

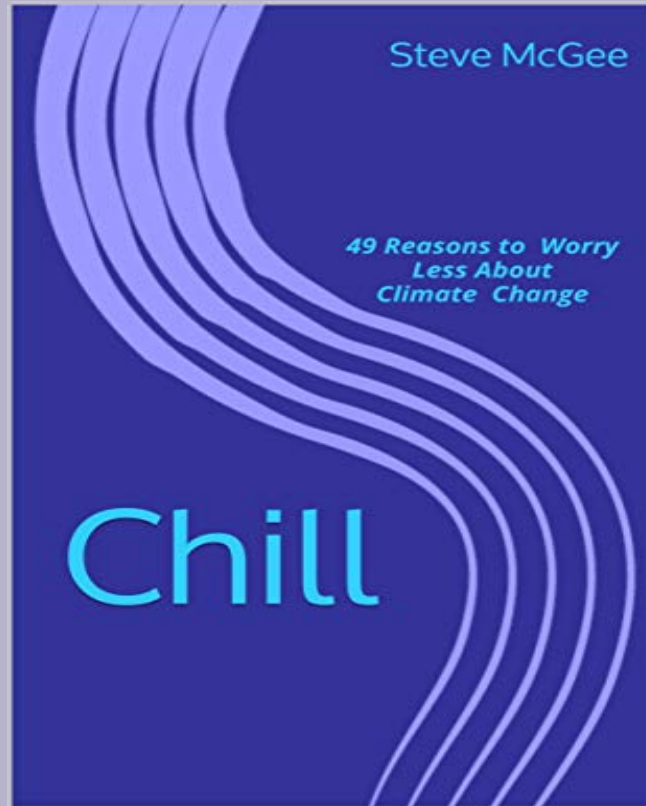
# ***Lessons, Updates & Observations***

Steve McGee  
July 17, 2021

# ***Lessons, Updates & Observations***

- ***Lessons*** learned from authoring experience
- ***Updates*** to worry less about climate change
- ***Observations*** of 2021 Pacific NW heatwave

# Lessons Learned From Authoring:



# Authoring Lessons Learned –

- Worthy experience – I would do it again
- Provided a focal point to ideas
- Creatively more difficult than expected
- Proposals, reports and technical papers collaborative
- More time consuming than expected
- Particularly references, editing, reading & re-reading

# Lessons – Empowering Tools

- Self publishing easier than ever
- I Chose to use Amazon, though many options are available ( e.g. Barnes and Noble )
- Printed copies are ‘printed on demand’
- Ebook is easy to maintain and update

# Lessons - Formats

- ***Formats for print and ebook are different!***
- Wrote ebook in HTML format
- Converted HTML to '*.epub*' format for ebook using '*Calibre*' ebook-convert in Linux
- Pasted HTML into LibreOffice and edited to create PDF
- Updates requires editing both documents – not ideal
- Windows or Mac based tools may be easier to use

# Lessons - Formats

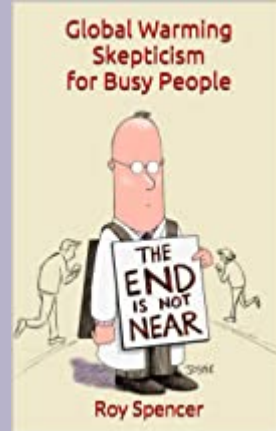
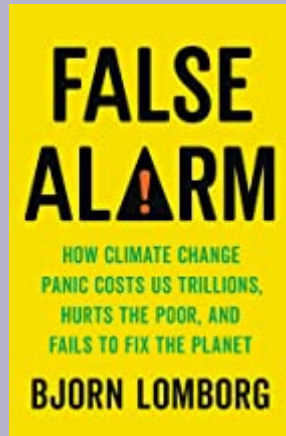
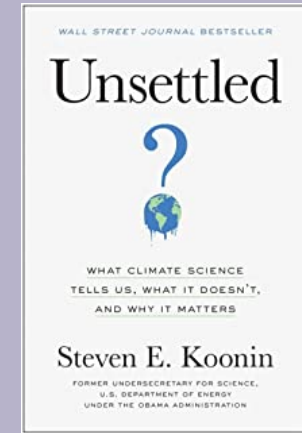
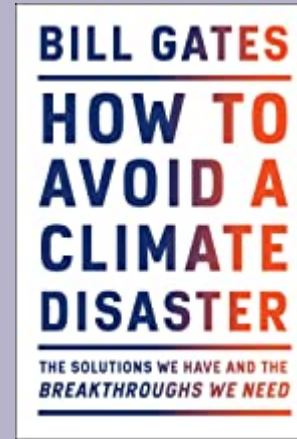
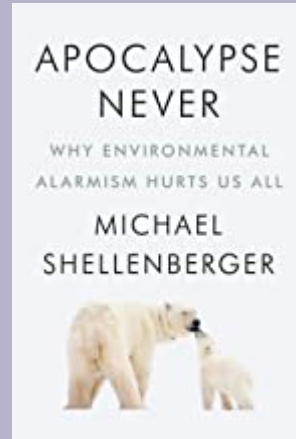
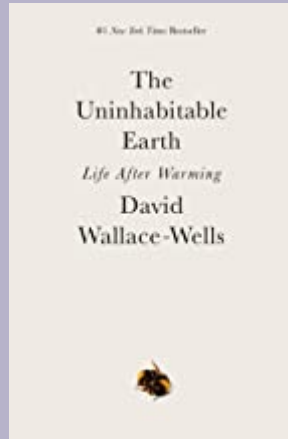
- Consider whether to write ebook, print, or both
- Print is old school, but tangible and gratifying to hold in one's hands
- Ebook is fluid, is less expensive to customers, but multiple platforms mean that the resulting document will format differently on different screens

# Lessons - Graphics

- Graphics add a lot of size to digital documents
- Amazon charges above a certain file size
- Color graphics are expensive to print
- Amazon pricing must exceed the printing expense



# Lessons – Climate Change Specific



# Lessons – Climate Change Specific

- Pat Michaels' Meltdown Editor: “**no equations**”
- What about charts & graphs?
- Steve Koonin's Unsettled contains numerous charts & graphs – to the exclusion of would be readers?
- Targeting a climate change reader is difficult
- Wide range of technical backgrounds
- Appealing to one reader may bore or exclude another

# Lessons – Preconceived POV

- The book includes sections on bias
- All books would seem to imply a thesis which may be vulnerable to confirmation bias
- I've taken some inspiration from the following:

# Lessons – Preconceived POV

- *"About thirty years ago there was much talk that geologists ought only to observe and not theorise; and I well remember some one saying that at this rate a man might as well go into a gravel-pit and count the pebbles and describe the colours. How odd it is that anyone should not see that **all observation must be for or against some view if it is to be of any service!**"*  
- Charles Darwin letter to a friend

# Lessons – Sales Expectations

- I had read that **most self published books sell fewer than one hundred copies**
- I knew that climate change books further meant limited sales
- Still short of one hundred copies sold

# Lessons – Marketing

- I've not done an energetic job of promotion
- Authors advised to use **social media, public talks, video productions, interviews**
- Amazon advertising seems effective
- Cost of ads exceeds the sales revenue

# Advice (FWIW)

- Consider your topic and the typical reader you wish to reach
- Read books on similar topics
- Visit Amazon and Barnes & Noble self publishing pages
- Schedule a writing time for everyday
- Decide whether to write for print, ebook, or both
- Someone to be 'editor' is helpful, though not critical
- Read about copyrights, attribution, 'fair use', plagiarism and slander
- Data and content produced by the US government are generally safe to copy
- Submit drafts to others for comments and corrections
- Once published, be prepared to promote

# Some Useful Links

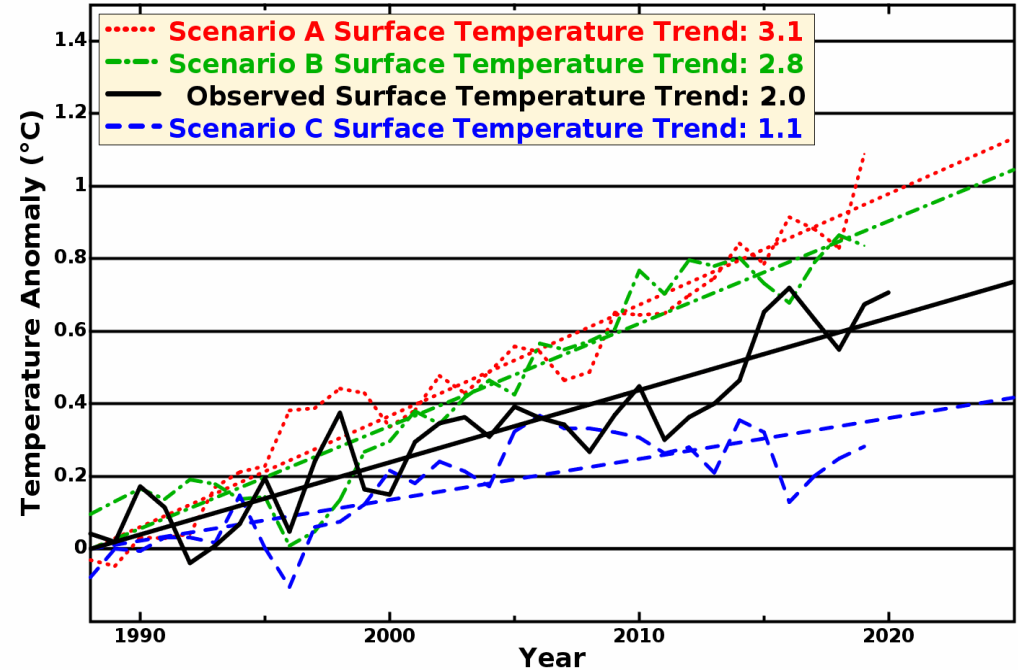
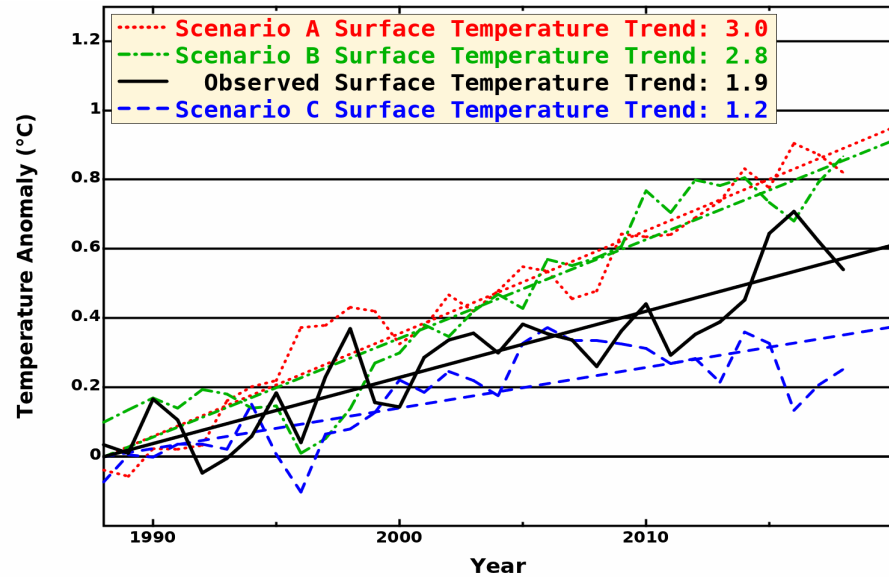
- [https://kdp.amazon.com/en\\_US/](https://kdp.amazon.com/en_US/)
- <https://press.barnesandnoble.com/>
- <https://self-publishingschool.com/how-to-publish-a-book/>
- [chicagomanualofstyle.org](http://chicagomanualofstyle.org)
- <https://www.iuniverse.com/en/resources/publishing/avoiding-legal-trouble-a-checklist-for-authors>
- <https://www.janefriedman.com/5-things-nonfiction-authors-can-get-sued/>
- <https://fairuse.stanford.edu/overview/introduction/getting-permission/>
- <https://lifehacker.com/the-best-ways-to-be-sure-youre-legally-using-online-photo-5992419>



# Updates of Data Cited in *Chill*

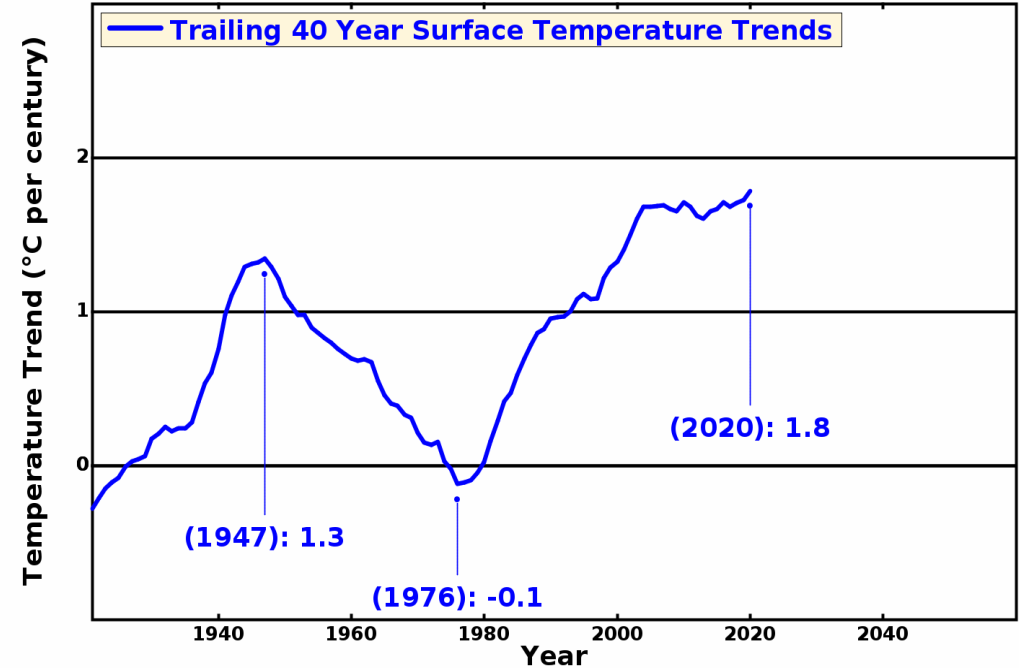
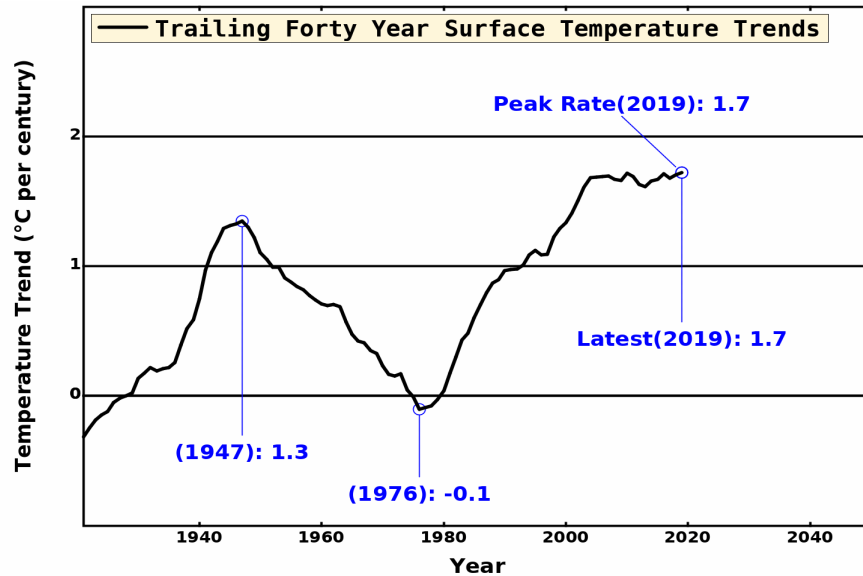
- Some *Reasons to Worry Less* are static
- Others are continually observed
- Book updates will follow with latest data
- Including...

# Warming Less Than Expected



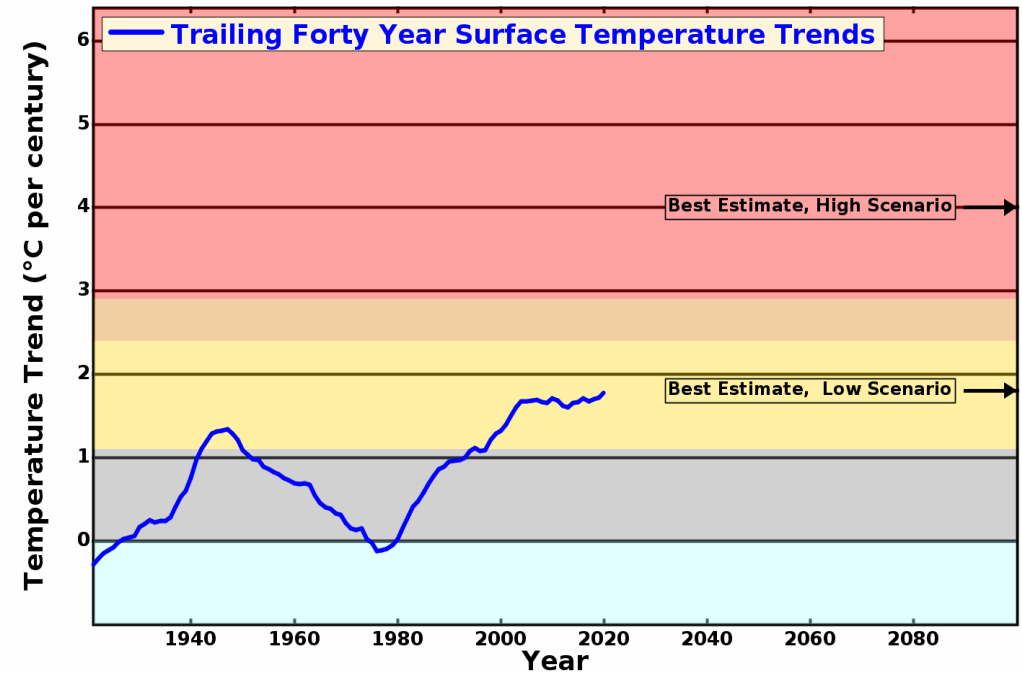
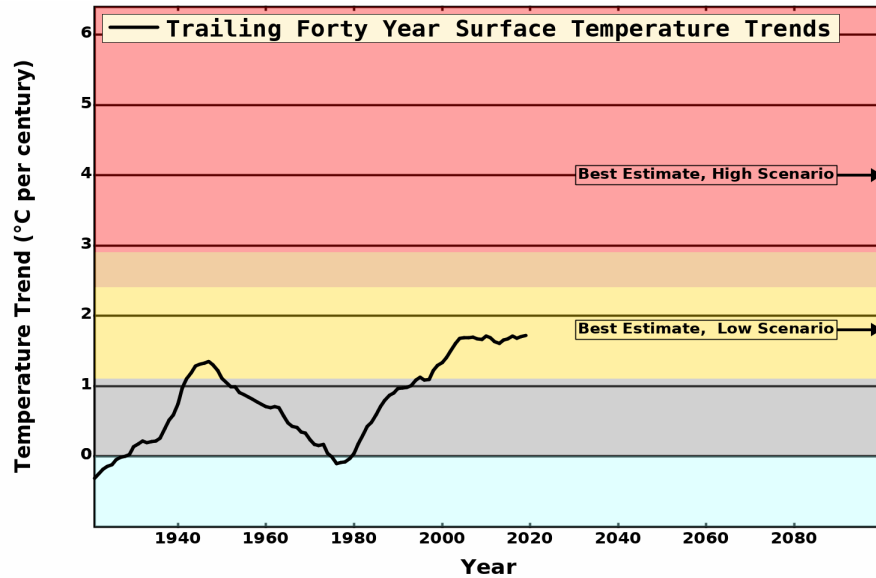
NASA GISS scenarios from 1988 testimony, NOAA surface temperature observations

# Warming Not Accelerating?



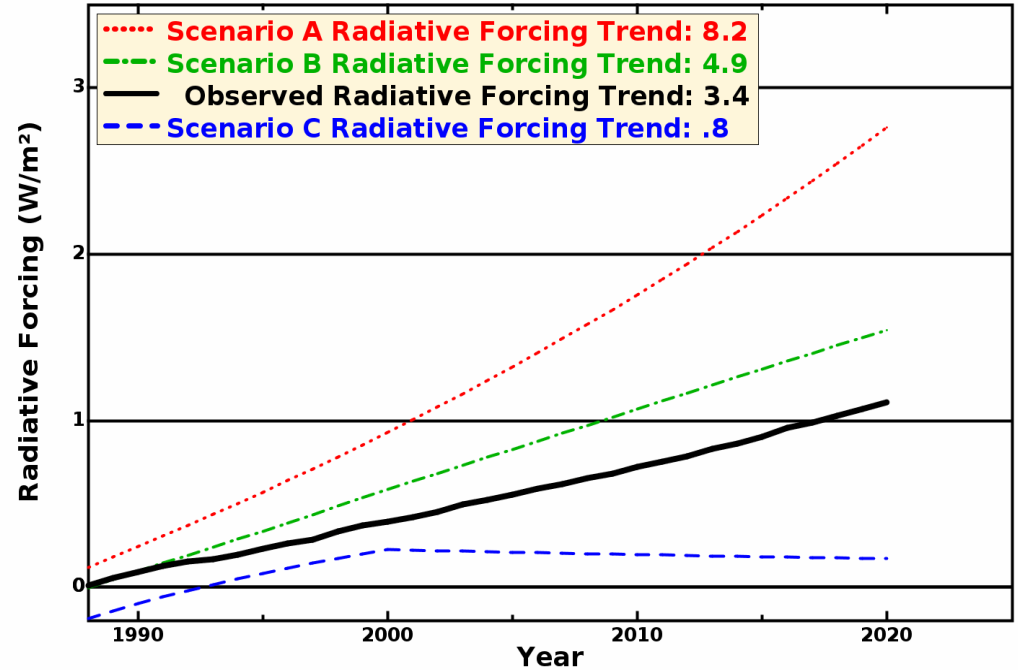
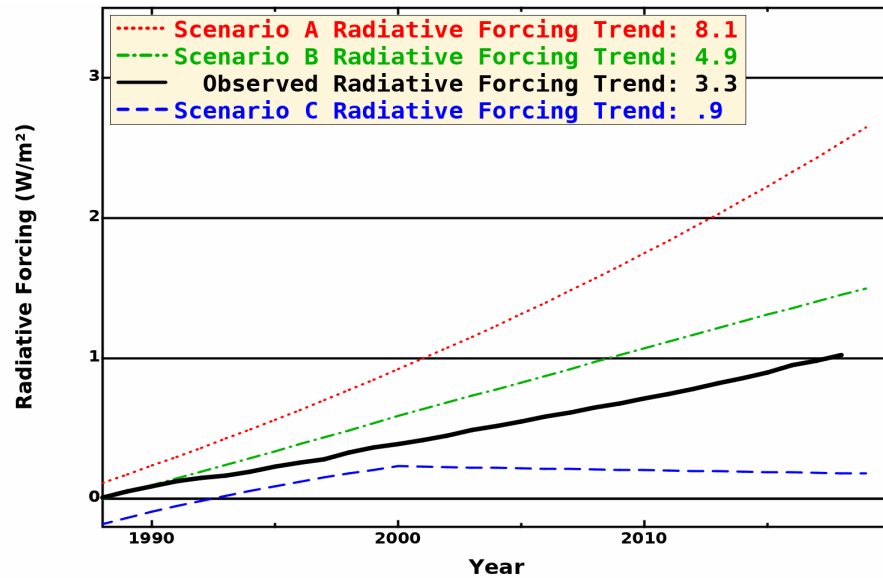
NOAA surface temperature observations

# Warming At A Low Scenario



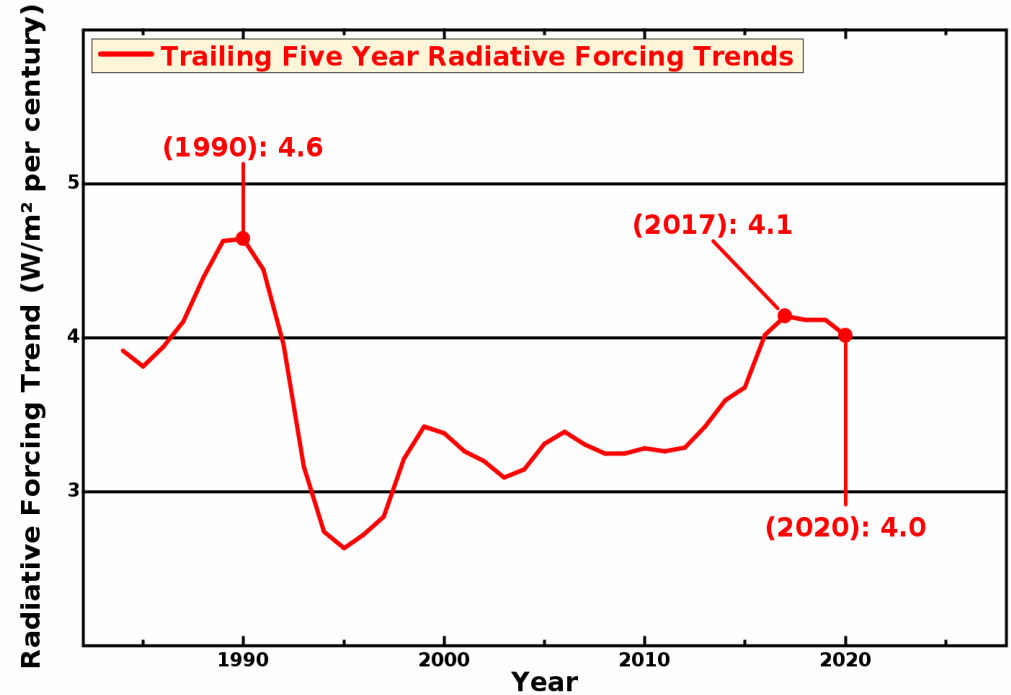
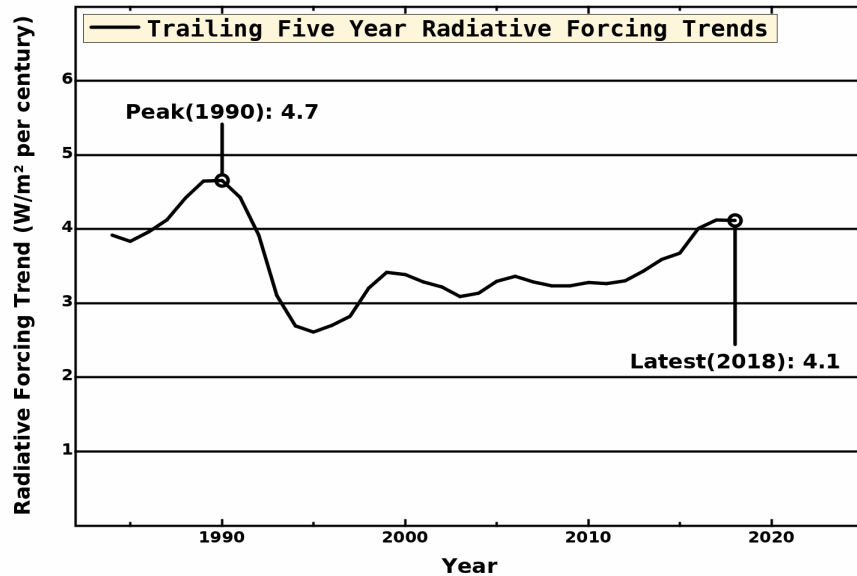
NOAA surface temperature observations, IPCC AR4 scenario best estimates

# Forcing Rates Less Than Expected



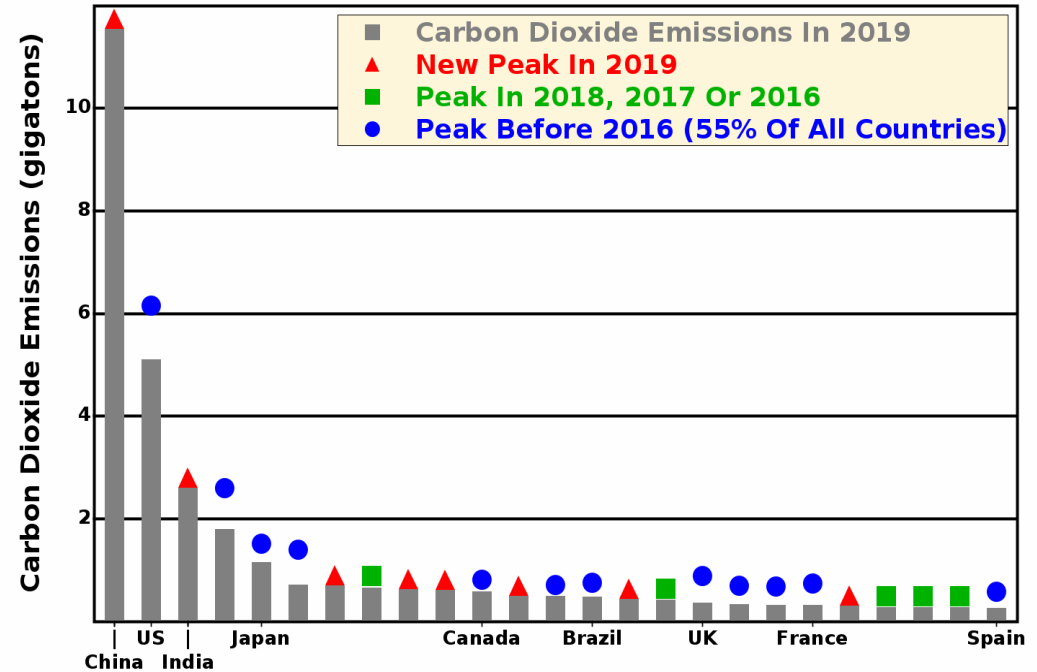
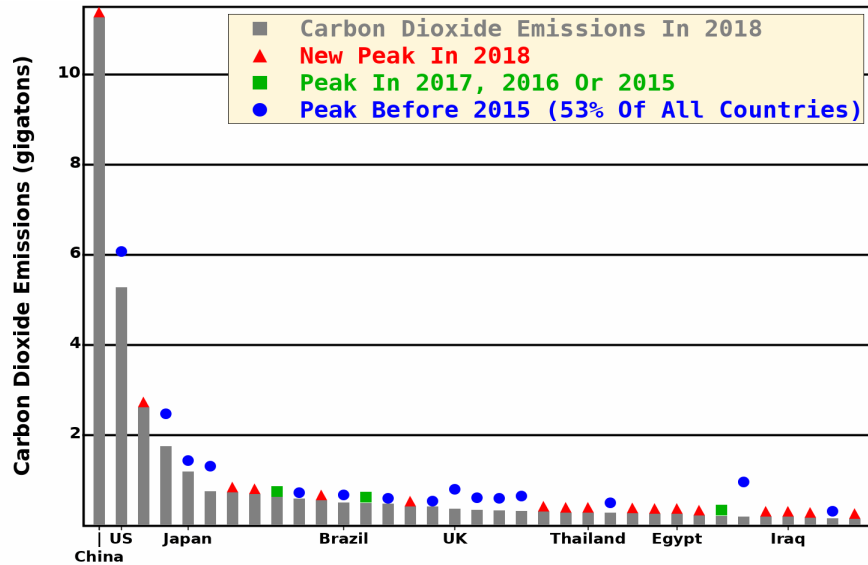
NASA GISS radiative forcing scenarios from 1988 testimony

# Radiative Forcing Rates Decreasing



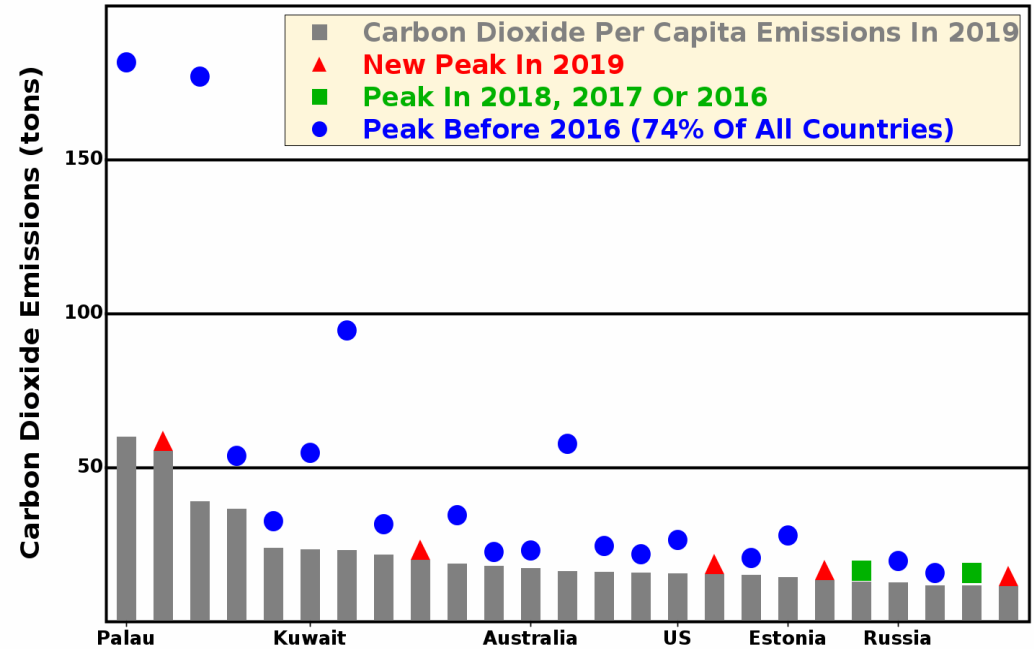
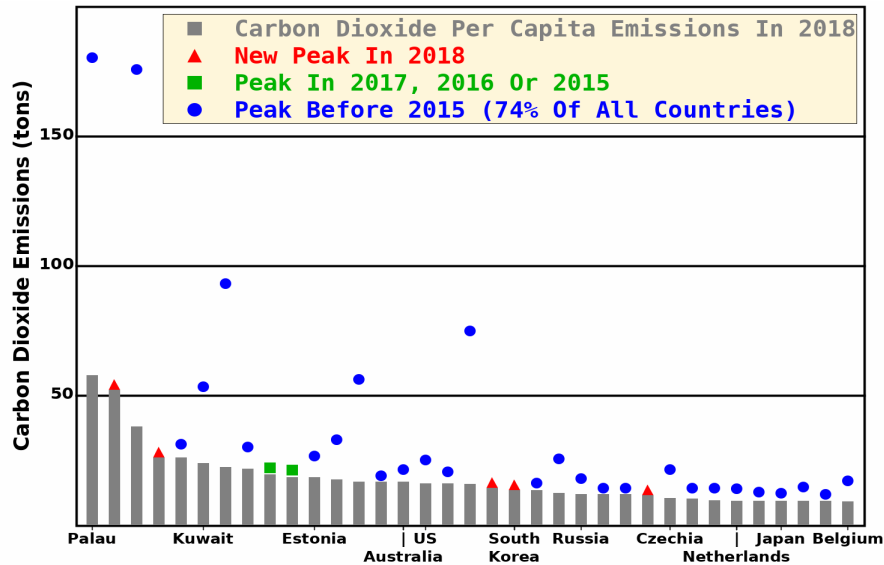
NOAA Accumulated Greenhouse Gas Index (AGGI)

# Countries Past Peak CO2



CO2 emissions from the Emissions Database for Global Atmospheric Research (EDGAR), Publications Office of the European Union

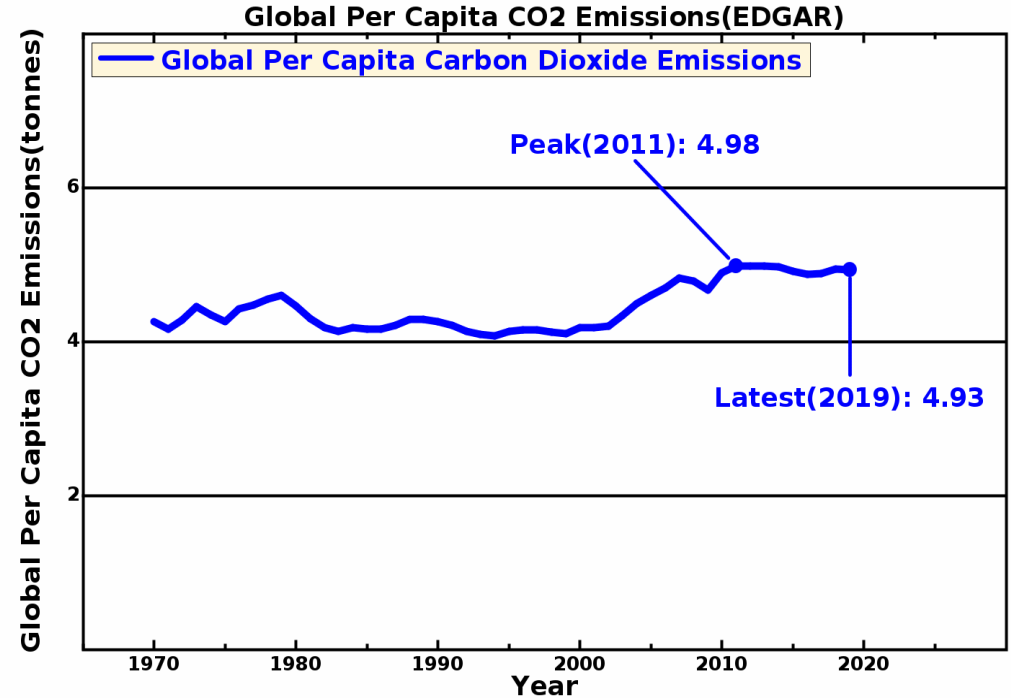
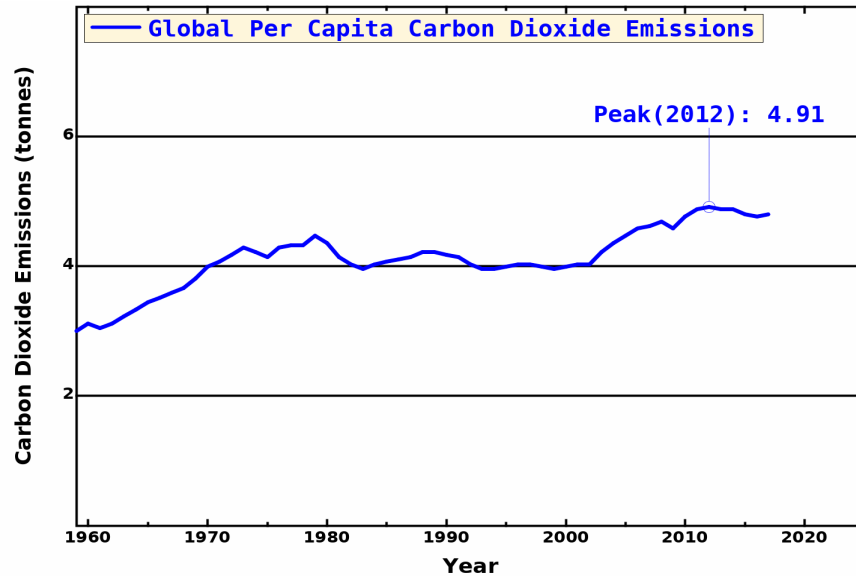
# Countries Past Peak PerCapita CO2



CO2 per capita emissions from the Emissions Database for Global Atmospheric Research (EDGAR), Publications Office of the European Union

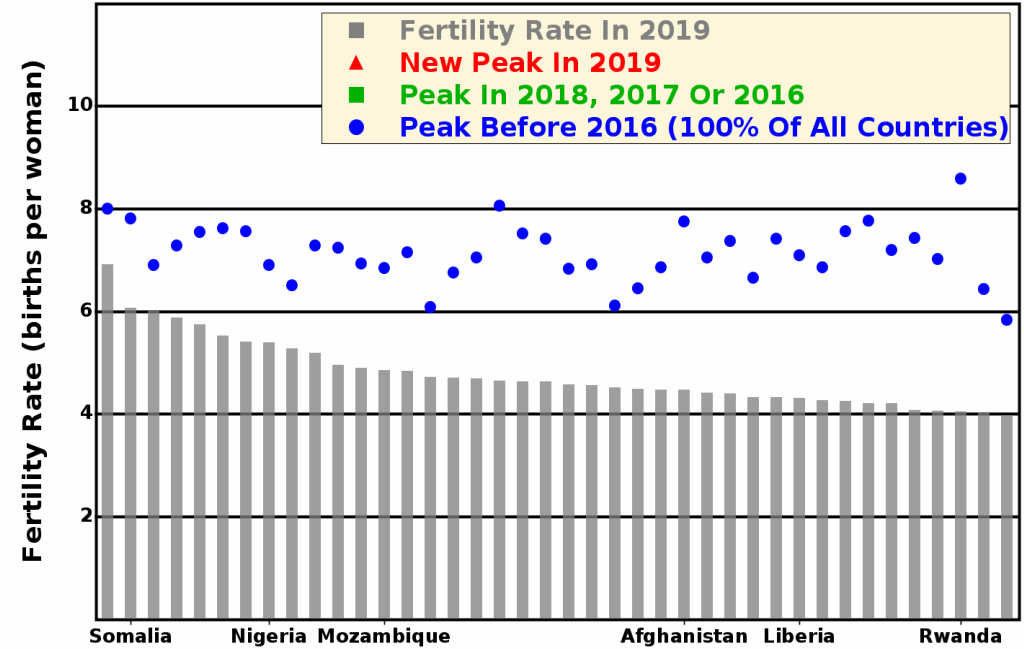
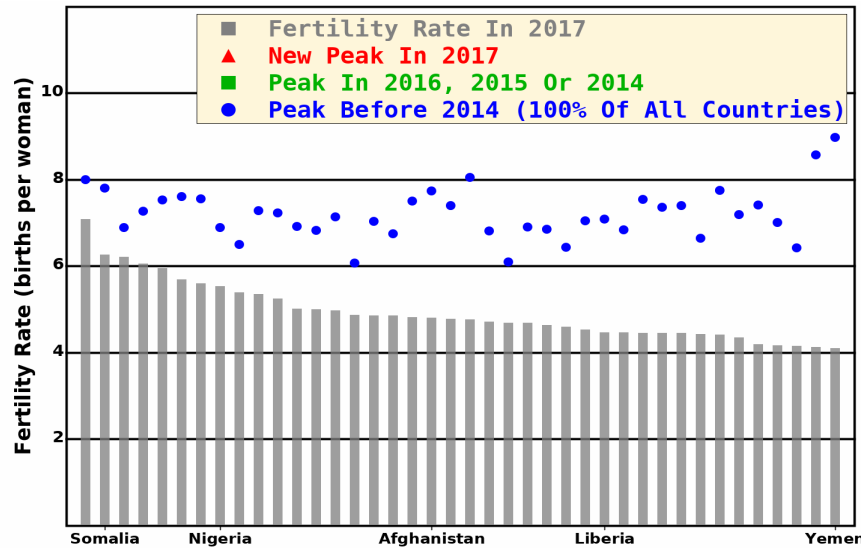


# Global PerCapita CO2 Past Peak



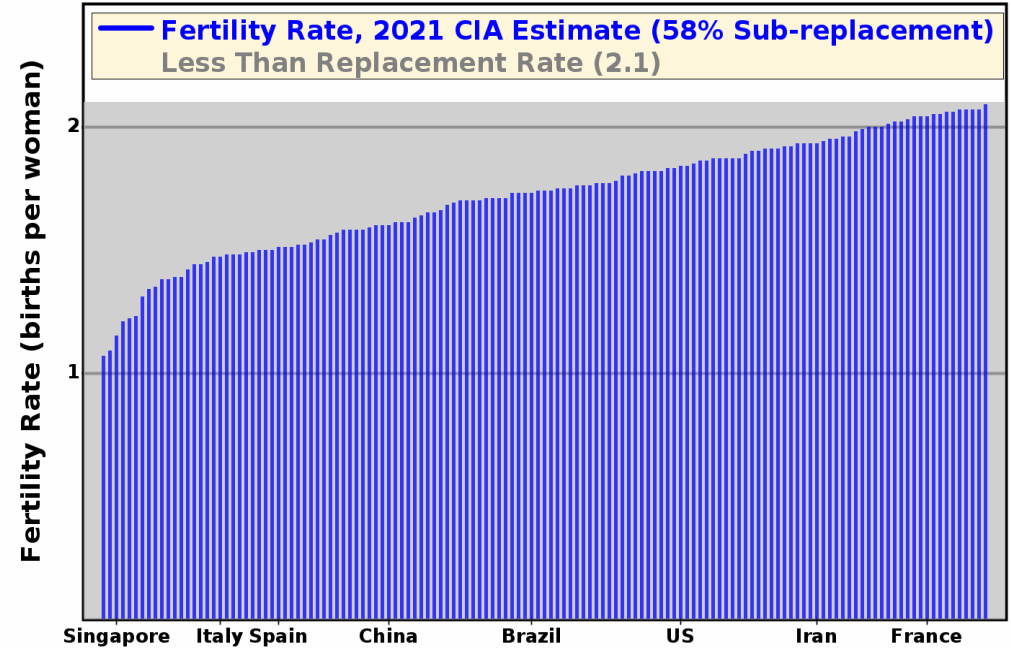
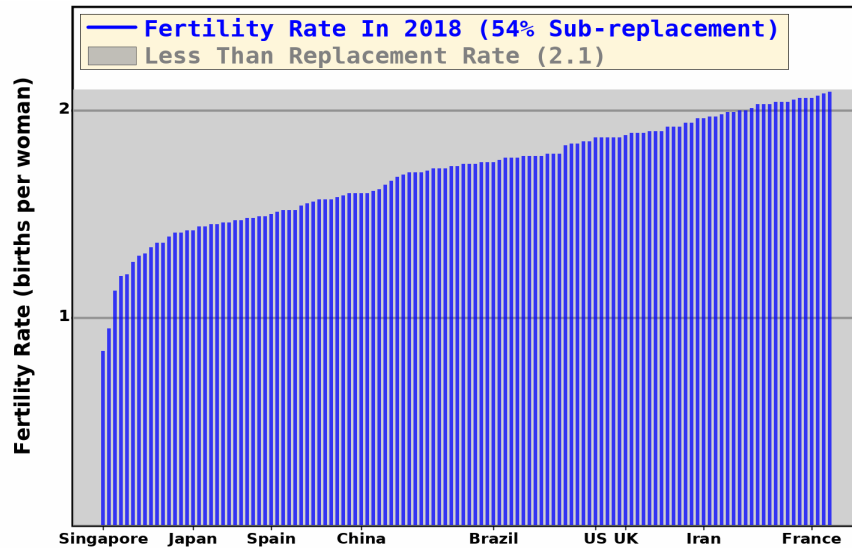
CO2 global per capita emissions from the Emissions Database for Global Atmospheric Research (EDGAR), Publications Office of the European Union

# Fertility Falling In All Countries



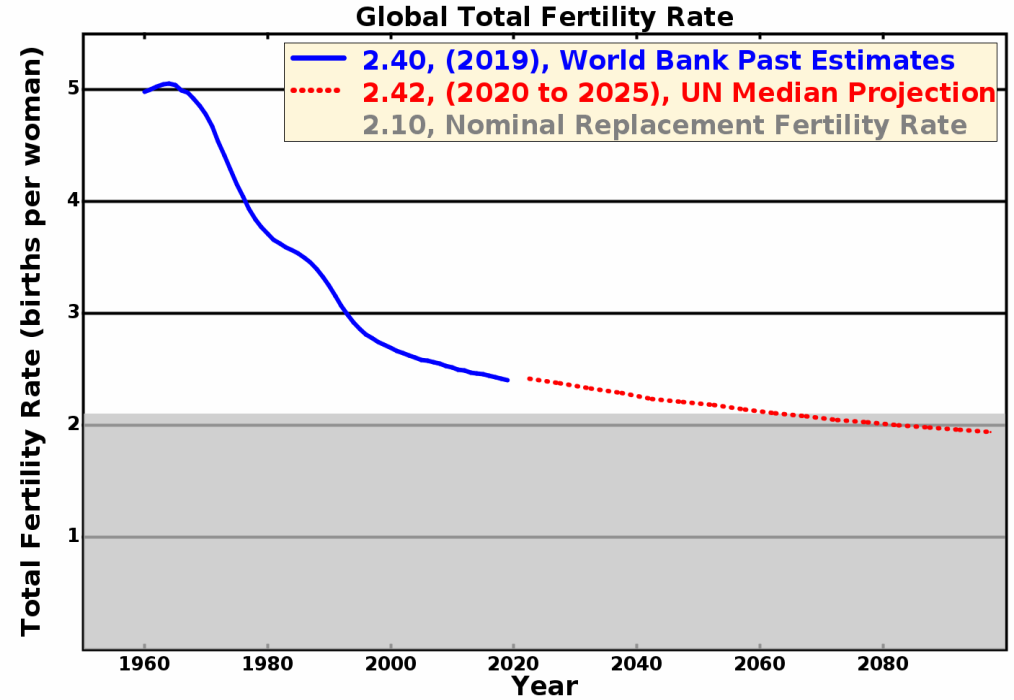
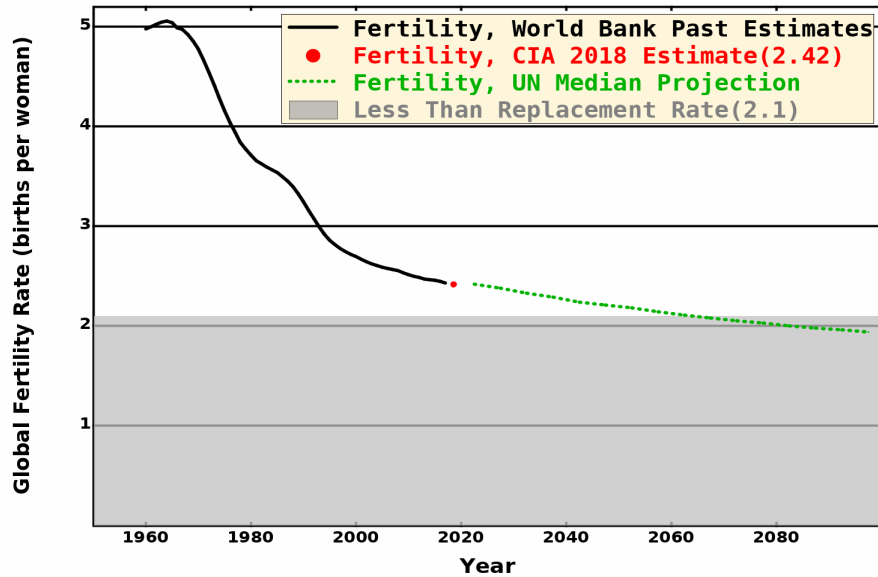
Country total fertility trends from the World Bank.

# Sub-Replacement Fertility Countries



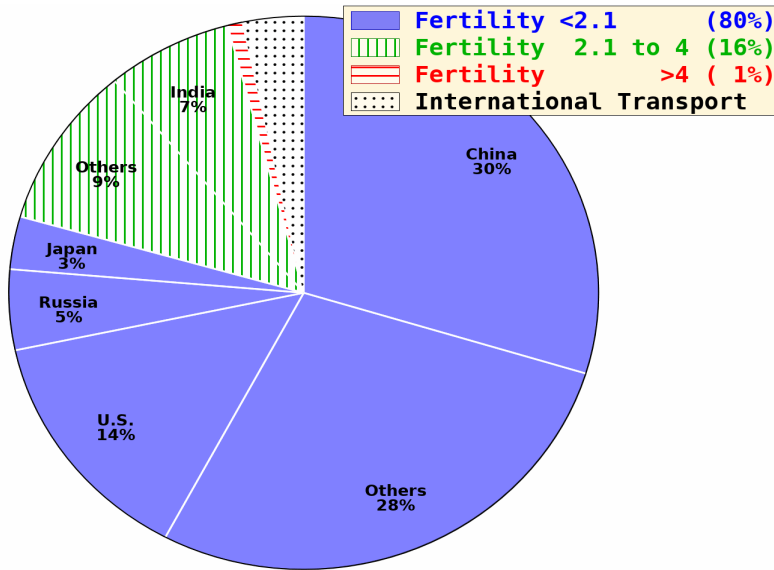
Latest country total fertility rates estimates from the CIA World Factbook

# Global Fertility Less Than Expected

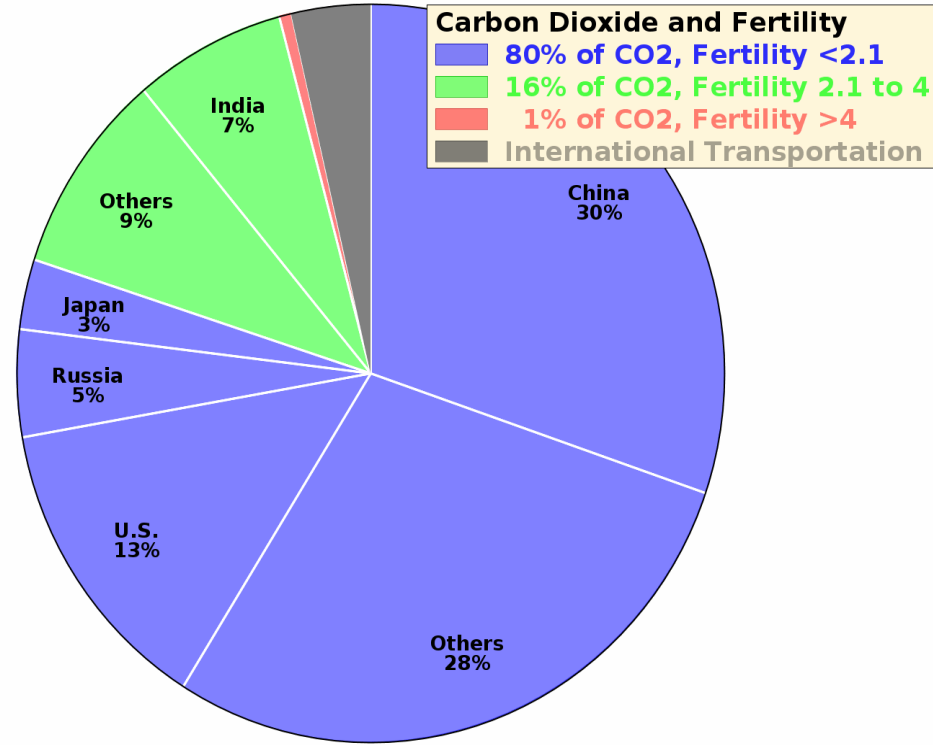


Trend of global total fertility rate from the World Bank and future estimates from the United Nations Department of Economic and Social Affairs, Population Division

# CO2 From Low Fertility Countries

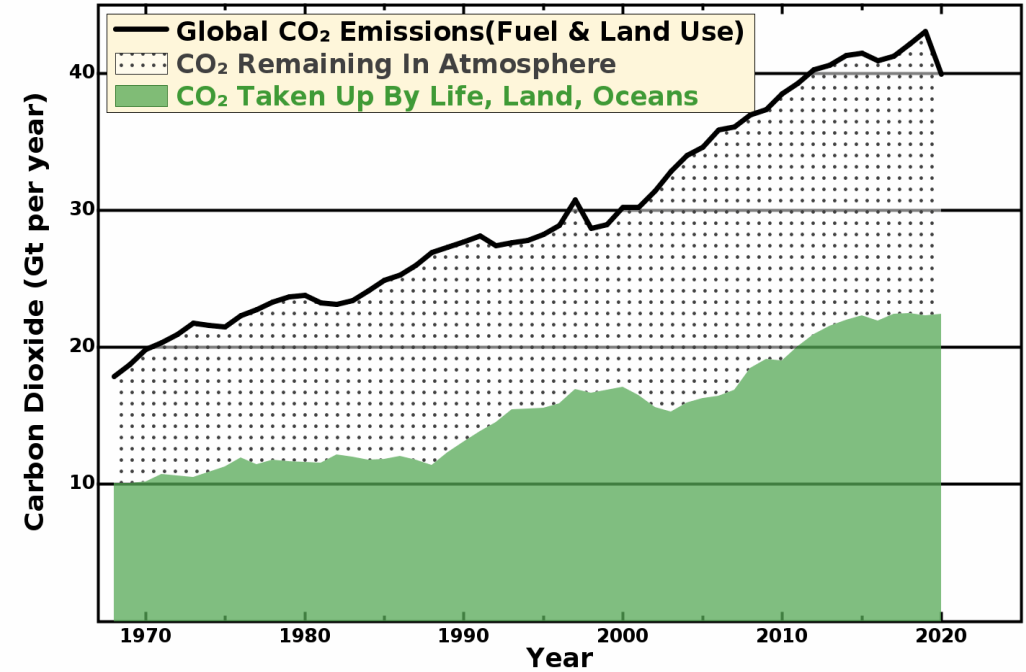
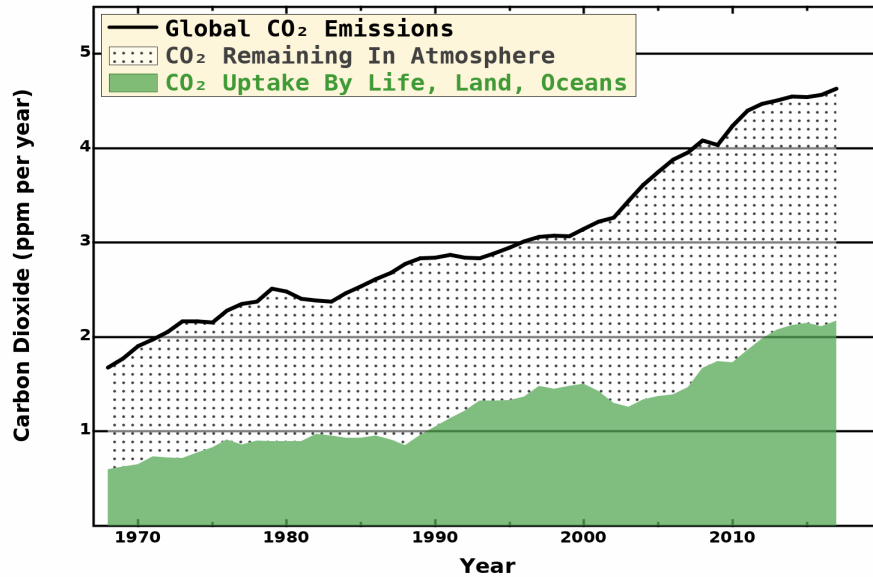


2019 CO2 estimates(CIA), 2019 TFR estimates(CIA)



2019 CO2 estimates(EDGAR), 2021 TFR estimates(CIA)

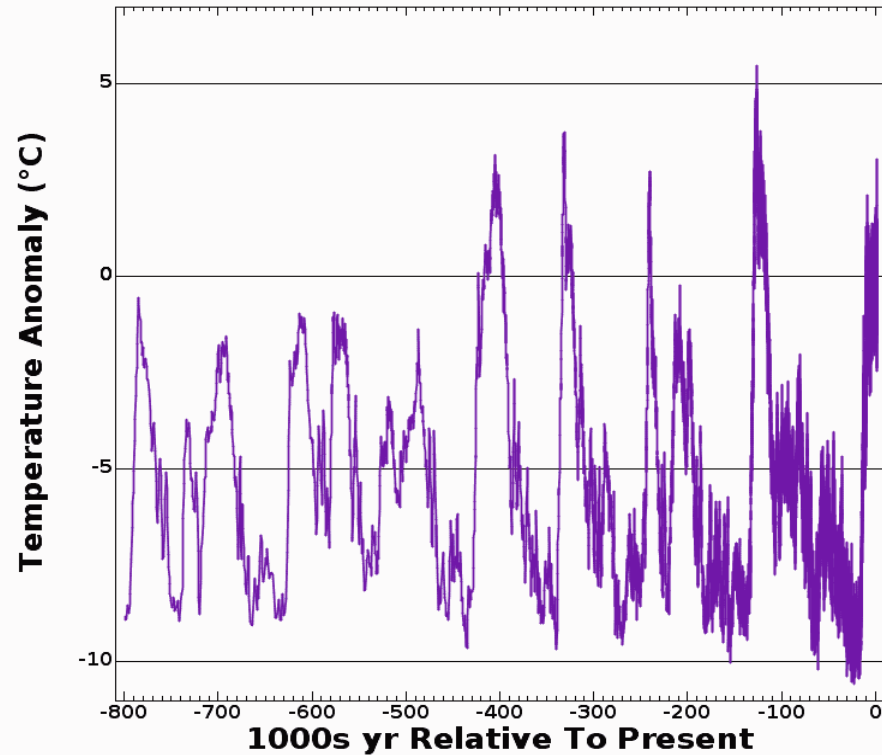
# CO<sub>2</sub> Uptake Has Increased



Global CO<sub>2</sub> emissions and uptake data from the Global Carbon Project

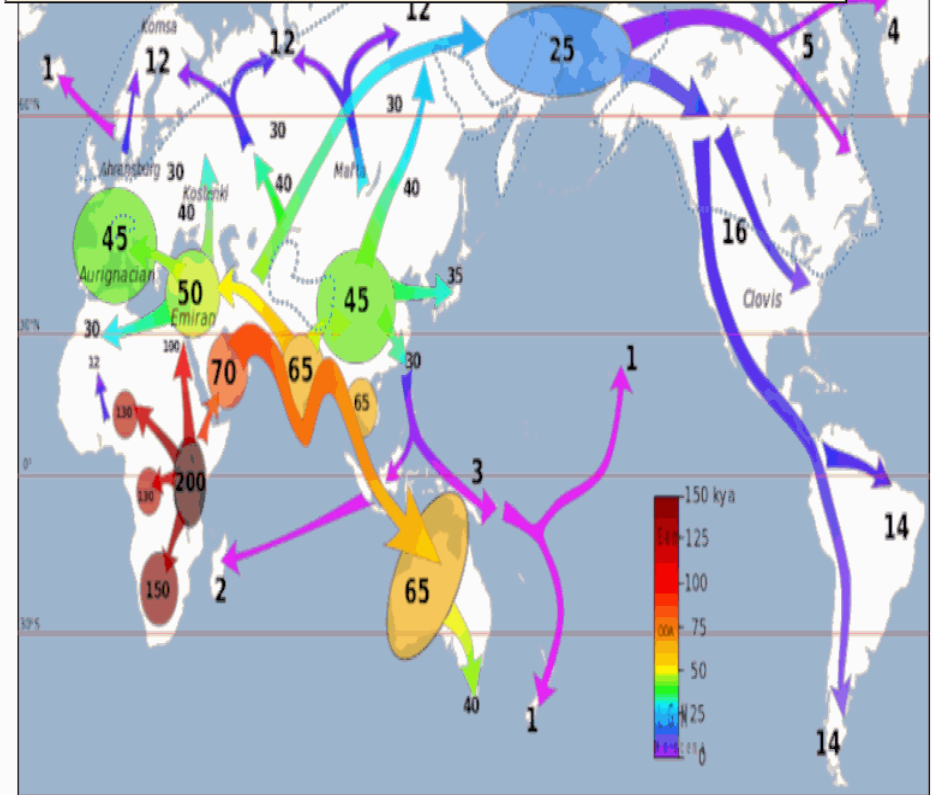
# Life Evolved For Climate Change

(a) Temperature Change Over Time

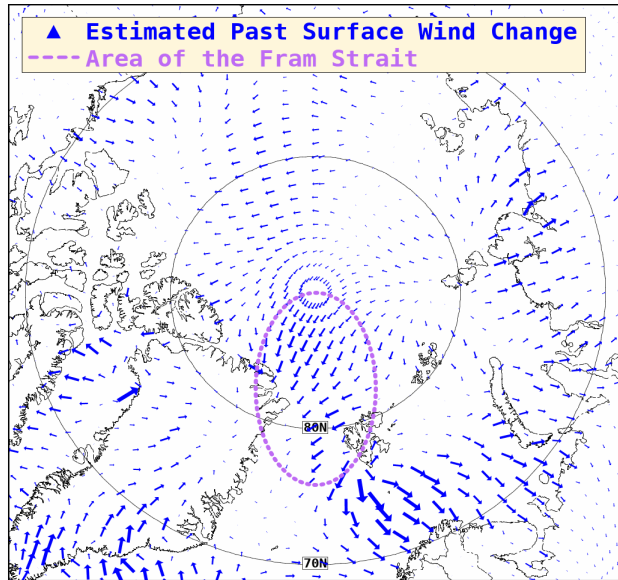


Vostok proxy temperature from CDIAC, Petit et. al.

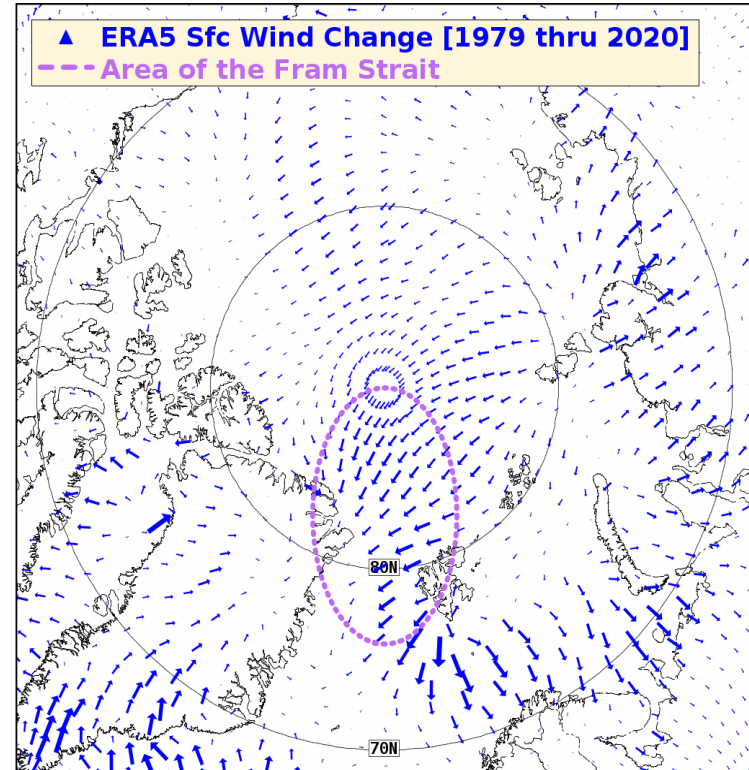
(b) Human Migrations to Other Climates



# Some Arctic Ice Loss From Wind



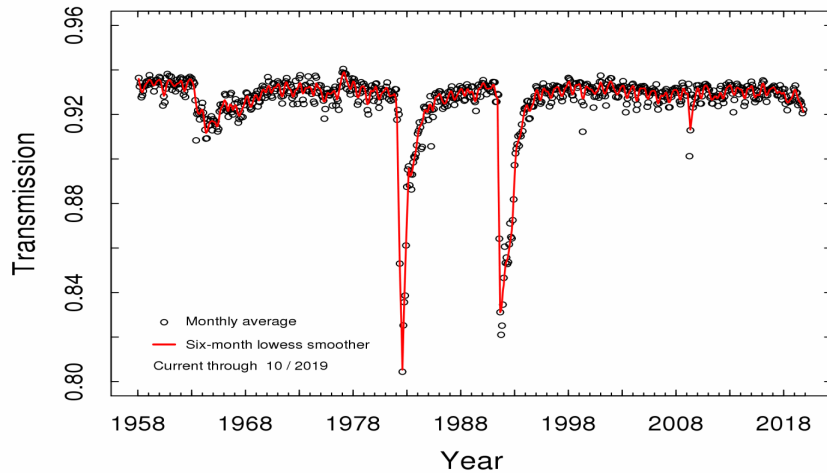
ERA5 Reanalysis [1979 through 2018]





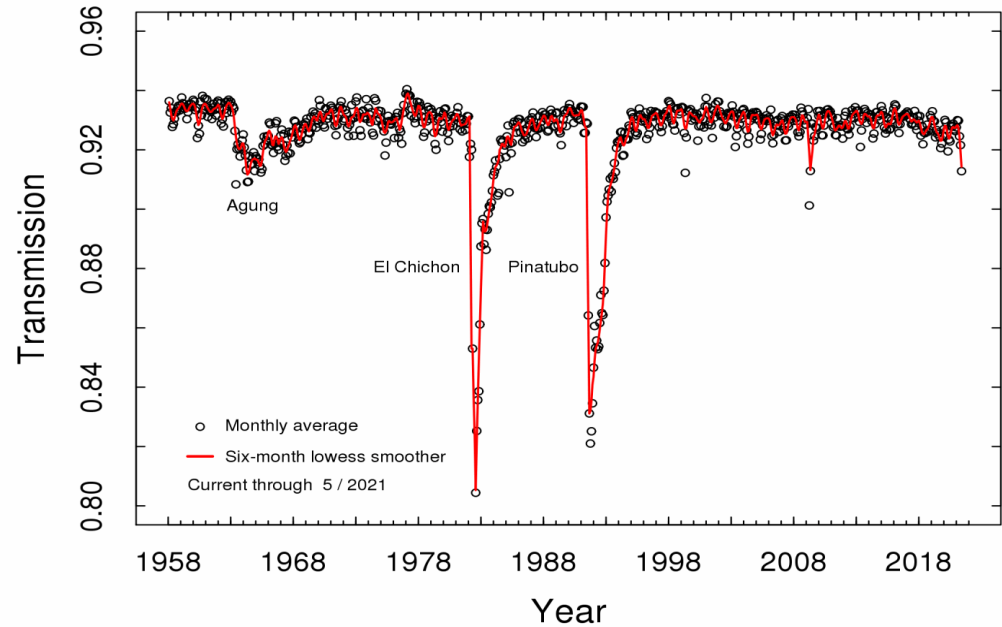
# Warming From Volcanic Timing

Mauna Loa Apparent Transmission

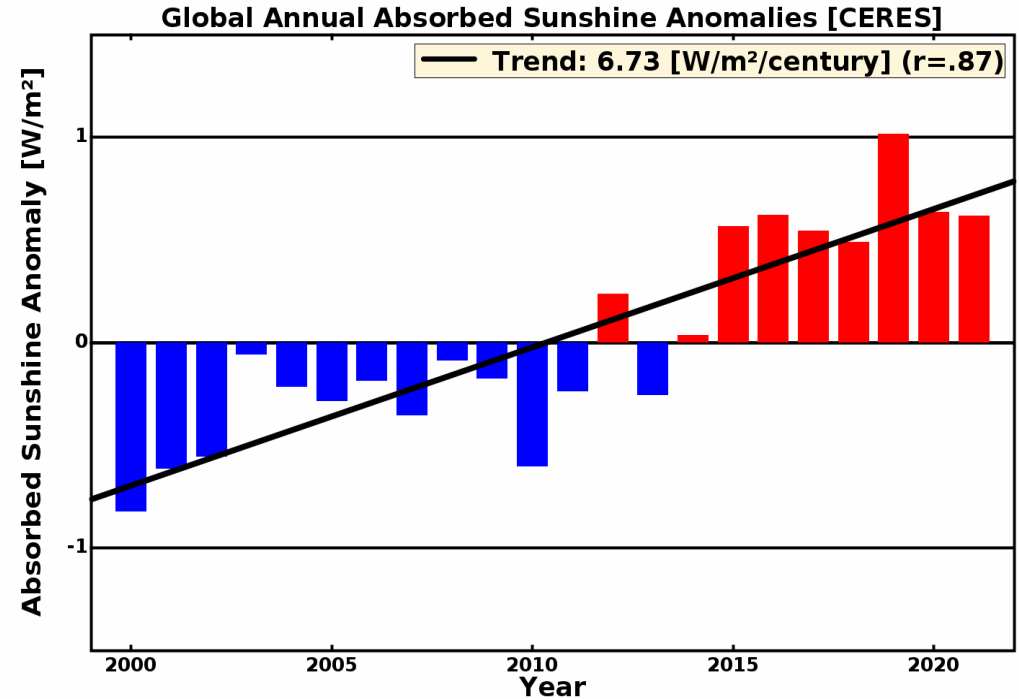
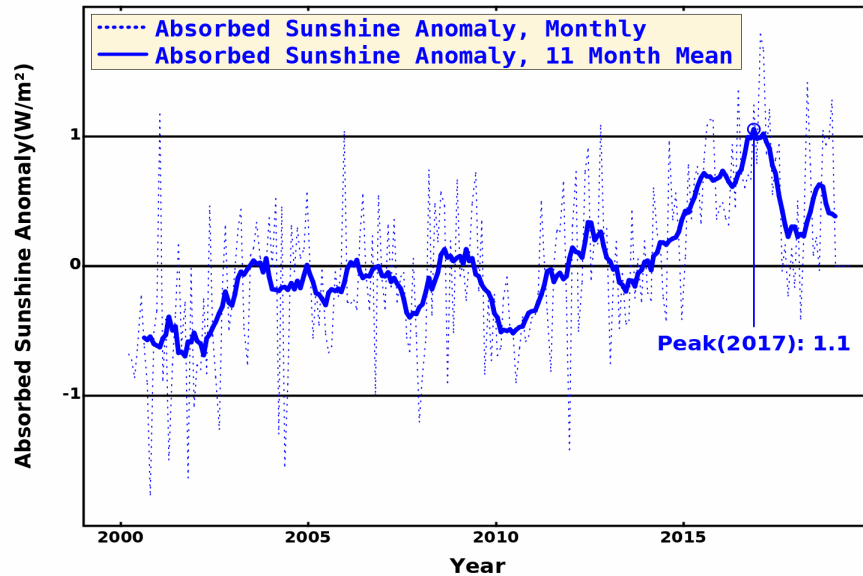


NOAA Mauna Loa Clear Sky Observations

Mauna Loa Apparent Transmission



# Warming From Absorbed Sunshine



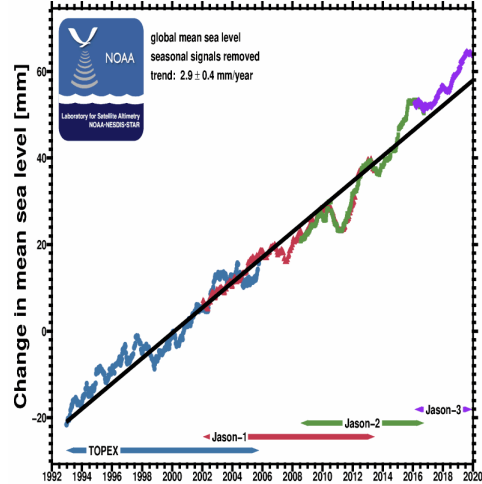
NASA, (Earth Observing System, Langley Research Center), "Clouds and the Earth's Radiant Energy System (CERES)

Anomalous outgoing shortwave radiance subtracted from anomalous global incoming shortwave radiance.

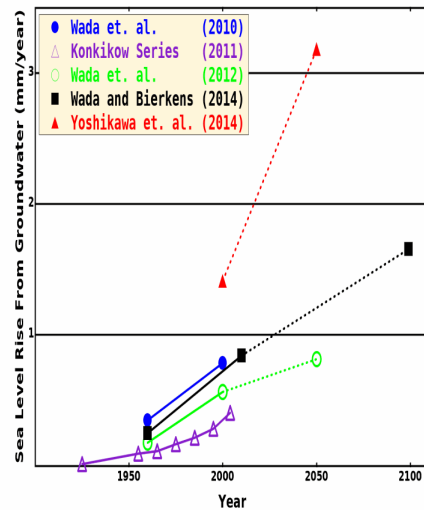
Year 2000 (Anomalies March through December), Year 2021 (Anomalies January through April)

# Sea Level Rise From Groundwater

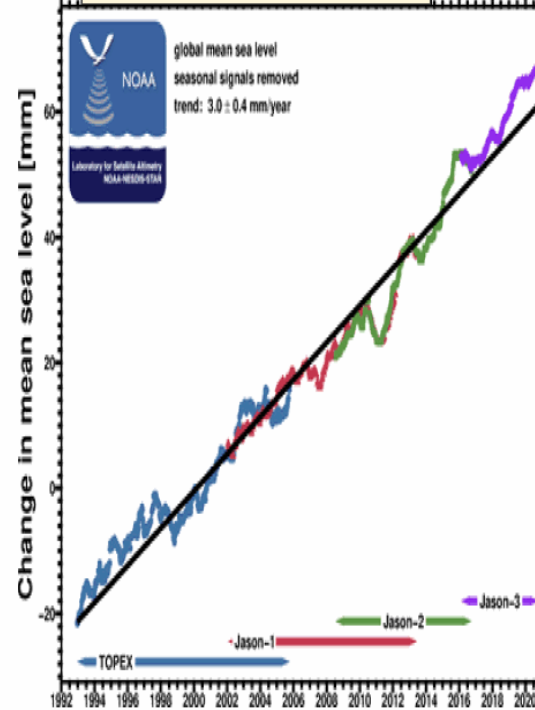
(a) Satellite Sea Level Change



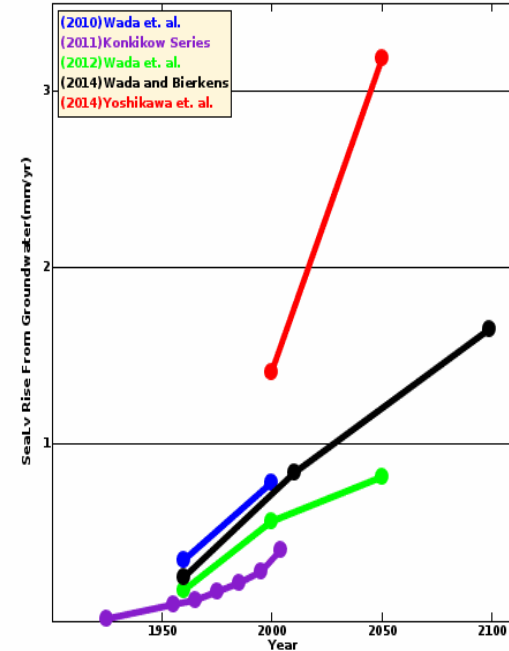
(b) SLR From Groundwater



(a) Estimated Sea Level Rise

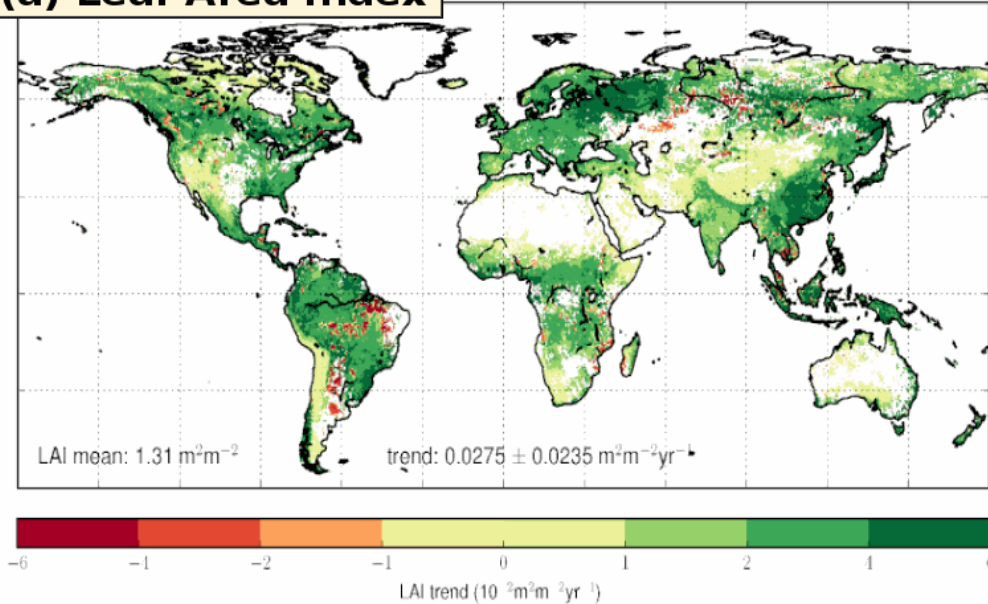


(b) Sea Level Rise From Groundwater



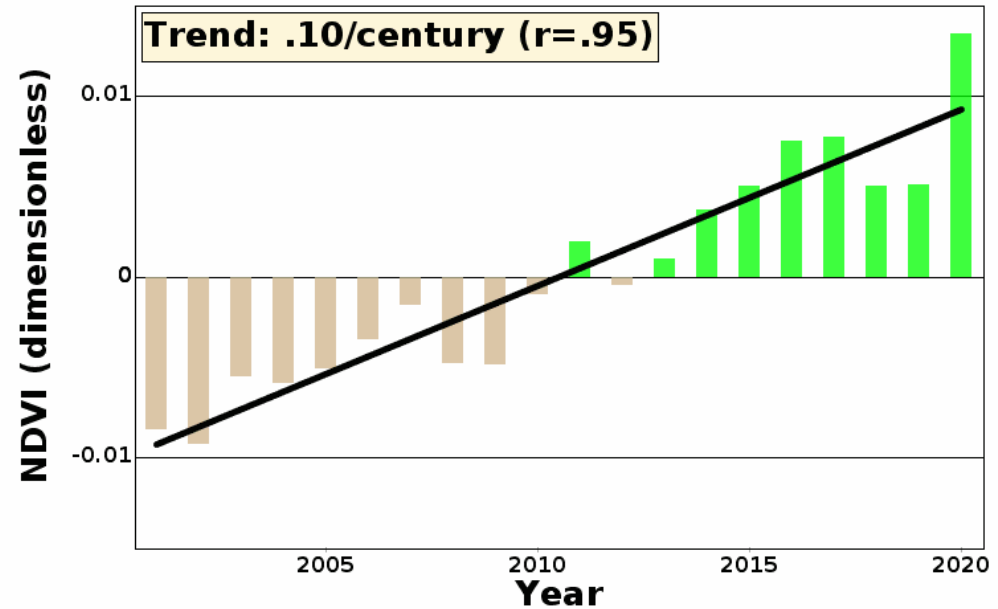
# Plant Growth Has Increased

(a) Leaf Area Index



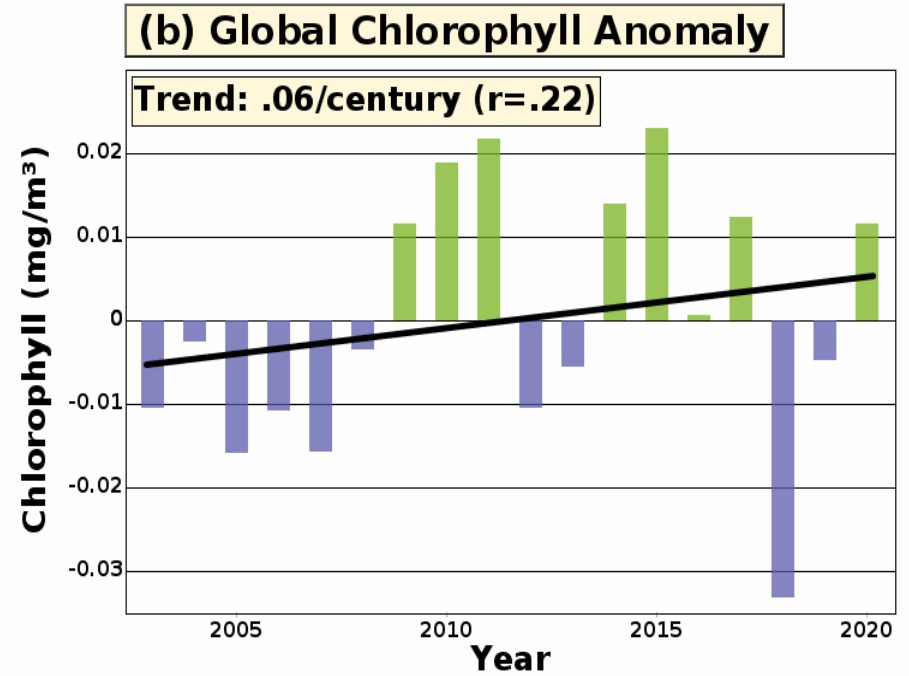
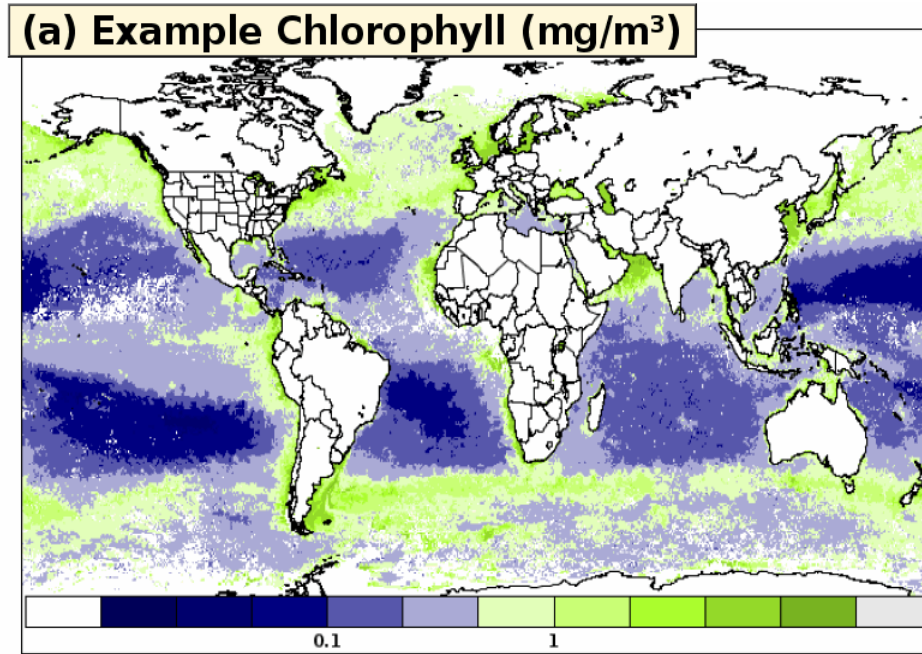
Satellite Leaf Area Index, *Remote Sensing*, Munier, et. al., trends for (1999–2015)

(b) Global NDVI Anomaly



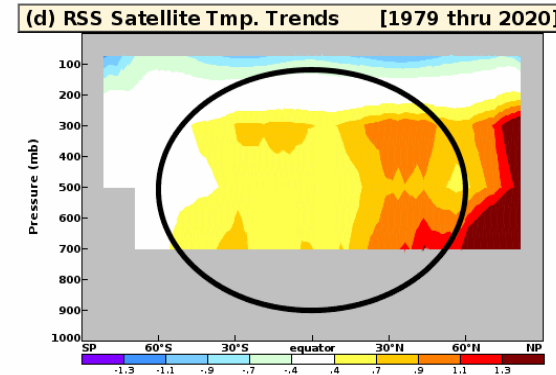
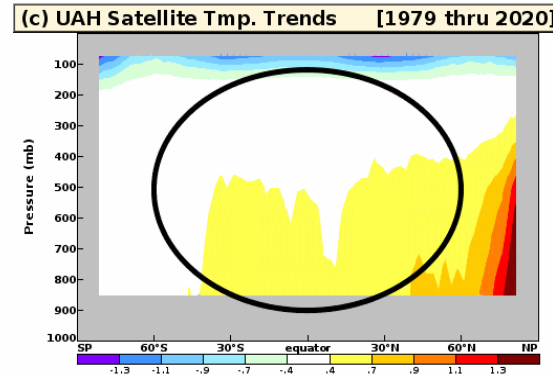
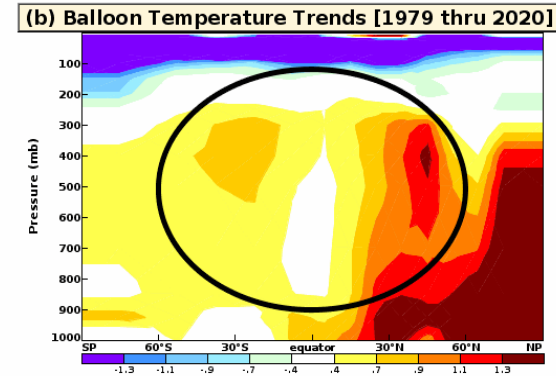
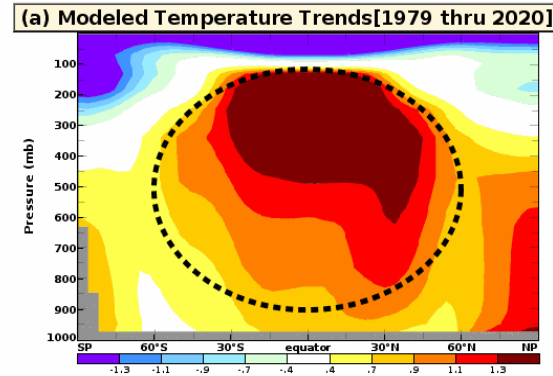
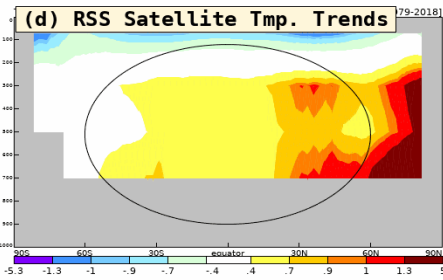
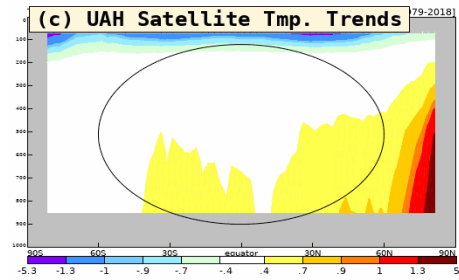
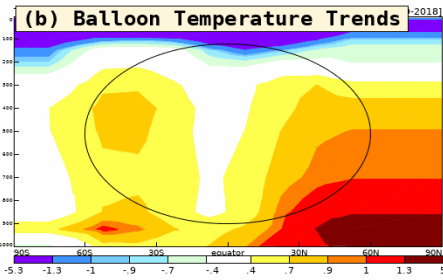
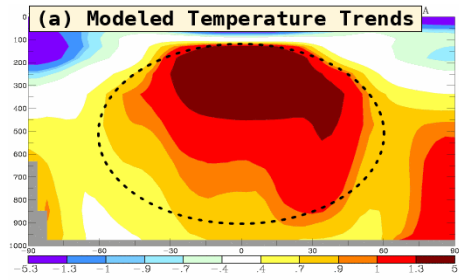
NASA (Earth Observations), Normalized Digital Vegetation Index (NDVI)

# Phytoplankton May Increase

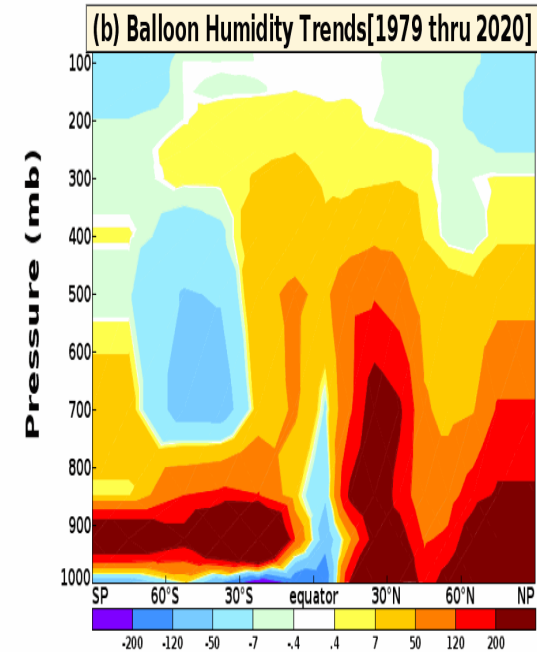
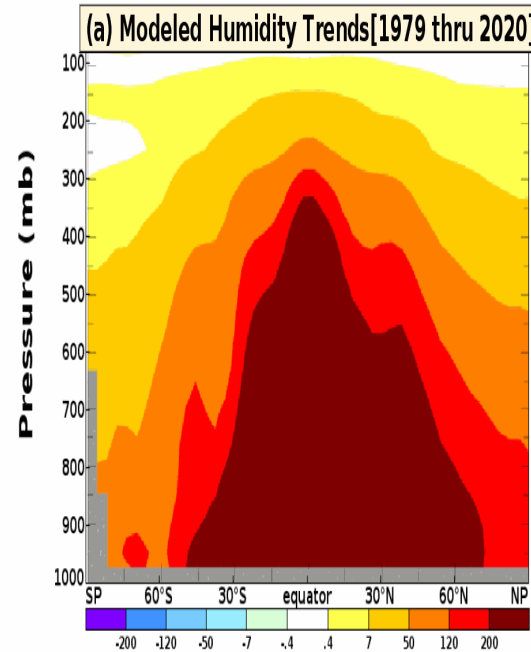
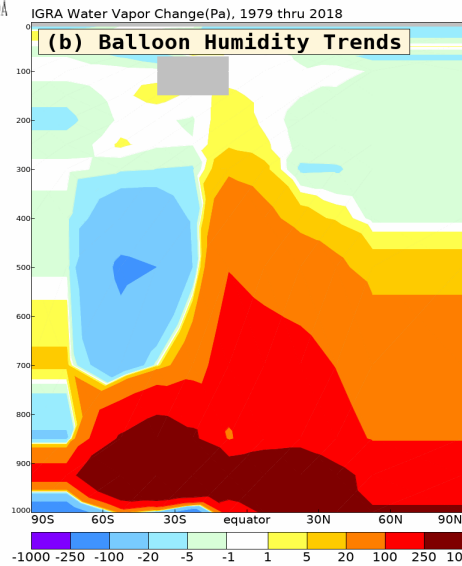
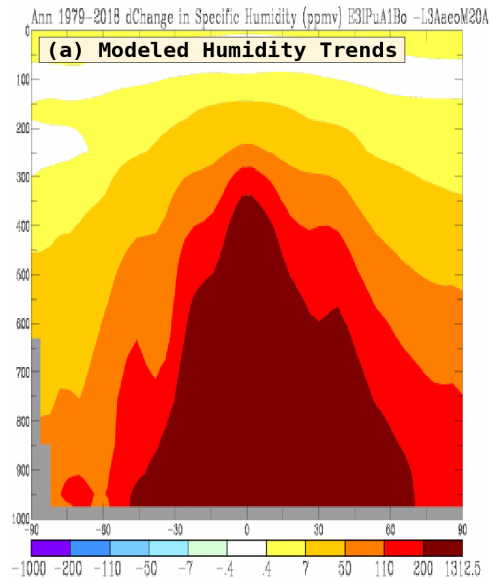


NASA (Earth Observations), Global Oceanic Chlorophyll estimates

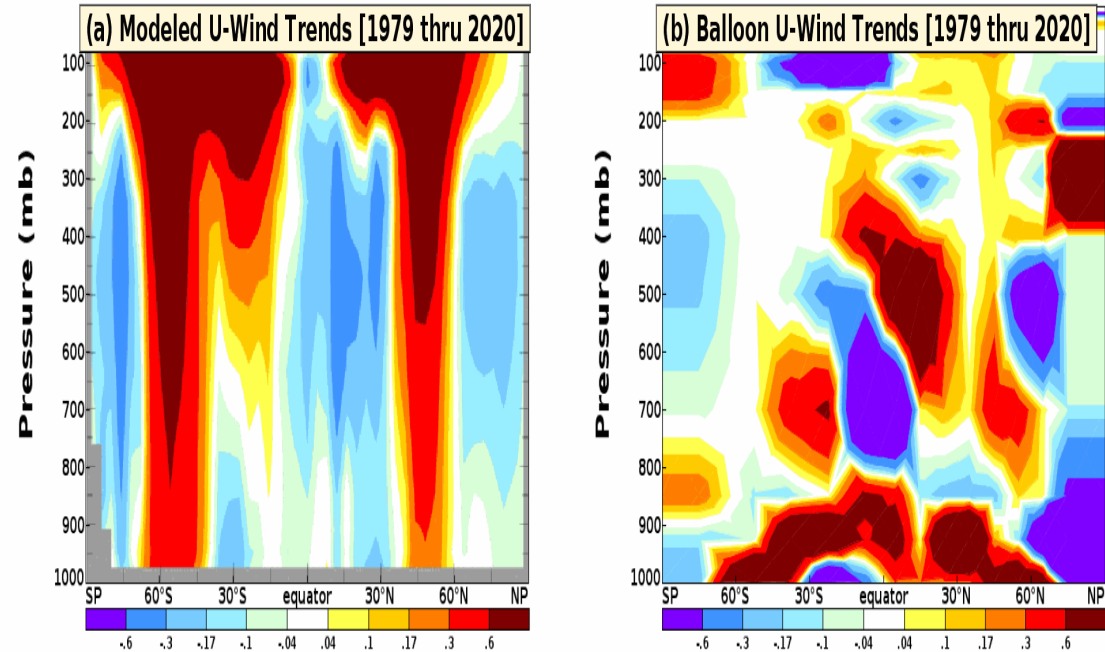
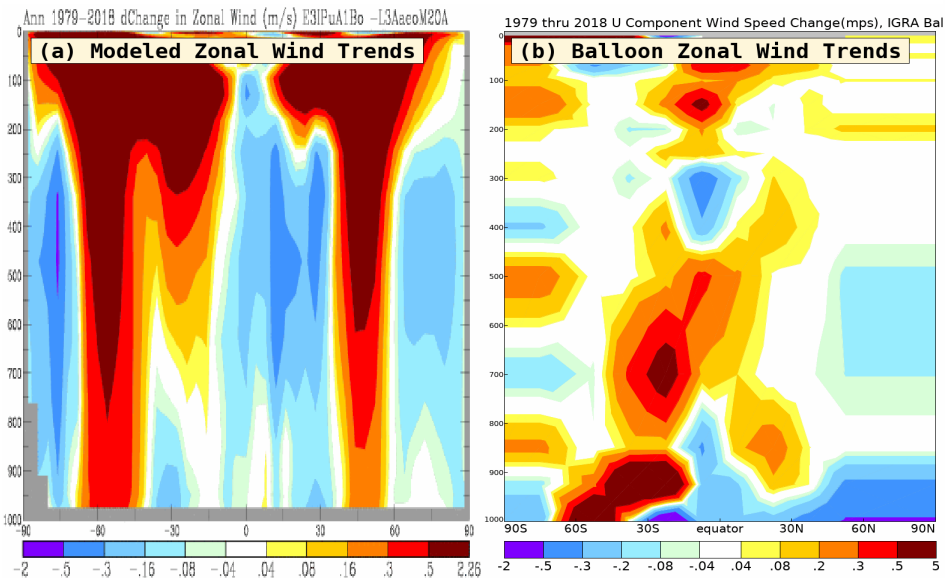
# Models And Temperature Trends



# Models And Humidity Trends

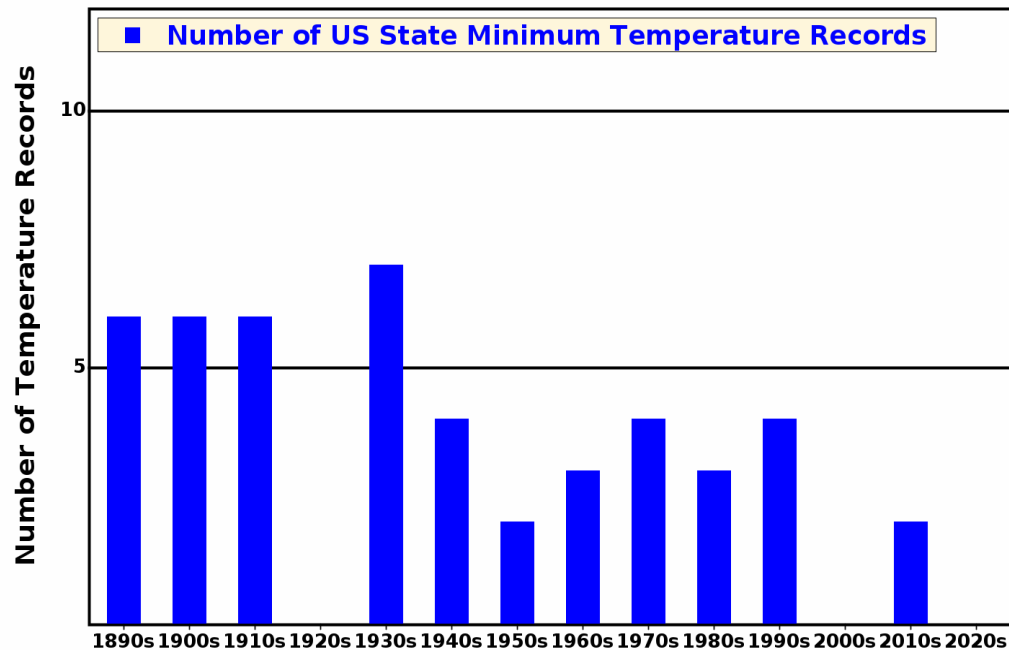
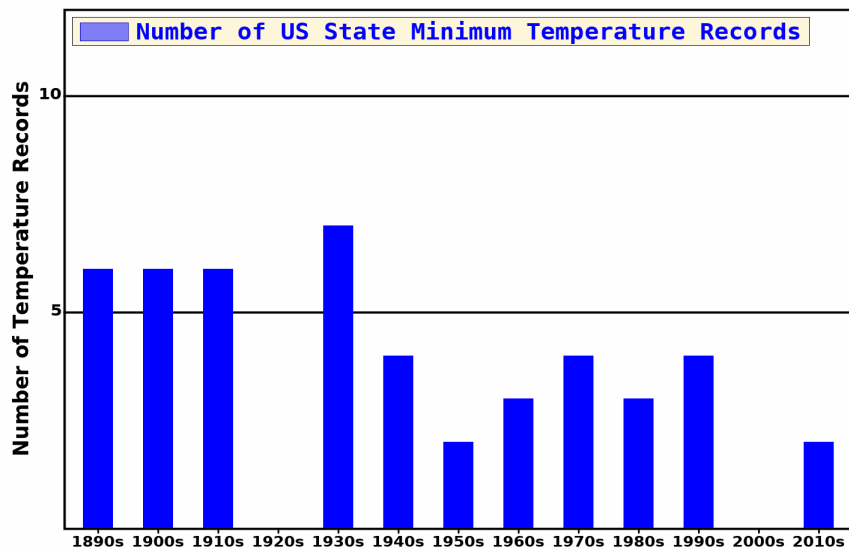


# Models And Wind Speed Trends



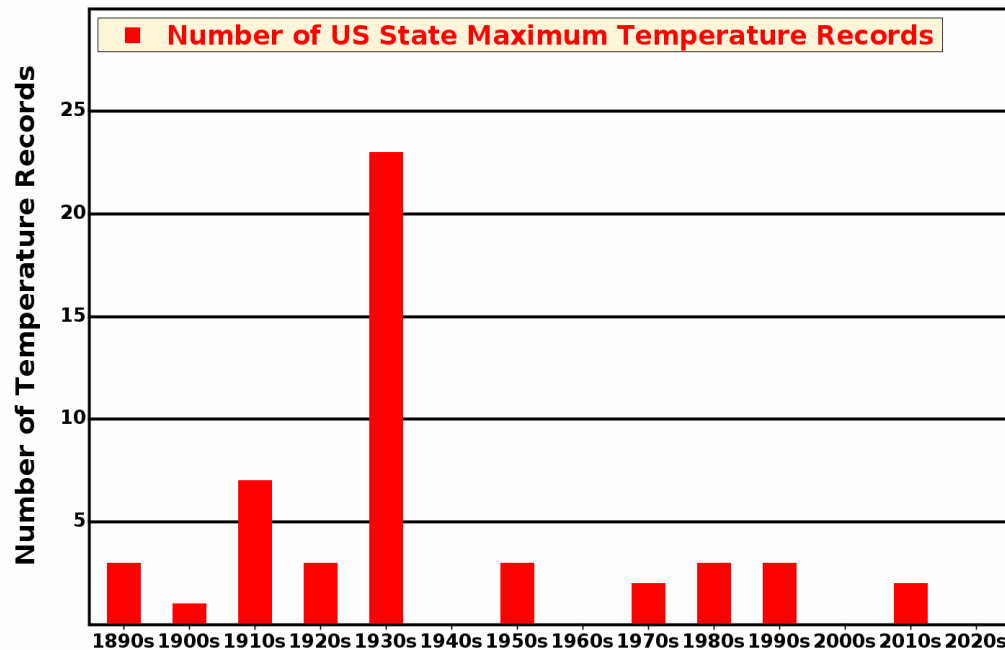
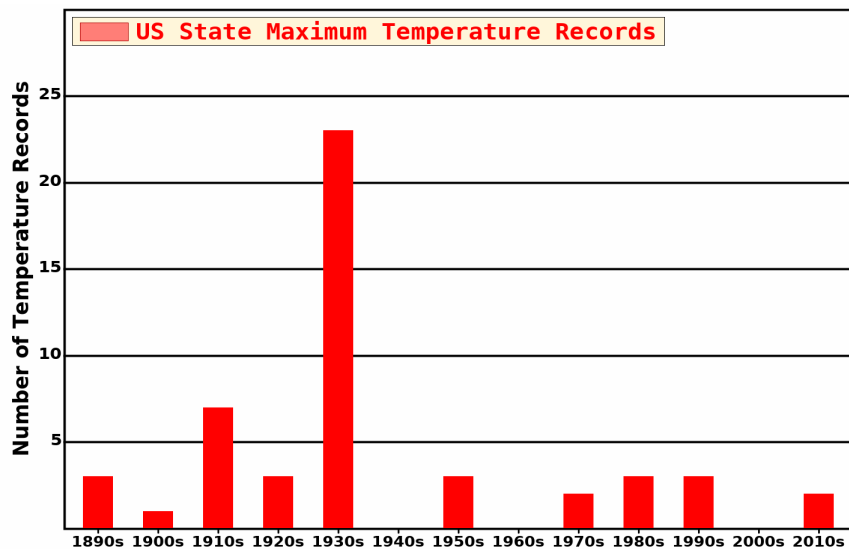


# US State Minimum Temperatures



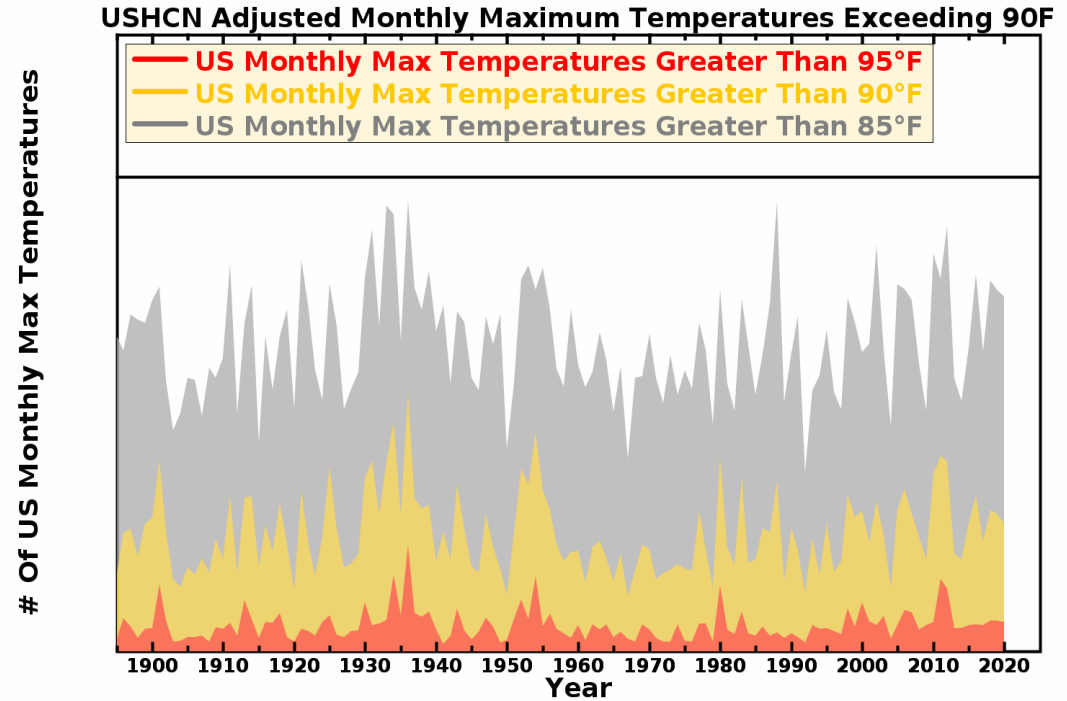
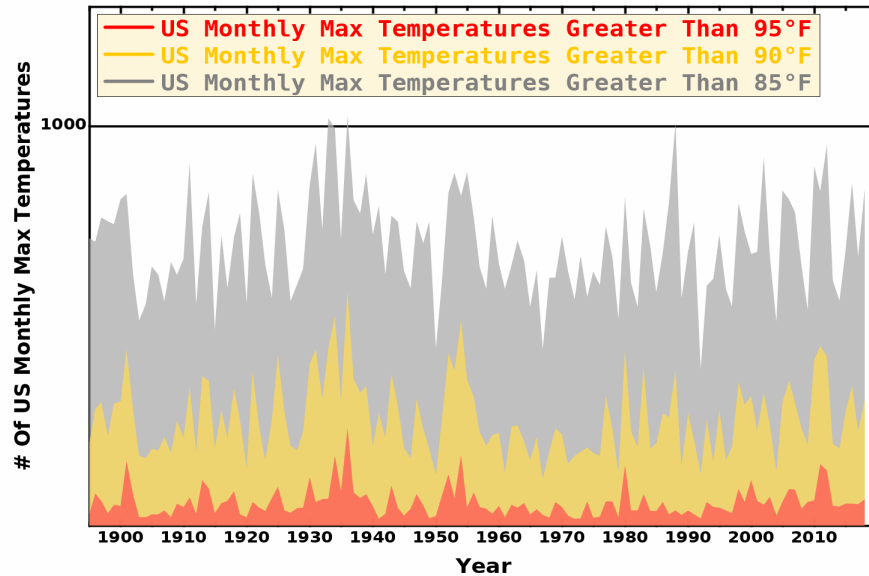
NOAA all time extreme low statewide minimum temperature by decade

# US State Maximum Temperatures



NOAA all time extreme high statewide maximum temperature by decade

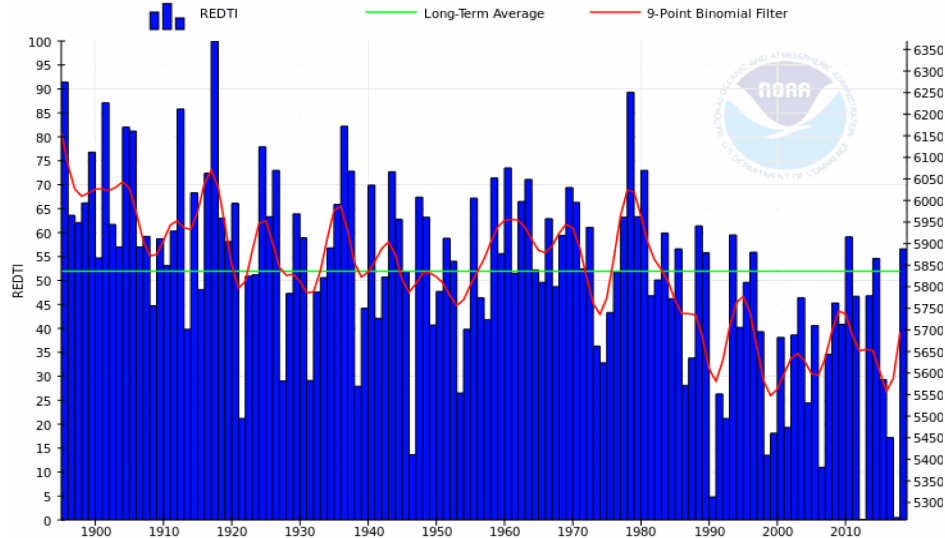
# US Hot Months ( 95% complete )



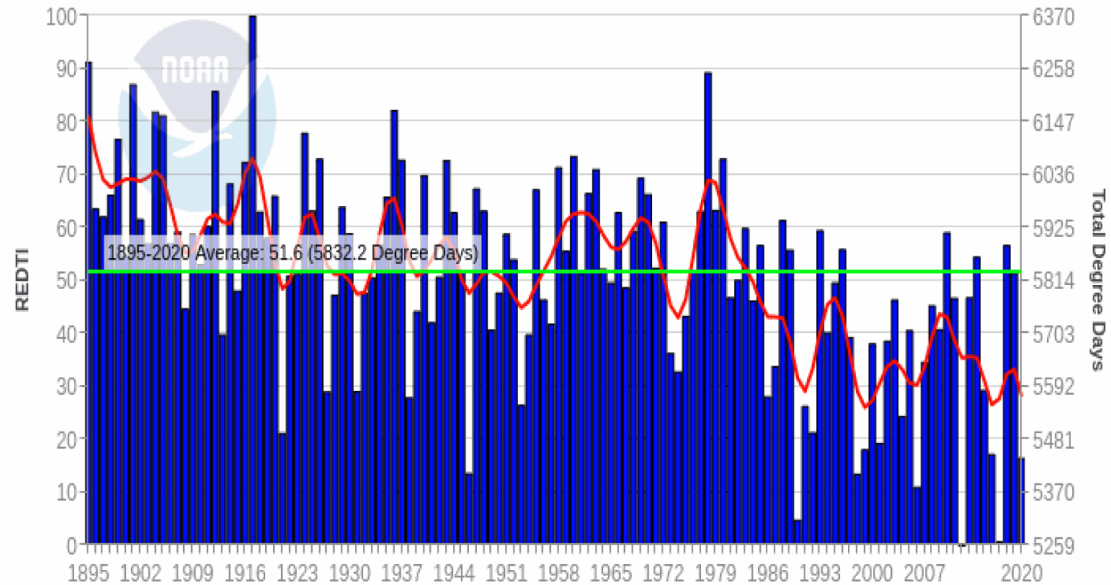
US Historical Climate Network (USHCN), temperature occurrence, stations at least 95% complete for period of record

# Decreasing US Heating+Cooling

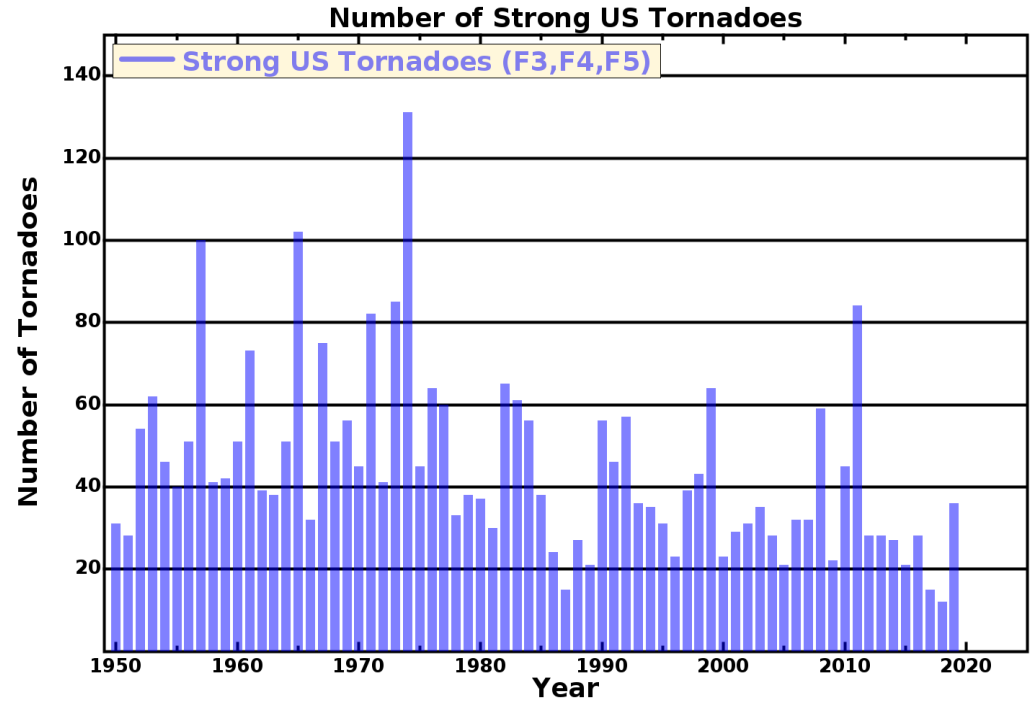
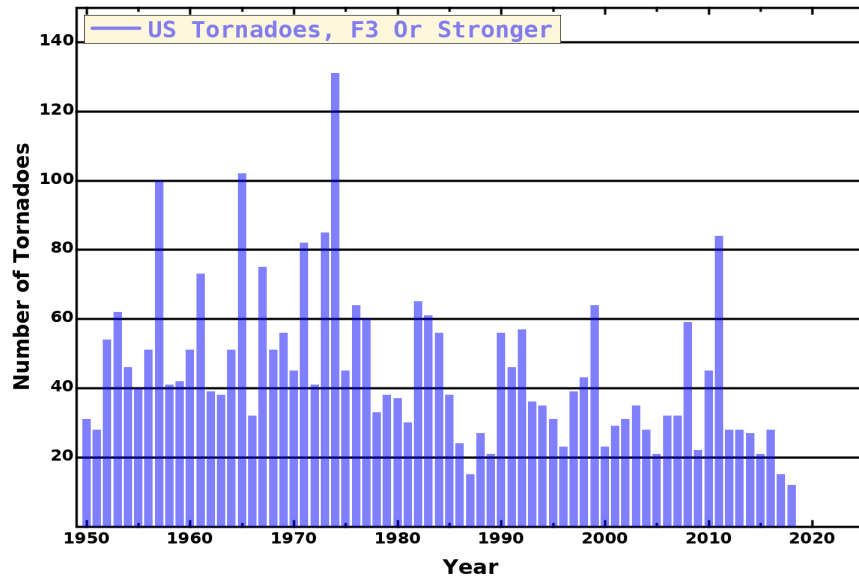
REDTI, Contiguous U.S., 1895 - 2018



REDTI, Contiguous U.S.  
1895-2020

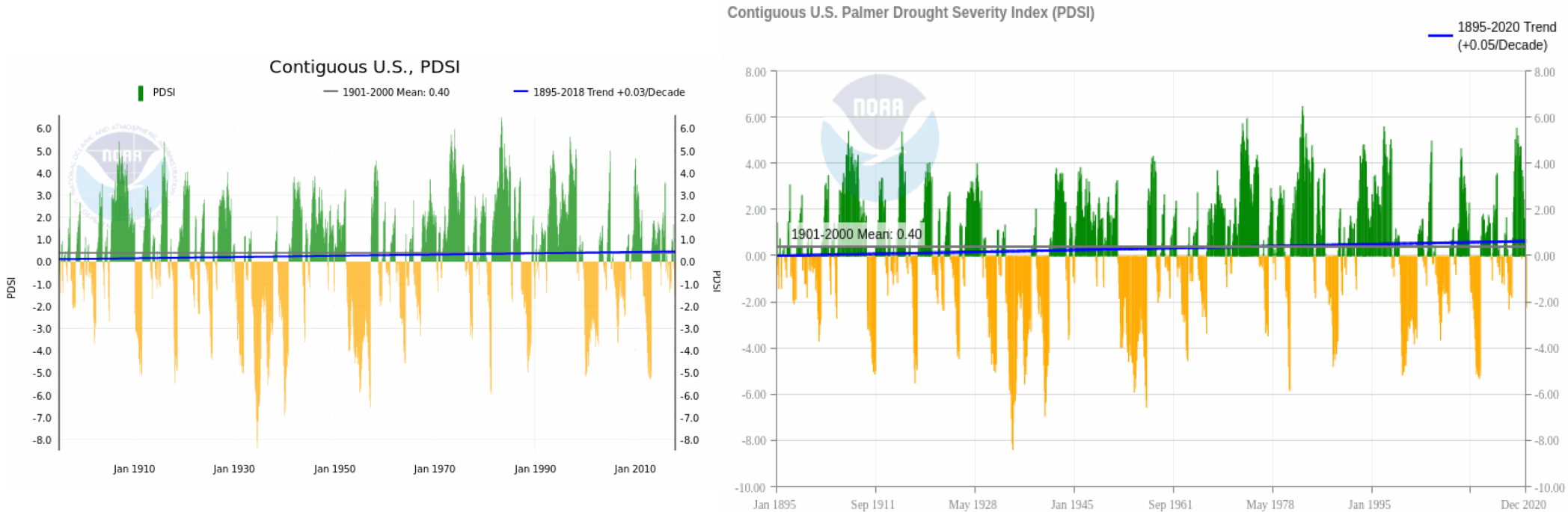


# Fewer Strong Tornadoes in US



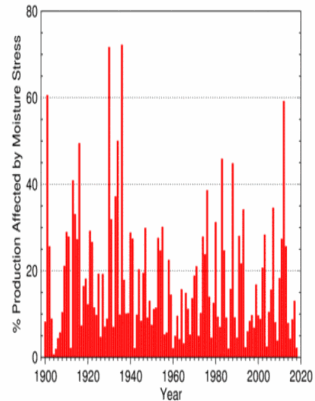
NOAA reported strong tornadoes

# No Increased Drought For US



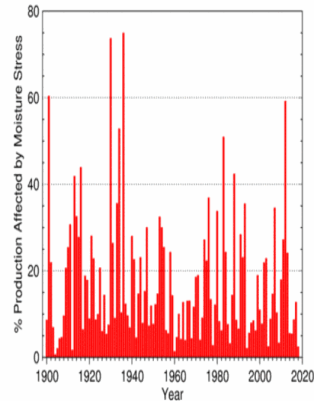
# Decreased Soil Moisture Stress

**(a)** Corn Moisture Stress Index  
1900 - 2018



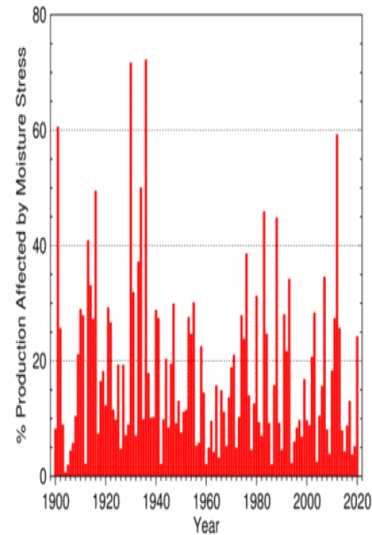
Based on Palmer Z-Index  $\geq 5.0$  and  $\leq -2.0$

**(b)** Soybean Moisture Stress Index  
1900 - 2018



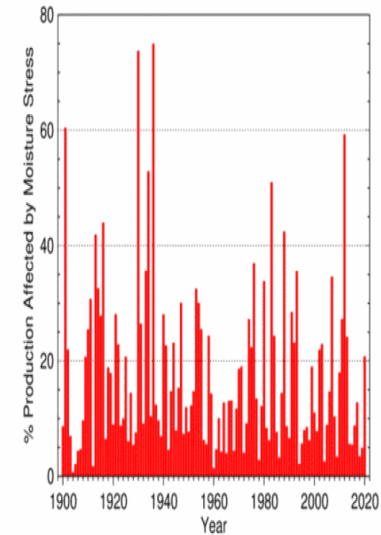
Based on Palmer Z-Index  $\geq 5.0$  and  $\leq -2.0$

**(a)** Corn Moisture Stress Index  
1900 - 2020



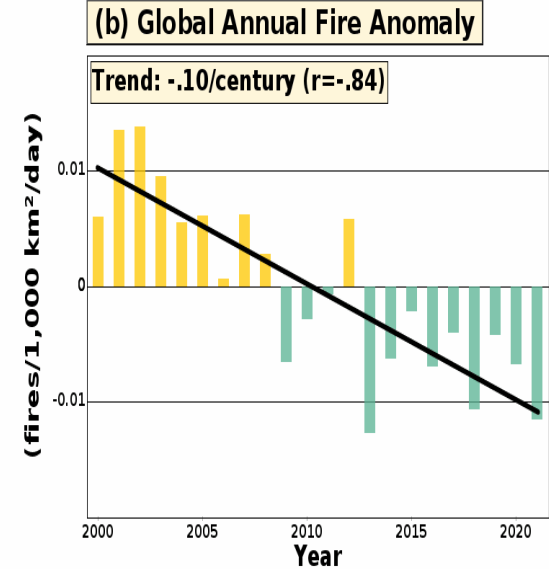
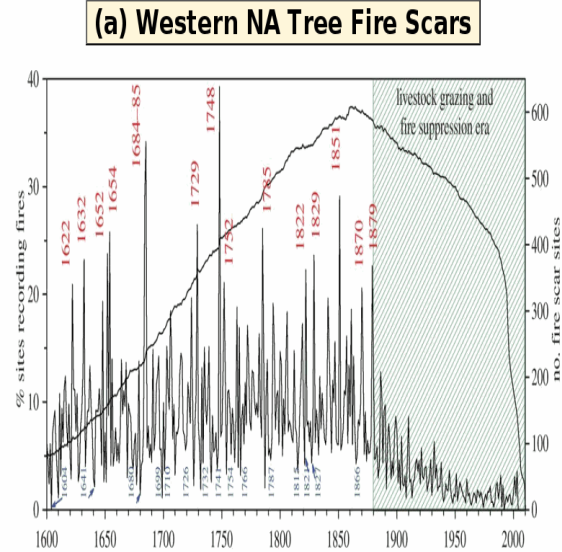
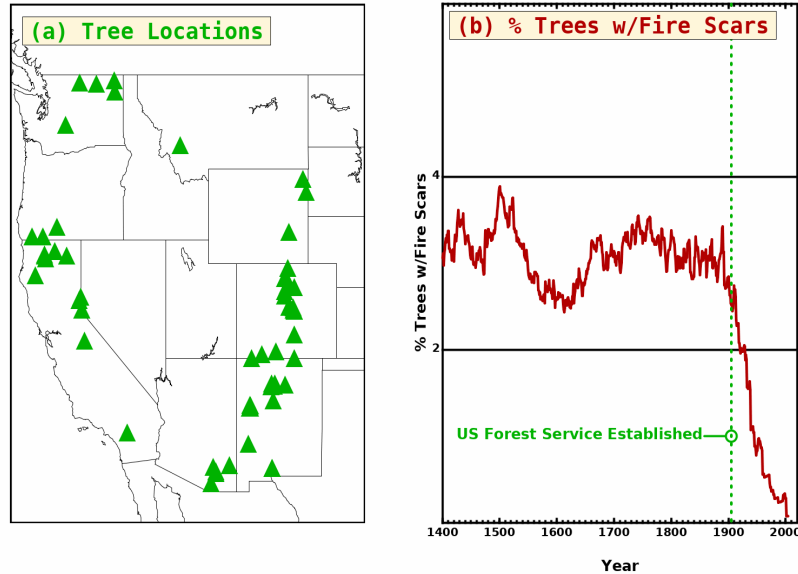
Based on Palmer Z-Index  $\geq 5.0$  and  $\leq -2.0$

**(b)** Soybean Moisture Stress Index  
1900 - 2020



Based on Palmer Z-Index  $\geq 5.0$  and  $\leq -2.0$

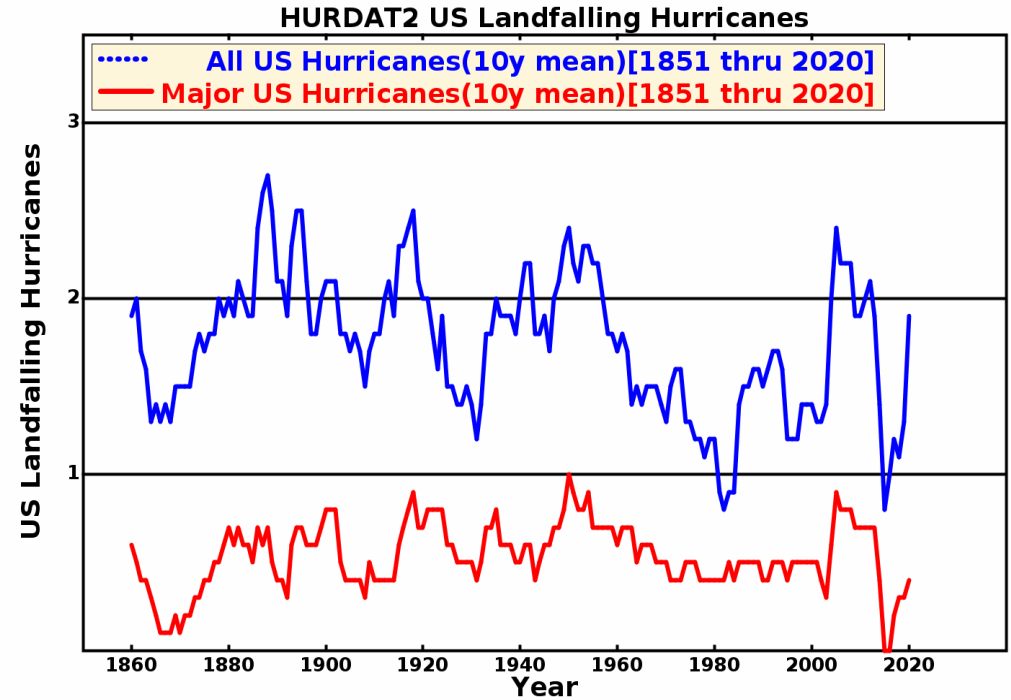
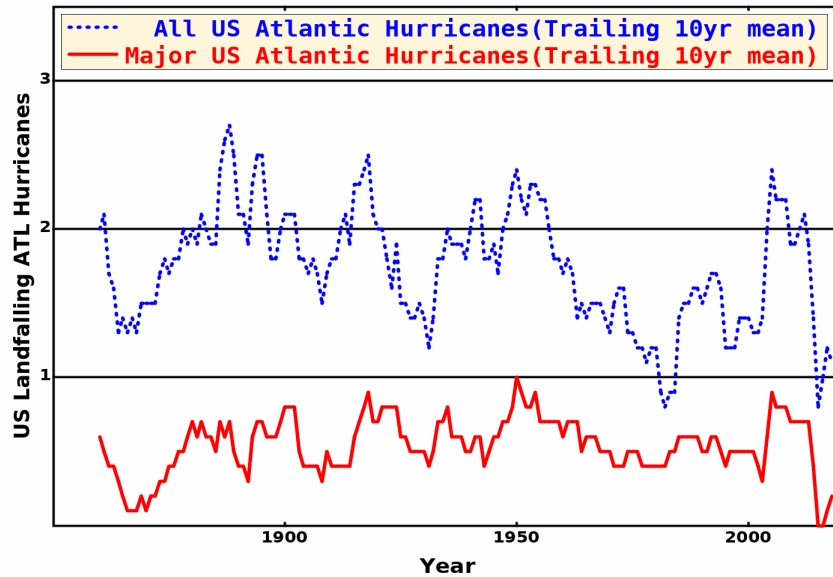
# Decreasing Fires Globally



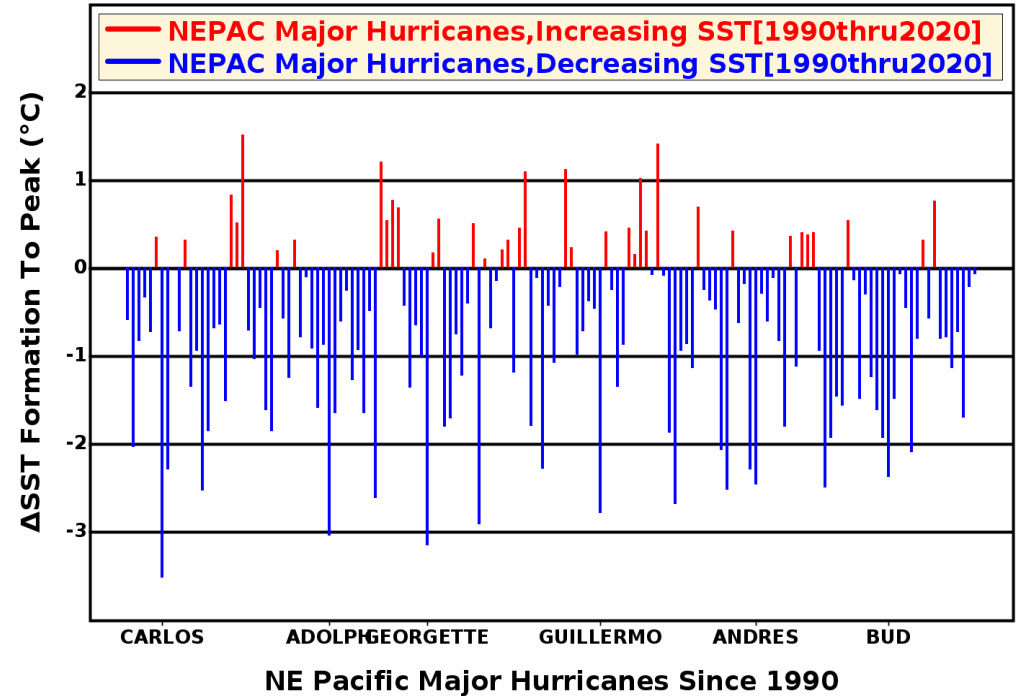
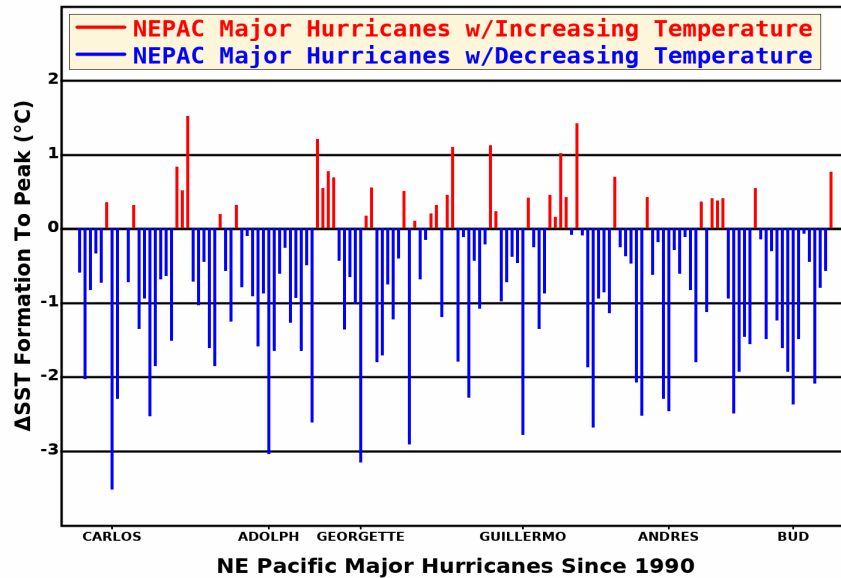
(a)Swetnam, et. al., (2016) and (b)NASA Earth Observations (NEO, MODIS Land Science Team) (through June of 2021)



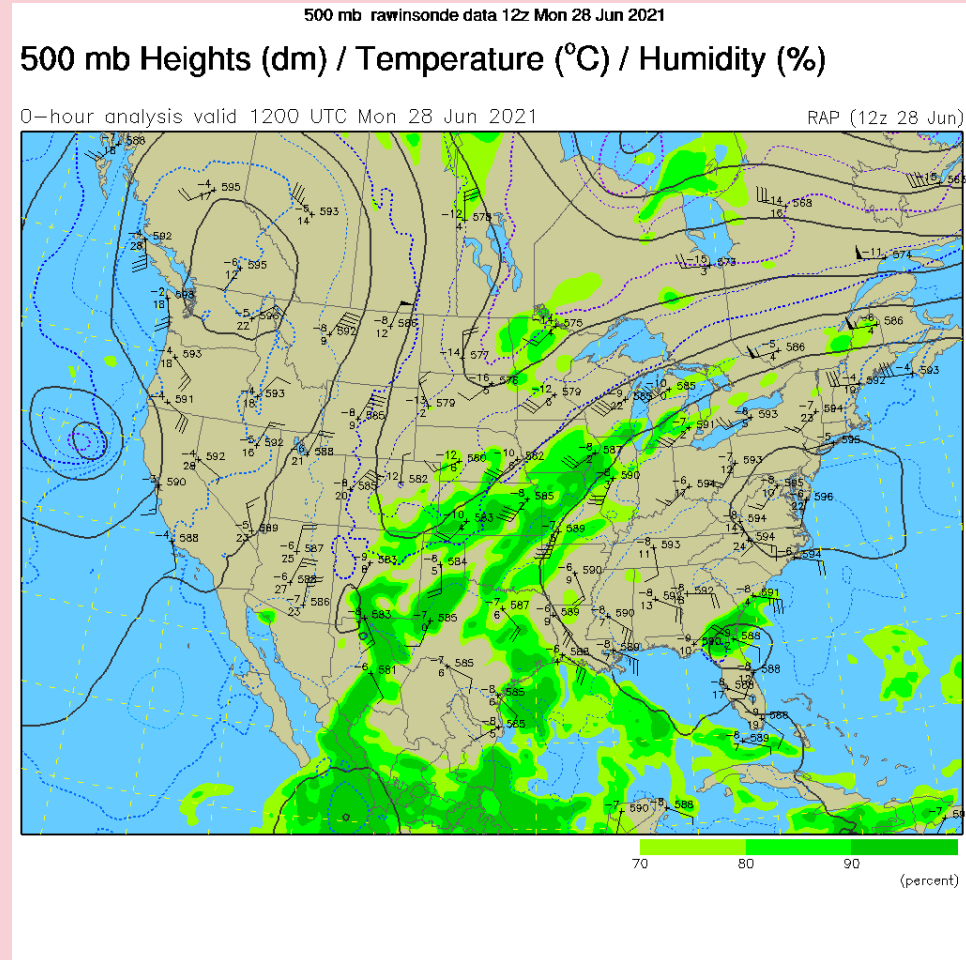
# No Trend of US Hurricanes



# Cooling but Intensifying Hurricanes



# Observations of 2021 NW Heatwave

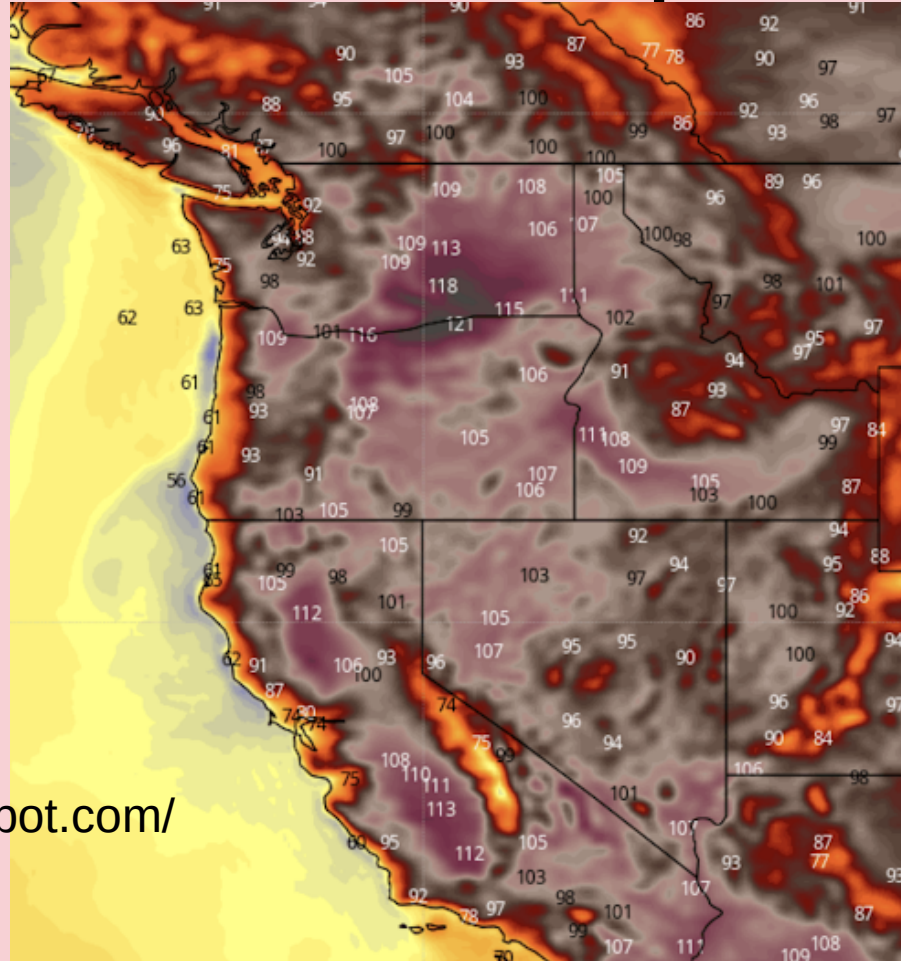


# NW Heatwave – was predicted

GFS for June 28, 2021

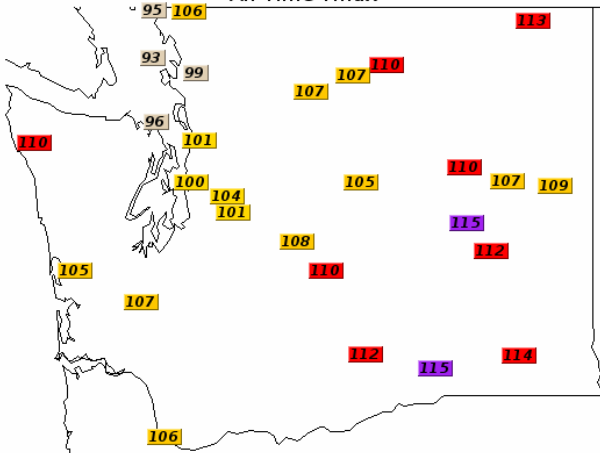
Predicted one week before

<https://cliffmass.blogspot.com/>

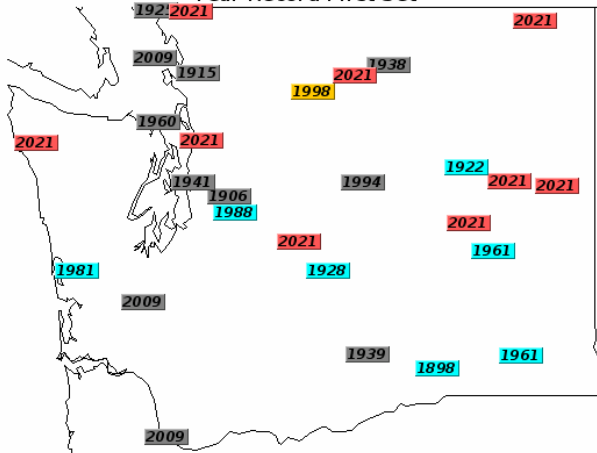


# NW Heatwave – 80% stations

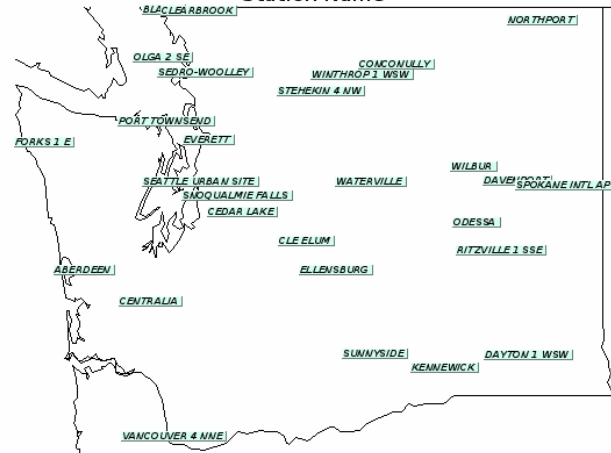
All Time Tmax



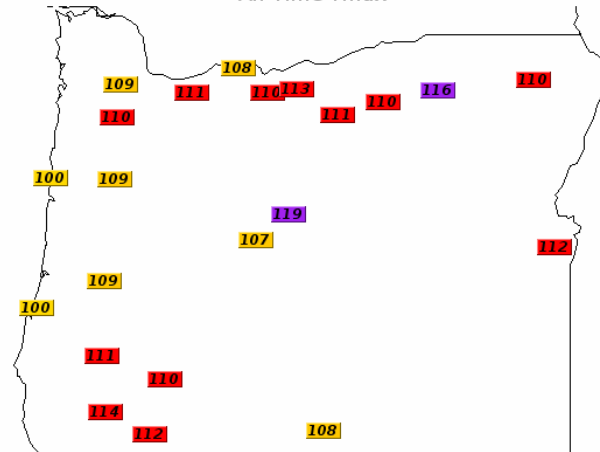
Year Record First Set



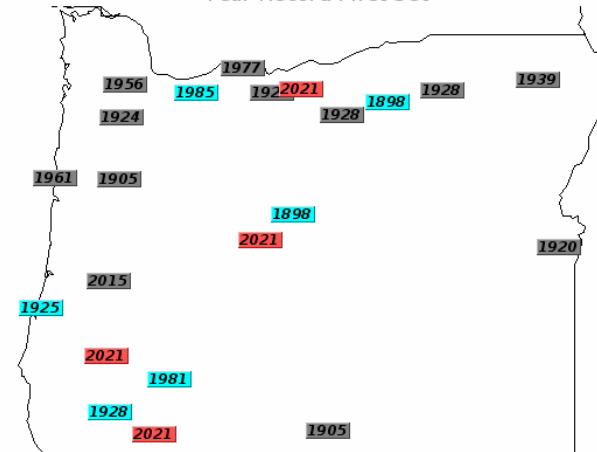
Station Name



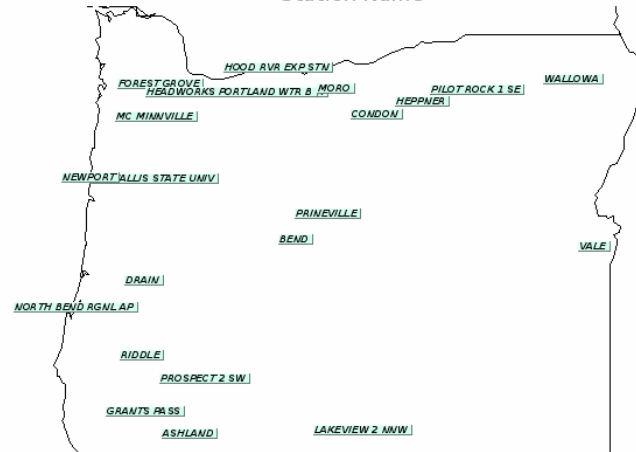
All Time Tmax



Year Record First Set

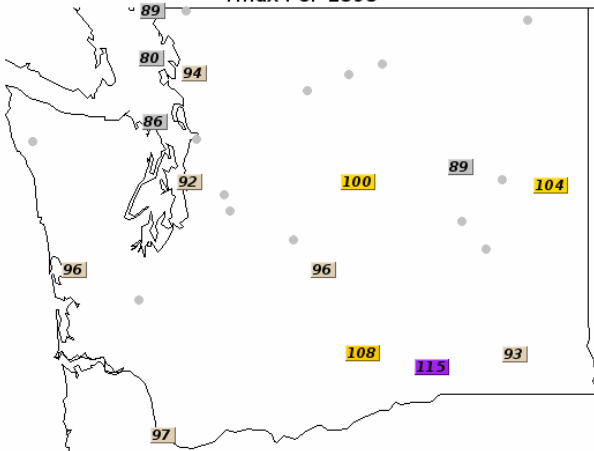


Station Name

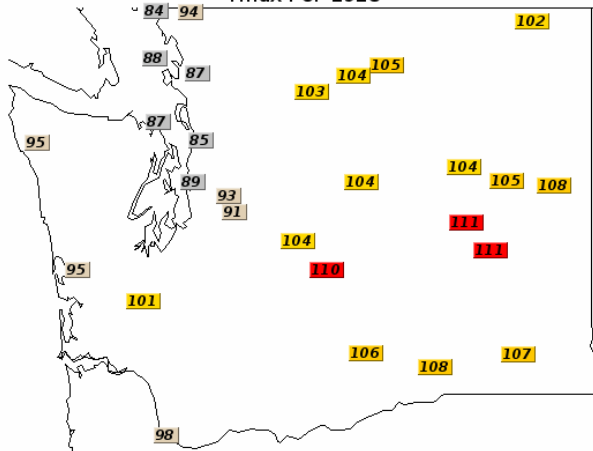


# NW Heatwave – Compare Years

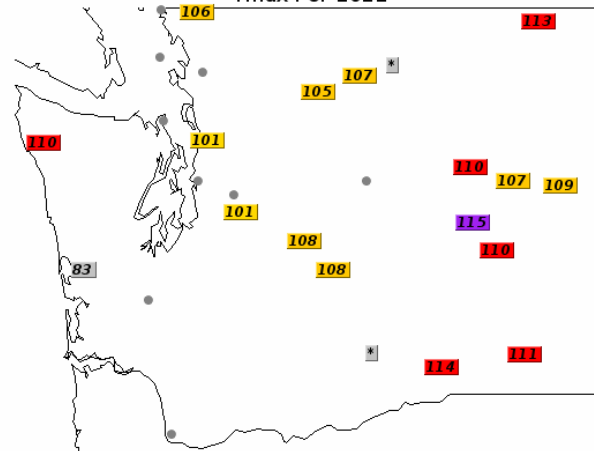
Tmax For 1898



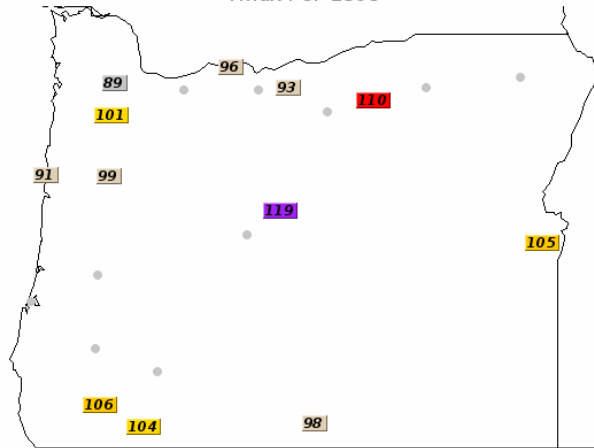
Tmax For 1928



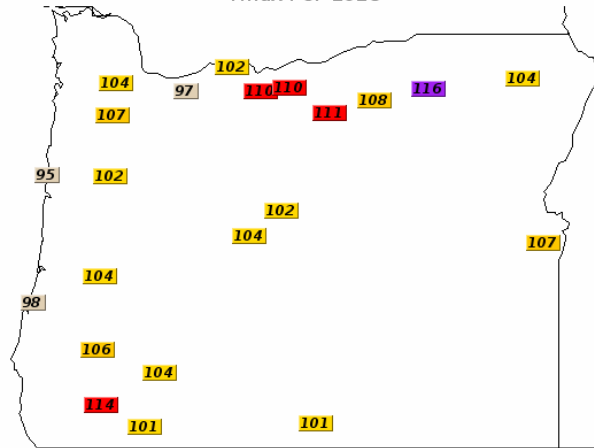
Tmax For 2021



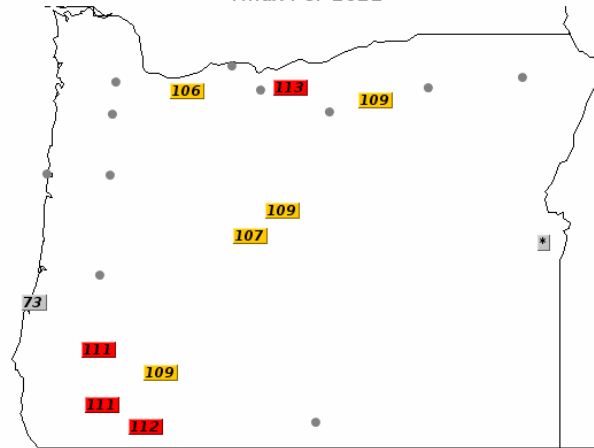
Tmax For 1898



Tmax For 1928

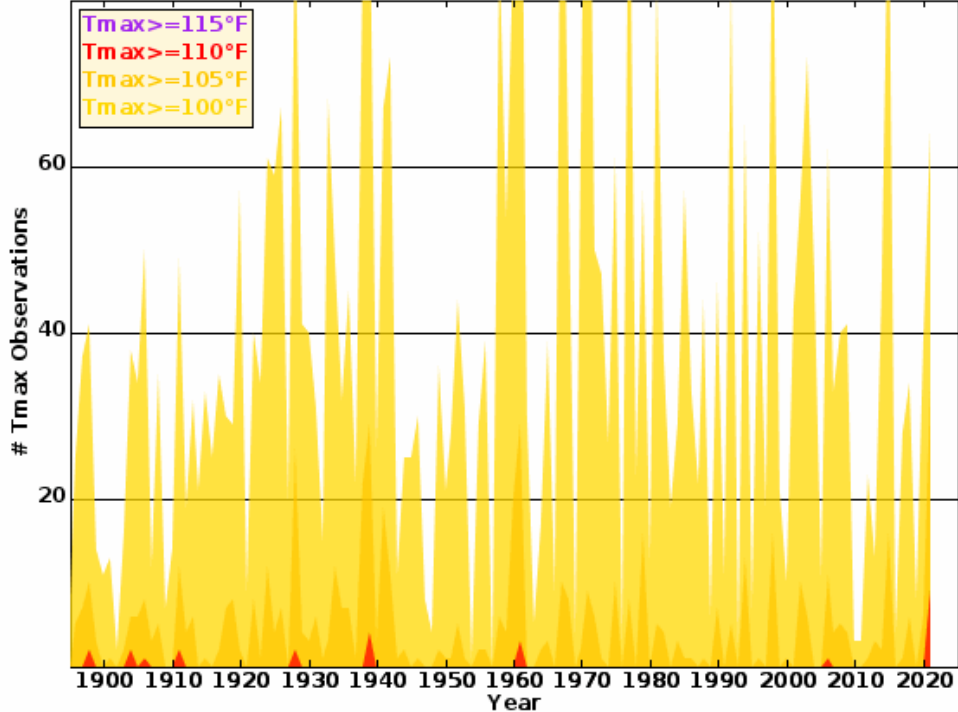


Tmax For 2021

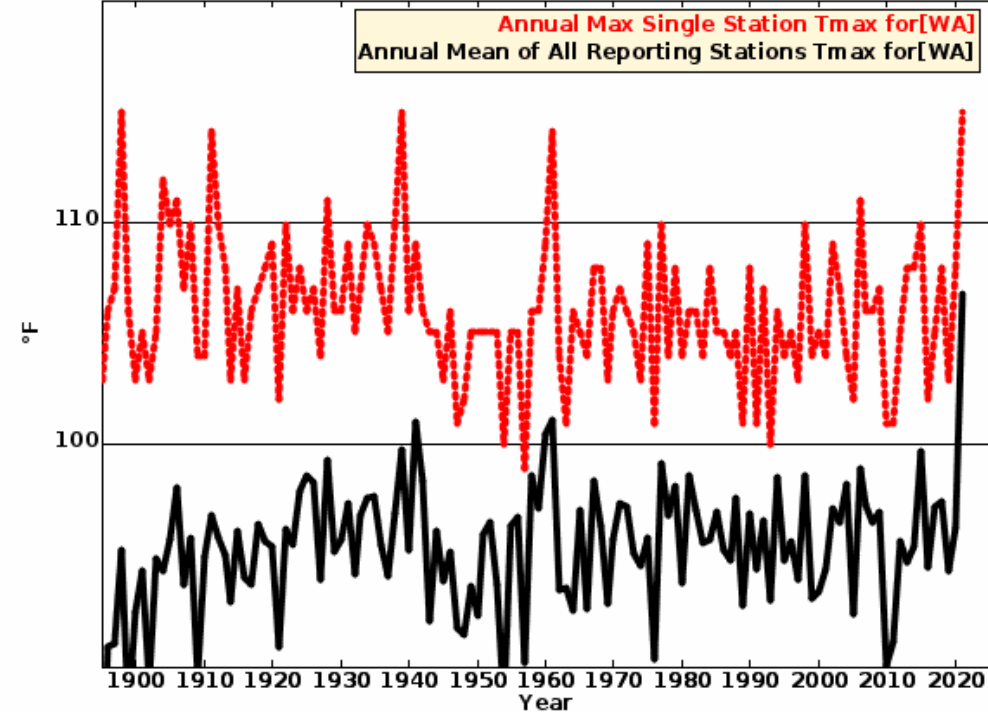


# NW Heatwave – Trends Washington

[WA] HCN Stations  $\geq 80\%$  complete for [1895 thru 2021]

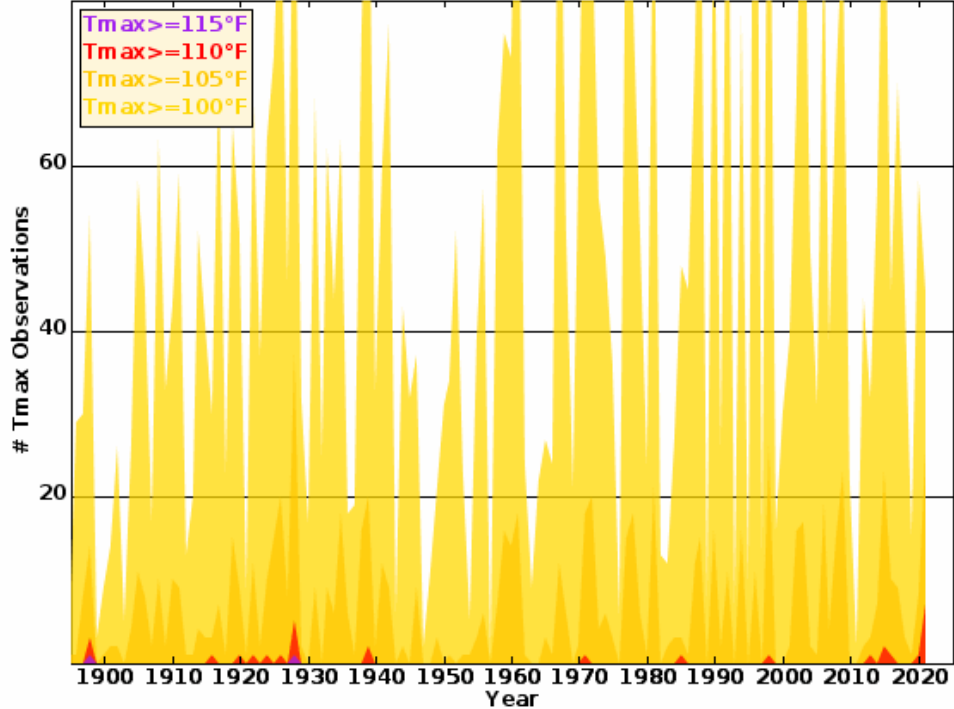


Statewide Tmax for [WA]

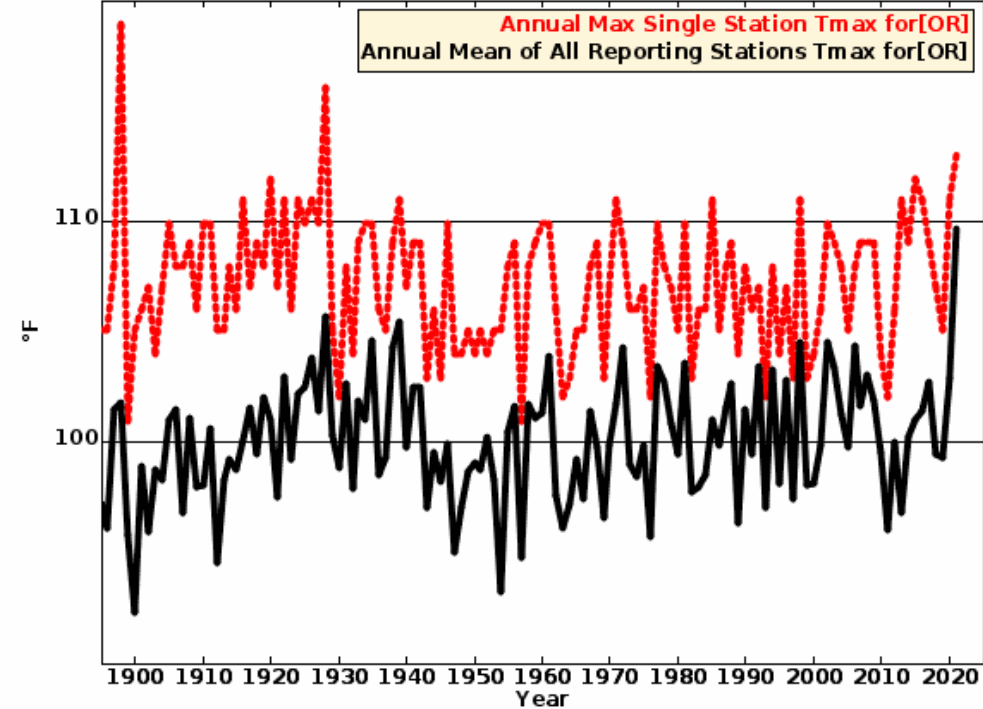


# NW Heatwave – Trends Oregon

[OR] HCN Stations  $\geq 80\%$  complete for [1895 thru 2021]



Statewide Tmax for [OR]





*Thank You!*