

## Amplified patterns in North America and Eurasia behind the extremes

The media has been covering extremes here in North America and in Eurasia.

Wall Street Journal story reported:

“Another heat wave will hit parts of the drought-stricken Western U.S. this weekend. The heat could meet or exceed daily records in parts of Montana and Idaho over the weekend and into early next week, said Julie Malingowski, an emergency-response meteorologist with the National Weather Service. Temperatures are forecast to exceed 100 degrees in parts of Montana beginning Saturday, with hotter temperatures reaching Idaho on Sunday.

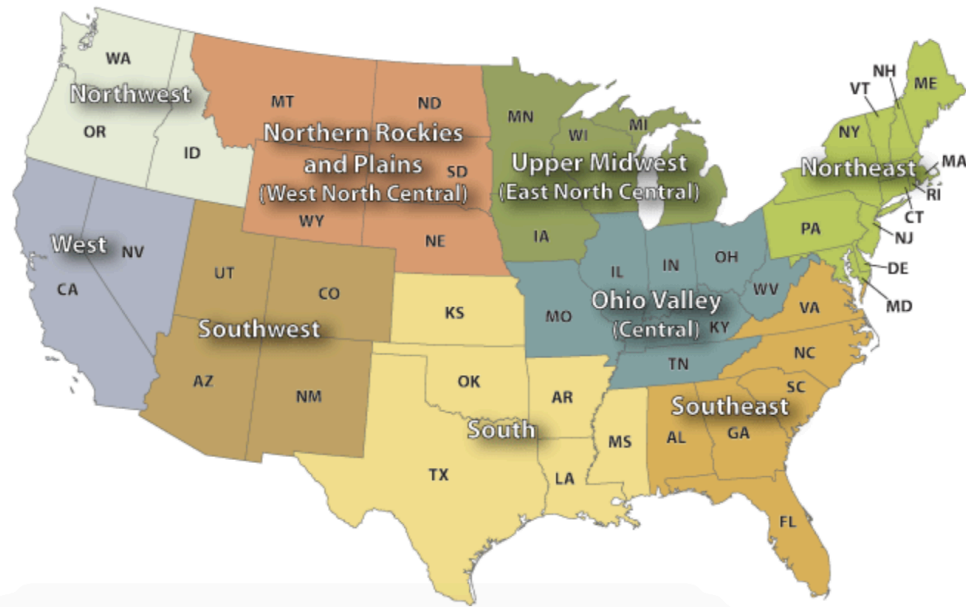
Western states have faced several record-setting heat waves this summer, including one in June that left more than 100 people dead in the Pacific Northwest. This bout of high temperatures likely won't last as long as previous heat waves, said Ms. Malingowski.

“The sequence of heat waves in the region this year is unprecedented and has exacerbated drought and fire conditions”, said Daniel Swain, a climate scientist at the University of California, Los Angeles.”

He talked about the relationship to global warming and deemed it consistent with the greenhouse models predictions of increased extremes.

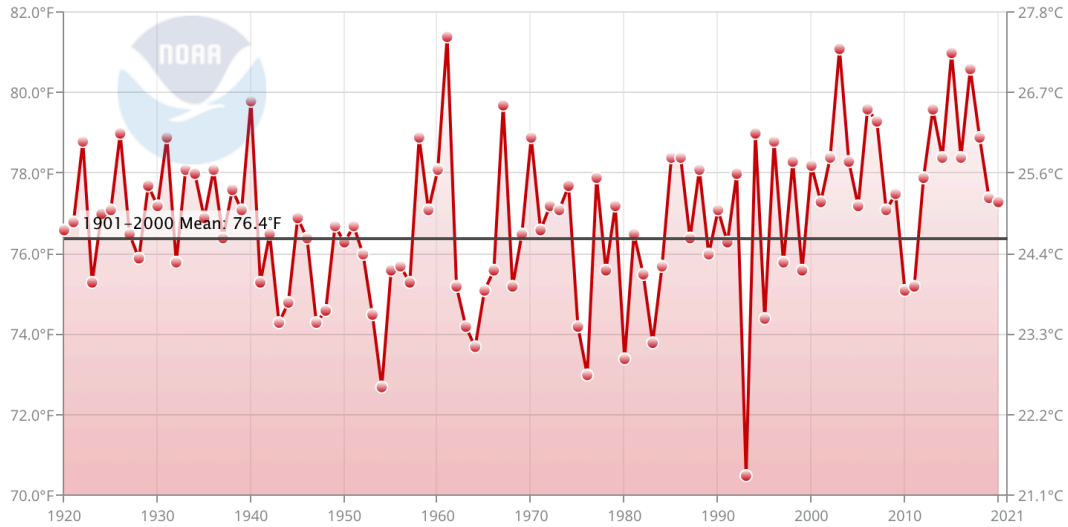
Actually the summer data for the Northwest and Northern Rockies and plains have not been getting hotter the last 100 years (source NOAA NCEI).

**U.S. Climate Regions**

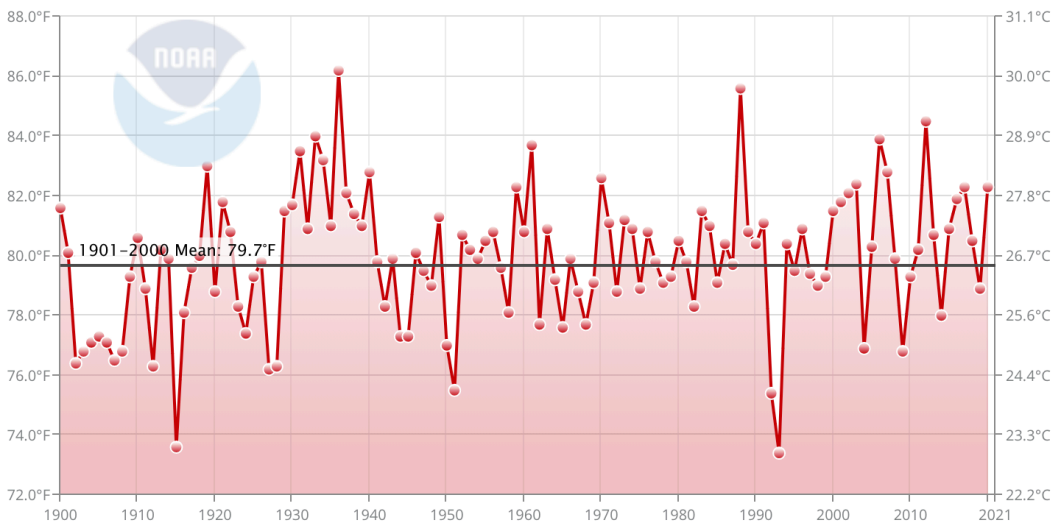


See the Northwest and Northern Rockies and Plains trends for maximum temperatures the last century.

Northwest Maximum Temperature  
June–August



Northern Rockies and Plains Maximum Temperature  
June–August



Daniel is part of the academic/institutional/governmental/environmental climate cabal that waits for the inevitable extreme event to join with the media in hyping it as scientific proof their failing theory is validated. Surely some of the alarmists know cycles in weather and extremes of temperature and extreme weather are not man-made but are either silenced by the threat of cancellation/job loss or lured by the funding is (trillions of dollars!). There are

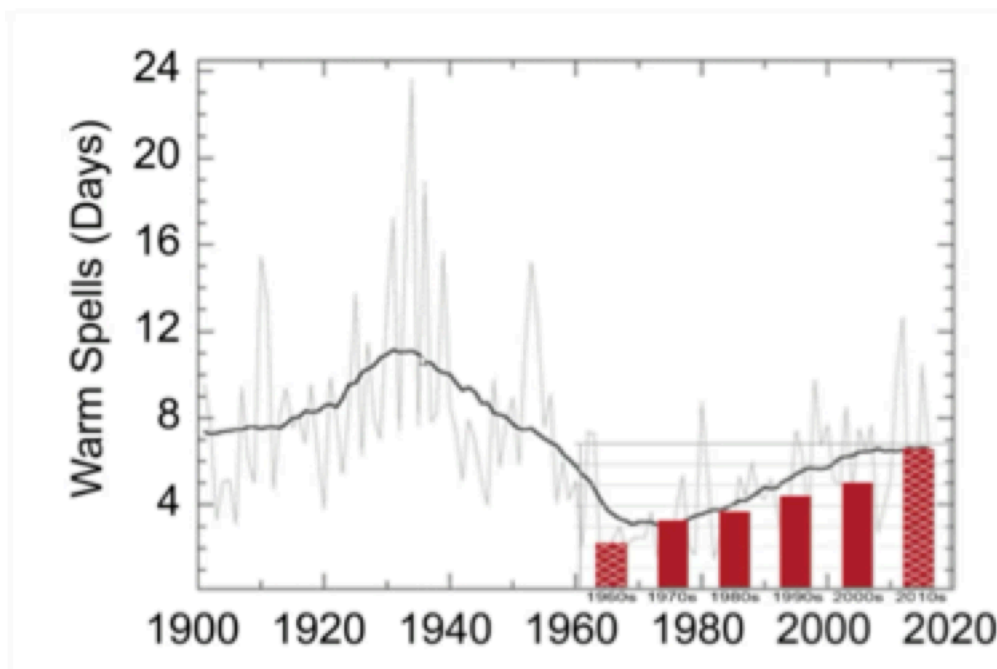
other younger people who have been indoctrinated in this nonsense in school and believe it is true. They spend no time looking at possible other natural causes partly because they are not taught those in school.

Dr. Cliff Mass at the University of Washington has been a realist voice in that region on the Cliff Mass Weather Blog:

*“Society needs accurate information in order to make crucial environmental decisions. Unfortunately, there has been a substantial amount of miscommunication and unscientific hand-waving about the recent Northwest heatwave. This blog post uses rigorous science to set the record straight... It describes the origins of a meteorological black swan event and how the atmosphere is capable of attaining extreme, unusual conditions without any aid from our species.”*

Indeed, forecasters who must predict the ups and downs and risk of extremes look at natural factors on a global scale to make their predictions ahead of each month and season. The warmists simpleton solution is always that we can expect extremes and we are responsible. They have no sense of history and when they do trend analysis, they prove that cherries are their favorite fruit. See a government report trend bars that conveniently left out the earlier more significant heat.

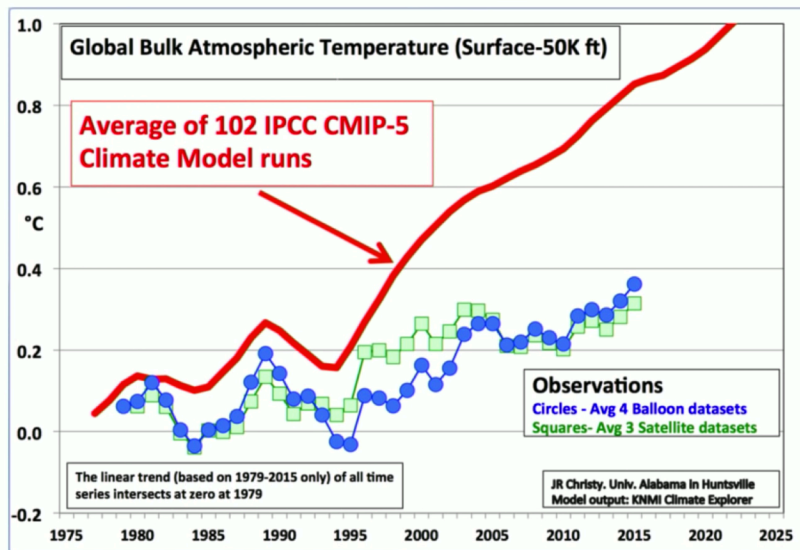
## Cherry Picking



Remember the [list of 50 predictions that have all failed](#) the last half-century.

Satellite measurement of our atmosphere not contaminated by urban heat island effects shows a warming about 1/3 that of the greenhouse models.

The satellite record starts in the late 1970s and if it was available back 120 years would have shown the warming which started in 1979 was just part of a 60 year natural cycle related to ocean temperatures and solar input. Even during this period, models have overstated by a factor of three the warming.

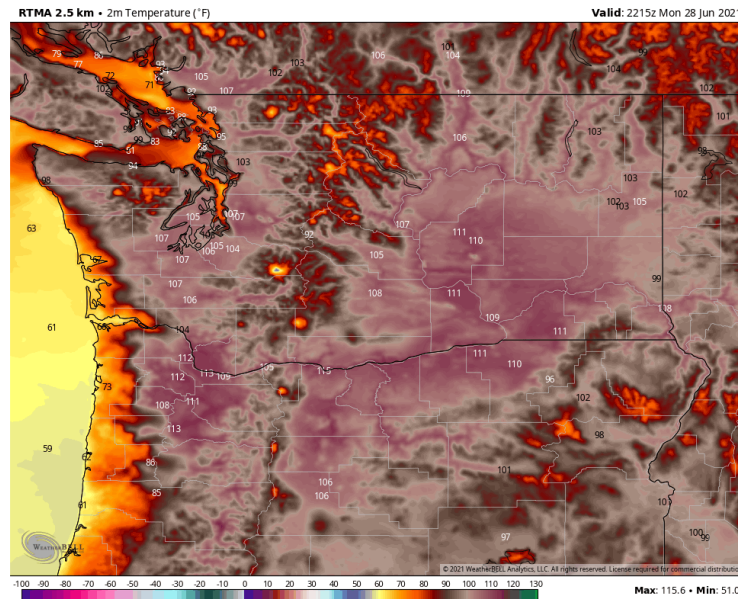
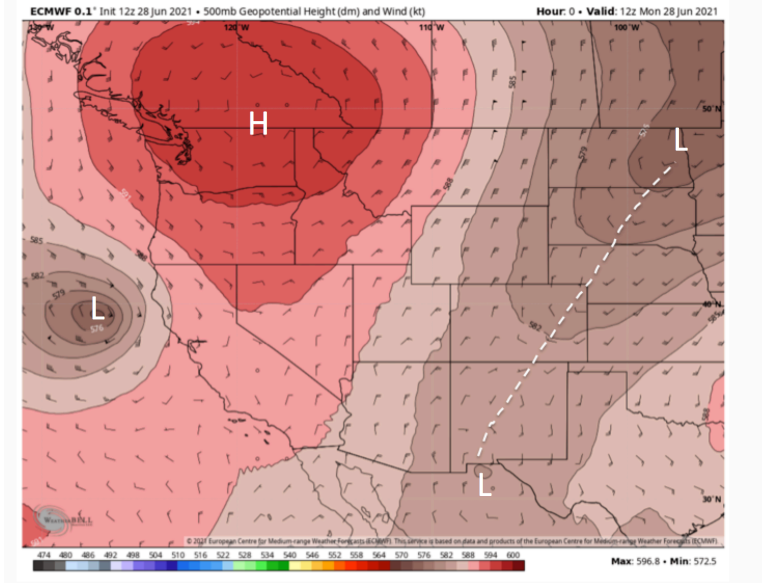


<https://science.house.gov/sites/republicans.science.house.gov/files/documents/HHRG-114-SY-WState-JChristy-20160202.pdf>

So what caused the heat waves this summer in the northwest US and southwest Canada?

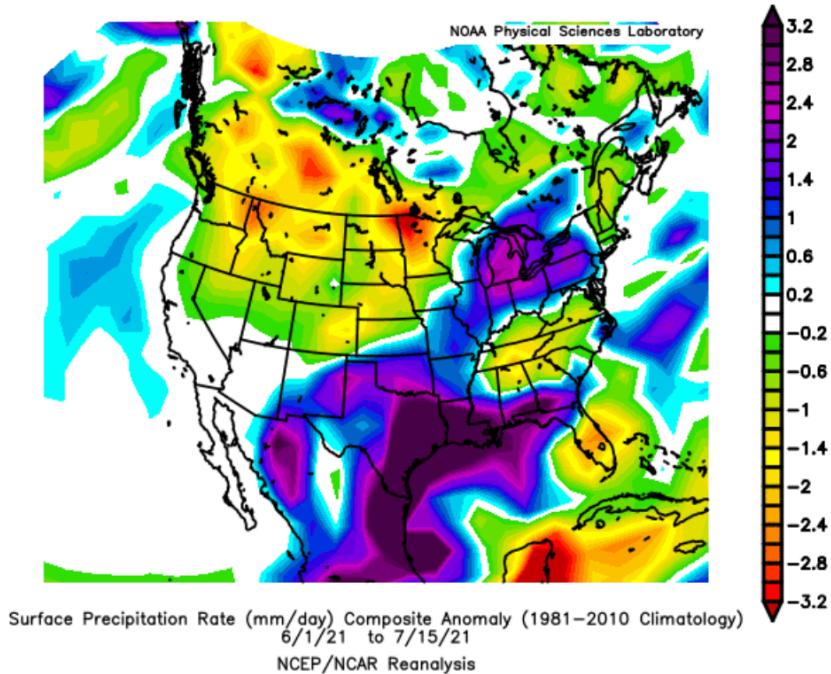
While the central and southeast has been very wet and cool for summer, the west has been very warm and in late June for several days extremely hot. It is due to an unusual location of a classic pattern of a dome of hot air we call a 'heat ridge' that often is the culprit on summer heat waves.

The easterly flow beneath pushed heat from the Great Basin to the west where it is forced to descend. When it descends the warm air gets warmer due to compression - and in this case to record levels - over the last 3 days of June.



When hot air descends from the mountains, it warms by compression. This occurs in the plains when heat comes east and also in the eastern cities when it descends the Appalachians. This is how 100F heat waves occur.

When you see heat waves they are usually surrounded by areas that are cooler and often wetter than normal. The patterns in hot summers are amplified with strong heat ridges and deeper than normal cool wet troughs. In the US it has been an unusually wet and cool for summer season in the south central and southeast.



Dallas has not hit 100F yet. Summers have had as high as 71 days over 100F.

#### DALLAS 100F DAYS ANNUAL TOP 10

##### Greatest Annual

Rank	# of Days	Year
1	71	2011
2	69	1980
3	56	1998
4	52	1954
5	48	1956
6	46	2000
7	44	1952
8	43	2006
9	40	1951
10	38	1963

Atlanta has had only 5 90F days (the record there is 91 days).

Extreme summer heat is typically enhanced in droughty areas, which also correlates to heat ridges where the very warm temperatures aloft augmented by

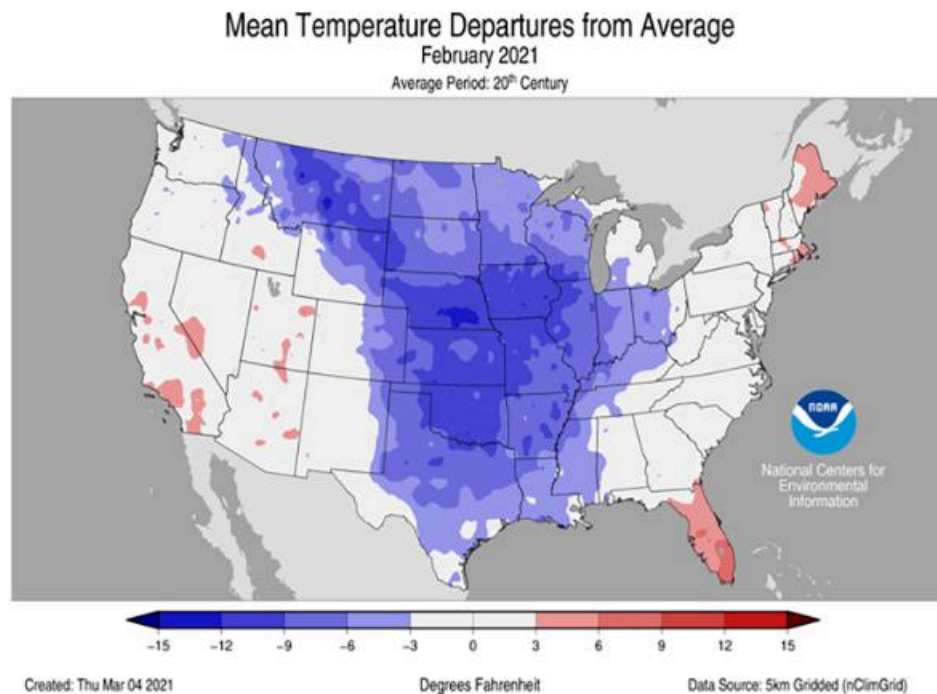
sinking air and the lack of available moisture keep it rain free. That has been the case in the northwest and southwest Canada since last fall. This heat waves was localized compared to the great heat waves of the past especially the 1930s, when 100F readings were reported in 45 of the lower 48 states and the state all-time heat wave records for 22 states still hold.

## THE INCONVENIENT COLD

They already forgot the record cold in the plains for February 2021. At least 217 people were killed directly or indirectly by severe cold, and the damages are estimated to be at least \$195.6 billion (2021 USD).

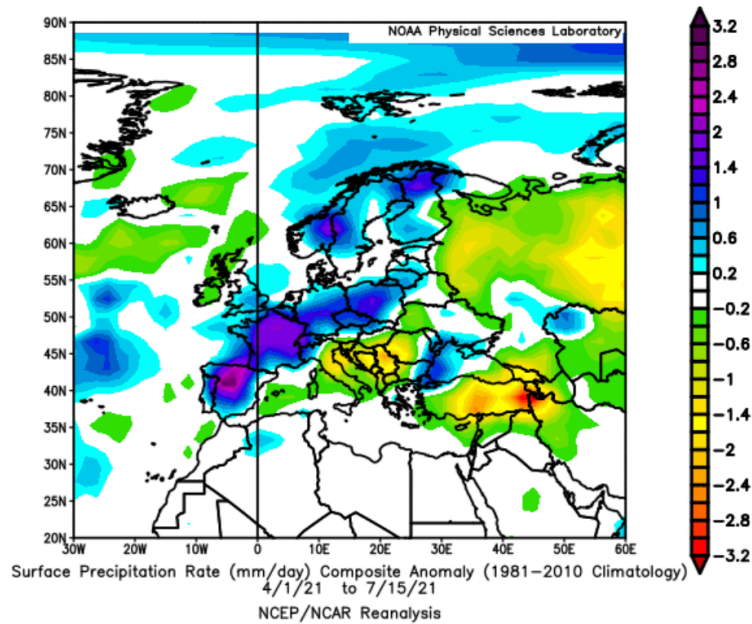
The cold snap peaked from February 14-16, NOAA reported "... approximately 30% of available US sites set cold maximum records, and about 20% set minimum records." During that peak period, the analyzed temperatures were 40 to 50 degrees below average over much of the central and southern Plains. More than 3,000 daily record cold temperatures (minimum and maximum) were reported from February 12-17 at long-term observations (75+ years of data).

Based on preliminary data, 62 all-time daily cold minimum temperature records were broken from February 11-16 and 69 all-time daily cold maximum temperature records occurred February 15-16, said NOAA.



EURASIA MIRRORED NORTH AMERICA

A similar see-saw was observed in Eurasia where a dipole pattern mirrored the one here in North America. An early summer heat ridge in Eastern Europe nudged into western Russia this month where sudden high heat stressed crops. Meanwhile, the strong trough behind in this amplified pattern produced very heavy rains and disastrous and deadly flooding damage in central Europe.



Forecasters know ocean temperature configurations (warm and cool pools together with antecedent conditions (winter and spring dryness for example) help determine whether the pattern is amplified and persistent or more zonal and variable. They also tell us the risk of severe events like tornadoes, hurricanes, drought and floods, and heavy snows.