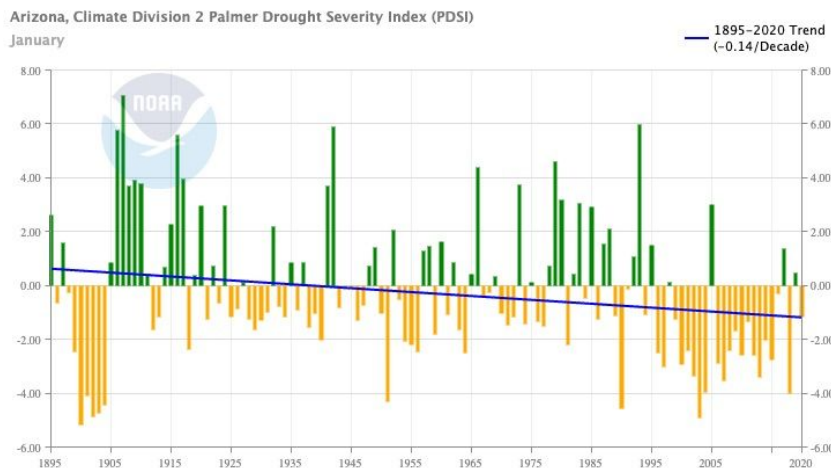
Data Source: NCEI/NOAA

Average Annual Temperature (1895-2020)



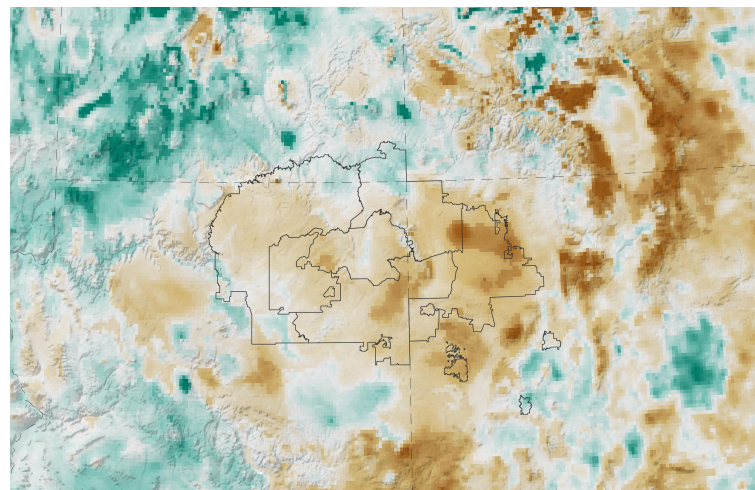
Data Source: NCEI/NOAA

Palmer Drought Severity Index (1895-2020)



Data Source: NCEI/NOAA

Drought Severity Map



NASA Earth Observatory images by Lauren Dauphin using data from NASA's Drought Severity Assessment Tool (DSET).

Case Site: Boston, Massachusetts

Read About: Boston is a large coastal city on the East Coast of the US and home to almost 5 million people. Boston has historically received precipitation as snow in the winter and rain in the summer. Sometimes Boston gets hit with bad storms, such as nor'easters, coming off of the Atlantic Ocean. In recent years, Boston has started to experience more floods, storm surges, and higher-than-normal tides. Storm surges happen when ocean water is pushed onto land from an incoming storm. Tides are daily events during which water levels rise and fall based on the gravitational forces between the moon and Earth. Tides are closely connected to the sea levels on Earth.



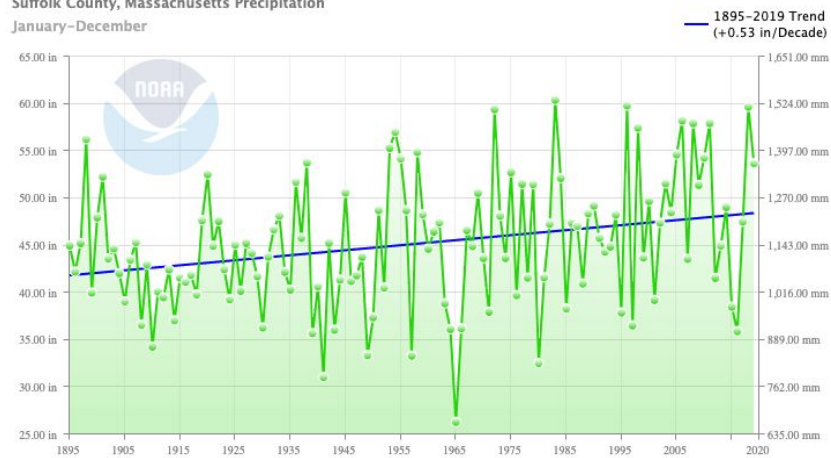
NorthEndWaterfront.com. CC BY-NC 2.0



Matt Conti Photography non-commercial use only - rights reserved

Total Annual Precipitation (1895-2020)

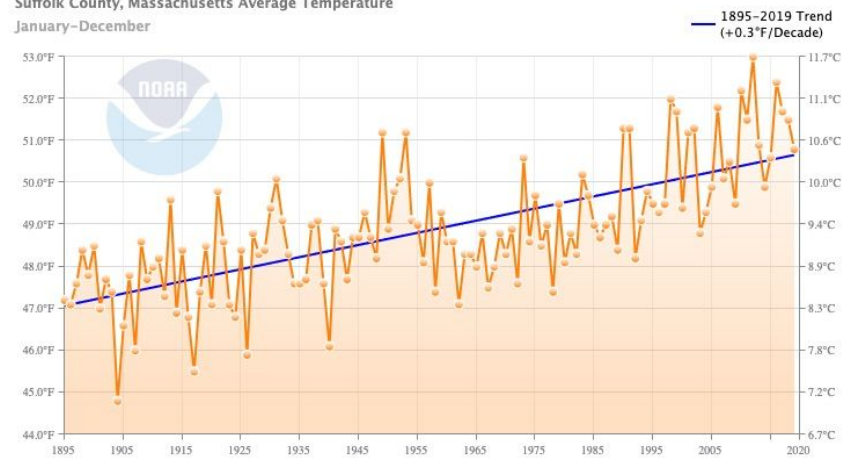
Suffolk County, Massachusetts Precipitation
January-December



Data Source: NCEI/NOAA

Average Annual Temperature (1895-2020)

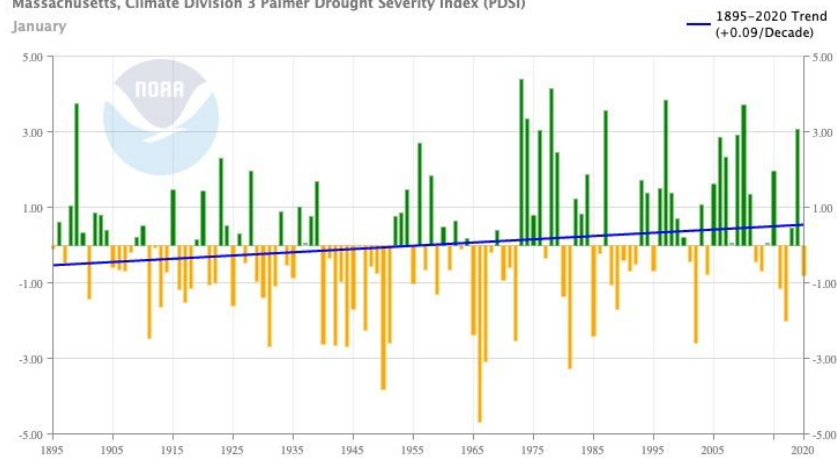
Suffolk County, Massachusetts Average Temperature
January-December



Data Source: NCEI/NOAA

Palmer Drought Severity Index (1895-2020)

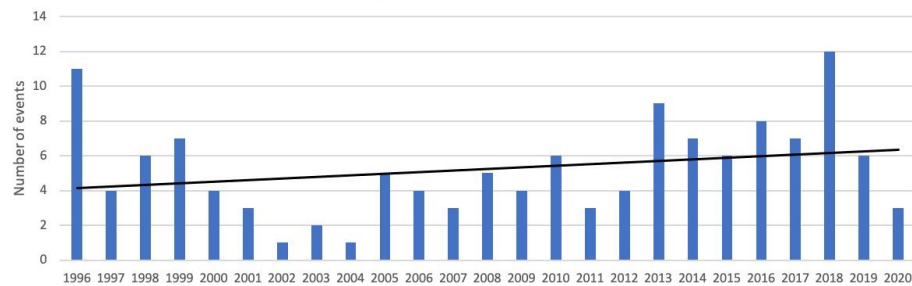
Massachusetts, Climate Division 3 Palmer Drought Severity Index (PDSI)
January



Data Source: NCEI/NOAA

Heavy Precipitation and Flood Events

Boston: Heavy Precipitation and Flood Events



Data Source: NCEI/NOAA

Case Site: Yakima, Washington

Read About: Yakima Valley is a farming region on the east side of the Cascade Mountains. This region grows a large amount of food, including 70% of all apples grown in the US! The Cascade Mountains usually receive snowfall in the winter, and, as the snow builds up, it freezes together. This is called a snowpack. The amount of water stored as snowpack can be measured and converted to “snow water equivalent” (similar to measuring how much rain falls during a storm). In the spring and summer, the warmer temperatures melt the snowpack, and the water runs down the mountains to the Yakima Valley below. This water is used by the towns for drinking water and also to water the crops on the farms.



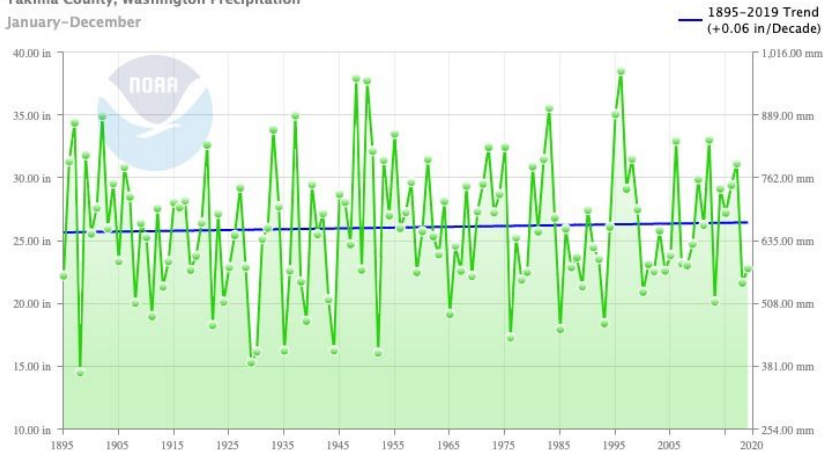
Michael S. Shannon. CC BY-SA 4.0



Ruth Hartnup. CC BY 2.0

Total Annual Precipitation (1895-2020)

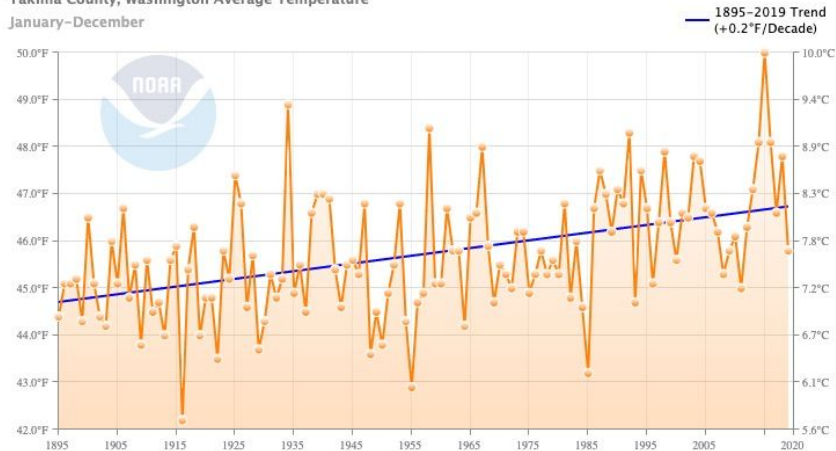
Yakima County, Washington Precipitation
January-December



Data Source: NCEI/NOAA

Average Annual Temperature (1895-2020)

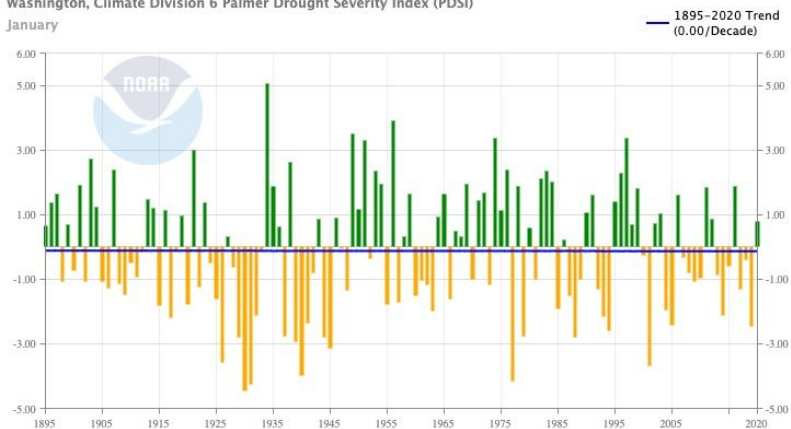
Yakima County, Washington Average Temperature
January-December



Data Source: NCEI/NOAA

Palmer Drought Severity Index (1895-2020)

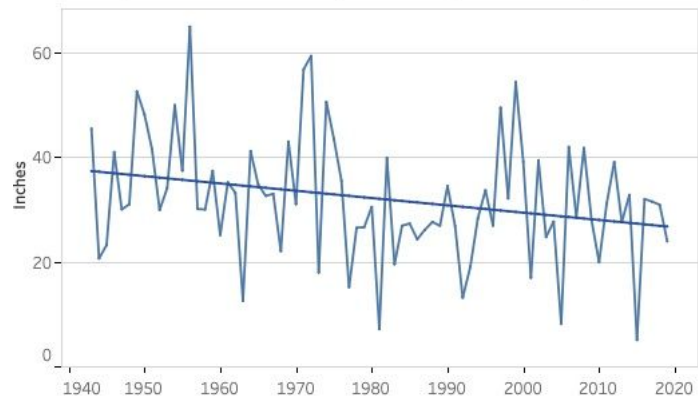
Washington, Climate Division 6 Palmer Drought Severity Index (PDSI)
January



Data Source: NCEI/NOAA

Snow Water Equivalent

April Snow Water Equivalent (1943-2019)



Frankson, et al. (2022). Washington State Climate Summary. NOAA/NESDIS. Used with permission.

Case Site: Windom, Minnesota

Read About: Windom is a small farming town in southern Minnesota with about 4,600 residents. It was settled on the Des Moines River in the 1870s. Today, the river is slow flowing and used for canoeing. But in recent years, the town experienced a record-breaking flood—one during which waters reached the same height as a flood 50 years ago. A lot of towns in southern Minnesota are experiencing similar floods.



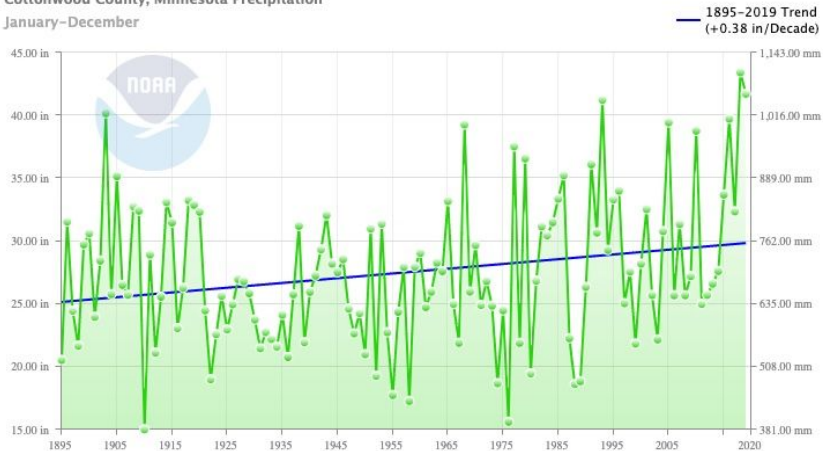
McGhievr. CC BY-SA 3.0



The Globe, Worthington, MN

Total Annual Precipitation (1895-2020)

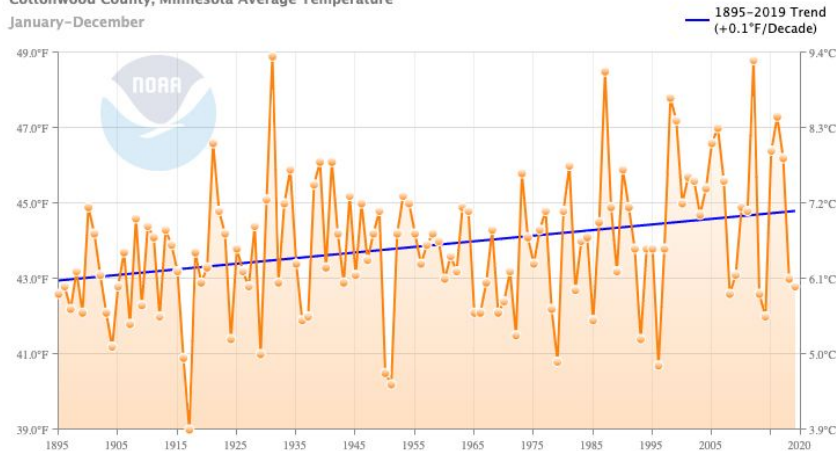
Cottonwood County, Minnesota Precipitation
January-December



Data Source: NCEI/NOAA

Average Annual Temperature (1895-2020)

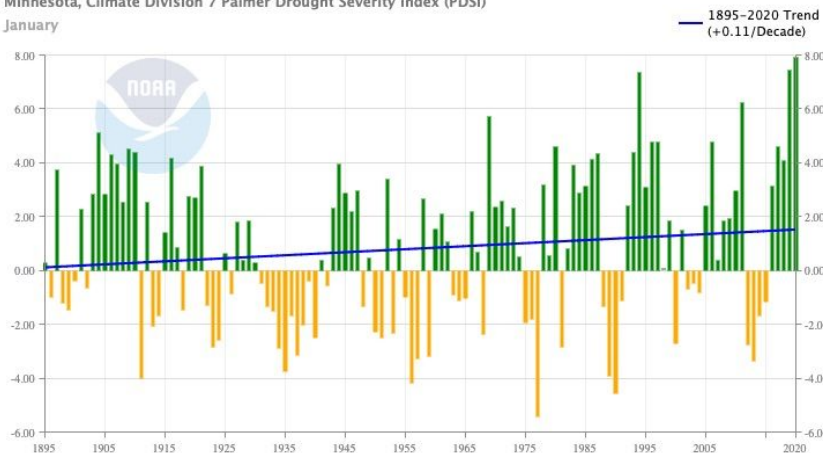
Cottonwood County, Minnesota Average Temperature
January-December



Data Source: NCEI/NOAA

Palmer Drought Severity Index (1895-2020)

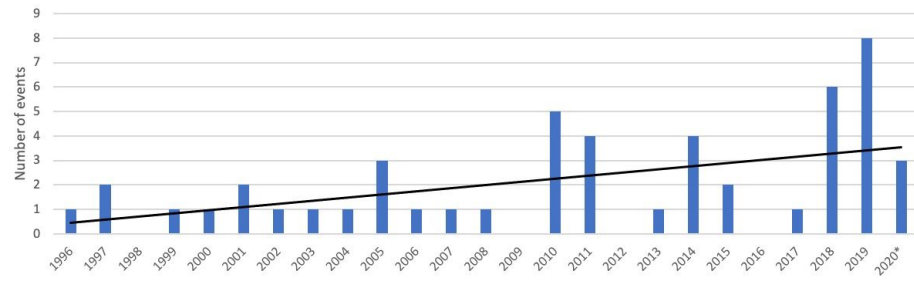
Minnesota, Climate Division 7 Palmer Drought Severity Index (PDSI)
January



Data Source: NCEI/NOAA

Heavy Precipitation and Flood Events

Windom: Floods, Flash Floods, Heavy Precipitation



Data Source: NCEI/NOAA