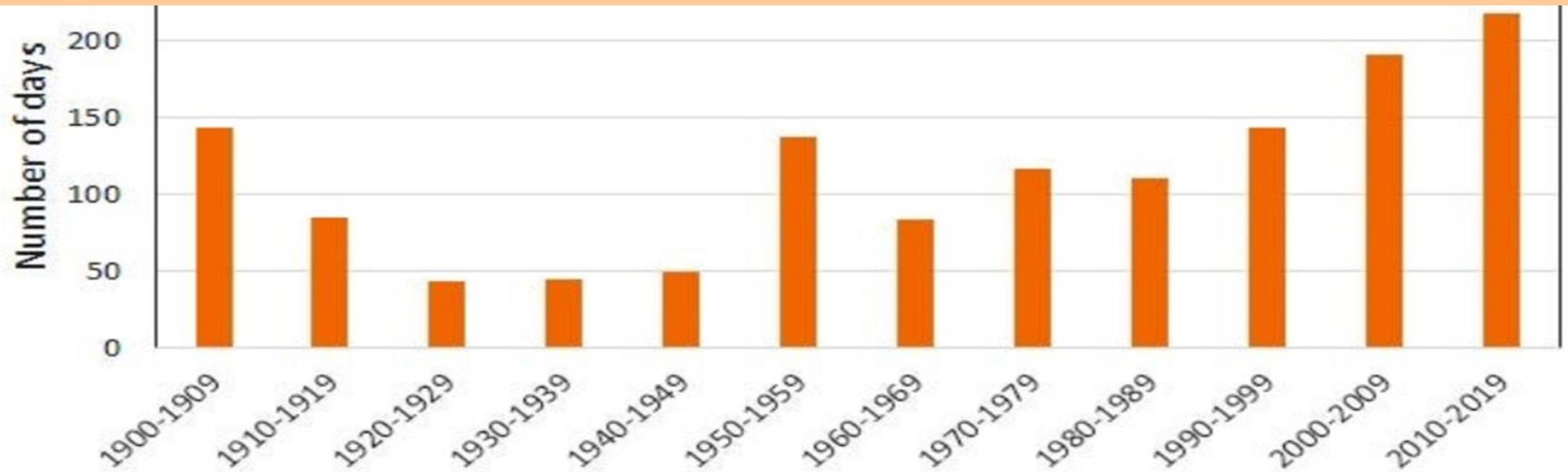


Deconstructing an Alarmist article in the Sun-News: Examining Sources, Standards and Data



Bob Endlich

bendlich@msn.com

Cruces Atmospheric Sciences Forum

19 Oct 2019

Acknowledgements:

Bernie McCune for some of the plots

Jon Kahler, for the USCRN plots

Steve McGee for hints about the USHCN and State University, NM
site location and metadata

Introduction

Recent Sun-News story:

<https://www.lcsun-news.com/story/news/2019/09/19/climate-change-means-uncertain-future-new-mexico-chile-farmers/2378419001/>

contains numerous errors. (Understatement!)

First, an extract of the story

Second, a list of the errors

Finally, analysis and data showing the errors

Climate change means uncertain future for New Mexico chile farmers

This year's chile season is in full swing, but it is getting mixed reviews from farmers in southern New Mexico.

Maria Martinez sells her family's produce from Anthony and Brazito on Wednesdays and Saturdays at the Farmers and Crafts Market in Las Cruces. Her booth stands out with red chile ristras strung up around the sides and sacks of chile piled next to them...

She said it's been a struggle this year because of insufficient water.

"It's been kind of hard because they don't give them much water," Martinez said of the local irrigation district.

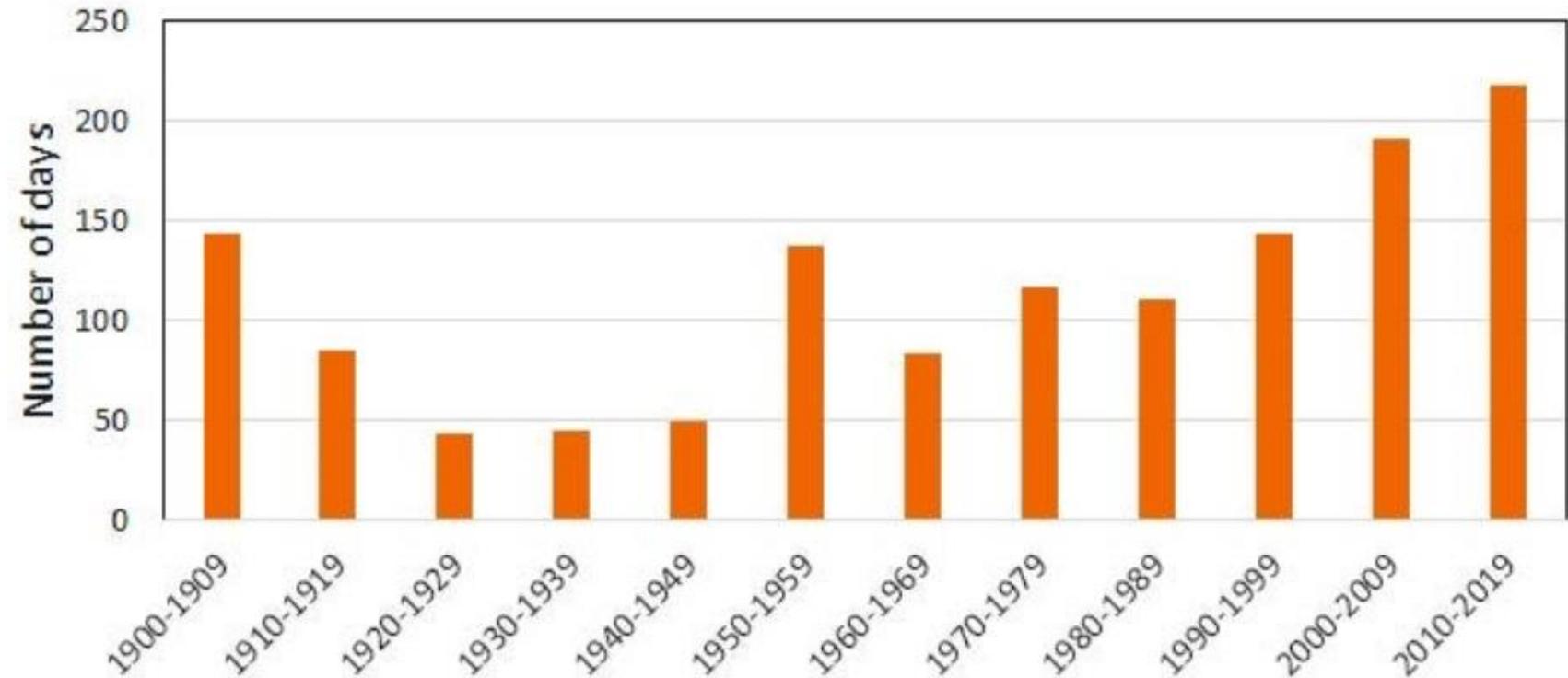


Climate change is likely to produce more dry years and more unpredictable growing seasons for chile farmers in southern New Mexico, as temperatures increase and the snowpack in northern mountains continues to decline. (Photo: Nathan J Fish/Sun-News)

“That’s the fingerprint of climate change, is making something a bit worse over time,” DuBois said. “And then it’s just going to keep climbing if our projections are right.”

Climbing temperatures or droughts are going to be hotter, which in some cases that’s even worse than less water.”

Number of days over 100F (covering 120 years at NMSU)

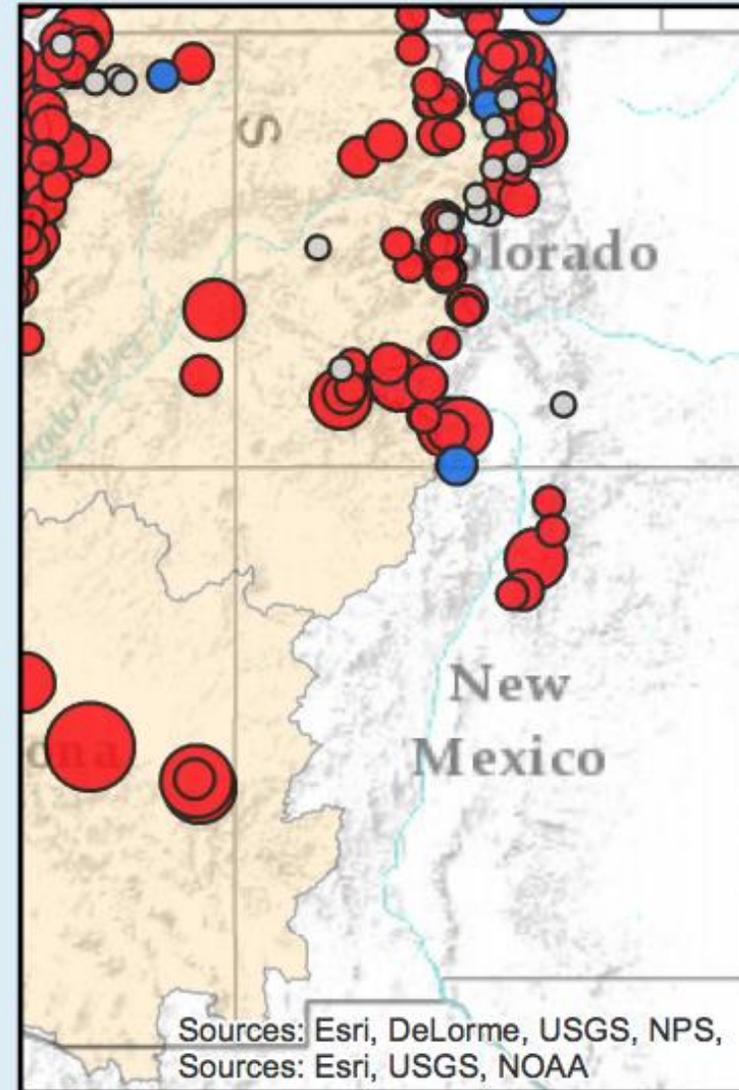


David DuBois, New Mexico climatologist, said this August was the second hottest on record, out of 120 years NMSU has been gathering that information. It’s not a new phenomenon. **He explained that temperatures have been increasing since the 1970s.**

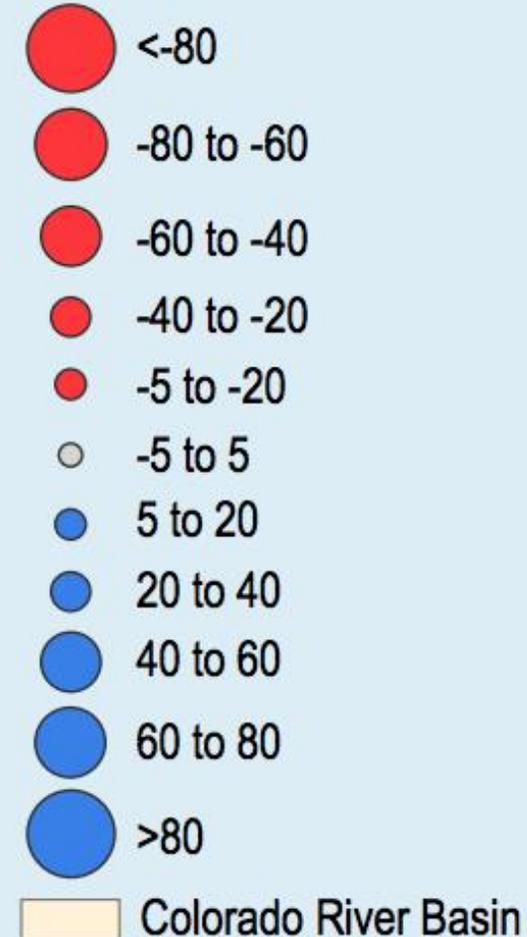
According to the National Oceanic and Atmospheric Administration, the average temperature in New Mexico has risen two degrees since then.

Gary Esslinger, manager of the EBID, which provides water to southern New Mexico farmers, said the lake has a capacity of more than 2 million acre-feet. In the 1970s and 1980s, the lake held around 790,000 acre-feet, allowing the water to flow down the Rio Grande from February to October. Esslinger said from 2003 to today, the water runs for only about 67 days.

EBID issued a grim outlook for 2019 just as the year kicked off, cautioning farmers they'd only receive four to eight inches of water per acre. It turned out a lot better; farmers received 14 inches. **Still, that's just a fraction of the water they'd receive in a good year.**



Snowpack, 1955–2015 Percent Change



Trends in April snowpack in New Mexico and Colorado, 1955–2013. The snowpack has declined at most monitoring sites in both states. Source: EPA.

I examined climatological records in NM closest to geography of NM Chile industry, in and near the southern NM Rio Grande floodplain

Three separate types of climatological stations:

US Historical Climate Network, mostly COOP stations having long period of record and good data continuity. There are 29 in New Mexico; I looked at four

Jornada Experimental Range

Los Lunas_3SSW

Socorro

State University

One other COOP Station, **Bosque Del Apache National Wildlife Refuge.**

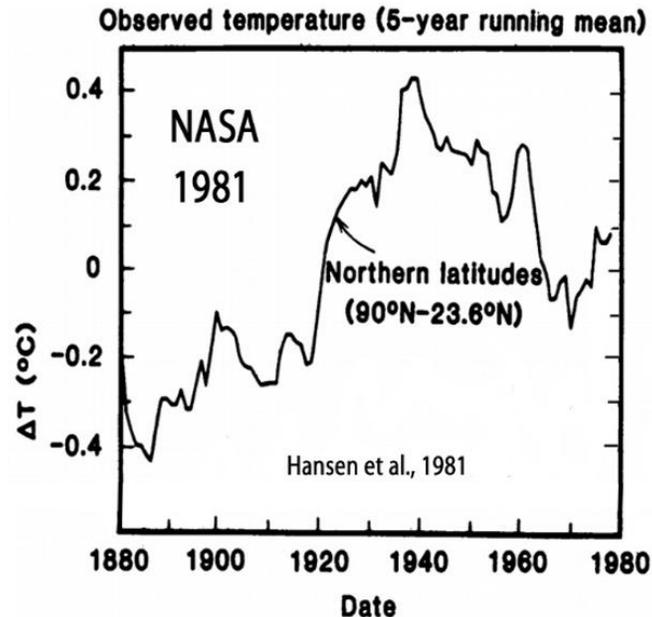
US Climate Record Network, established ~2005; short period of record.

Three in New Mexico. Jornada Range, Sevillita NWR, Valles Caldera Preserve (Jemez Mtns)

Errors in the Sun-News article:

“Climate change is likely to produce more dry years”

“Climbing temperatures are going to be hotter.”



What I found

Rainfall is increasing at these COOP and USHCN stations:

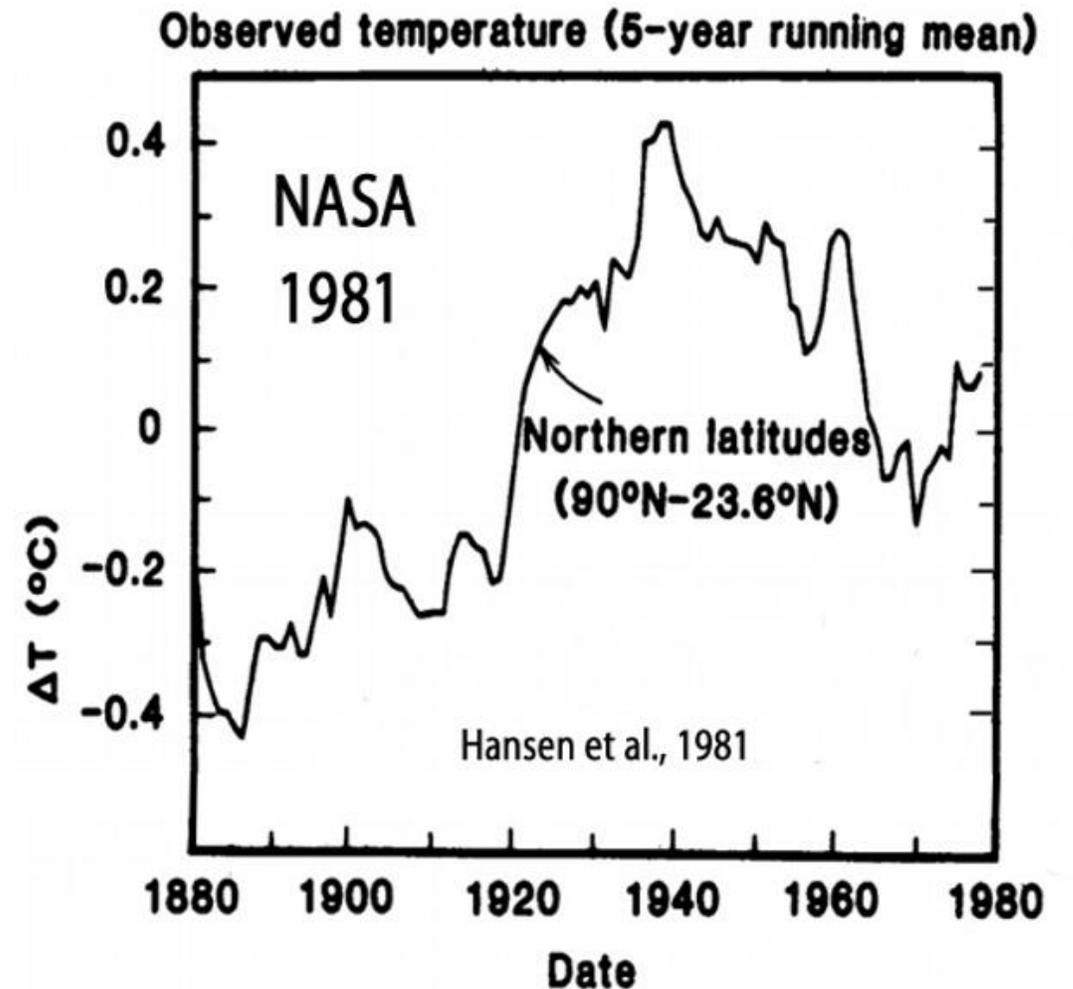
**State University,
Jornada Experimental Range,
Los Lunas_3SSW,
Bosque Del Apache NWR.
Socorro since 1943**

Temperatures have been falling at
**Jornada Experimental Range,
Bosque Del Apache,
Socorro.**

The temperatures at Los Lunas 3SSW are rising, but the record started only in 1958, near the bottom of the Northern Hemisphere temperature fall, 1940-1970s

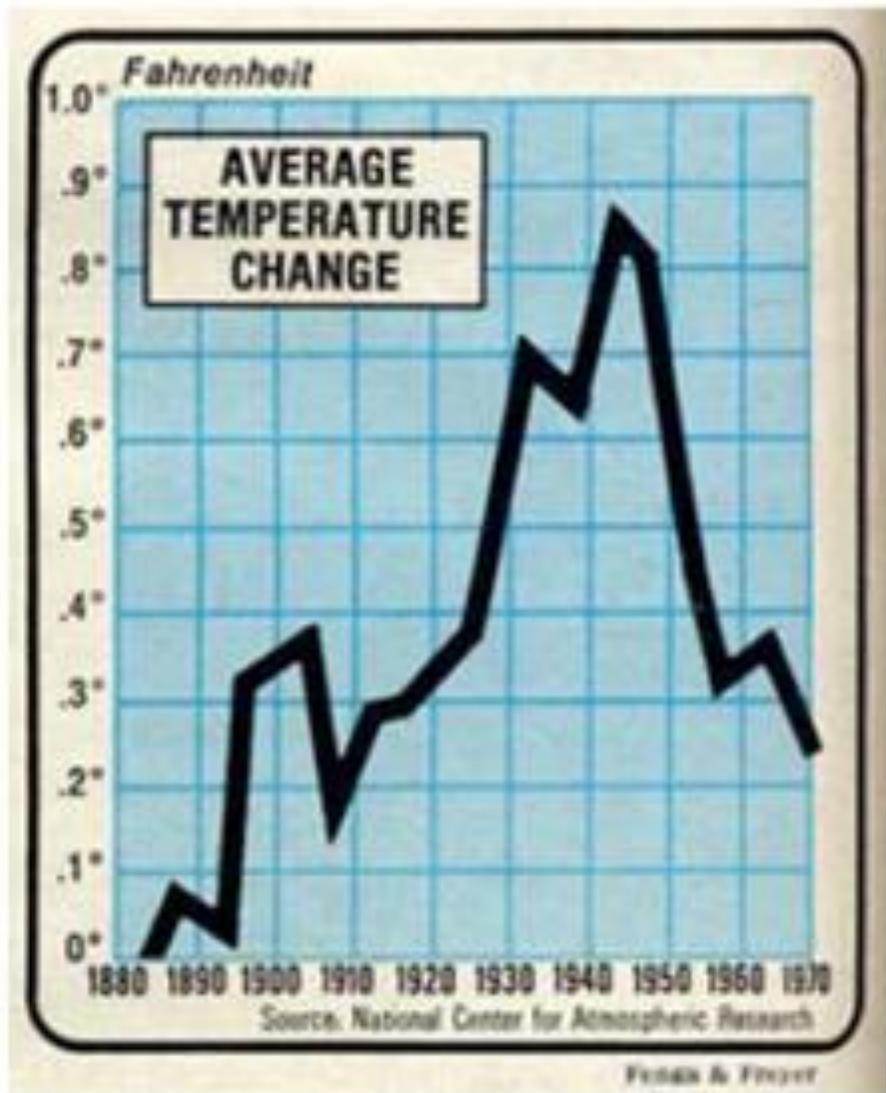
More following page

“He (David Dubois) explained that temperatures have been increasing since the 1970s.”



Starting to count temperatures about 1970 is deliberately deceptive. Temperatures had been falling for about 30 years. There is a prominent 60-year cycle in North American Temperatures—the North Atlantic Oscillation, often NAO.

“He (David Dubois) explained that temperatures have been increasing since the 1970s.”



NCAR, 1975.

“He (David Dubois) explained that temperatures have been increasing since the 1970s.”

<http://onlinelibrary.wiley.com/enhanced/doi/10.1002/2014GL062803/>

What David Dubois did **not** explain is how much those increasing temperatures were caused by the erroneous SNOTEL stations in the mountain west.

The erroneous temperatures are never mentioned by climate alarmists, even though this was published in Geophysical Research Letters.

Geophysical Research Letters

AN AGU JOURNAL

Research Letter

Artificial amplification of warming trends across the mountains of the western United States

Jared W. Oyler , Solomon Z. Dobrowski, Ashley P. Ballantyne,

Anna E. Klene, Steven W. Running

With artifacts removed, network's 1991–2012 minimum temperature trend decreases from **+1.16 °C to +0.106 °C /decade** and is statistically indistinguishable from lower elevation trends.

Warming was only 9% of previous estimates

More than 700 SNOTEL sites monitor temperature and snowpack across the mountainous western U.S.

SNOTEL provides critical data for water supply forecasts.

Researchers use SNOTEL data to study mountain climate trends, mountain hydrology and ecology.

“She said it’s been a struggle this year because of insufficient water.”

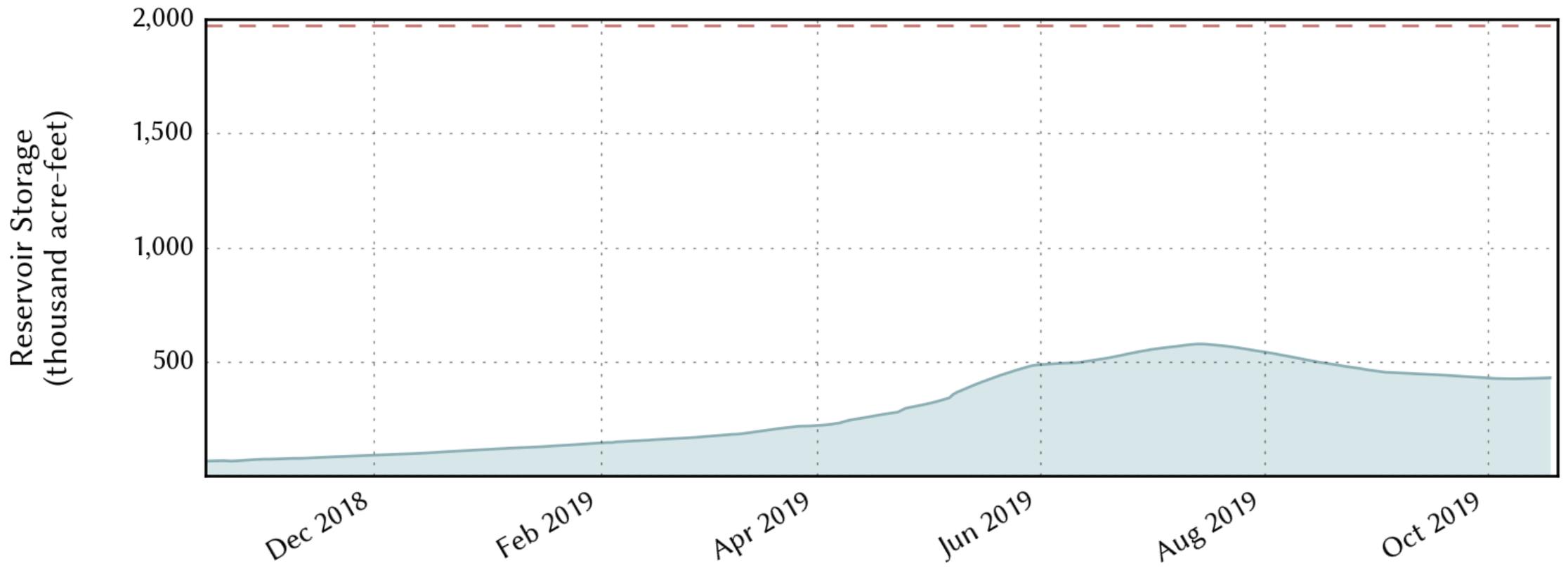
How much more wrong can Leah Romero be?
This has been a “banner year” for water in Elephant Butte storage according to this Sun-News story. **Where is the Editor?**

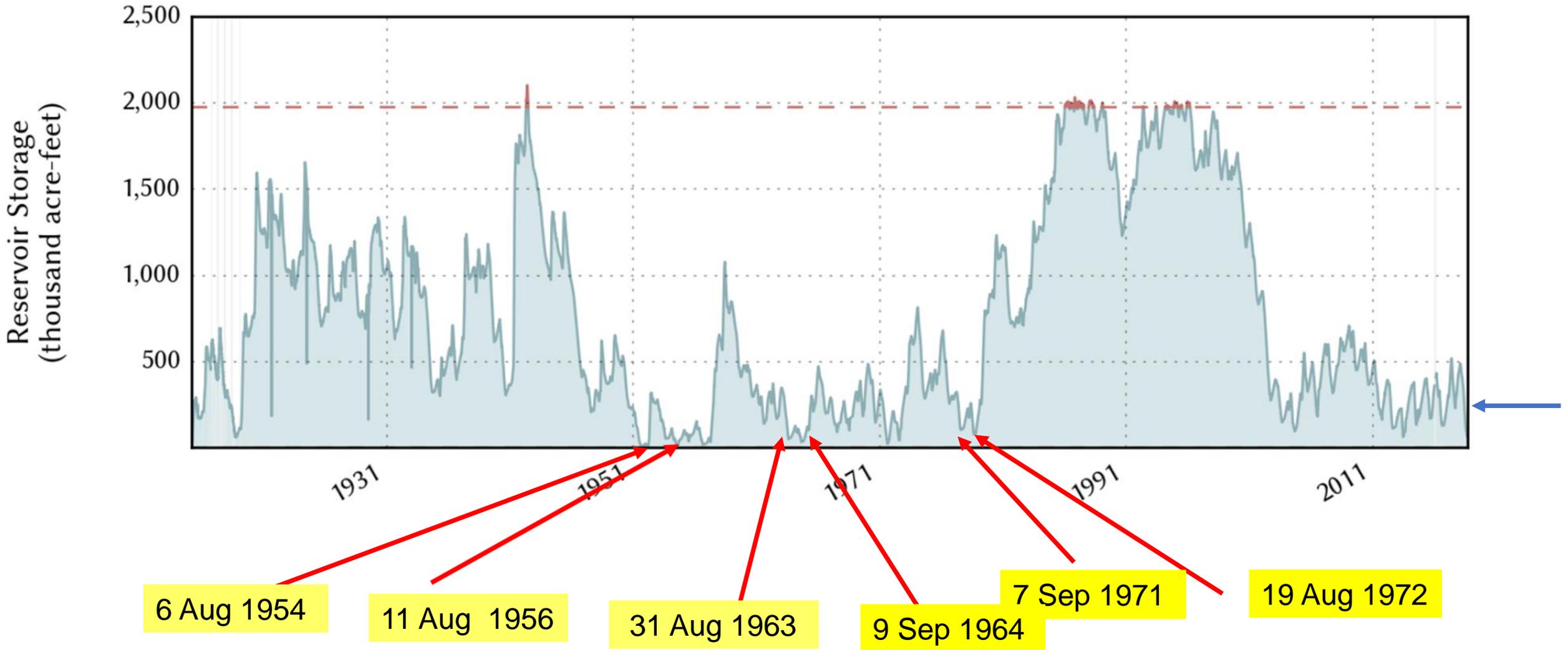
<https://www.lcsun-news.com/story/news/local/agriculture/2019/05/14/las-cruces-rio-grande-water-flow/1194090001/>

Phil King, EBID water engineering consultant, said the run-off season looks to be a "banner year," according to an EBID news release.

<https://waterdatafortexas.org/reservoirs/individual/elephant-butte>

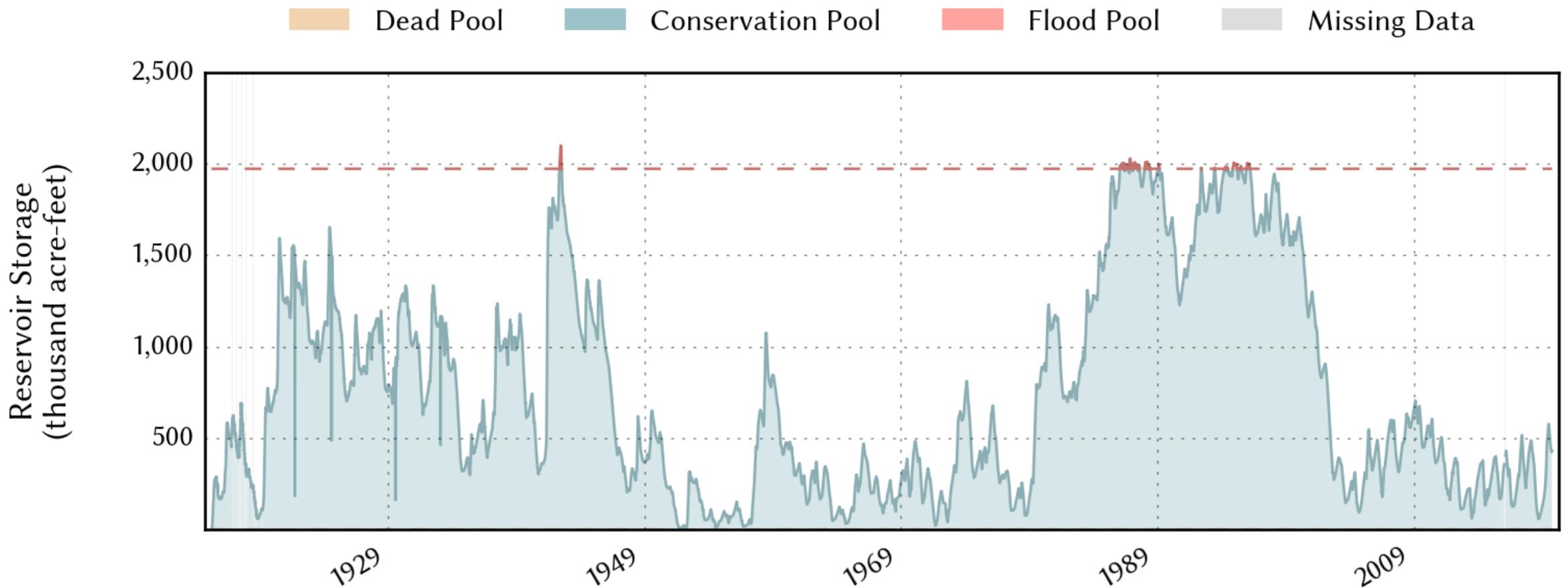
Conservation Pool Flood Pool



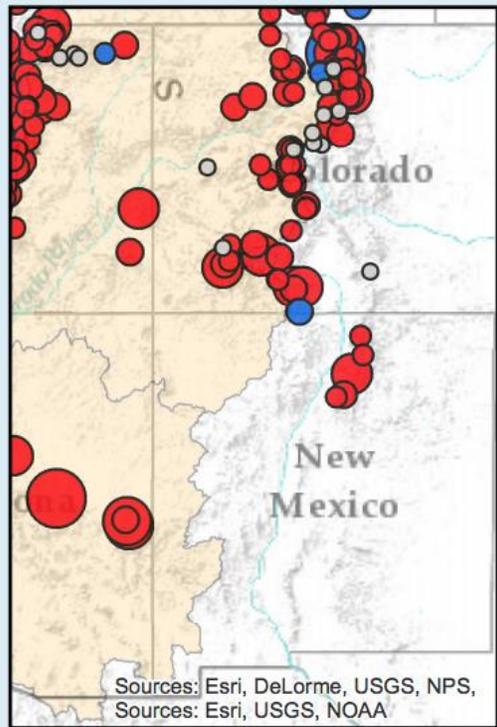


Blue arrow right, shows September 2018, at 62573 acre feet capacity, or 3.2% in Elephant Butte Reservoir. Six red arrows show low points and dates of low capacities, well below the 2018 figure during previous PDO-cold period, in the 1950s, 60s and 70s some ~60 years ago.

Elephant Butte Lake: 21.7% full as of 2019-10-18



The Sun-News story's graphic shows falling snowpack in the Rocky Mountains, ending in 2013



Snowpack, 1955–2015
Percent Change



Colorado River Basin

Trends in April snowpack in New Mexico and Colorado, 1955–2013. The snowpack has declined at most monitoring sites in both states. Source: EPA.

There's no mention of the sixty-year cycle of rainfall and drought in New Mexico, and other western states, the Pacific Decadal Oscillation often PDO.

There's no mention that the 1950s drought, sixty years ago, was worse than the dry period which started after the 1998 El Nino.

The article is written as if there were not dramatically wetter years with the 2015- 2016 El Nino and the 2019 El Nino.

The following graphically show the return of the rainy and snowy weather with these episodes.

It's not just Oroville: Record rain is straining California's whole flood control network



What can be seen is the result of the massive collapse (pictured) when 100,000 cubic feet of water per second was rushing down the spillway

The frantic effort over the last few days to lower water levels at Oroville Dam after the structure's two spillways became damaged is part of a larger drama playing out as California rapidly shifts from extreme drought to intense deluges.

Large swaths of the region are on track to experience their wettest winter on record, with many areas having already surpassed their average precipitation for an entire year.

And all that water is putting new strains on the network of dams, rivers, levees and other waterways that are essential to preventing massive flooding during wet years like this one.

Be prepared: Monster storm could be biggest of season for L.A. area

Feb 16, 2017 | 7:45 AM

It's not just Oroville: Record rain is straining California's whole flood control network



The biggest danger zone lies in the Central Valley at the base of the Sierra Nevada, whose tall peaks can wring the skies of huge amounts of rain and snow. The area is essentially one giant floodplain that would be easily transformed into an inland sea without man-made flood control. At 400 miles long and 40 miles wide, it has only a tiny bottleneck from which to drain — a one-mile opening at the Carquinez Strait at San Pablo Bay — before water heads into the San Francisco Bay.

A bird's eye view taken on Monday shows the massive pile of grey rubble that has settled at the bottom of the spillway. Because of the damage, the water flow is not fast enough to clear any of the rubble when it reaches the bottom

Sierra Snowpack Is Measured at 188% of Average in Final Survey of the Year

POSTED 3:12 PM, MAY 2, 2019, BY ASSOCIATED PRESS, UPDATED AT 06:06PM, MAY 2, 2019

California cities and farms can expect ample water supplies this summer after winter storms blanketed the Sierra Nevada, nearly doubling the snowpack average for this time of year, state water officials said Thursday.

The fifth and final survey of the season at Phillips Station recorded 47 inches of snow depth and a snow water equivalent of 27.5 inches, the Department of Water Resources said. That's 188% of average for the location near Lake Tahoe.

Just four years ago, then-Gov. Jerry Brown found a field at Phillips Station barren of any measurable snow amid an historic drought.



May 2019 Snow Survey, Phillips Station

Watch later

Share

Summer skiing in California: Squaw Valley open until July 7

Swimsuit! Sunscreen! Skis! Snowy February extends ski season



<https://www.mercurynews.com/2017/06/29/california-in-july-its-time-to-hit-the-slopes/>

In April 2019 Park Williams told us that The recent drought was the second Driest on record or some such



Santa Clara University student Miranda Dunne, 20, skis down the slopes of the "Gold Coast Face" run at Squaw Valley in Lake Tahoe, California on Sunday, June 25, 2017. Thanks to abundant winter snow, Squaw Valley's management announced the ski resort's upper ski runs will remain open past July 4 indefinitely for the first time in the history of the ski resort. (Josie Lepe/Bay Area News Group)

Mother's Day weekend storm adds to New Mexico's already impressive snowpack

Michael Easterling, Farmington Daily Times

Published 5:08 p.m. MT May 11, 2019



Snowpack figures high

STORY HIGHLIGHTS

Snowfall totals above 9,000 feet in the Farmington area ranged from 10 to 20 inches.

Parts of the Sangre de Cristo Mountains around Angel Fire and Taos had seen upward of 18 inches of snow.

The areas of the state that were too warm for snow got significant rainfall.

“Still, that’s just a fraction of the water they’d receive in a good year.”

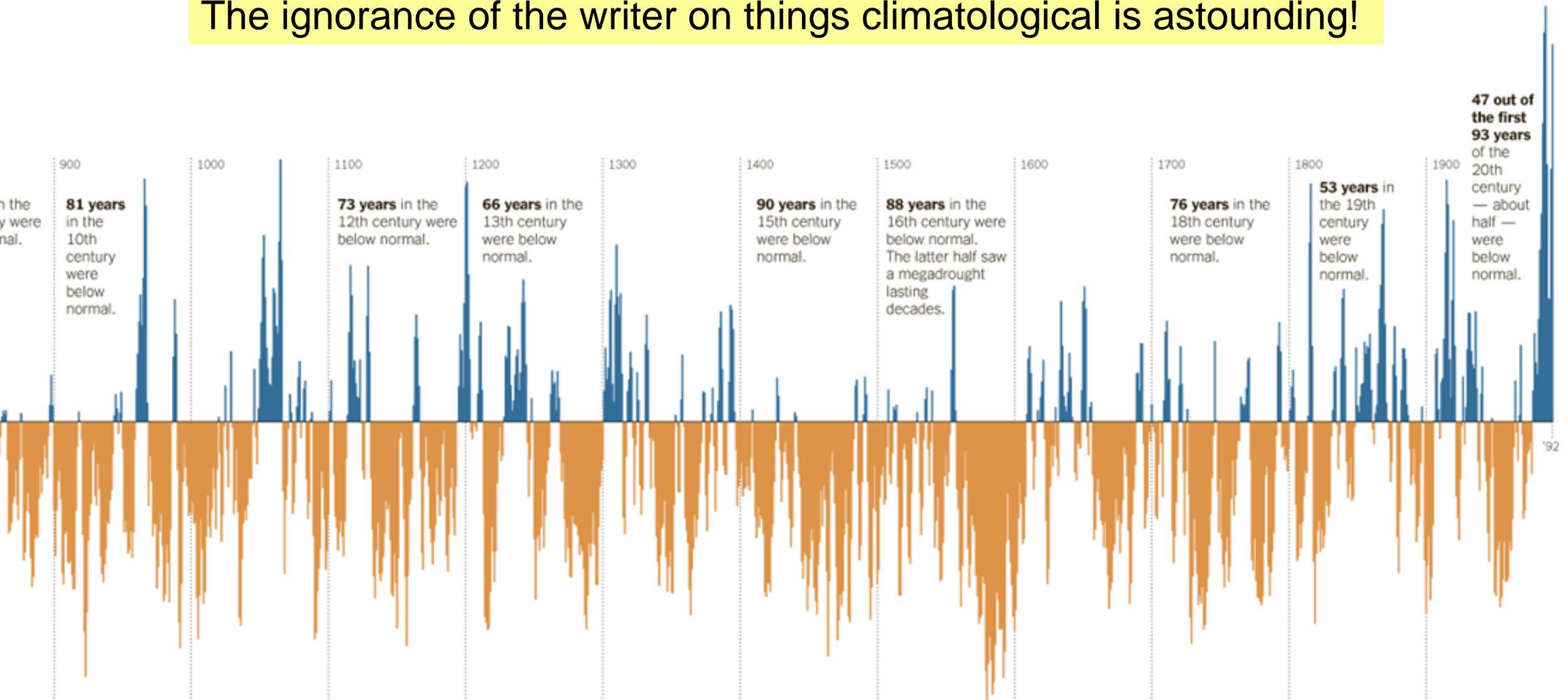
The ignorance of the writer on things climatological is astounding!

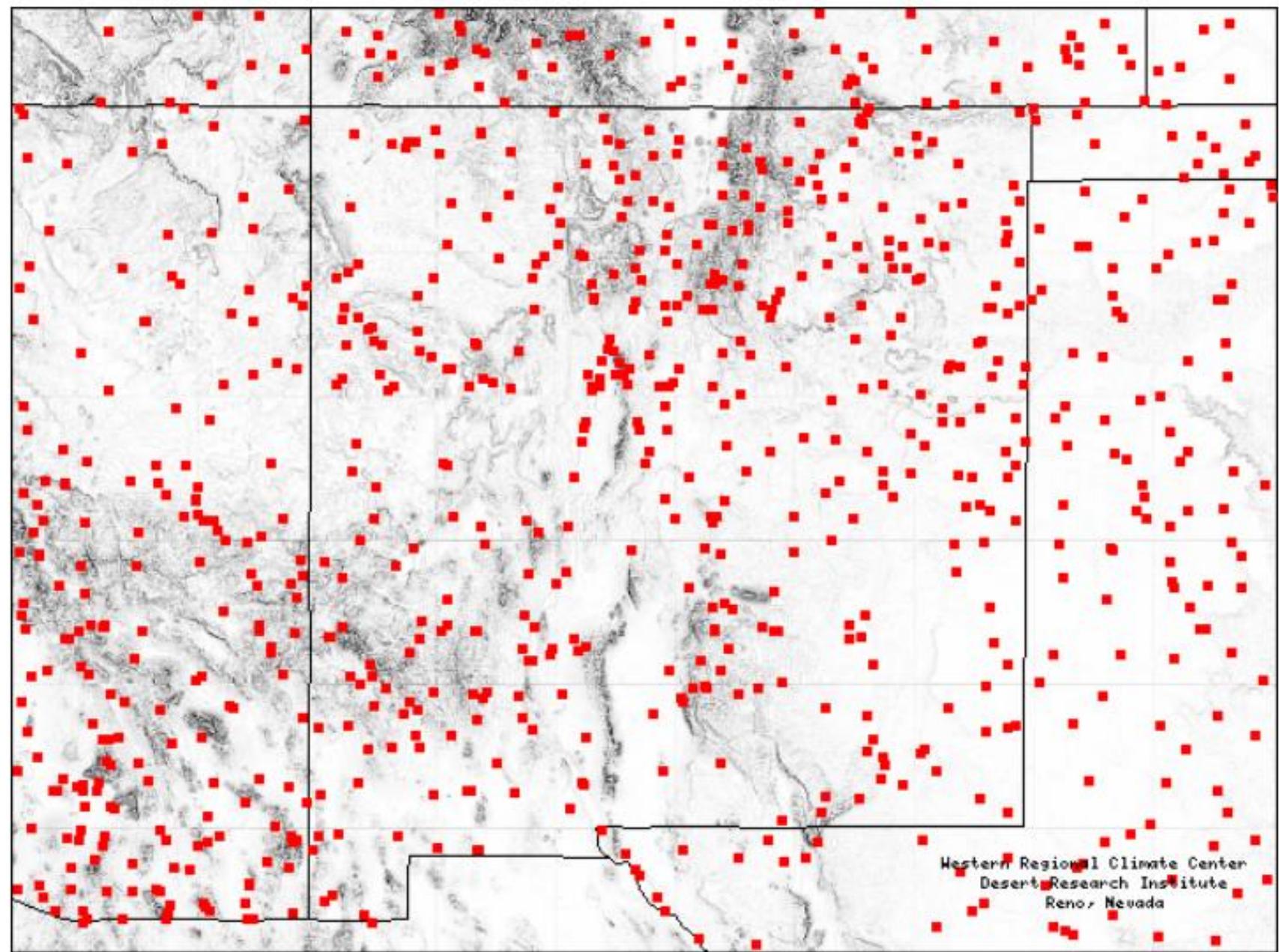
The variability of the monsoon rainfall in Tucson is from driest, 1.59” to wettest, 13.84,” or 12.25 inches.

In El Paso, the variability of the monsoon rainfall is from driest 0.23” to wettest, 15.28,” or 15.05 inches.

“Still, that’s just a fraction of the water they’d receive in a good year.”

The ignorance of the writer on things climatological is astounding!





Notes on data sources' images:

For some of the Stations Listed in the Western Regional Climate Center I took the station metadata and put it into Google Maps.

Usually this was very crude, so I guessed at the location based on the location which came up in Google Maps' satellite view.

Overhead imagery of the USHCN stations was obtained in two steps: The station's location was obtained from the USHCN ftp site text list, <ftp://ftp.ncdc.noaa.gov/pub/data/ushcn/v2.5/ushcn-v2.5-stations.txt>

The site location was copied into the Google Map search bar, and the satellite view was used to provide the image of the site.

The USCRN images were taken from NOAA's USCRN file at <https://www.ncdc.noaa.gov/crn/photos.html>

A necessary sidebar:

Las Cruces, population growth, and development of
the Urban Heat Island

Some History of Las Cruces growth from photographic and highway records

1890s Downtown and streets are dirt.

1916 Gravel Road in Las Cruces damaged by WWI Army trains of logistic vehicles.

1920 El Paso is first paved road in Las Cruces, June 1920, rest were dirt/gravel roads

1930s Most roads were dirt/gravel, “durable materials” deemed too expensive

1945: US 70, 80 and 85 consist of dirt streets in Las Cruces.

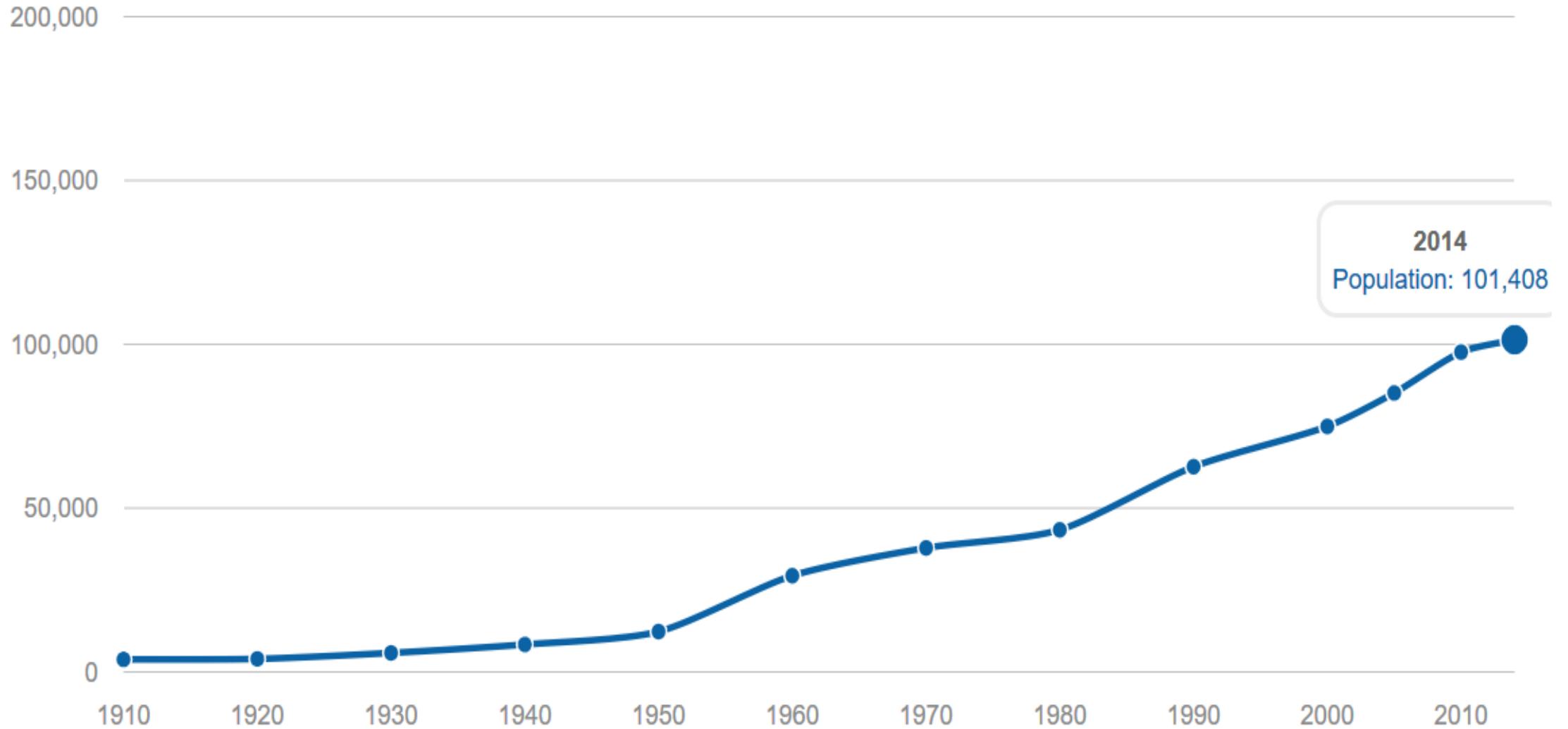
~1955: US 70 was “paved,” as was US 85. 2-lane highway 70 thru San Augustin pass.

~1960 I-10 was built ELP-Las Cruces.

By 1970 I-25 supplanted old US 85 as the principal north-south highway through Las Cruces.

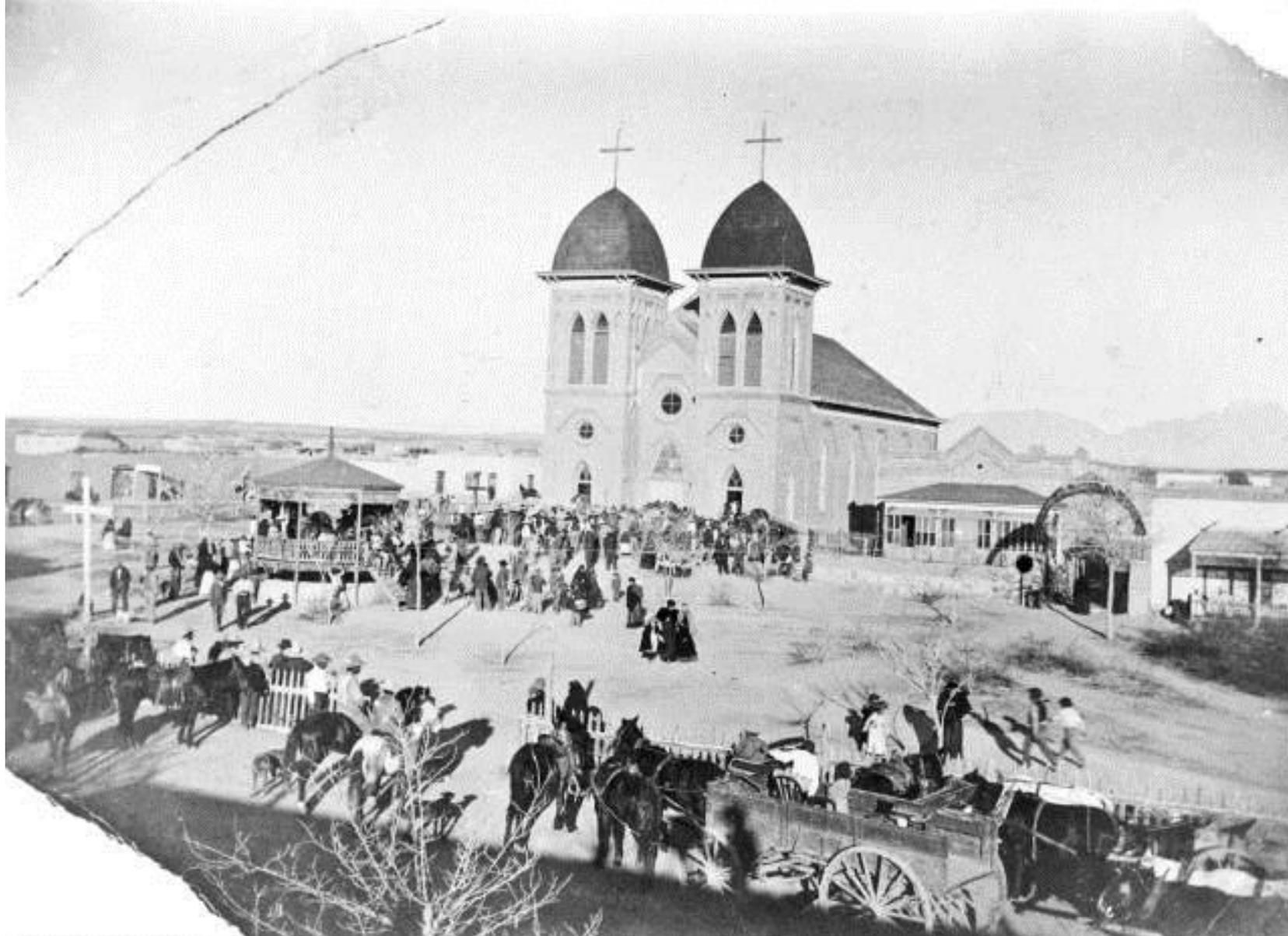
Historical population

Historical population of Las Cruces city for period 1910-2014:



Downtown Las Cruces 1880s, dirt streets and wooden sidewalks





New Mexico State University Library

St Genevieve Catholic Church, downtown Las Cruces, ca 1885



Goddard Hall, New Mexico A&M, as seen through the old Miller Gates 1890s

1917 the predecessor of I-10 in Dona Ana County was damaged...long trains of Army trucks.



DONA ANA COUNTY

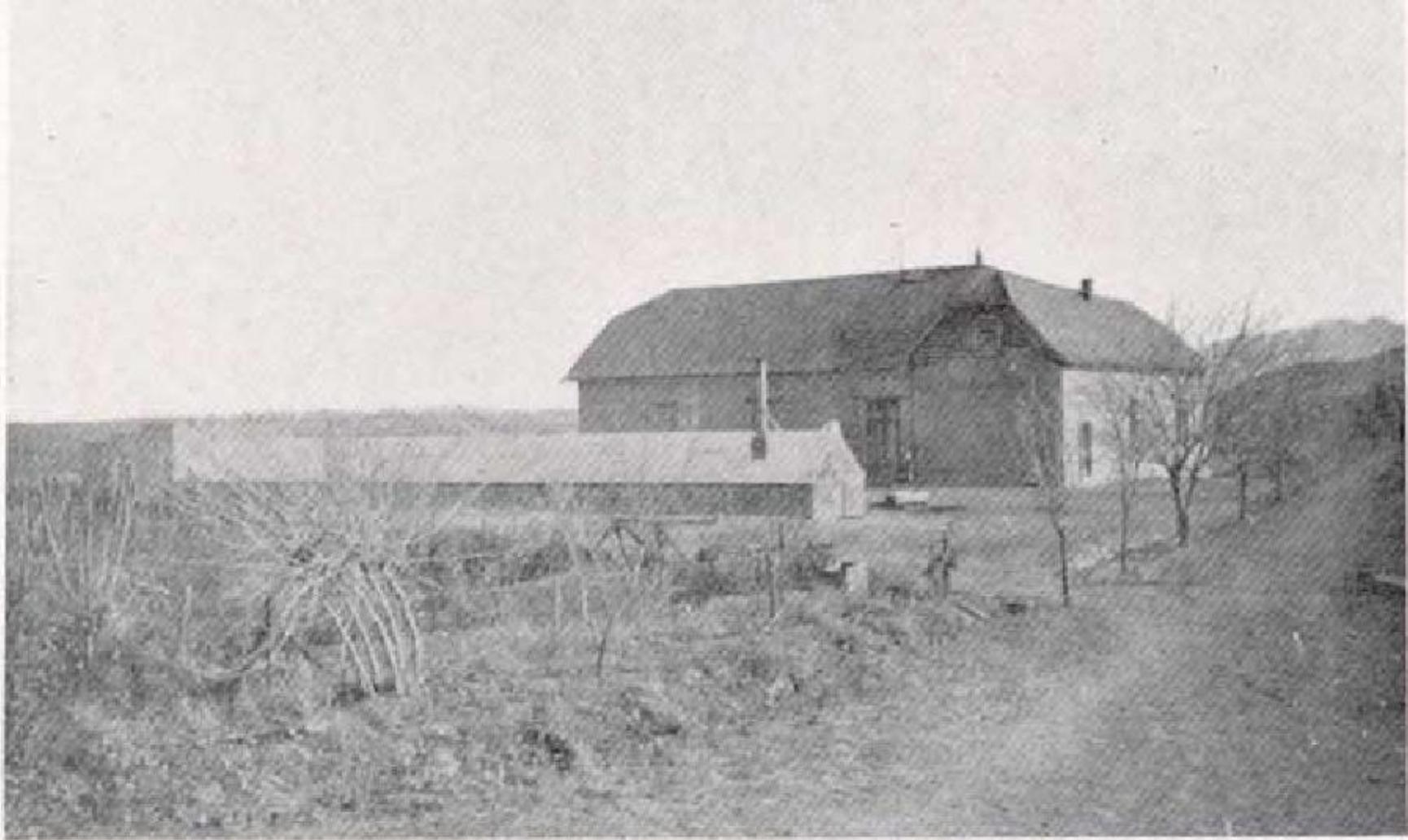
Road No. 1

Gravel surfaced road damaged by long train of Army trucks.

NM 1 “El Camino Real Highway” (1903, 1912, 1917, 1923): named after the historic *El Camino Real de Tierra Adentro*, from the Spanish Colonial Period. This route was the major north-south arterial of the state, from Anthony in the south to Raton and the Colorado border at the north. The beginnings of this highway started in the Territorial Period, with the very first public funds used for road construction in New Mexico. By statehood in 1912, this road was considered the “backbone” of the state road system, and it received more money and attention than all other roads. It was the first road to receive concrete surfacing in the state, between Las Cruces and El Paso, in the early 1920s. With the establishment of the US Highway system in the

Figure 112: NM 1 in the mid-1910s (French 1916-1918: 79)

Cruces and El Paso, in the early 1920s. With the establishment of the US Highway system in the



THE ORIGINAL AGRICULTURAL BUILDING

This building is known to us now as the seed house. It was used in the early days of the College by the Experiment Station and later by the Agricultural School for recitation rooms and laboratories.

Nematology when it was known as the Seed House. Photo from the 1924 yearbook.



DONA ANA COUNTY—Water flow in Arroyo during flood at Anthony near Federal Aid Project No. 66.

The problems of relying on dirt road technology became apparent with a series of disastrous floods (Fig. 14) along New Mexico's riverine communities in the 1920s. Most of these roads were realigned in the 1930s (Rose 1992:81-84), but the use of durable road materials proved too expensive for most early Statehood roads.

Figure 14: Flood at Anthony (Gillett 1921-1922:25)

Southern Dona Ana County in the 1930s. "Use of durable road materials was too expensive for the new state of New Mexico."

Main Street Las Cruces, New Mexico

Presumably colorized black and white ca 1920 showing dirt Main Street mixture of cement and wood sidewalks.





DONA ANA COUNTY

Las Cruces-El Paso Road. Concrete pavement completed in June, 1920.

First (?) Paved Street in Las Cruces, El Paseo, looking north towards present Las Cruces High School, June 1920. Only a single lane is paved. Irrigation ditch remains in the same area of El Paseo today.

Downtown Las Cruces ca 1930 dirt streets, cement sidewalks



HOTEL ROUAULT.

PULLMAN CAFE

WESTERN UNION

DRUGS

Walk-Over
SHOES
The Boston Store
GOOD STORE FOR EVERYBODY

NEW and USED
FURNITURE

*Street scene
Las Cruces N.M.*



Dona Ana County Courthouse. Might be Election Day 1936, based on 1936 Ford Coupe present.

Might show dirt areas and lack of pavement in downtown Las Cruces in 1936.



Maintaining State Highway No. 10 just south of Madrid

Figure 27: Dirt roads were graded but not graveled in WWII era (Dwyre 1945-1946:58)



Intersection in Las Cruces

Figure 105: US 70-80-85 through Las Cruces (Dwyre 1945-1946:88)

I interpret this image to be north Alameda Boulevard heading south on a summer afternoon in 1945. WW2, dirt streets and concrete sidewalks.



MAIN STREET LOOKING SOUTH
LAS CRUCES NEW MEXICO

River's
photo



San Augustin Pass US 70, ca 1960, facing west towards Las Cruces. Image deliberately degraded by Pinterest. US 70 is now 6-lanes with shoulder and drainage ditches both sides.



400 x 248

Postcard of Las Cruces ca 1949 from NMSU Library deliberately degraded in photo quality.

Shows dirt streets ca 1949 in downtown



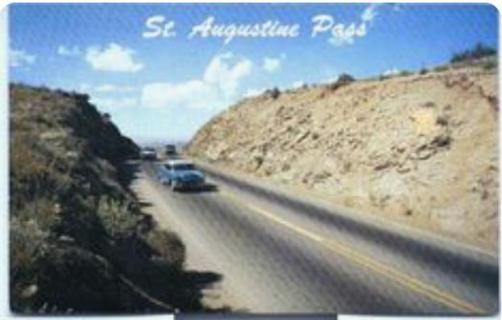
Picture of downtown Las Cruces ca 1971 monsoon season.

Flooding such as this was common on Las Cruces flood plain until the flood control dam east of north Telshor Boulevard was constructed.

Similar problem and solution in Albuquerque's Old Town region.

Historical population

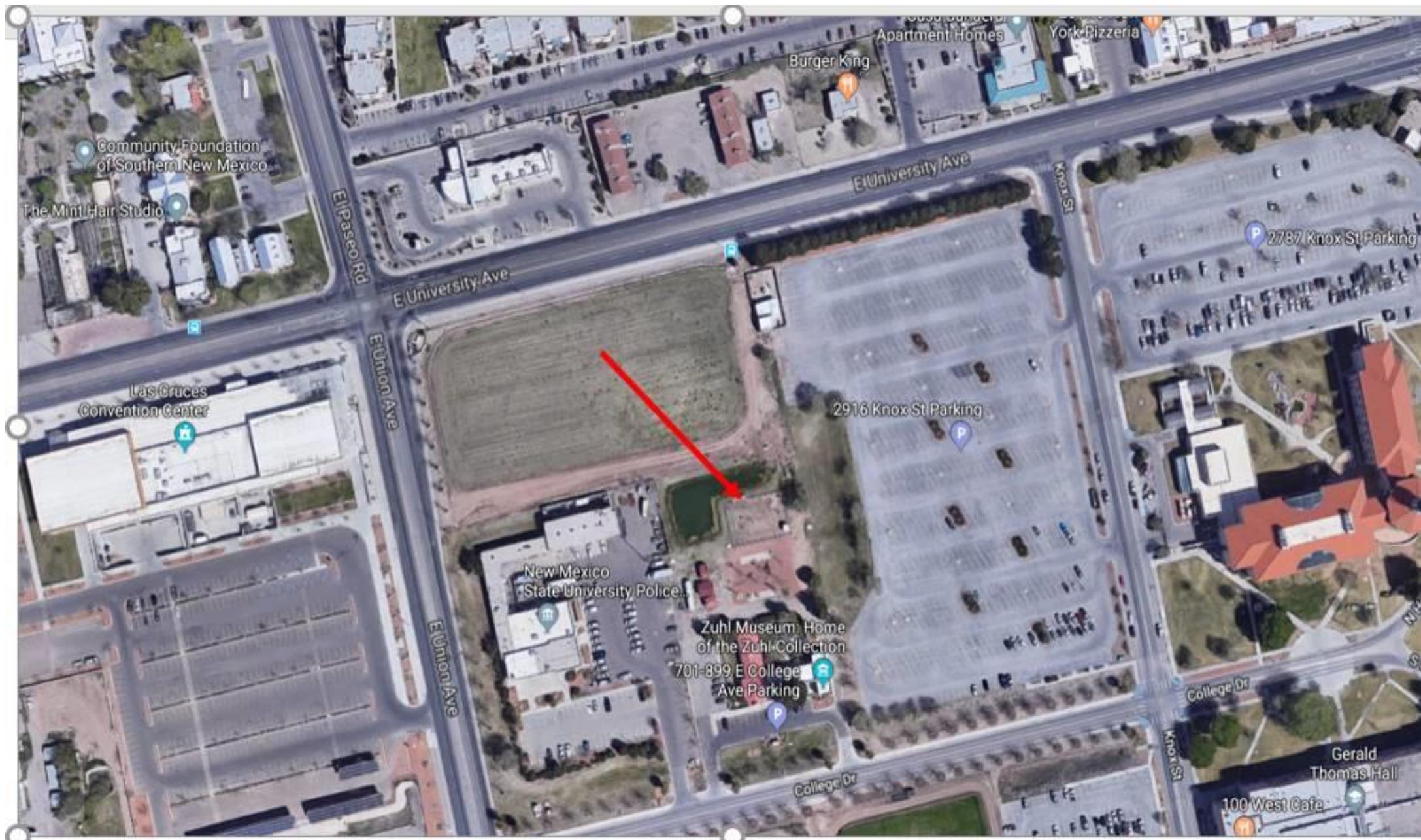
Historical population of Las Cruces city for period 1910-2014:



2014
Population: 101,408



State Univ, New Mexico

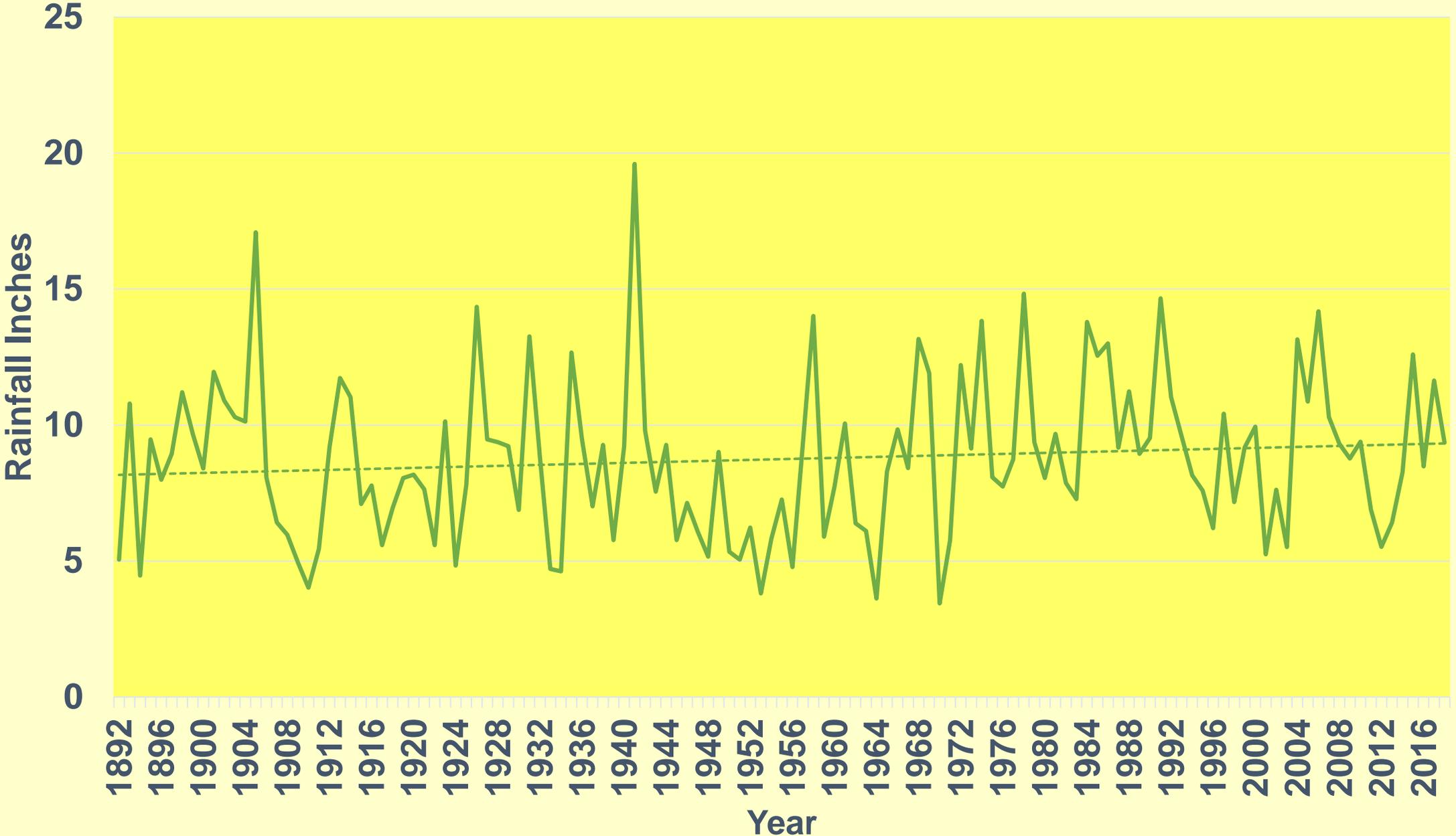




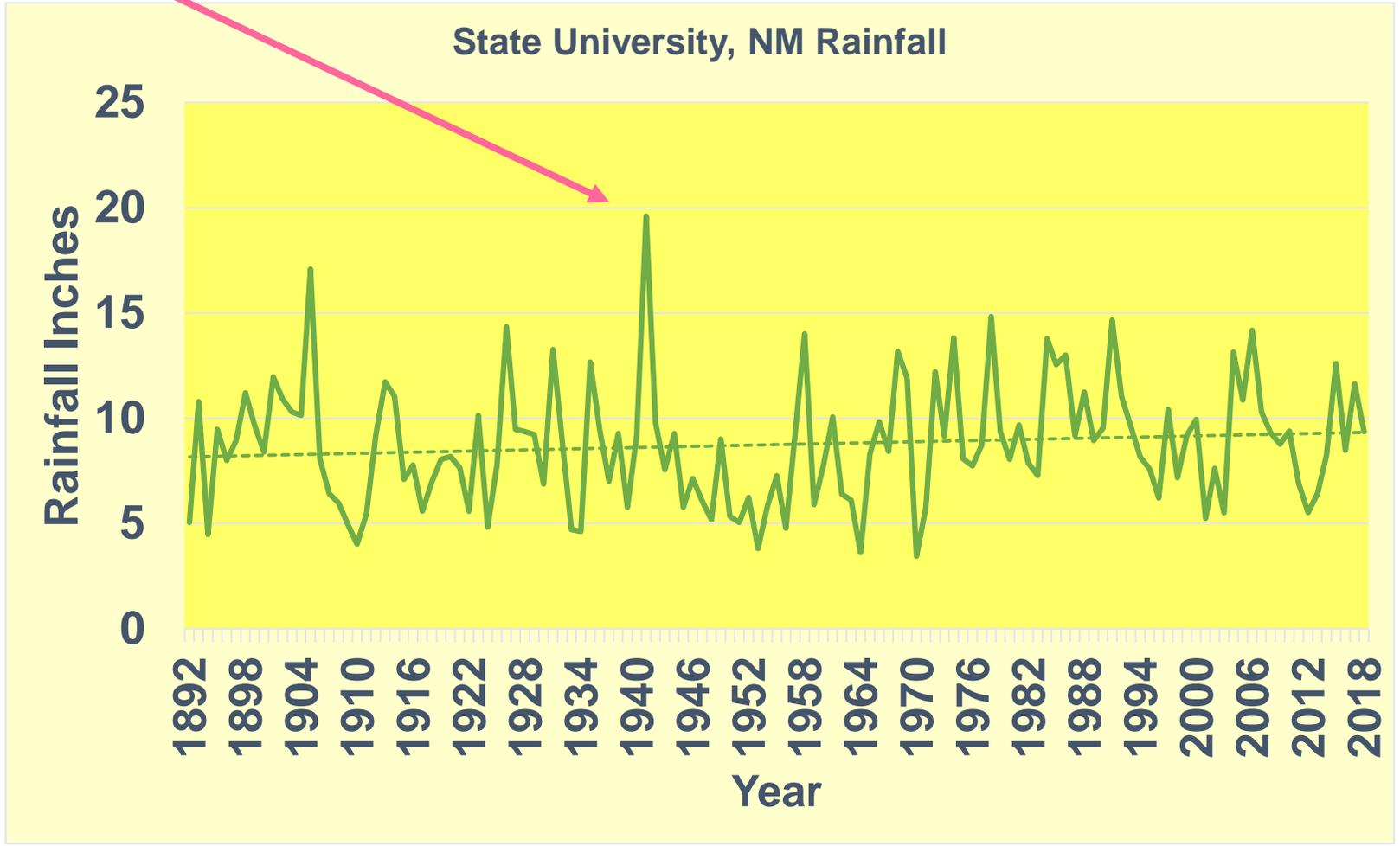




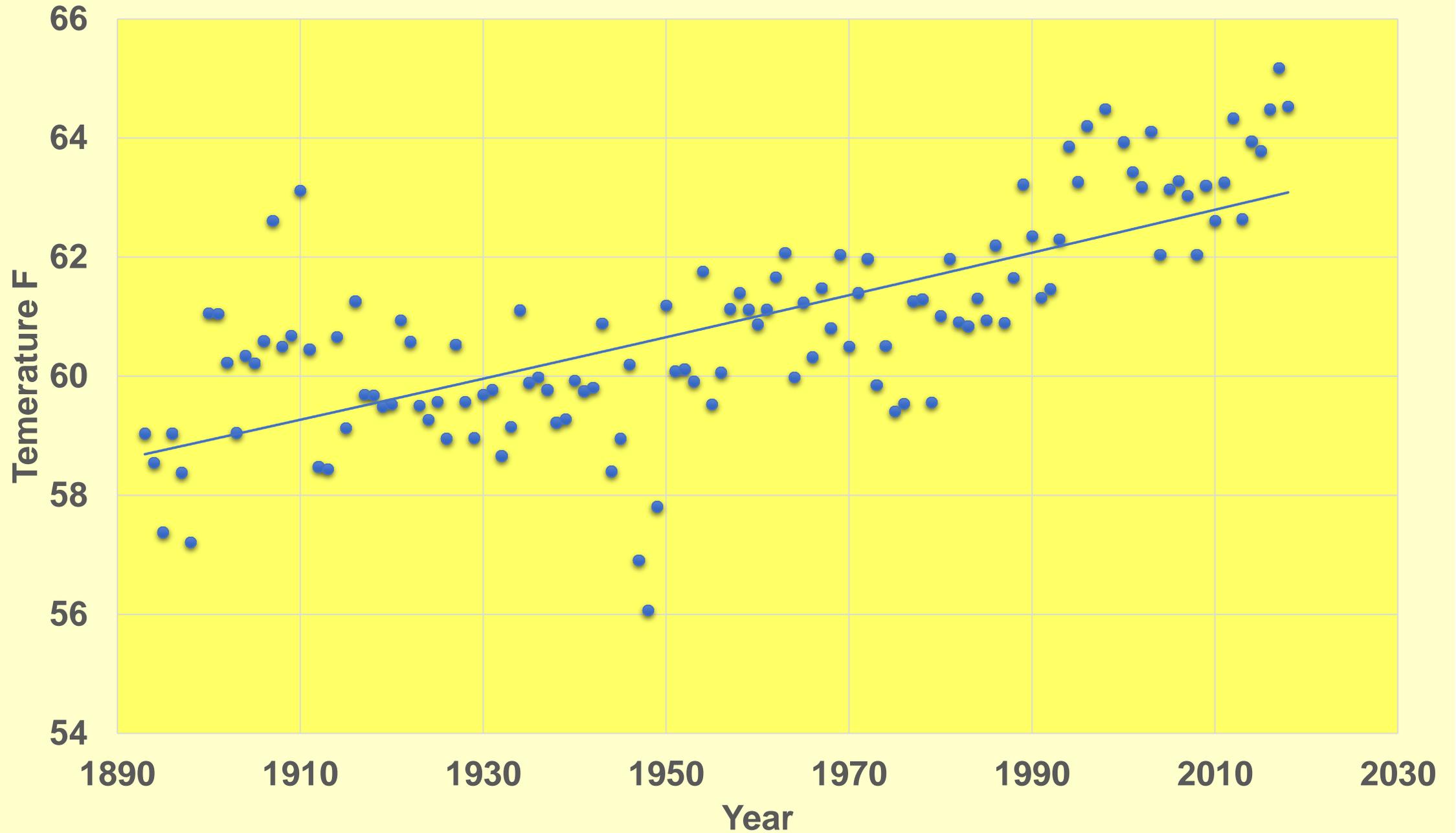
State University, NM Rainfall



The huge 1941 El Nino rainfall spike is very prominent!



State University, NM, Temperature



NMSU's Thermometer exposure fails the World Meteorological Organization's Class One Standard:

“Ground covered with natural and low vegetation (< 10 cm) representative of the region”

Farmers and Meteorologists know <or should know> that bare ground gets a lot hotter than ground covered with vegetation

The WMO standard is on-line here:

https://www.wmo.int/pages/prog/www/IMOP/SitingClassif/CIMO_Guide_2014_en_1_1-2_Annex_1B.pdf

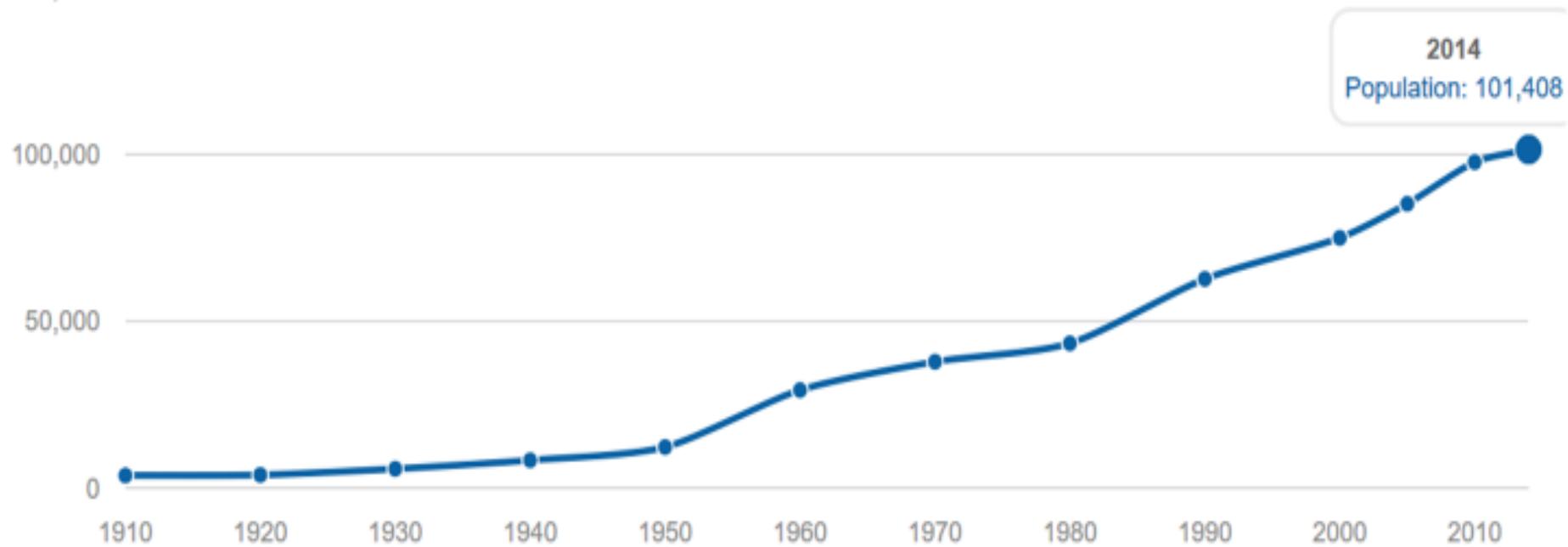
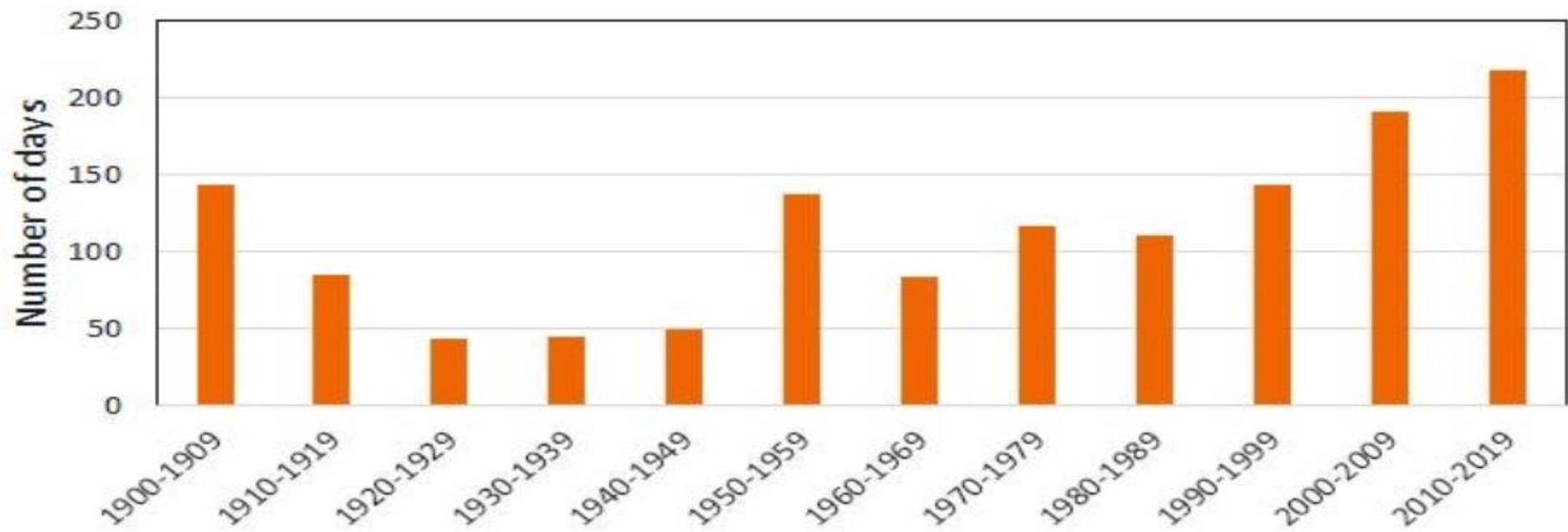
Part of NMSU's anomalous temperatures might even be with the peeling paint on the roof of the Stevenson Screen and/or the solar collectors at the foot of the screen.

Email Questions to David Dubois about possible change-over date from Stevenson Screen to MMTS were not answered by today.



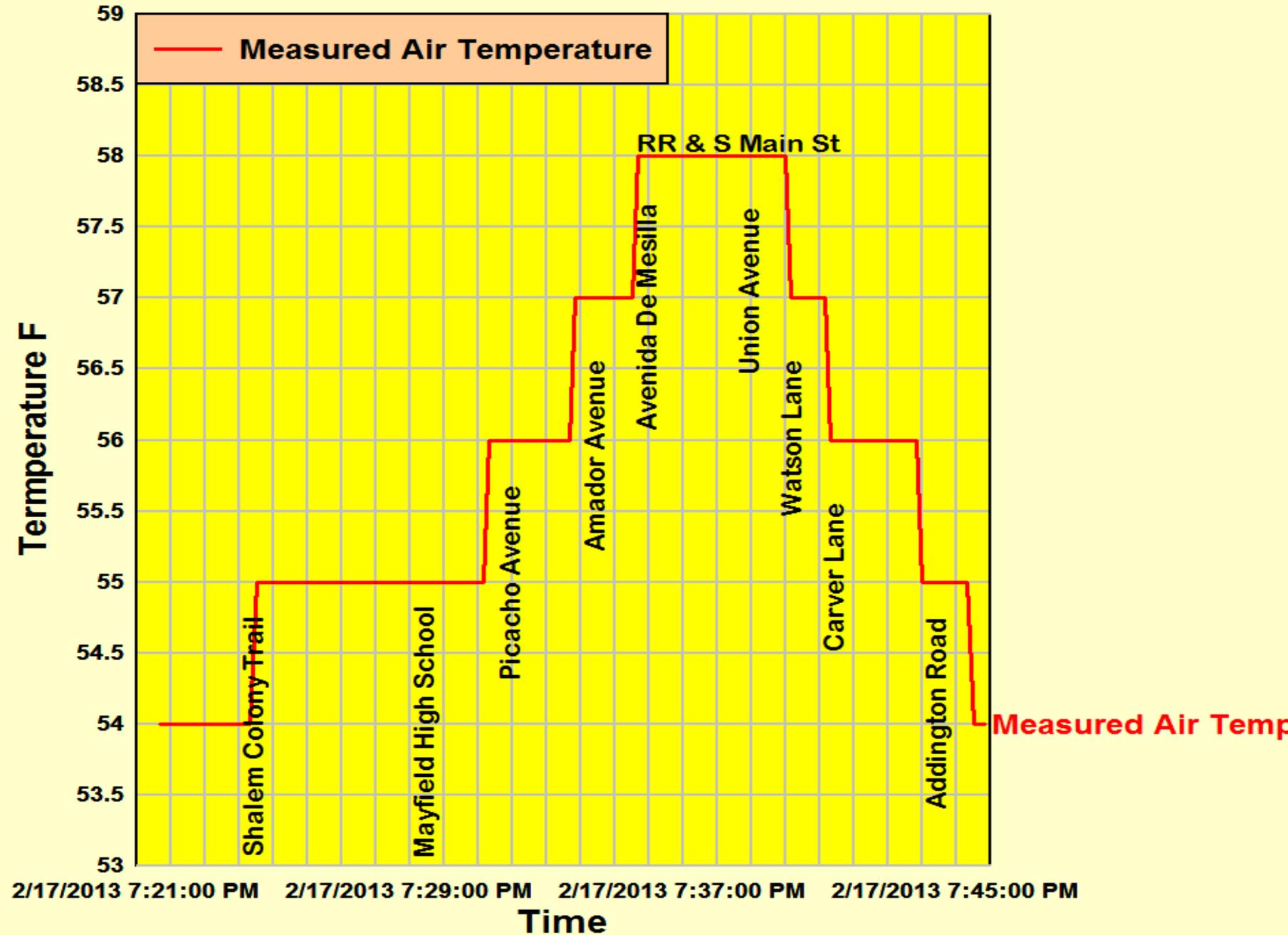
The State University NM observing station is near the center of Las Cruces' Urban Heat Island.

The steady upward climb of the State University site mimics the growth of Las Cruces' population since 1950.



Urban Heat Island Las Cruces, NM

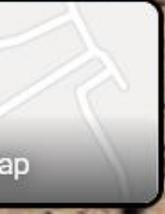
17 Feb 2013



Jornada Experimental Range NM, USHCN



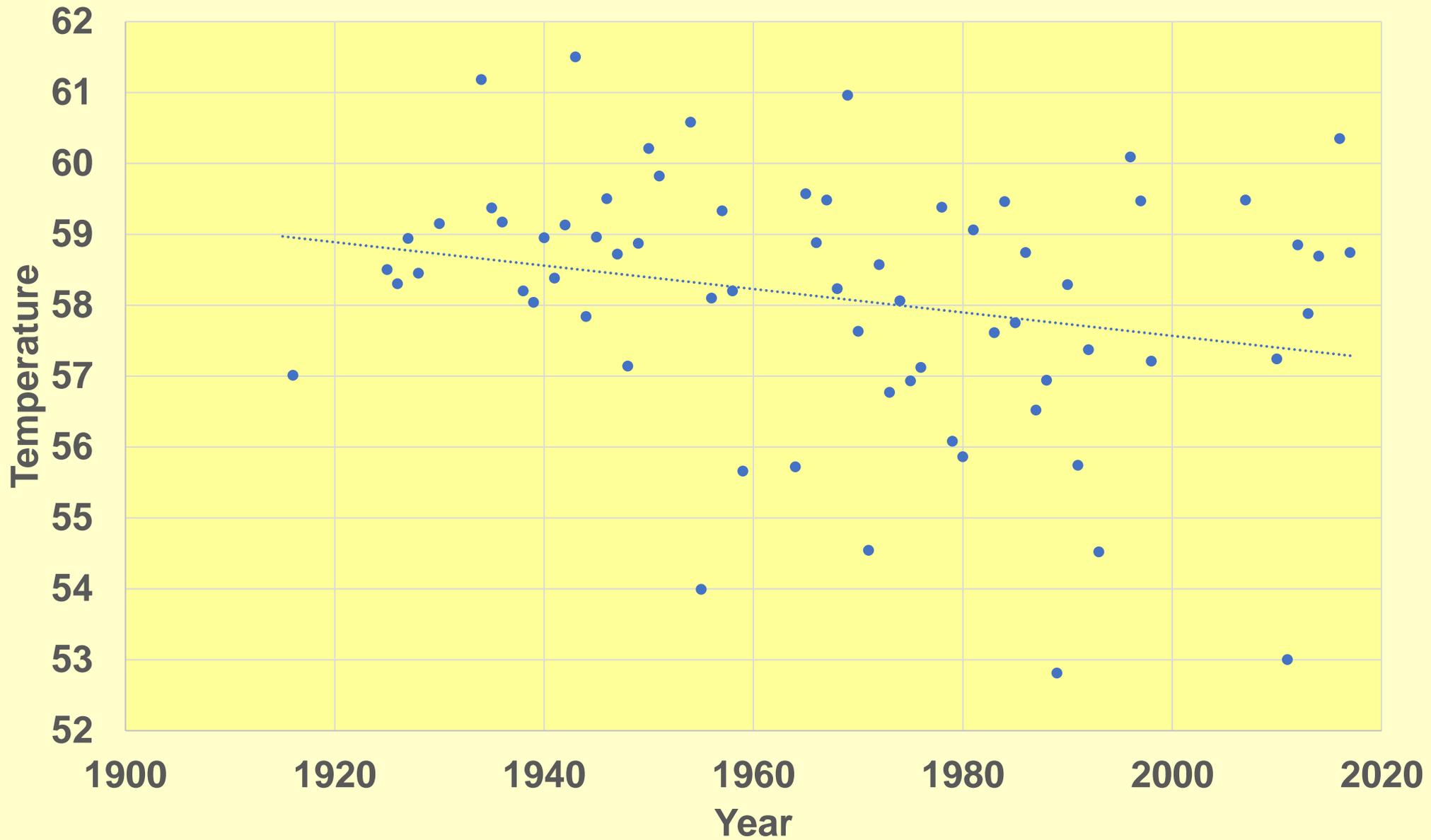
Si



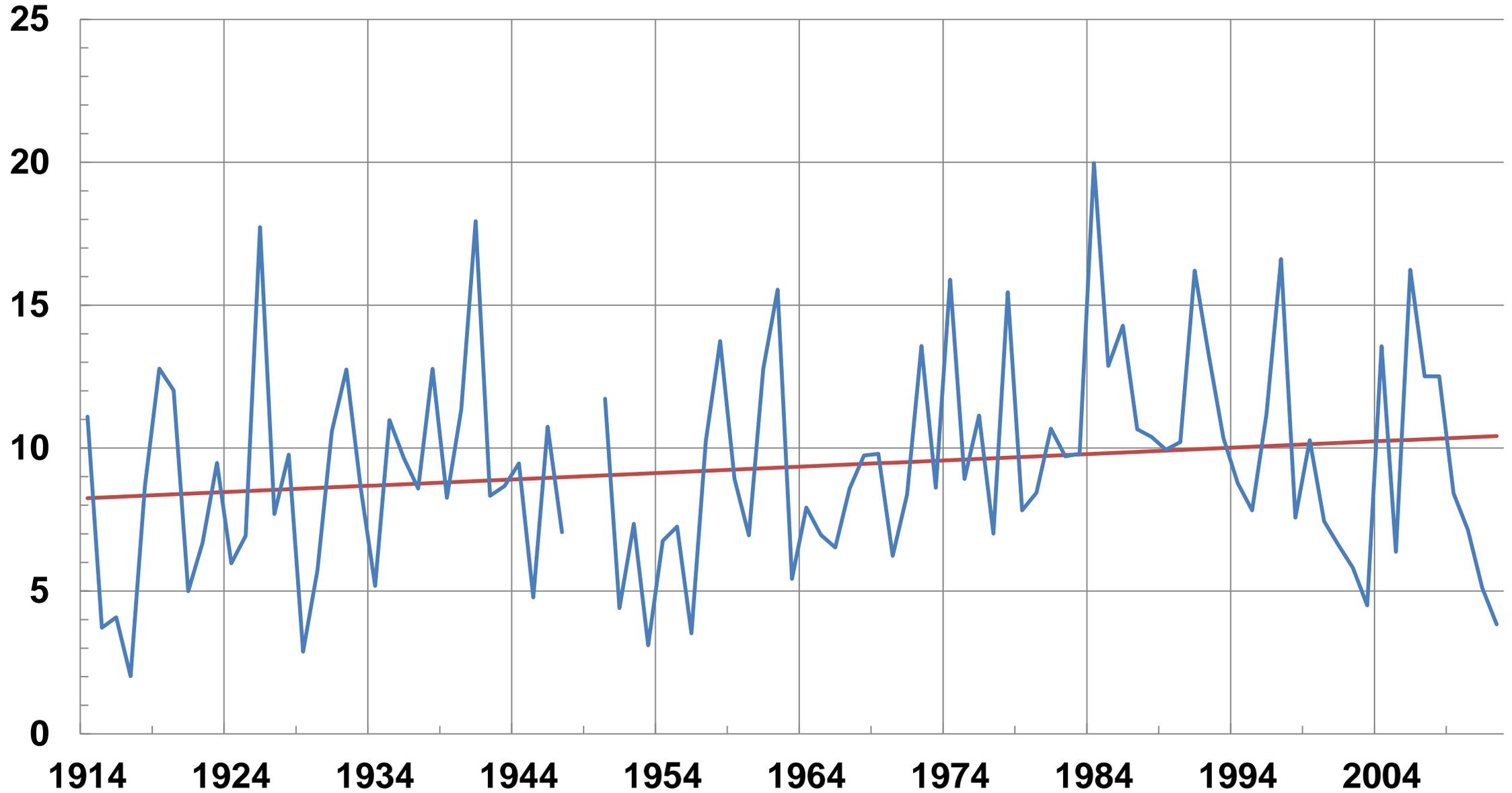
ap

Google

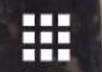
Jornada Experimental Range NM, USHCN, Temperature



Jornada Range Precipitation

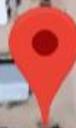


Los Lunas 3 SSW



Sign in

New Belen Ditch



Natural Resources Conservation

Miller Rd

Miller Rd

Tatonka Dr SW

Miller Rd

Google

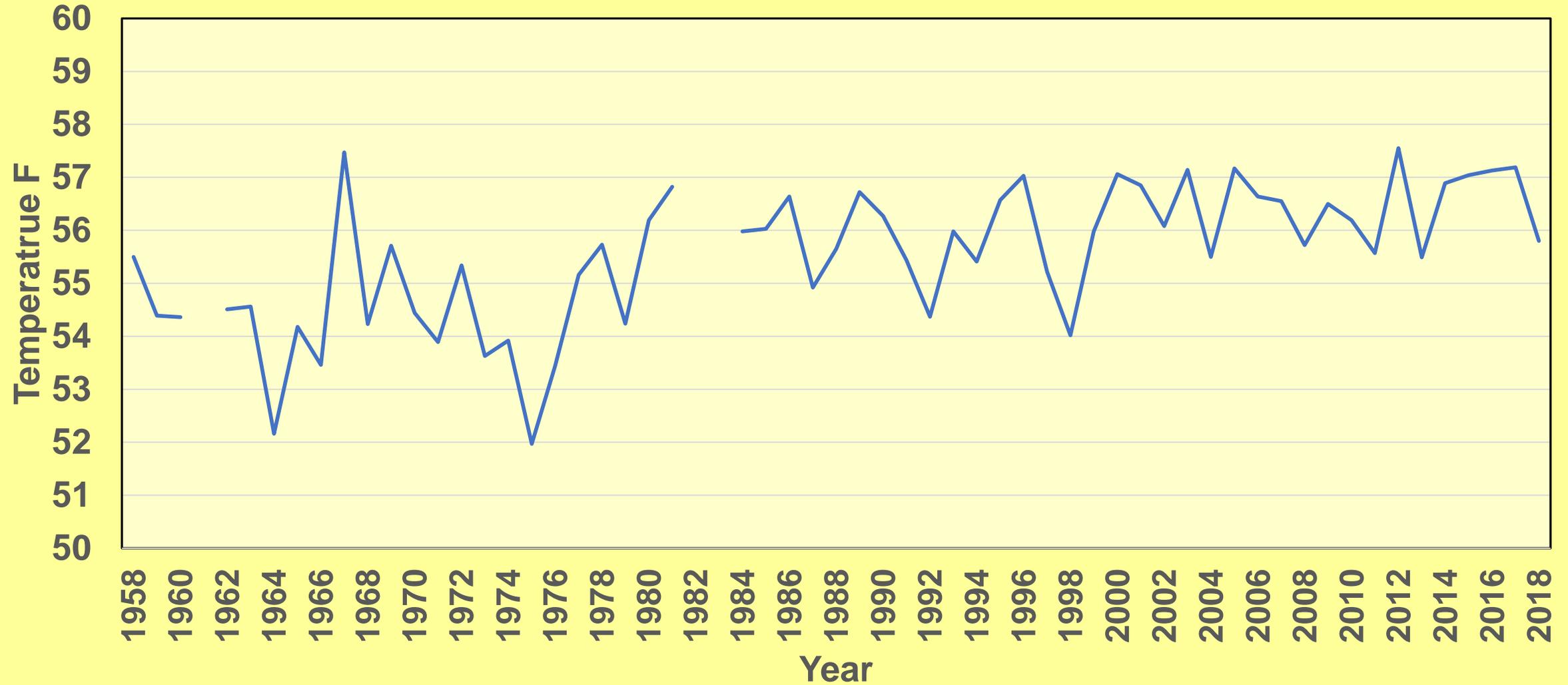


3D

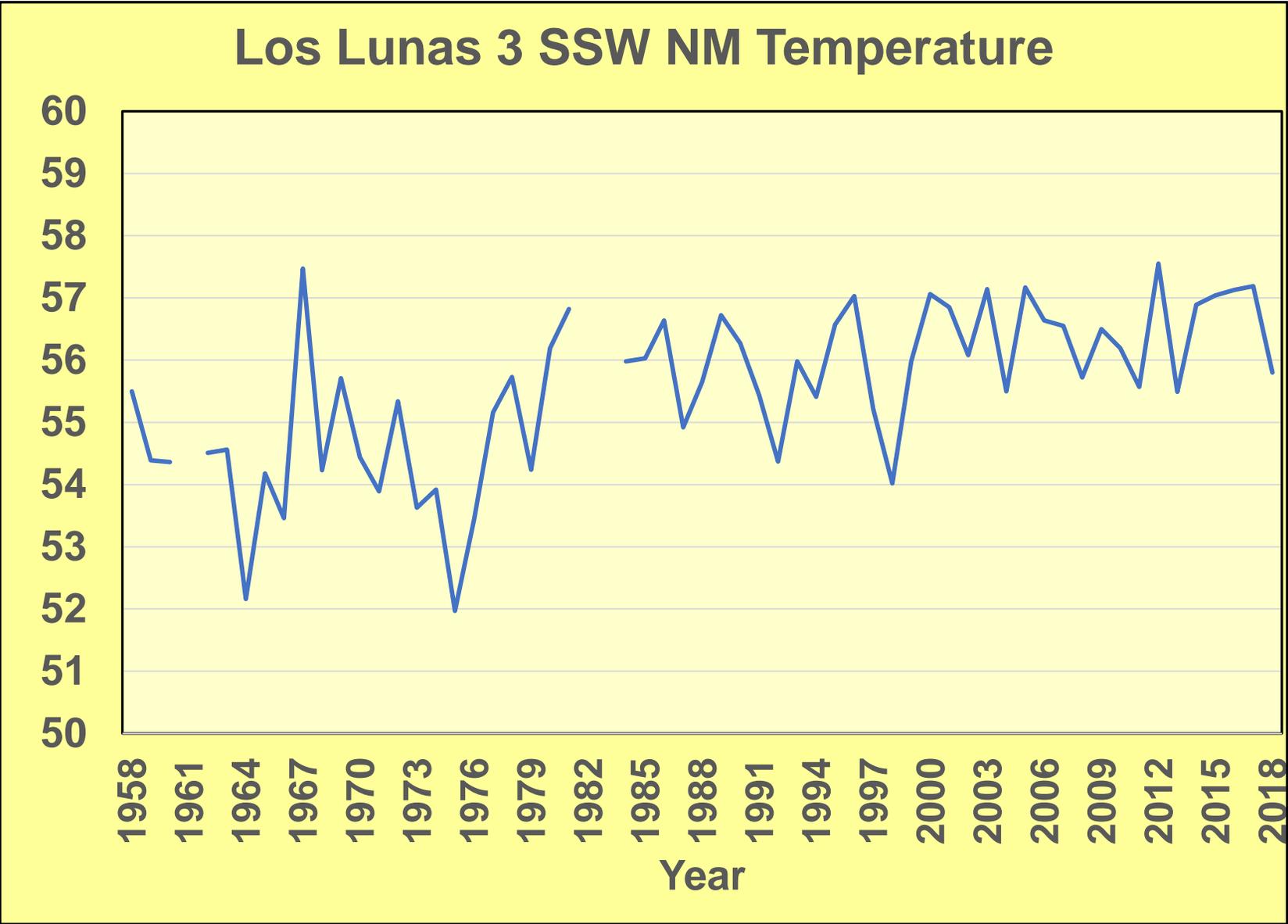
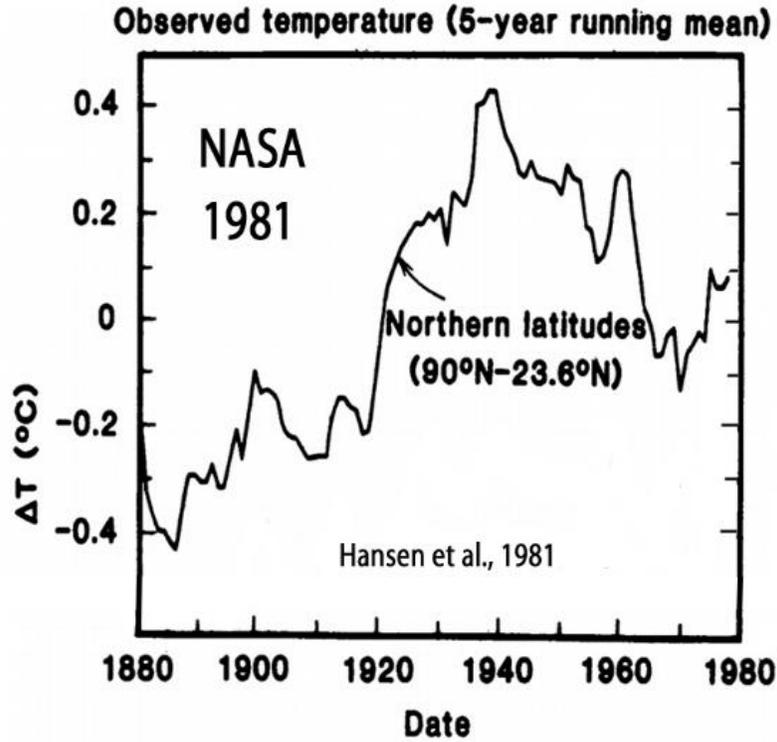


The temperature in 1967 was 57.47 and in 2012 was 57.55

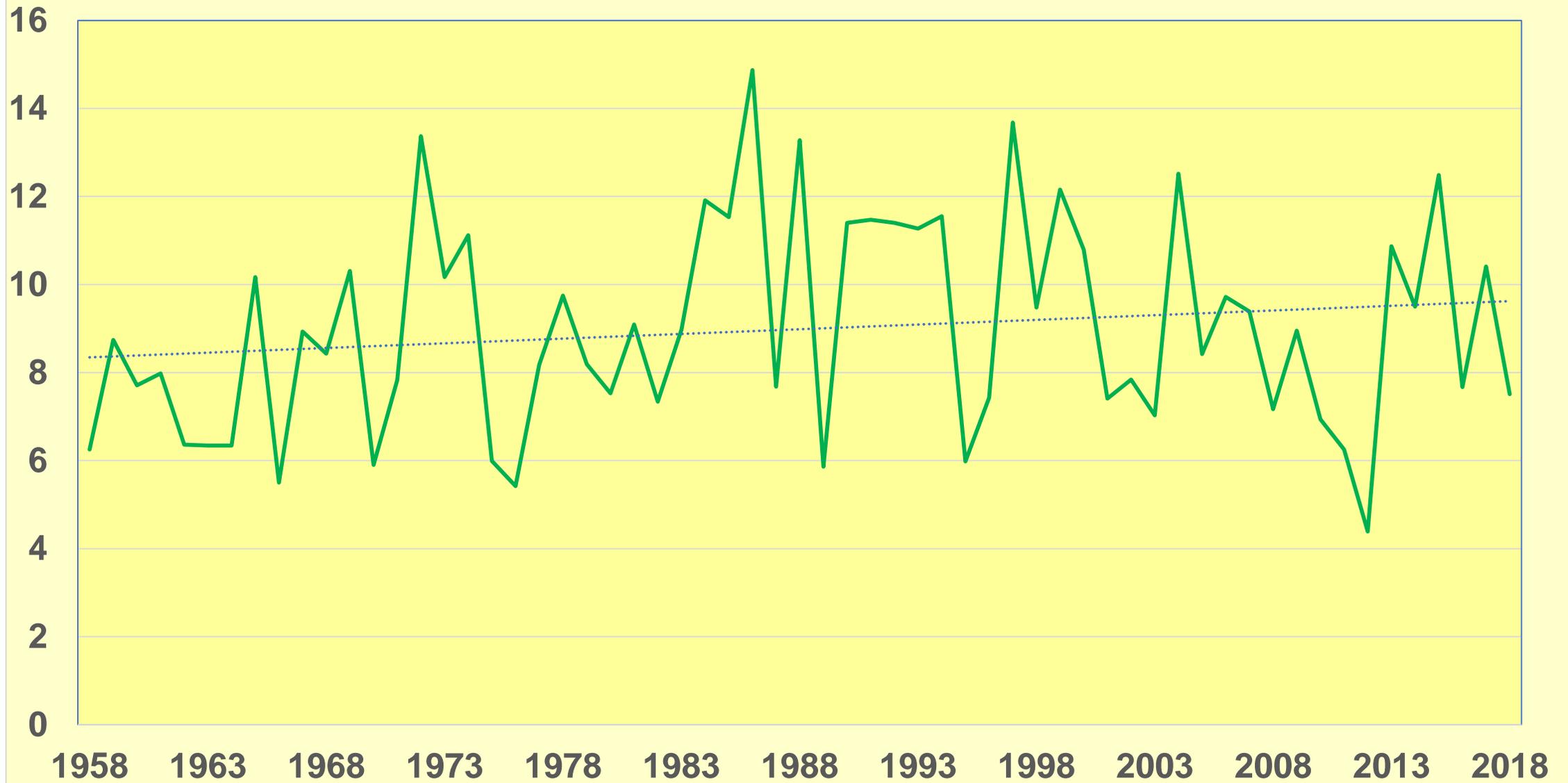
Los Lunas 3 SSW NM Temperature



A graph of "observed temperature" for the Northern Hemisphere was included in the paper to illustrate these climatic trends.



Rainfall Los Lunas 3 SSW



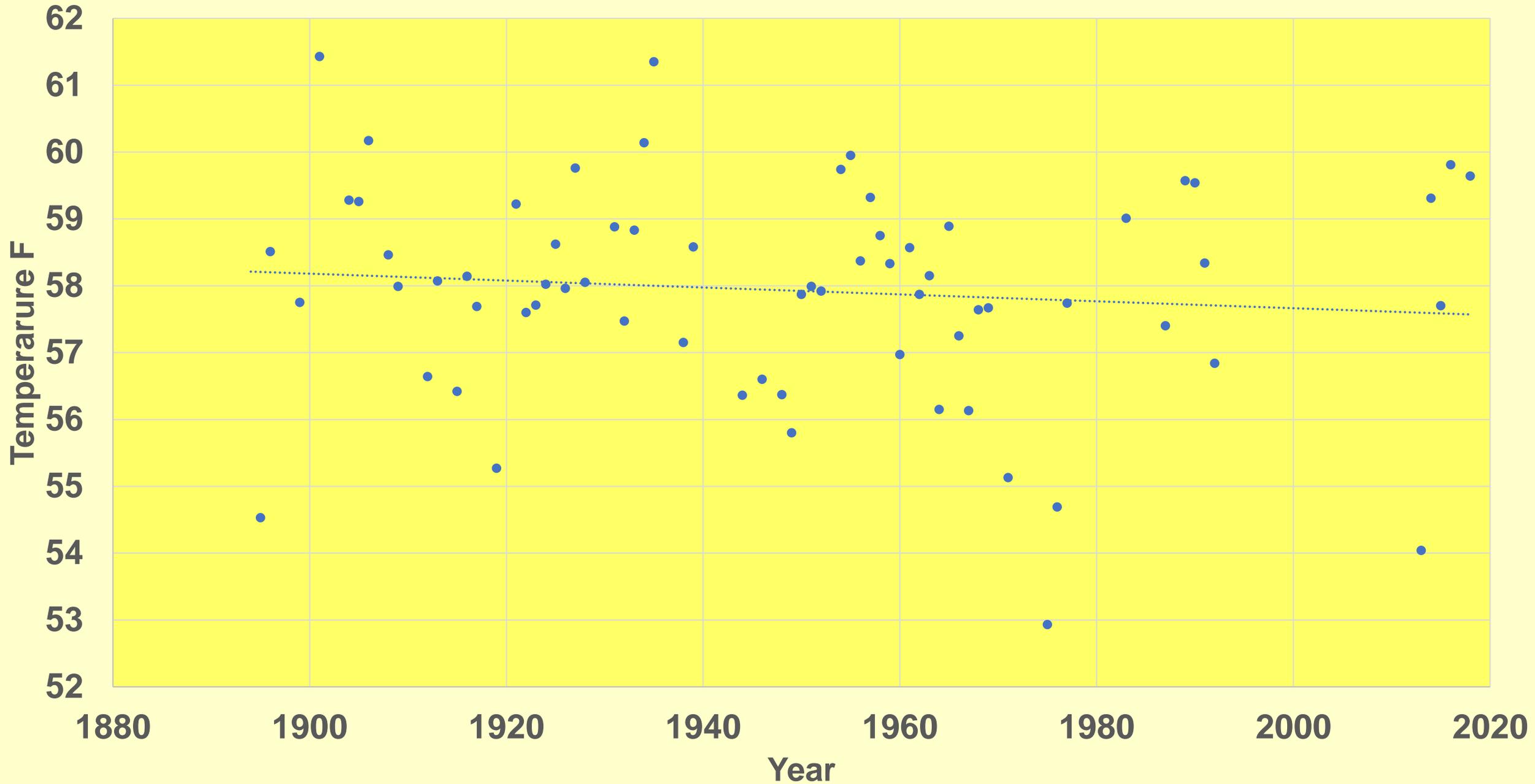
Bosque Del Apache NWR, NM, COOP



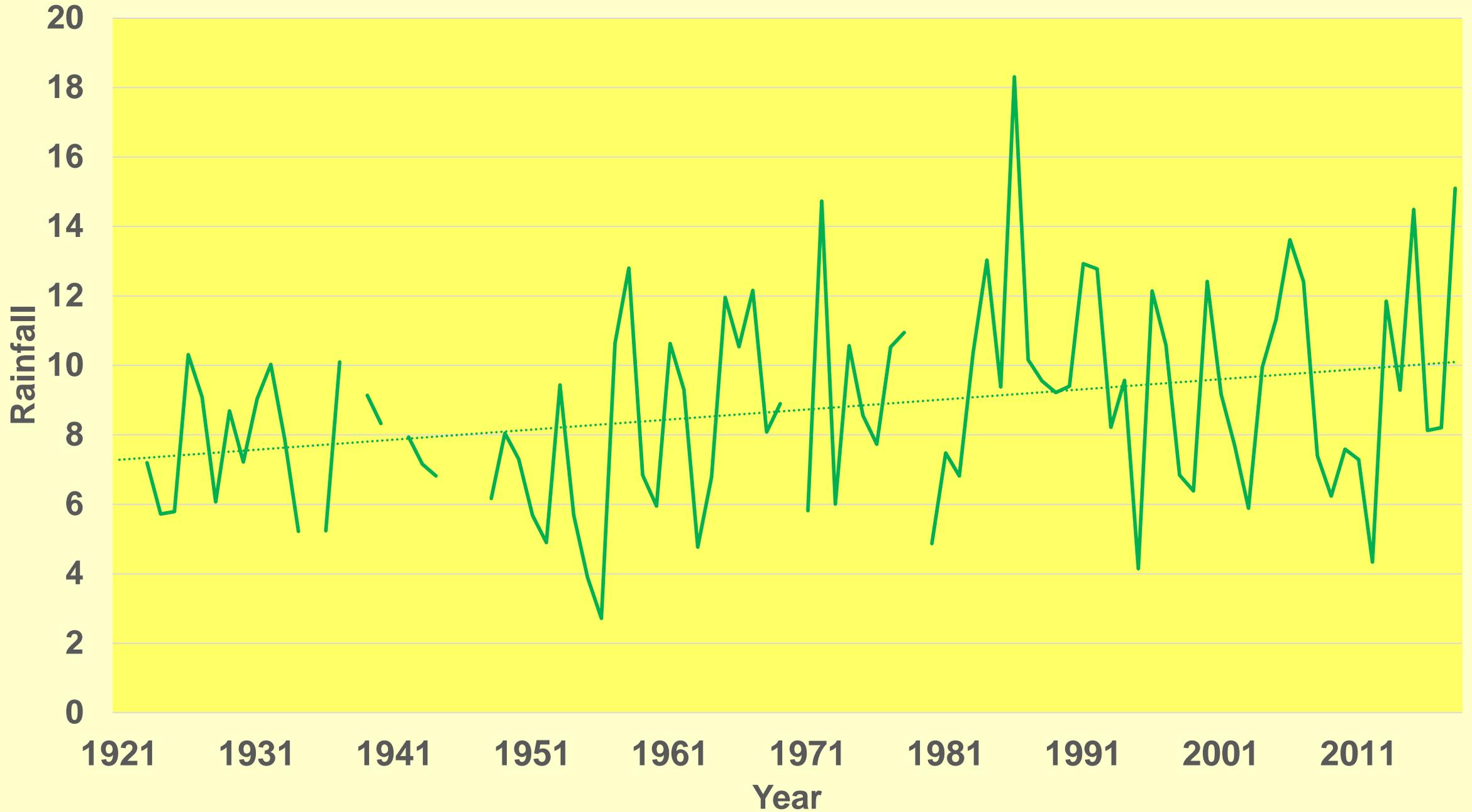
Map

Google

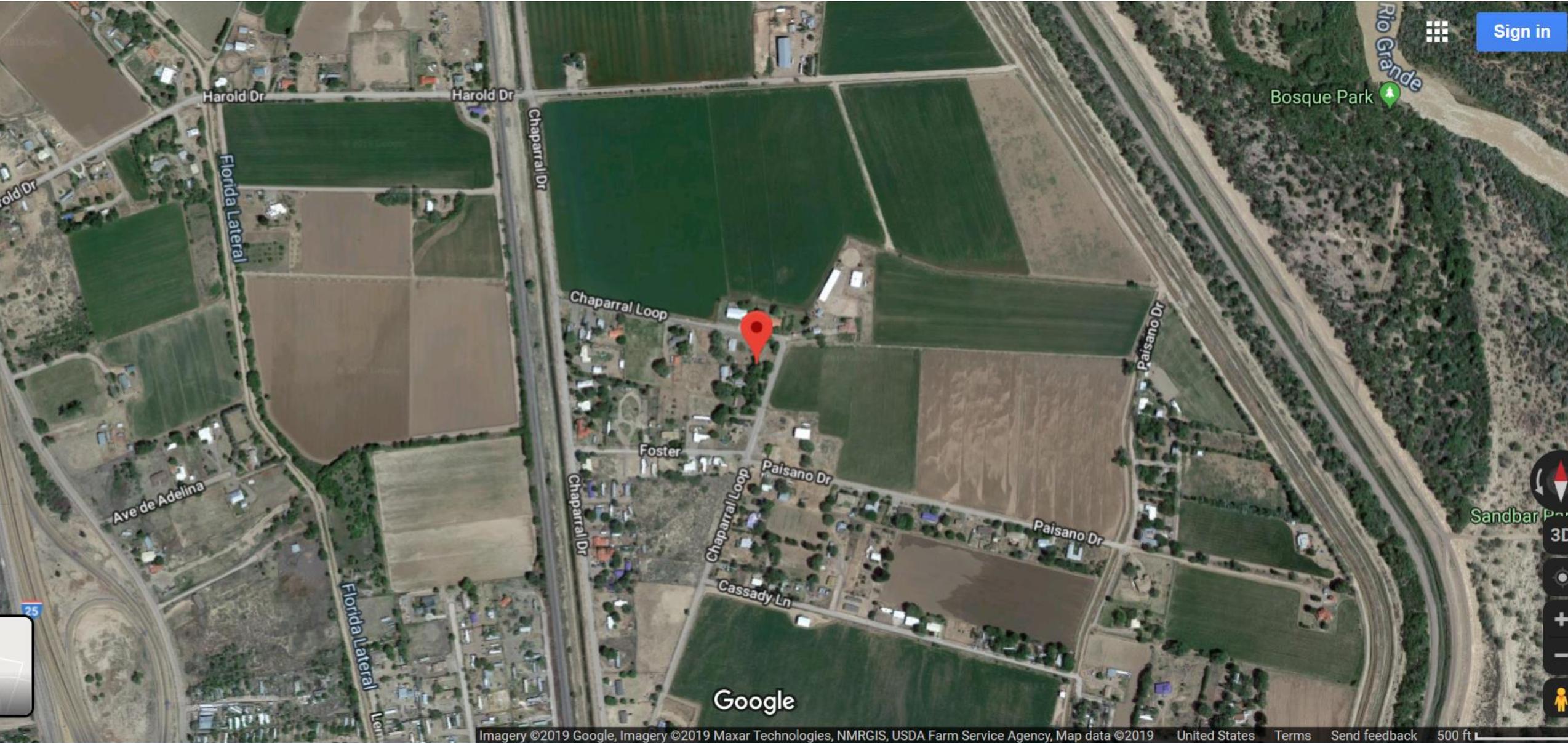
Bosque Del Apache Temperature



Bosque Del Apache Rainfall since 1921



Socorro NM



Sign in

Bosque Park



Sandbar Park

3D

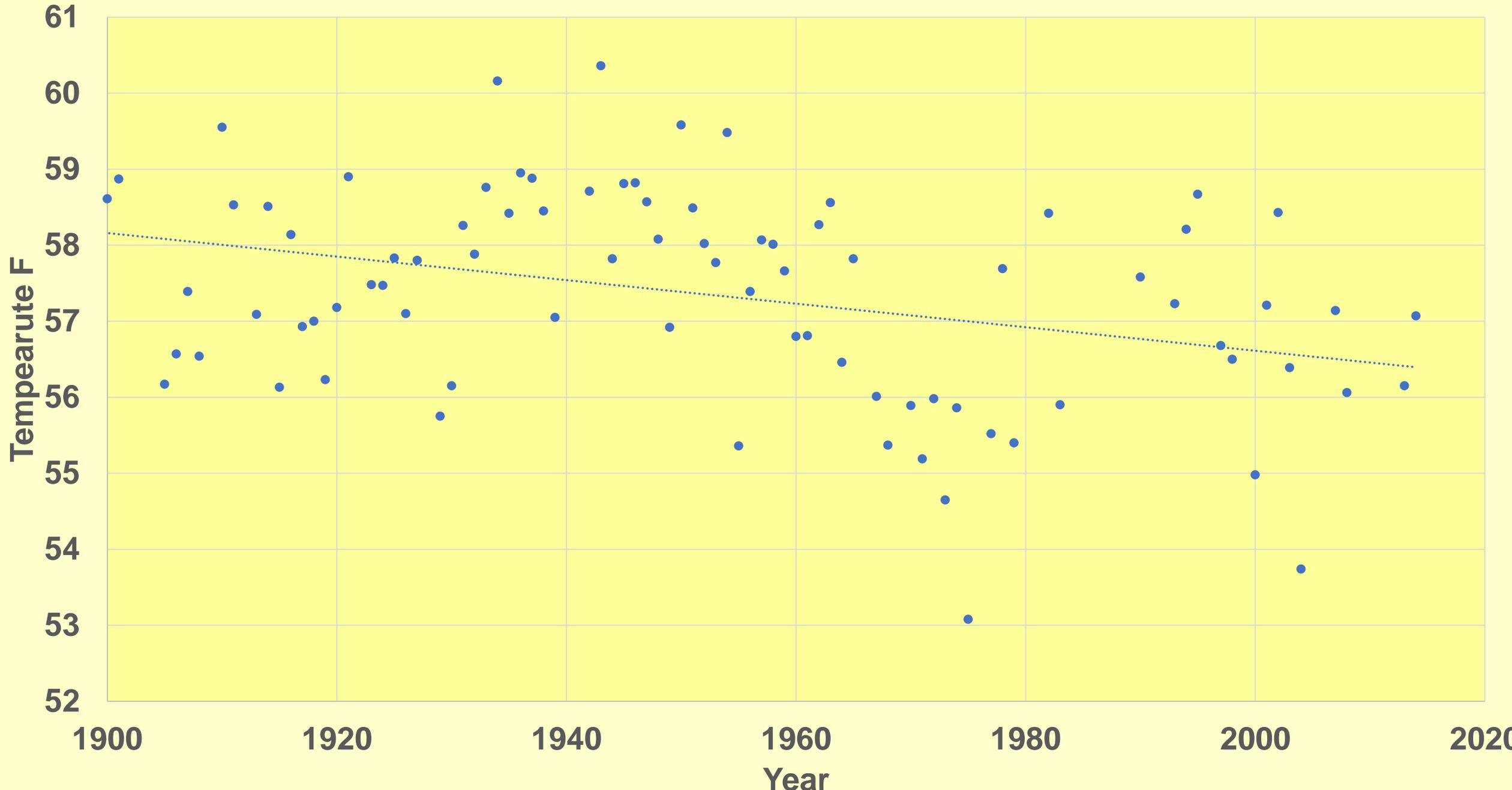
+

-

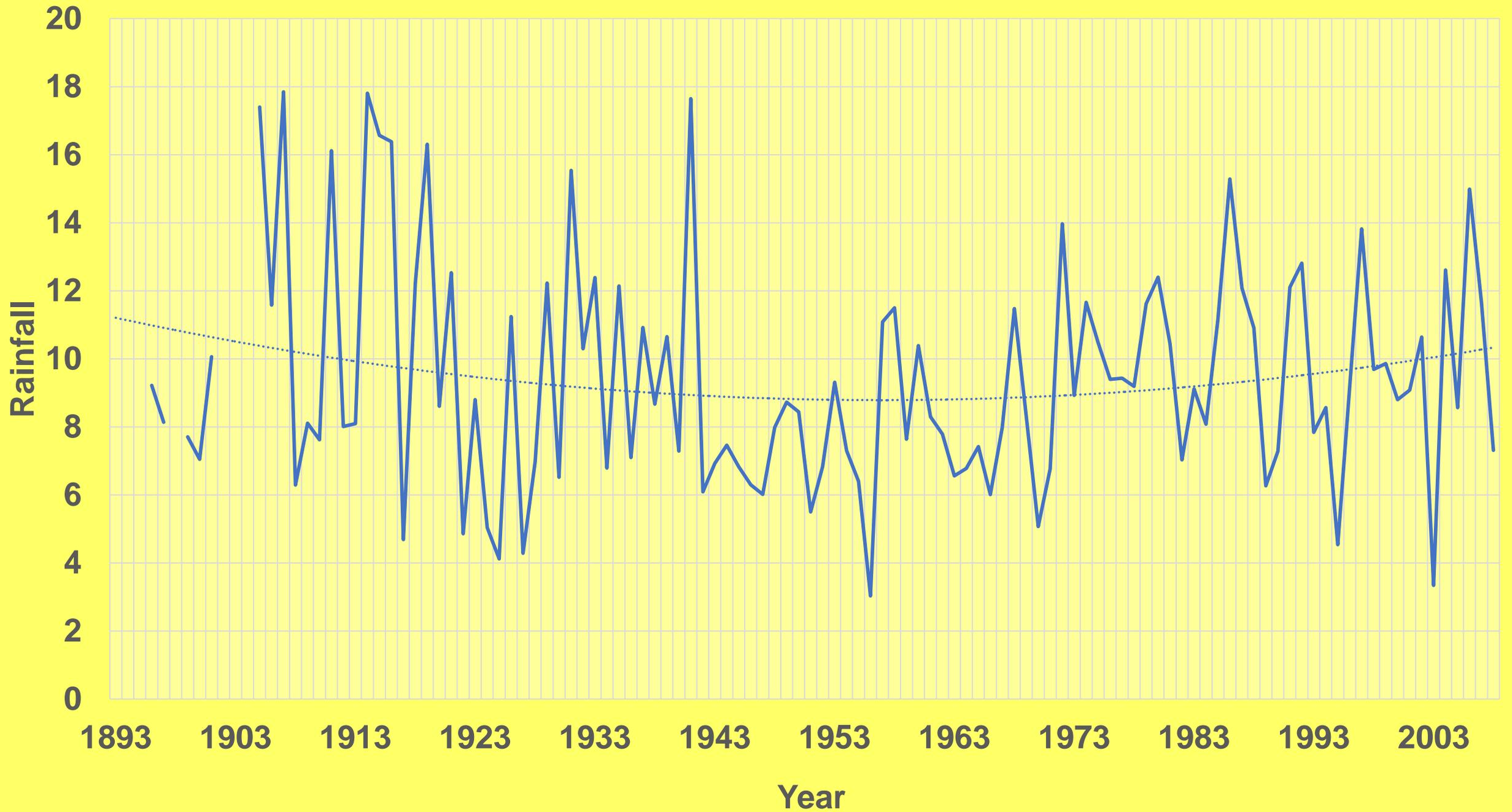


Google

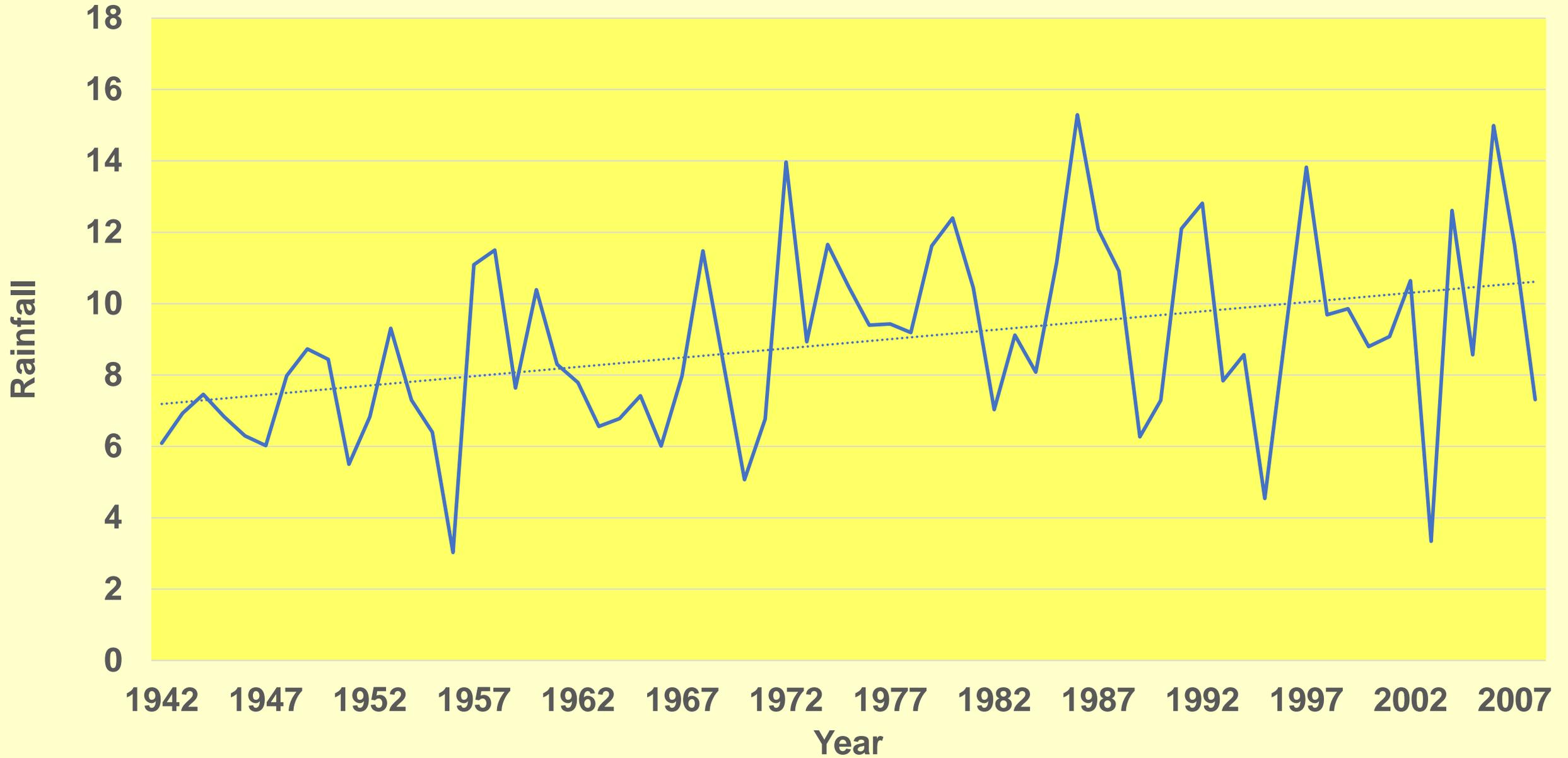
Socorro NM Temperature



Socorro Rainfall since 1893



Socorro Rainfall since 1942



The USCRN stations in New Mexico

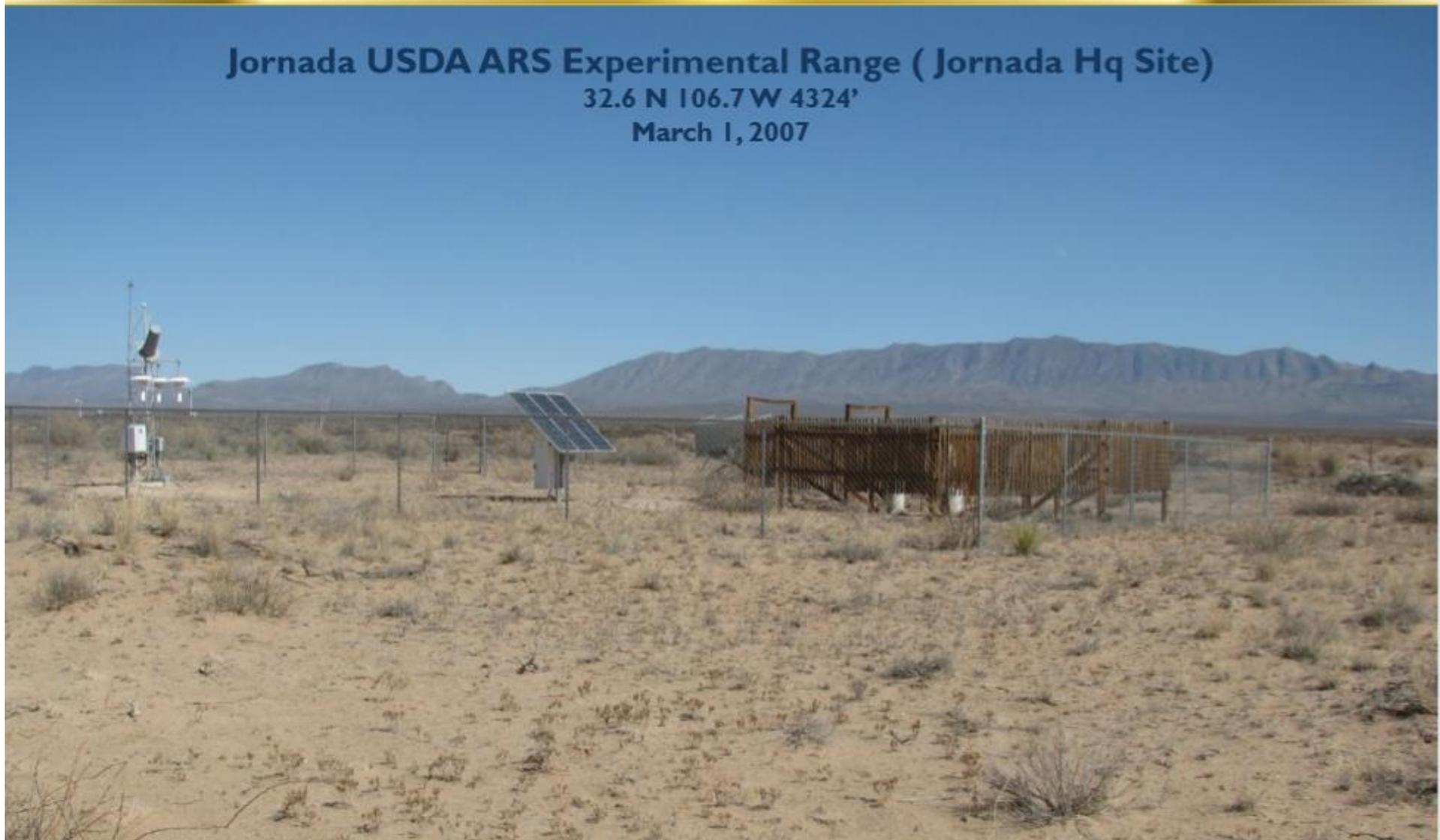
US Climate Reference Network

NM Las Cruces 20 N

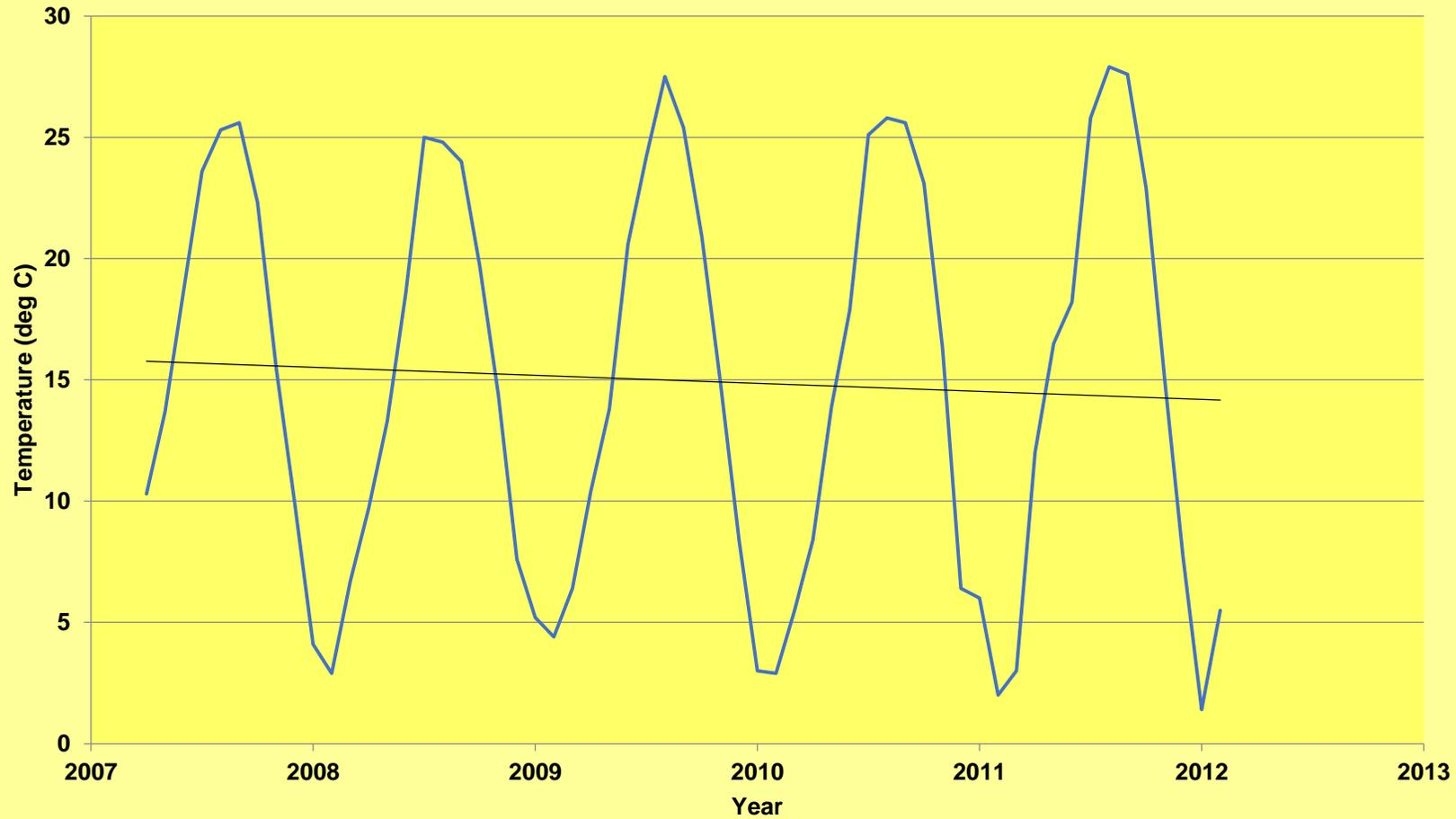
Jornada USDA ARS Experimental Range (Jornada Hq Site)

32.6 N 106.7 W 4324'

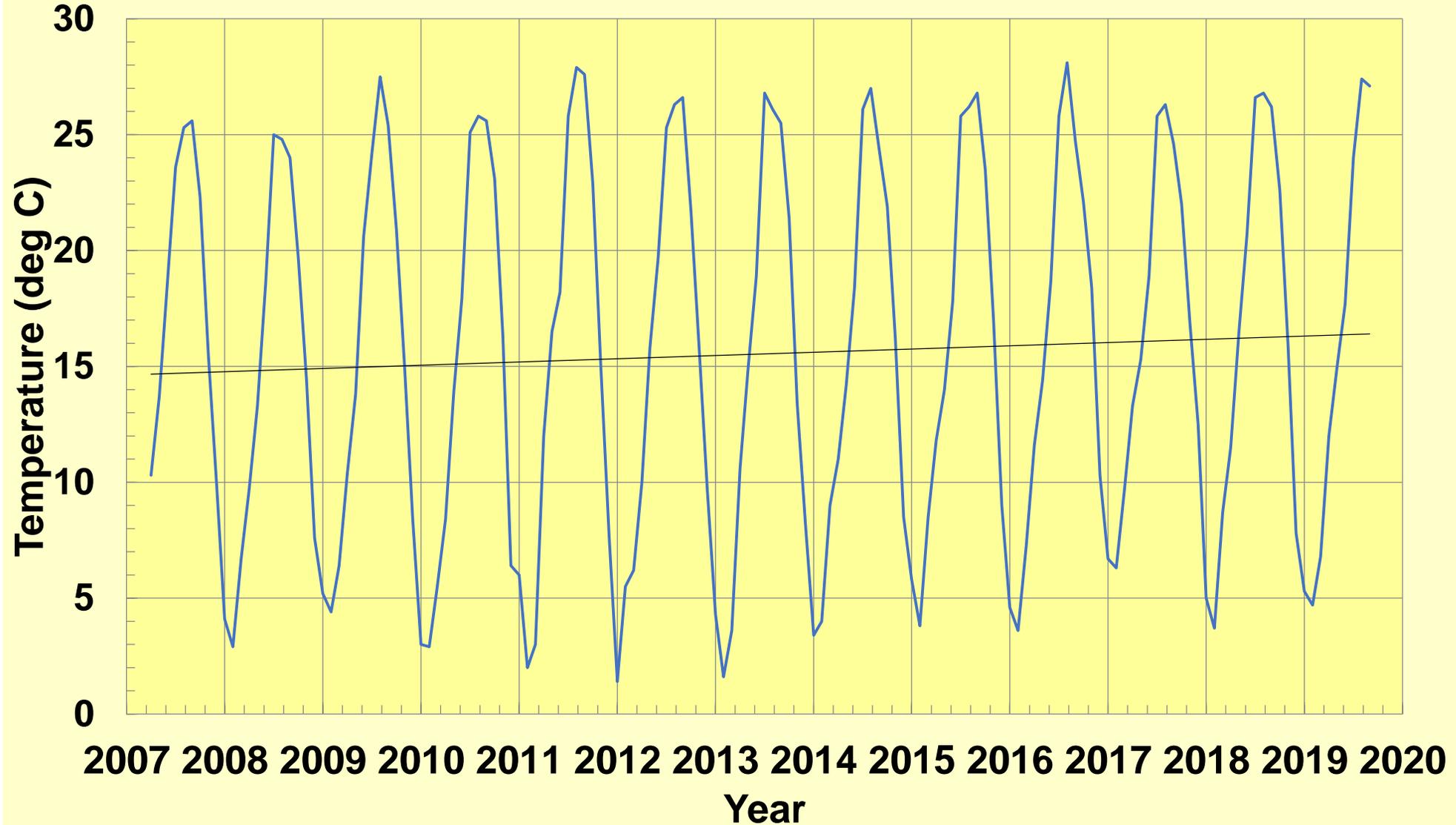
March 1, 2007



USCRN Temperatures. Jornada Experimental Range, NM 5 years



USCRN Monthly Mean Temperatures, Jornada Experimental Range, NM, 13 Years



Socorro_20N NM

US Climate Reference Network

NM Socorro 20 N

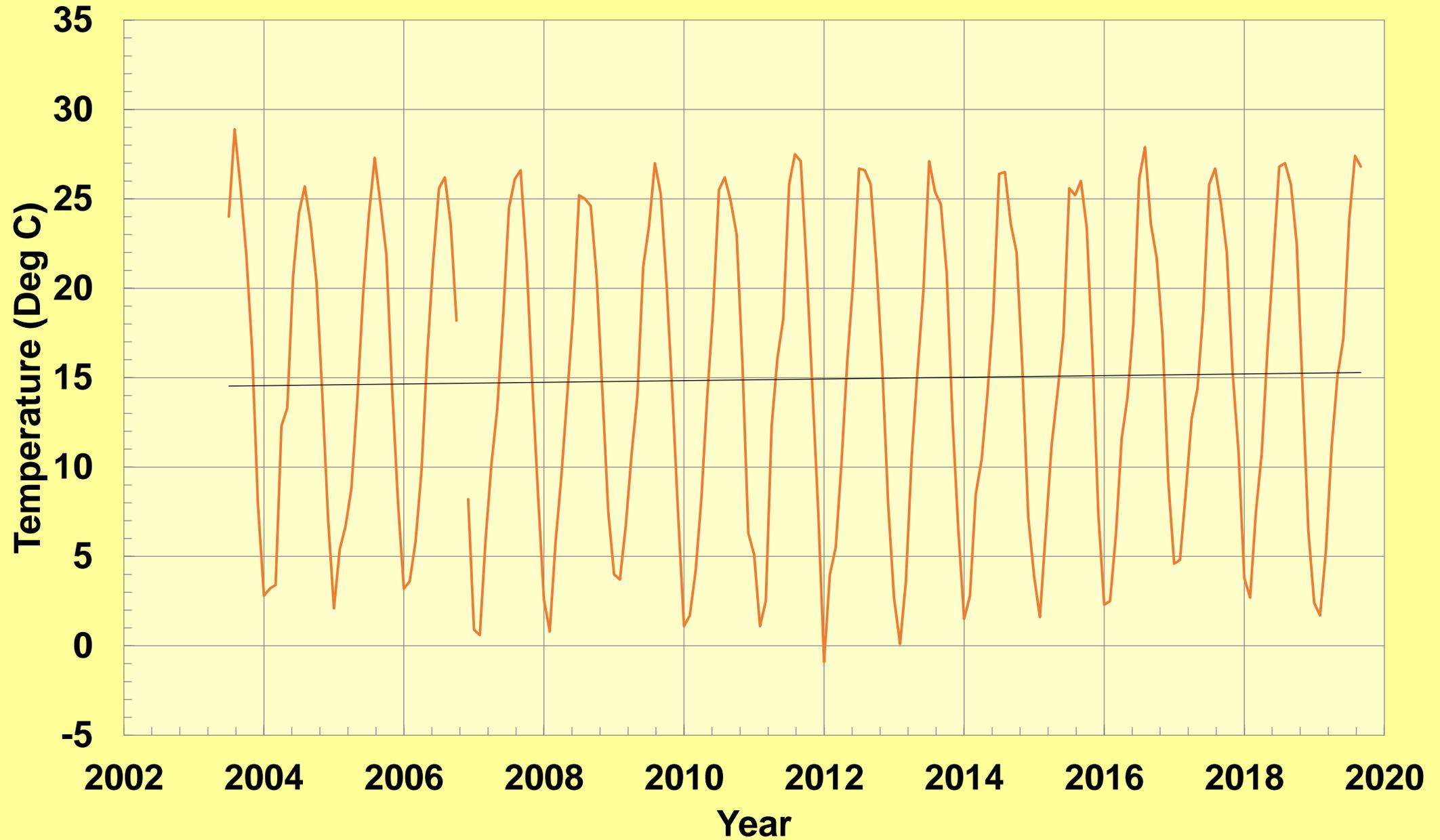
Sevilleta National Wildlife Refuge (LTER Site)

34.4 N 106.9 W 4842'

May 25, 2003



USCRN Monthly Mean Temperatures, Socorro_20N, NM

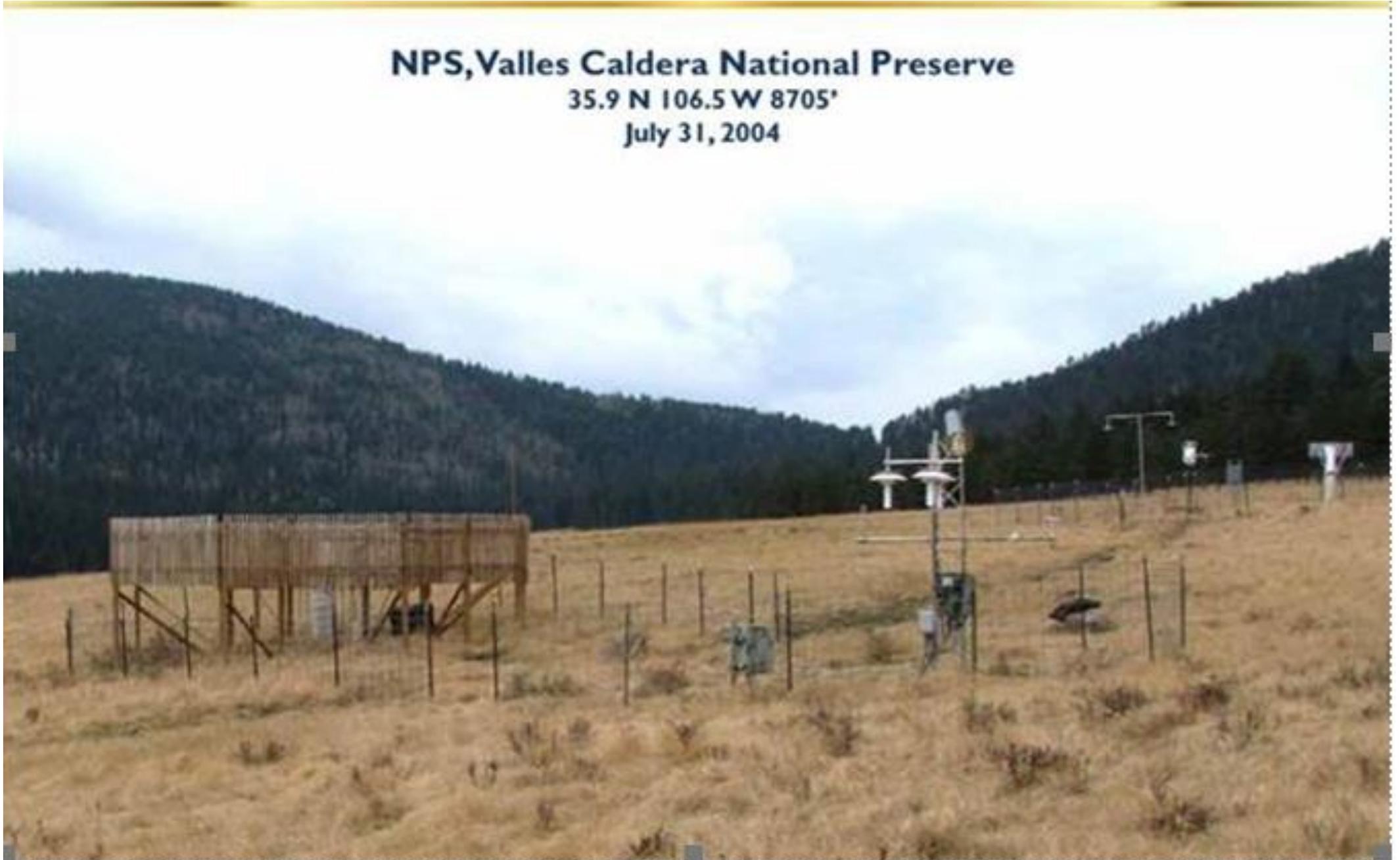


Los Alamos_13W, NM

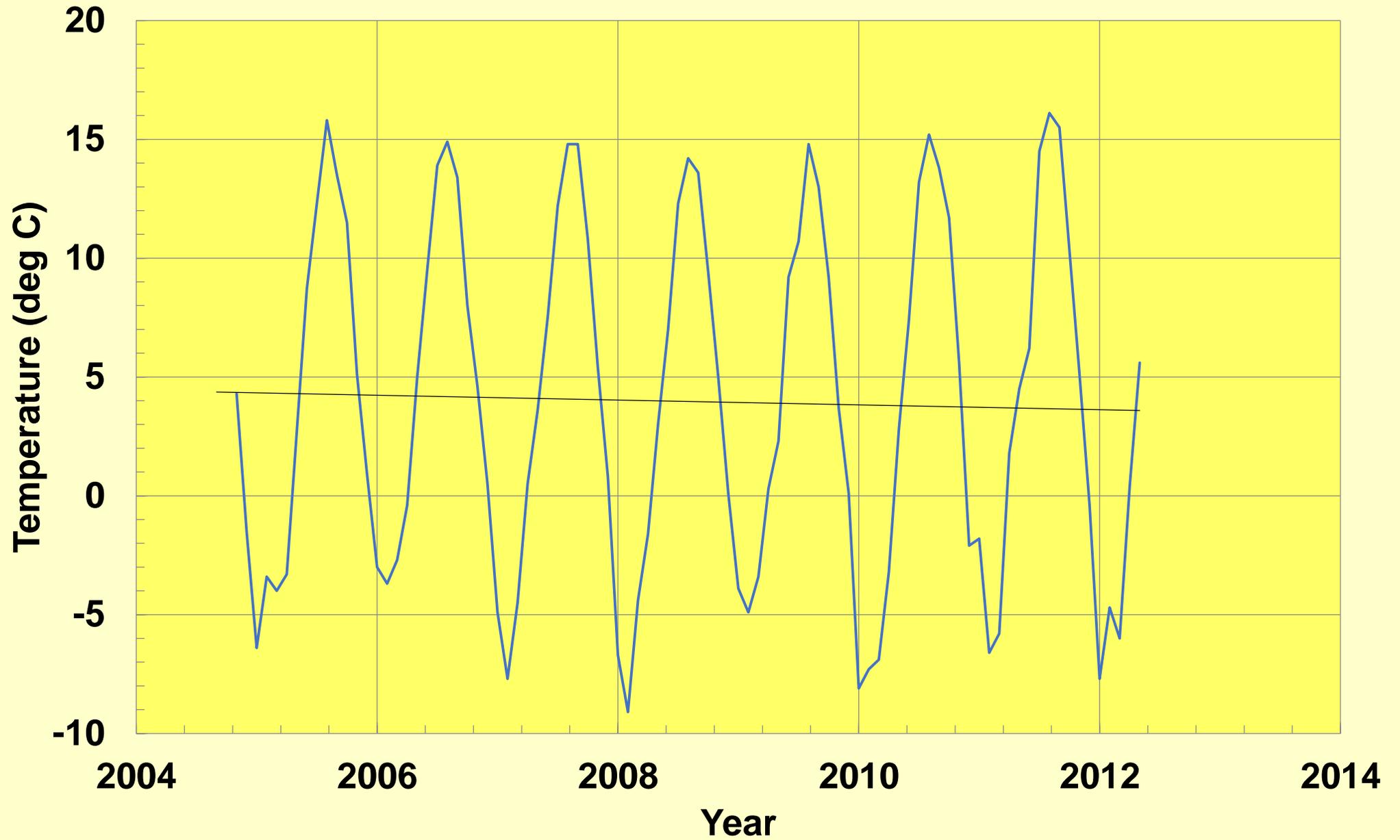
NPS, Valles Caldera National Preserve

35.9 N 106.5 W 8705'

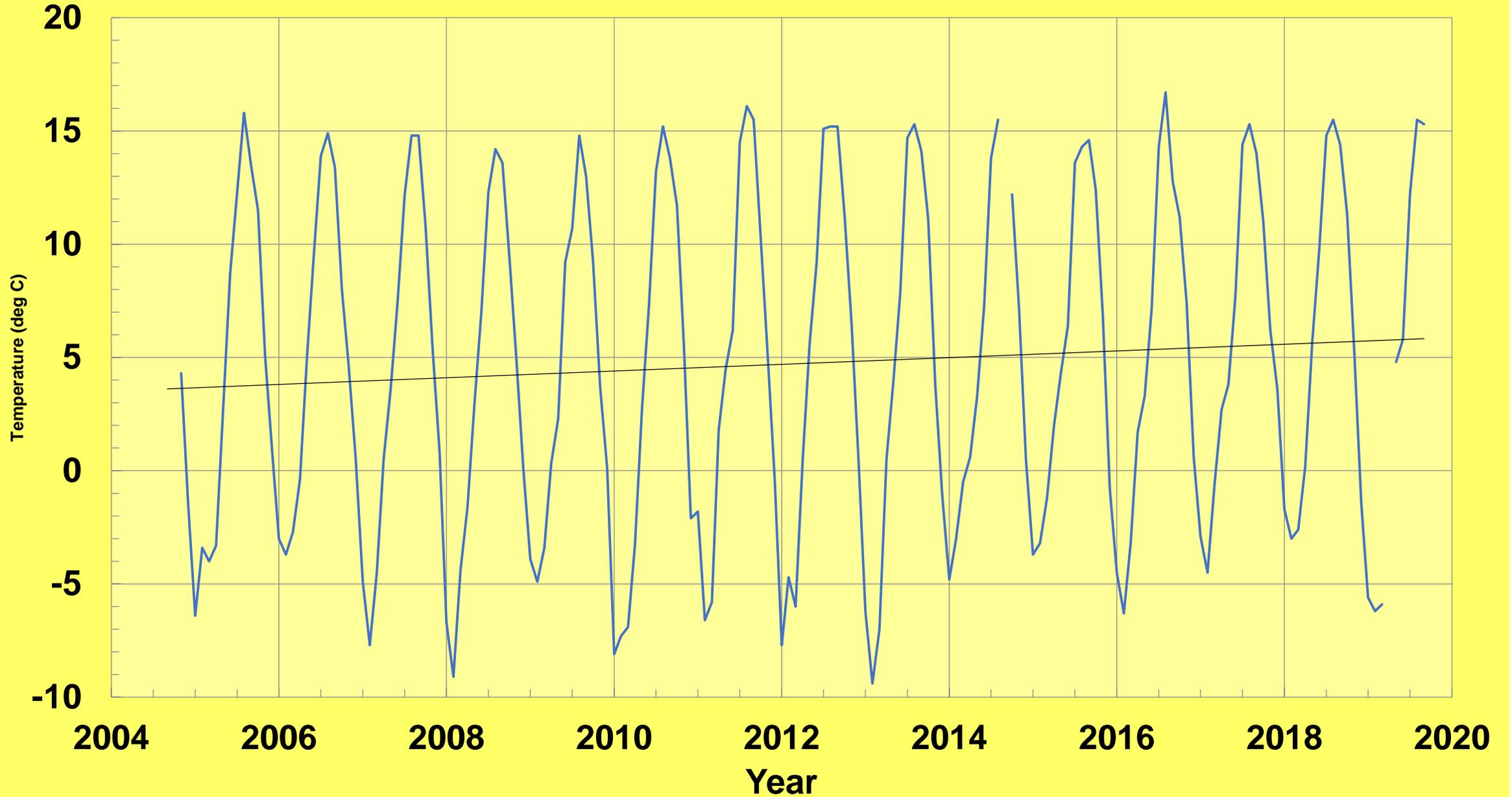
July 31, 2004



USCRN Monthly Mean Temperatures Los Alamos_13W, NM (6 Years)

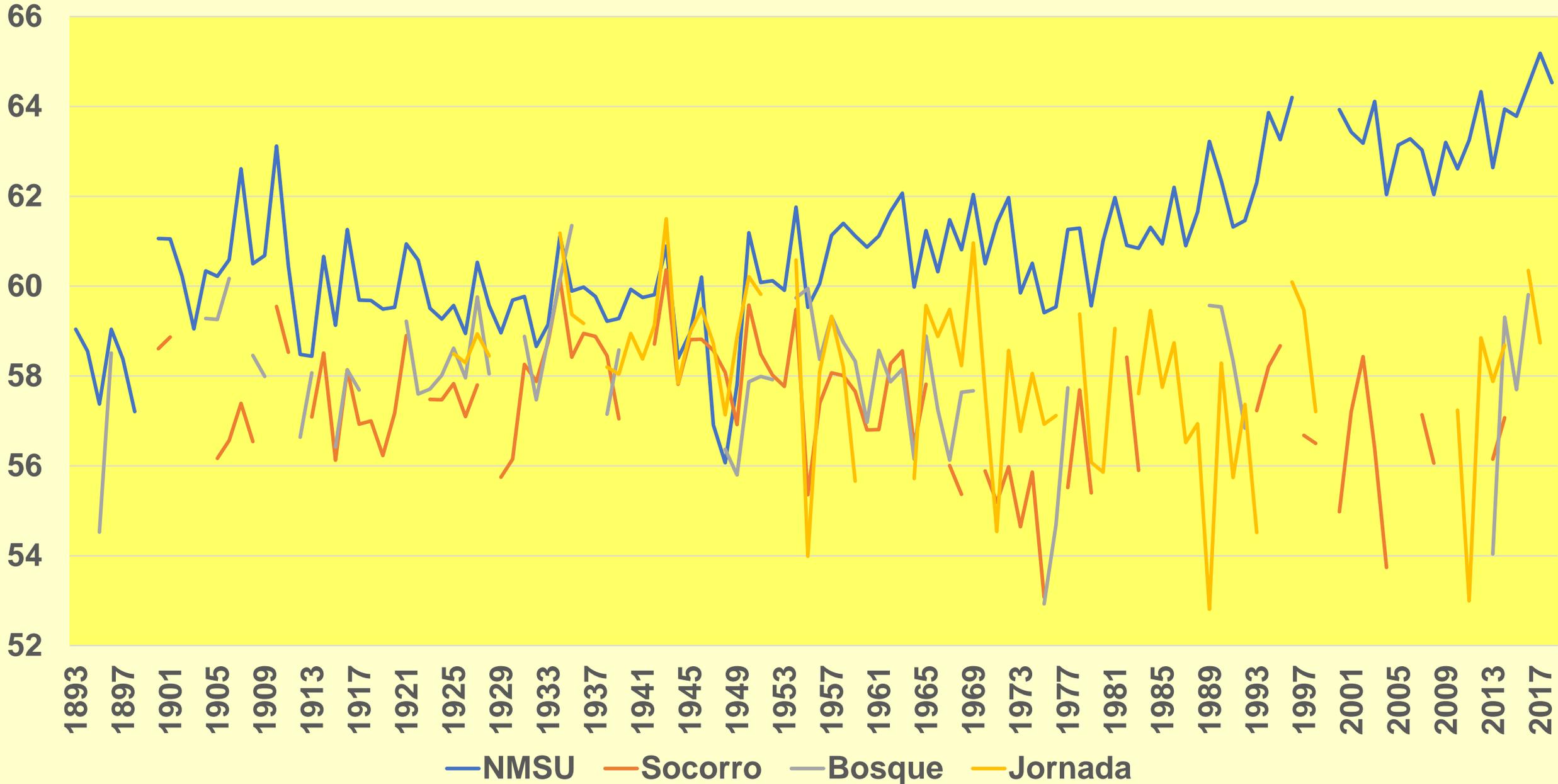


USCRN Monthly Mean Temperatures Los Alamos_13W, NM



Preliminary comparisons

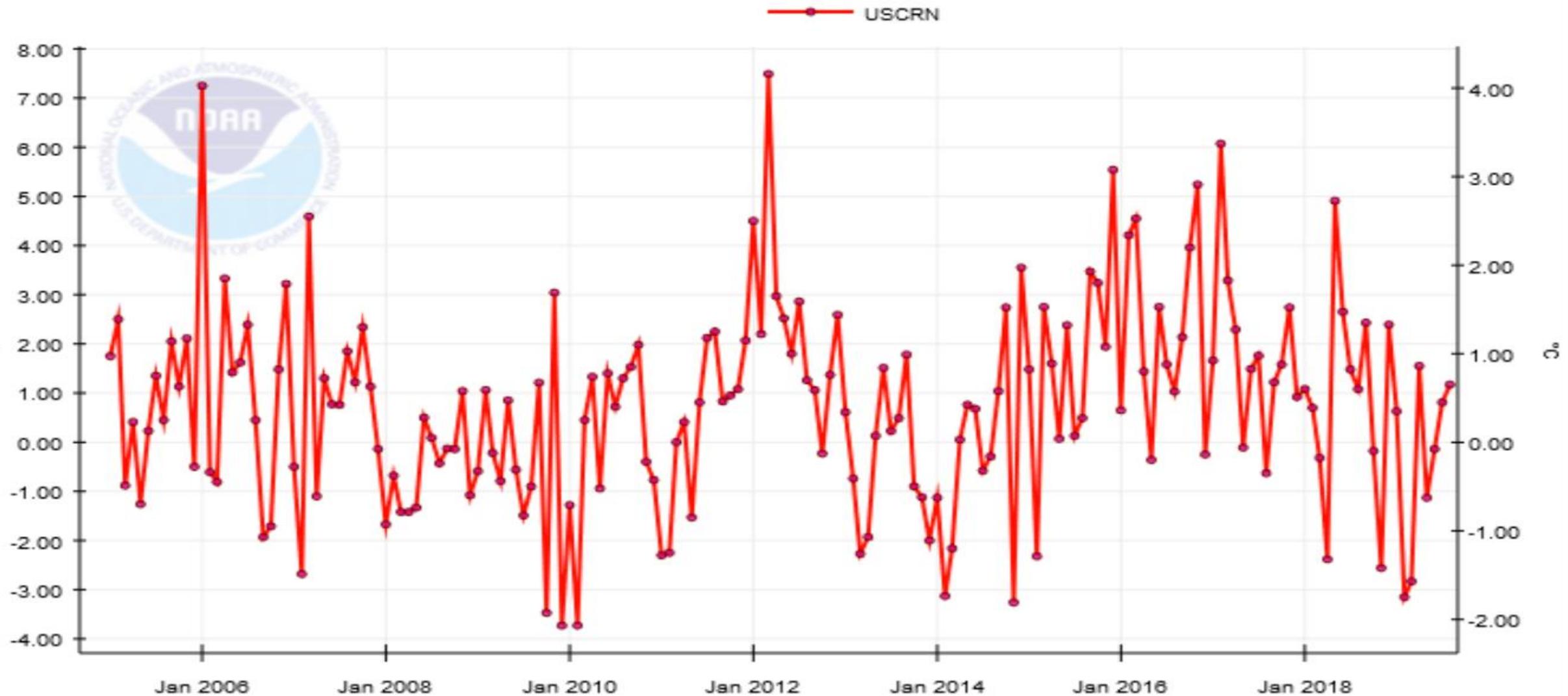
Temperature Comparison F



USCRN Temperature Data does not show much change from 2005 to August 2019

https://www.ncdc.noaa.gov/temp-and-precip/national-temperature-index/time-series?datasets%5B%5D=uscrn¶meter=anom-tavg&time_scale=p12&begyear=2005&endyear=2019&month=8

Contiguous U.S. Average Temperature Anomaly



Conclusions:

The story is based on faulty temperature data from the State University station

The State University station is near the center of Las Cruces UHI.

The rise of the State University Station temperature mimics the rise in Las Cruces population

Worse, the site is bare ground and not

“Ground covered with natural and low vegetation (< 10 cm) representative of the region”

Temperatures for the region are falling Rainfall for the region is rising.

It would be difficult for the writer, Leah Romero to get more things wrong in this story

