Weather Outlook 2026

Don Day, Jr.

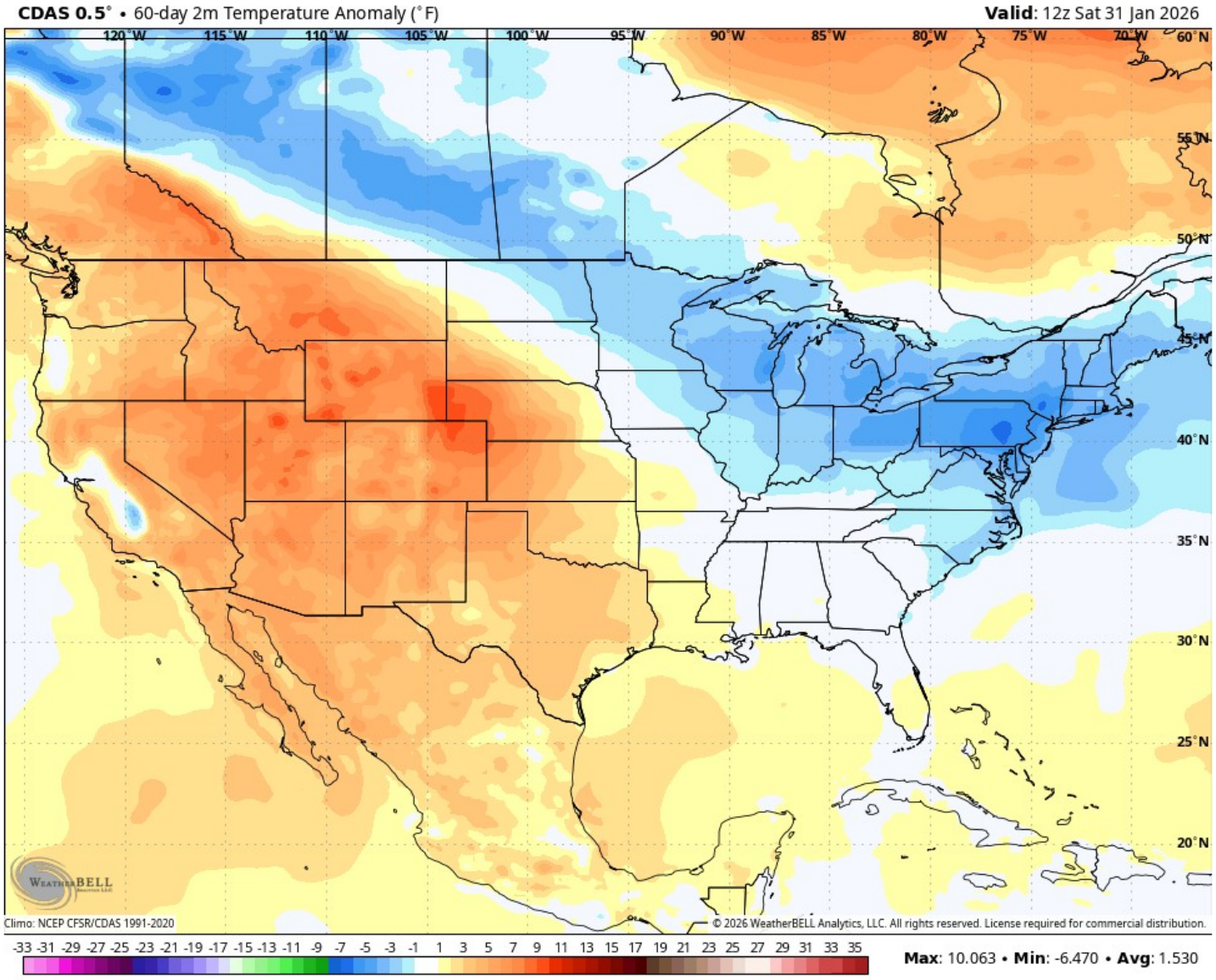
DayWeather, Inc.

Weird Winter 2025-2026

- What are the reasons behind the unusual winter we experienced?

Questions You May Have

- What happened?
- Does a dry Nov-Feb mean a dry spring?
- Summer outlook?
- What about La Nina/El Nino?


CDAS 0.5° • 60-day 2m Temperature Anomaly (°F)
Valid: 12z Sat 31 Jan 2026
120°W 115°W 110°W 105°W 100°W 95°W 90°W 85°W 80°W 75°W 70°W
60°N 55°N 50°N 45°N 40°N 35°N 30°N 25°N 20°N
Climo: NCEP CFSR/CDAS 1991-2020
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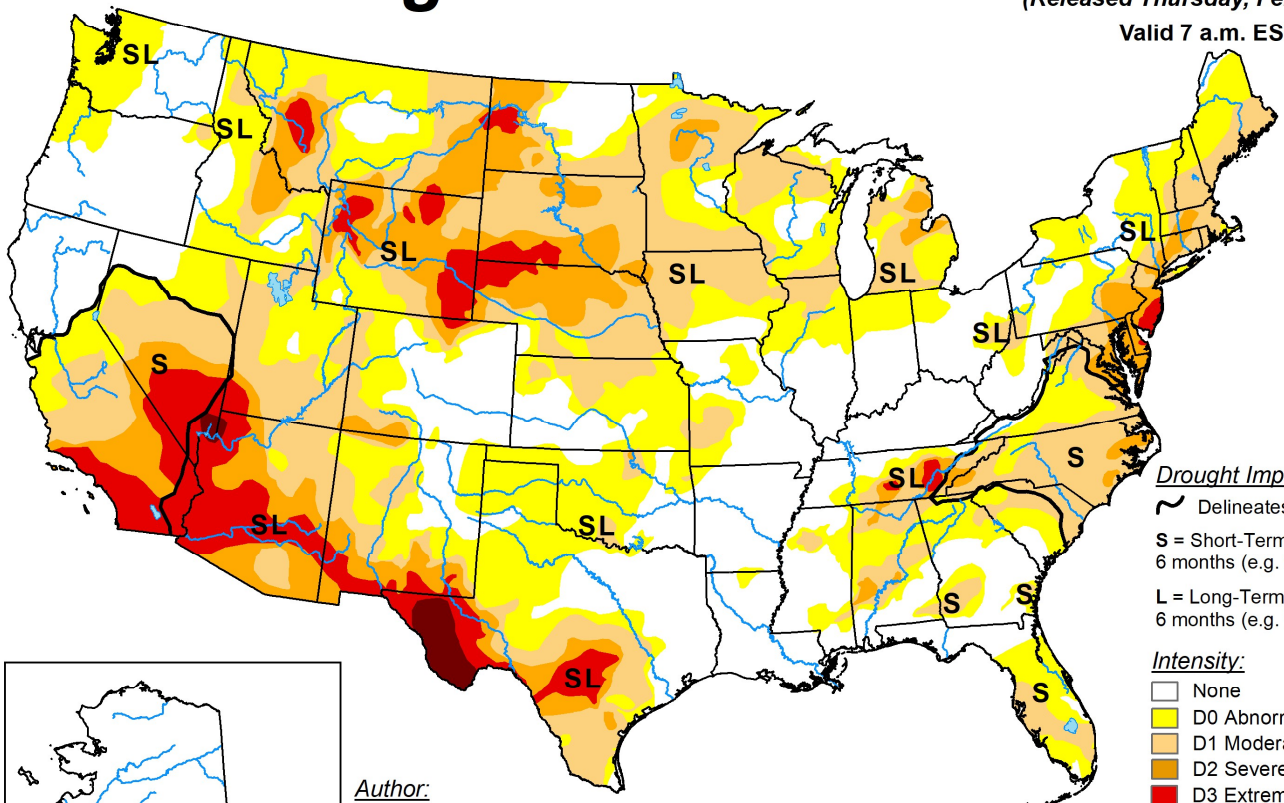
-33 -31 -29 -27 -25 -23 -21 -19 -17 -15 -13 -11 -9 -7 -5 -3 -1 1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35
Max: 10.063 • Min: -6.470 • Avg: 1.530

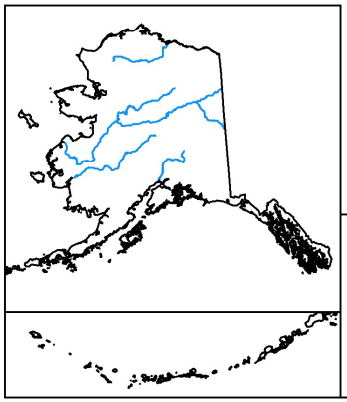
U.S. Drought Monitor

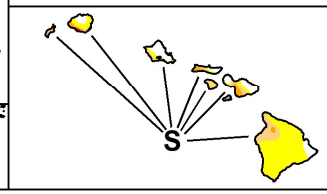
February 4, 2025

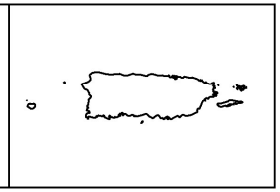
(Released Thursday, Feb. 6, 2025)

Valid 7 a.m. EST









Author:
Lindsay Johnson
National Drought Mitigation Center

Drought Impact Types:

Delineates dominant impacts

S = Short-Term, typically less than 6 months (e.g. agriculture, grasslands)

L = Long-Term, typically greater than 6 months (e.g. hydrology, ecology)

Intensity:

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to https://droughtmonitor.unl.edu/About.aspx

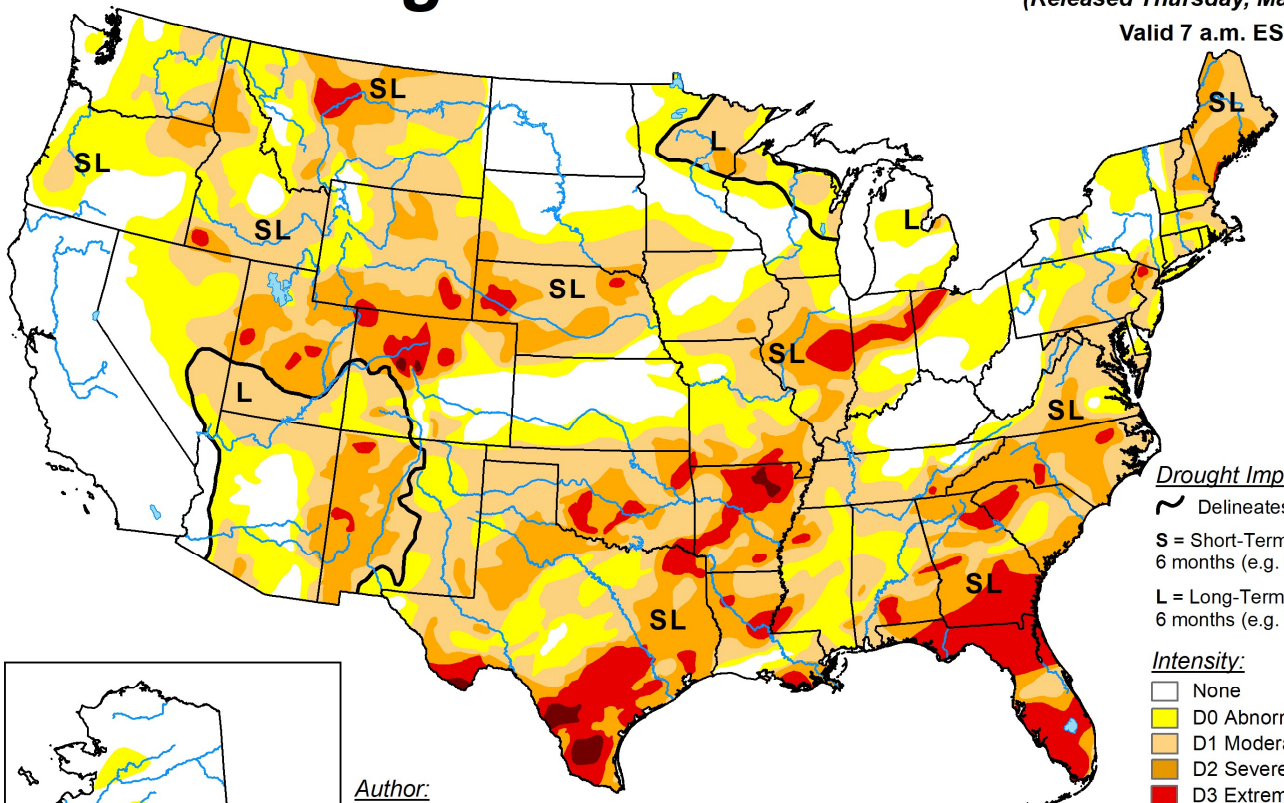
droughtmonitor.unl.edu

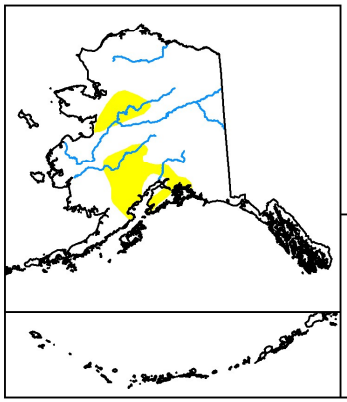
U.S. Drought Monitor

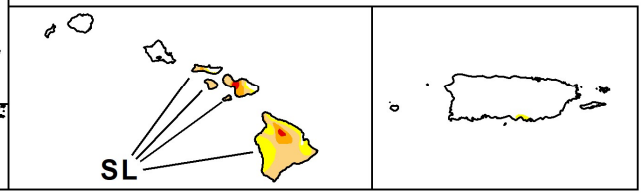
March 3, 2026

(Released Thursday, Mar. 5, 2026)

Valid 7 a.m. EST







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Author:
Brad Pugh
CPC/NOAA

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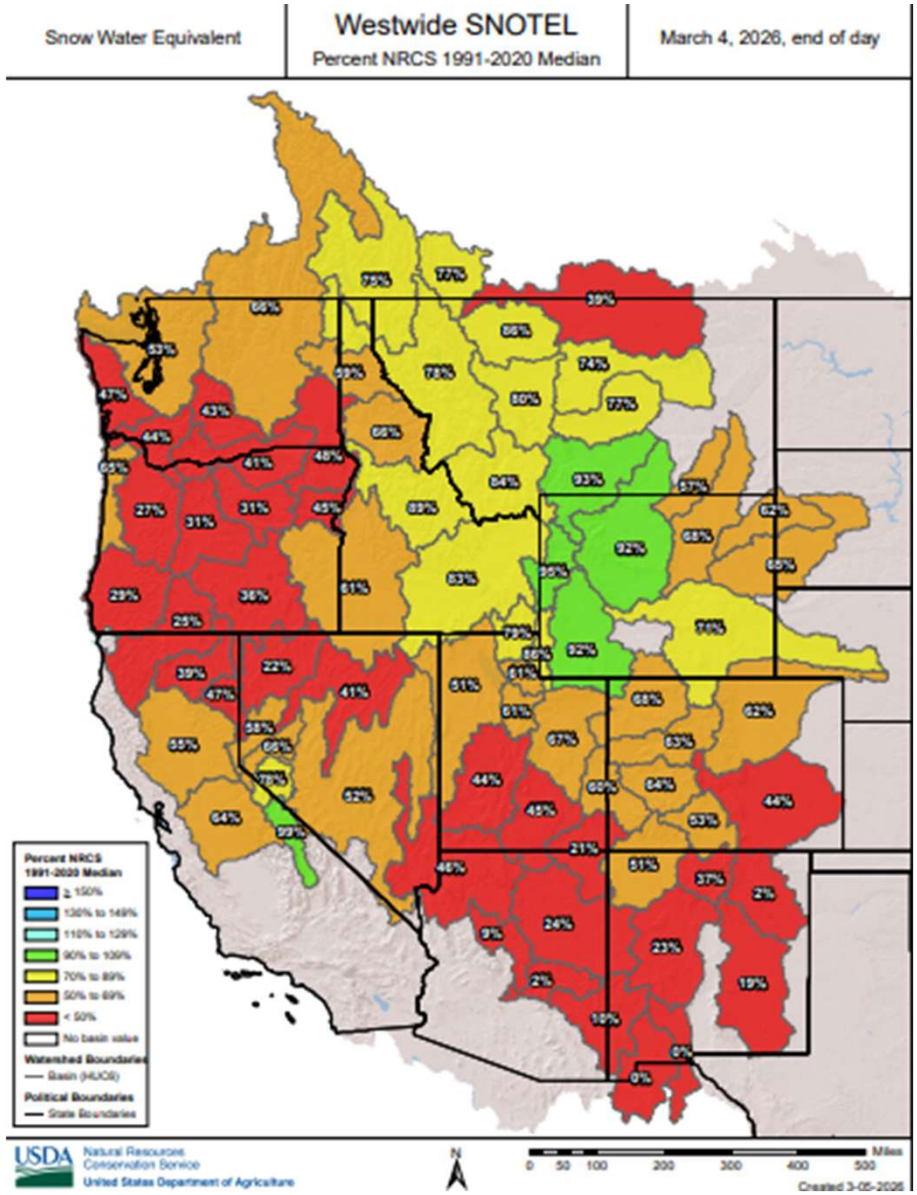
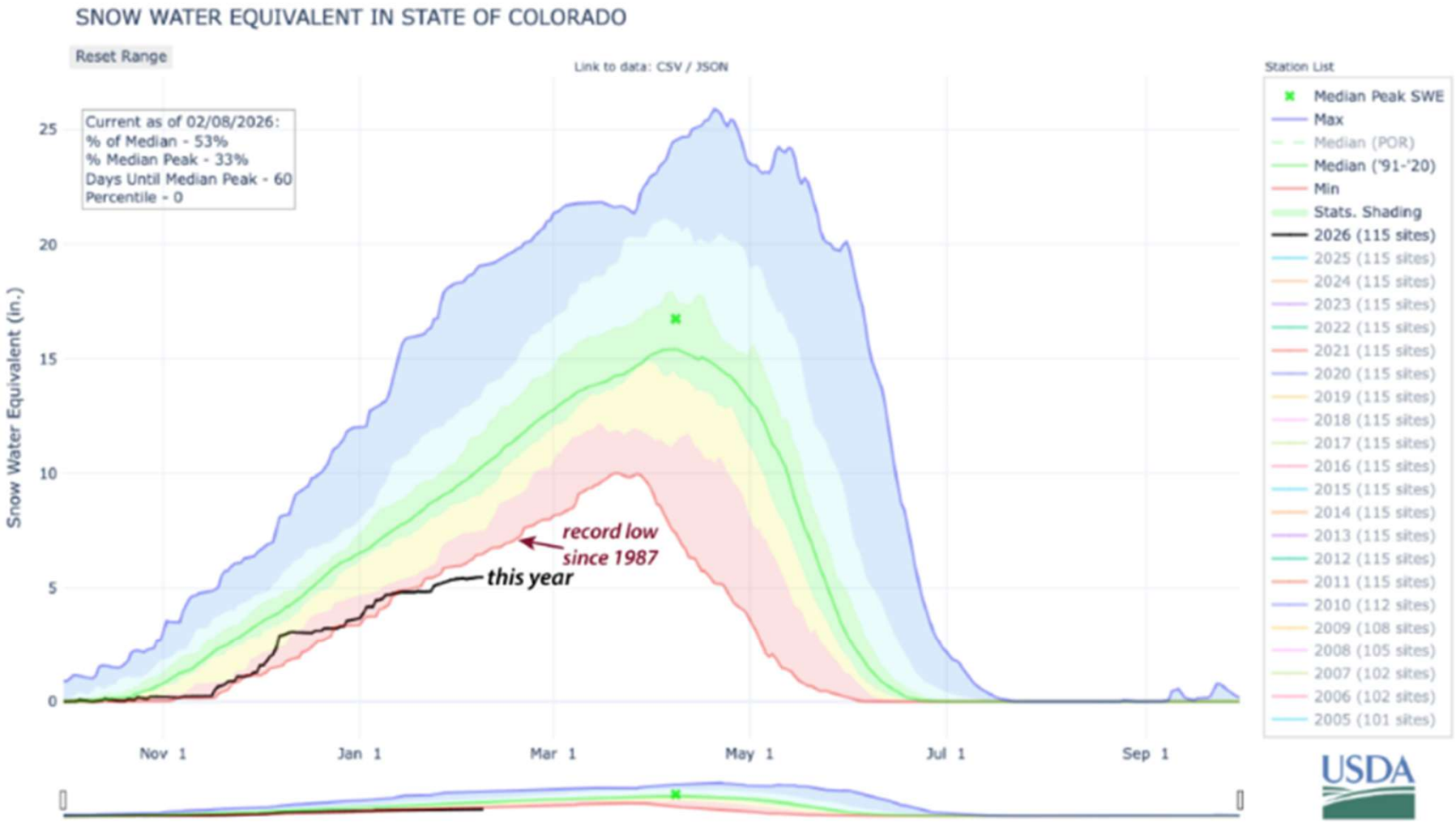
USDA NDMC NOAA NASA

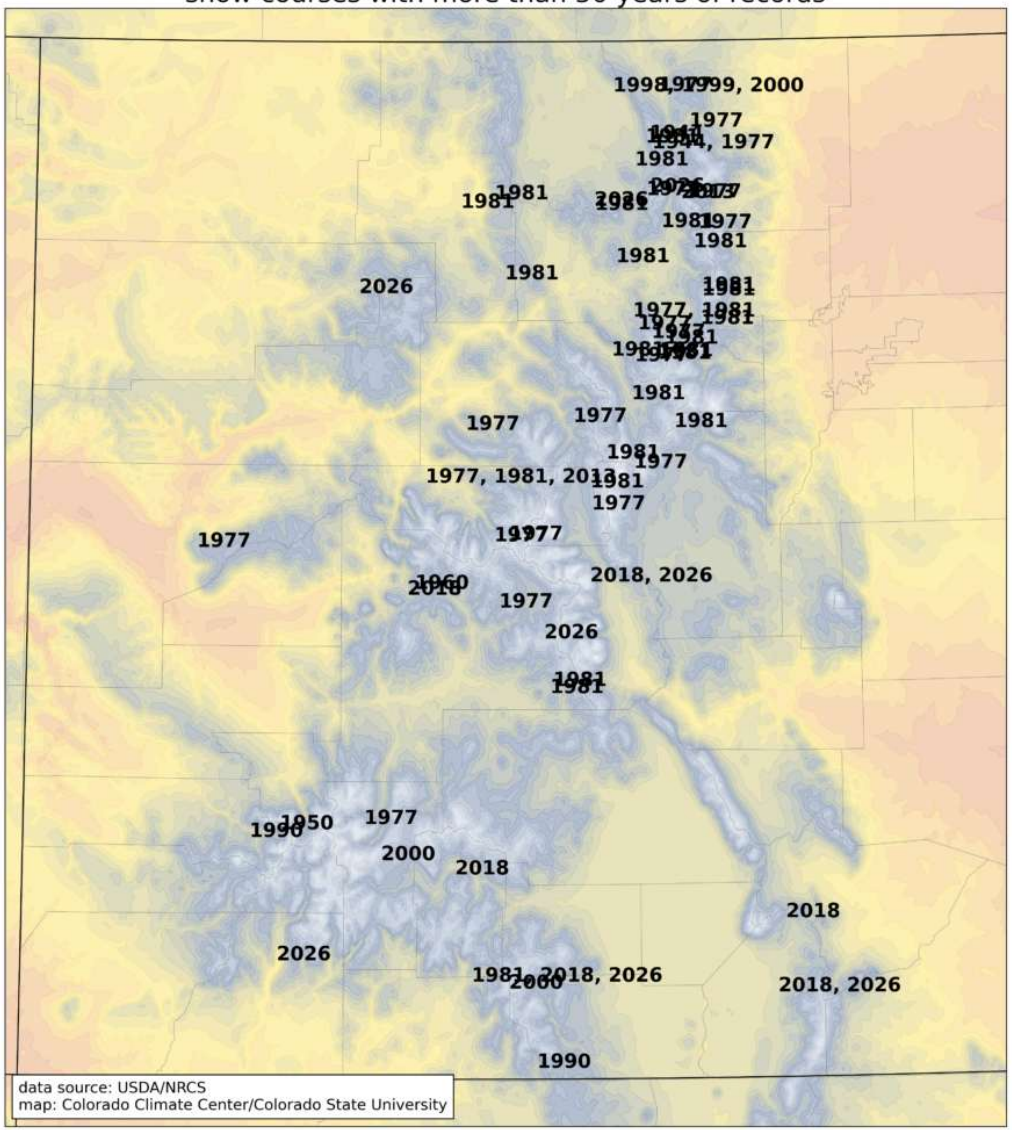
droughtmonitor.unl.edu

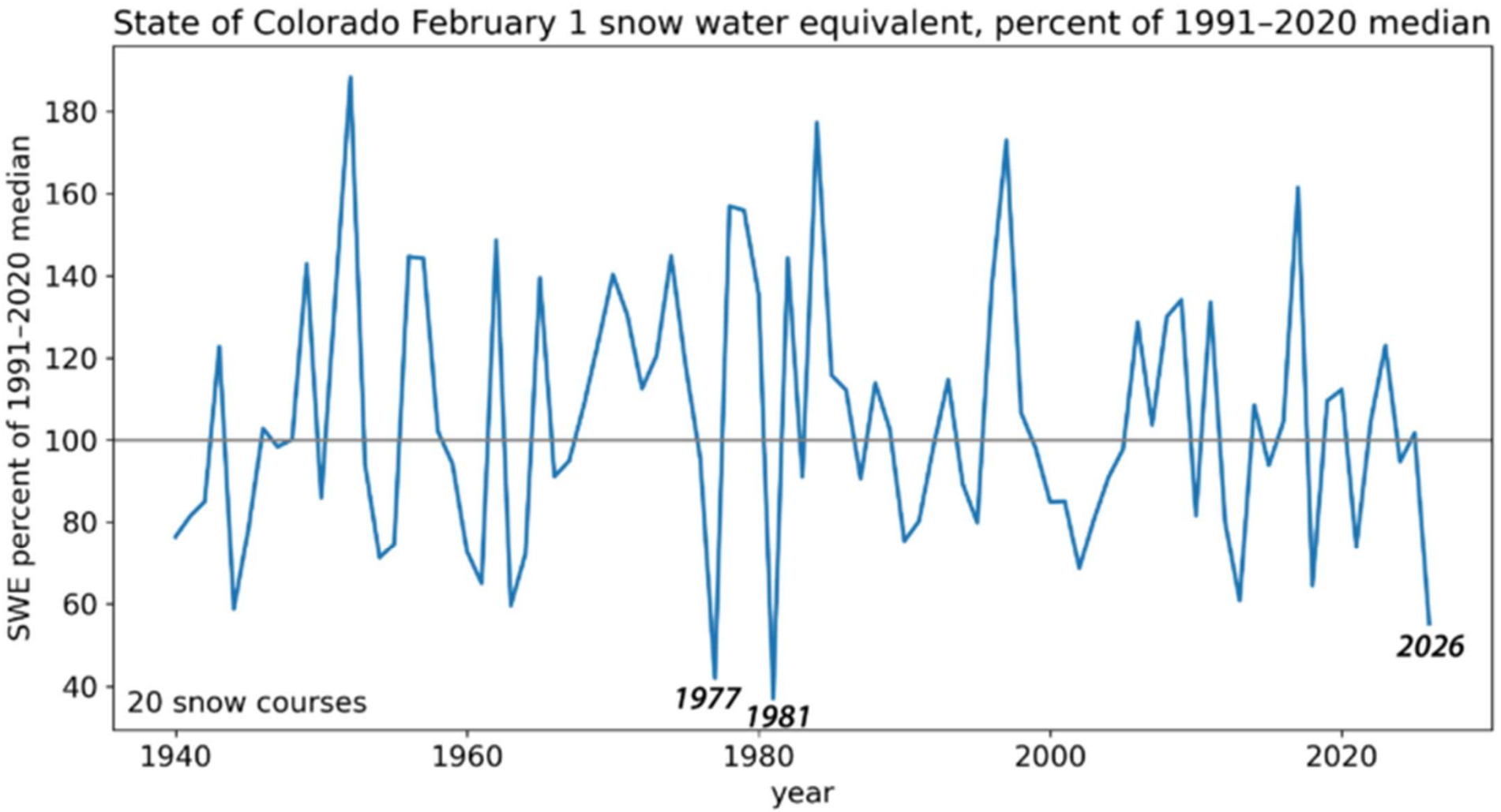

Snow Water Equivalent
Westwide SNOTEL
Percent NRCS 1991-2020 Median
March 4, 2026, end of day
Percent NRCS 1991-2020 Median
≥ 150%
130% to 149%
110% to 129%
90% to 109%
70% to 89%
50% to 69%
< 50%
No basin value
Watershed Boundaries
Basin (HUC8)
Political Boundaries
State Boundaries
USDA
Natural Resources Conservation Service
United States Department of Agriculture
N
0 50 100 200 300 400 500
Miles
Created 3-05-2026



Graph of snow water equivalent for the state of Colorado as of February 7, 2026, based on 115 automated SNOTEL stations. The current year (2026) is in black, and as of early February is lower than all other years going back to 1987. Graph from USDA/NRCS.

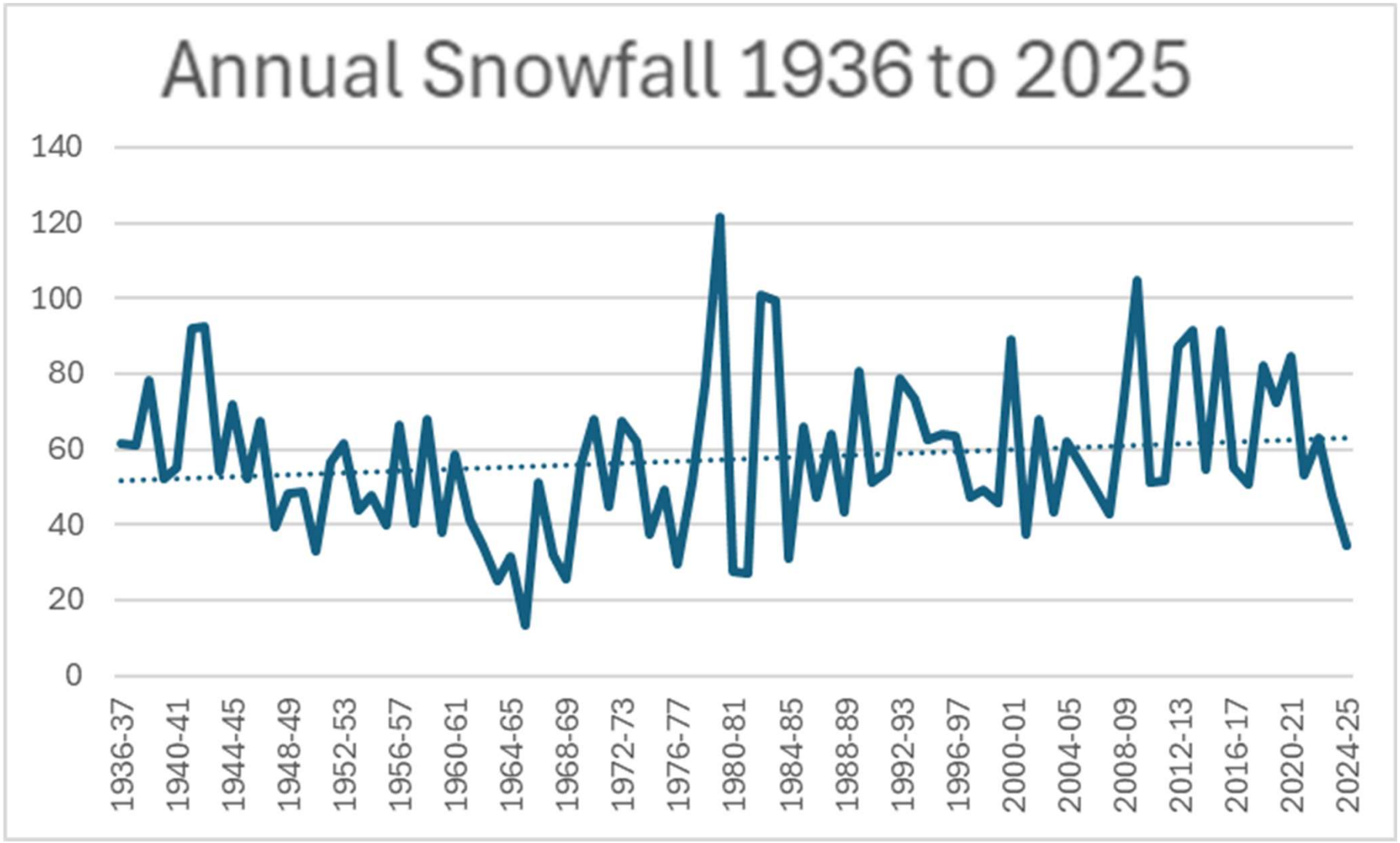
year of lowest SWE on February 1
snow courses with more than 50 years of records




State of Colorado February 1 snow water equivalent, percent of 1991–2020 median
SWE percent of 1991–2020 median
180
160
140
120
100
80
60
40
20 snow courses
1977
1981
2026
1940
1960
1980
2000
2020
year

Interannual Variability

- Interannual climate variability refers to the changes in climate conditions, such as temperature and **precipitation**, **from year to year within a typical range of variability**. These fluctuations are influenced by various factors including natural phenomena like ENSO, drought, and floods.


Annual Snowfall 1936 to 2025
140
120
100
80
60
40
20
0
1936-37
1940-41
1944-45
1948-49
1952-53
1956-57
1960-61
1964-65
1968-69
1972-73
1976-77
1980-81
1984-85
1988-89
1992-93
1996-97
2000-01
2004-05
2008-09
2012-13
2016-17
2020-21
2024-25

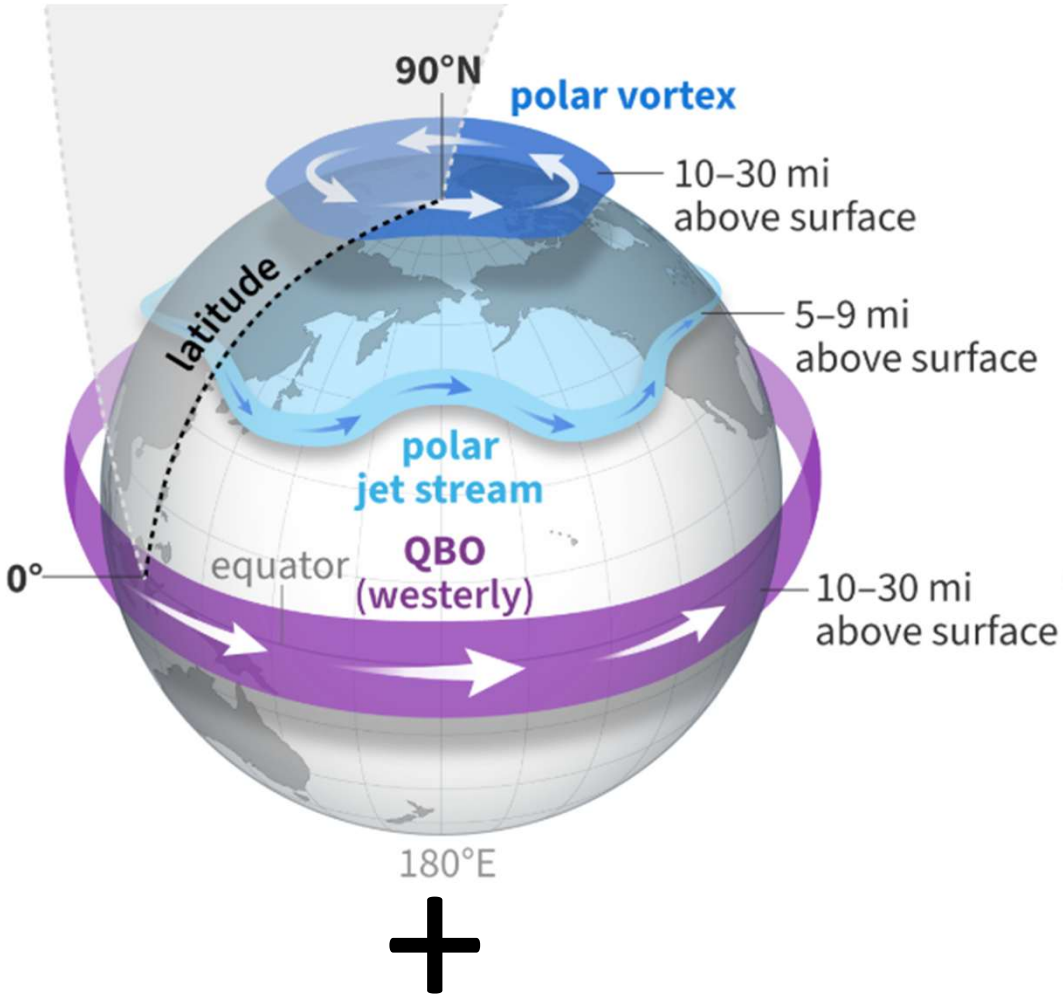
Weird Winter 2025-2026

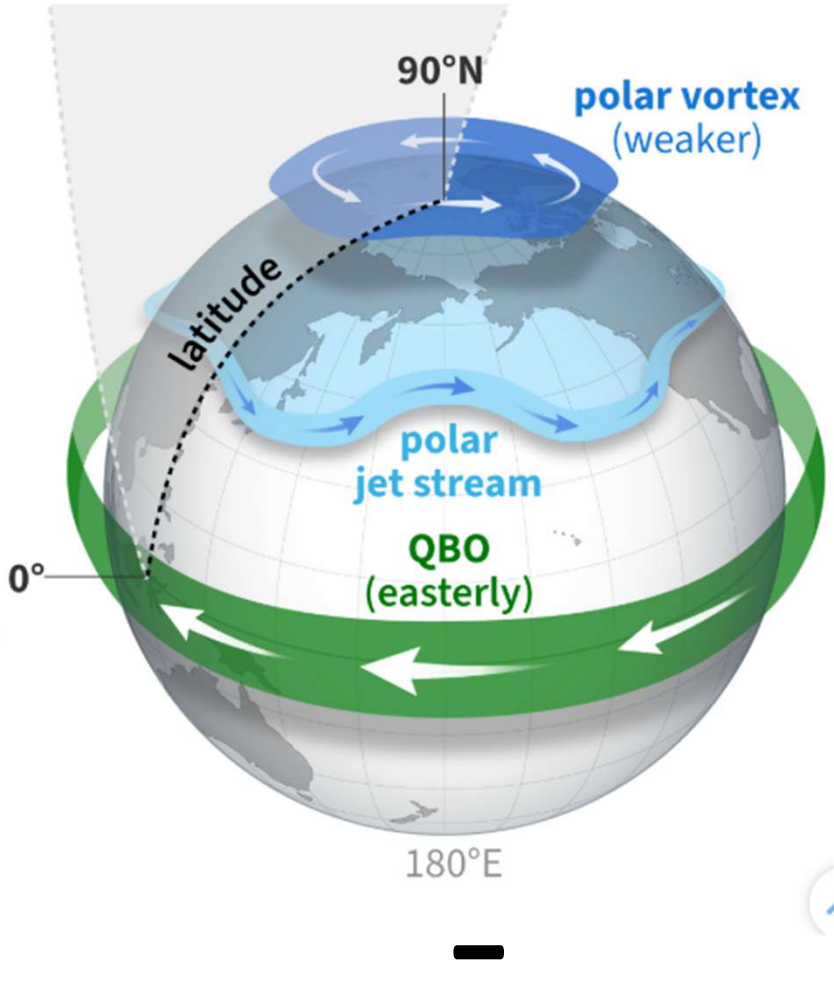
- Weak La Nina
- Negative Phase of the Quasi-Biennial Oscillation (QBO)
- Lingering impacts of Hunga Tonga volcanic eruption in January 2022
- Add those three variables together

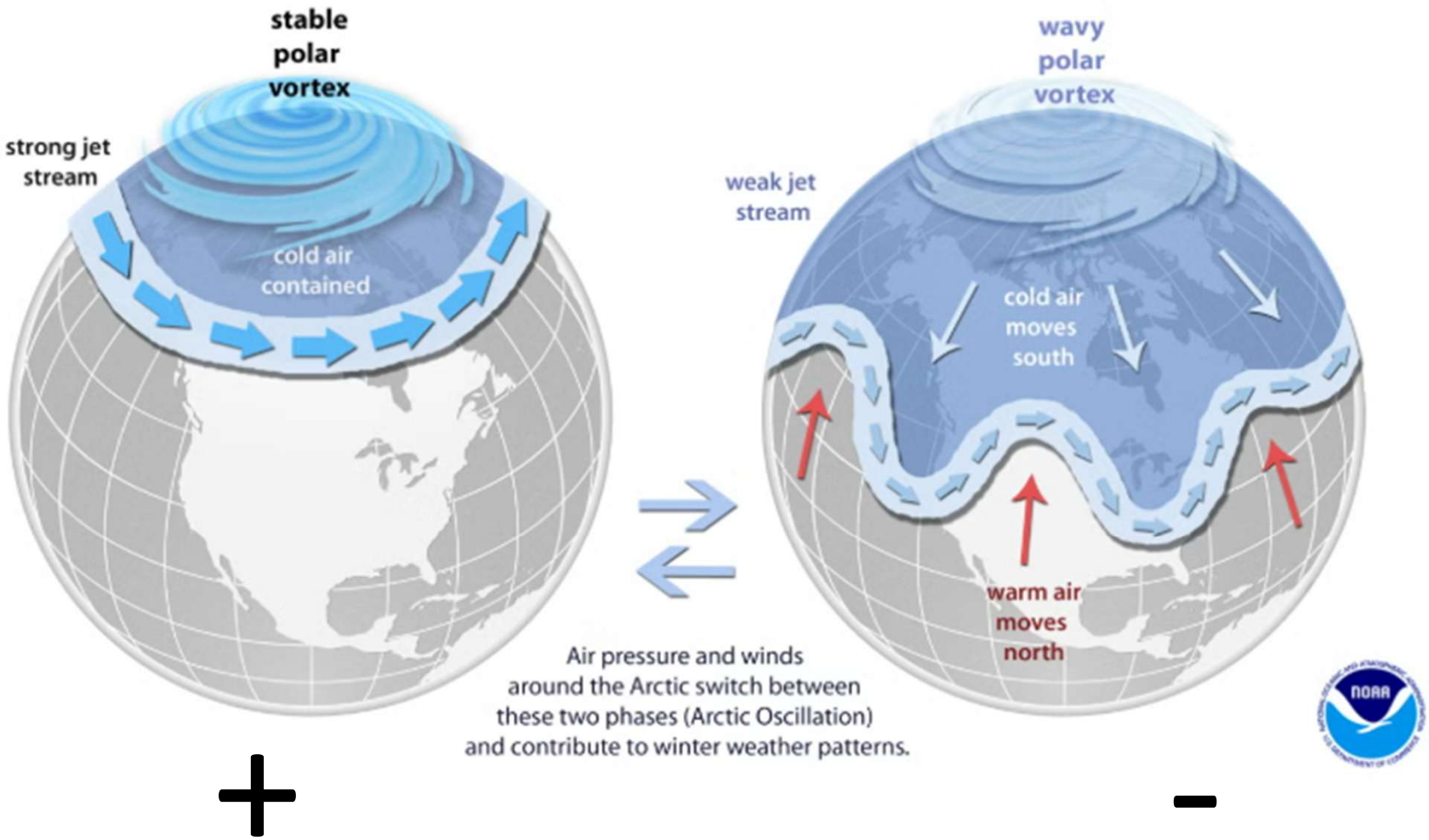

La Niña
Negative Phase of the Quasi-Biennial Oscillation (QBO)
Lingering impacts of Hunga Tonga volcanic eruption in January 2022
JACKPOT


Jet stream blocking
Stratogpheric warming events
Snowy/cold in the east
JACKPOT

QUASI-BIENNIAL OSCILLIATION






stable
polar
vortex
strong jet
stream
cold air
contained
wavy
polar
vortex
weak jet
stream
cold air
moves
south
warm air
moves
north
Air pressure and winds
around the Arctic switch between
these two phases (Arctic Oscillation)
and contribute to winter weather patterns.
+
-

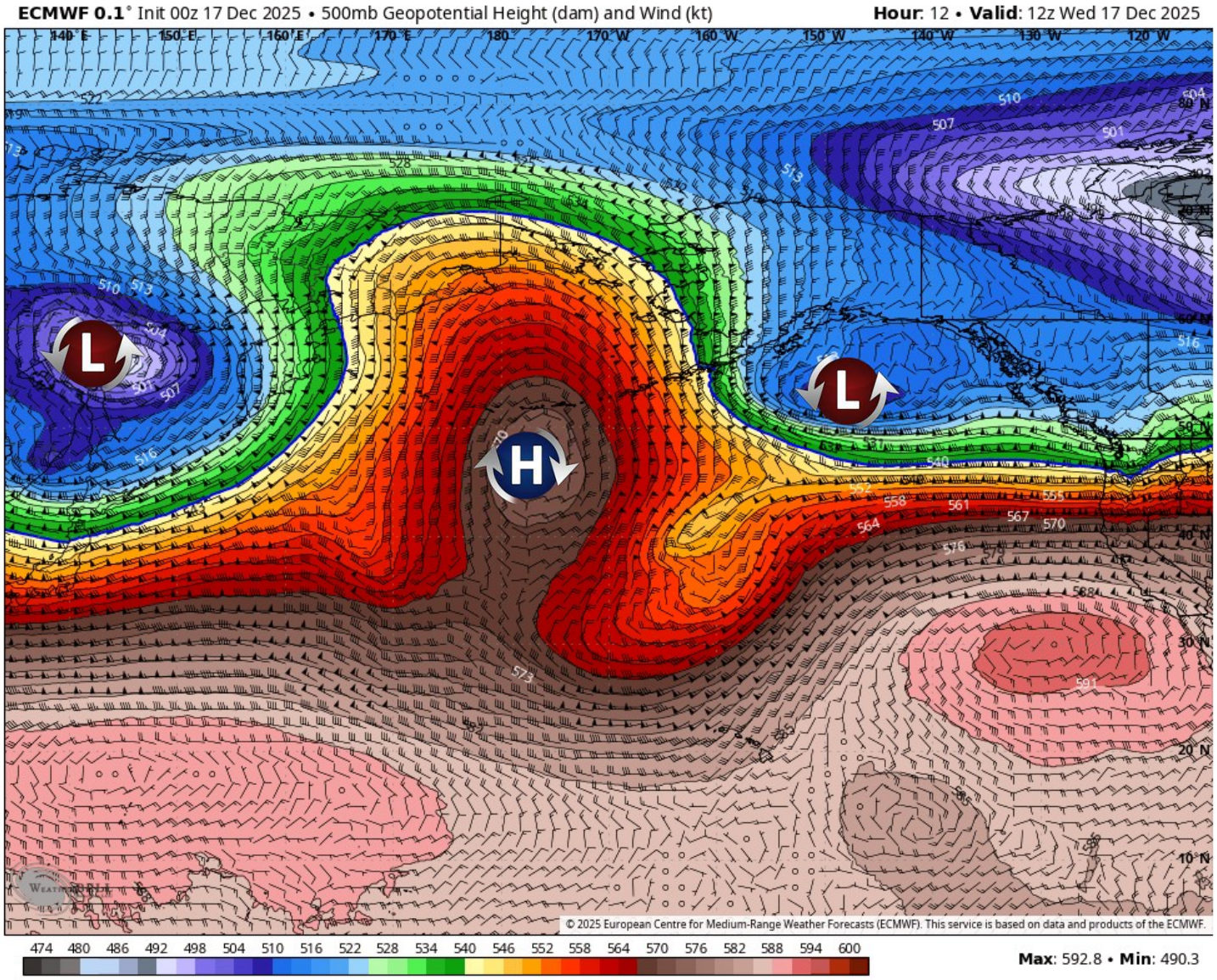
QBO and Why Could it Matter?

- Easterly QBO: Weaker Polar Vortex: **Increased risk of sudden stratospheric warmings (SSWs), leading to disrupted Arctic air containment.**
- Regional Cold and Snow: Higher likelihood of cold outbreaks in the eastern U.S., Midwest, Northern Europe, and eastern Canada; enhanced snowfall in the Great Lakes, Northeast, and Northern Rockies.
- Jet Stream Effects: Potential for a more meridional (wavy) jet stream, **favoring blocking patterns** over typical La Niña ridging.

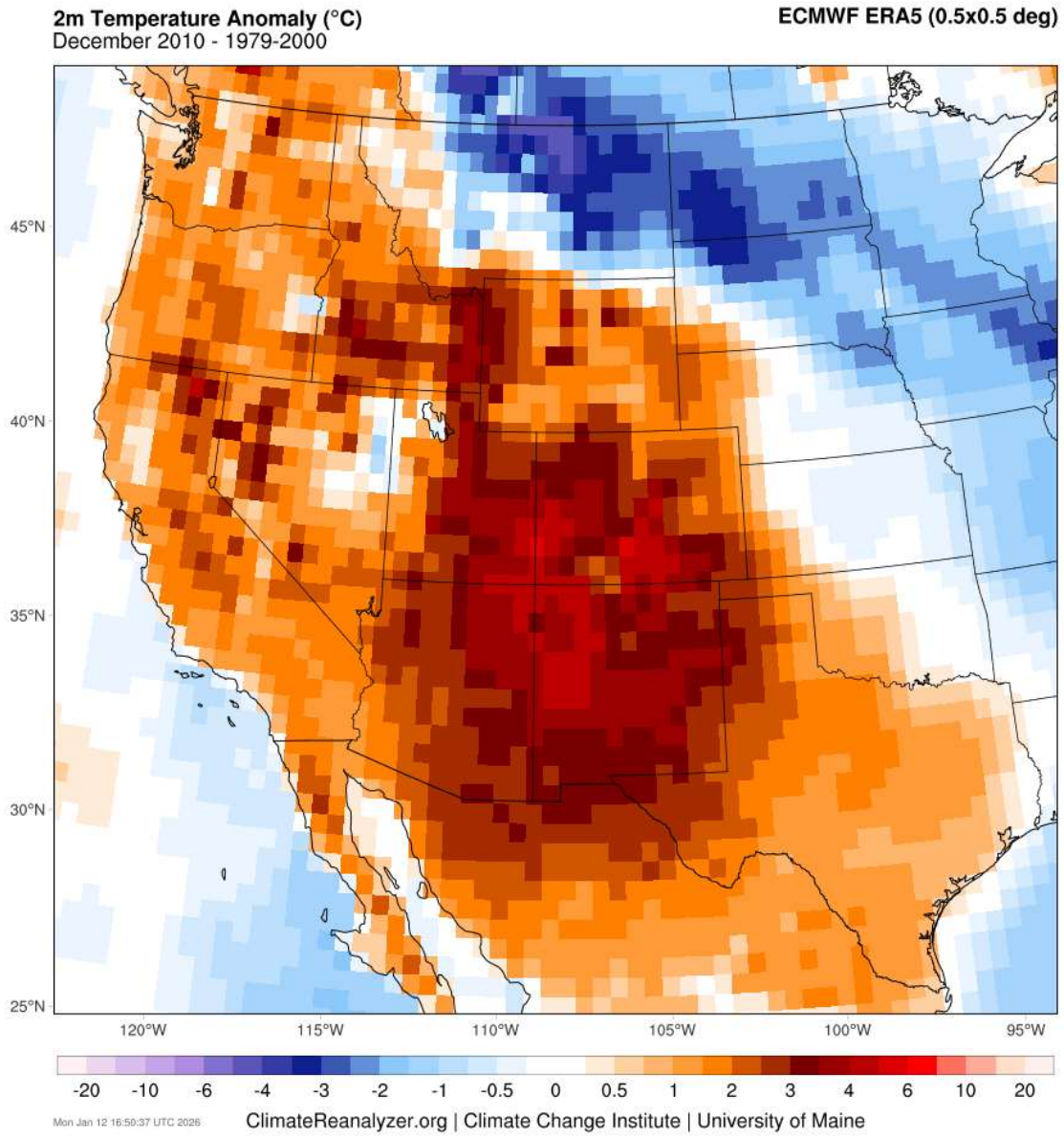
High Latitude Blocking

- 5-week block in the North Pacific and North Atlantic
  Not without precedent but this year's blocking was extreme
- Directed weather AWAY from the west from early December to most of January
- What causes these?

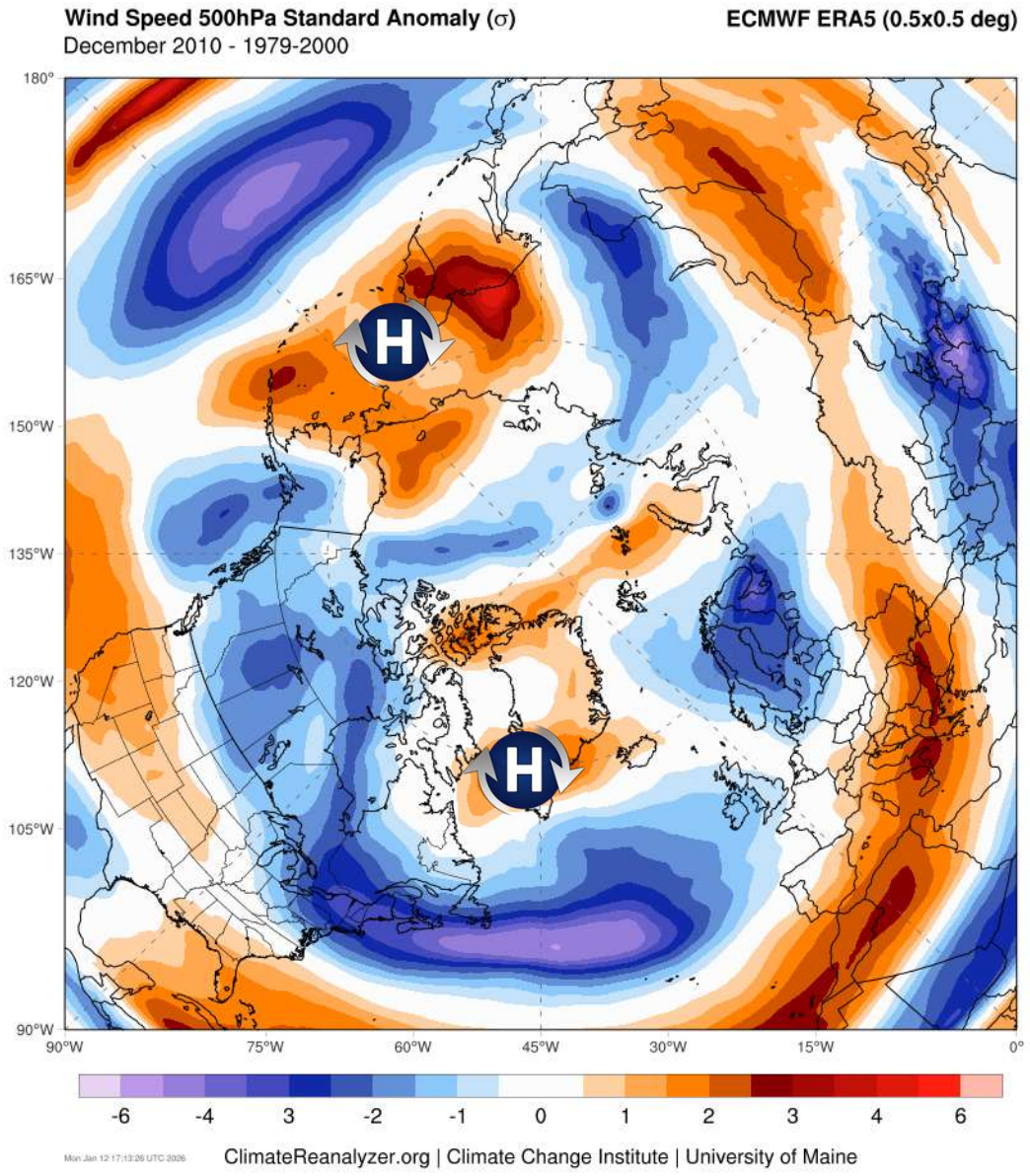
Mid December 2025



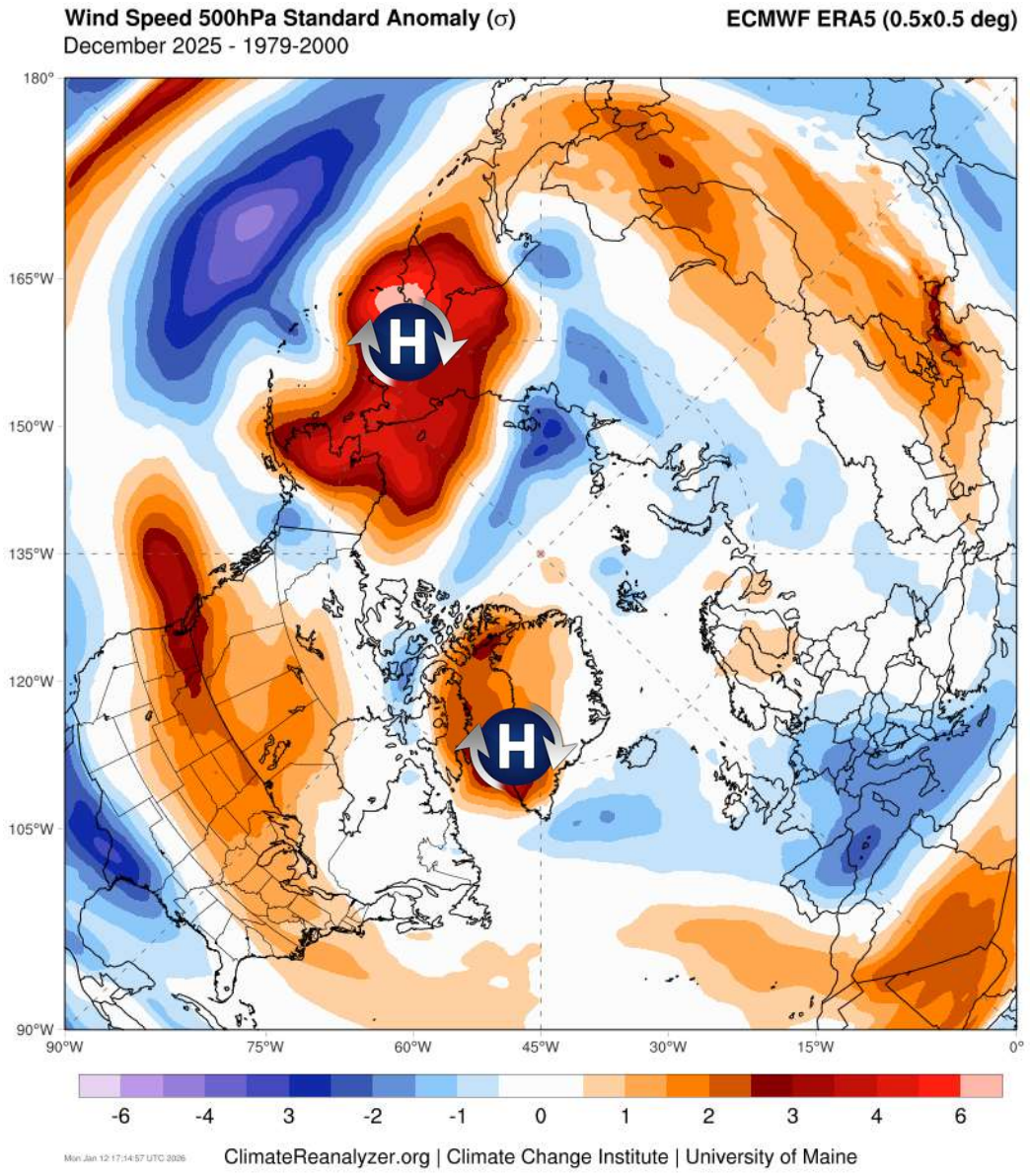
December
2010



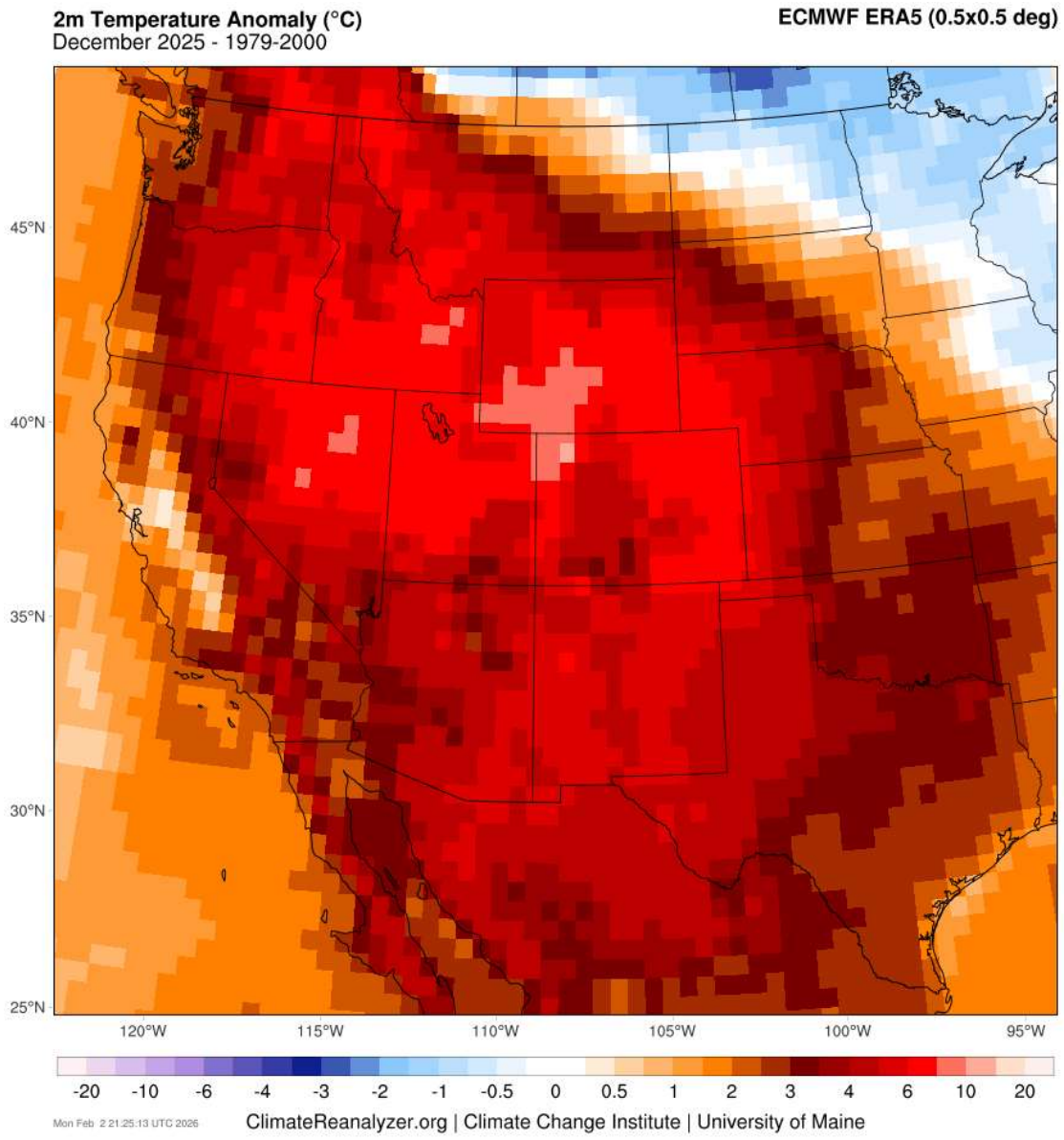
December
2010



December
2025



December
2025

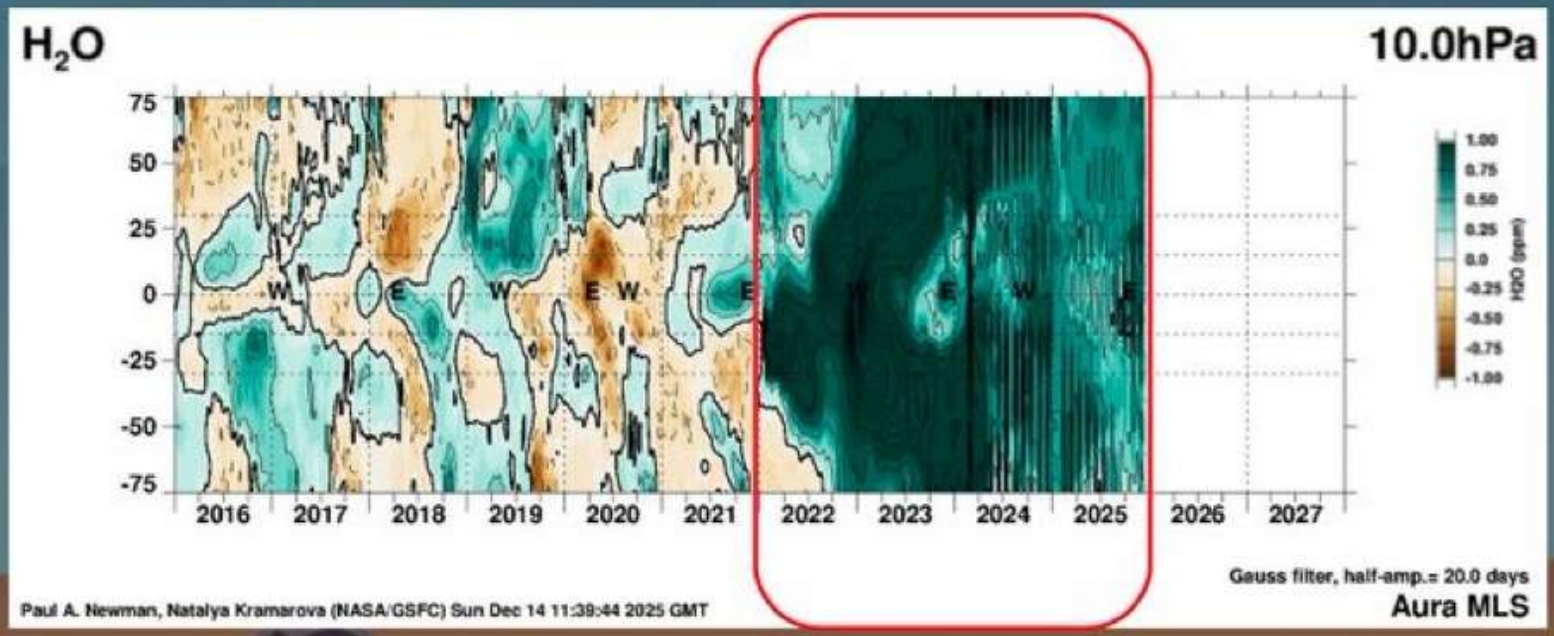


January 2022

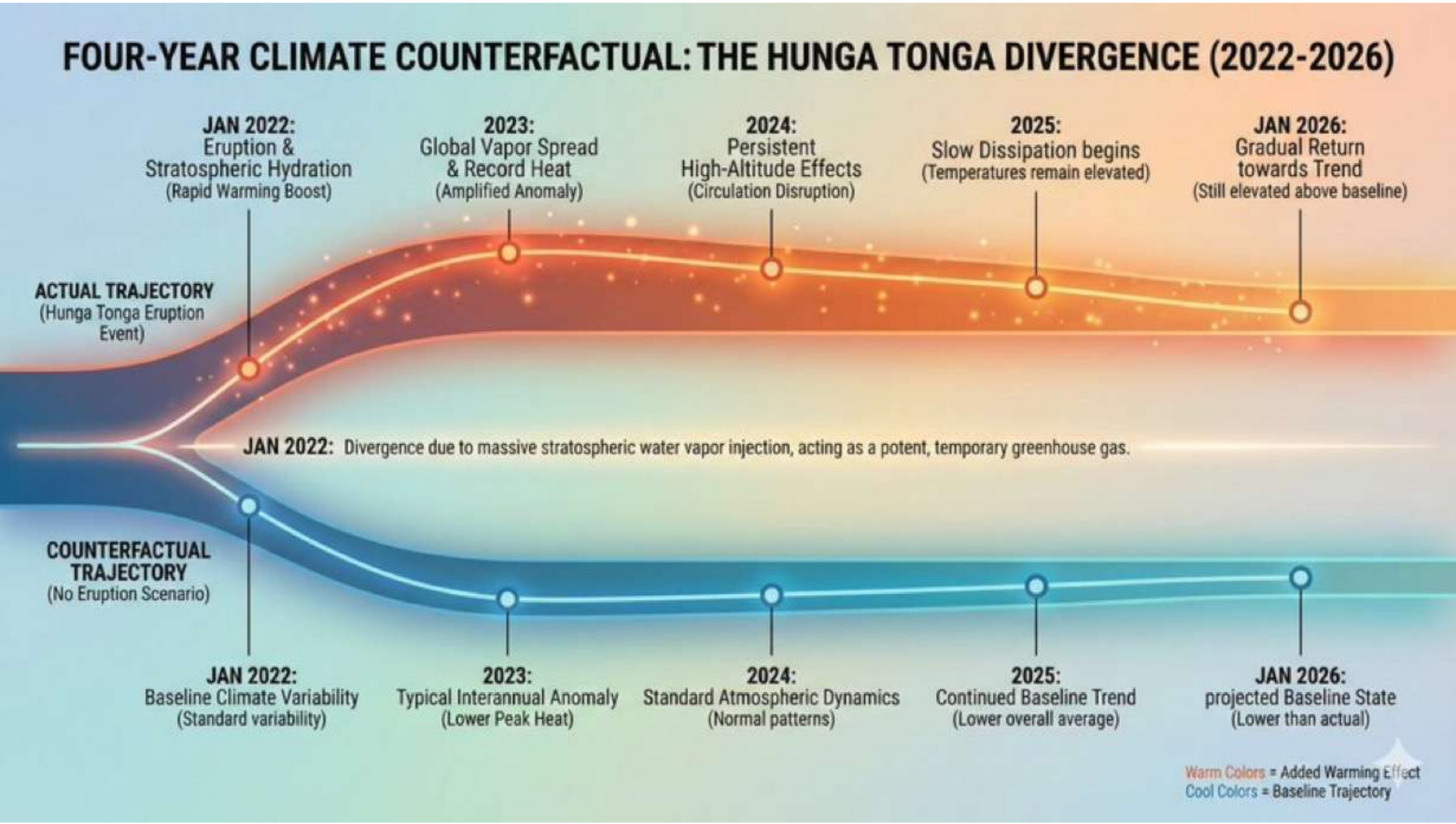
The best way to describe **150 trillion gallons** of water is as approximately **1.17 times the volume of Lake Erie** or as a layer of water **3 inches deep** covering the entire contiguous United States.

Potential long-term impacts of Tonga eruption

- HT eruption released about 150Tg of water vapour into the stratosphere and distributed globally by the end of 2022
- Equal to 10% of total stratospheric water vapour
- 13% increase in global stratospheric water mass compared to climatological level



Source:
MLS NASA

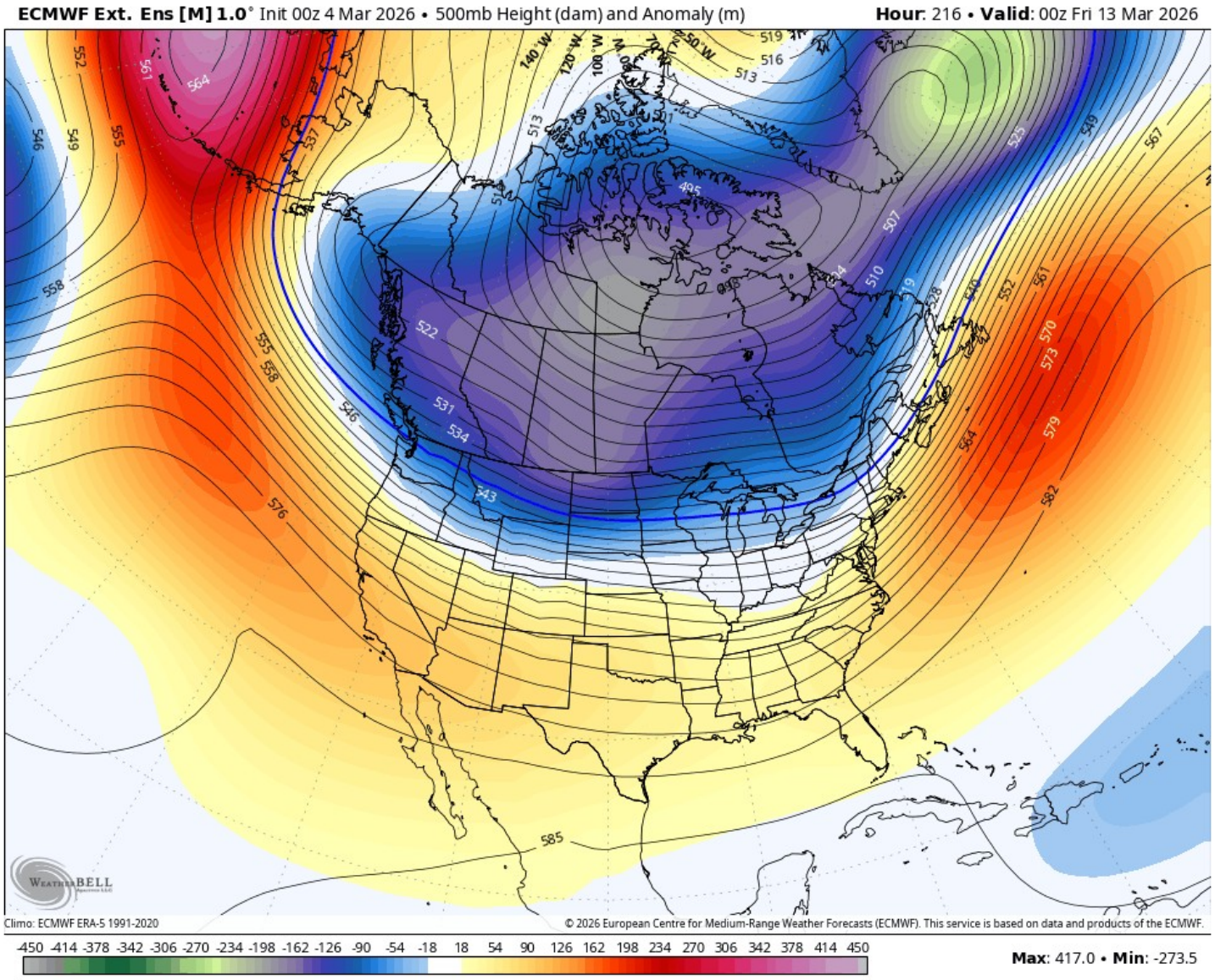

FOUR-YEAR CLIMATE COUNTERFACTUAL: THE HUNGA TONGA DIVERGENCE (2022-2026)
JAN 2022:
Eruption &
Stratospheric Hydration
(Rapid Warming Boost)
2023:
Global Vapor Spread
& Record Heat
(Amplified Anomaly)
2024:
Persistent
High-Altitude Effects
(Circulation Disruption)
2025:
Slow Dissipation begins
(Temperatures remain elevated)
JAN 2026:
Gradual Return
towards Trend
(Still elevated above baseline)
ACTUAL TRAJECTORY
(Hunga Tonga Eruption
Event)
JAN 2022: Divergence due to massive stratospheric water vapor injection, acting as a potent, temporary greenhouse gas.
COUNTERFACTUAL
TRAJECTORY
(No Eruption Scenario)
JAN 2022:
Baseline Climate Variability
(Standard variability)
2023:
Typical Interannual Anomaly
(Lower Peak Heat)
2024:
Standard Atmospheric Dynamics
(Normal patterns)
2025:
Continued Baseline Trend
(Lower overall average)
JAN 2026:
projected Baseline State
(Lower than actual)
Warm Colors = Added Warming Effect
Cool Colors = Baseline Trajectory

2022 Tonga Eruption - Possibilities

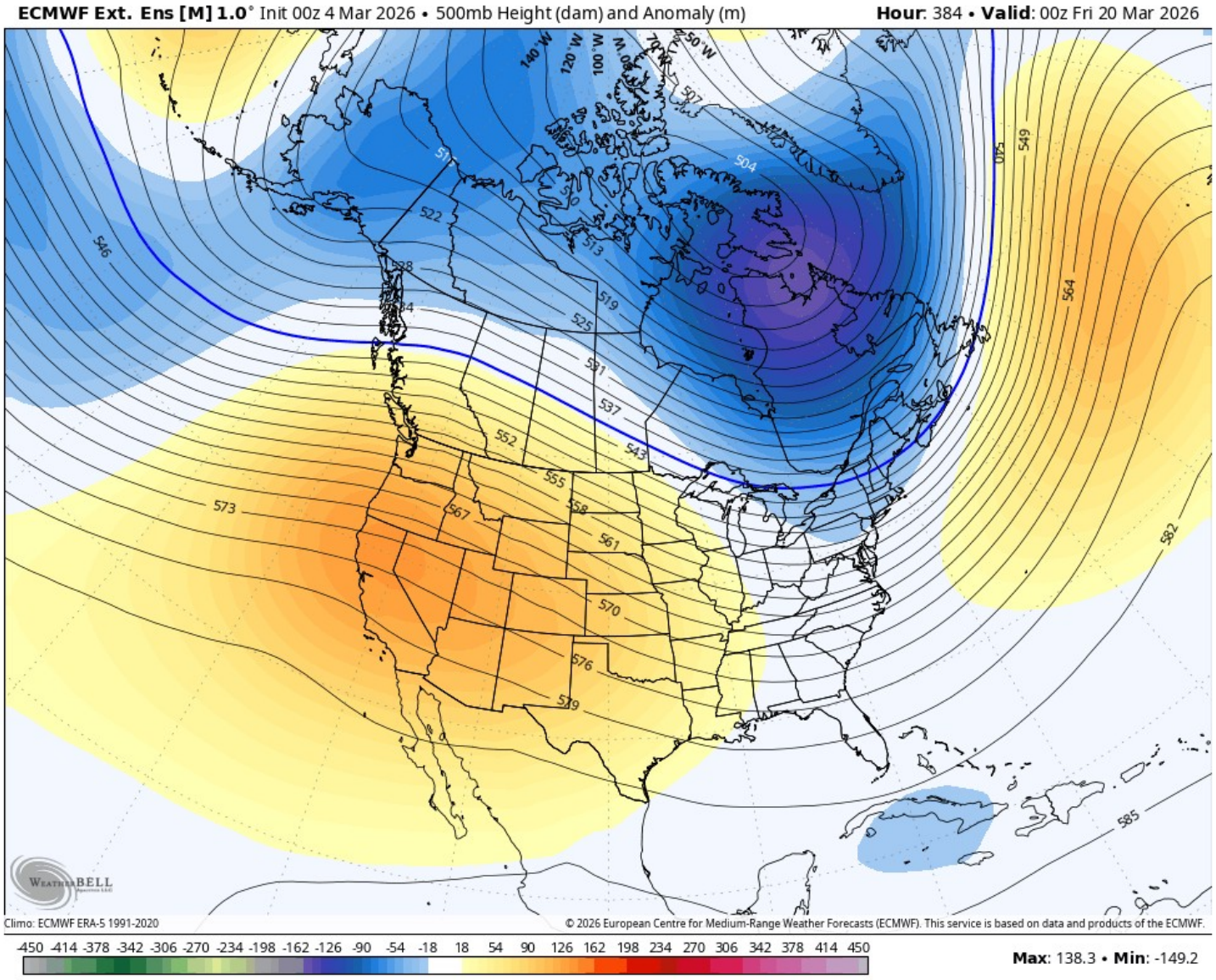
- May have interrupted La Nina/El Nino cycles some
- Influenced the very wet and big snowpack winter of 2023 (atmospheric rivers)
- Possibly increased stratospheric warming events 2024 to present, 2025/early 2026 especially…..this would have enhanced the severe blocking patterns we have experienced this winter
- Eruption impacts could last up to decade

Tahoe –
March 2023

3/13


ECMWF Ext. Ens [M] 1.0° Init 00z 4 Mar 2026 • 500mb Height (dam) and Anomaly (m)
Hour: 216 • Valid: 00z Fri 13 Mar 2026
Climo: ECMWF ERA-5 1991-2020
© 2026 European Centre for Medium-Range Weather Forecasts (ECMWF). This service is based on data and products of the ECMWF.
-450 -414 -378 -342 -306 -270 -234 -198 -162 -126 -90 -54 -18 18 54 90 126 162 198 234 270 306 342 378 414 450
Max: 417.0 • Min: -273.5

3/20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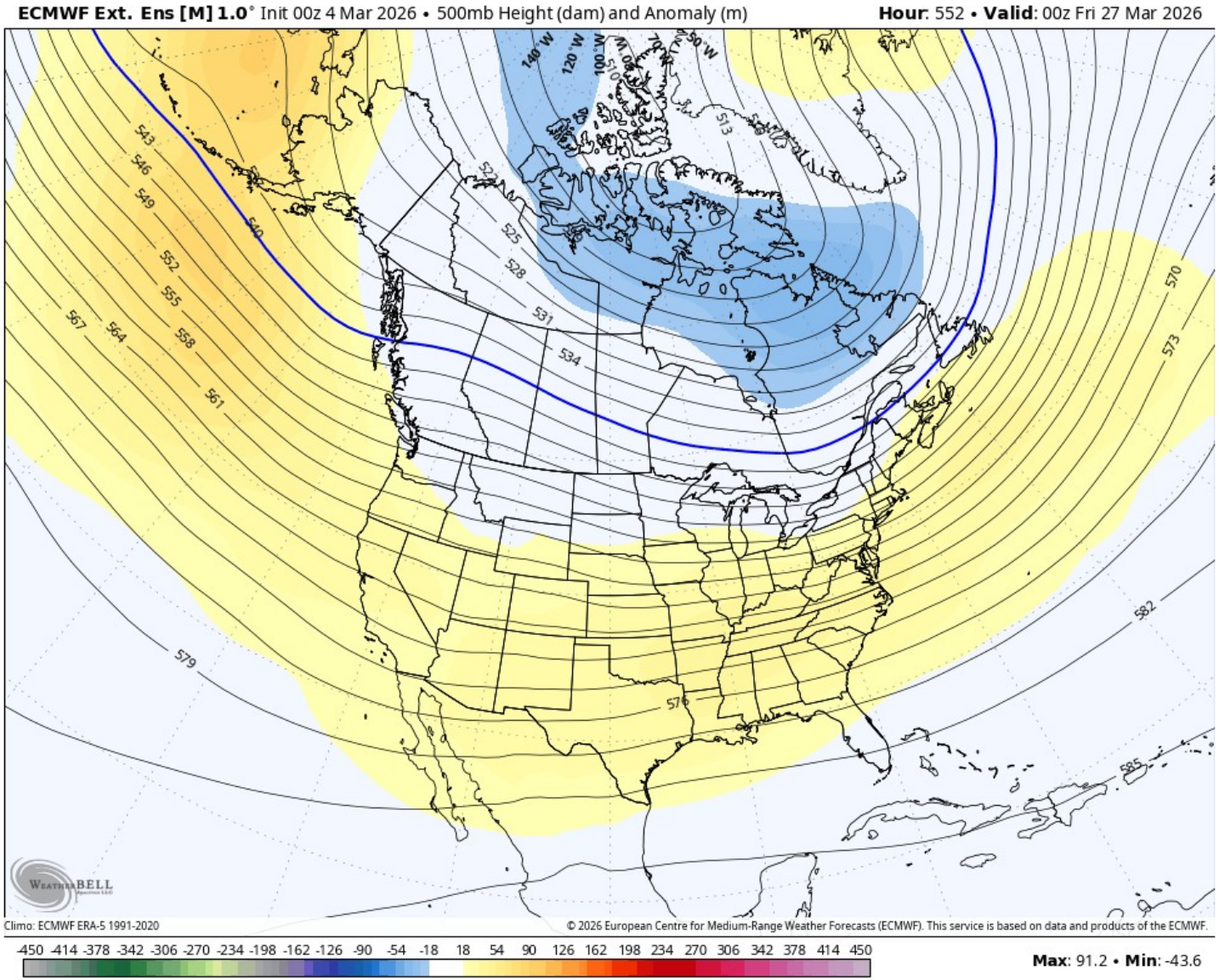
Max: 138.3 • Min: -149.2

3/27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Climo: ECMWF ERA-5 1991-2020
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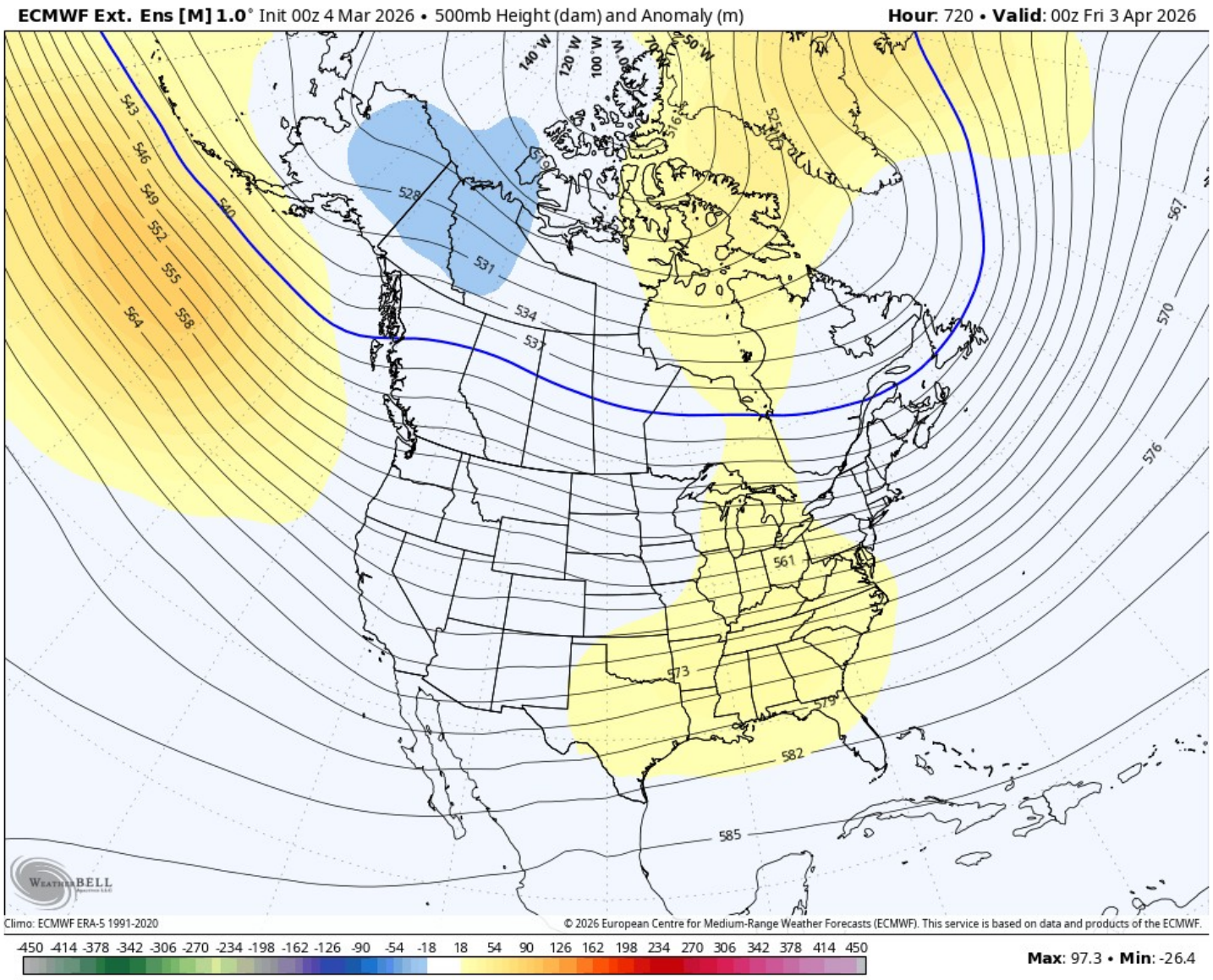
Max: 91.2 • Min: -43.6

4/3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Hour: 720 • Valid: 00z Fri 3 Apr 2026
543
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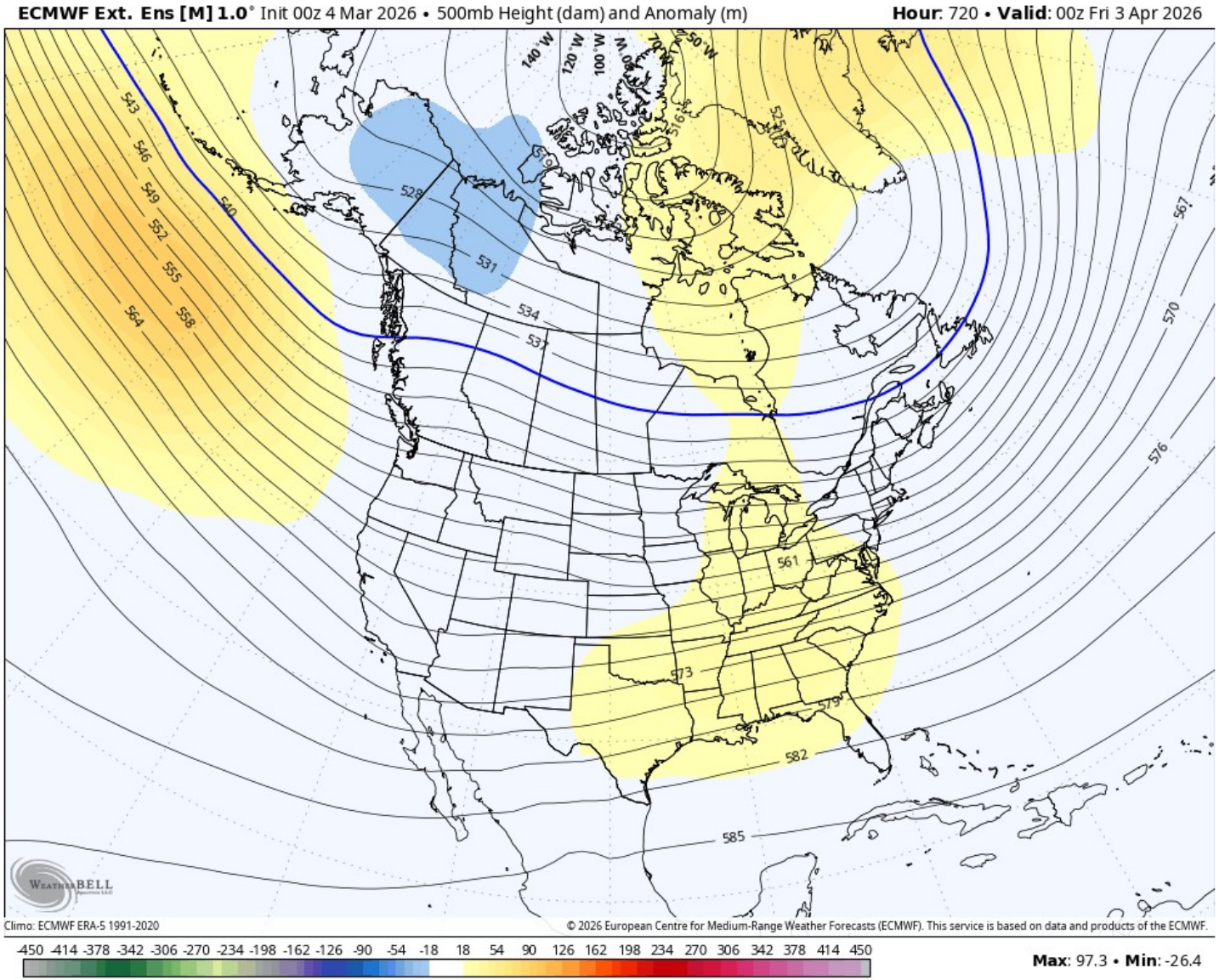
576
561
573
579
582
585
Climo: ECMWF ERA-5 1991-2020
© 2026 European Centre for Medium-Range Weather Forecasts (ECMWF). This service is based on data and products of the ECMWF.
-450 -414 -378 -342 -306 -270 -234 -198 -162 -126 -90 -54 -18 18 54 90 126 162 198 234 270 306 342 378 414 450
Max: 97.3 • Min: -26.4

4/10


ECMWF Ext. Ens [M] 1.0° Init 00z 4 Mar 2026 • 500mb Height (dam) and Anomaly (m)
Hour: 720 • Valid: 00z Fri 3 Apr 2026
140°W
120°W
100°W
80°W
70°W
50°W
516
525
519
528
531
534
531
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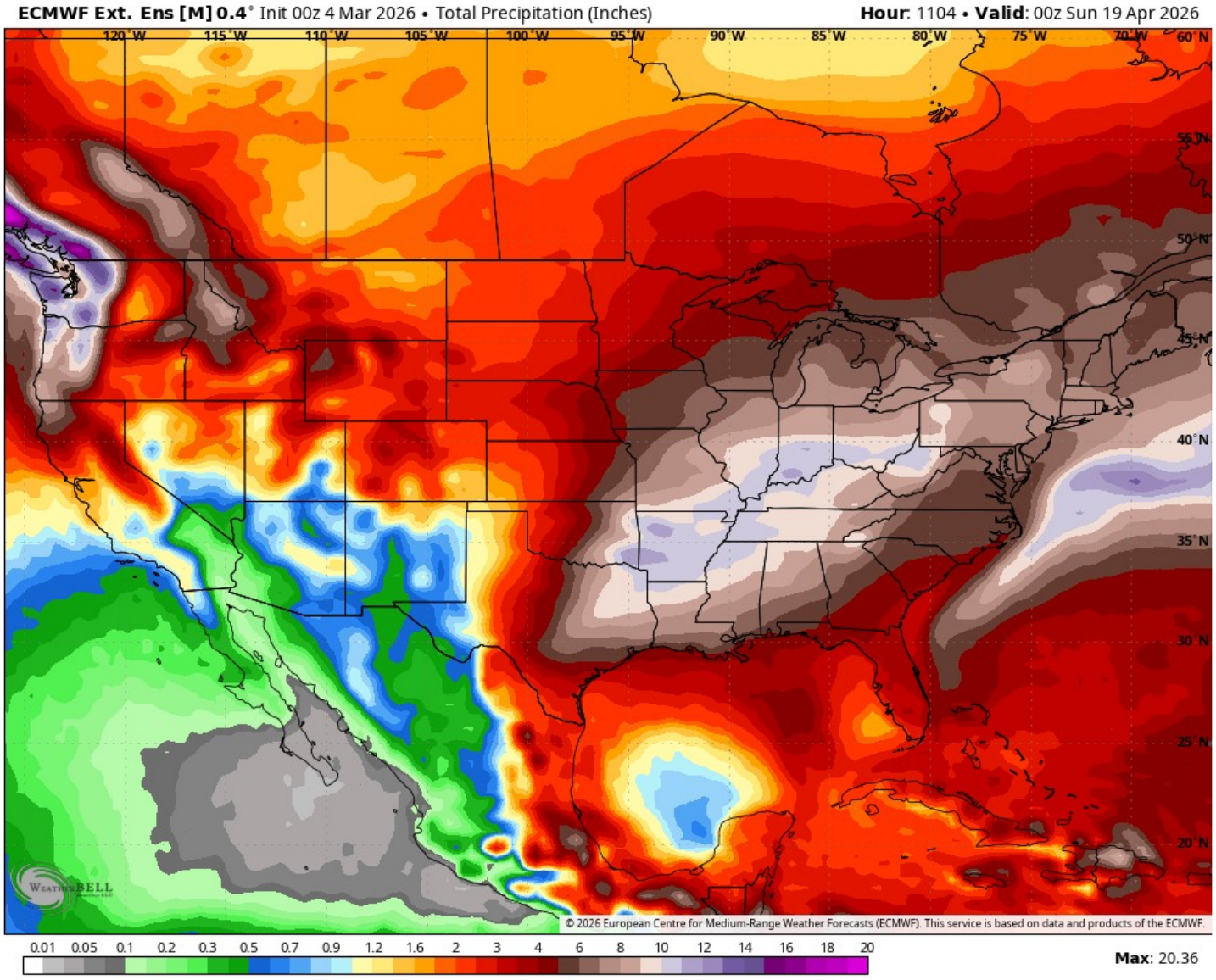
582
585
Climo: ECMWF ERA-5 1991-2020
© 2026 European Centre for Medium-Range Weather Forecasts (ECMWF). This service is based on data and products of the ECMWF.
-450 -414 -378 -342 -306 -270 -234 -198 -162 -126 -90 -54 -18 18 54 90 126 162 198 234 270 306 342 378 414 450
Max: 97.3 • Min: -26.4


ECMWF Ext. Ens [M] 0.4° Init 00z 4 Mar 2026 • Total Precipitation (Inches)
Hour: 1104 • Valid: 00z Sun 19 Apr 2026
120°W 115°W 110°W 105°W 100°W 95°W 90°W 85°W 80°W 75°W 70°W
60°N 55°N 50°N 45°N 40°N 35°N 30°N 25°N 20°N
WeatherBELL
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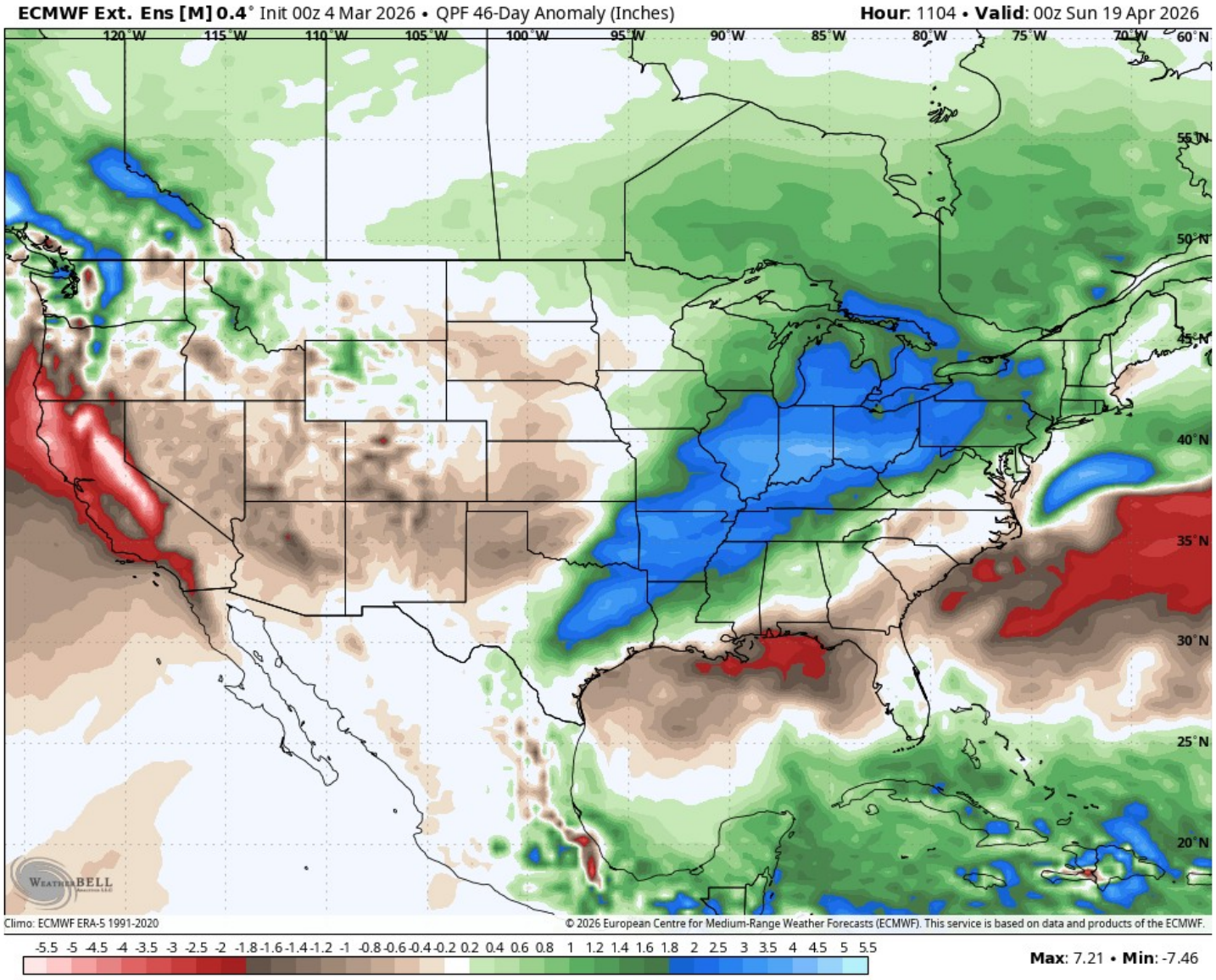
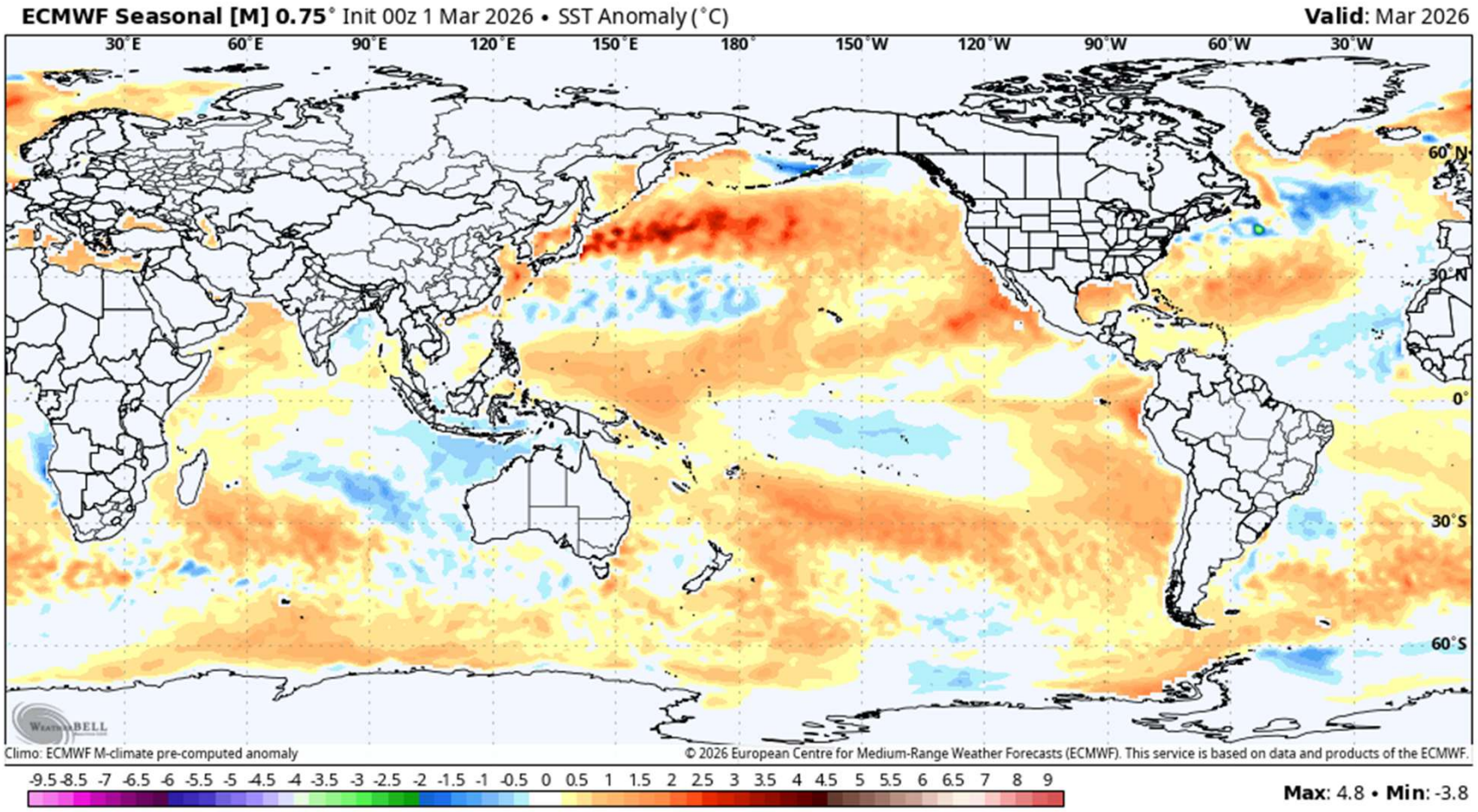
0.01 0.05 0.1 0.2 0.3 0.5 0.7 0.9 1.2 1.6 2 3 4 6 8 10 12 14 16 18 20
Max: 20.36


ECMWF Ext. Ens [M] 0.4° Init 00z 4 Mar 2026 • QPF 46-Day Anomaly (Inches)
Hour: 1104 • Valid: 00z Sun 19 Apr 2026
120°W 115°W 110°W 105°W 100°W 95°W 90°W 85°W 80°W 75°W 70°W
60°N 55°N 50°N 45°N 40°N 35°N 30°N 25°N 20°N
WeatherBELL
Climo: ECMWF ERA-5 1991-2020
© 2026 European Centre for Medium-Range Weather Forecasts (ECMWF). This service is based on data and products of the ECMWF.
-5.5 -5 -4.5 -4 -3.5 -3 -2.5 -2 -1.8 -1.6 -1.4 -1.2 -1 -0.8 -0.6 -0.4 -0.2 0.2 0.4 0.6 0.8 1 1.2 1.4 1.6 1.8 2 2.5 3 3.5 4 4.5 5 5.5
Max: 7.21 • Min: -7.46

La Nina Update

- La Nina is now gone, going neutral
- Timing and strength vary with each event
- La Nina's early in the season (Fall/early Winter) are not nearly as impactful and a strengthening La Nina Winter to Spring


ECMWF Seasonal [M] 0.75° Init 00z 1 Mar 2026 • SST Anomaly (°C)
Valid: Mar 2026
30°E 60°E 90°E 120°E 150°E 180° 150°W 120°W 90°W 60°W 30°W
60°N
30°N
0°
30°S
60°S
Climo: ECMWF M-climate pre-computed anomaly
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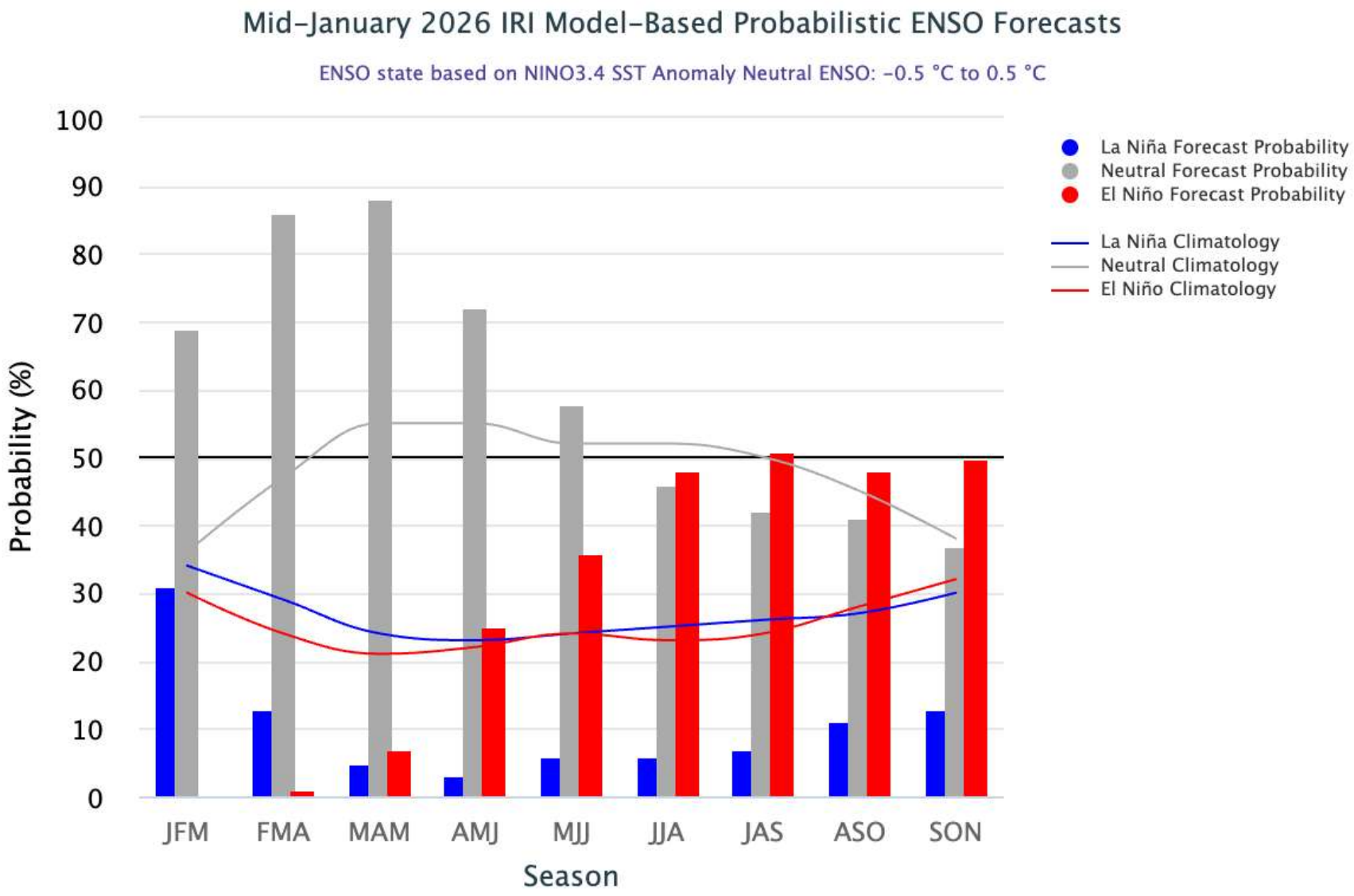
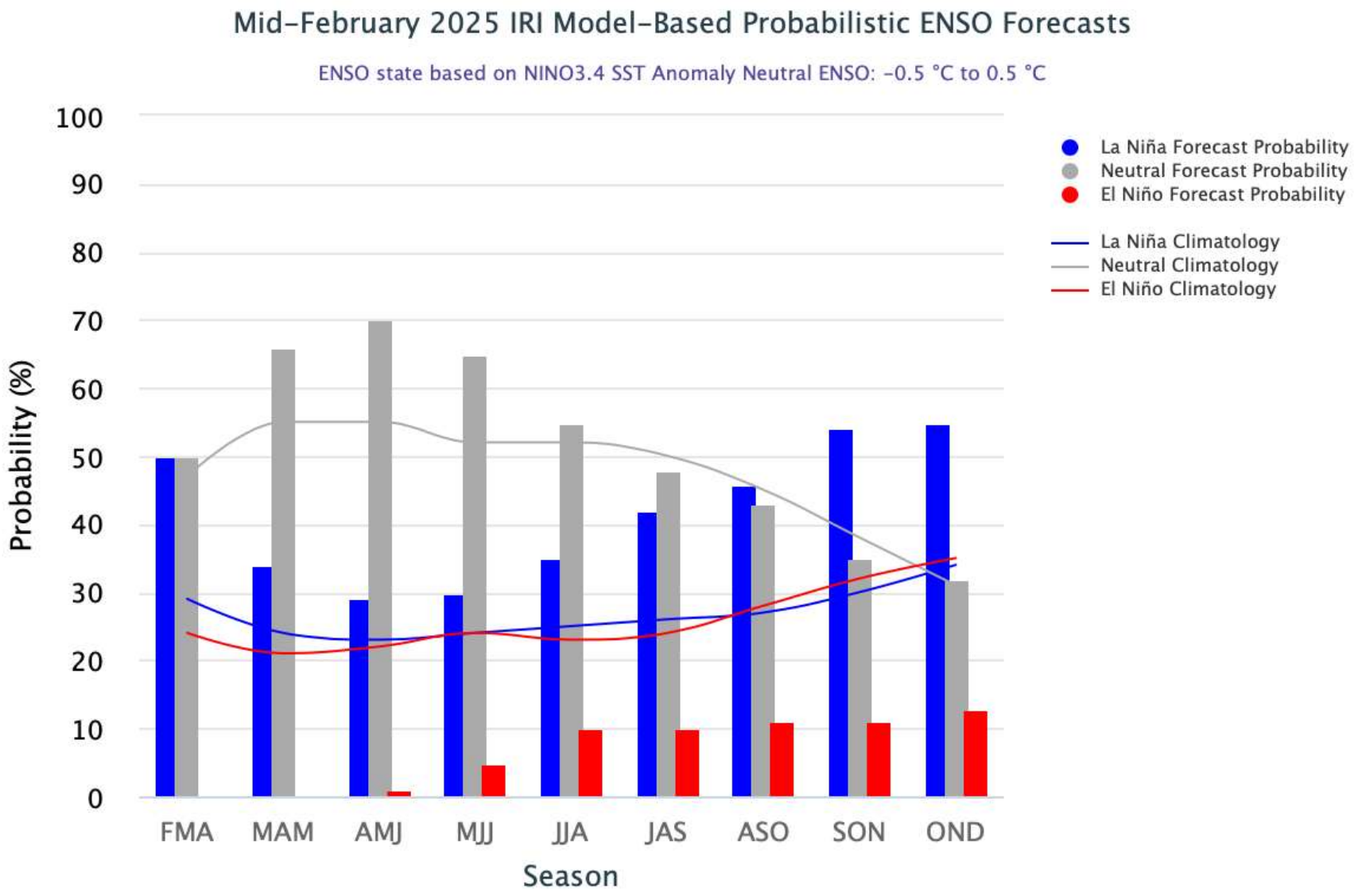
-9.5 -8.5 -7 -6.5 -6 -5.5 -5 -4.5 -4 -3.5 -3 -2.5 -2 -1.5 -1 -0.5 0 0.5 1 1.5 2 2.5 3 3.5 4 4.5 5 5.5 6 6.5 7 8 9
Max: 4.8 • Min: -3.8


Mid-January 2026 IRI Model-Based Probabilistic ENSO Forecasts
ENSO state based on NINO3.4 SST Anomaly Neutral ENSO: -0.5 °C to 0.5 °C
Probability (%)
100
90
80
70
60
50
40
30
20
10
0
JFM
FMA
MAM
AMJ
MJJ
JJA
JAS
ASO
SON
Season
La Niña Forecast Probability
Neutral Forecast Probability
El Niño Forecast Probability
La Niña Climatology
Neutral Climatology
El Niño Climatology

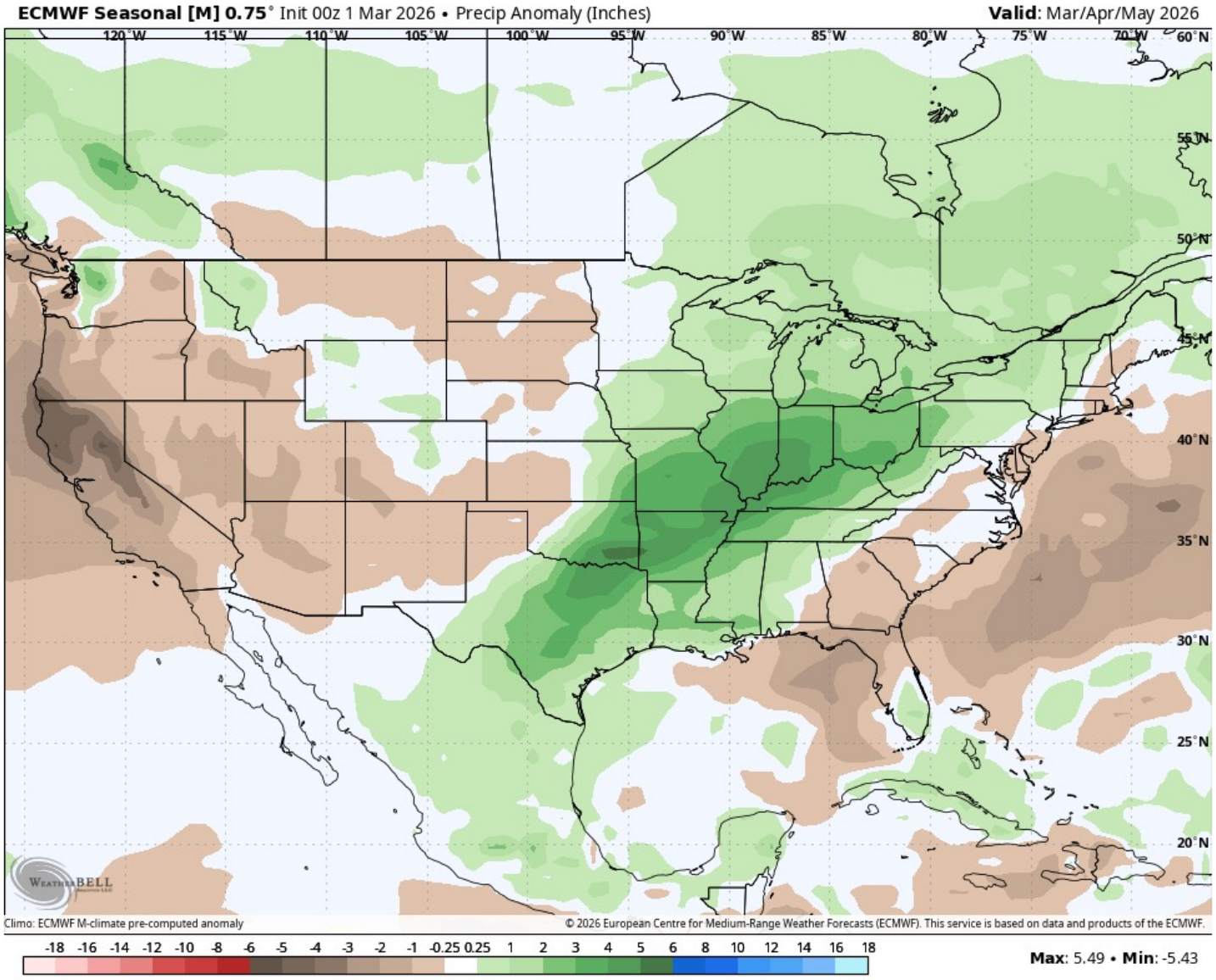

Mid-February 2025 IRI Model-Based Probabilistic ENSO Forecasts
ENSO state based on NINO3.4 SST Anomaly Neutral ENSO: -0.5 °C to 0.5 °C
Probability (%)
100
90
80
70
60
50
40
30
20
10
0
FMA
MAM
AMJ
MJJ
JJA
JAS
ASO
SON
OND
Season
La Niña Forecast Probability
Neutral Forecast Probability
El Niño Forecast Probability
La Niña Climatology
Neutral Climatology
El Niño Climatology

Positive Developments for late Winter/Spring Precipitation

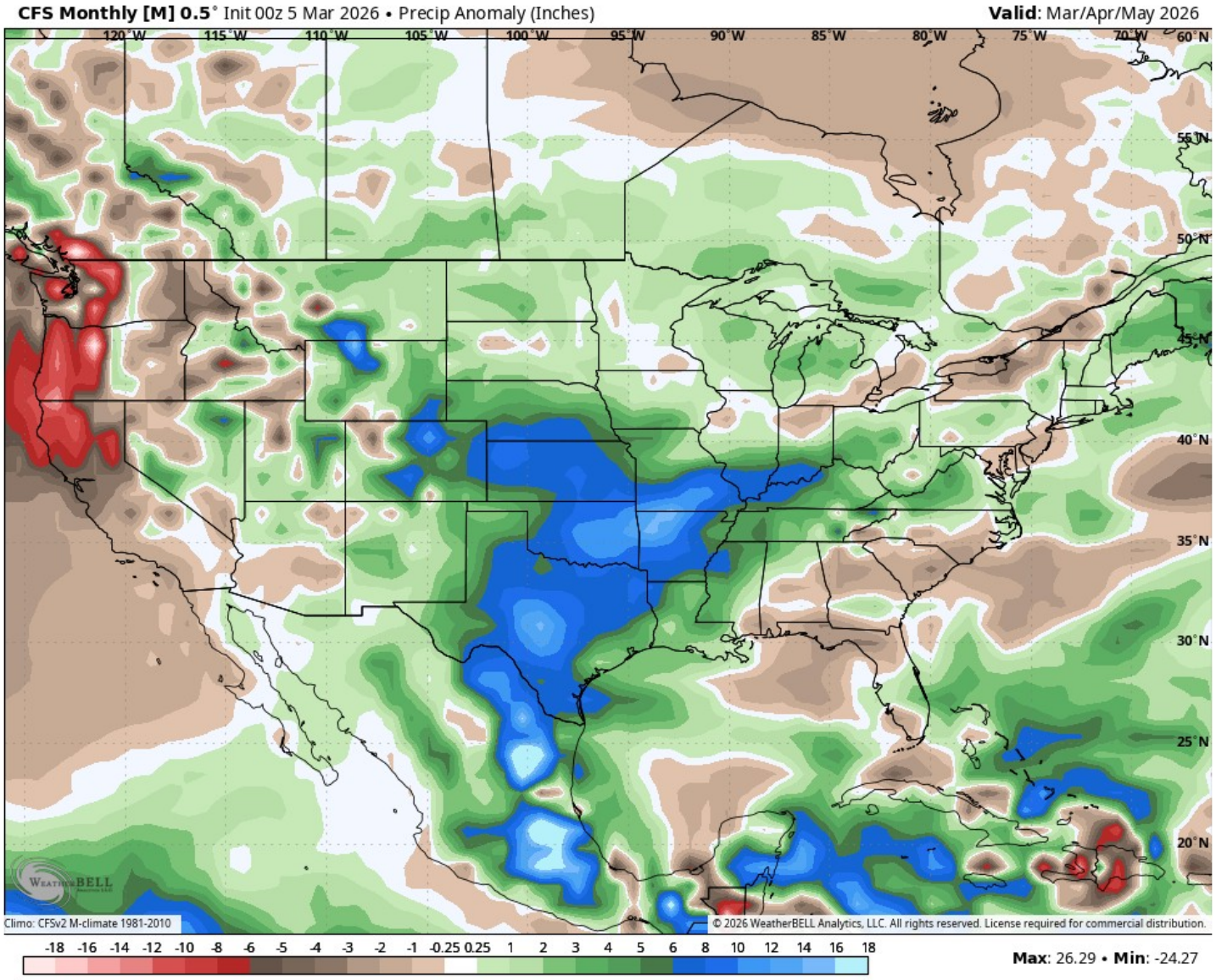
Blocking patterns fading from QBO and stratospheric warming events

La Nina rapidly fading at the right time

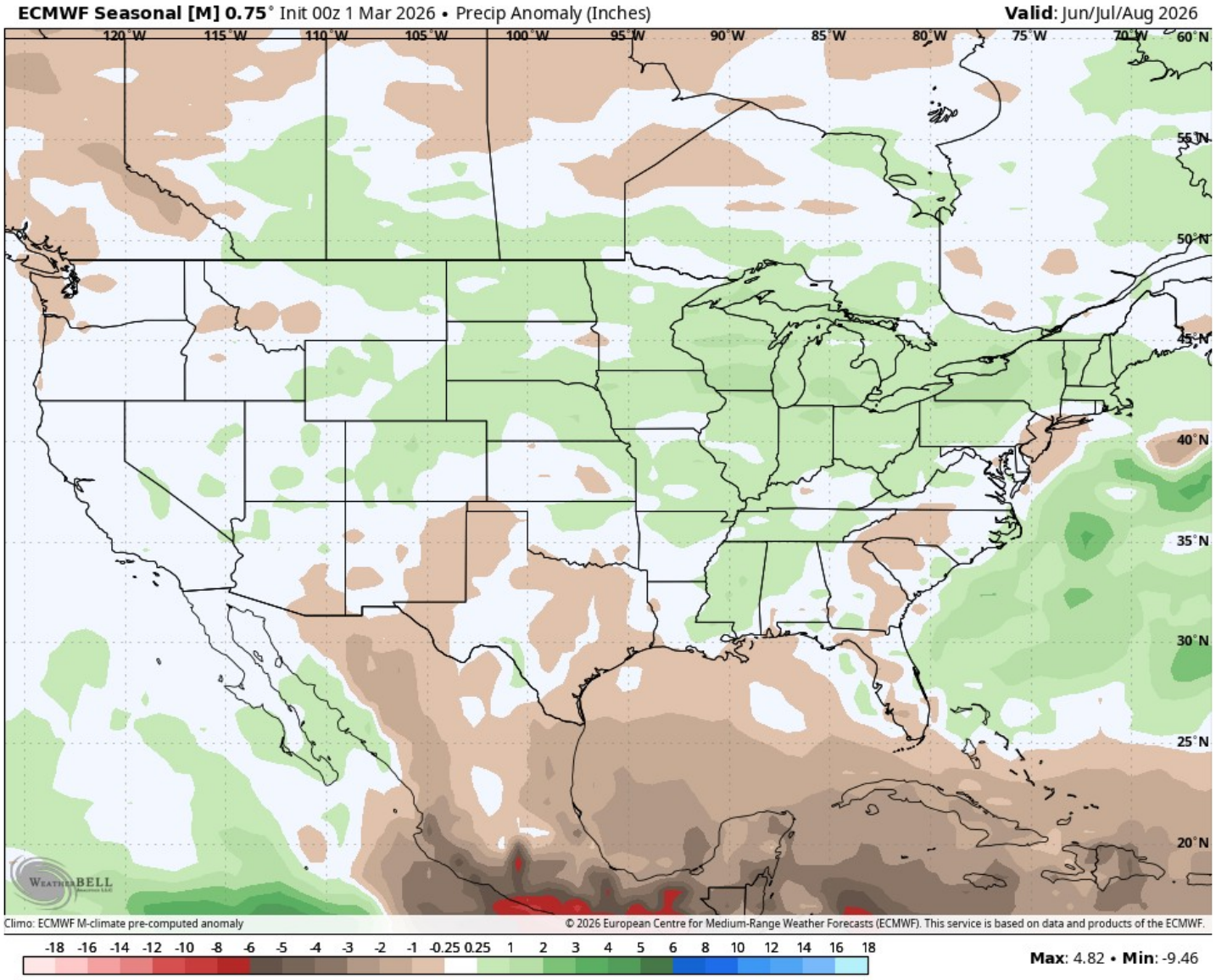
Precipitation
March/April/May
European Model



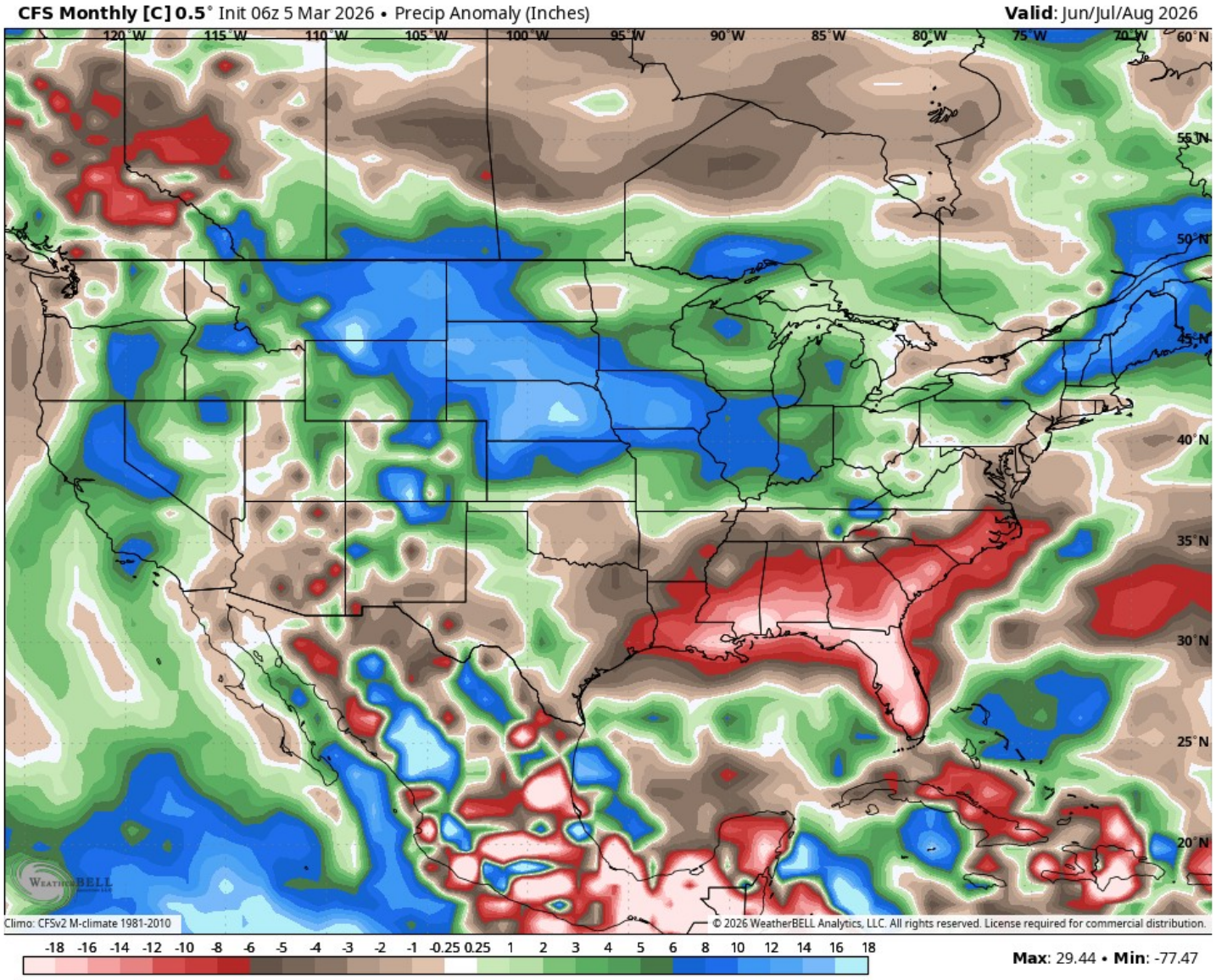
Precipitation
March/April/May
CFS Model



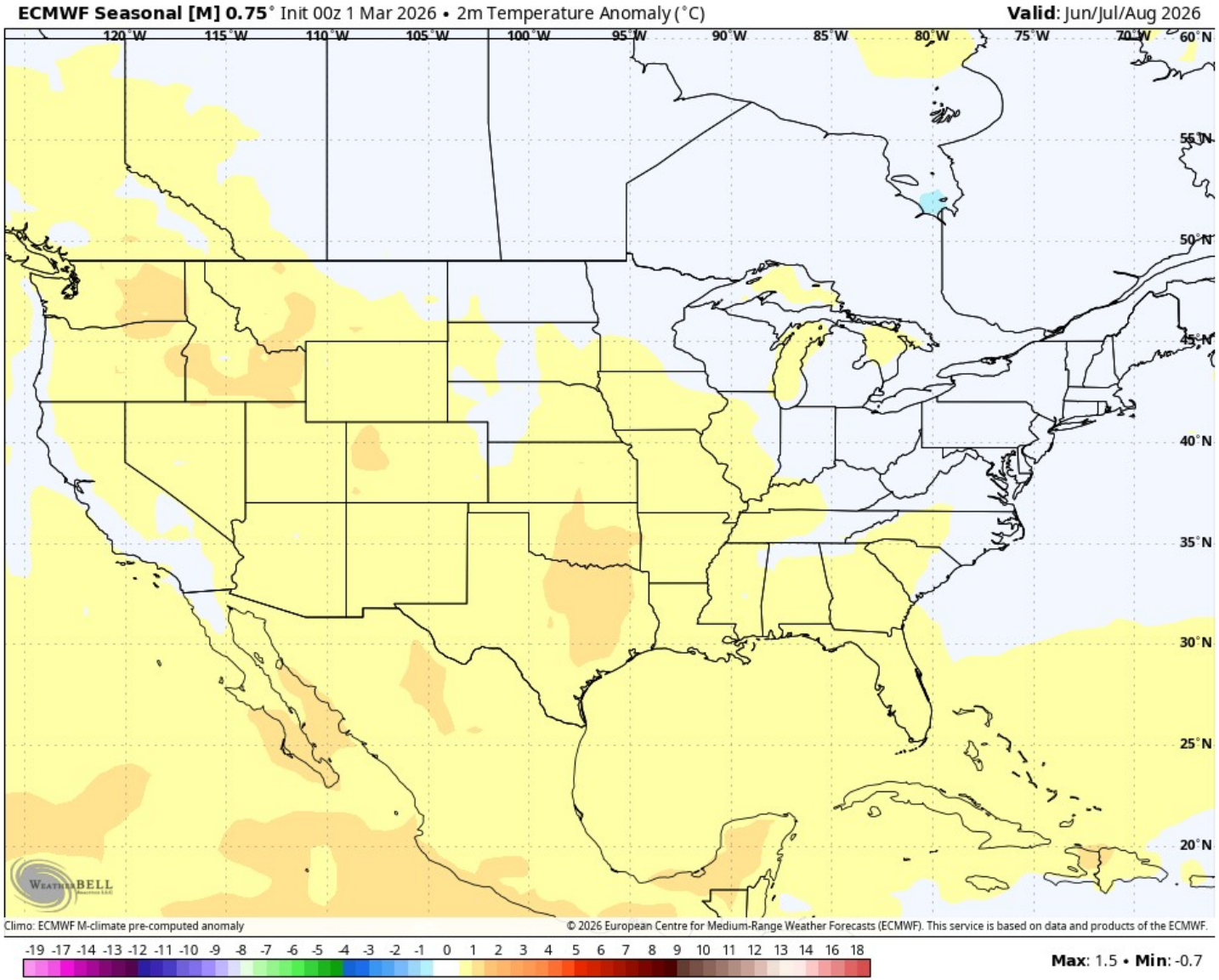
Precipitation
June/July/August
European Model



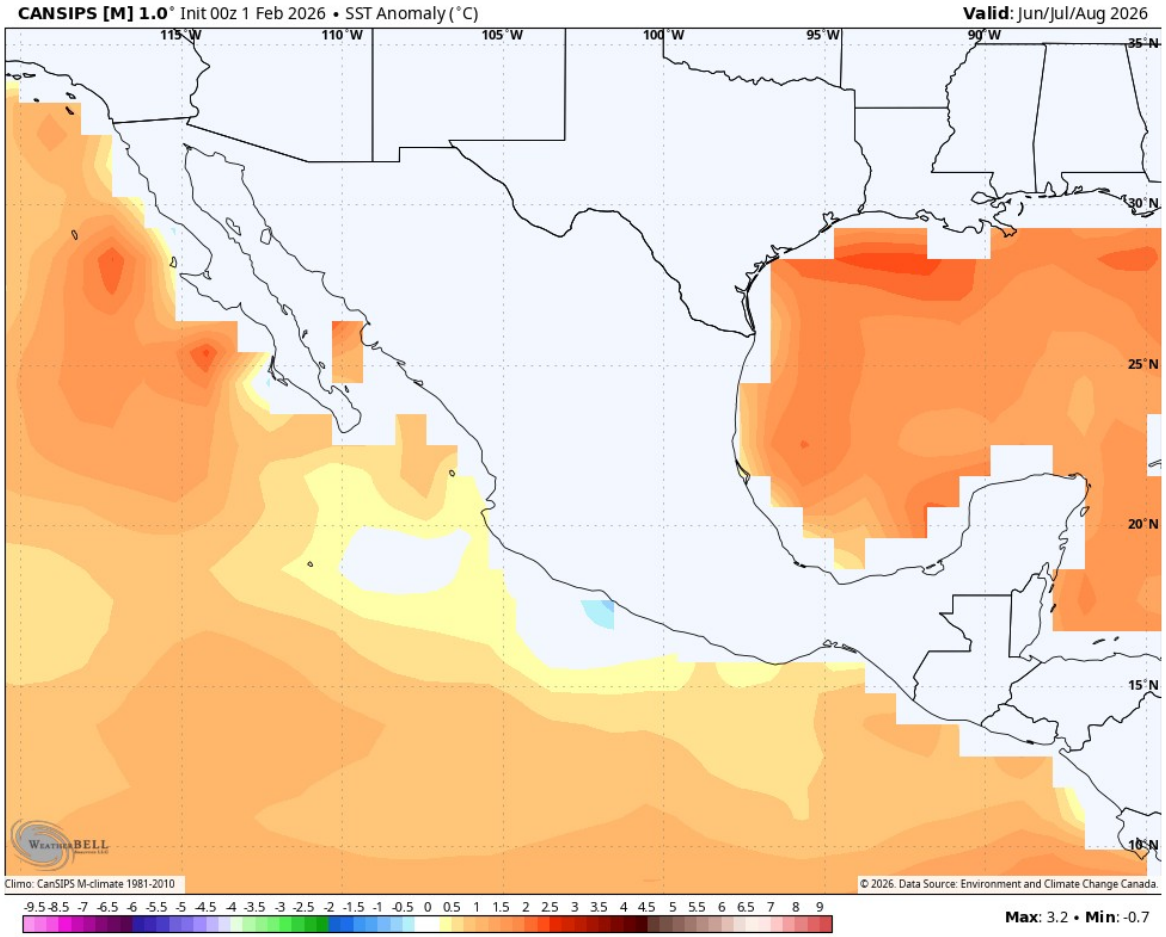
Precipitation
June/July/August
CFS Model



Temperature
June/July/August



Thunderstorm (Monsoon) Season



Summary

La Nina to ENSO neutral is good news, possible El Nino late 2026

Warming SST in Mar/Apr/May is encouraging

Warmer SST in spring could signal better spring/summer precipitation

Easterly QBO pattern could lead to summer blocking – **A CONCERN**