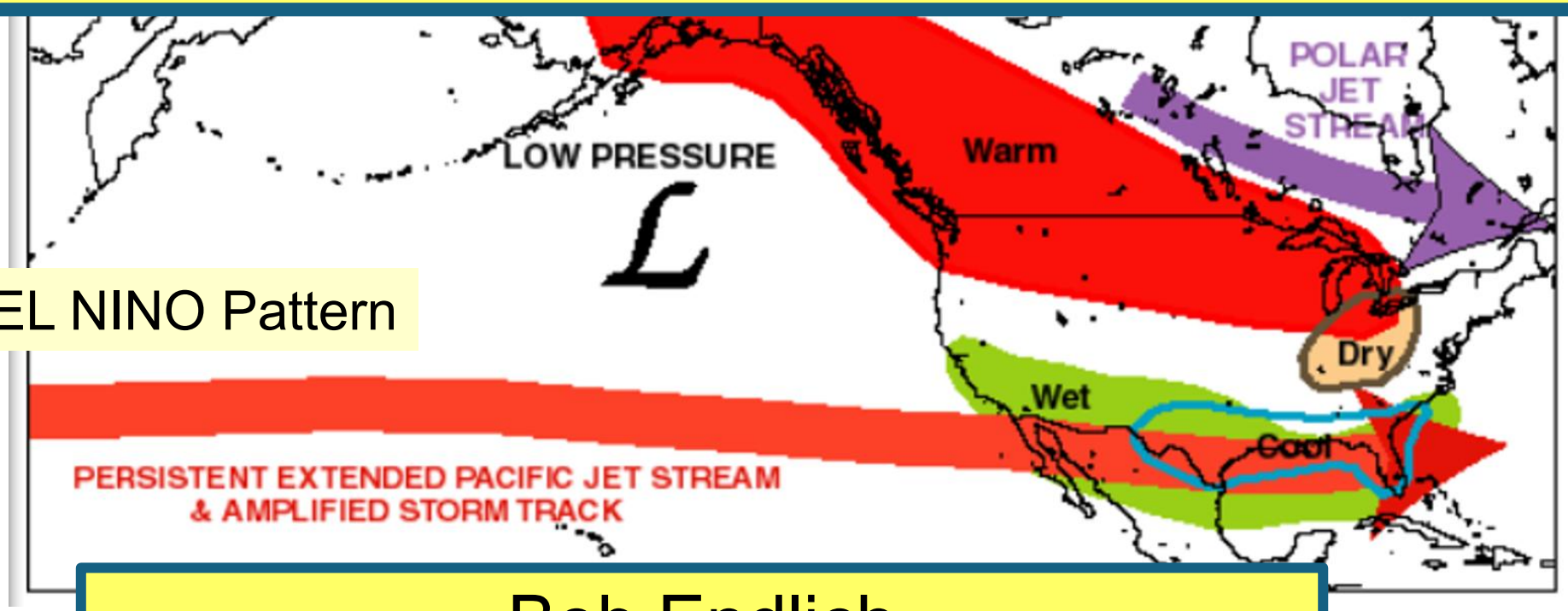
Going out on a Limb?
My Forecast: El Nino's Return, beginning w/upcoming cold season, Ending Persistent Drought in the West.



EL NINO Pattern

Bob Endlich
bendlich@msn.com
Cruces Atmospheric Sciences Forum
15 August 2026

Preface.

There are many separate elements in this presentation we have seen before.

One new development is creation of the Relative Ocean Nino Index, the RONI, which was first presented by NOAA last year, in 2025. RONI was developed from the previous Ocean Nino Index, the ONI, in essence a time series of Sea Surface Temperatures in the Nino 3.4 region along the Equator.

Also new: I present the August 26 ENSO Diagnostic Discussion from NWS' Climate Prediction Center.

I assemble here past, and some new, elements to put together my forecast for a significant change from previous La Nina or ENSO-Neutral conditions, with the accompanying Western drought and low Colorado Basin water levels, to full El Nino-Wet-in-the-West-and-South, beginning with the coming cold season.

By the time six months have passed, I forecast the story will change, to one of heavy Pacific Coast Storms, rain in the low levels, snow in the mountains, and the storm damage stories, from the strong Pacific storms, stories we have seen in El Nino winters past.
Low water in the Colorado River Basin will be supplemented by significant rain runoff, and next spring's snow melt will bring relief from the "Low Water Level Crisis" stories of today.

This is my forecast of future events.

Outline

El Nino and La Nina Overview

Recent Scary Headlines of Catastrophic and Alleged Human-Caused Drought

- USA-Colorado River Basin
- Spain and adjacent France

A review of the ENSO controls on cold season climate, especially in the West.

Development of El Nino, both in words, and with use of Bob Tisdale's graphics.

NWS Climate Prediction Center's August, 2026, ENSO Diagnostic Discussion (words + graphics)

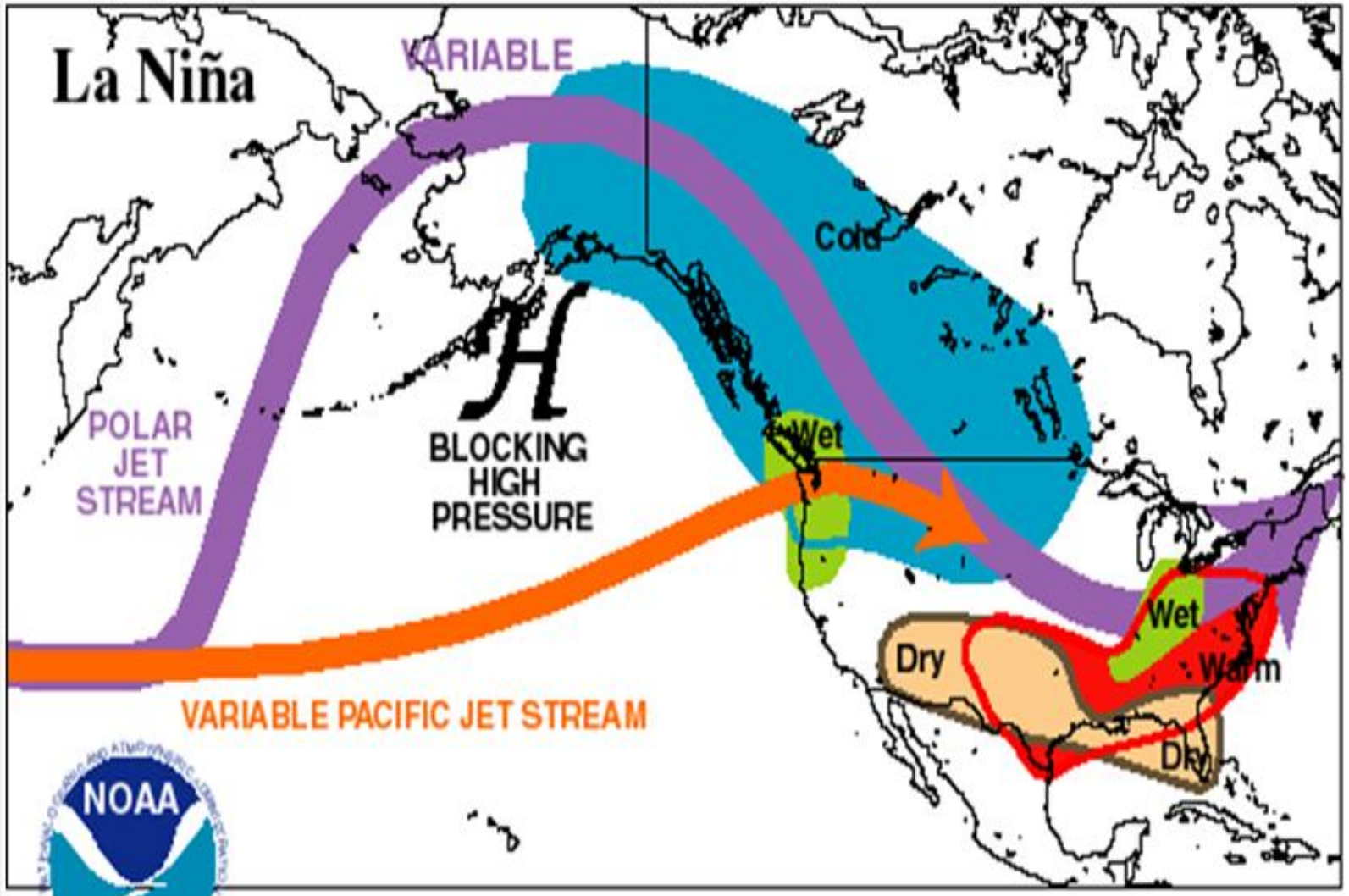
ECMWF's "Long Range Guidance" for Jan 2027 El Nino…not an Official Forecast…..

El Nino and La Nina Overview

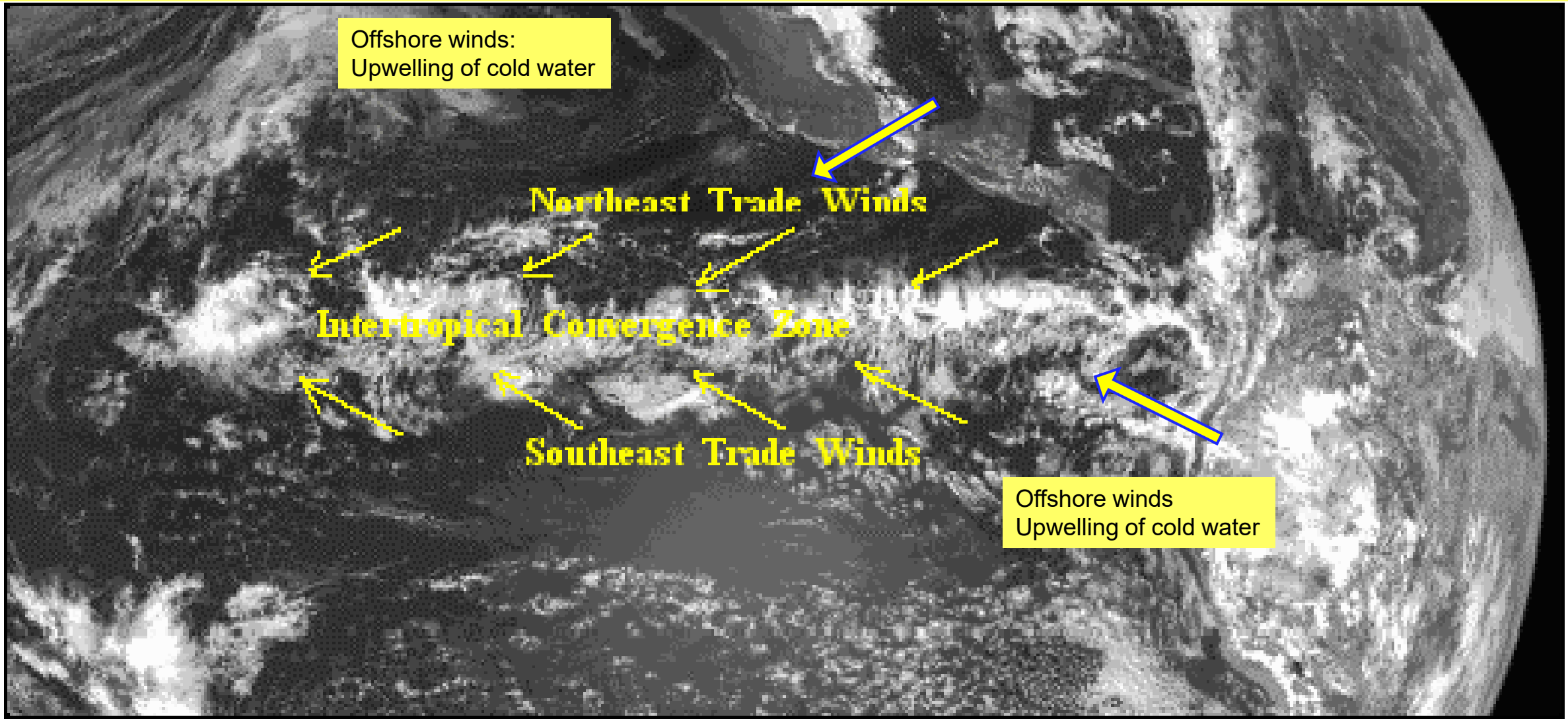
Frequently, *ENSO*, El Nino-Southern Oscillation

La Nina pattern, brings dry/drought from Arizona to Florida

http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/ensocycle/nawinter.shtml

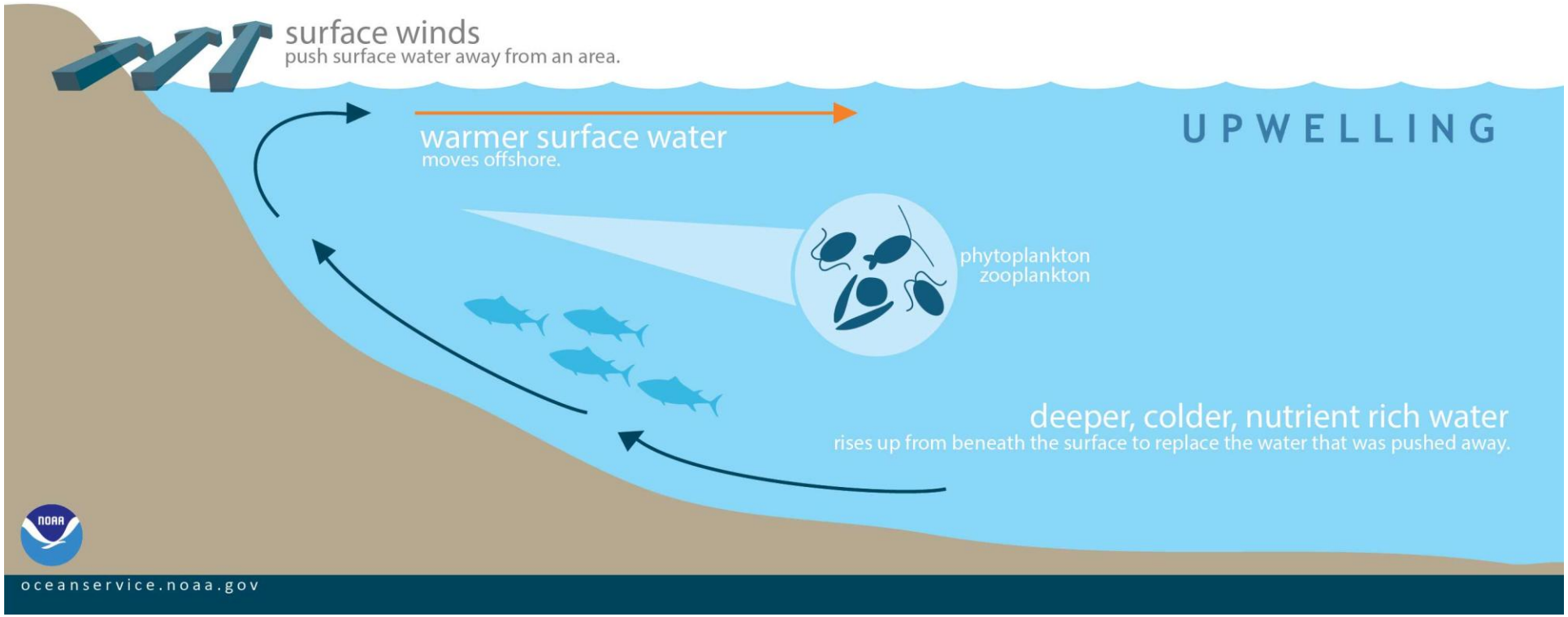


In La Nina years, the Northeasterly Trade Winds are very prevalent, and stronger.
Visitors to Hawaii usually encounter steady winds from the northeast , the Trade Winds.
The Northeast Trade Winds extend to Guam, even becoming the Northeast Monsoon of Vietnam.



https://www.nationalgeographic.org/encyclopedia/upwelling/

SIDEBAR ON UPWELLING
off West Coasts of North America
and South America



Helps answer the question as to why the Pacific Coast waters are so cold:

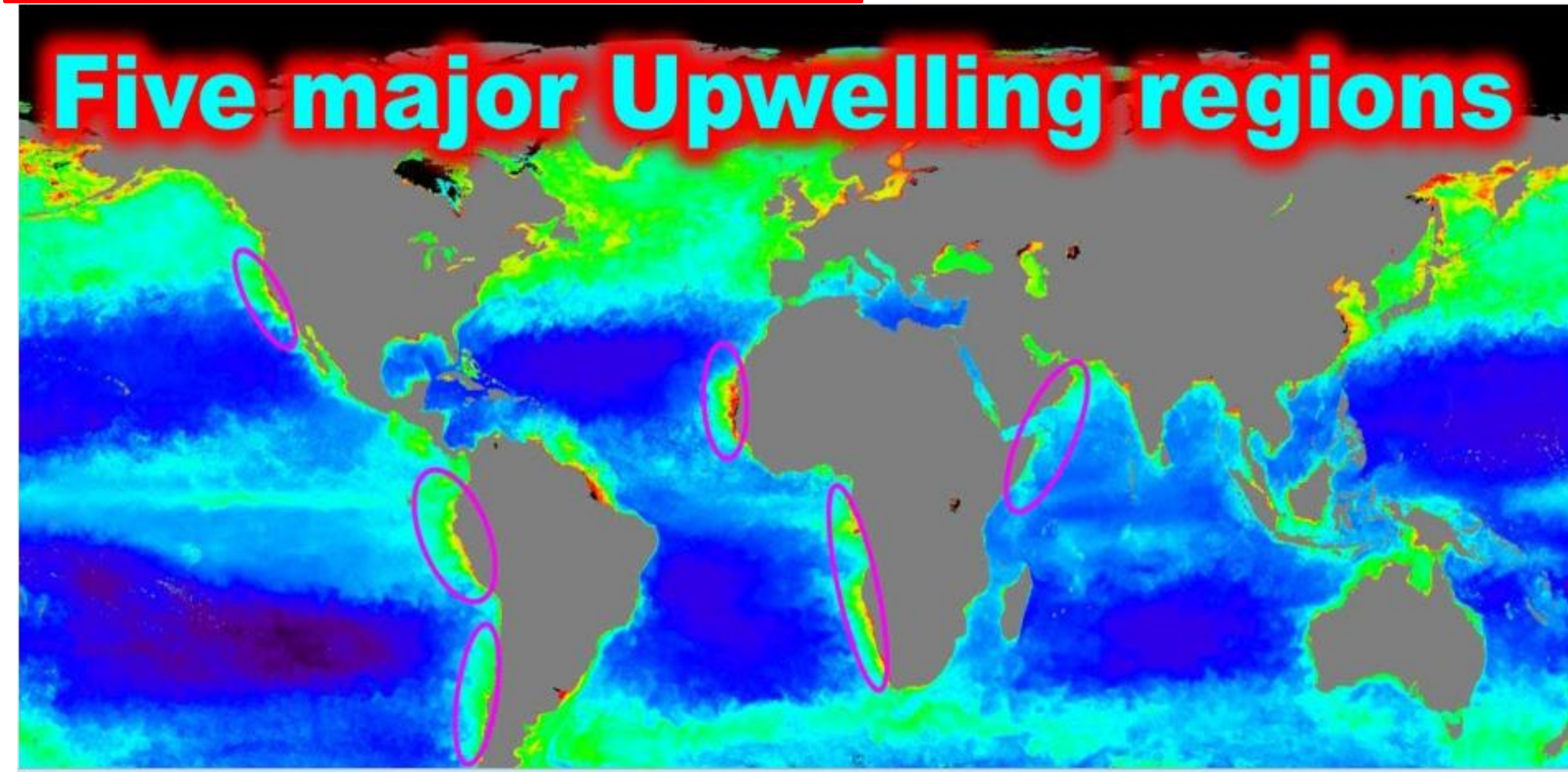
Mark Twain's observation,
"The coldest winter I ever spent was a summer in San Francisco."

https://www.nationalgeographic.org/encyclopedia/upwelling/

Peruvian Upwelling: Upwelling is the natural process which brings cold, nutrient-rich water to the surface. A huge upwelling regularly occurs off the coast of Peru, which enjoys a large fishing industry as a result.

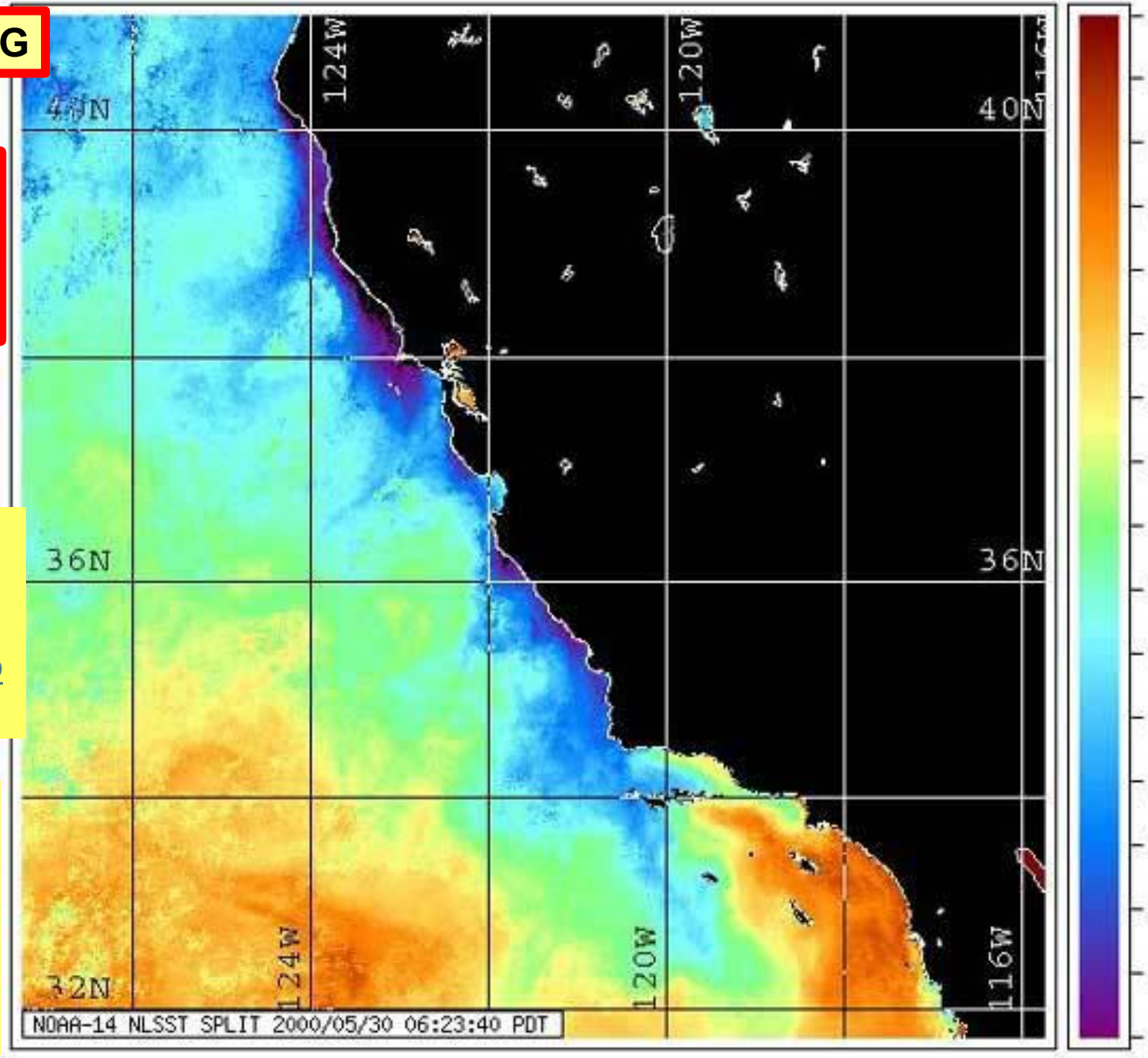
COMMENT: The stuff you find during Internet Search…
I count SIX, not FIVE, separate UPWELLING Regions!

https://ena.our-dogs.info/facts-ph.html



CALIFORNIA COASTAL UPWELLING

Offshore winds bring cold water to the surface, just offshore of California's Beaches.



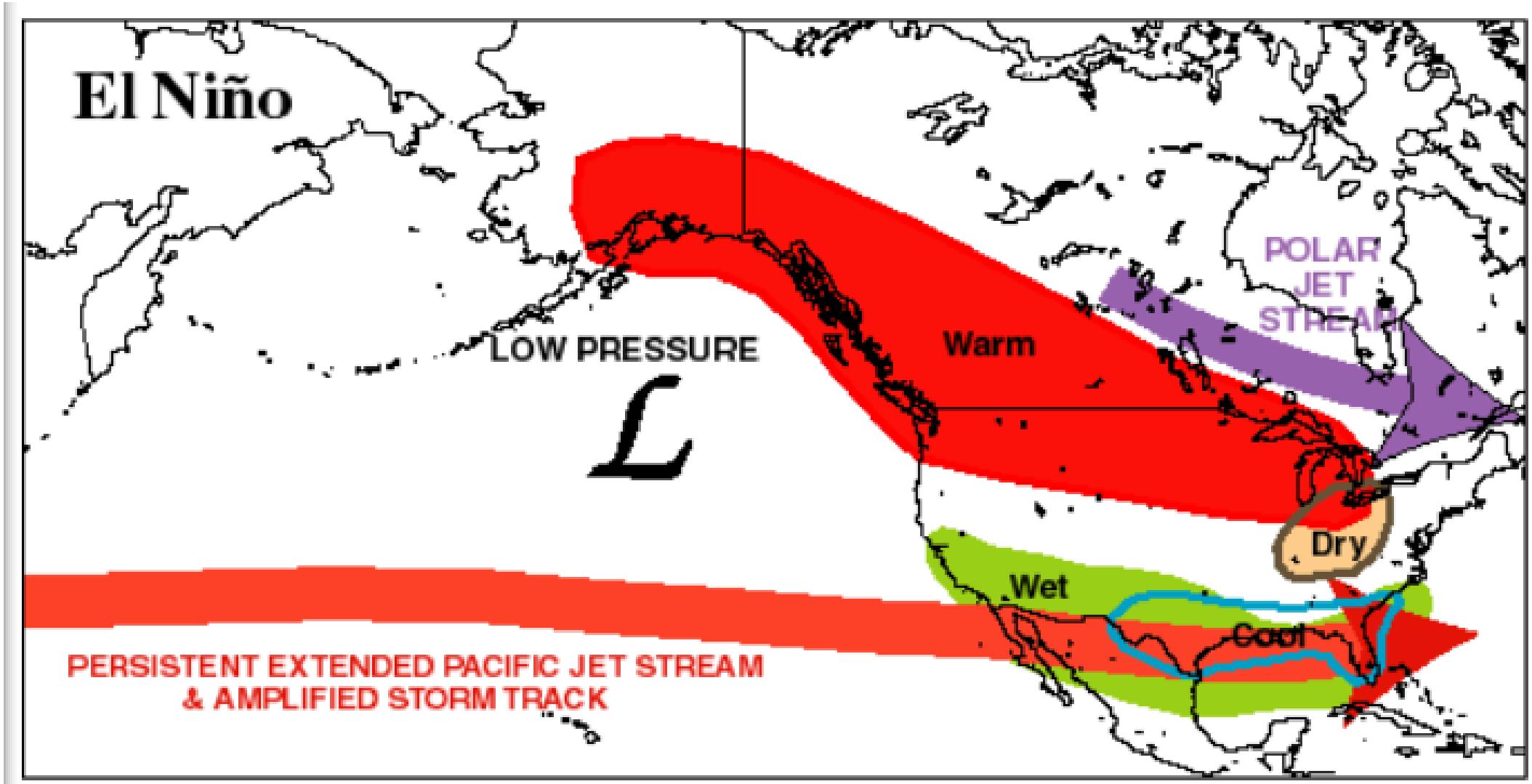
https://upload.wikimedia.org/wikipedia/commons/b/ba/Water_temperature_off_the_California_coastline.jpg?utm_source=en.wikipedia.org&utm_campaign=imageinfo&utm_content=original

By Sanctuary Quest 2002, NOAA/OER - https://oceanexplorer.noaa.gov/explorations/02quest/background/upwelling/media/Fig2_map.html Public Domain, https://commons.wikimedia.org/w/index.php?curid=96099834

El Nino pattern: Brings wet from California to New Mexico to East Coast

Huge Warm Pattern from Gulf of Alaska all the way to Michigan!

https://www.cpc.ncep.noaa.gov/products/analysis_monitoring/ensocycle/nawinter.shtml



OVERVIEW: Here, in words, is the development sequence from ENSO-Neutral (or La Nina) to El Nino:

NOTATION: I shorten “North America” to NoAM several times ahead.

ENSO Neutral and La Nina: Offshore Flow California and North America => upwelling of cold bottom water =>surface stress from NoAM to Hawaii to West Pacific. =>0.5M Higher Sea Levels West Pacific.

Long overwater path of surface water not far from the equator => water heats up as it moves southwestwards.

High Sea Levels in West Pac, Indonesia, and Australia occur from surface water piling up. The Extra Warm Water Sinks. There is a large pool of subsurface hot water, the Western Pacific Warm Pool.

There is a weakening of the Trade Winds, cause still unclear. The elevated mound of warm water, that West Pacific Warm Pool, sloshes across the surface of the Pacific, West to East.

After ~2-3 months, the warmed water reaches the Americas about the time of the winter solstice. Rain falls at the coast of Chile, on the Atacama Desert about the time of the Winter Solstice. This somewhat rare event is called “El Nino,” because of its occurrence near 25 December.

The relatively rapid heating of wide areas of the surface of the Pacific Ocean by the previously stored below-the-surface pool of hot water, moving west to east, raises the water temperatures near the Americas=>more evaporation into the atmosphere.

More atmospheric water offshore the Pacific Coast => a stormy wet atmosphere and strong rains in the Mountain West =>An El Nino Year.

https://www.msn.com/en-us/science/general/watch-how-an-entire-california-town-is-slowly-falling-into-the-ocean/

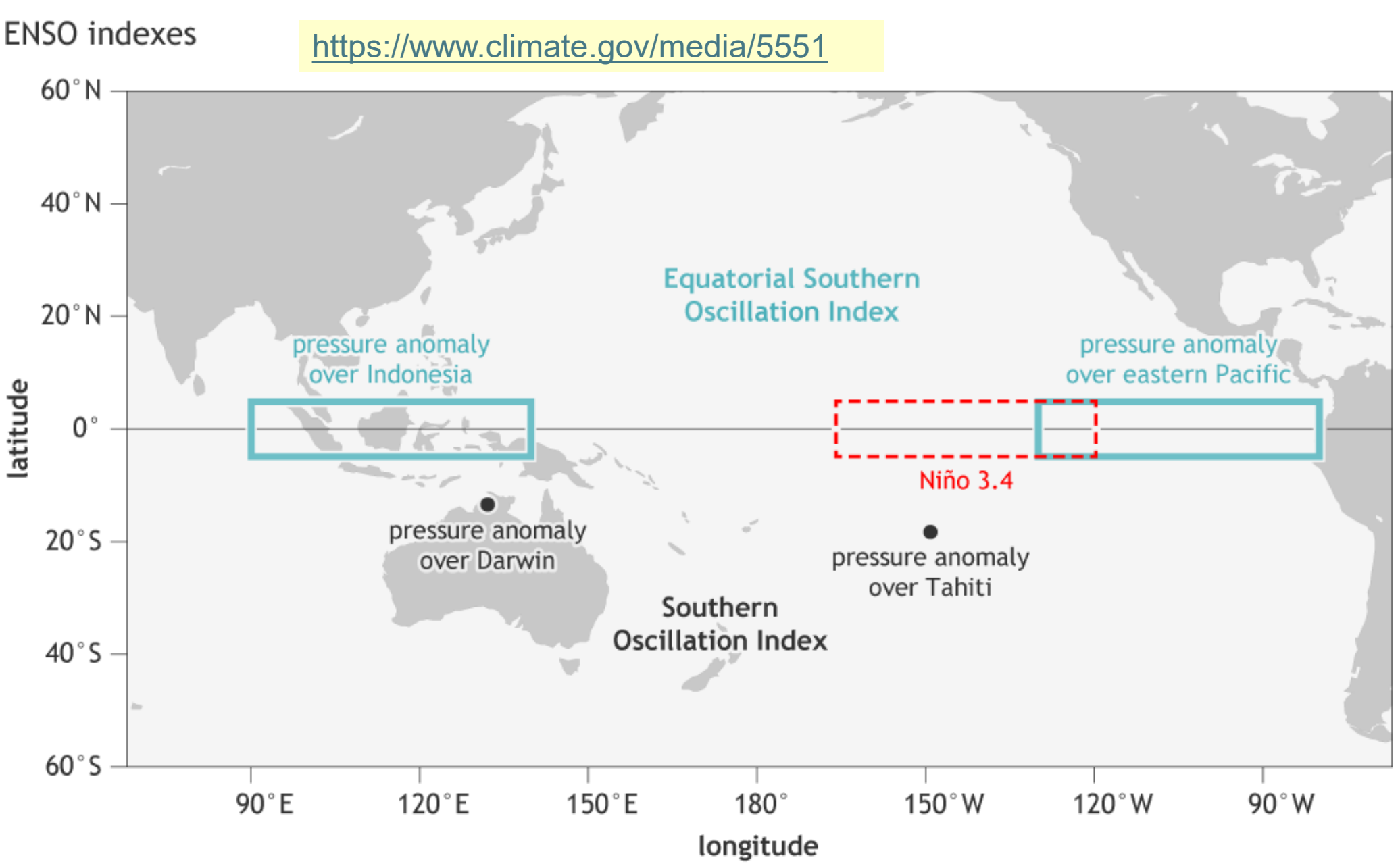
IT'S HISTORY

Watch how an entire California town is slowly falling into the ocean

Perched on California's rugged coastline, Pacifica faces a problem that grows worse every year. Powerful waves, rising seas, and constant erosion are eating away at the cliffs beneath homes and roads. Entire sections of coastline have already disappeared into the Pacific. Engineers continue searching for solutions, but nature keeps pushing back. The result is one of America's most dramatic coastal battles.

https://www.nbcnews.com/news/weather/californias-heavy-weather-feels-el-nino-la-nin-switched-roles-rcna65227

The landmark Crystal Pier off Pacific Beach collapses under the force of surging waves during an El Niño storm in San Diego on 27 Jan 1983.



Location of the stations used for the Southern Oscillation Index (Tahiti and Darwin, black dots), the Equatorial Southern Oscillation Index (eastern equatorial Pacific and Indonesia regions, outlined in blue-green), and the Niño3.4 region in the east-central tropical Pacific Ocean for sea surface temperature (red dashed line). NOAA Climate.gov image by Fiona Martin.

Golden Gate Weather Services

Weather and Climate Blog

https://ggweather.posthaven.com/which-el-nino-index-is-best

Which El Niño Index is Best?

Which El Niño Index is Best?

Golden Gate Weather Services is a small company run by Jan Null. I have asked, and he has given permission, for me to occasionally use his materials, if I properly cite. I find his material to be valuable This graphic asks the magic question: "**Which El Nino Index is the Best?**"

Nino 3.4 region: area bounded from 5N to 5S and from 120W to 160E

NOAA NATIONAL CENTERS FOR ENVIRONMENTAL INFORMATION
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

Home | Climate Information | Data Access | Customer Support | Contact | About | Search

Home > Climate Monitoring > Equatorial Pacific Sea Surface Temperatures

July Global Release: Thu, 20 Aug 2015, 11:00 AM EDT

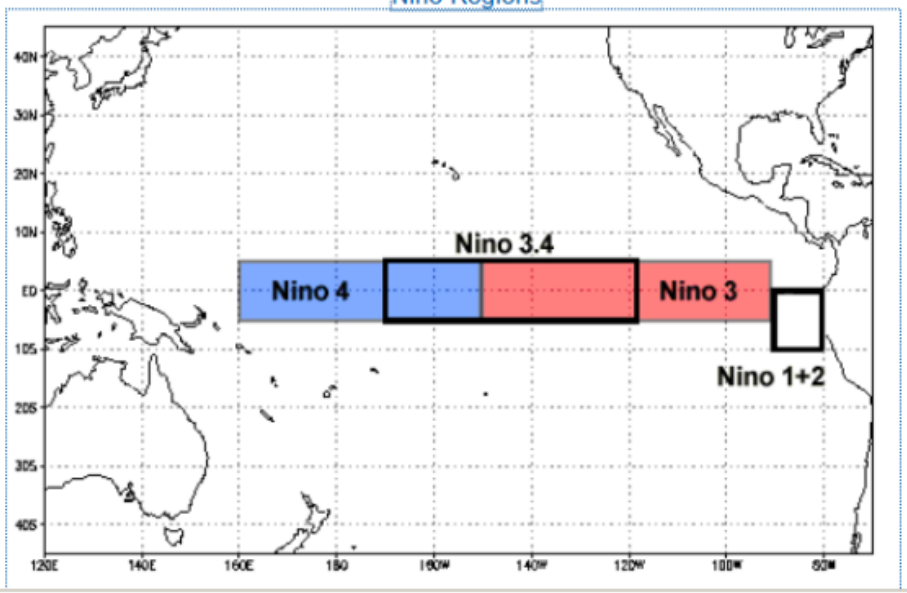
Equatorial Pacific Sea Surface Temperatures

- Climate Monitoring
- State of the Climate
- BAMS State of the Climate
- Temp, Precip, and Drought
- Climate at a Glance
- Extremes
- Societal Impacts
- Snow and Ice
- Teleconnections
- GHCN Monthly
- Monitoring References

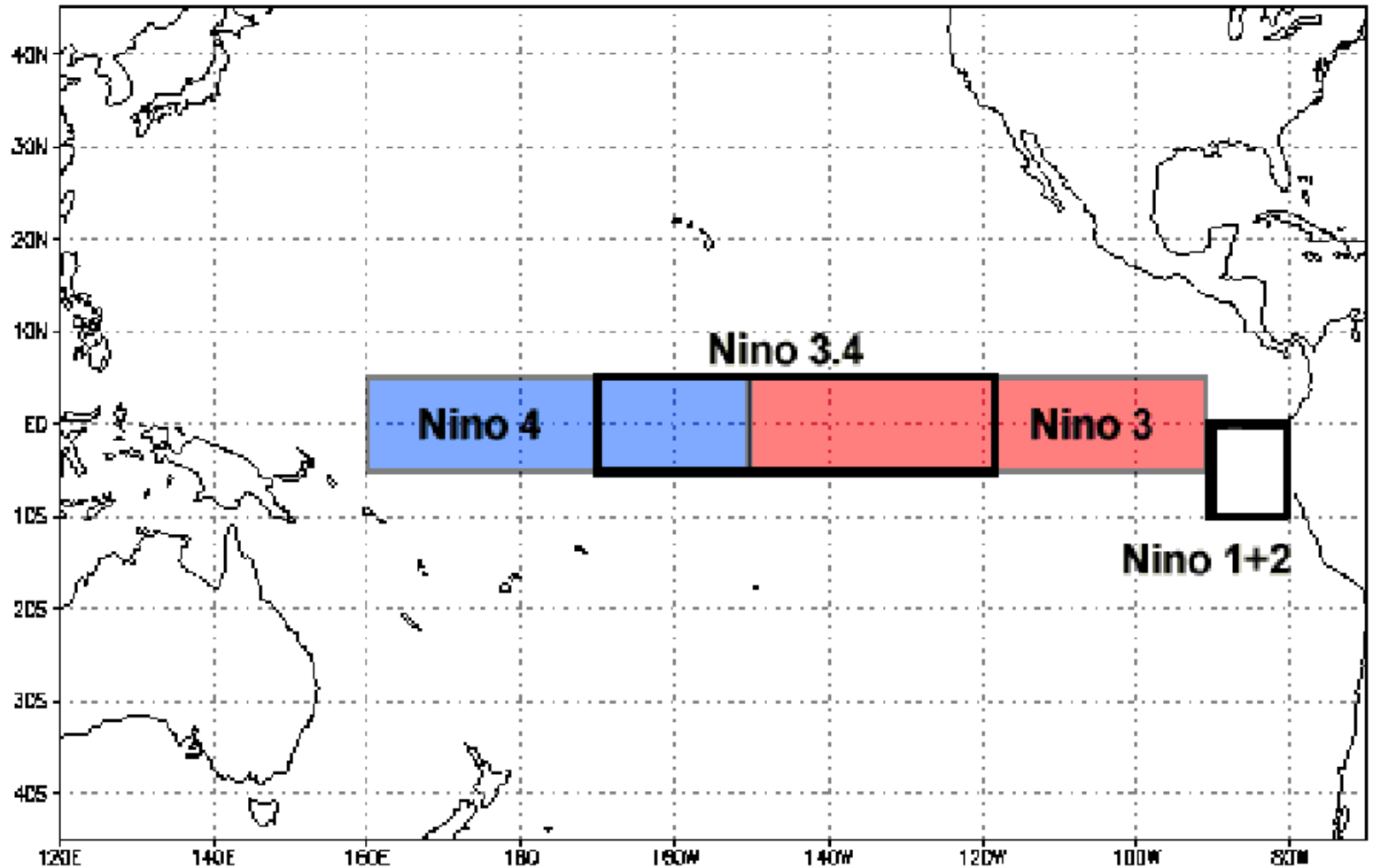
ENSO | Zonal Winds | SSTs | Sea Temps | SST Anomalies | OLR | SOI

El Niño (La Niña) is a phenomenon in the equatorial Pacific Ocean characterized by a five consecutive 3-month running mean of sea surface temperature (SST) anomalies in the Niño 3.4 region that is above (below) the threshold of +0.5°C (-0.5°C). This standard of measure is known as the Oceanic Niño Index (ONI).

Niño Regions



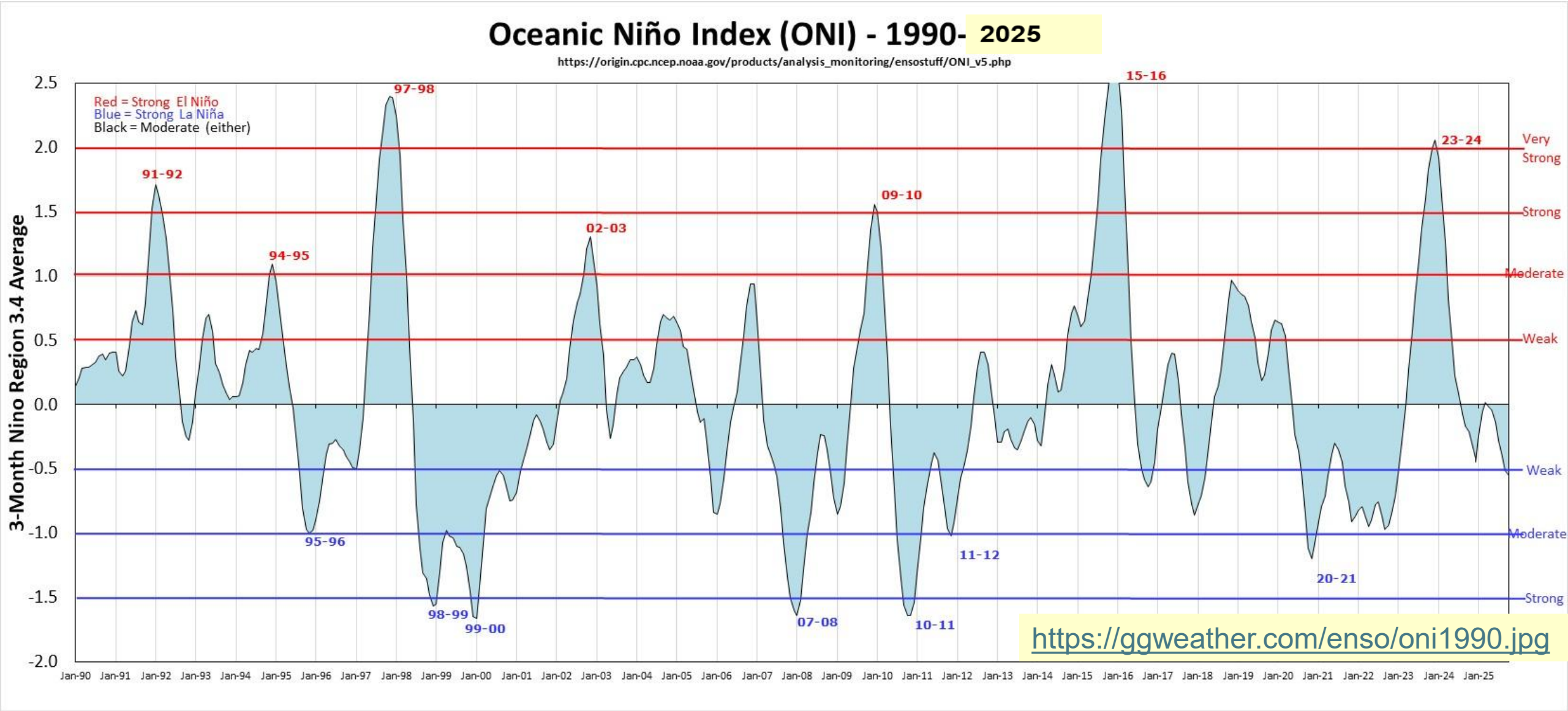
When we see the SST videos, later, they help explain the use of El Nino Index rectangles seen here.



was

The **Oceanic Nino Index:** (ONI) is one of the primary **indices** used to monitor the El **Nino**-Southern Oscillation (ENSO). The ONI is calculated by averaging sea surface temperature anomalies in an area of the east-central equatorial Pacific **Ocean**, which is called the **Nino 3.4 region** (5S to 5N; 170W to 120W).

The ONI, or Ocean Nino Index, **was used** by the ENSO community for a good number of years. ONI is the temperature time series for Nino 3.4 area. The last point on the ONI was in 2025. ONI has been replaced by the **Relative Ocean Nino Index,** or **RONI**. More on RONI later.



https://ggweather.com/enso/oni1990.jpg

Scary Headlines, USA

Climate change identified as main driver of worsening drought in Western United States

https://www.latimes.com/environment/story/2024-11-07/climate-change-driving-western-drought

A Santa Paula cattle rancher walks away from the carcass of one of his animals that died amid extreme drought conditions in 2014. (Al Seib / Los Angeles Times)

Climate change identified as main driver of worsening drought in the Western United States

https://www.latimes.com/environment/story/2024-11-07/climate-change-driving-western-drought

New research shows global warming has become the dominant driver of worsening droughts in the Western U.S.

Scientists say the severity of future droughts will be determined largely by how much more planet-heating gases humans release into the atmosphere.

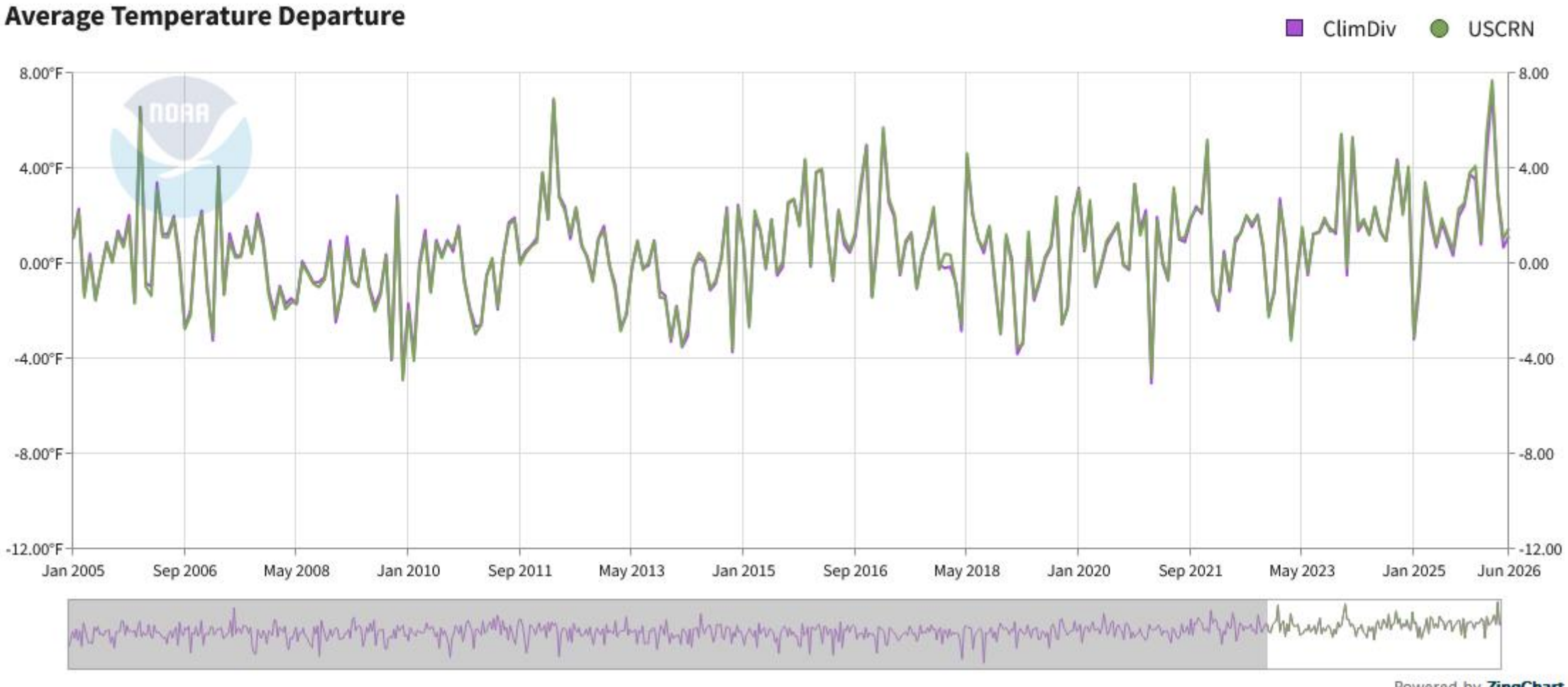
Humanity's heating of the planet, driven by the burning of fossil fuels and unchecked emissions of greenhouse gases, has become the main driver of worsening droughts in California and the American West, according to new research.

A team of UCLA and NOAA scientists found that while droughts in the last century were caused mainly by decreases in precipitation through natural cycles, an entirely different pattern has taken hold as a result of the rising temperatures this century.

The researchers determined that since 2000, human-caused warming has become the dominant force leading to more drought severity in the Western United States. In the case of the intense Western drought from 2020 to 2022, the scientists attributed 61% of its severity to high temperatures, and only 31% to reduced precipitation.

Data plot of surface temperatures from the US Climate Reference Network, USCRN, from January 2005 to June 2026, twenty-one years of data. “The network consists of 114 commissioned stations in the contiguous United States, 25 stations in Alaska (with a plan to eventually have a total of 29), and 2 stations in Hawaii.” It is difficult for me to accept the LA Times’ assertion, ***“New research shows global warming has become the dominant driver of worsening droughts in the Western U.S,”*** when the best continent-sized surface temperature measurement set, the USCRN, shows NO WARMING the past 21 years.

https://www.ncei.noaa.gov/access/monitoring/national-temperature-index/time-series/anom-tavg/1/0



Data plot of surface temperatures from the US Climate Reference Network, USCRN, from January 2005 to June 2026, twenty-one years of data. “The network consists of 114 commissioned stations in the contiguous United States, 25 stations in Alaska (with a plan to eventually have a total of 29), and 2 stations in Hawaii.” It is difficult for me to accept the LA Times’ assertion, ***“New research shows global warming has become the dominant driver of worsening droughts in the Western U.S,”*** when the best continent-sized surface temperature measurement set, the USCRN, shows NO WARMING the past 21 years.

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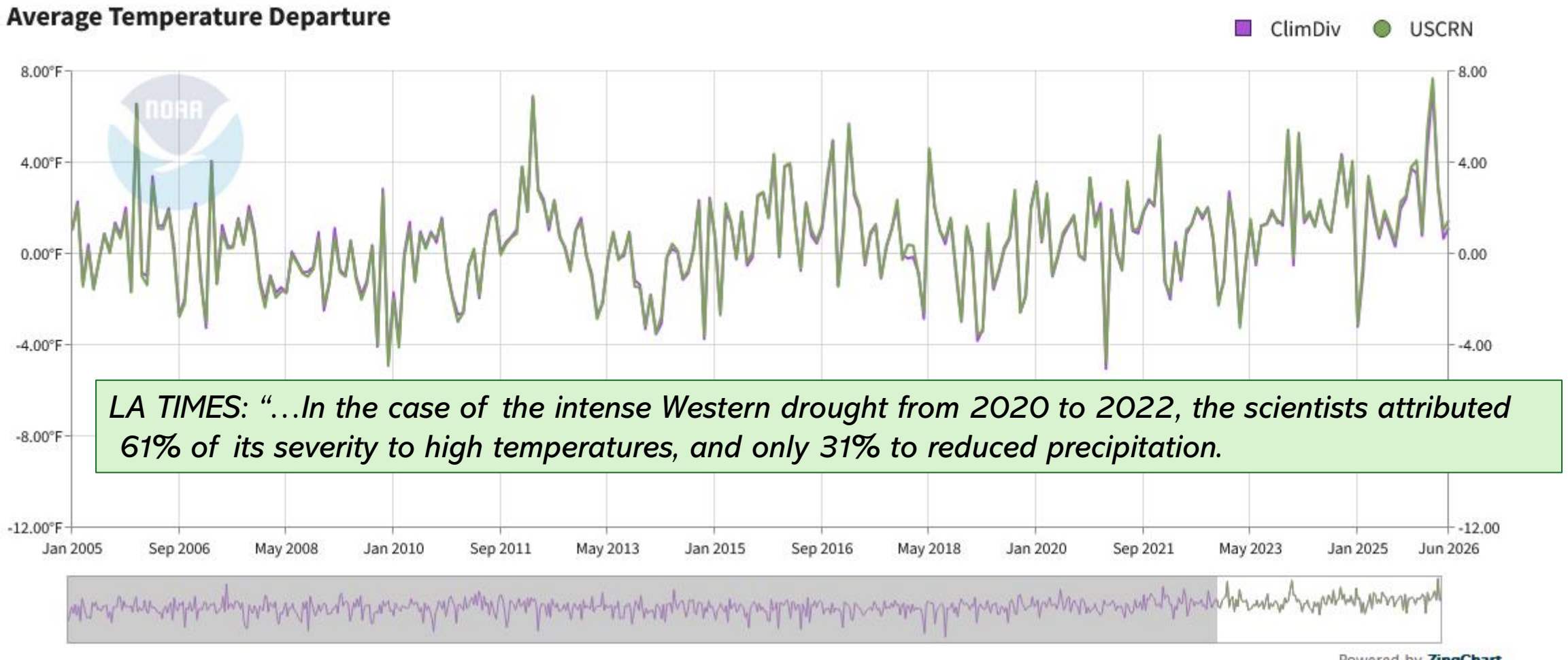


LA TIMES: “…In the case of the intense Western drought from 2020 to 2022, the scientists attributed 61% of its severity to high temperatures, and only 31% to reduced precipitation.

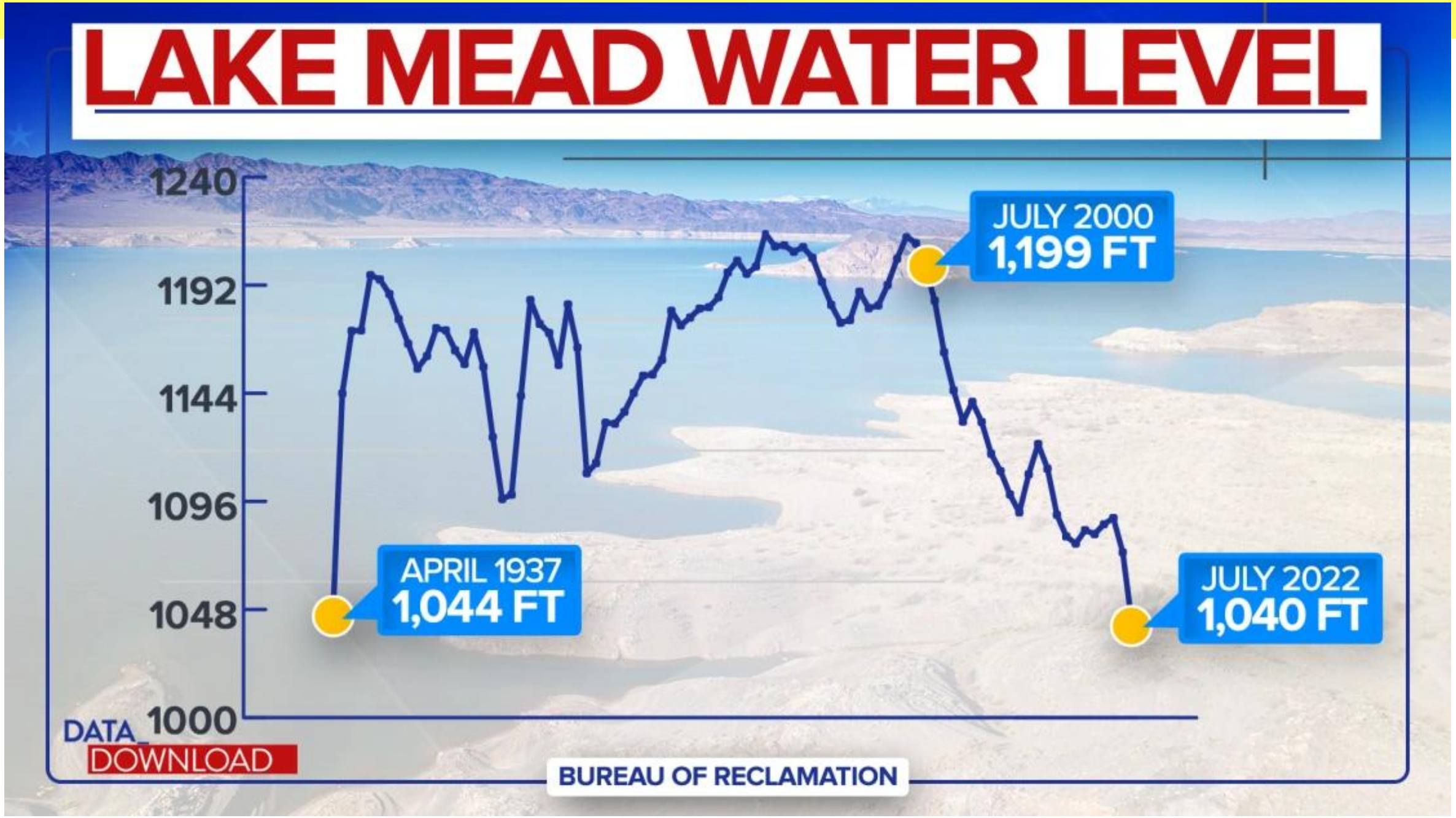
Lake Mead hits lowest water level on record as Colorado River crisis deepens

Scary headline and story from MSN.COM

https://www.msn.com/en-us/news/us/lake-mead-hits-lowest-water-level-on-record-as-colorado-river-crisis-deepens

The recently extended Echo Bay launch ramp accommodates lower water levels at Lake Mead near Overton, Nevada, on 21 July 2026. Previous water levels are visible as "bathtub rings" on nearby cliffs.

https://www.drroyspencer.com/wp-content/uploads/mtp_fs_data_download_2b_2022_08_21.webp



https://www.ktnv.com/news/lake-mead-did-monsoon-storms-impact-water-levels

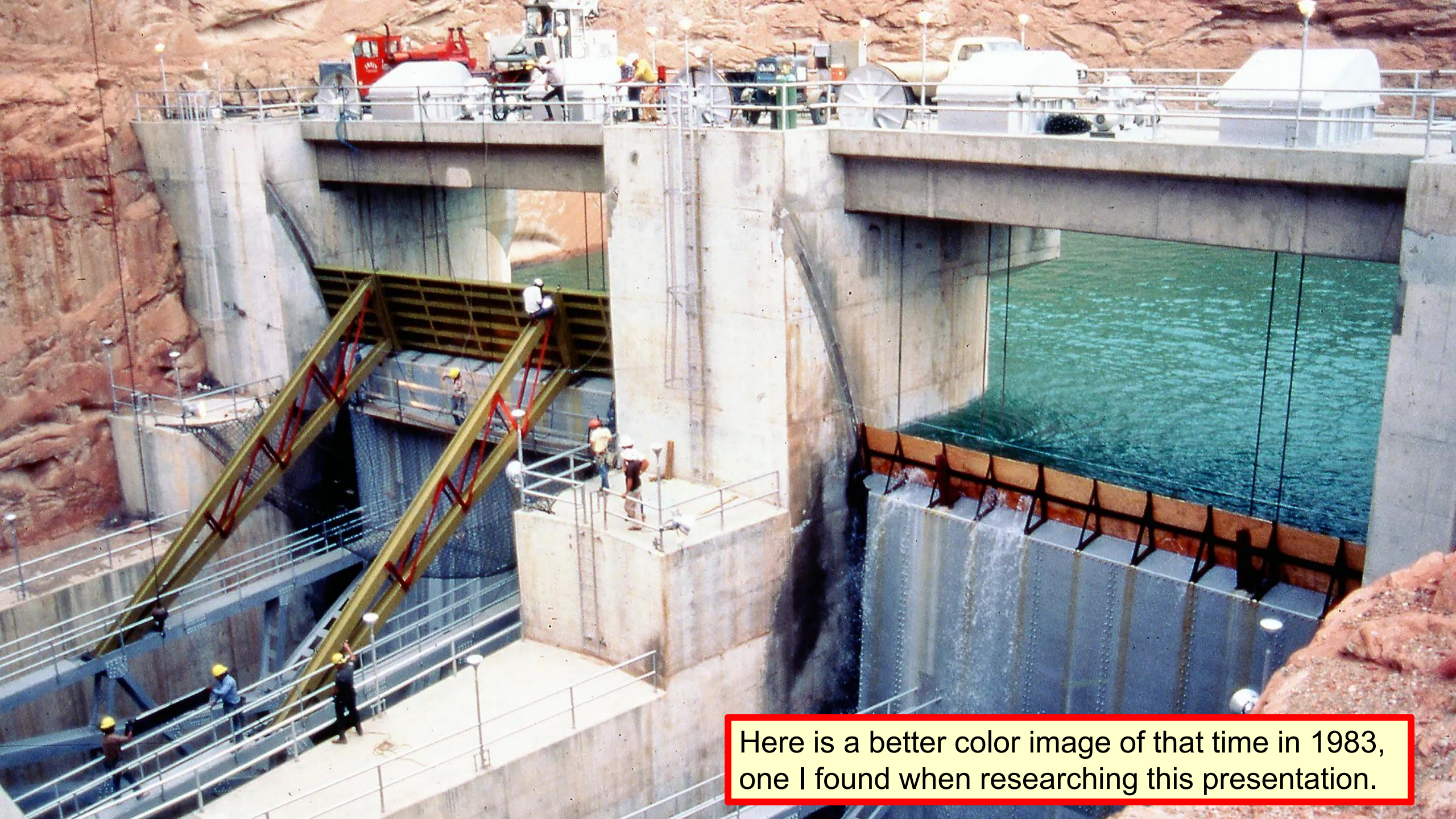
https://casf.me/gregg-garfins-color-alarmism-propaganda-25-april-2018-climate-lecture-nmsu/

1983 was the peak of the PDO-Warm phase of the late 20th century, and resulted in extremely wet conditions in USA Mountain West. The resulting peak runoff of 1983 severely affected the entire Colorado River Dam System. These images show how close the Glen Canyon Dam came to being catastrophically affected.

Water got so high at Glen Canyon Dam that a plywood flashboard was improvised to prevent overtopping of the spillway gate.

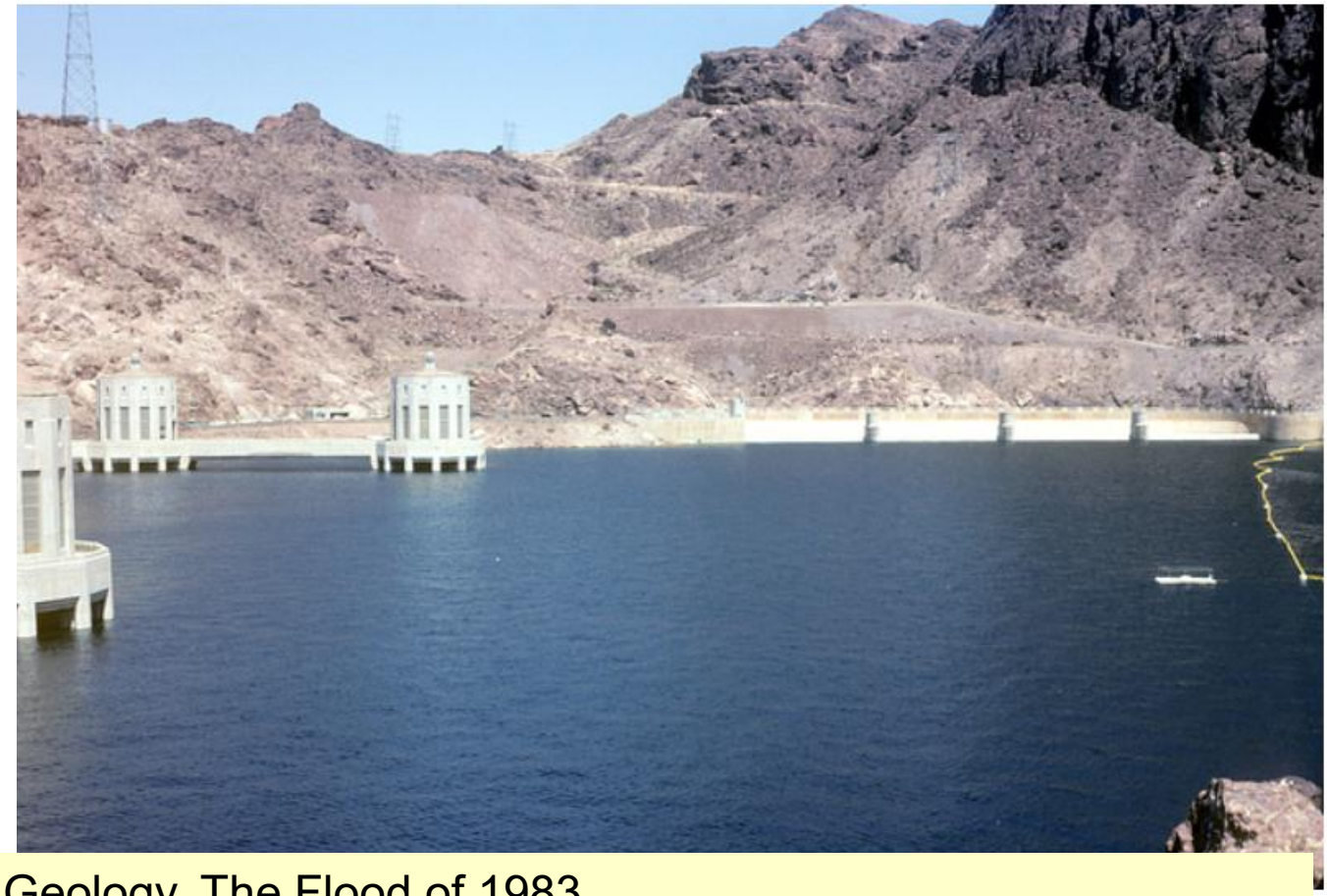
Left: https://en.wikipedia.org/wiki/Risks_to_the_Glen_Canyon_Dam#/media/File:Glen_Canyon_Spillway_Gates.jpg

Right: http://geotripper.blogspot.com/2017/02/liveblogging-deluge-concerns-panic-at.html


Here is a better color image of that time in 1983,
one I found when researching this presentation.

During the entire lifetime of Lake Mead behind Hoover Dam, the highest water mark was set in 1983, "… it was during the summer of 1983 that the Bureau of Reclamation almost lost control of the Colorado River to a rampaging flood." http://articles.latimes.com/1995-10-29/magazine/tm-62672_1_hoover-dam

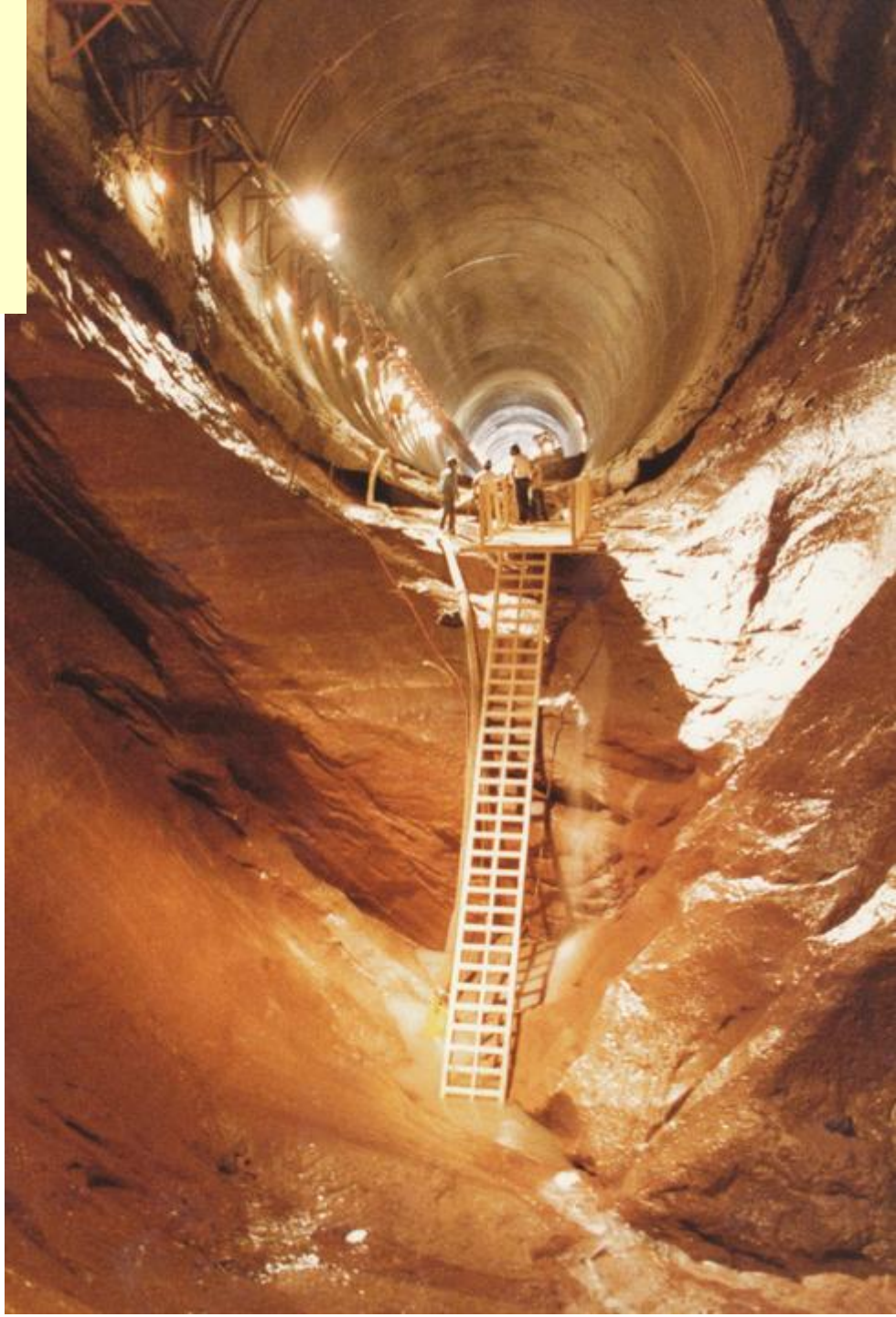
1983 was also the year the spillway tunnels at Glen Canyon Dam were used and red-rock-stained water came out of the downriver spillway tunnel exits when the swift-running water caused cavitation in the tunnels which failed internally (image lower right).



Geology, The Flood of 1983.
http://www.ipernity.com/doc/289859/33010005/in/album/45393

Damaged spillway tunnel at Glen Canyon Dam, 1983. http://geotripper.blogspot.com/2017/02/liveblogging-deluge-concerns-panic-at.html

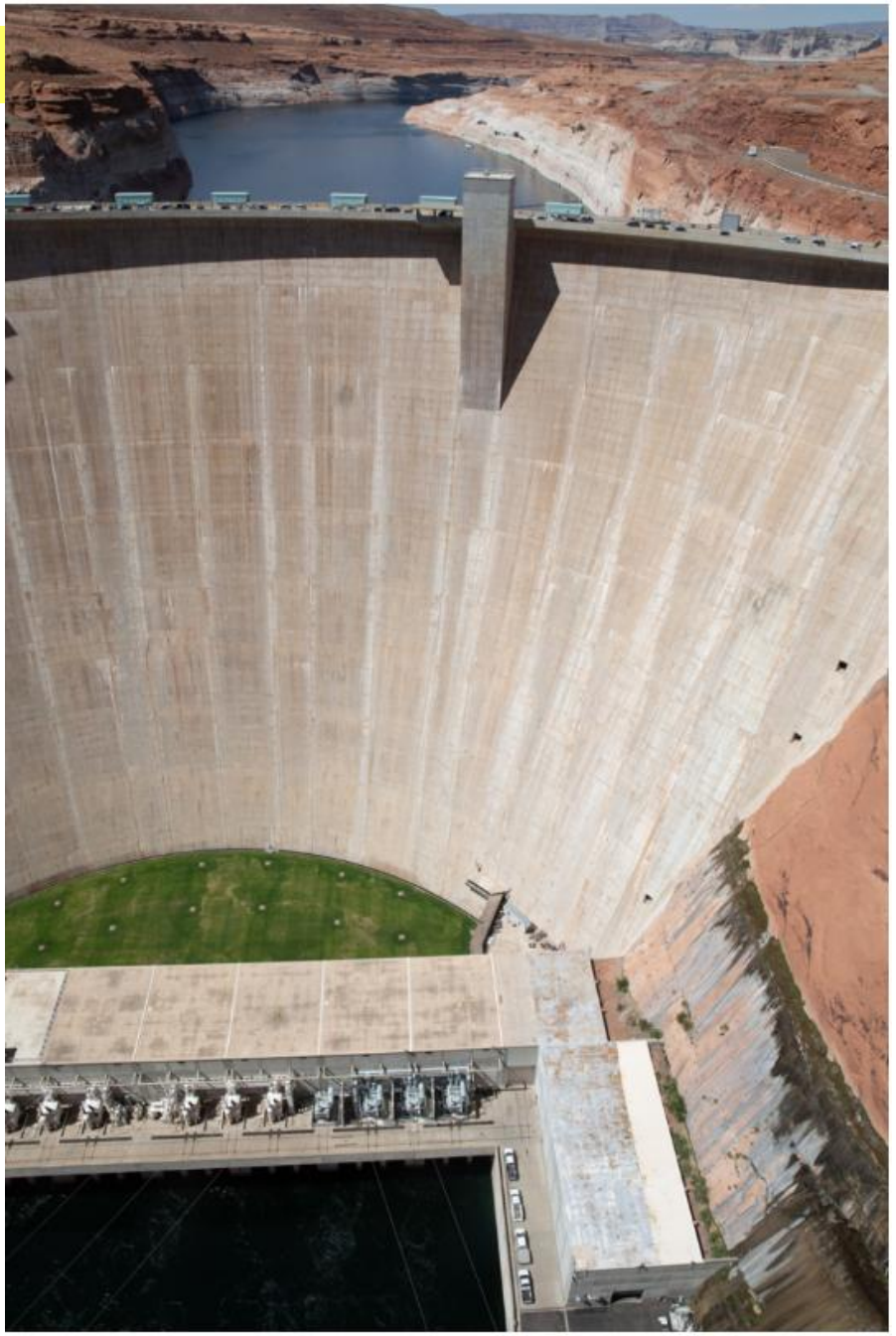
Below: Image of cavitating flow exiting the spillway tunnels, Glen Canyon Dam, 1983.
Right: Damaged spillway tunnel, Glen Canyon Dam, as workers inspected the tunnels after the high-water event, later in 1983.
https://damfailures.org/case-study/glen-canyon-dam-arizona-1983



https://www.hcn.org/articles/the-coming-failure-of-glen-canyon-dam/

https://www.hcn.org/articles/the-coming-failure-of-glen-canyon-dam/

The 710-foot-tall dam was designed for a world in which water levels would never be too high or too low, despite the fact that the Colorado is by far the most variable river in North America.



The downstream face of Glen Canyon Dam with its power plant beneath it.
Luna Anna Archey / High Country News

Lake Mead hits lowest water level on record as Colorado River crisis deepens

https://www.msn.com/en-us/news/us/lake-mead-hits-lowest-water-level-on-record-as-colorado-river-crisis-deepens

Lake Mead, the largest reservoir in the United States, has fallen to a record low — yet another sign that the Colorado River system is spiraling further into crisis.

Water levels on Thursday in Lake Mead dropped to 1,040.5 feet, below the previous record low of 1,040.58 feet set in July 2022, according to data published by the US Bureau of Reclamation Friday. The lake is now lower than it's ever been since it was created nine decades ago.

"Breaking the record is further evidence of the uncharted territory that the (Colorado River) Basin now finds itself," said Jack Schmidt, director of the Center for Colorado River Studies at Utah State University.

Lake Mead, which stretches along the Utah-Arizona border, was formed in the mid-1930s when the Hoover Dam was constructed on the Colorado River. The lake supplies water to more than 20 million people.

COMMENT: That **cycles of rainfall and drought** might help explain, is lost to MSN.COM

Lake Mead hits lowest water level on record as Colorado River crisis deepens

https://www.msn.com/en-us/news/us/lake-mead-hits-lowest-water-level-on-record-as-colorado-river-crisis-deepens

It's one of the most important reservoirs on this vital waterway, along with Lake Powell, which experts also fear could reach record low levels in the next few weeks.

In July, the combined water level in the two reservoirs tumbled to a historic low. Together, the reservoirs haven't been so low since 1957, during the construction of the Glen Canyon Dam, before Lake Powell even filled up.

"Lake Mead and Lake Powell are essentially the region's savings account, and we've been drawing it down for years because the river has been overallocated while enduring 25 years of persistent drought," said Kathryn Sorensen, director of research at Arizona State University's Kyl Center for Water Policy.

Scary Headlines, Europe

‘Extremely scary findings’ show climate crisis is supercharging Europe’s wildfire weather.

https://www.theguardian.com/world/2026/jul/31/wildfires-extreme-weather-europe-spain-france-climate-crisis-analysis

Latest study says global heating has made hot, dry and windy conditions in Spain at least 20 times more likely.

Damian Carrington, Environment editor Fri 31 Jul 2026 03.00 EDT

“The extreme heat and drought stoking huge wildfires in Spain and France were made far more likely by the climate crisis, a scientific analysis has found.
Global heating made hot, dry and windy weather at least 20 times more likely in Spain and twice as likely in France, experts from the **World Weather Attribution (WWA)** consortium calculated. The finding is the latest to pin the blame for the continent’s sweltering and deadly summer firmly on the heating caused by the burning of oil, gas and coal.” (**Bold**, **underlining**, added)

Wait!

"World Weather Attribution, (WWA)"

Haven't we heard of them before?

Yep…..Here:

https://casf.me/2024s-hurricanes-helene-milton/

The following came from **those** graphics….

The “Weather Attribution” Industry part of Climate Alarmists

Weather attribution industries I found in preparing; this list is not complete

Yale Climate Connections

World Weather Attribution

Climate Crisis 247

Climate Central

Reuters, NPR, USA Today

When weather attribution is used while the weather story is in the news, it is called **Tactical Science**.

The Honest Broker

https://rogerpielkejr.substack.com/p/weather-attribution-alchemy

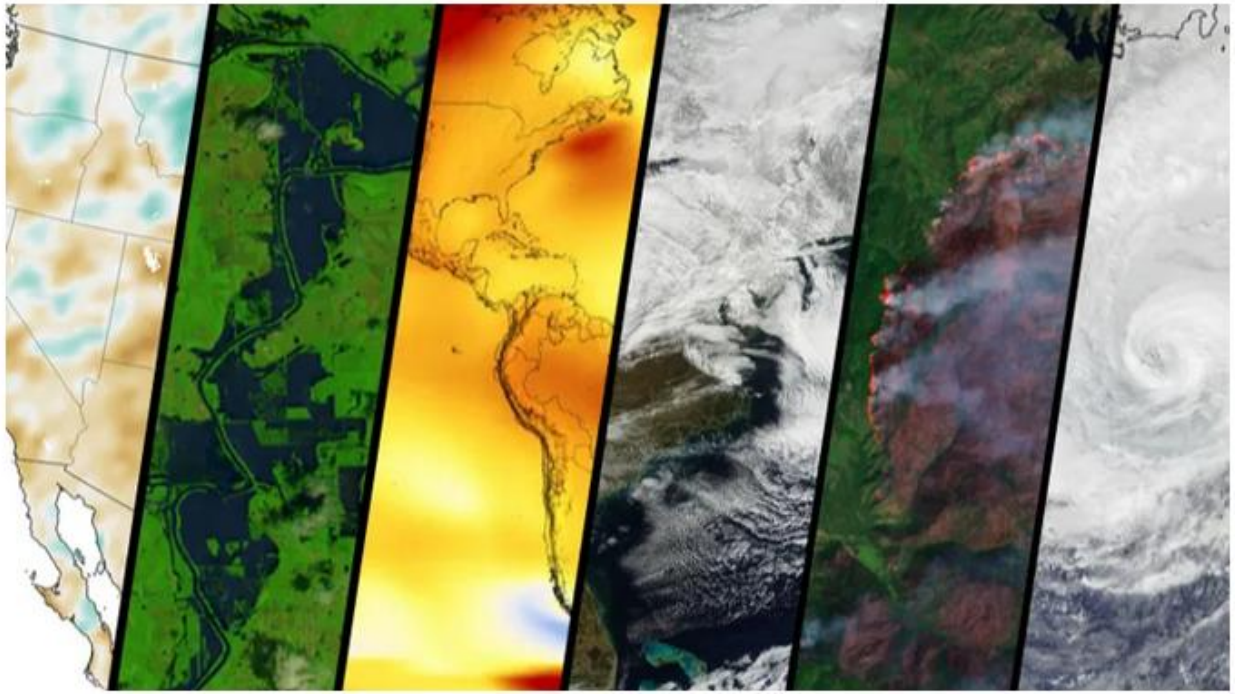
Weather Attribution Alchemy

A new THB series takes a close look at extreme weather event attribution, Part 1

ROGER PIELKE JR.

OCT 07, 2024

126 47 Share



About the thing that just happened . . . . (Source: NASA)

The Honest Broker

For instance, researchers behind the World Weather Attribution (WWA) initiative explain that one of their key motives in conducting such studies is, "increasing the 'immediacy' of climate change, thereby increasing support for mitigation." WWA's chief scientist, Friederike Otto, explains, "Unlike every other branch of climate science or science in general, event attribution was actually originally suggested with the courts in mind." Another oft-quoted scientist who performs rapid attribution analyses, Michael Wehner, summarized their importance (emphasis in original) — "The most important message from this (and previous) analyses is that "**Dangerous climate change is here now!**"

"…event attribution was actually originally suggested with the courts in mind."

This post https://rogerpielkejr.substack.com/p/weather-attribution-alchemy is thought-provoking and way too long to be analyzed today.

https://www.worldweatherattribution.org/yet-another-hurricane-wetter-windier-and-more-destructive-because-of-climate-change/

We are supposed to be shocked, SHOCKED! by this report!

World Weather Attribution

Home About Analyses News Peer reviewed research

Home > Storms > Yet another hurricane wetter, windier and more destructive because of climate change

Yet another hurricane wetter, windier and more destructive because of climate change

11 October, 2024

Extreme rainfall, Storms

North America

The event

Hurricane Milton began as a tropical depression in the Gulf of Mexico on Saturday 5th October. It very rapidly intensified to tropical storm status, before undergoing explosive intensification to a high category 5 between Sunday 6th and Monday 7th, as it moved southeast towards the Yucatan Peninsula (NOAA, 2024), where the central pressure fell to below 900 mbar (NHC, 2024). This was driven and sustained by the very high sea surface temperatures in the Gulf, which previous analysis has shown to have been made 400-800 times more likely by climate change (Climate

Calculator

Guide for journalists

Reporting extreme weather and climate change: a guide for journalists – in a num of languages)

You may also be interested in…

Climate change key driver of catastrophic impacts of Hurricane Helene that devasta both coastal and inland communities

Climate change and high exposure increased costs and disruption to lives an

Here again, from that story in The Guardian….with my comment

‘Extremely scary findings’ show climate crisis is supercharging Europe’s wildfire weather.

https://www.theguardian.com/world/2026/jul/31/wildfires-extreme-weather-europe-spain-france-climate-crisis-analysis

Latest study says global heating has made hot, dry and windy conditions in Spain at least 20 times more likely.

Damian Carrington Environment editor
Fri 31 Jul 2026 03.00 EDT

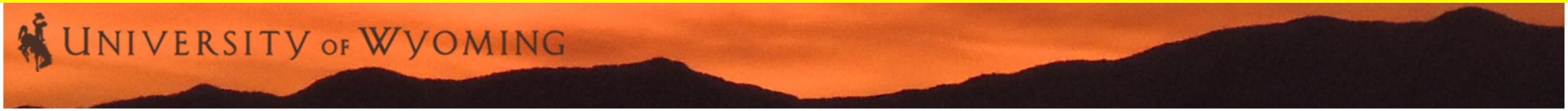
Weather conditions leading to Sirocco events in Spain, and nearby, have evaded the mental grasp of this author.

The Omega Block of 2019 comes to mind….four Slides Ahead.

The extreme heat and drought stoking huge wildfires in Spain and France were made far more likely by the climate crisis, a scientific analysis has found.

Global heating made hot, dry and windy weather at least 20 times more likely in Spain and twice as likely in France, experts from the **World Weather Attribution (WWA)** consortium calculated. The finding is the latest to pin the blame for the continent’s sweltering and deadly summer firmly on the heating caused by the burning of oil, gas and coal.

Let’s check The Guardian’s 31 Jul 2026 story; we’ll look at some applicable European measurements….



University of Wyoming Atmospheric Science Upper Air Maps

Select date and time:
2026-07-31 00:00 UTC

Type of Map:
- [ ] Observations
- [x] Analysis

Level:
- ( ) 10 hPa ( ) 30 hPa ( ) 50 hPa
- ( ) 70 hPa ( ) 100 hPa ( ) 150 hPa
- ( ) 200 hPa ( ) 250 hPa ( ) 300 hPa
- ( ) 400 hPa (•) 500 hPa ( ) 700 hPa
- ( ) 850 hPa ( ) 1000 hPa
- ( ) Thickness

Region:
- ( ) North America
- ( ) Conterminous United States
- ( ) South America
- ( ) North Pacific
- ( ) South Pacific
- ( ) Antarctica
- ( ) North Pole
- (•) Europe
- ( ) Africa
- ( ) Asia
- ( ) Northern Hemisphere
- ( ) Southern Hemisphere

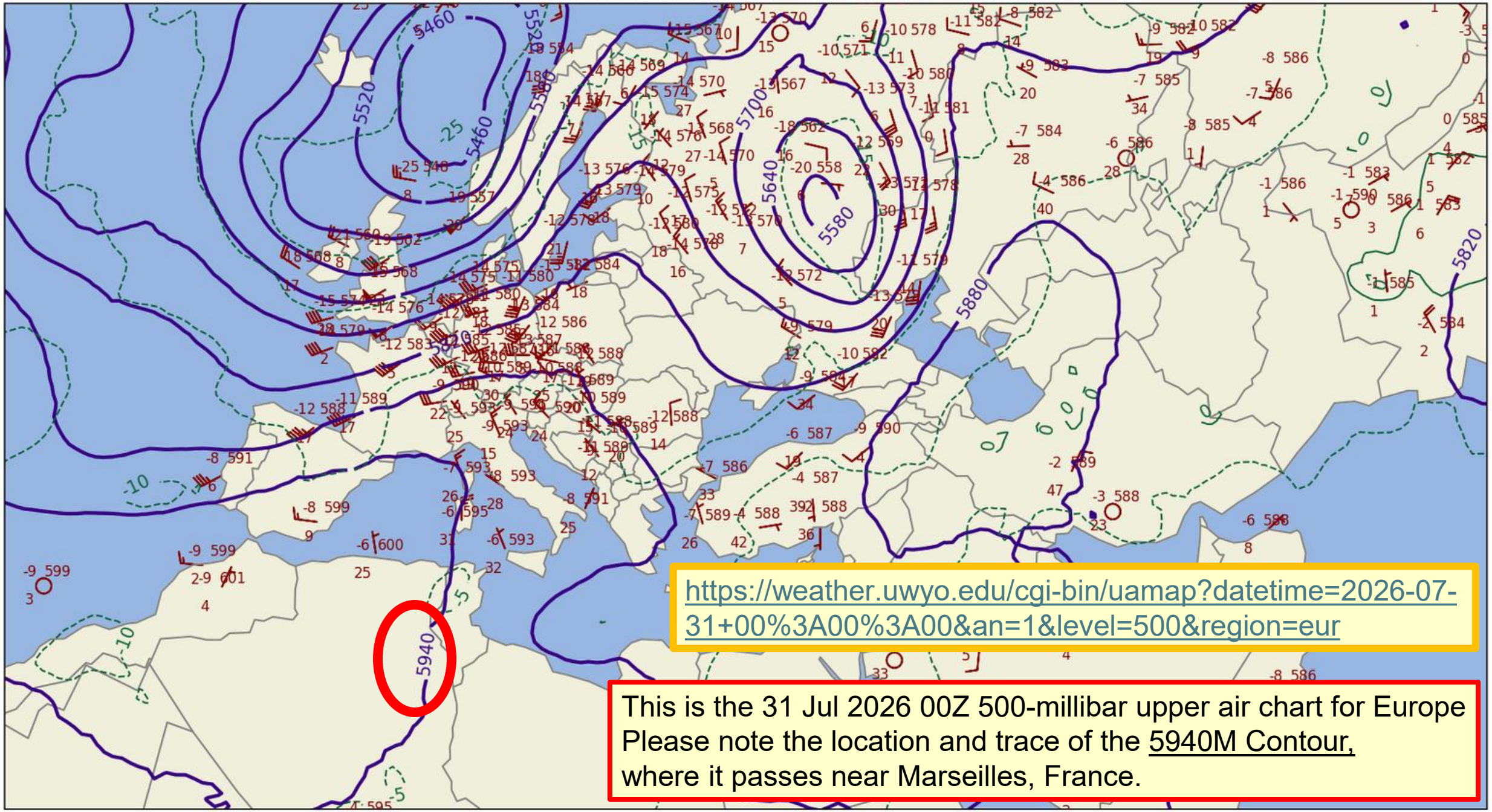
Submit

https://weather.uwyo.edu/upperair/uamap.shtml

Here is a query to the University of Wyoming weather data server,

set to request the 500-millibar chart for Europe the day of The Guardian story…

500 hPa at 2026-07-31 00:00 UTC



University of Wyoming Atmospheric Science

The next slides come from my 2019 presentation graphics:

https://casf.me/wp-content/uploads/2019/09/PDF_The-2019-Heat-Wave-in-Europe_and-Beyond__What-The-Media-Didn-t-Tell-You__3_Sep_2019.pdf

These next slides also contain another 500-millibar chart, this one, from 27 June 2019, for Europe, from Pivotal Weather.

This next charts label the same contour “594,” instead of “5940,” rest assured, it is the same Contour Line.

Notice that the 594 contour crosses western Europe at the Irish Sea, west of the waist of England.

This brings that contour well north of Marseilles, France, on the Mediterranean Sea where it was on 31 July 2026.

Mature Omega Block Contours

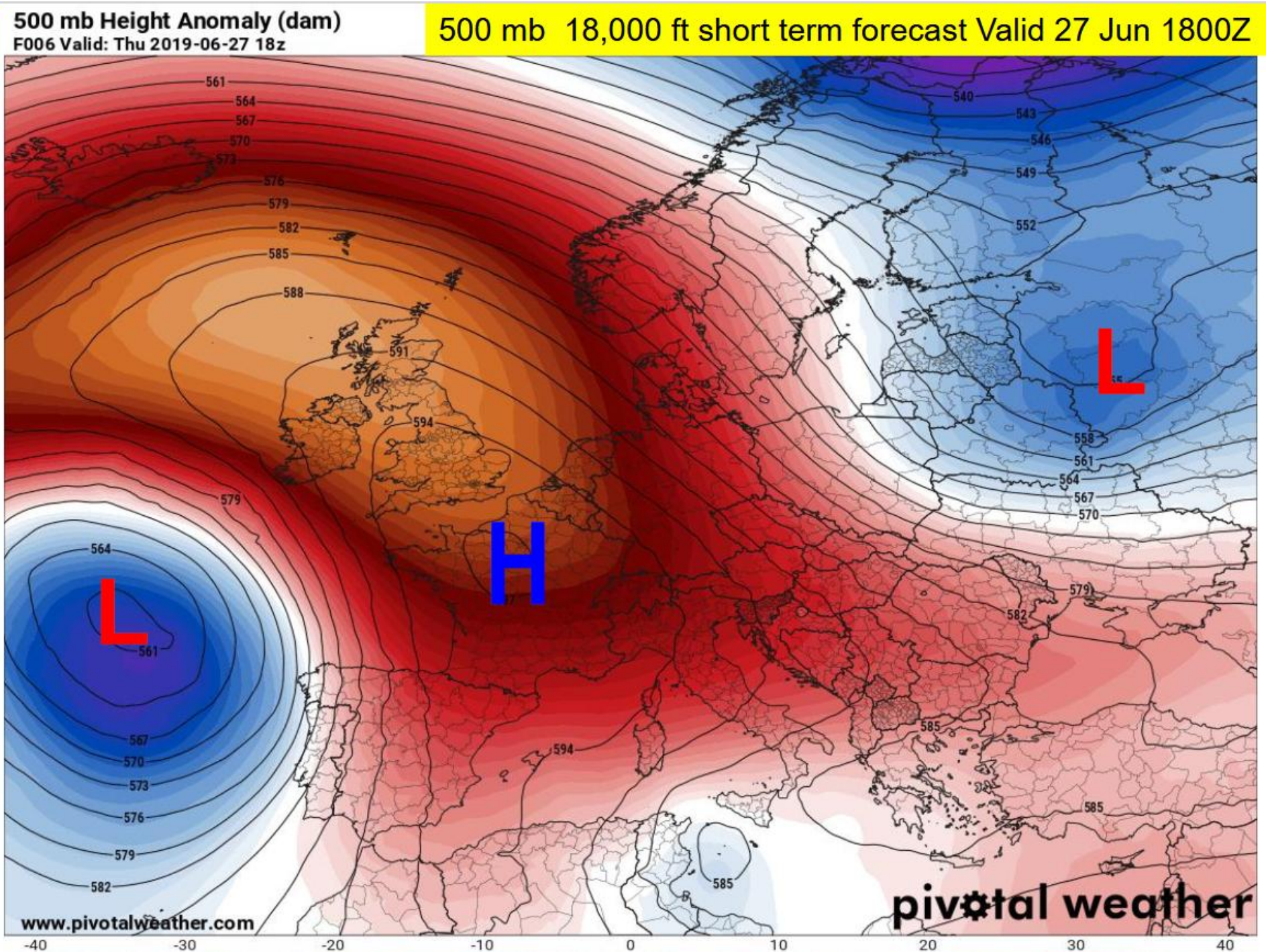
L H L pattern

Reds show hot temperatures over the Continent.

Flow brings Sahara air northward over Europe

High Pressure- subsiding air clear skies. Strongest possible solar heating!

\https://www.washingtonpost.com/weather/2019/06/26/european-heat-wave-france-germany-poland-czech-republic-set-june-records-worst-is-still-come/?utm_term=.0a71c6caf565



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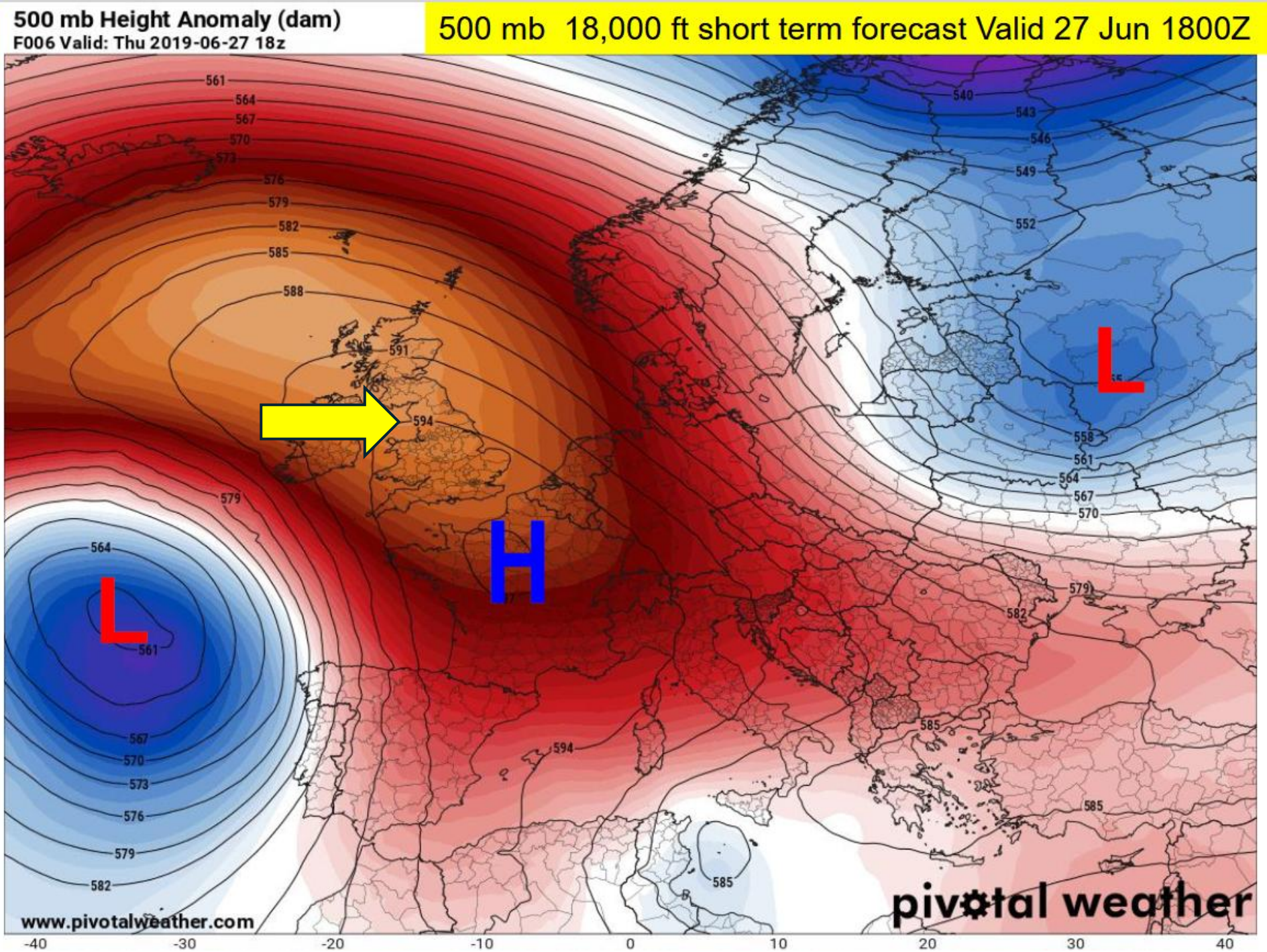


CONTOURING: Upper air contour charts map lines where the height of the labeled contour is the same.

We are concerned here with the 594 line on the Pivotal Weather Chart, and the 5940 line on the UWYO Chart.

The 594 contour and the 5940-meter contour line map the line where the mean virtual temperature of the atmosphere is the same; these charts map the 5940-meter height of the atmosphere's 500 millibar surface... in this case it is about 19,488 ft MSL

Poleward, where it is cooler, the contours decrease, and the next contour line is the 5940 meters less 60 meters, or 5880 meters, which would be the 5880-meter contour on Pivotal Weather, or the 588 line on the UWYO chart.

The converse is also true, and the 5940-meter contour is always equatorward of the 5880-meter height contour.

These poleward-equatorward contour relations exist at all the pressure levels where meteorologists map them, typically, 925 mb, 850 mb, 700 mb, 500 mb, 300 mb, 250 mb, 200 mb…sometimes as high as 30 mb.

NOTE VERY CLEARLY THAT ON 27 JUN 2019 THE 594-CONTOUR CROSSED ENGLAND AT THE IRISH SEA….AND ON 7 AUGUST 2026 THE 594-CONTOUR CROSSED SOUTH OF FRANCE NEAR MARSEILLES.

THE EUROPEAN ATMOSPHERE WAS A LOT WARMER ON 27 JUN 2019 THAN 7 AUG 2026.

THE PHYSICAL PROPERTY CONTROLLING THE THICKNESS OF THE ATMOSPHERE, THE **MEAN VIRTUAL TEMPERATURE,** SHOWS THIS.

The **Mean Virtual Temperature** is a calculated value that represents the temperature of an air parcel adjusted for moisture content, allowing for the application of the dry-air equation of state. It is particularly useful in meteorology for understanding the behavior of moist air.

THESE FACTS SHOW THAT THE CLAIMS BY THE GUARDIAN THAT THE JULY 2026 WARM TEMPERATURES OVER EUROPE WERE CAUSED…."firmly on the heating caused by the burning of oil, gas and coal…"

CLEARLY ARE NOT TRUE AND CAN NOT POSSIBLY BE TRUE.

In western Europe, Temperatures on 27 JUN 2019 were clearly warmer than on 31 Jul 2026.

In Jun 1019, <CO2> was **414.15 PPM**.
In July 2026, <CO2> was **429.12 PPM,** according to
https://gml.noaa.gov/webdata/ccgg/trends/co2/co2_mm_mlo.txt

Yet the 500-millibar height of the 5940 Meter contour showed it was a lot warmer in Jun 2019 with the 5940M contour further poleward, despite the lesser <CO2> in June 2019 than in July 2026.

THE GUARDIAN prints things that clearly are not true.

Madrid, Spain

All-Time Weather Extremes

TEMPERATURE:		
Record High	105.2°F (41°C)	June 28, 2019 and August 14, 2021 and July 14, 2022
Record Low	13.8°F (-10°C)	January 16, 1945
Lowest High	26.6°F (-3°C)	January 16, 1945
Highest Low	79.1°F (26°C)	July 14, 2022
Highest Mean	92.2°F (33°C)	July 14, 2022
Lowest Mean	20.2°F (-7°C)	January 16, 1945

https://weatheronthisday.com/extremes/intl/madrid

REVIEW: In words, the development sequence from ENSO Neutral (or La Nina) to El Nino:

ENSO Neutral and La Nina: Offshore Flow California and NoAM => upwelling of cold bottom water =>surface stress from NoAM to Hawaii to West Pacific. => Lower sea levels NoAM and higher Sea Levels West Pacific.

Long overwater trace near equator path, the of surface water=> water heats up as it moves to the southwest.

High Sea Levels in West Pac and Australia from surface water piling up. The Extra Warm Water sinks, causing a large pool of subsurface hot water.

Weakening Trades disturb this picture. The elevated potion of the Western Pacific Warm Pool moves across the Pacific, West to East.

In ~3 months, the warmed water reaches the Americas near the winter solstice. Rain falls at the coast of Chile, on the Atacama Desert at the time of the Winter Solstice. This rare event is named “El Nino,” because of its occurrence near 25 December.

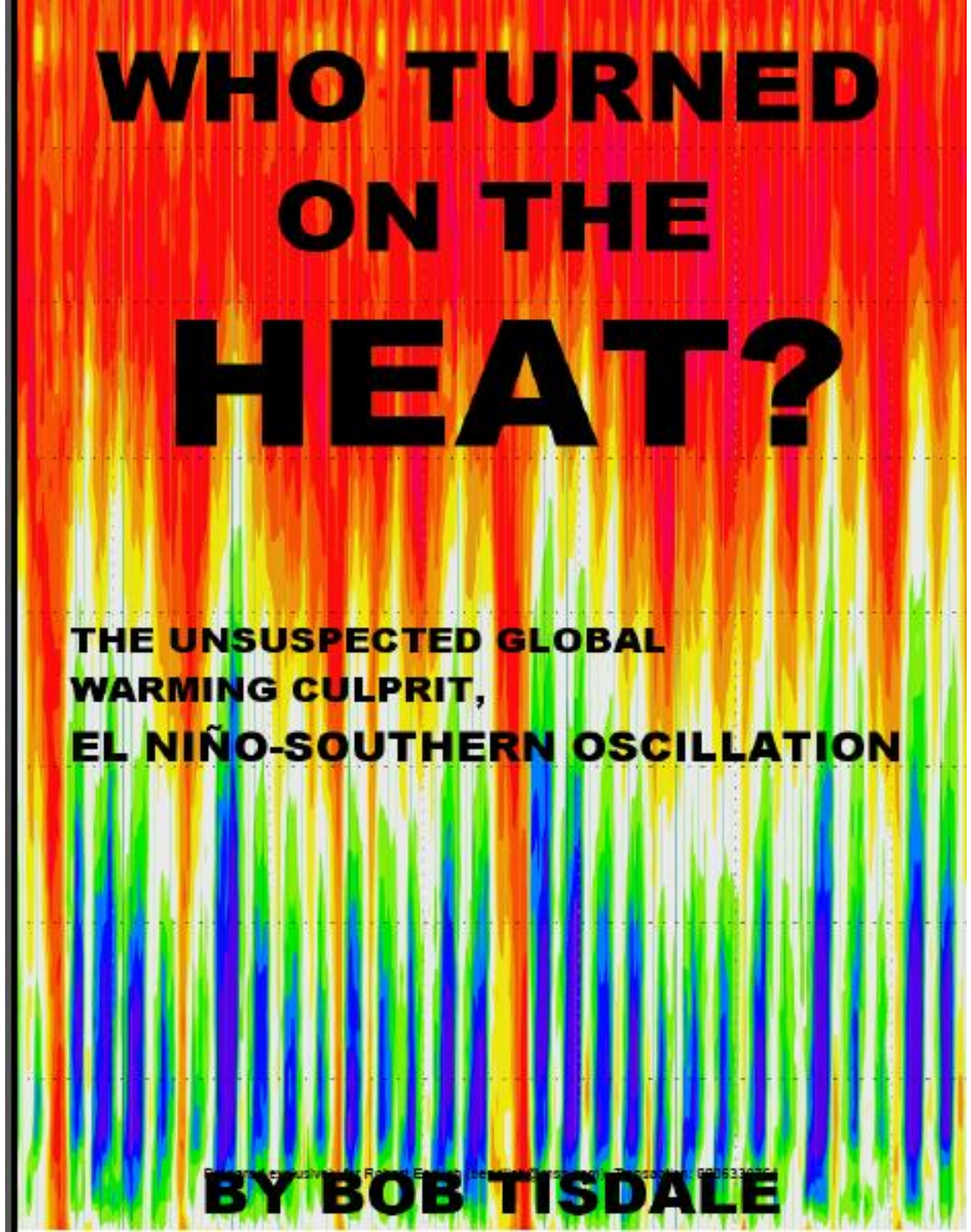
The relatively rapid heating of wide areas of the surface of the Pacific Ocean by the previously stored below-the-surface pool of hot water raises the water temperatures near the Americas=>more evaporation into the Atmosphere. It also raises the global surface temperature.

More atmospheric Pacific near-coastal water means it rains in the Mountain West, a lot more. =>An El Nino Year.

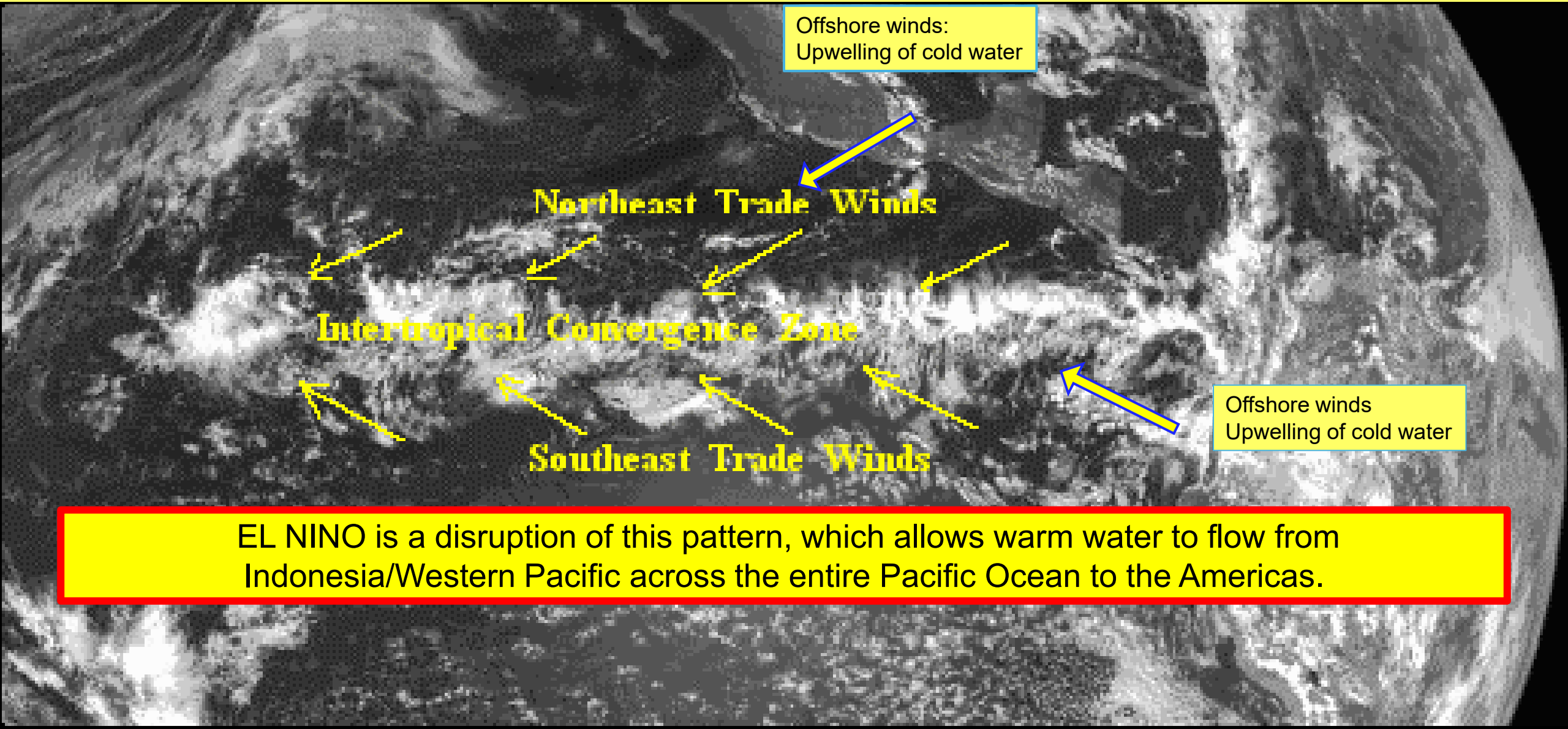
Following are graphics showing this development sequence, from Bob Tisdale.

A highly-recommended
E-book.

This book is the source
For many of the excellent
graphics I used later
in this presentation.



In La Nina years, the Northeasterly Trade Winds are very prevalent, but stronger.
Visitors to Hawaii usually encounter steady winds from the northeast, the Trade Winds.
The Northeast Trade Winds extend past Guam, becoming the Northeast Monsoon of Vietnam



EL NINO is a disruption of this pattern, which allows warm water to flow from Indonesia/Western Pacific across the entire Pacific Ocean to the Americas.

Here is the development sequence from ENSO-Neutral (or La Nina) to El Nino:

NOTATION: I shorten North America to NoAM several times ahead.

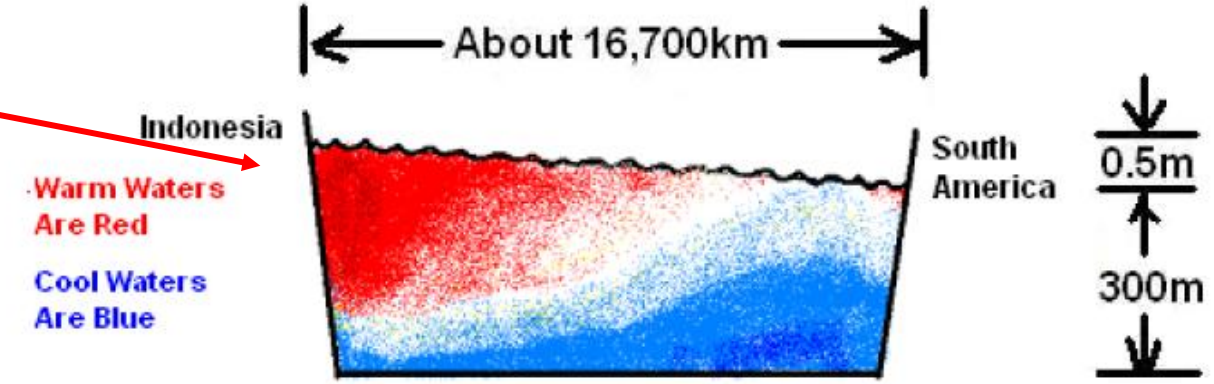
ENSO Neutral and La Nina: Offshore Flow California and North America => upwelling of cold bottom water =>surface stress from NoAM to Hawaii to West Pacific. => Lower sea levels NoAM and higher Sea Levels West Pacific.

The long overwater path, near the equator, of wind-pushed surface water=>
Water heats up as it moves to the southwest.

First of many of Bob Tisdale's graphics

Here is that pool of warm water below the surface in the western Pacific….the "Western Pacific Warm Pool"

INTRODUCTION TO THE CROSS SECTION OF THE EQUATORIAL PACIFIC OCEAN USED IN MANY OF THE GRAPHICS THAT FOLLOW



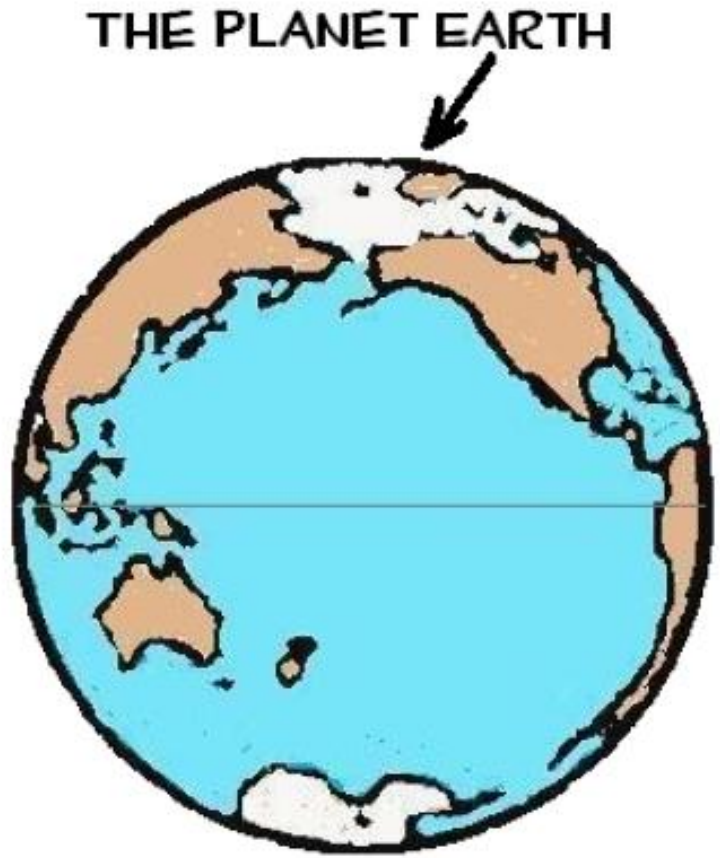
THE DIMENSIONS OF THE CROSS SECTION ARE SKEWED. BUT KNOWING THE SEA LEVEL IS ABOUT 0.5 METERS HIGHER IN THE WEST THAN IN THE EAST UNDER "NORMAL" CONDITIONS IS IMPORTANT.

THE VARIATIONS IN TEMPERATURES BELOW THE SURFACE ARE ALSO IMPORTANT, BUT THEY TAKE PLACE IN THE TOP 300 METERS.

AND THE OVERALL WIDTH OF THE TROPICAL PACIFIC MUST BE KEPT IN MIND--ALMOST HALFWAY AROUND THE GLOBE.

Figure 1-6 Bob Tisdale

1.2 The ENSO Annotated Illustrations



THE OCEANS COVER ABOUT 70% OF OUR PLANET.

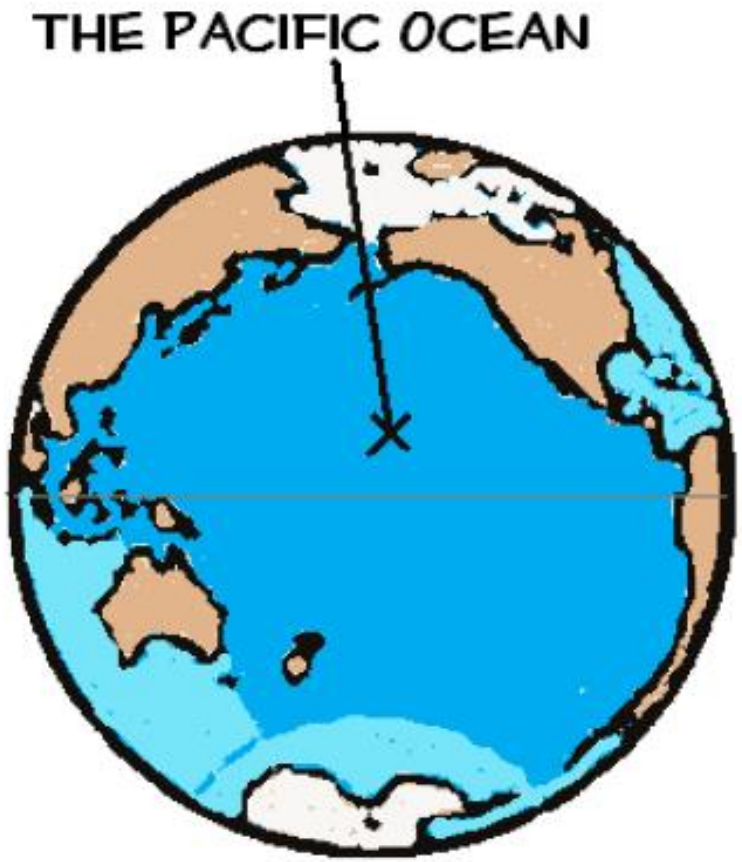
IT'S IMPORTANT TO UNDERSTAND HOW THE LARGEST OCEAN, THE PACIFIC, PERIODICALLY RELEASES ADDITIONAL HEAT TO THE ATMOSPHERE AND REDISTRIBUTES THAT HEAT WITHIN THE OCEANS.

FIRST, A FEW PRELIMINARIES.

Figure 1-1

Bob Tisdale

HHH



THE PACIFIC OCEAN STRETCHES ALMOST HALFWAY AROUND THE GLOBE AT THE EQUATOR.

IT COVERS THE SURFACE OF THE PLANET FROM ASIA TO NORTH AMERICA AND FROM AUSTRALIA TO SOUTH AMERICA.

IT REACHES FROM THE BERING STRAIT NEAR THE ARCTIC OCEAN TO THE IMAGINARY BORDER WITH THE SOUTHERN OCEAN THAT SURROUNDS ANTARCTICA.

Next Slide

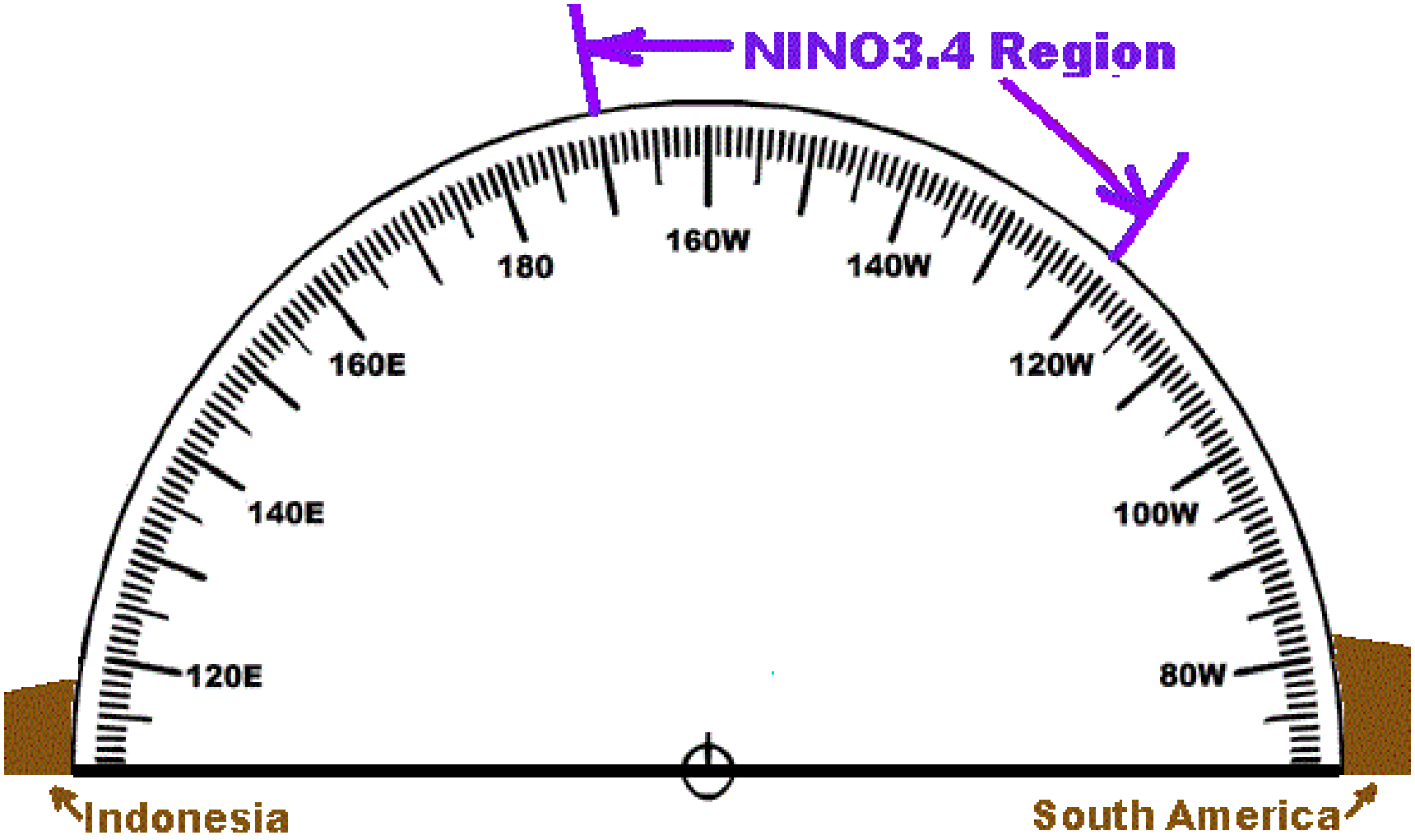
Figure 1-2

Bob Tisdale

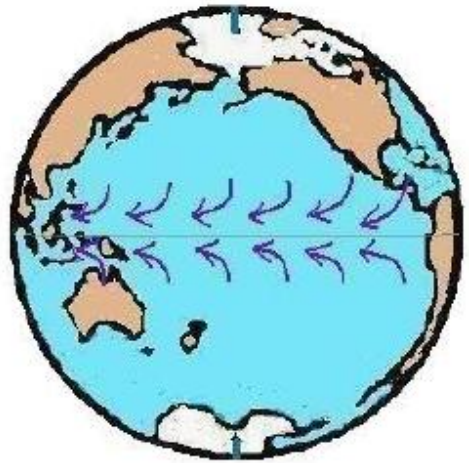
HHH

EQUATORIAL PACIFIC

A Different Perspective of Its Surface



TRADE WINDS

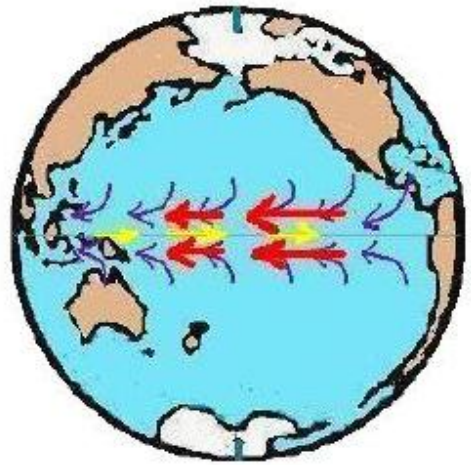


THE TRADE WINDS BLOW ACROSS THE SURFACE OF THE TROPICAL PACIFIC, FROM THE NORTHEAST TO THE SOUTHWEST IN THE NORTHERN HEMISPHERE AND FROM THE SOUTHEAST TO THE NORTHWEST IN THE SOUTHERN HEMISPHERE.

Figure 1-3 Bob Tisdale

HHH

OCEAN CURRENTS



THE OCEAN CURRENTS IN THE TROPICAL PACIFIC ARE DRIVEN BY THE TRADE WINDS.

THE CURRENTS NEAR THE EQUATOR ARE CALLED THE NORTH AND SOUTH EQUATORIAL CURRENTS. THEY CARRY WATER FROM EAST TO WEST.

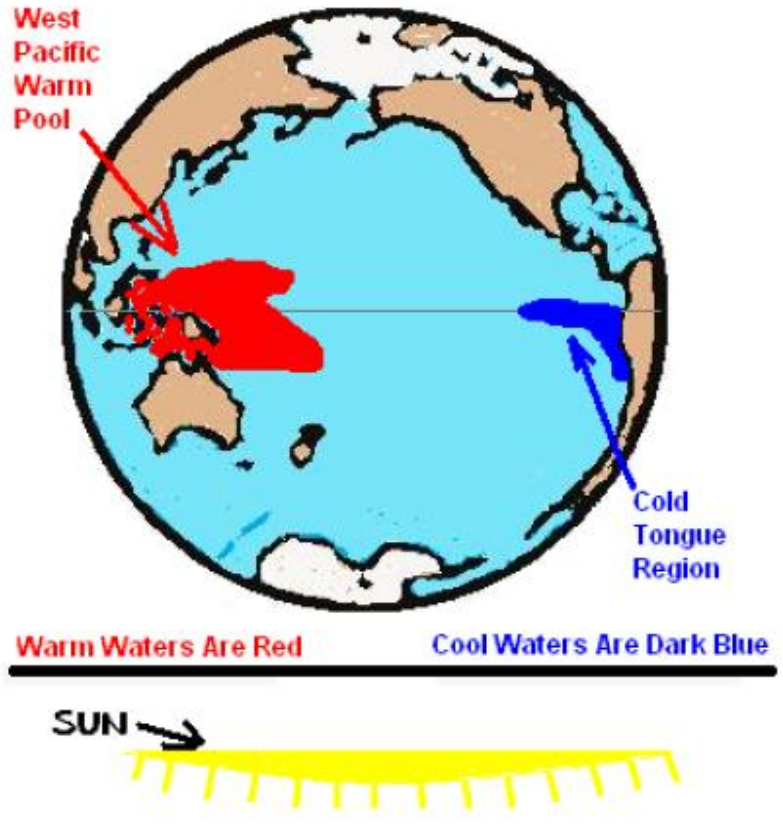
THERE'S ALSO A (NORMALLY) SMALLER CURRENT THAT RUNS BETWEEN THEM CALLED THE EQUATORIAL COUNTER CURRENT.

Figure 1-4 Bob Tisdale

HHH

NORMAL OR "ENSO-NEUTRAL" CONDITIONS (A)

(NOT AN EL NIÑO AND NOT A LA NIÑA)



THE TRADE WINDS PUSH THE SUN-WARMED WATER TO THE WEST AND IT ACCUMULATES IN AN AREA CALLED THE WEST PACIFIC WARM POOL, REACHING DEPTHS OF ALMOST 300 METERS.

THE TRADE WINDS ALSO DRAW COOL WATERS FROM BELOW THE SURFACE OF THE EASTERN EQUATORIAL PACIFIC IN A PROCESS KNOWN AS UPWELLING.

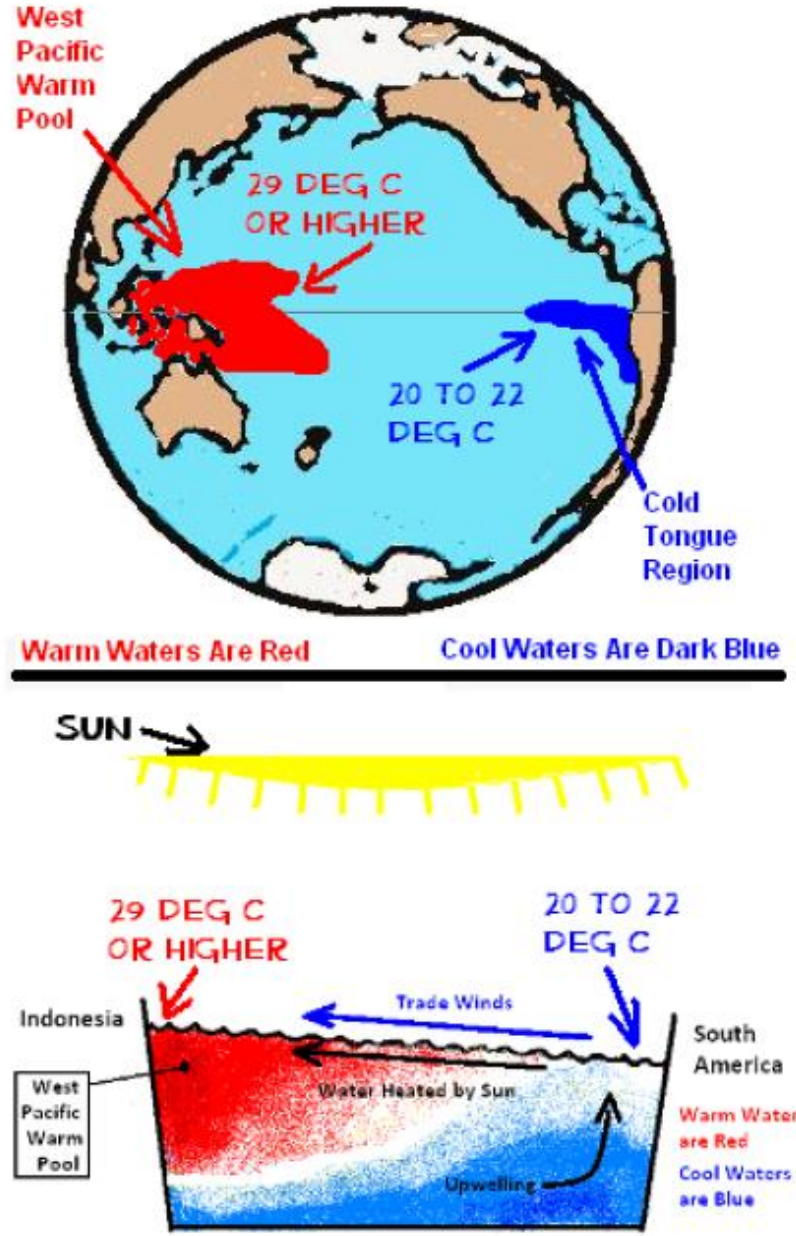
UPWELLING!

Figure 1-7

Bob Tisdale

NORMAL OR "ENSO-NEUTRAL" CONDITIONS (B)

(NOT AN EL NIÑO AND NOT A LA NIÑA)



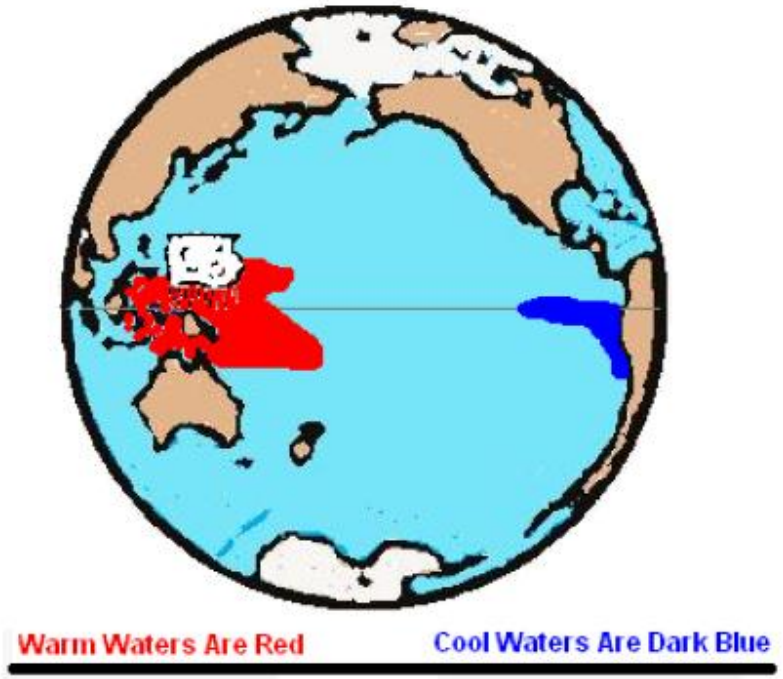
AS A RESULT, THE SEA SURFACE TEMPERATURE IN THE WEST PACIFIC WARM POOL CAN BE 8 TO 10 DEG C WARMER THAN IN THE COLD TONGUE REGION IN THE EAST.

Figure 1-8

Bob Tisdale

NORMAL OR "ENSO-NEUTRAL" CONDITIONS (C)

(NOT AN EL NIÑO AND NOT A LA NIÑA)



THE OCEANS RELEASE HEAT PRIMARILY THROUGH EVAPORATION.

AS THE WARM, MOIST AIR OVER THE PACIFIC WARM POOL RISES, IT COOLS.

AS IT CONTINUES TO RISE AND COOL, THE AIR CAN HOLD LESS OF THE MOISTURE, AND IT COMES OUT AS RAIN.

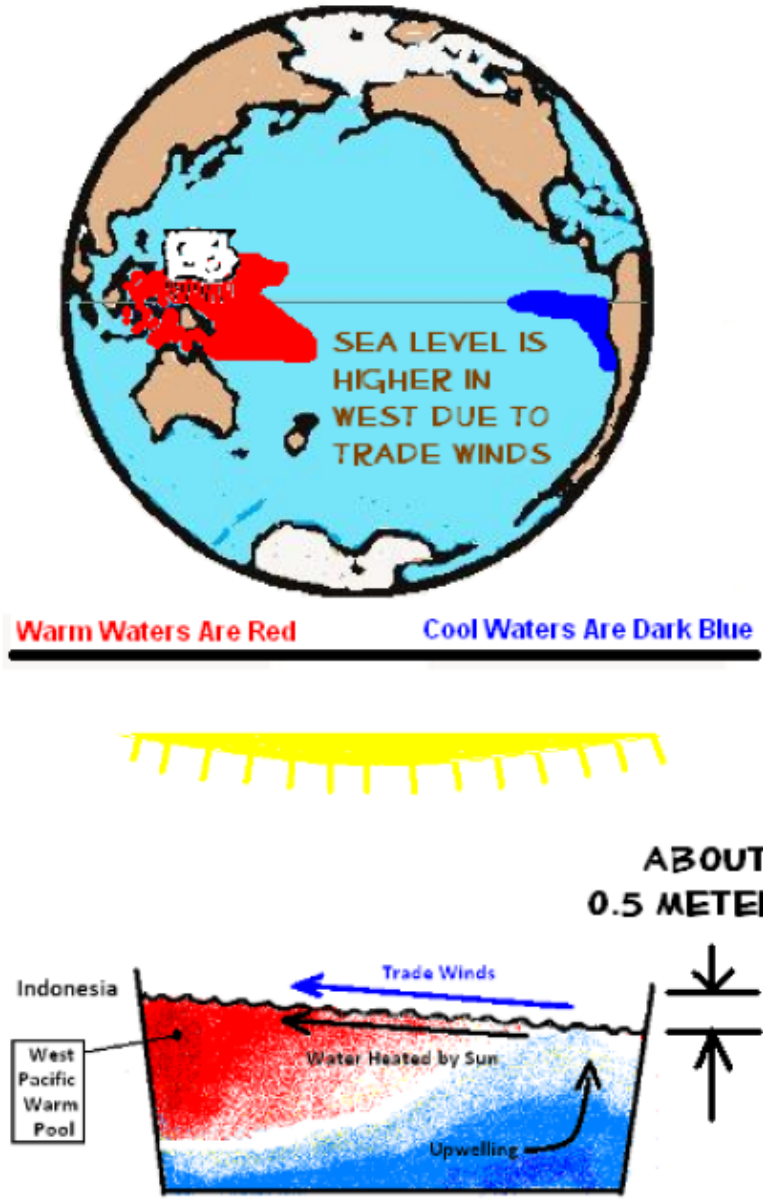
IN DOING SO, IT RELEASES THE HEAT FROM THE SUN THAT WAS USED TO EVAPORATE IT.

Figure 1-9

Bob Tisdale

NORMAL OR "ENSO-NEUTRAL" CONDITIONS (E)

(NOT AN EL NIÑO AND NOT A LA NIÑA)



BECAUSE THE TRADE WINDS ARE PUSHING THE WATER TO THE WEST, IT PILES UP THERE.

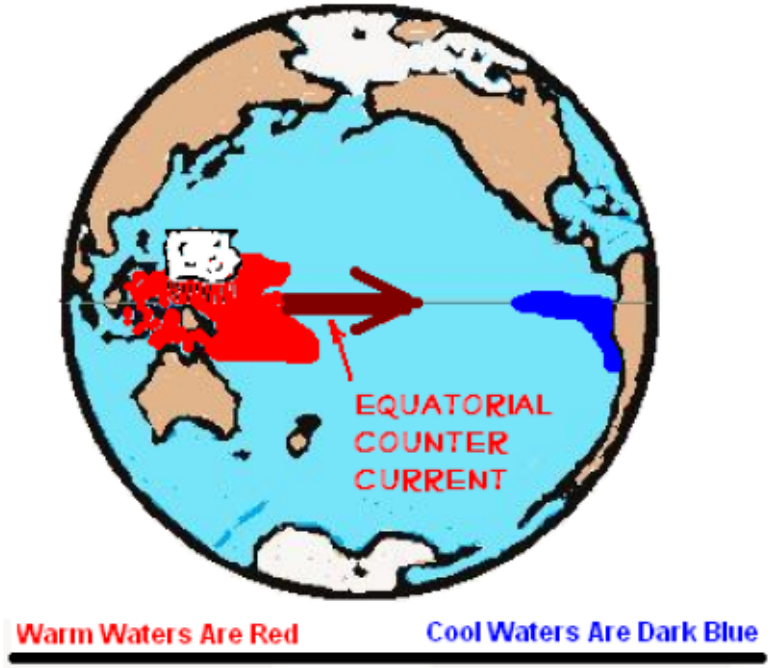
IT IS ABOUT 1/2 METER HIGHER IN THE WEST PACIFIC WARM POOL THAN IT IS IN THE COLD TONGUE REGION IN THE EAST.

GRAVITY WOULD LIKE IT TO BE LEVEL, BUT THE TRADE WINDS ARE HOLDING THE WARM WATER IN PLACE IN THE WEST.

Figure 1-11

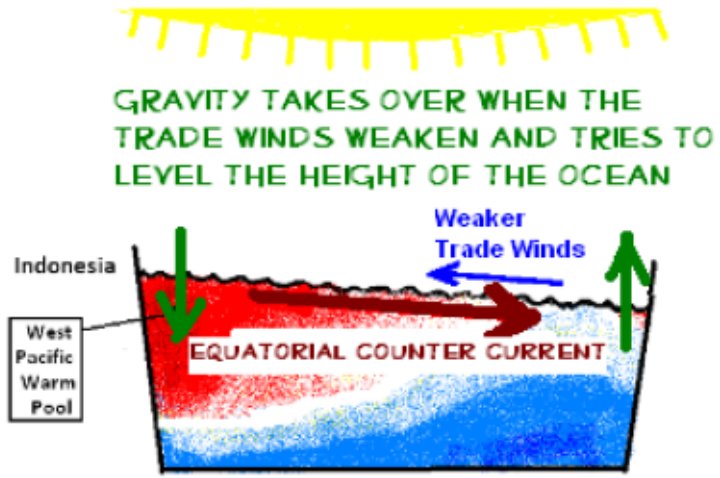
Bob Tisdale

WHAT DO YOU SUPPOSE HAPPENS WHEN THE TRADE WINDS DECIDE TO RELAX?



WHEN THE TRADE WINDS WEAKEN, GRAVITY TAKES OVER AND TRIES TO LEVEL THE SEA SURFACE HEIGHT OF THE EQUATORIAL PACIFIC.

THE EQUATORIAL COUNTER CURRENT GETS MUCH LARGER AND WARM WATER FROM THE PACIFIC WARM POOL SLOSHES TO THE EAST.

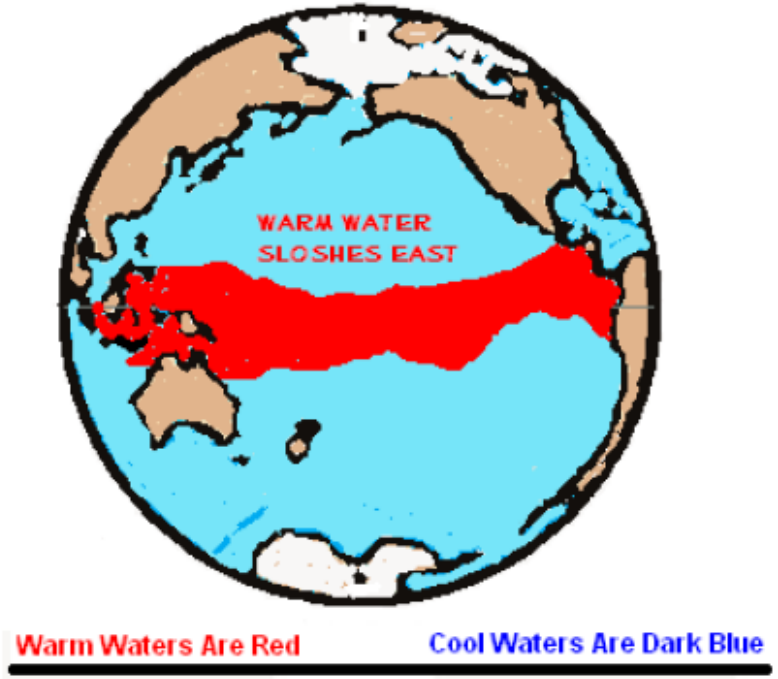


AND THAT'S HOW AN EL NIÑO STARTS!!!!

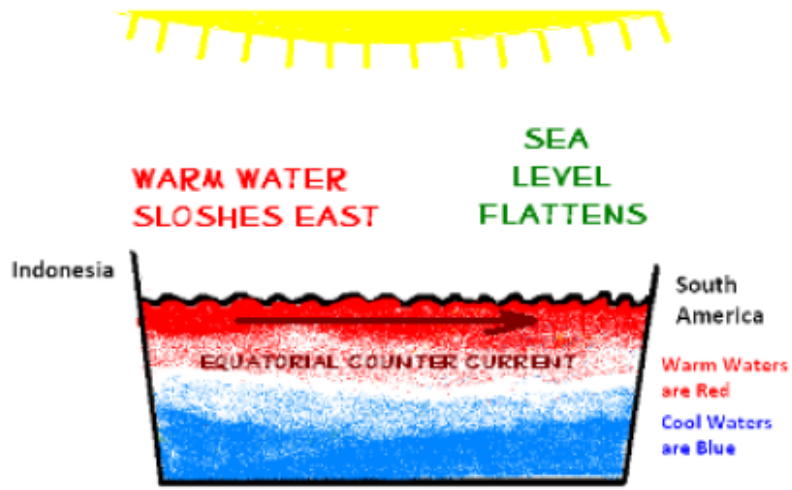
Figure 1-12

Bob Tisdale

EL NIÑO CONDITIONS (A)



DURING AN EL NIÑO, WARM WATER FROM THE SURFACE AND BELOW THE SURFACE OF THE PACIFIC WARM POOL IS CARRIED EAST AND SPREAD ACROSS THE SURFACE OF THE CENTRAL AND EASTERN TROPICAL PACIFIC, SOMETIMES AS FAR AS THE AMERICAS.

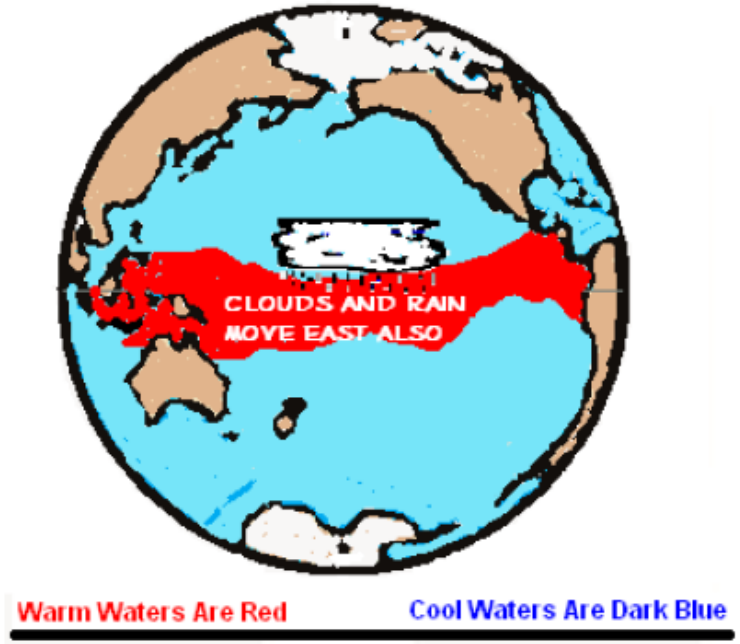


THE WARMER WATER COVERS MORE OF THE SURFACE, AND THAT INCREASES THE SEA SURFACE TEMPERATURE OF THE TROPICAL PACIFIC.

Figure 1-13

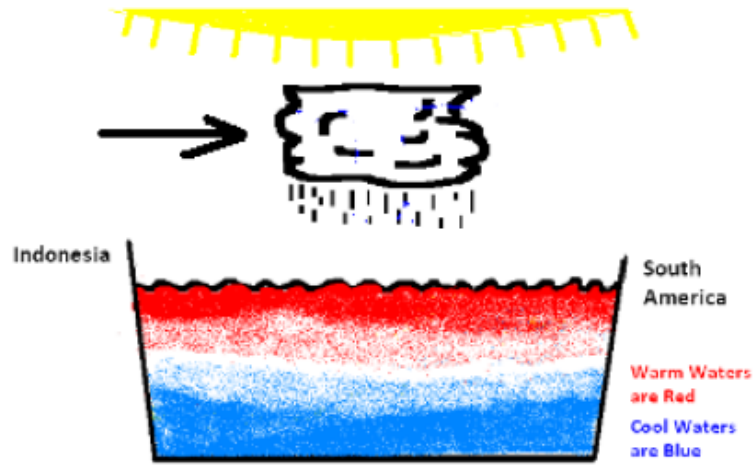
Bob Tisdale

EL NIÑO CONDITIONS (B)



THE CLOUDS AND RAIN ACCOMPANY THE WARM WATER TO THE EAST.

BECAUSE THE WARM WATER COVERS A GREATER SURFACE AREA, THERE IS MORE EVAPORATION, MORE CLOUDS AND MORE RAIN.

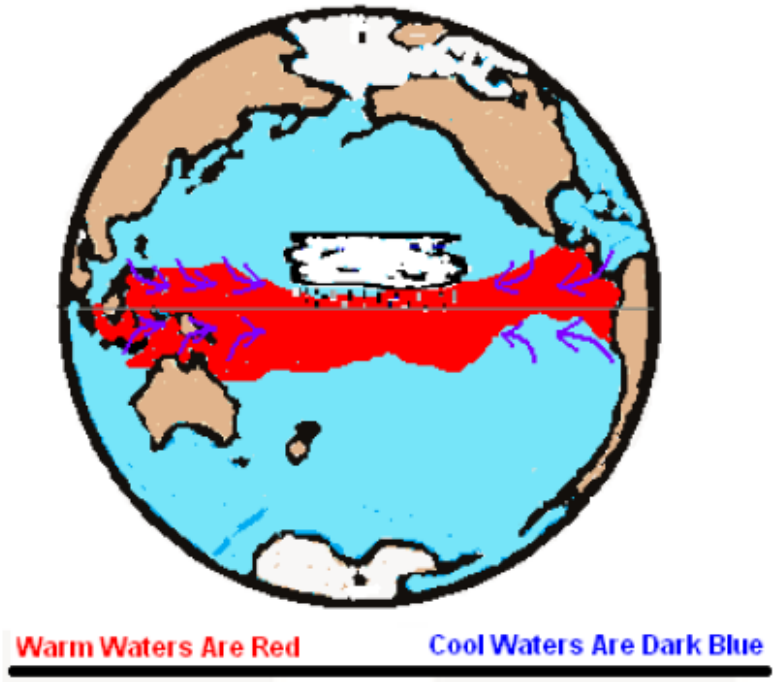


AS A RESULT, MORE HEAT THAN NORMAL IS DISCHARGED FROM THE TROPICAL PACIFIC OCEAN TO THE ATMOSPHERE.

Figure 1-14

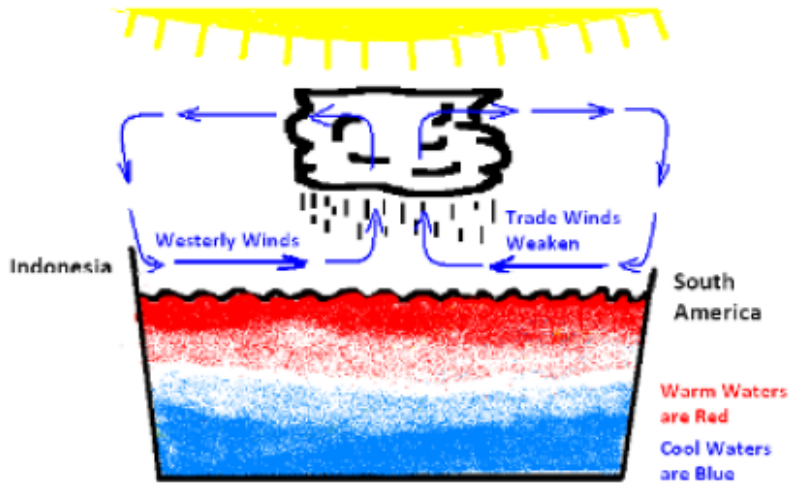
Bob Tisdale

EL NIÑO CONDITIONS (C)



TO FEED THE RISING AIR THAT HAS NOW TRAVELED EAST, THE TRADE WINDS IN THE WESTERN TROPICAL PACIFIC REVERSE DIRECTION AND BECOME WESTERLIES.

THE TRADE WINDS IN THE EASTERN PACIFIC WEAKEN



Bob Tisdale's graphics have described the onset of El Nino.

Figure 1-15

Bob Tisdale

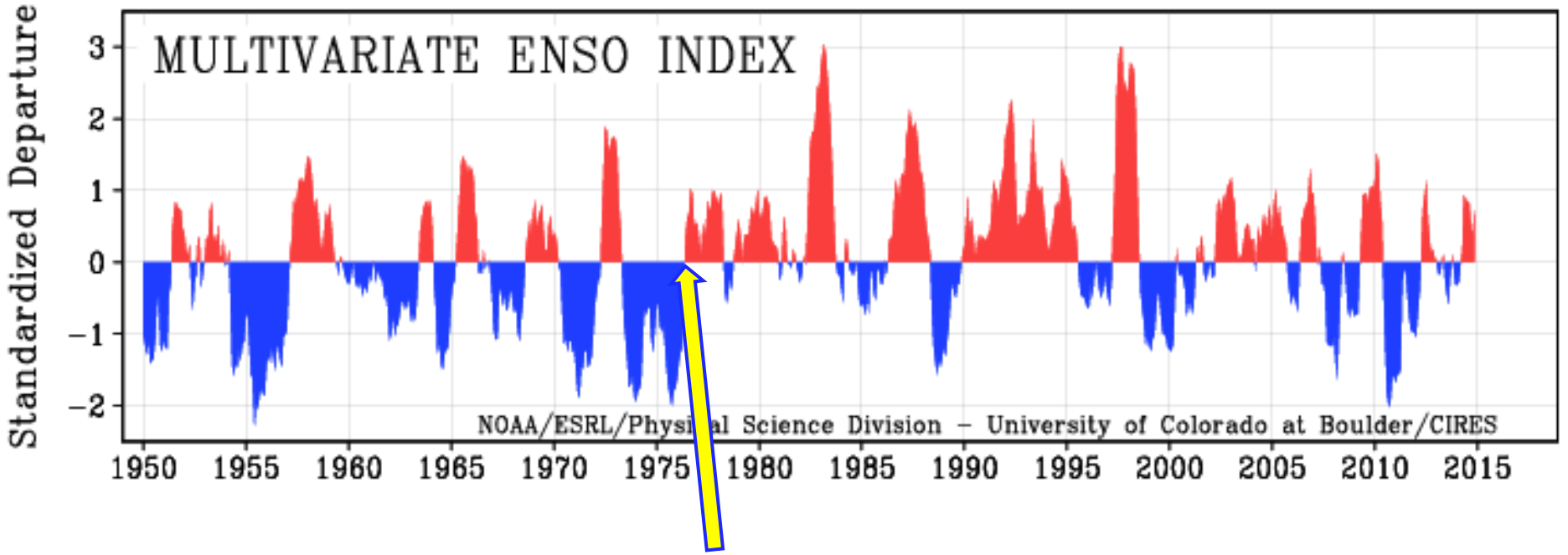
U.S. Department of Commerce | National Oceanic & Atmospheric Administration | NOAA Research

Earth System Research Laboratory

Physical Sciences Division

There is now a Version 2 of this Index.

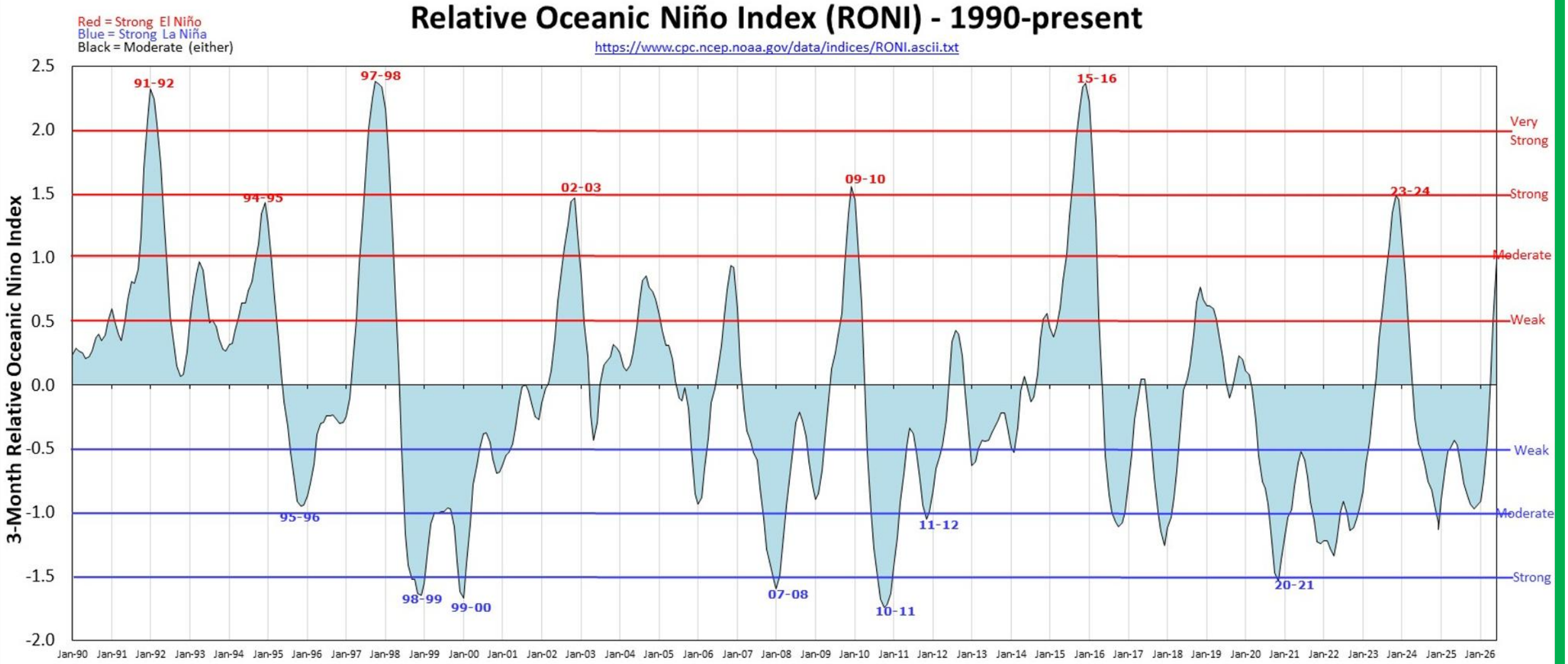
http://www.esrl.noaa.gov/psd/enso/mei/



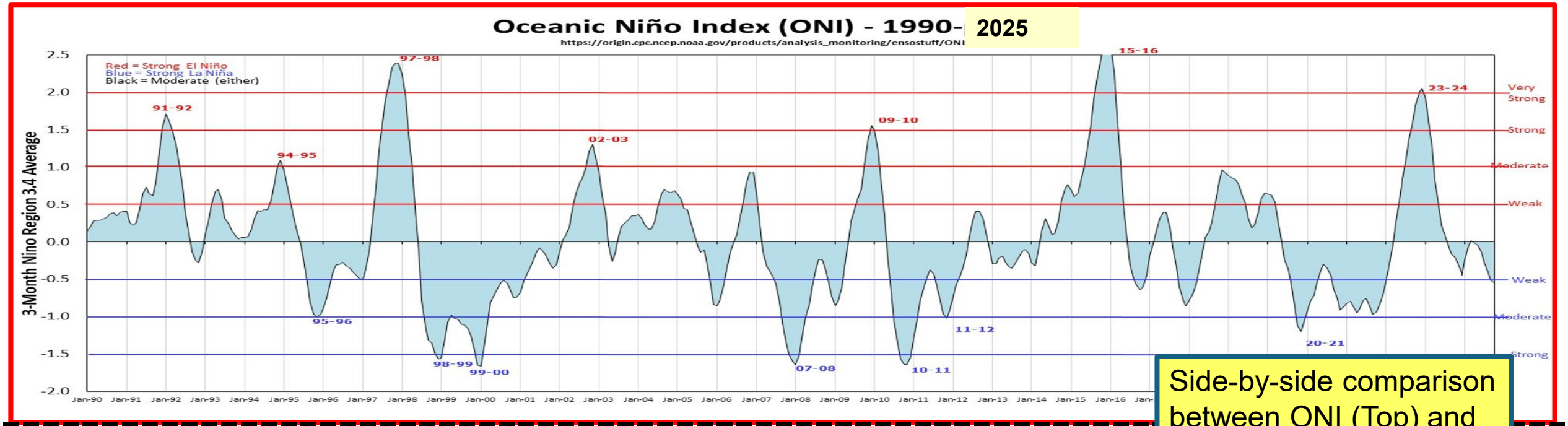
Notice the Great Climatic Shift of 1976.
This is when the number of El Ninos per decade increased dramatically.

But, after 2015, the number seems to be falling ...see next slide.

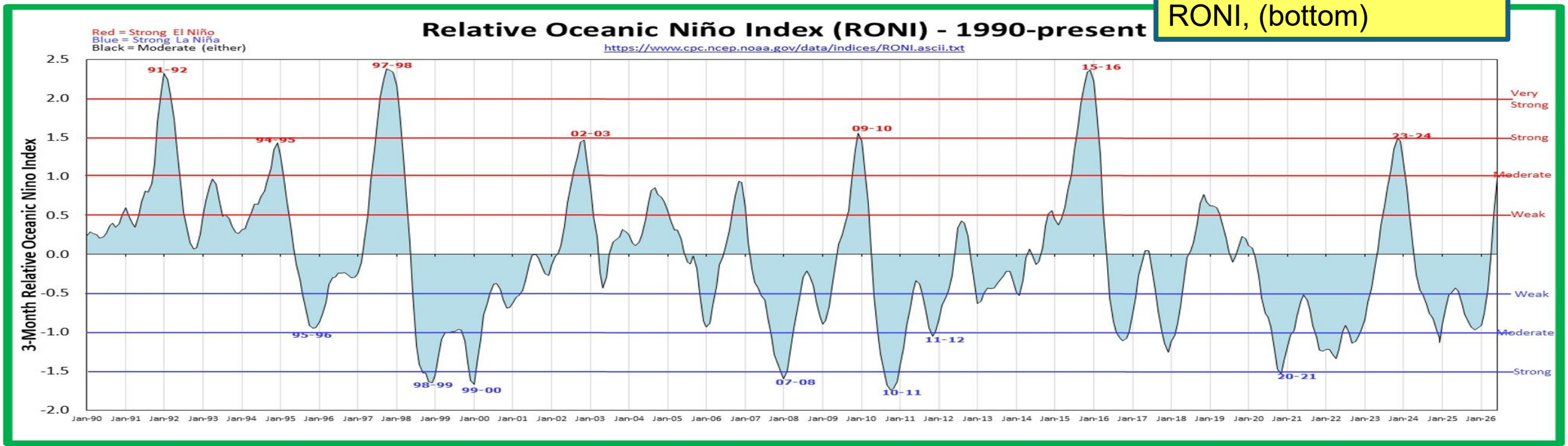
Here is the new index, the Relative Oceanic Nino Index, (RONI)



The RONI was developed to account for long-term warming of the ocean area near the Nino 3.4 rectangle.



Side-by-side comparison between ONI (Top) and RONI, (bottom)



These next graphics are from:

https://casf.me/analysis-of-the-january-2025-los-angeles-wild-fires/

Video graphics show animations of El Nino, and then La Nina. (circled next slide)

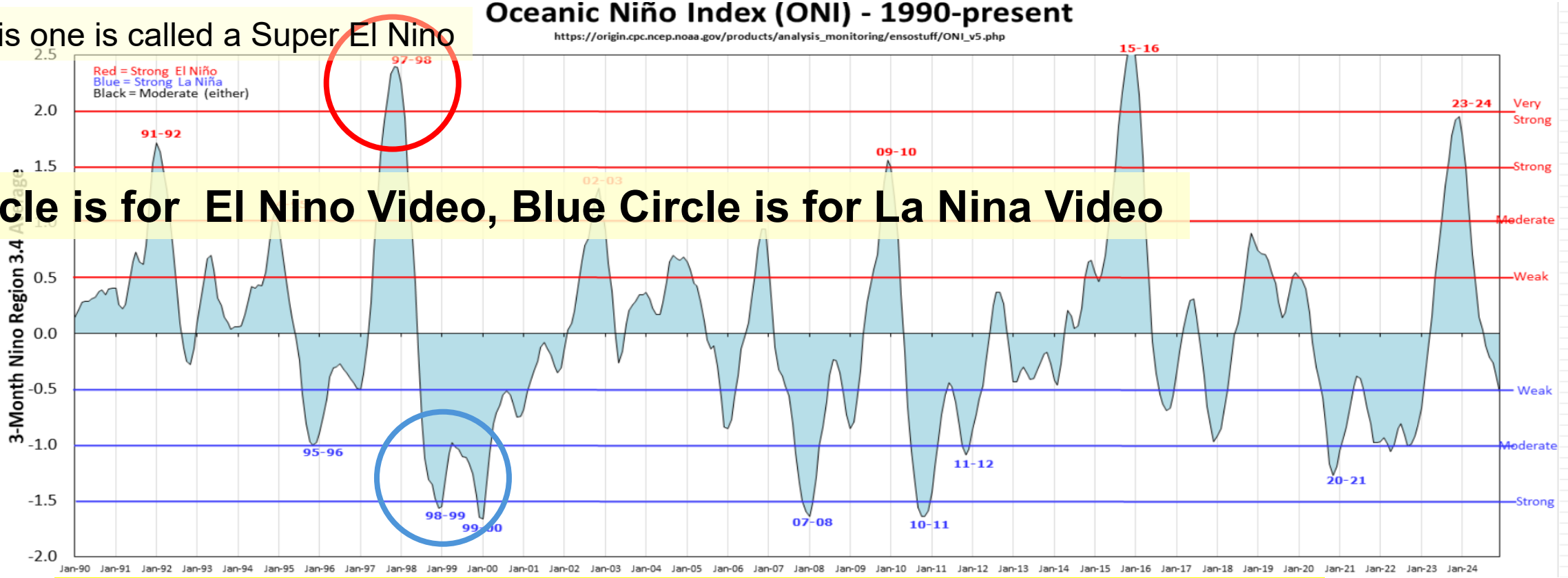
http://ggweather.com/enso/oni.htm

Golden Gate Weather Services, Jan Null; used with permission

Red = Strong El Niño
Blue = Strong La Niña
Black = Moderate (either)

Time Series of Nino 3.4 *sea surface temperature anomalies*

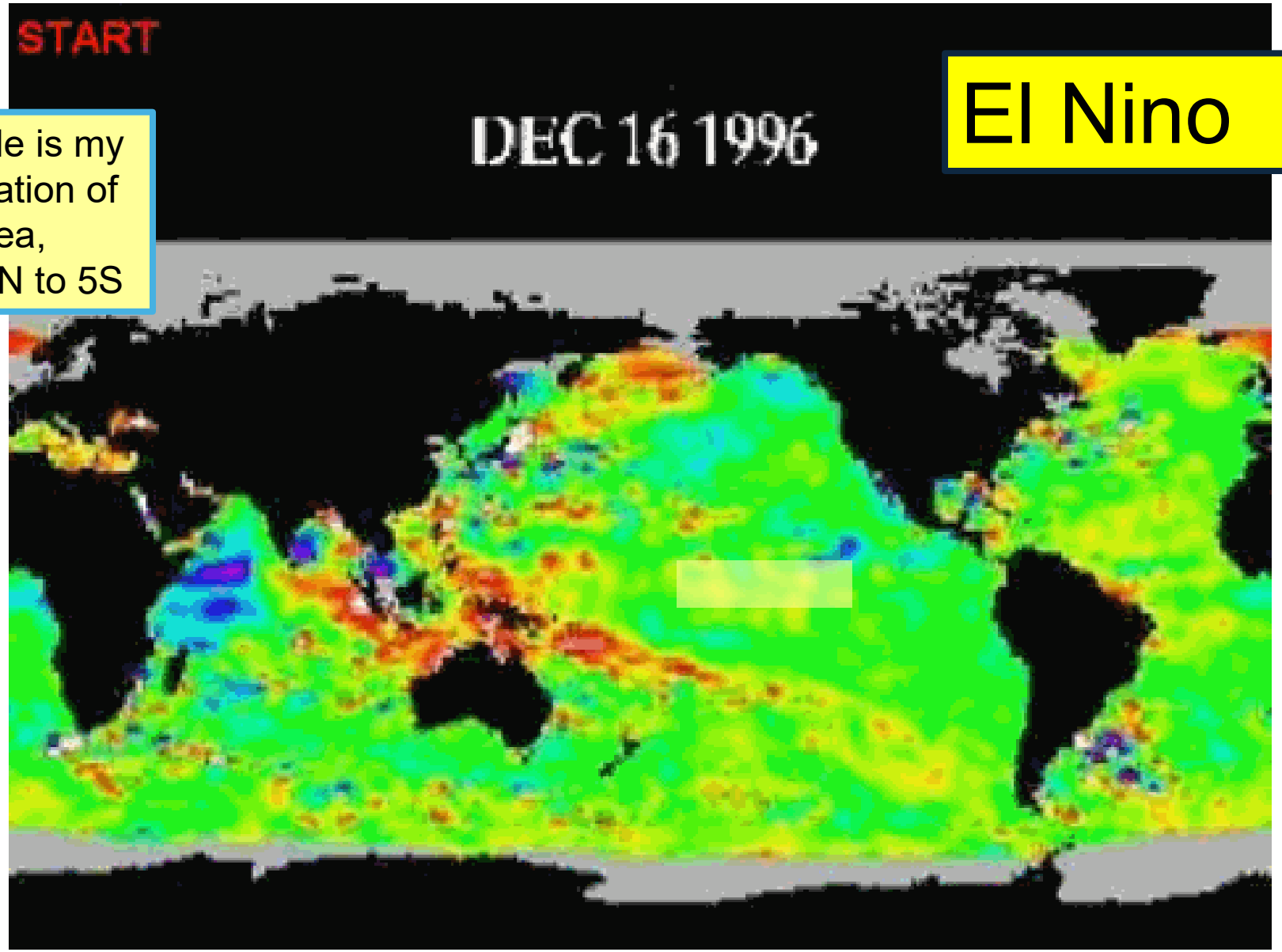
This one is called a Super El Nino



Red Circle is for El Nino Video, Blue Circle is for La Nina Video

1991 2001 2011 2021

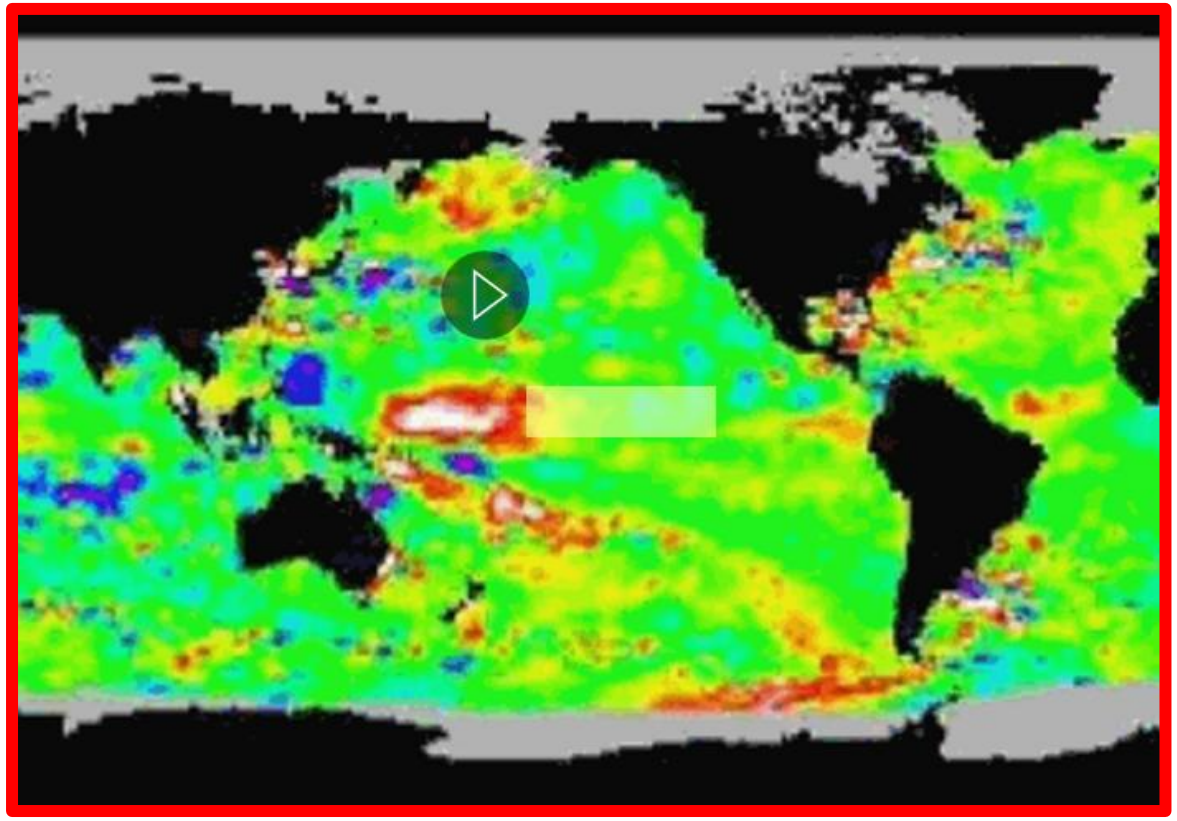
Pale yellow rectangle is my estimate for the location of the Nino 3.4 area, 160W to 120W & 5N to 5S

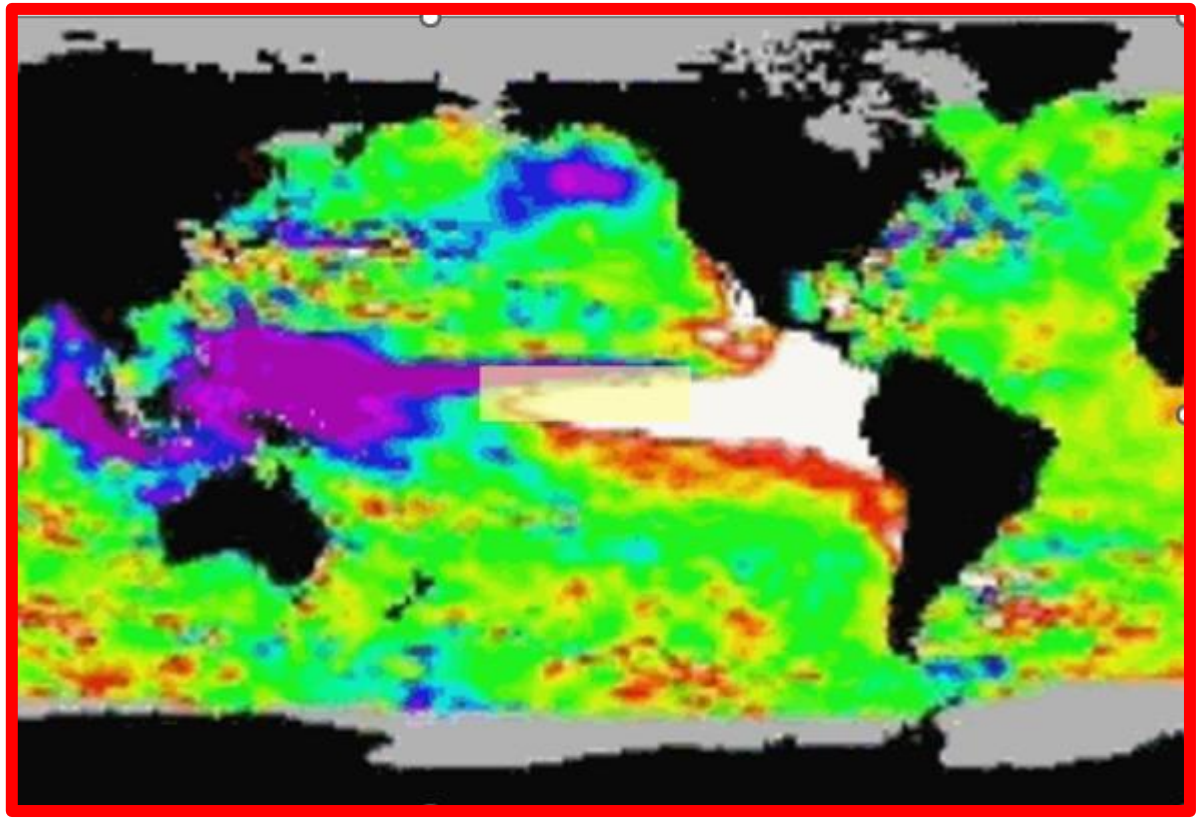


El Nino

https://casf.me/wp-content/uploads/2020/11/2020-11-30_16-40-04A.mp4

My estimate, using the mp4 video in the link below, is that it takes roughly two months for a warm plume of ocean water emerging from the western Pacific (white patch, surrounded by red,) (Left) to first reach the coast of Ecuador, 8 March to 8 May.
The warm water seems to reach its maximum extent from central Pacific, 160W, to California to Chile, eight months after first emerging, (Right), ~8 November, in this single example, from 1997.



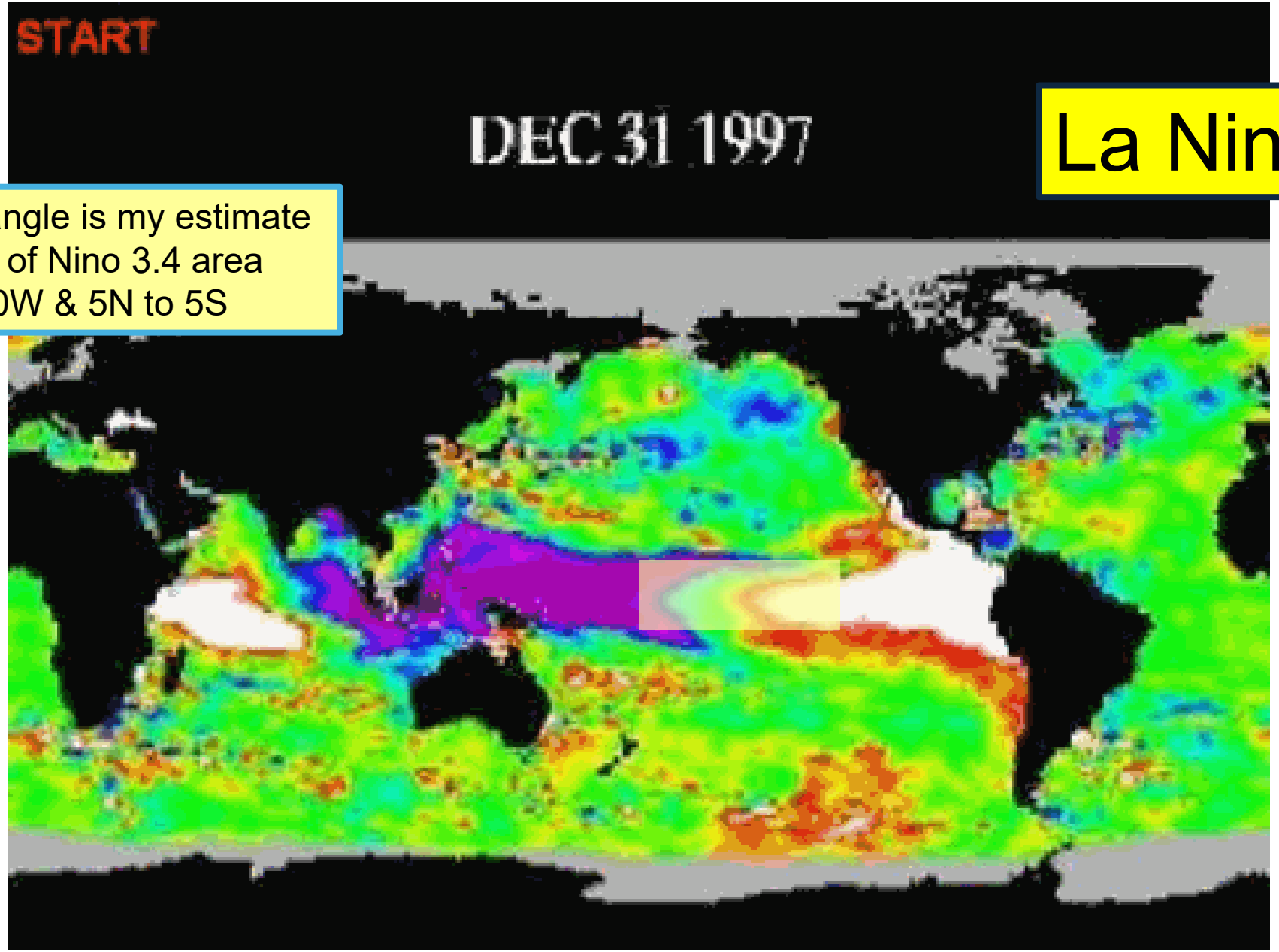


https://casf.me/wp-content/uploads/2020/11/2020-11-30_16-40-04A.mp4

Animation of La Nina beginning on 31 Jan 1998

https://bobtisdale.files.wordpress.com/2012/06/animation-3-1.gif

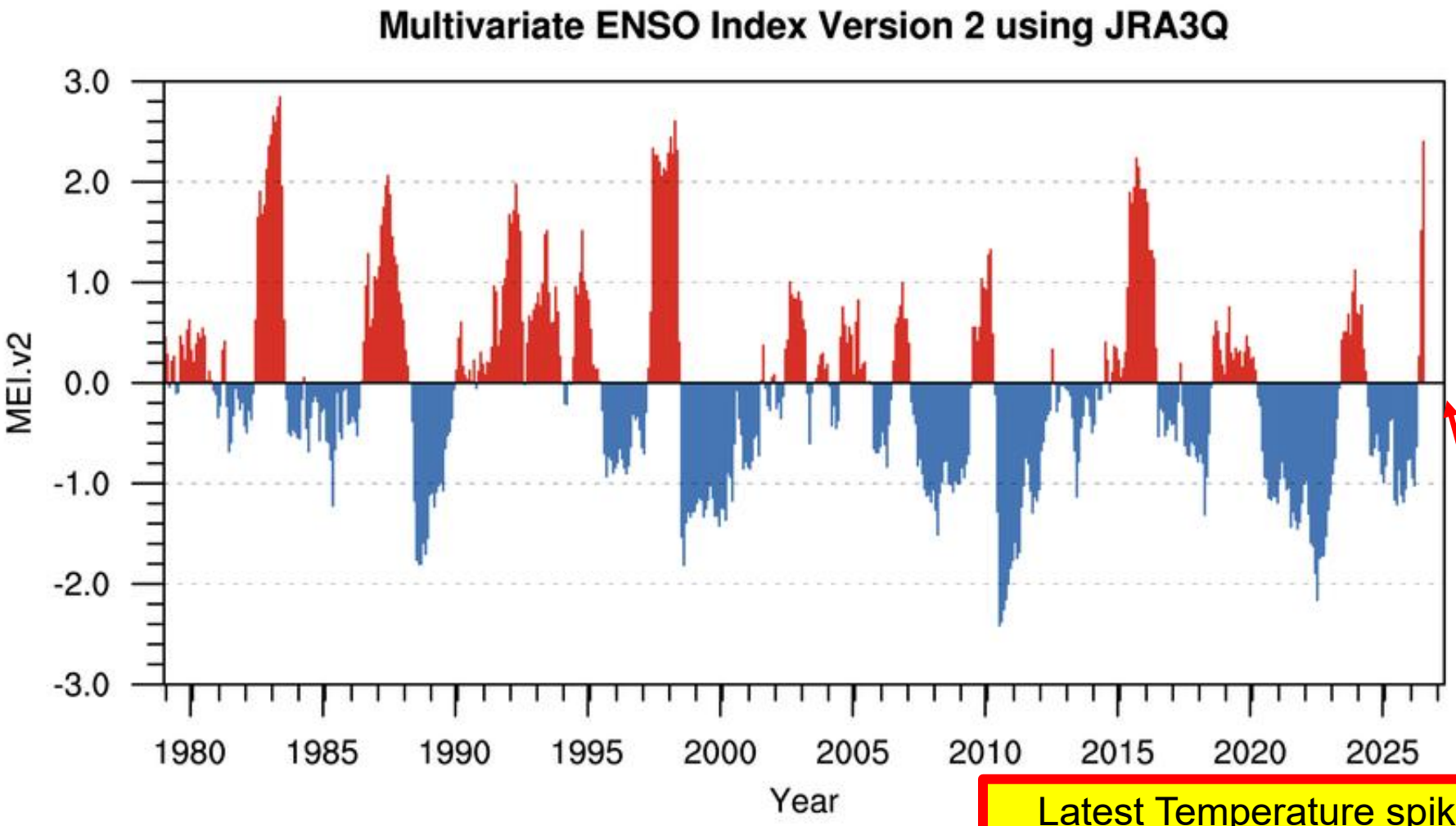
Pale Yellow Rectangle is my estimate for the location of Nino 3.4 area 160W to 120W & 5N to 5S



https://casf.me/wp-content/uploads/2020/11/2020-11-30_16-52-56B.mp4

https://psl.noaa.gov/enso/mei/img/meiv2.timeseries.png

My “eyeball estimate” is that there are fewer El Ninos per decade since 1998.



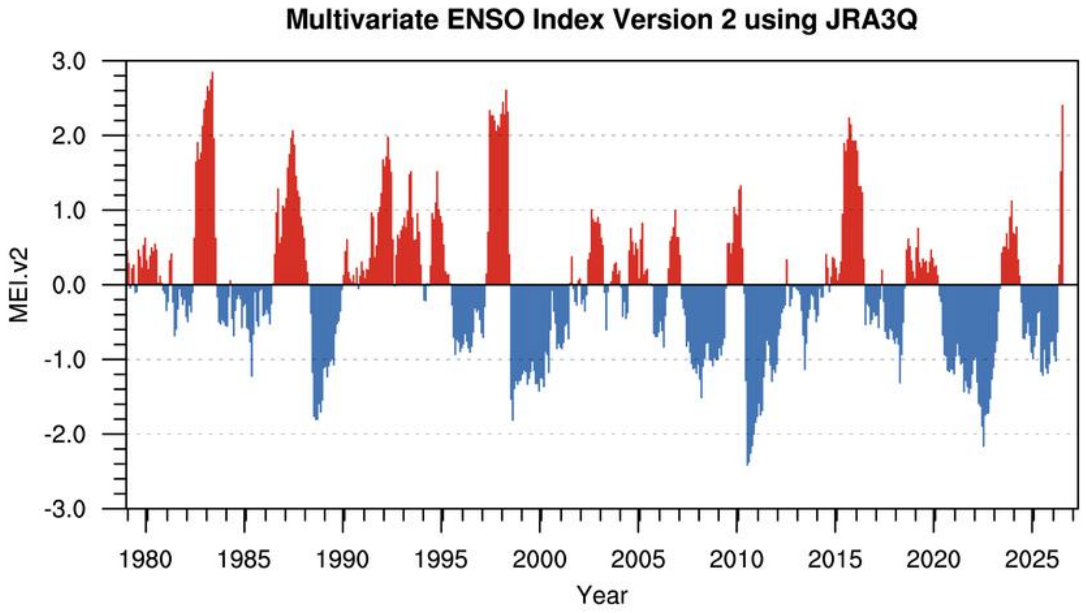
Latest Temperature spike is plotted June 2026.
This is a clue that El Nino’s sloshing of the Western Pacific Warm Pool, eastward, is under way.
Warm Water has traveled from 150E to 120W.

Multivariate ENSO Index Version 2 (MEI.v2)

This is from a 2026 post on NOAA's Physical Science Lab's efforts to improve the diagnostic (and prognostic, hopefully) efforts surrounding ENSO. This change defines the Multivariate ENSO Index Version 2.

Contours are OLR, Outgoing Longwave Radiation.

https://psl.noaa.gov/enso/mei/img/meiv2.timeseries.png



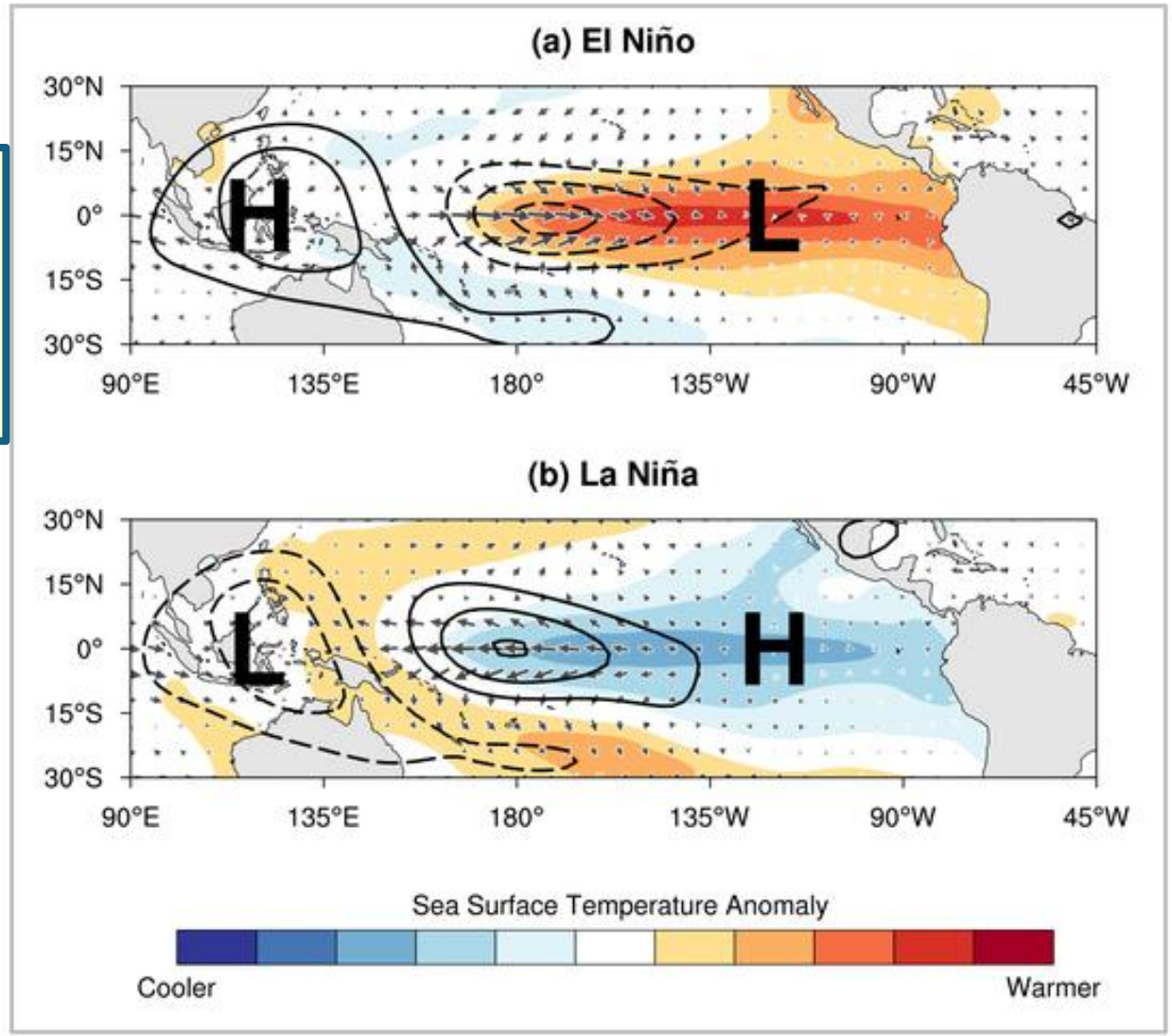


Fig. 1: Schematic diagram showing the physical mechanisms by which the SST (shaded), OLR (contours), surface zonal and meridional winds (vectors), and sea level pressure (represented by "H" and "L" which indicate the high and low pressure center, respectively) determine the wintertime Multivariate ENSO Index (MEI) during (a) El Niño and (b) La Niña events. The schematic is based on the composite anomalies for November-December (ND) drawn from 11 warm events and 11 cold events during 1980-2016.

https://www.theguardian.com/world/2026/jul/30/europe-burns-france-spain-visual-guide-wildfires

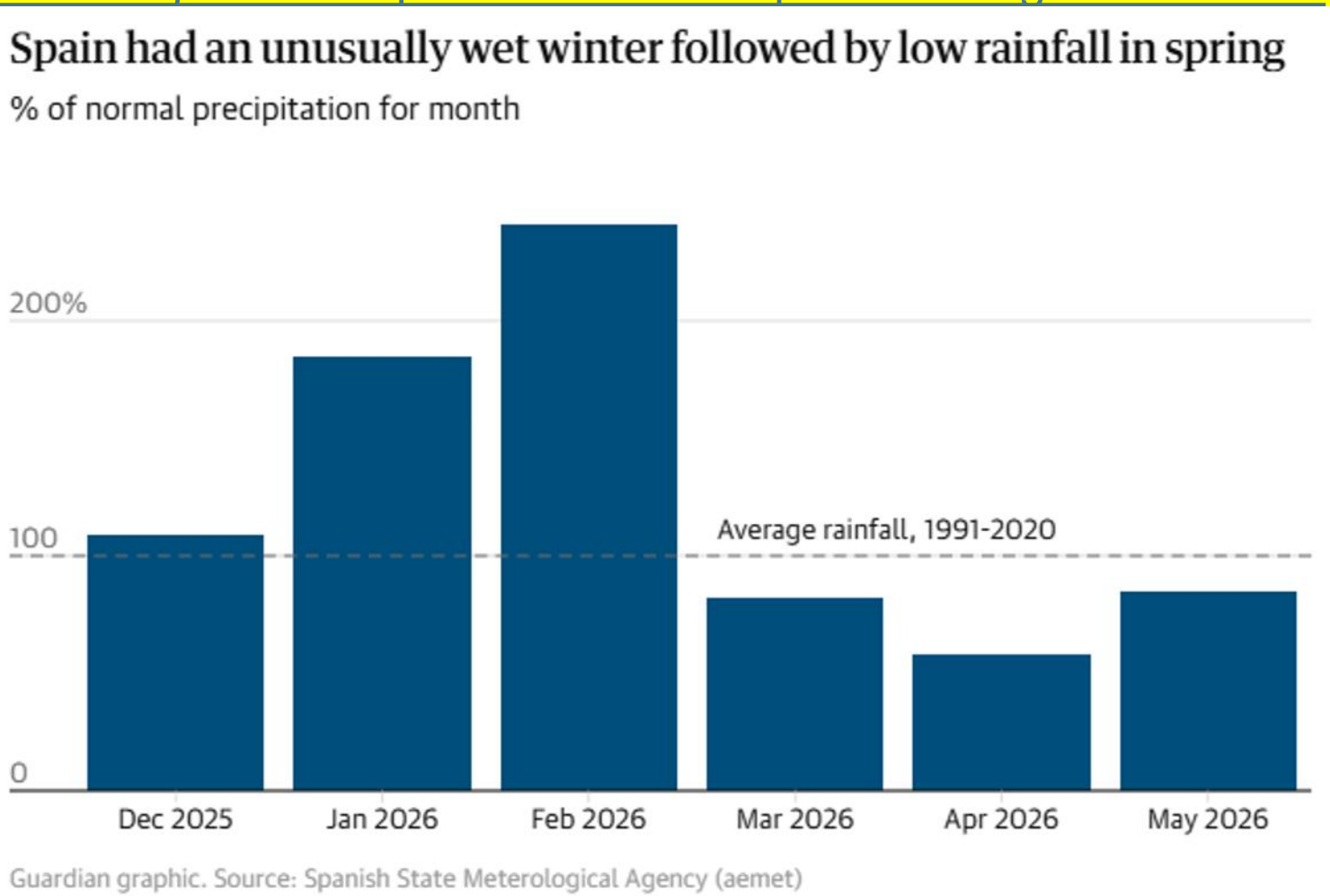
California fire disasters show this same Precipitation Signature:
Wet Winter=>lush grass. Drier later, =>big fires.

We saw this same behavior in https://casf.me/analysis-of-the-january-2025-los-angeles-wild-fires/

2025 Los Angeles Fires

2017 Thomas Fire

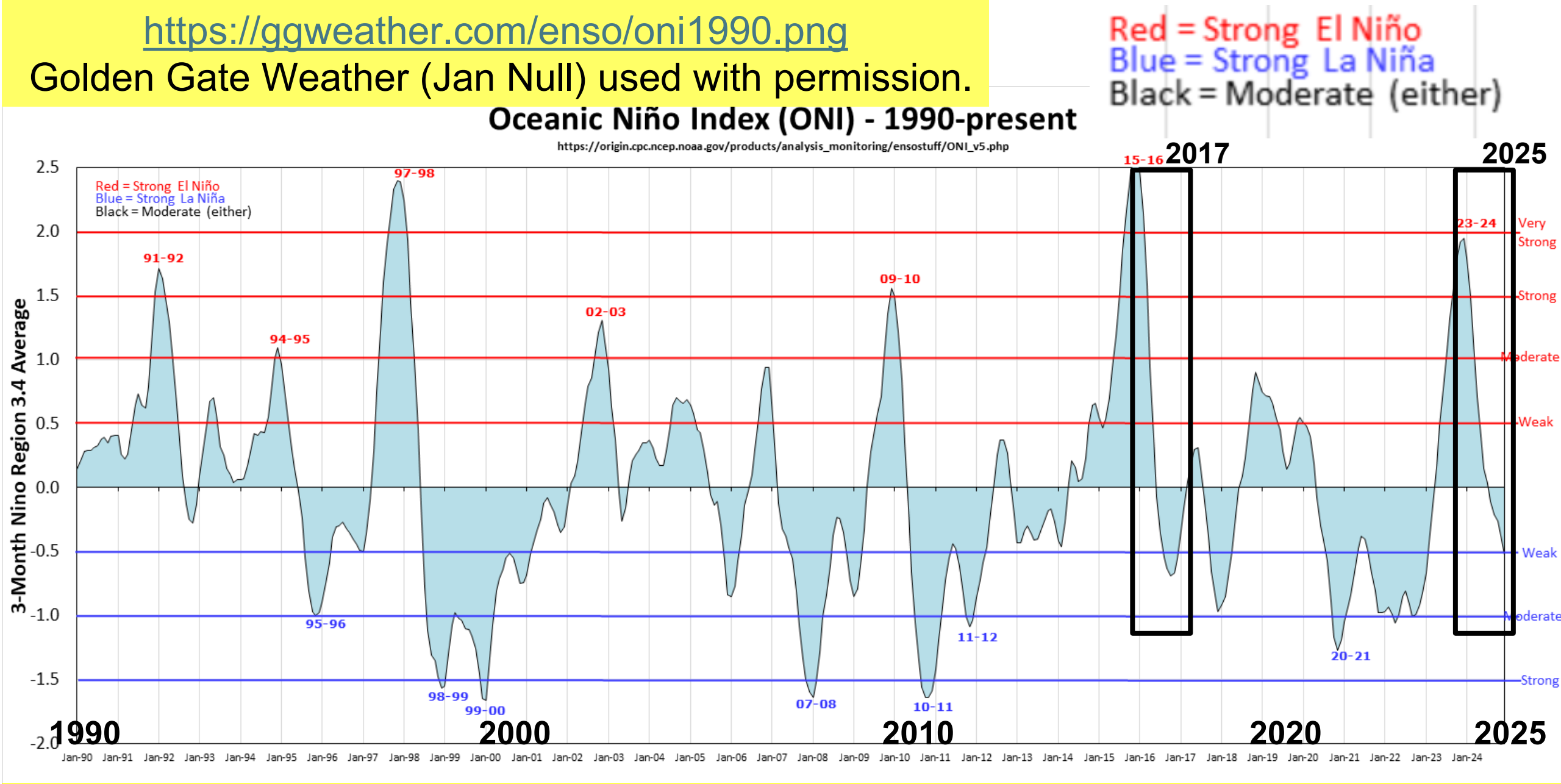
1991 Oakland's Tunnel Fire



However, by May the first of a series of heatwaves had hit Europe. All heatwaves are made more intense and more likely by the global heating caused by fossil fuel burning. The heatwave at the end of June was the most severe ever recorded in Europe and would have been impossible without the added heat from more than a century of carbon pollution.

https://ggweather.com/enso/oni1990.png

Golden Gate Weather (Jan Null) used with permission.



From 2024 to Jan 2025, conditions changed from quite strong El Nino (WET) to weak La Nina (DRY), which also happened in 2016-2017, **the black boxes.**

THIS IS AN IMPORTANT DIAGNOSTIC PATTERN


Sunset
CHASE
JAN 2025


JAN 2025
Play (k)
STB
FIRE
BATTALION 71

Here is the 2017 Case Study

In the news today…the Thomas Fire… California's Santa Ana Winds and Autumn's Wildfires

Bob Endlich

bendlich@msn.com

Cruces Atmospheric Sciences Forum

16 December 2017

http://www.latimes.com/local/california/la-me-ln-thomas-fire-grows-20171215-story.html

(Sources: Ventura and Santa Barbara counties, Cal Fire, Mapzen, OpenStreetMap)

http://www.independent.co.uk/news/world/americas/california-fires-latest-climate-change-jerry-brown-la-ventura-county-thomas-evacuations-damage-a8101606.html#gallery

A wildfire threatens homes as it burns along a hillside in La Conchita, Calif

https://en.wikipedia.org/wiki/Thomas_Fire#/media/File:Satellite_image_of_Thomas_Fire.jpg

https://www.noozhawk.com/article/firefighters_battling_96000_acre_thomas_fire_on_several_fronts

Flames explode on a chaparral hillside along Highway 33 north of Ojai on Thursday as the Thomas Fire grew to 115,000 acres. It was updated to 132,000 acres Friday morning. (Noozhawk photo)

Flames from the Thomas Fire menace the community of La Conchita on Thursday.

The fire, which straddles the border of Santa Barbara and Ventura counties, is so large that its eastern and western fronts are influenced by entirely different wind patterns and terrain. In many ways, it's as if firefighters are battling two separate fires some 40 miles apart.

http://www.breitbart.com/california/2017/12/09/jerry-brown-blames-climate-change-california-fires-new-normal/

Jerry Brown Blames Climate Change for California Fires: 'The New Normal'

California Governor Jerry Brown blamed climate change for the California fires that have devastated the state this fall during a visit to assess the damage in Ventura County on Saturday.

http://www.breitbart.com/california/2017/12/09/jerry-brown-blames-climate-change-california-fires-new-normal/

Jerry Brown Blames Climate Change for California Fires: 'The New Normal'

COMMENT:

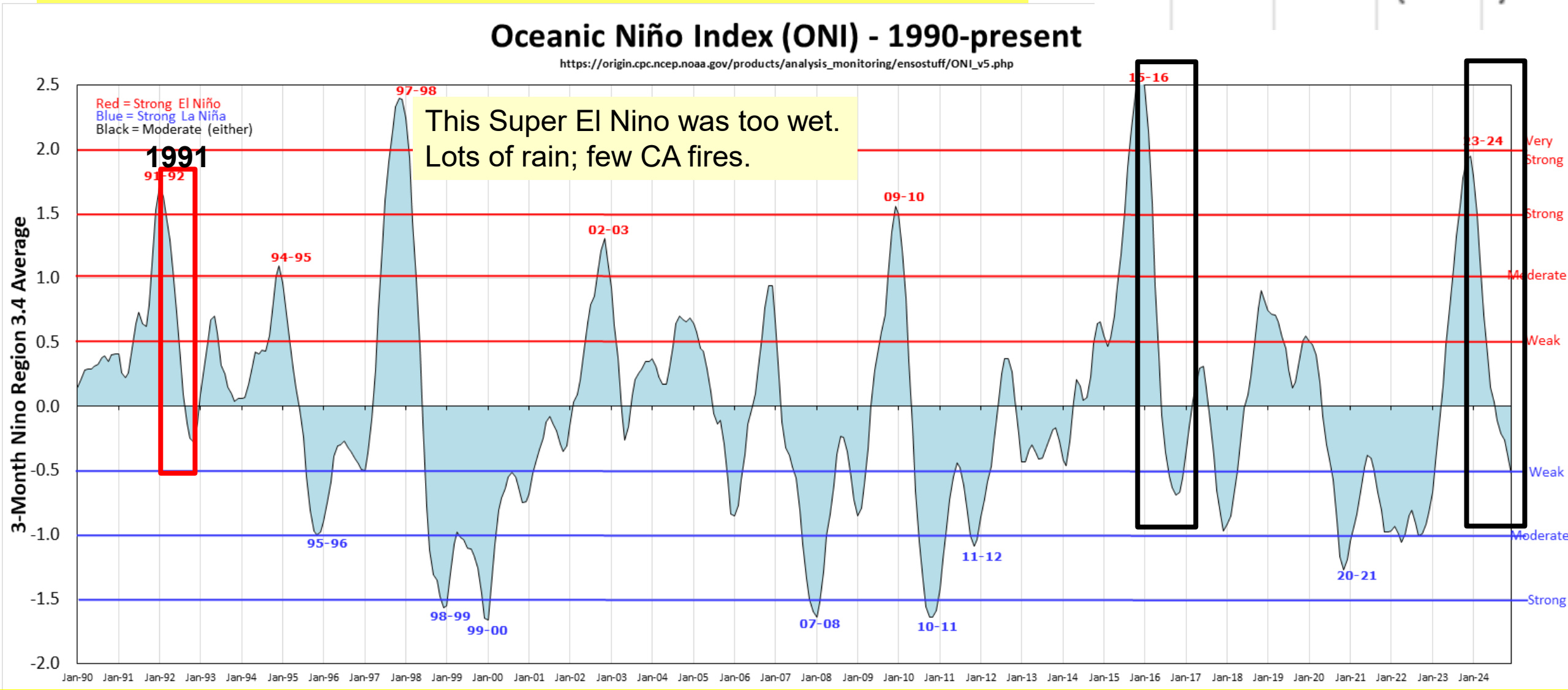
If Governor Brown had engaged in Critical Thinking or data analysis, he would have realized that the fire calamities arise from the climate we have, not "Climate Change."

California Governor Jerry Brown blamed climate change for the California fires that have devastated the state this fall during a visit to assess the damage in Ventura County on Saturday.

https://ggweather.com/enso/oni1990.png

Golden Gate Weather (Jan Null) used with permission.

Red = Strong El Niño
Blue = Strong La Niña
Black = Moderate (either)



From 2024 to Jan 2025, conditions changed from quite strong El Nino (WET) to weak La Nina (DRY), which also happened in 2016-2017, black boxes. **HAS THIS SCENARIO HAPPENED BEFORE?** **What about 1991? <Red>**

https://revealnews.org/blog/remembering-the-oakland-hills-firestorm-how-weather-fueled-the-flames/

Here is the 1991 Case Study

A firefighter keeps an eye on his partner who is sprawled on a lawn and recovering from exhaustion while other firefighters continue to battle blazes in Oakland, California, on Oct. 20, 1991. The firestorm burned 3,000 homes and killed 25 people. Credit: AP Photo/Glen Morimoto

https://en.wikipedia.org/wiki/Oakland_firestorm_of_1991

The **Oakland firestorm of 1991**, also known as the **Tunnel Fire** was a large suburban wildland–urban interface conflagration that occurred on the hillsides of northern Oakland, California, and southeastern Berkeley over the weekend of October 19–20, 1991, before being brought under full control on October 23. The official name of this incident by Cal Fire is the **Tunnel Fire**.[3] It is also commonly referred to as the **Oakland Hills firestorm** or the **East Bay Hills fire**. The fire ultimately killed 25 people and injured 150 others. The 1,520 acres (620 ha) destroyed included 2,843 single-family dwellings and 437 apartment and condominium units. The economic loss from the fire was estimated at $1.5 billion ($2.99 billion in 2024 dollars[2]).[1]

Origins [edit]

The fire started on Saturday, October 19, from an incompletely and improperly extinguished grass fire in the Berkeley Hills, northeast of the intersection of California State Routes 24 and 13 (0.5 mi (0.8 km) north of the Caldecott Tunnel west portal. Firefighters fought the 5-acre (2.0 ha) fire on a steep hillside above 7151 Buckingham Boulevard, and by Saturday night believed it to be under control.

Listen: Remembering the 1991 Oakland-Berkeley Firestorm

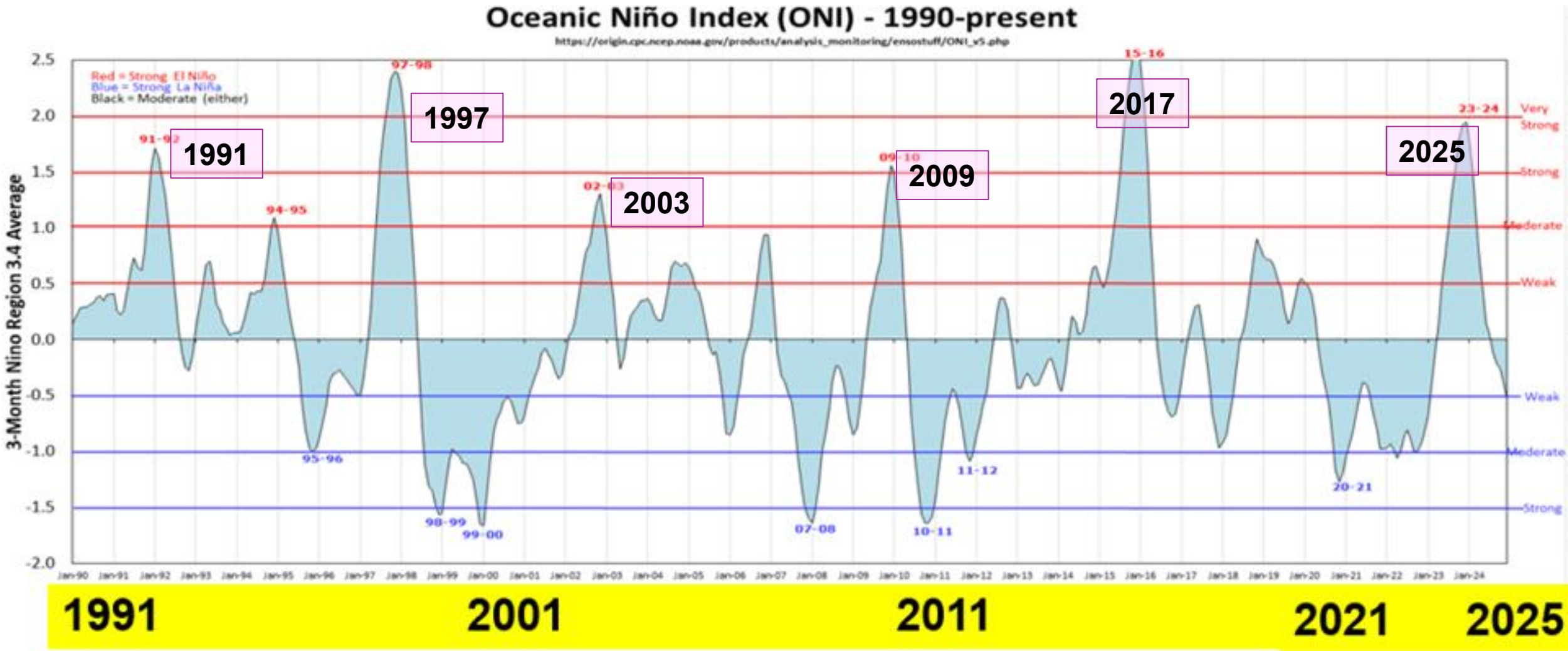
.aerial photo showing damage to the Oakland Hills following the 1991 firestorm Credit: East Bay Regional Parks District

Some El Nino Diagnostics

Red = Strong El Niño
Blue = Strong La Niña
Black = Moderate (either)

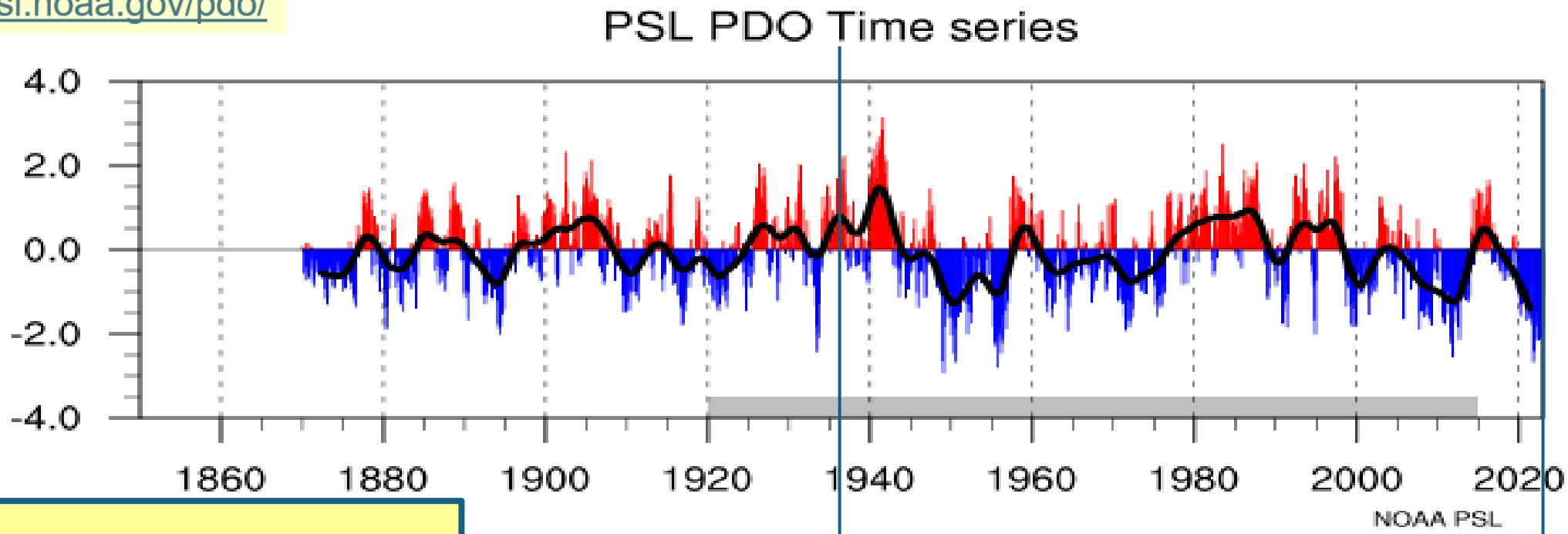
Time Series of Nino 3.4 *sea surface temperature anomalies*

PURPLE



1991 2001 2011 2021 2025

https://psl.noaa.gov/pdo/

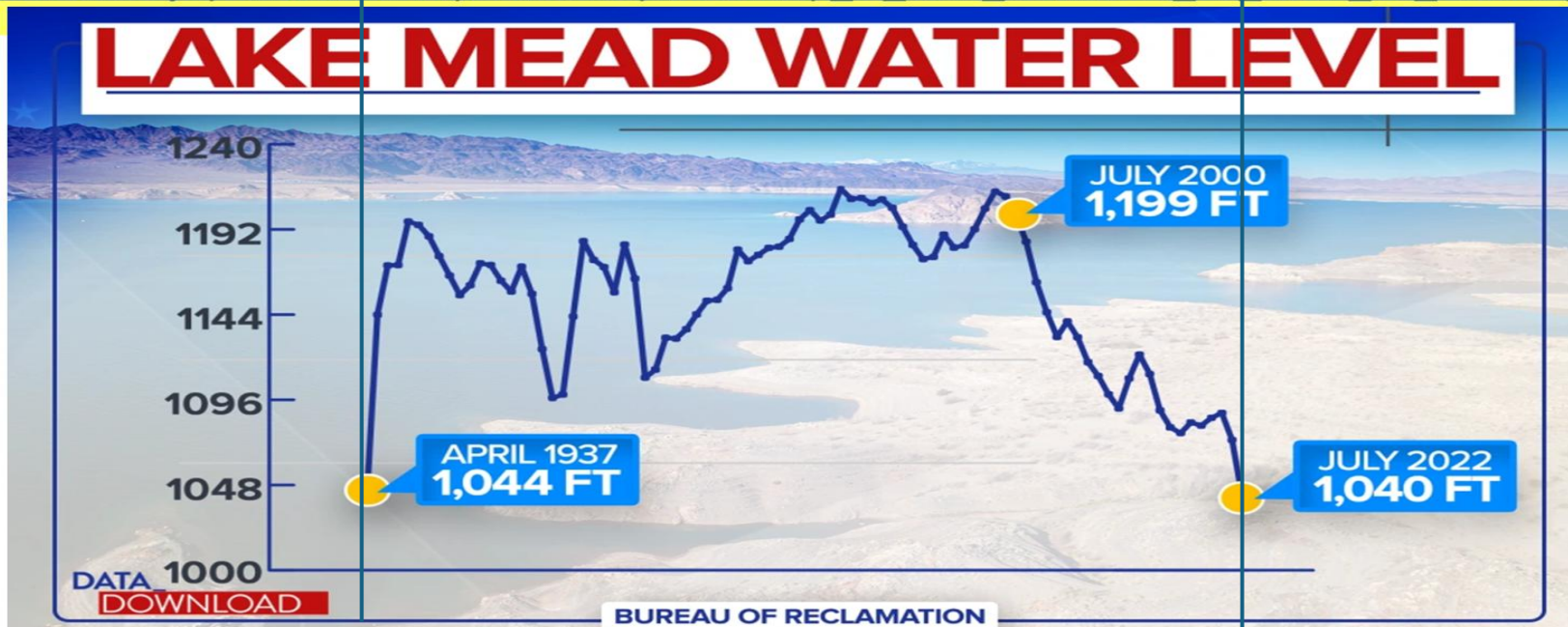


TOP:
Pacific Decadal Oscillation Time Series from NOAA.

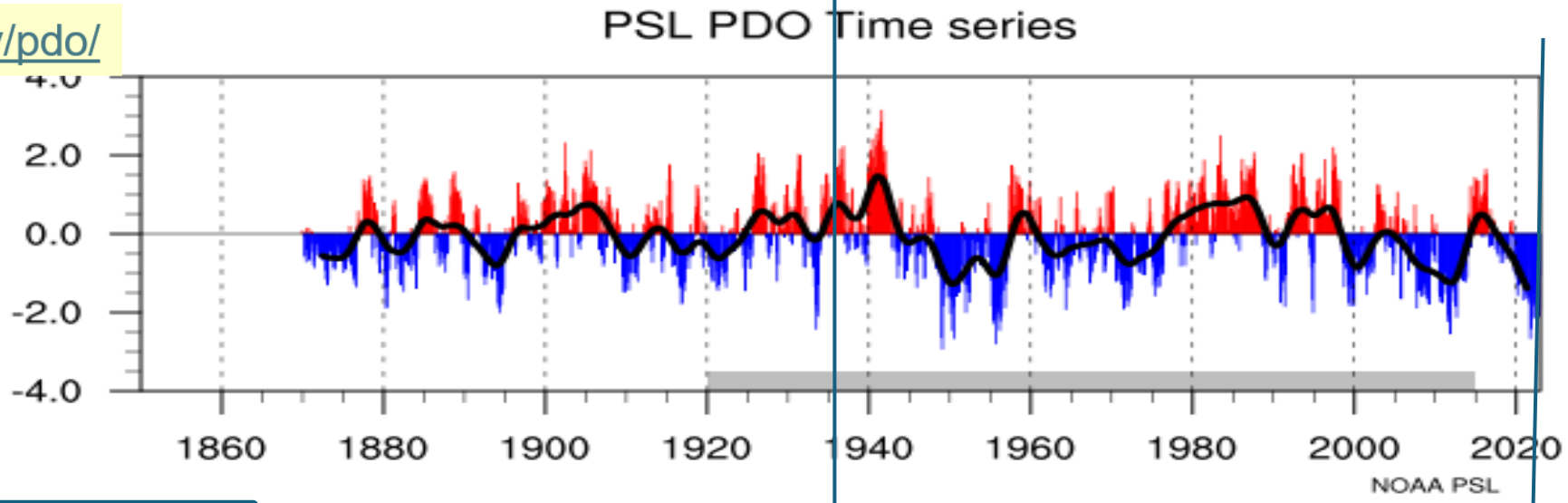
BOTTOM:
Lake Mead Water Level from BOR Index Lines at 1937 and 2022.

MESSAGE:
Since year 2000 Western North America has been dominated by PDO-Cold or PDO-Dry.

https://www.drroyspencer.com/wp-content/uploads/mtp_fs_data_download_2b_2022_08_21.web



https://psl.noaa.gov/pdo/



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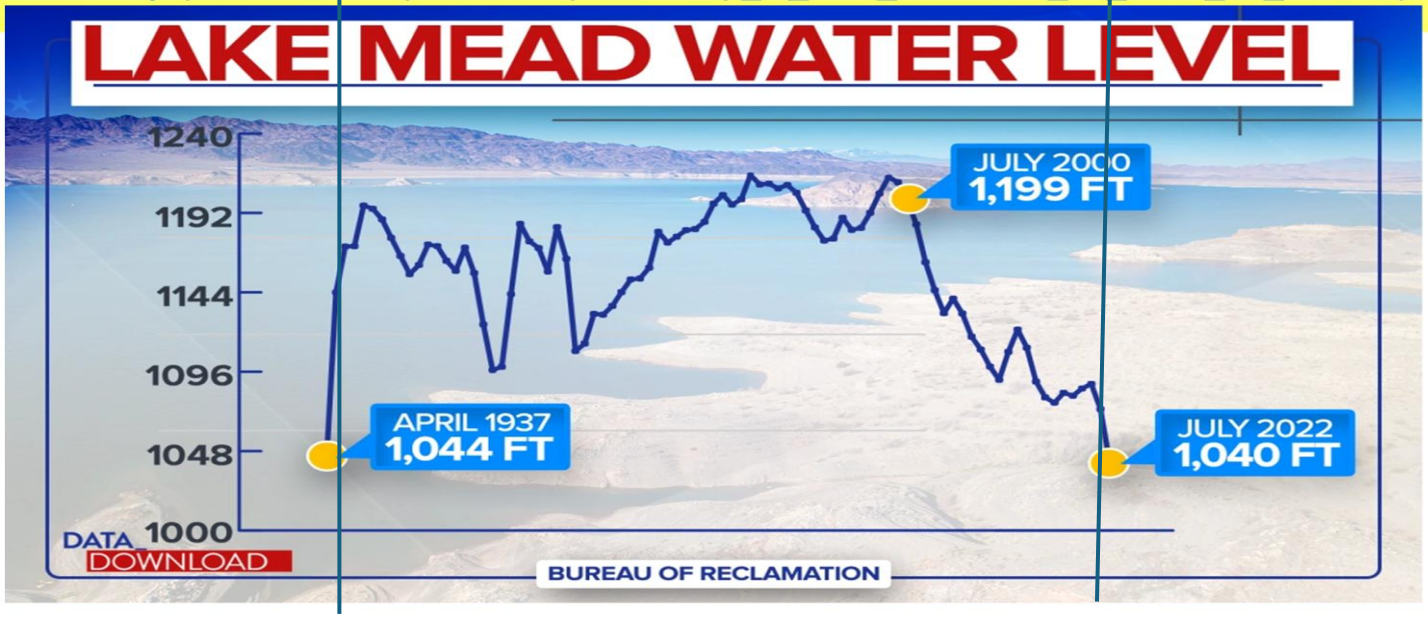
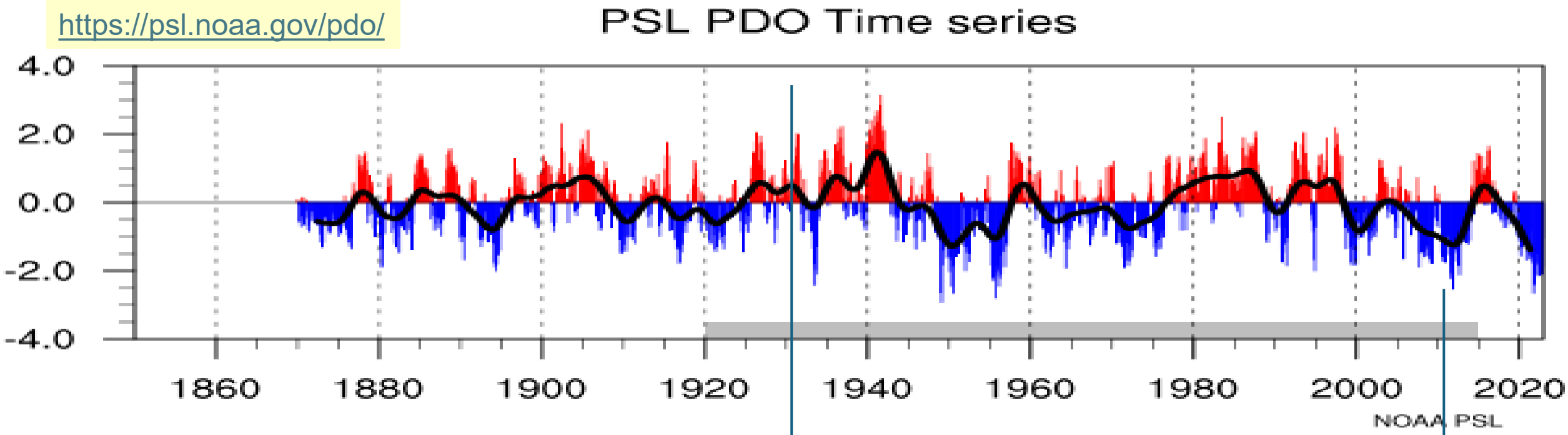
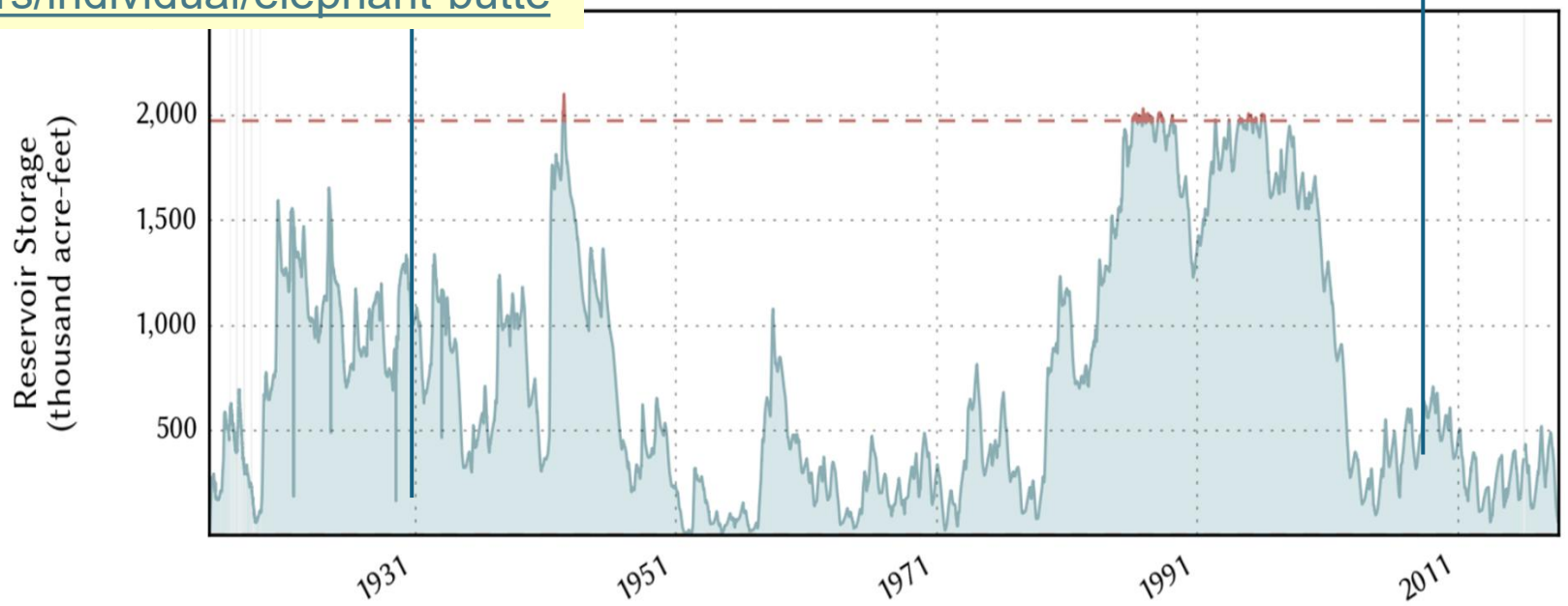


Time from 2000 to 2026 is 26 years. Bernie McCune and I have previously noted the frequent occurrence of a ~60-year periodicity in phenomena such as this.

https://psl.noaa.gov/pdo/



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



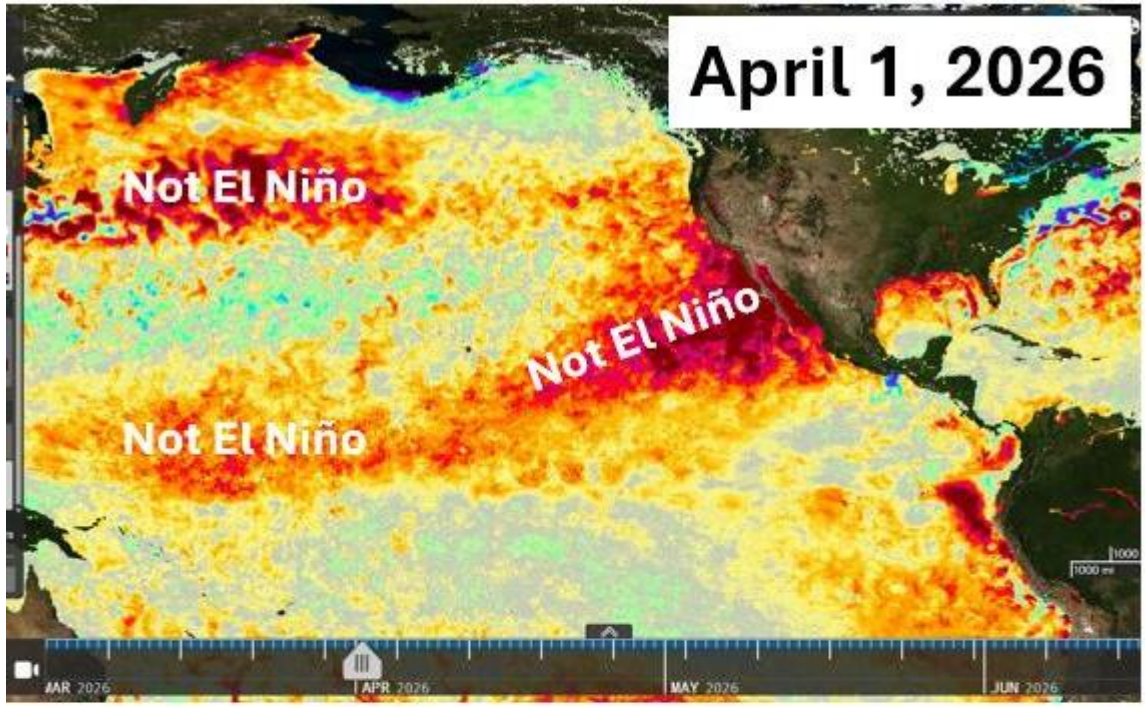
TOP: Pacific Decadal Oscillation Time Series from NOAA

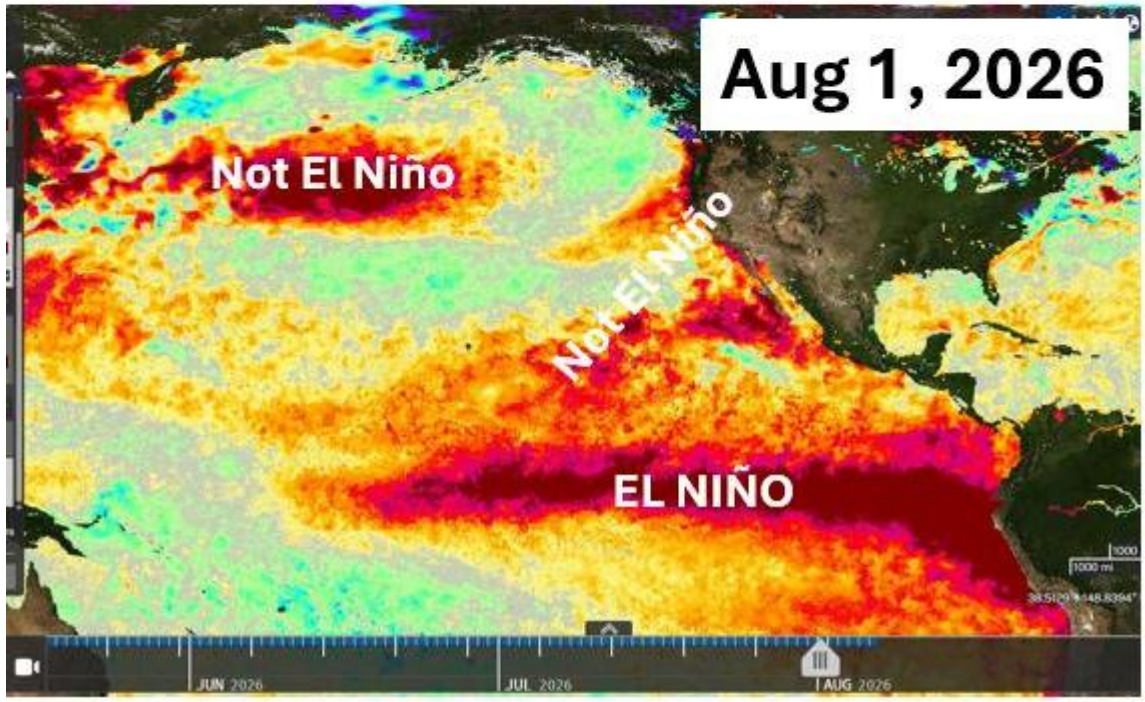
BOTTOM: Height of Lake Level Time Series
Elephant Butte Lake, New Mexico.

Index Lines at 1931 and 2011.

A Diagnostic Note from Golden Gate Weather

https://ggweather.posthaven.com/not-all-warm-water-is-el-nino





The NWS Climate Prediction Center's

13 August 2026

ENSO DIAGNOSTIC DISCUSSION

https://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_advisory/ensodisc.shtml

EL NIÑO/SOUTHERN OSCILLATION (ENSO) DIAGNOSTIC DISCUSSION
issued by CLIMATE PREDICTION CENTER/NCEP/NWS
13 August 2026

ENSO Alert System Status: El Niño Advisory

Synopsis: **El Niño is strengthening, with a greater than 90% chance of a very strong event during the Northern Hemisphere fall and winter 2026-27.**

El Niño strengthened over the past month, with sea surface temperature anomalies exceeding +2.0°C in the eastern equatorial Pacific [Fig. 1]. The July Niño index values were +1.4°C in Niño-3.4, +1.7°C in Niño-3, and +2.9°C in Niño-1+2 [Fig. 2]. The equatorial subsurface temperature index (average from 180°-100°W) increased during July [Fig. 3], reflecting a deeper-than-average thermocline [Fig. 4]. Subsurface temperature anomalies were significant, reaching +10.0°C at depth. Low-level westerly wind anomalies and upper-level easterly wind anomalies extended from the western to east-central equatorial Pacific. Convection and rainfall were enhanced from the central to eastern Pacific and were suppressed over Indonesia [Fig. 5]. The traditional and equatorial Southern Oscillation indices were significantly negative, with values near 2 standard deviations during July. Collectively, the coupled ocean-atmosphere system reflected a strengthening El Niño.

FIGURE 1

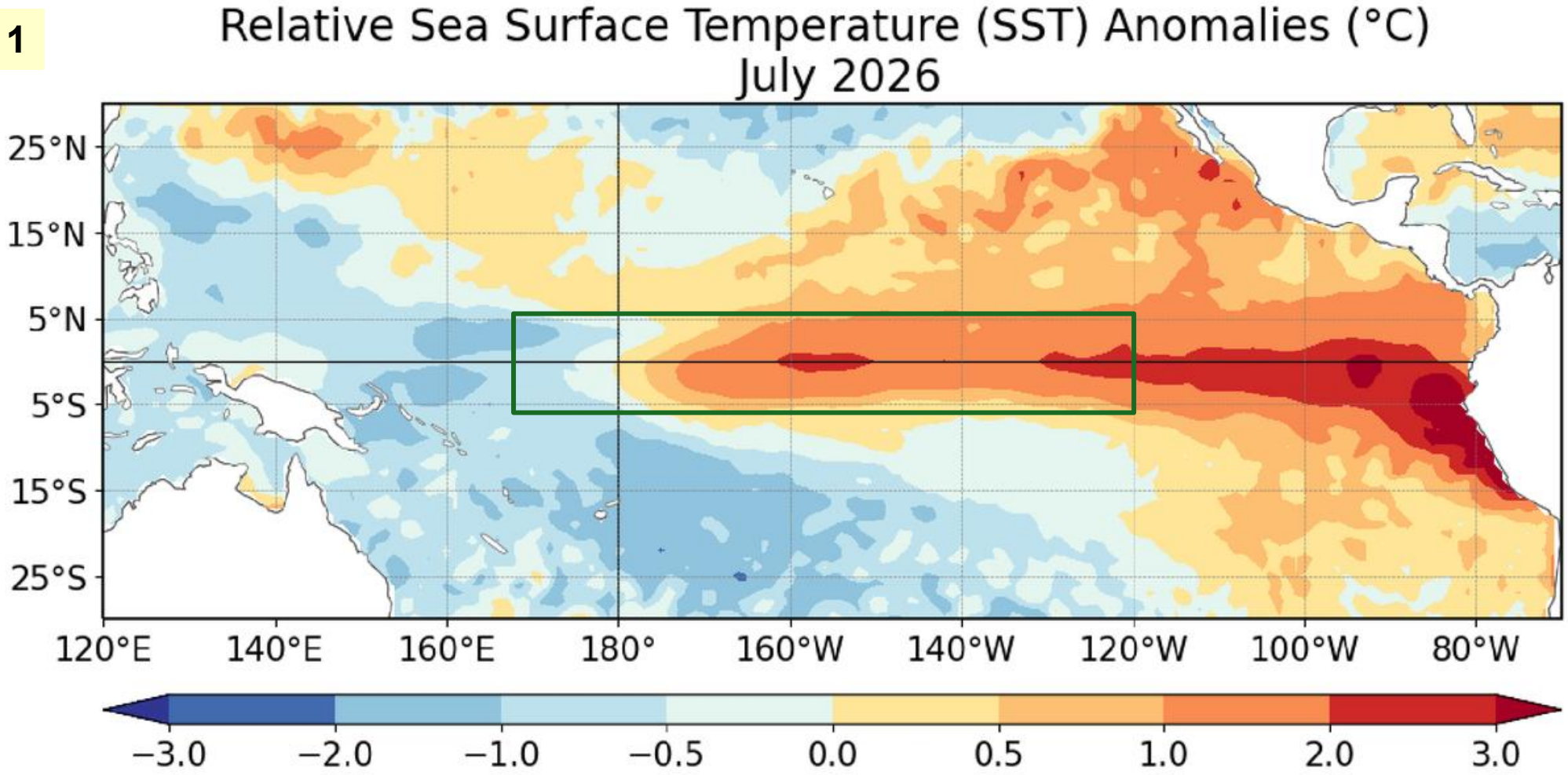


Figure 1. Average relative sea surface temperature (SST) anomalies (°C) for July 2026. Anomalies are computed with respect to the 1991-2020 base period monthly means. Data: OISSTv2.1.
https://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_update/Monthly_RelSSTA_map-hr.png

Area within the Dark Green Rectangle is the Approximate location of the Nino 3.4 area.

FIGURE 2

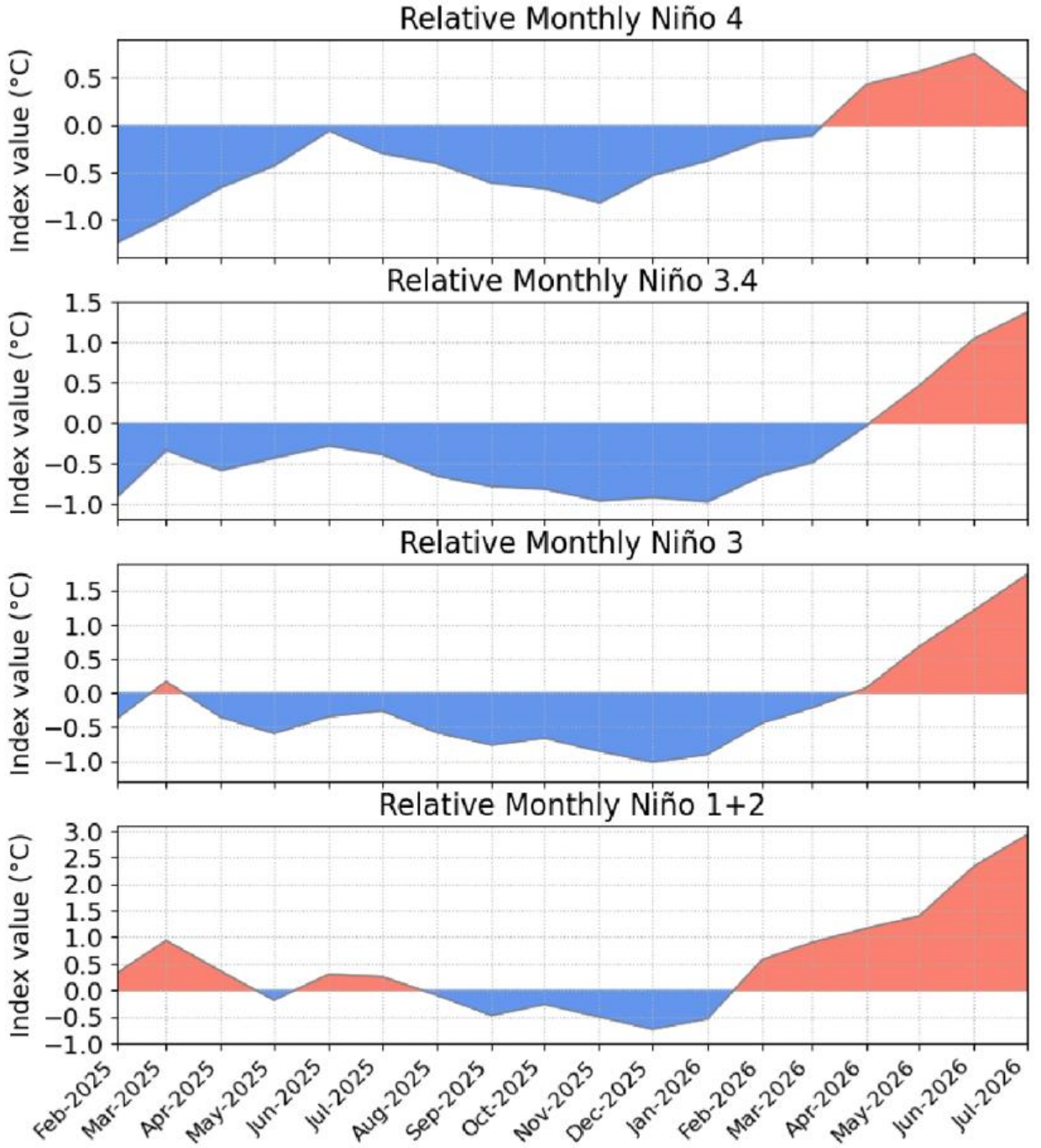


Figure 2. Time series of area-averaged relative sea surface temperature (SST) anomalies (°C) in the Niño regions [Niño-4 (5ºN-5ºS, 160ºE-150ºW), Niño-3.4 (5°N-5°S, 170°W-120°W), Niño-3 (5°N-5°S, 150°W-90°W), Niño-1+2 (0°-10°S, 90°W-80°W) minus tropical mean (20°N-20°S). The relative indices are re-scaled to match the variance of traditional indices. Anomalies are departures from the 1991-2020 base period monthly means. Data: OISSTv2.1. https://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_update/rel_nino_month-hr.png

FIGURE 3

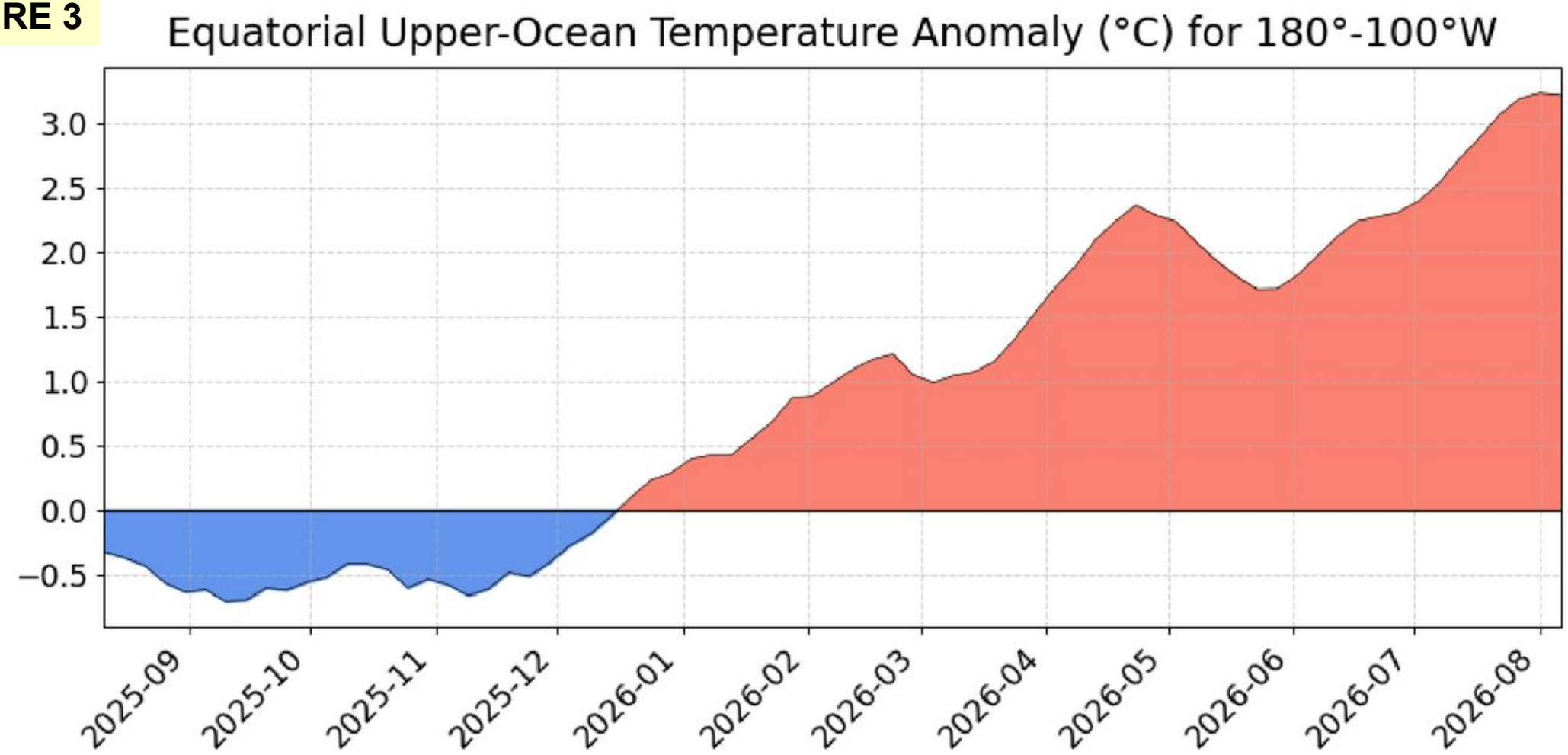


Figure 3. Area-averaged upper-ocean (0-300m) temperature anomaly (°C) in the equatorial Pacific (5°N-5°S, 180°-100°W). The temperature anomaly is computed as the departure from the 1991-2020 base period pentad means. Data: GODAS. Global Ocean Data Assimilation System
https://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_update/heat-last-year-hr.png

FIGURE 4

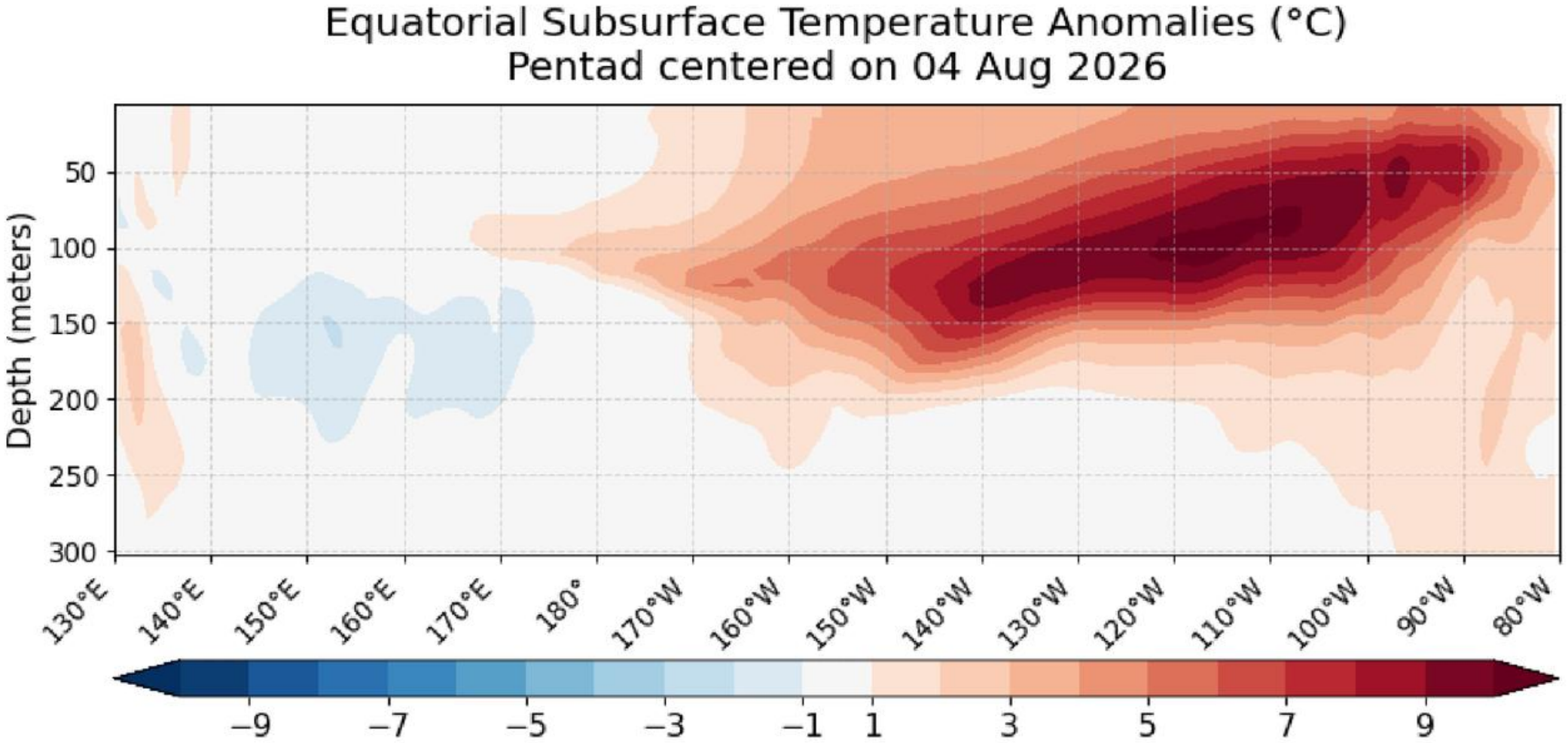


Figure 4. Depth-longitude section of equatorial Pacific upper-ocean (0-300m) temperature anomalies (°C) centered on the pentad of 4 August 2026. Anomalies are departures from the 1991-2020 base period pentad means. Data: GODAS.
https://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_update/zlon_last-hr.png

FIGURE 5

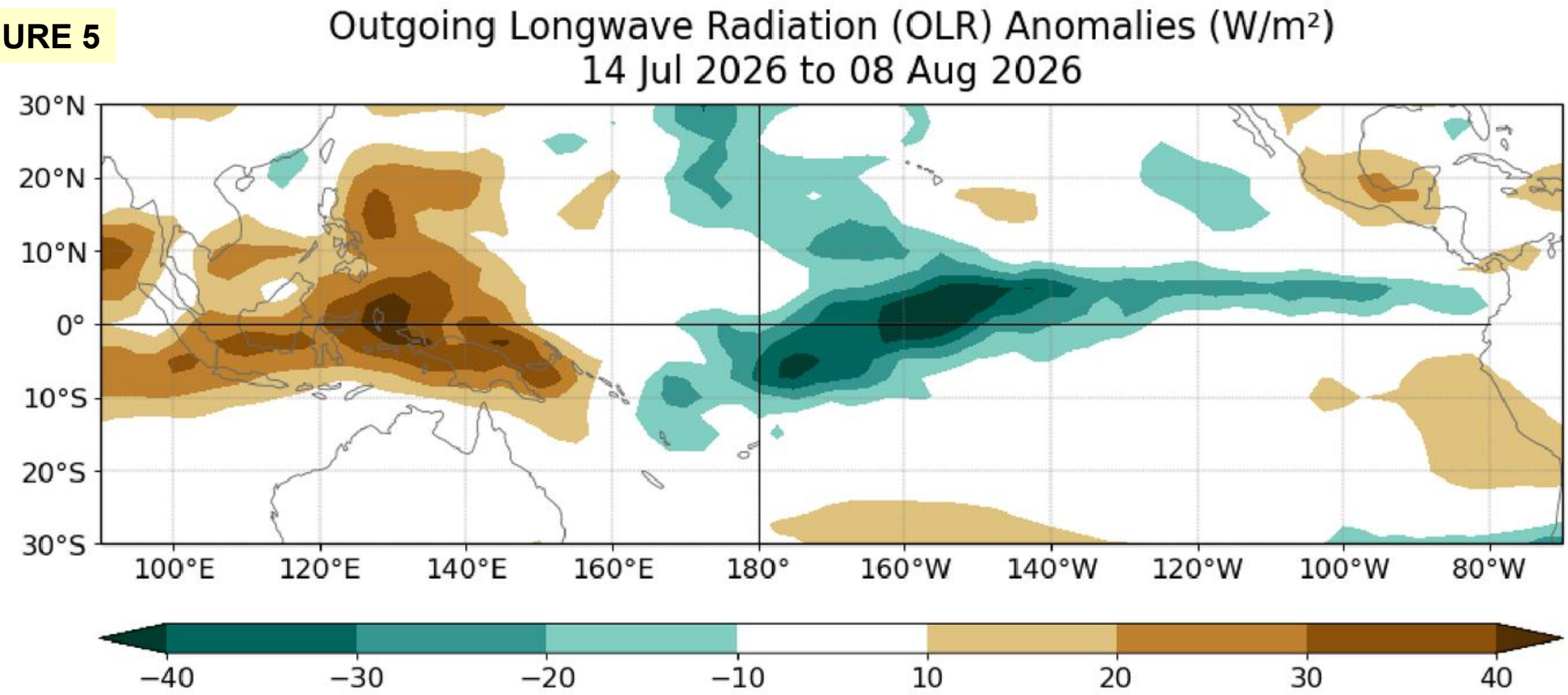


Figure 5. Average outgoing longwave radiation (OLR) anomalies (W/m^2) for the period 14 July – 8 August 2026. OLR anomalies are computed as departures from the 1991-2020 base period pentad means. Data: CBOv1.
https://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_update/olra_last30days-hr.png

The CPC Official ENSO outlook, which synthesizes multiple models from North America and abroad, indicates El Niño will continue to strengthen through the end of the year [Figs. 6-7-8]. During the October-December 2026 season, there is a 69% chance of a historic event that would exceed the strength of previous El Niño events dating back to 1950 (+2.5°C or more for a 3-month RONI value). With an event of this magnitude, the chances of experiencing impacts consistent with El Niño are larger, but they are not guaranteed (see CPC outlooks for probabilities of seasonal anomalies). In summary, El Niño is strengthening, with a greater than 90% chance of a very strong event during the Northern Hemisphere fall and winter 2026-27.

This discussion is a consolidated effort of the National Oceanic and Atmospheric Administration (NOAA), NOAA's National Weather Service, and their funded institutions. Oceanic and atmospheric conditions are updated weekly on the Climate Prediction Center web site (El Niño/La Niña Current Conditions and Expert Discussions). A probabilistic strength forecast is available here. The next ENSO Diagnostics Discussion is scheduled for 10 September 2026

FIGURE 6

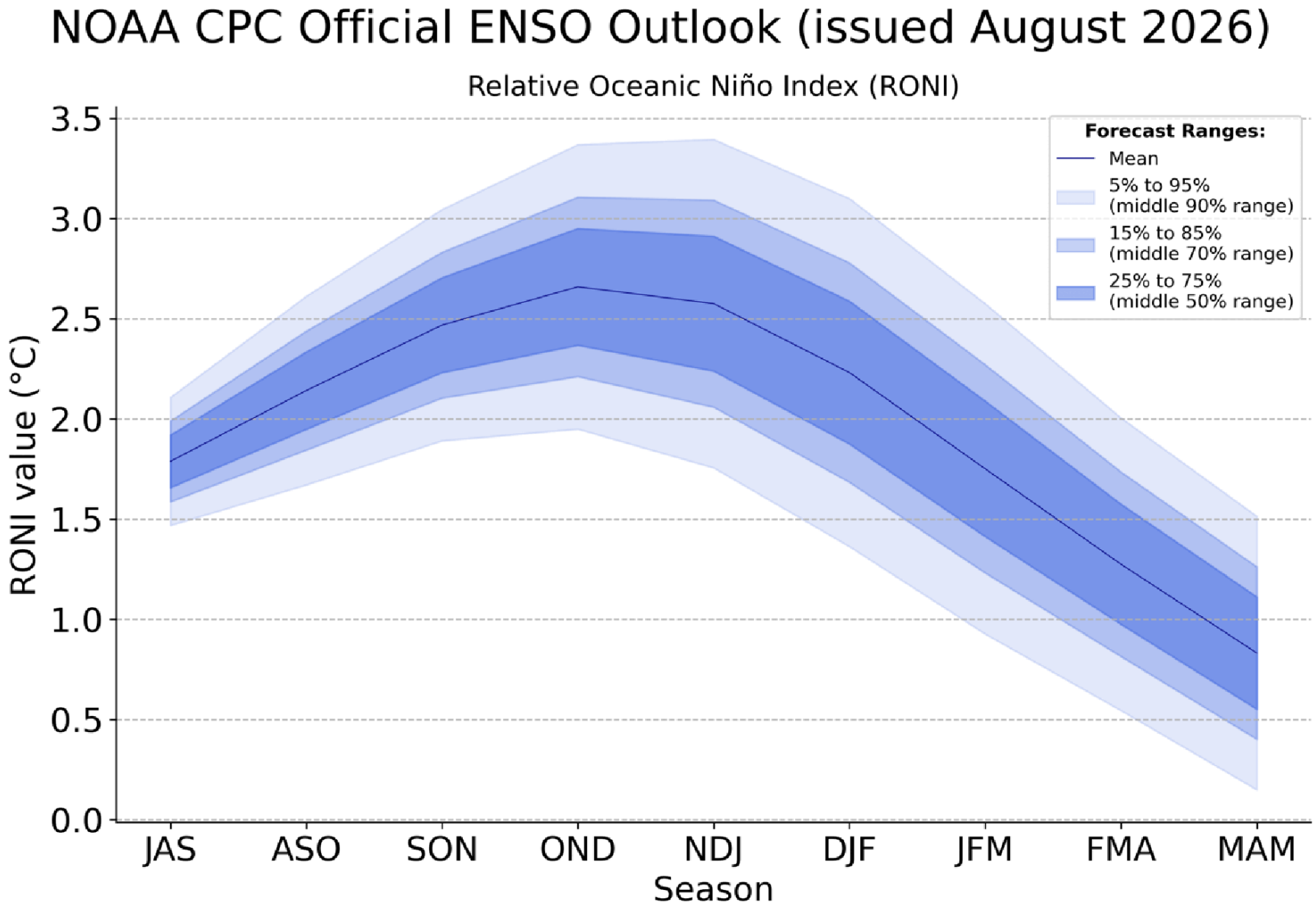


Figure 6. Official ENSO outlook (°C) for the Niño-3.4 relative sea surface temperature index (5°N-5°S, 170°W -120°W) minus tropical mean (20°N-20°S). The relative index is re-scaled to match the variance of the traditional index. Figure updated 13 August 2026. Higher resolution image/table: https://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso/roni/outlook/

FIGURE 7

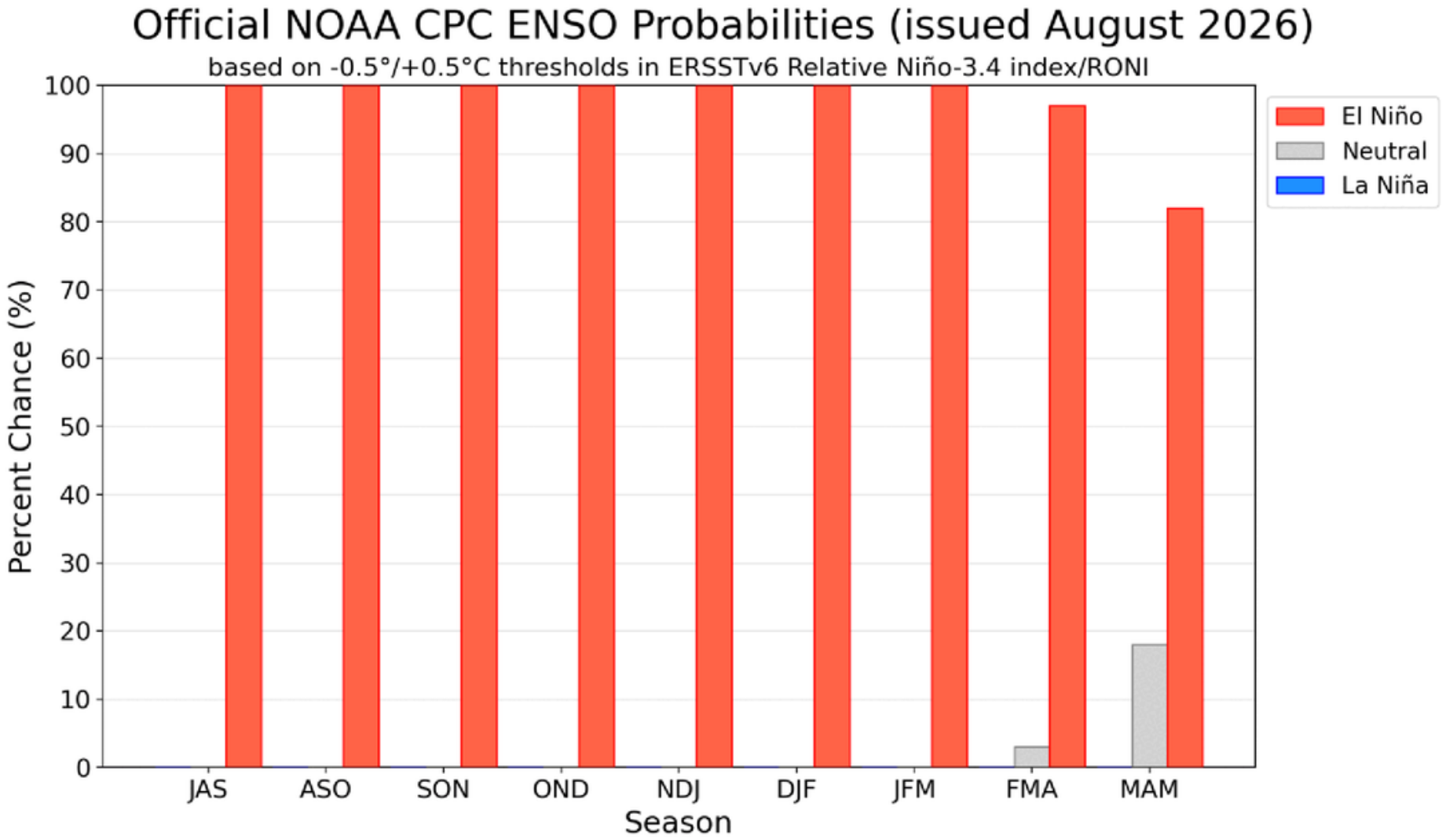


Figure 7. Official ENSO probabilities for the Niño-3.4 relative sea surface temperature index (5°N-5°S, 170°W -120°W) minus tropical mean (20°N-20°S). The relative index is re-scaled to match the variance of the traditional index. Figure updated 13 August 2026. Higher resolution image/table: https://cpc.ncep.noaa.gov/products/analysis_monitoring/enso/roni/probabilities/

FIGURE 8

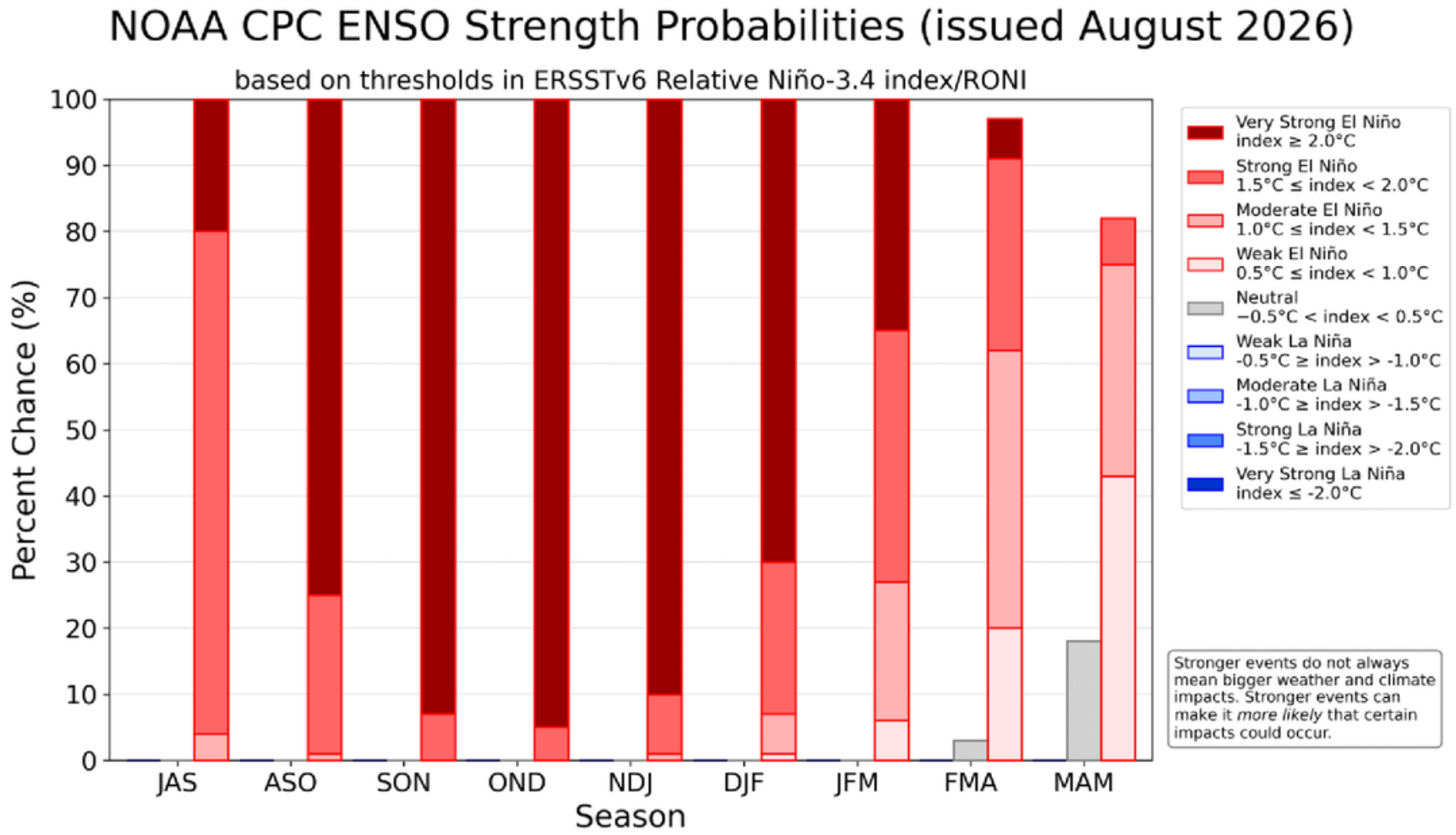


Figure 8. ENSO strength probabilities for the Niño-3.4 relative sea surface temperature index (5°N-5°S, 170°W-120°W) minus tropical mean (20°N-20°S). The relative index is re-scaled to match the variance of the traditional index. Figure updated 13 August 2026. Higher resolution image/table: https://cpc.ncep.noaa.gov/products/analysis_monitoring/enso/roni/strengths/

https://www.cpc.ncep.noaa.gov/products/precip/CWlink/MJO/enso.shtml

National Weather Service

Climate Prediction Center

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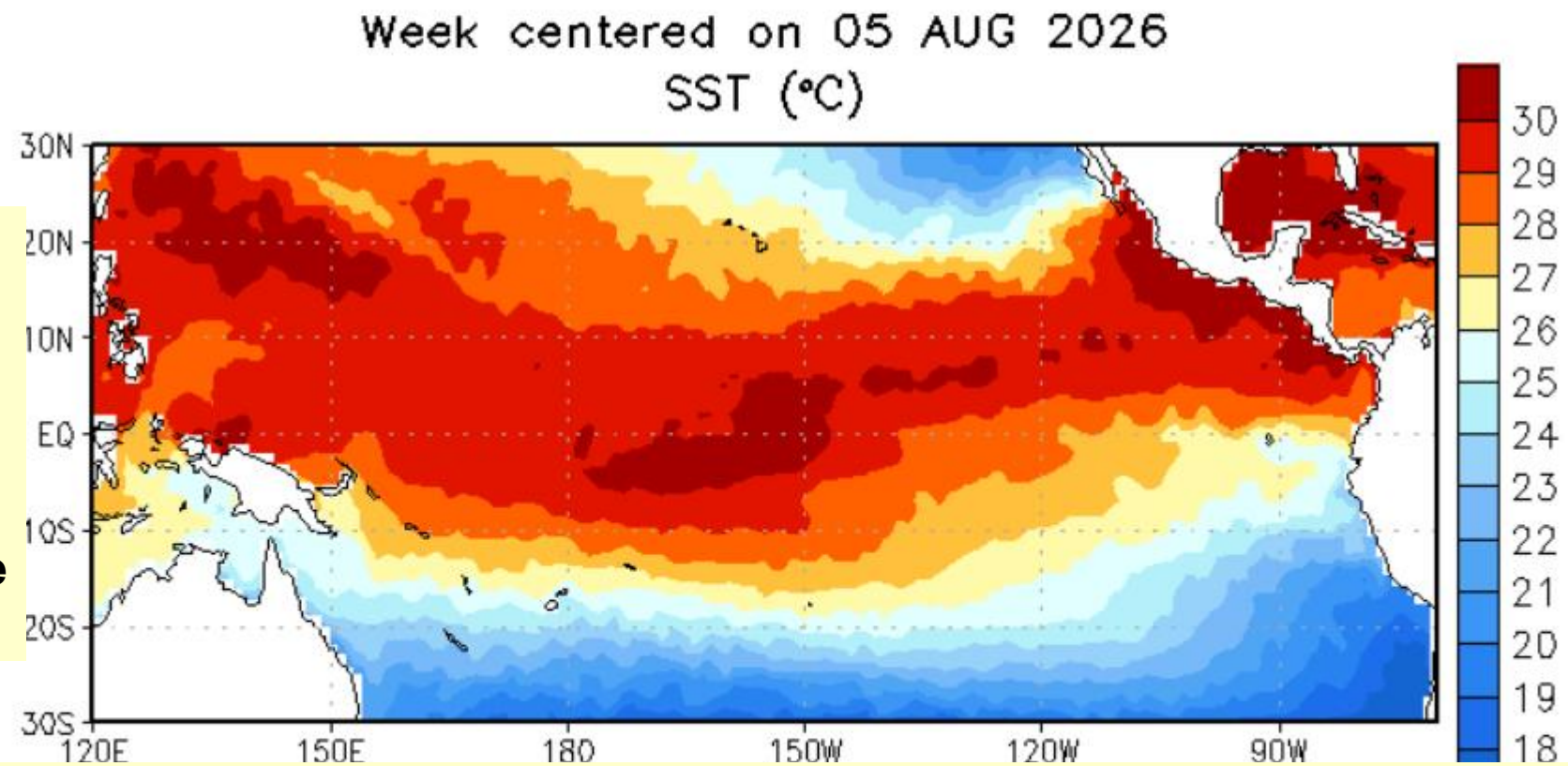

TO PLAY THE ANIMATION LIVE, CLICK ON THE URL.

WHEN THE ANIMATION COMES UP, CENTER THE VIDEO ON THE TOP IMAGE, **Tropical Pacific Sea Surface Temperature Animation**.

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ECMWF “Long Range Guidance” for the onset of El Nino late 2026--→2027

Source:

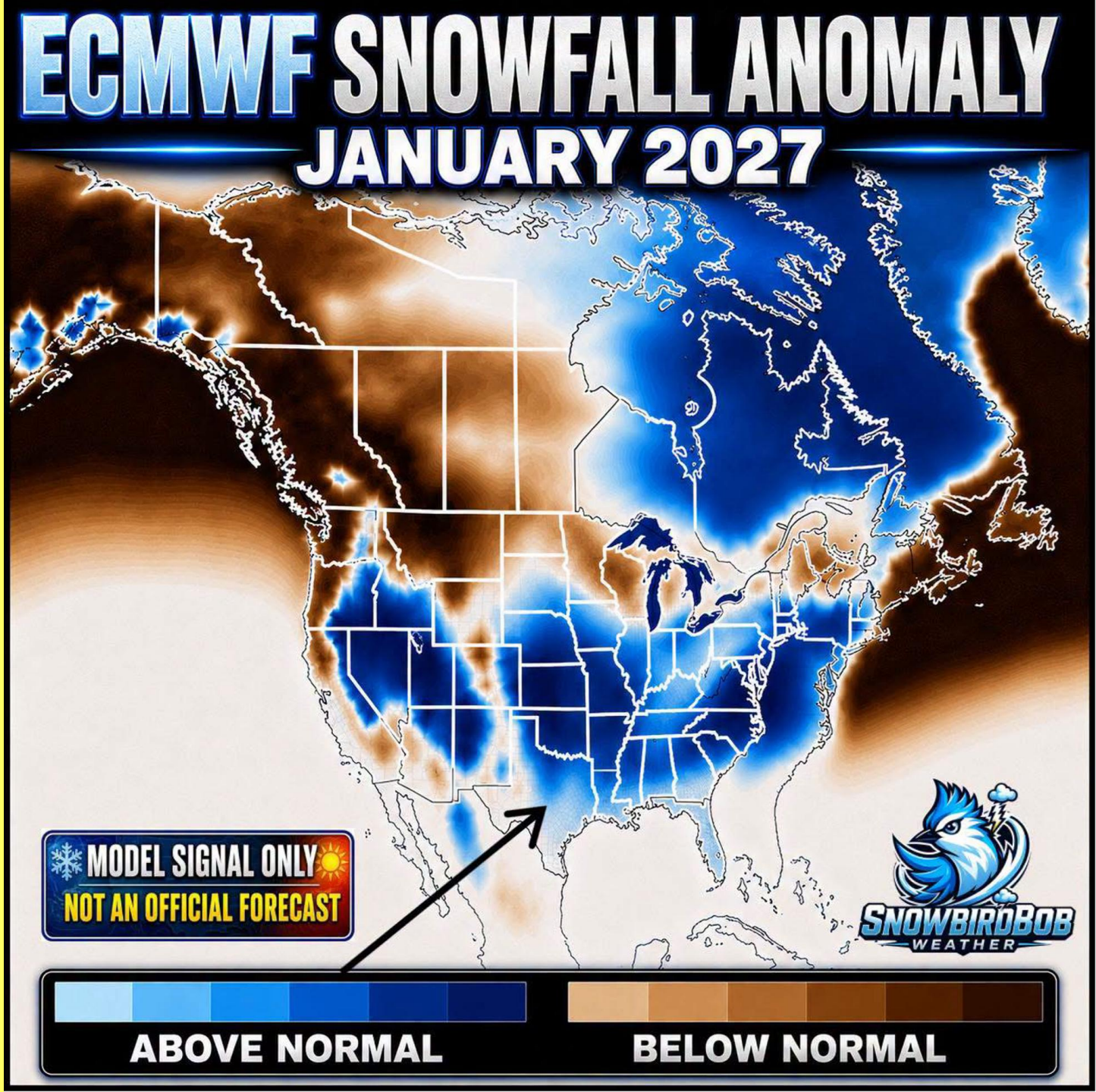
https://www.facebook.com/Snowbirdbob/posts/%EF%B8%8F-now-this-is-an-interesting-january-signal-%EF%B8%8Fthe-ecmwf-seasonal-model-is-showing/1615953000103098/

Long Range Guidance

The ECMWF seasonal model is showing a notable above-normal snowfall signal for January 2027 across a pretty large portion of the United States.

Look at that blue! 👀 ❄️ The signal stretches from portions of the Southwest and Southern Plains eastward through the Mid-South, Tennessee Valley, Ohio Valley and into parts of the East.

Now, an important reminder: snowfall anomalies do NOT tell us exactly how much snow will fall. They simply show where the model is currently favoring snowfall above or below the model's normal climatology for January.



Long range guidance, P2…

And we're WAY too far out to start talking about individual snowstorms. This is long-range model guidance — not an official forecast.

But considering some of the other winter signals we're watching for 2026–2027, this certainly adds another interesting piece to the puzzle. 🧩🥶

Could January 2027 end up being the month winter really turns up the volume across parts of the South and East? 👀❄️ Snow lovers — would you take this setup? 🌨️⛄

COMMENTS: Snow in Austin and San Antonio?
Snow in CA Sierras, NV, ID, UT, Mtns of AZ, NM, San Juans of CO would bring Lake Mead and Lake Powell up!