

# Weather and Water Update

Spring-Summer 2024

[weather.gov/reno](https://weather.gov/reno)

Weather Forecast Office

Reno, NV

Thursday, April 11

775-673-8100



**Winter may have started slow, but it came back in a big way.**

**Tim Bardsley**  
**NWS Reno**  
**[tim.bardsley@noaa.gov](mailto:tim.bardsley@noaa.gov)**





# The Ups...and More Downs...of Spring

Weather Forecast Office  
Reno, NV  
Thursday, April 11

Temperature (°F)

8  
7  
6  
5  
4  
3



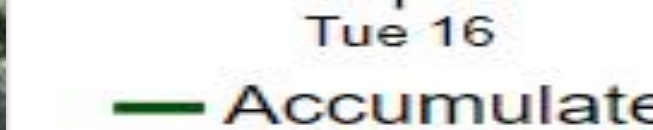
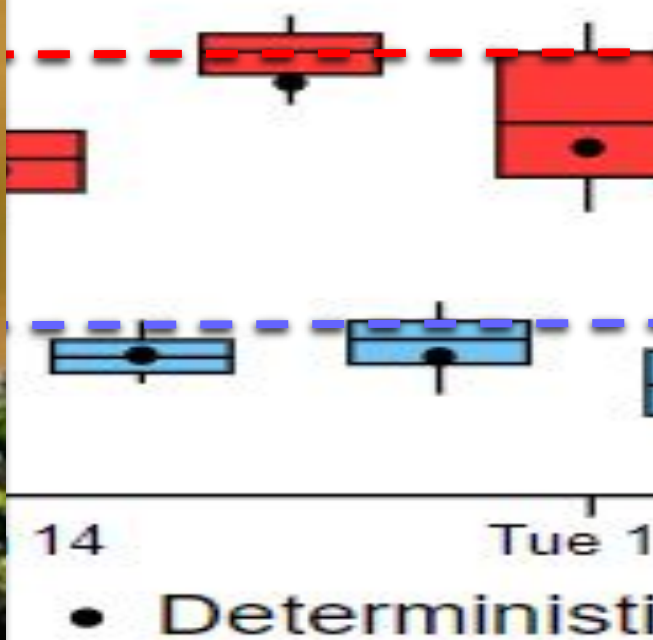
**IT'S SPRING!**

Precip (in)

0.1  
0.0  
0.0  
0.0  
0.0  
0.0



**NOPE**



## NEVADA SEASONS

- WINTER
- FOOLS SPRING
- 2nd WINTER
- SPRING OF DECEPTION
- 3rd WINTER
- ROAD CONSTRUCTION
- ACTUAL SPRING
- SUMMER
- FIRE
- FALSE FALL
- 2nd SUMMER
- ACTUAL FALL

**WE ARE HERE**





# Weather Risk Outlook: When Should I Freakout?

Weather Forecast Office  
Reno, NV  
Thursday, April 11

	Thu 4/11	Fri 4/12	Sat 4/13	Sun 4/14	Mon 4/15	Tue 4/16	Wed 4/17	Week 2 4/18-4/24
<b>Wind</b>	Late day breezes, gusts 20-30 mph.	Gusty W/SW winds.	Gusty S/SE winds near/south of US-50.	Locally breezy W-NW winds.			Lighter winds.	Nothing major on the horizon, but can't rule out a few periods with showers or increased winds.
<b>Rain/Snow</b>	10-20% chance showers NE CA & Mono/Mineral Co late.	Widespread showers. Snow levels 6000-7000'.		10-20% chance of showers.	Lingering showers Monday, add'l shower potential with next system Tues-Wed.			
<b>Lightning</b>	< 10% chance Sierra.	10-30% chance, highest Friday.		Less than 10%.	None.	Less than 10%.		
<b>Flooding</b>	Increasing snowmelt through Saturday, but no flooding concerns.							None.
<b>Unusual Temps</b>	Still warm with temperatures peaking 10-15 degrees above average today.		Near normal Saturday & Monday. Otherwise, 5-10 degrees below average.					Favoring near normal, then trending warmer 4/21 onward.
<b>Air Stagnation</b>	Enhanced breezes and/or improved mixing.							TBD.

**What Does This Mean?**  
Color integrates impact potential and forecaster confidence levels.

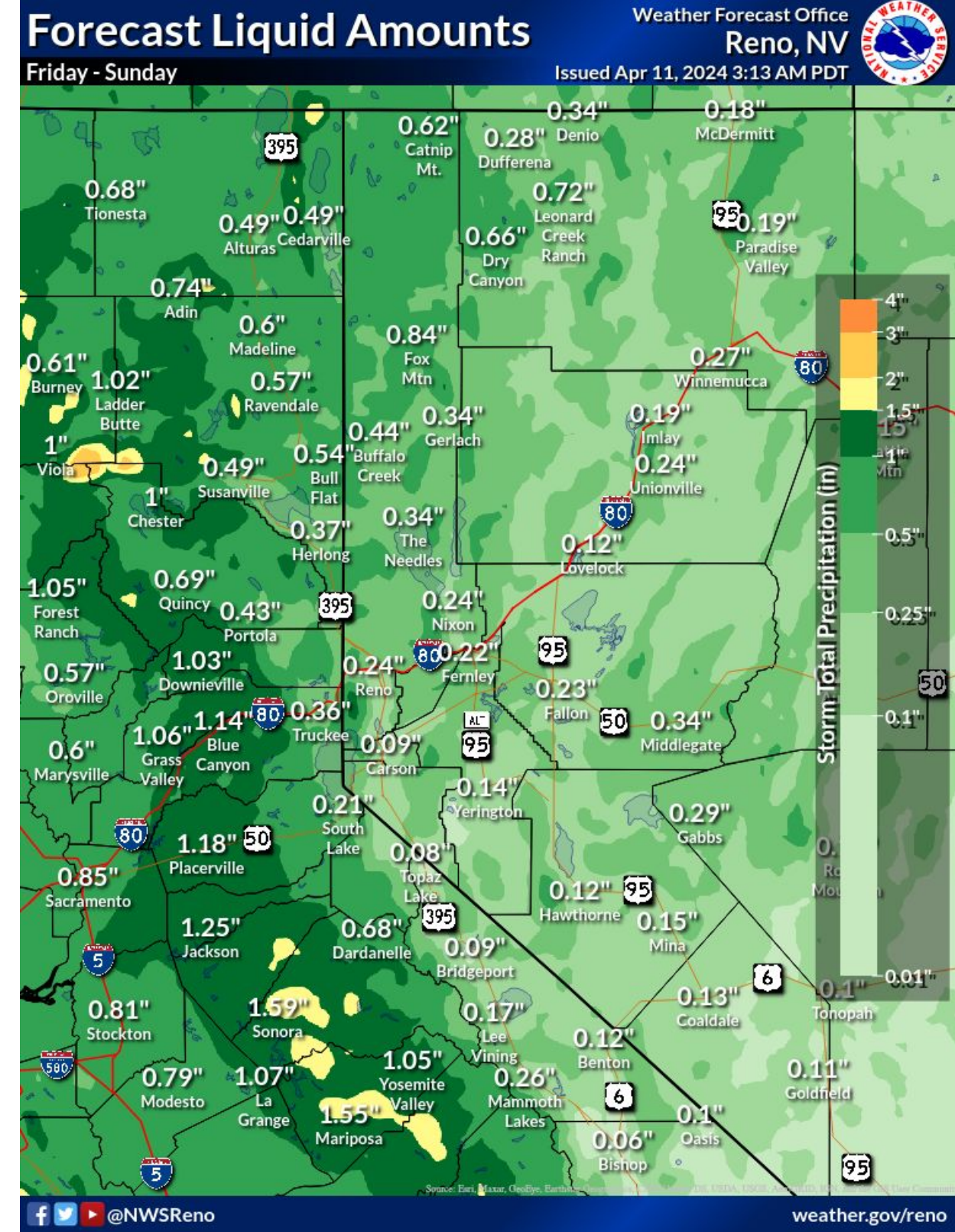
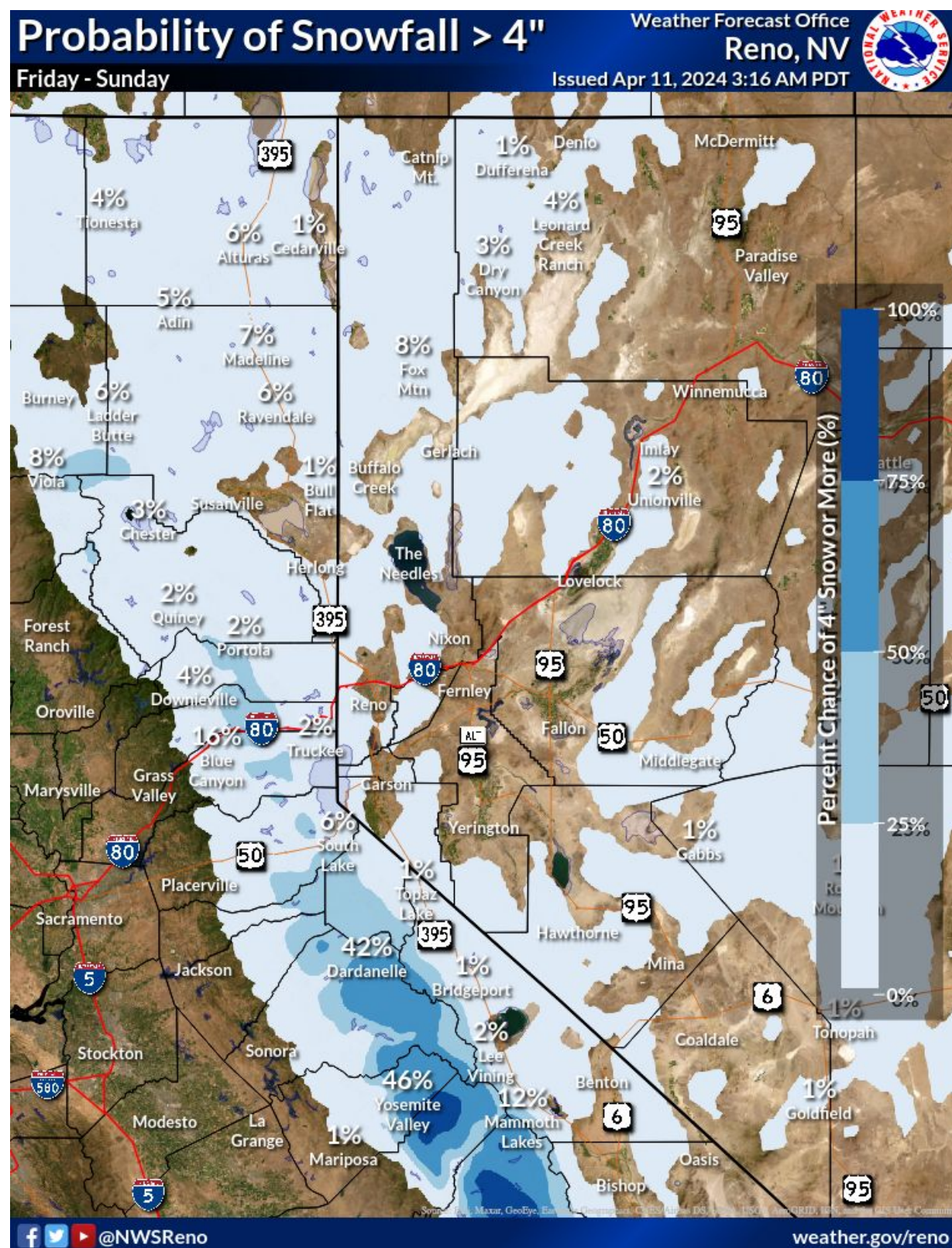
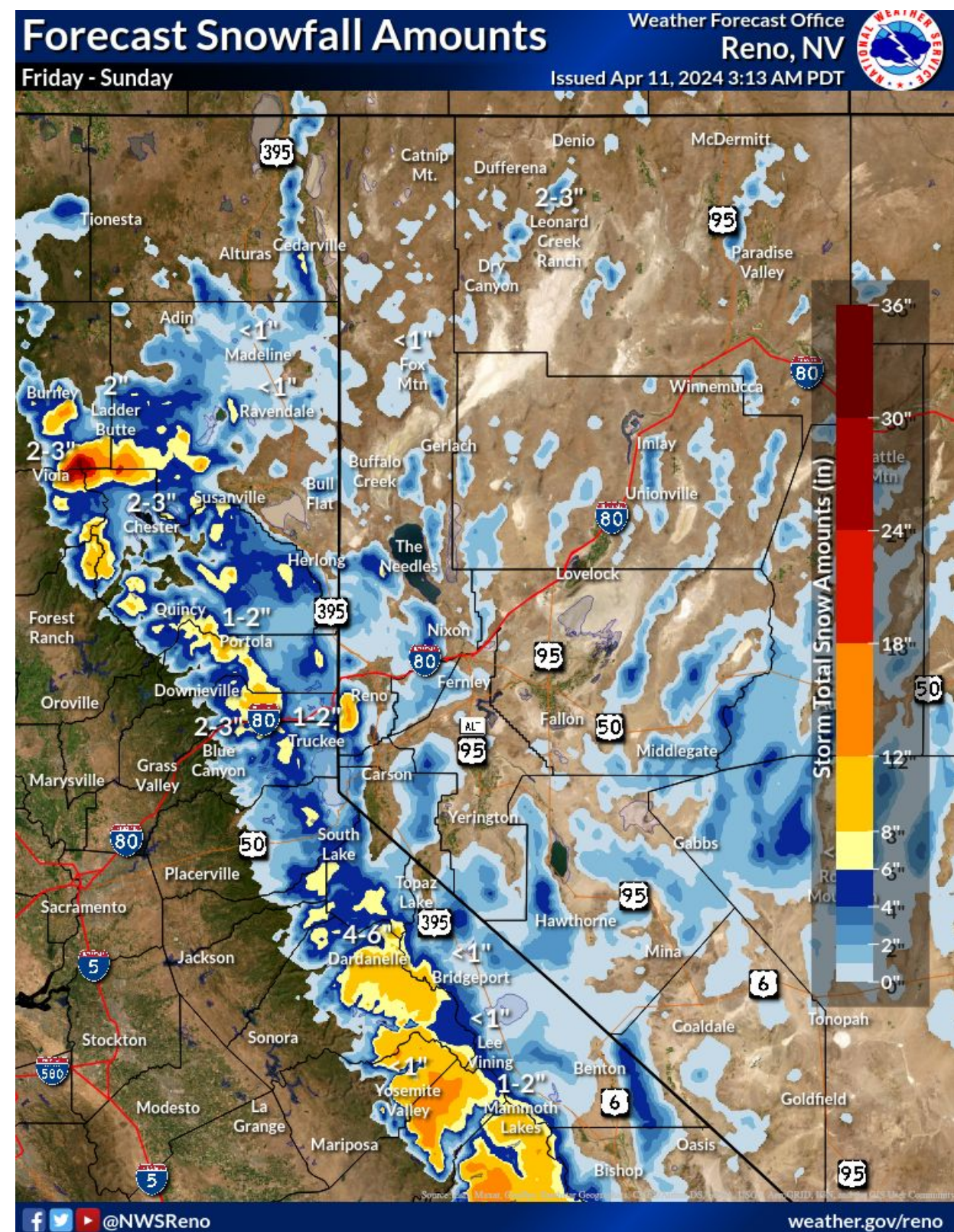
No worries 	Low freakoutness 	Moderate freakoutness 	High freakoutness 	Really bad 
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# Rain & Snow Amounts this Weekend

Weather Forecast Office  
Reno, NV  
Thursday, April 11



The storm this weekend will favor the Sierra and northeast CA for precipitation with snow confined mainly to the Sierra, heaviest south of Lake Tahoe.



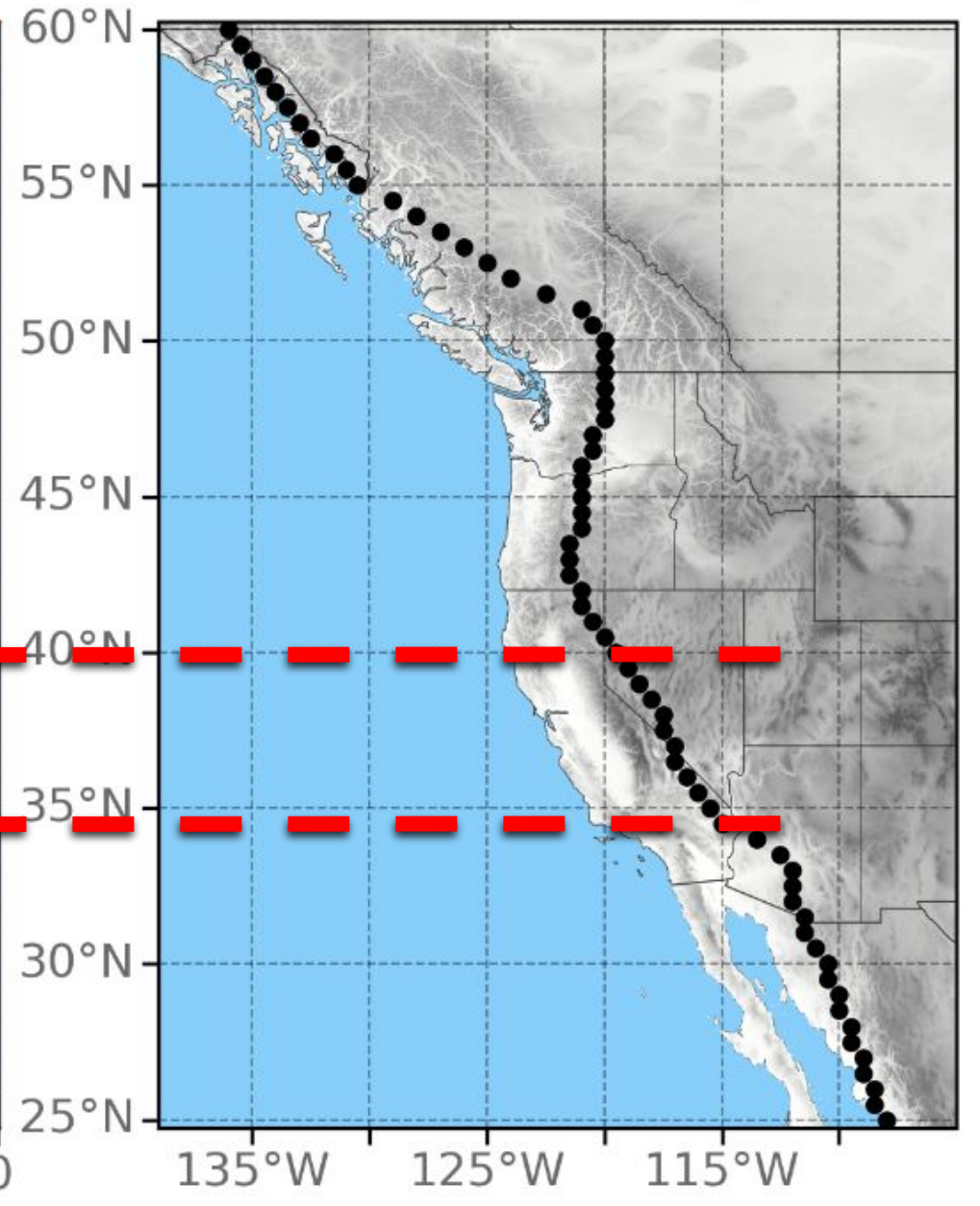
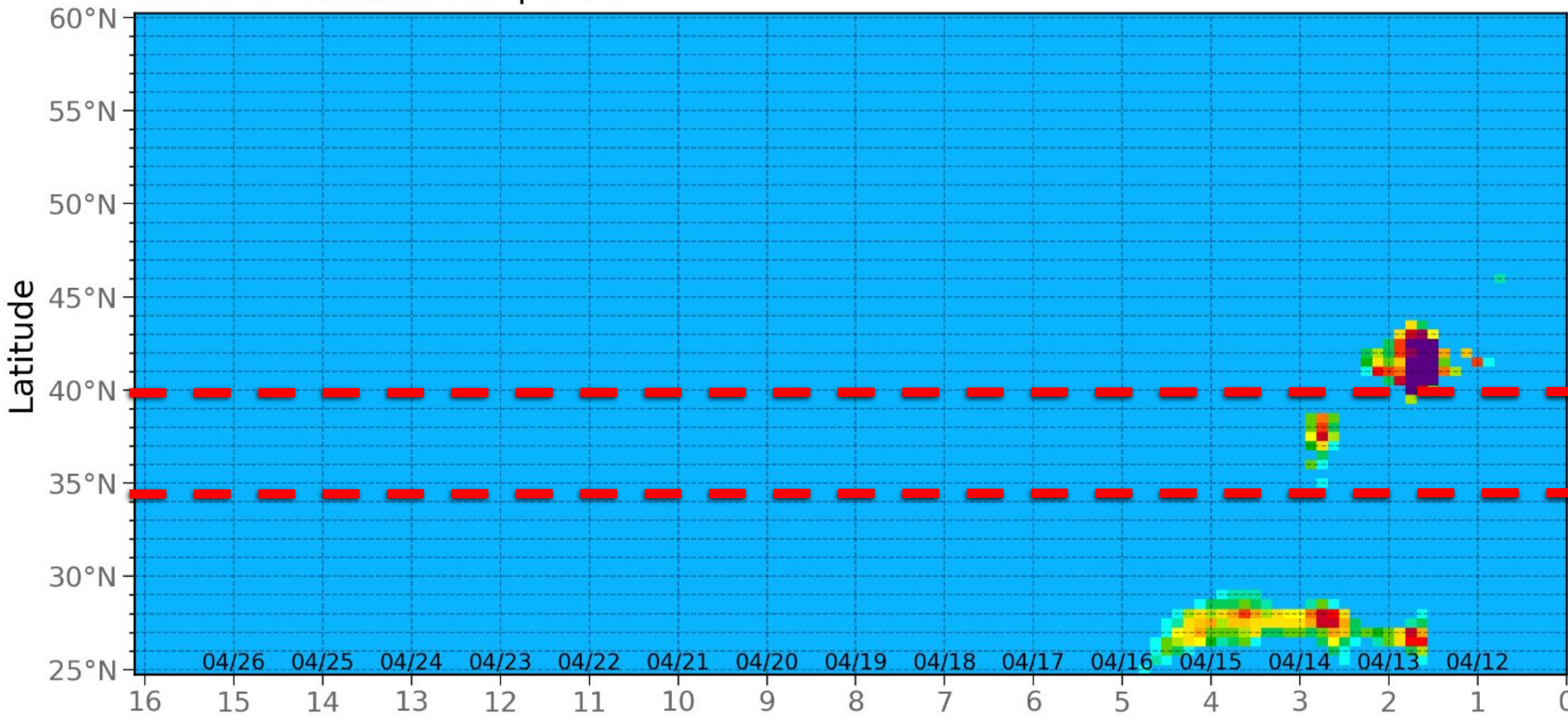


# Atmospheric River Outlook Next 1-2 Weeks

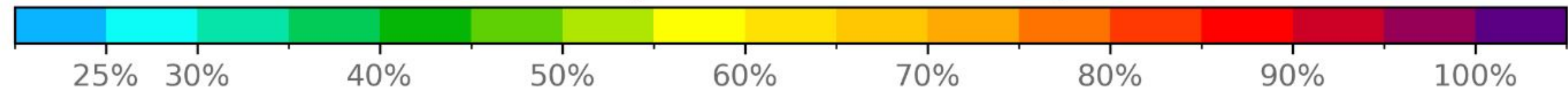
Weather Forecast Office  
Reno, NV  
Thursday, April 11

CW3E AR Landfall Tool | GEFS

Model Run: 06Z Thu 11 Apr 2024



<----- Forecast Day from 06Z on Thu 11 Apr 2024 ----->



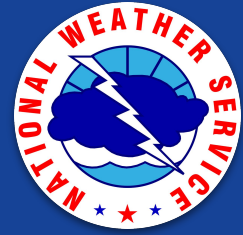
Probability of IVT  $\geq 250 \text{ kg m}^{-1} \text{ s}^{-1}$



Forecasts support FIRO/CA-AR Program and NSF #2052972 | Intended for research purposes only

**Another system for this weekend, nothing major on the horizon. Weak systems still possible.**

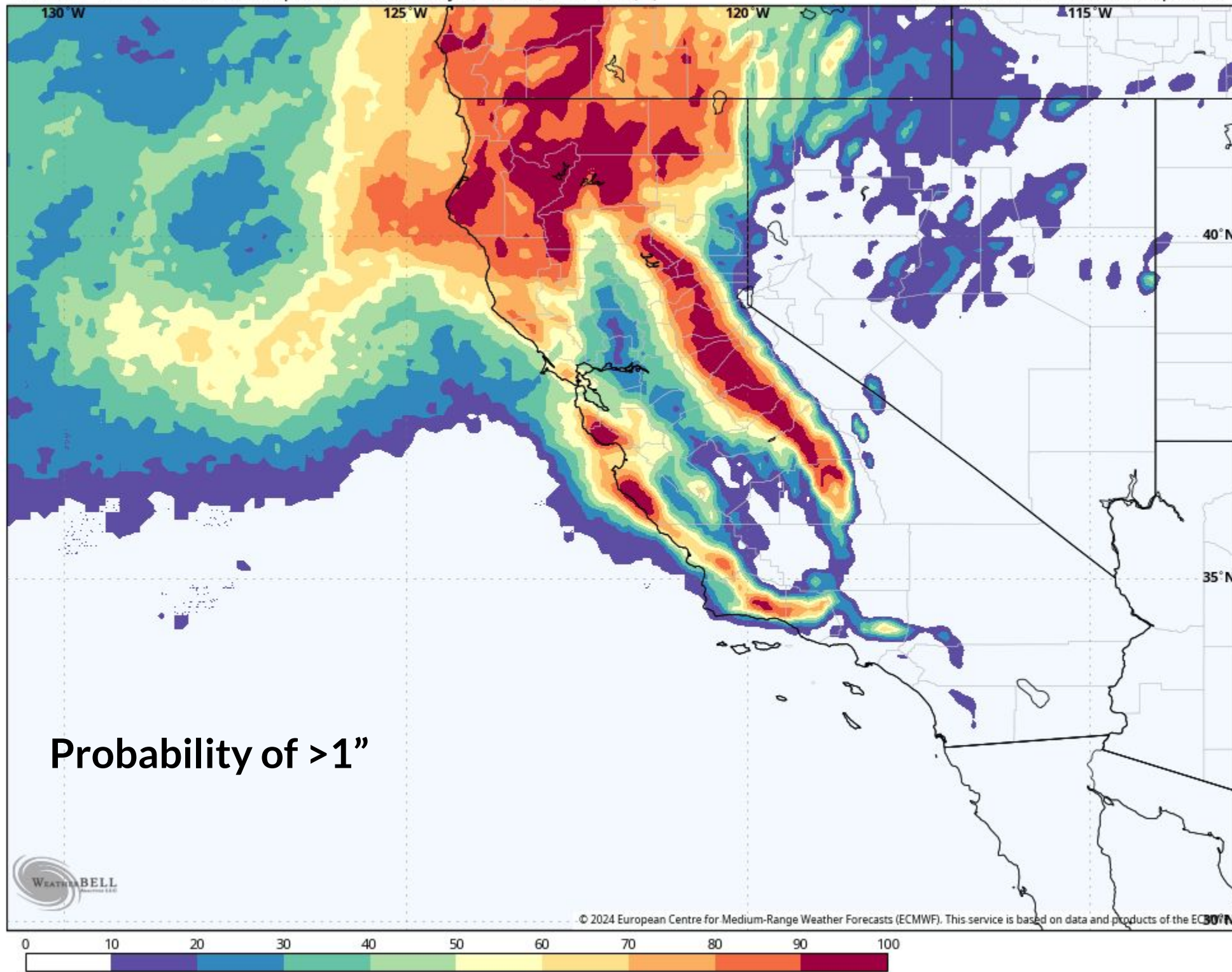




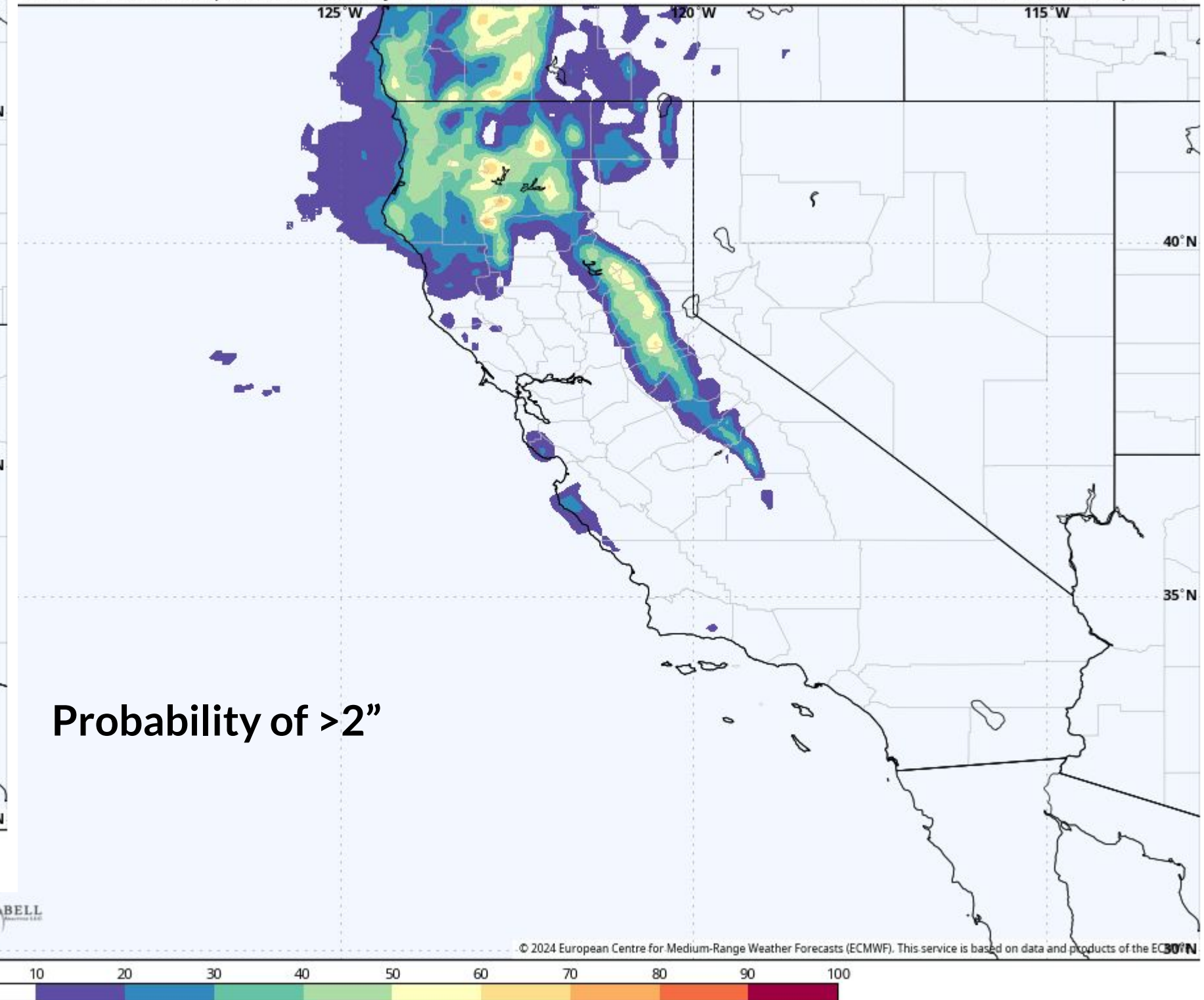
# 15 Day Precipitation Probabilities

Weather Forecast Office  
Sacramento, CA  
Tuesday, May 3

ECMWF Ens 0.1° Init 00z 11 Apr 2024 • Probability of Total QPF ≥ 1 in. (%) Hour: 360 • Valid: 00z Fri 26 Apr 2024



Ens 0.1° Init 00z 11 Apr 2024 • Probability of Total QPF ≥ 2 in. (%) Hour: 360 • Valid: 00z Fri 26 Apr 2024



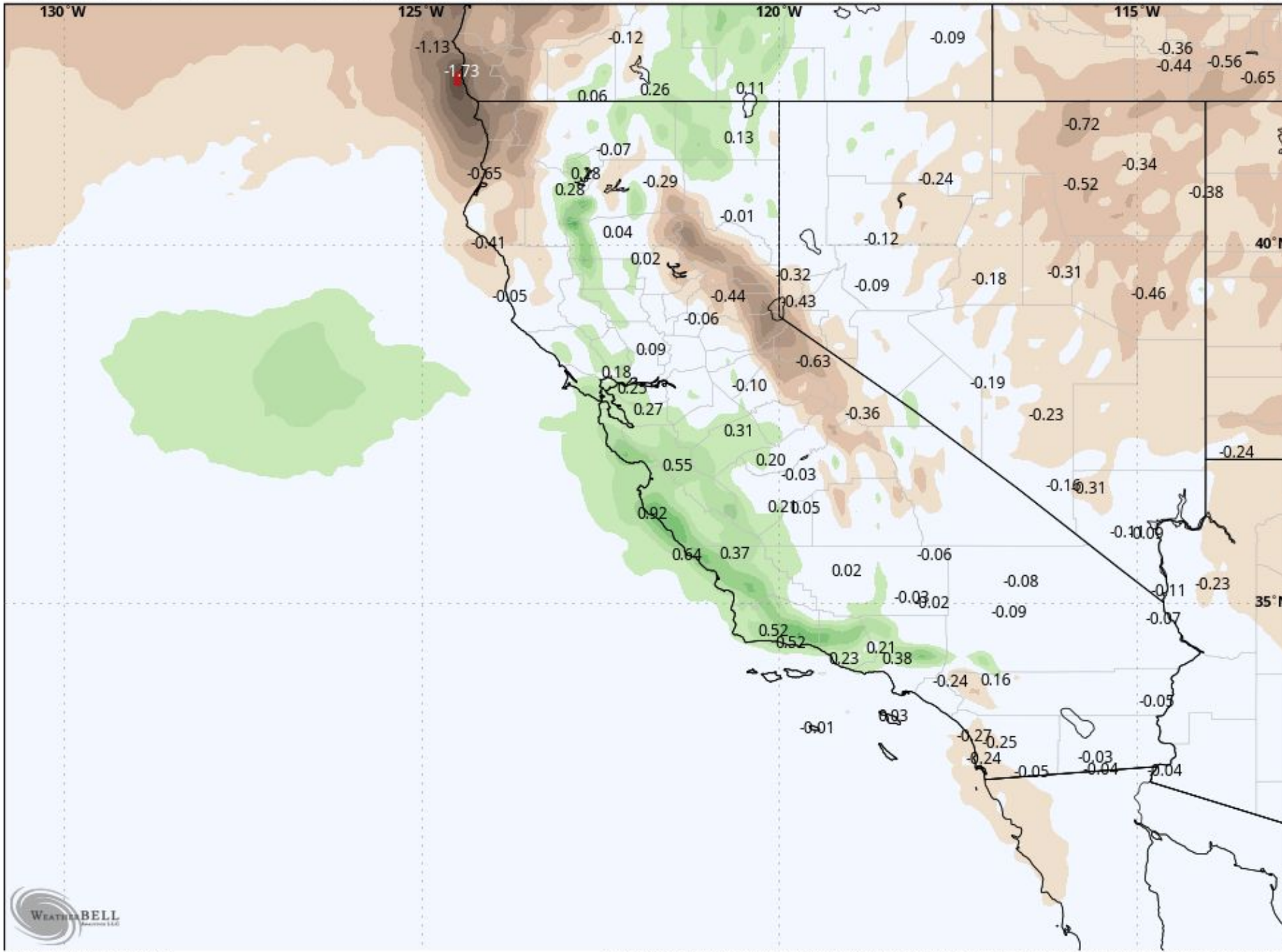




# Ensemble Precipitation Anomalies

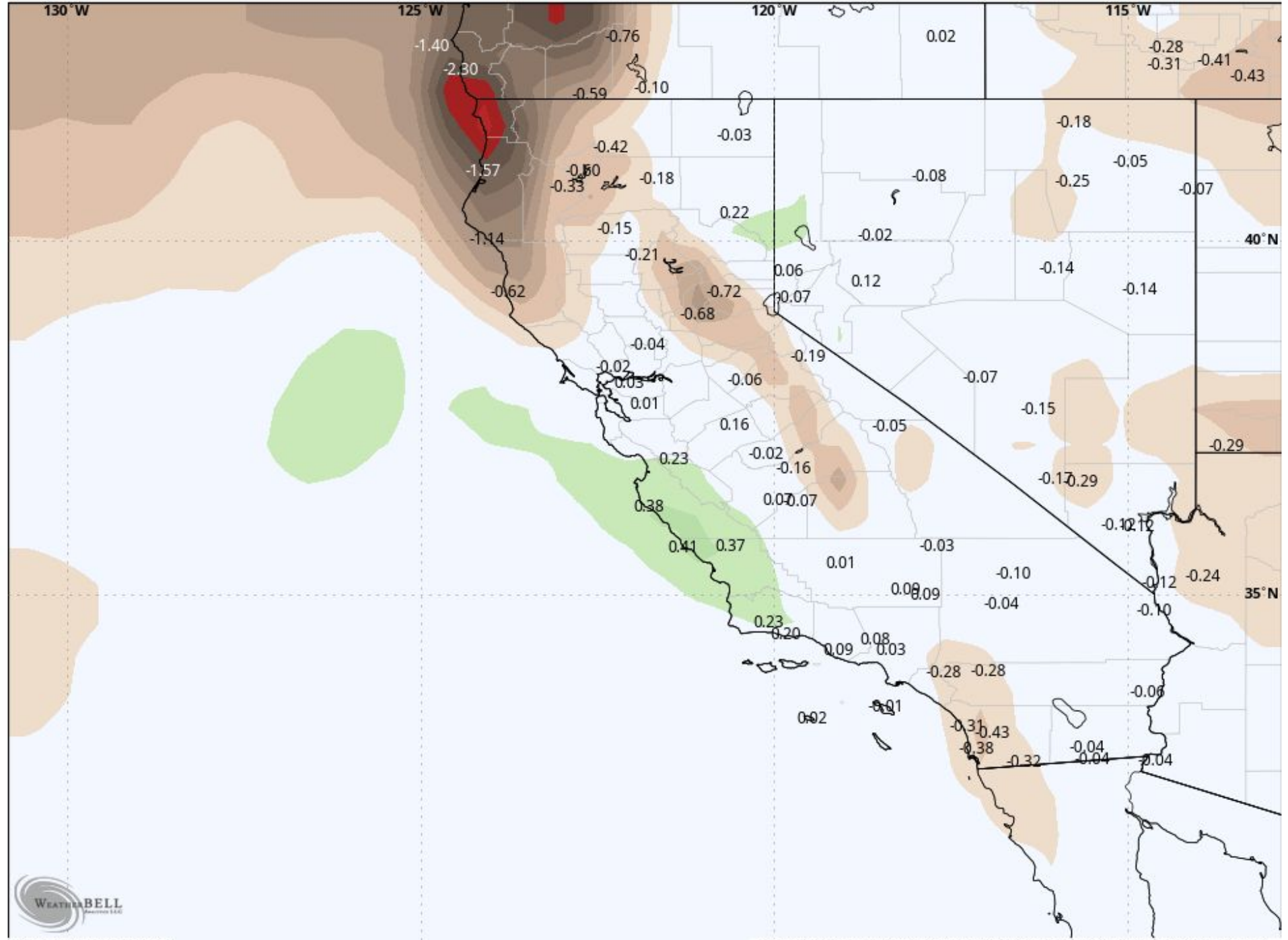
Weather Forecast Office  
Reno, NV  
Thursday, April 11

ECMWF Ens [M] 0.1° Init 00z 11 Apr 2024 • QPF 15-Day Anomaly (Inches) Hour: 360 • Valid: 00z Fri 26 Apr 2024



Max: 1.10 • Min: -1.85

GFS Ens [M] 0.5° Init 06z 11 Apr 2024 • QPF 16-Day Anomaly (Inches) Hour: 384 • Valid: 06z Sat 27 Apr 2024



Max: 0.46 • Min: -2.10





# Outlook Next Couple Weeks - 8 to 14 days

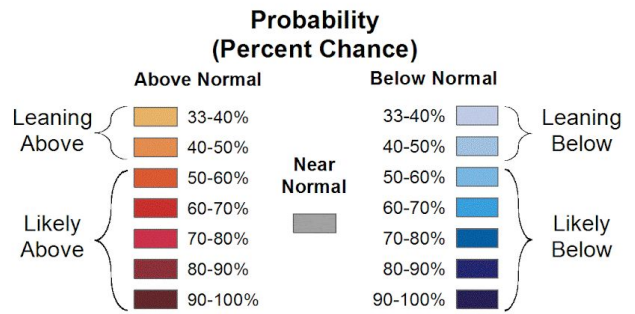
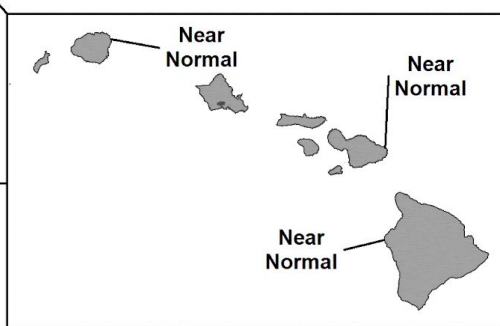
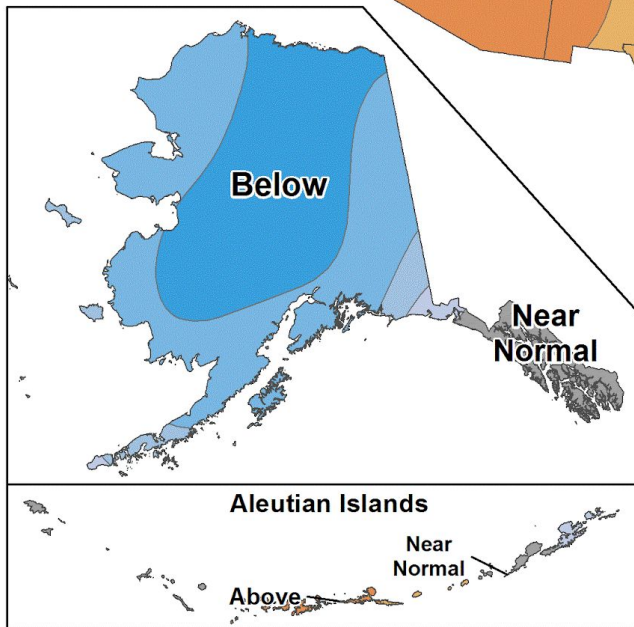
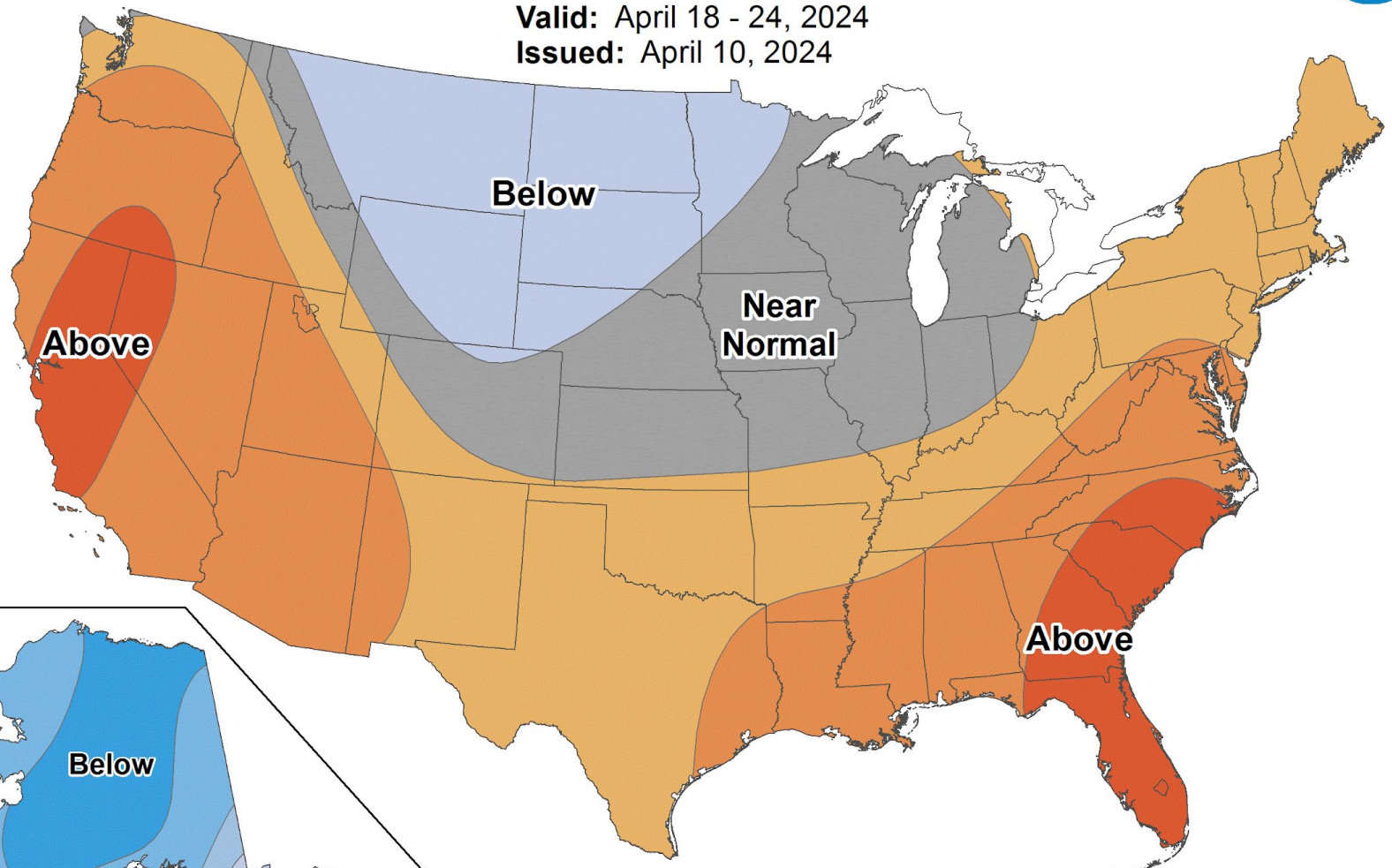
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Reno, NV  
Thursday, April 11



## 8-14 Day Temperature Outlook



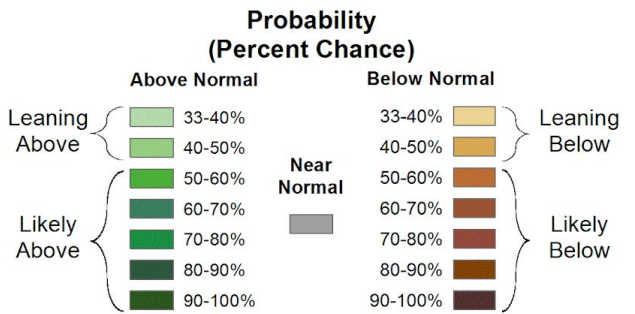
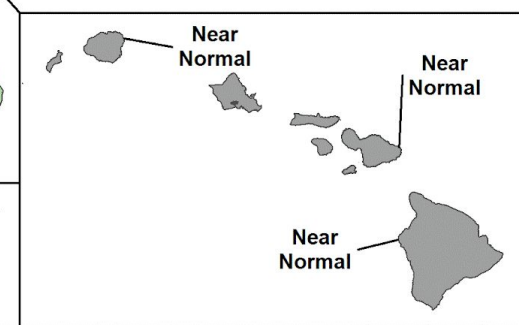
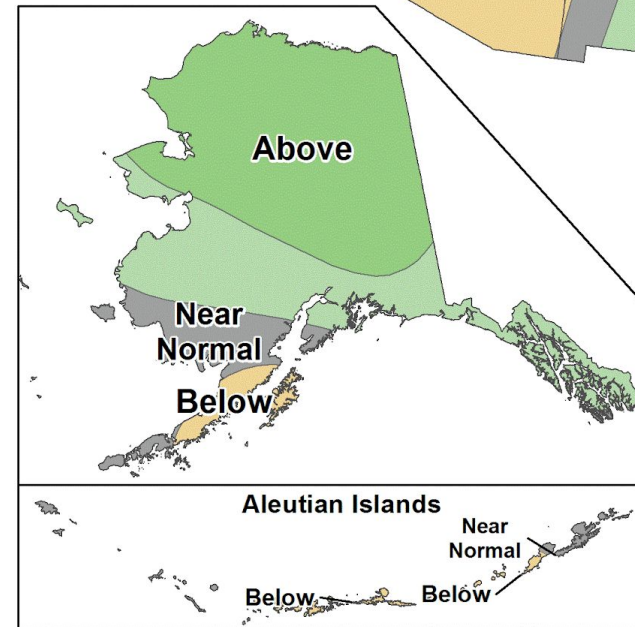
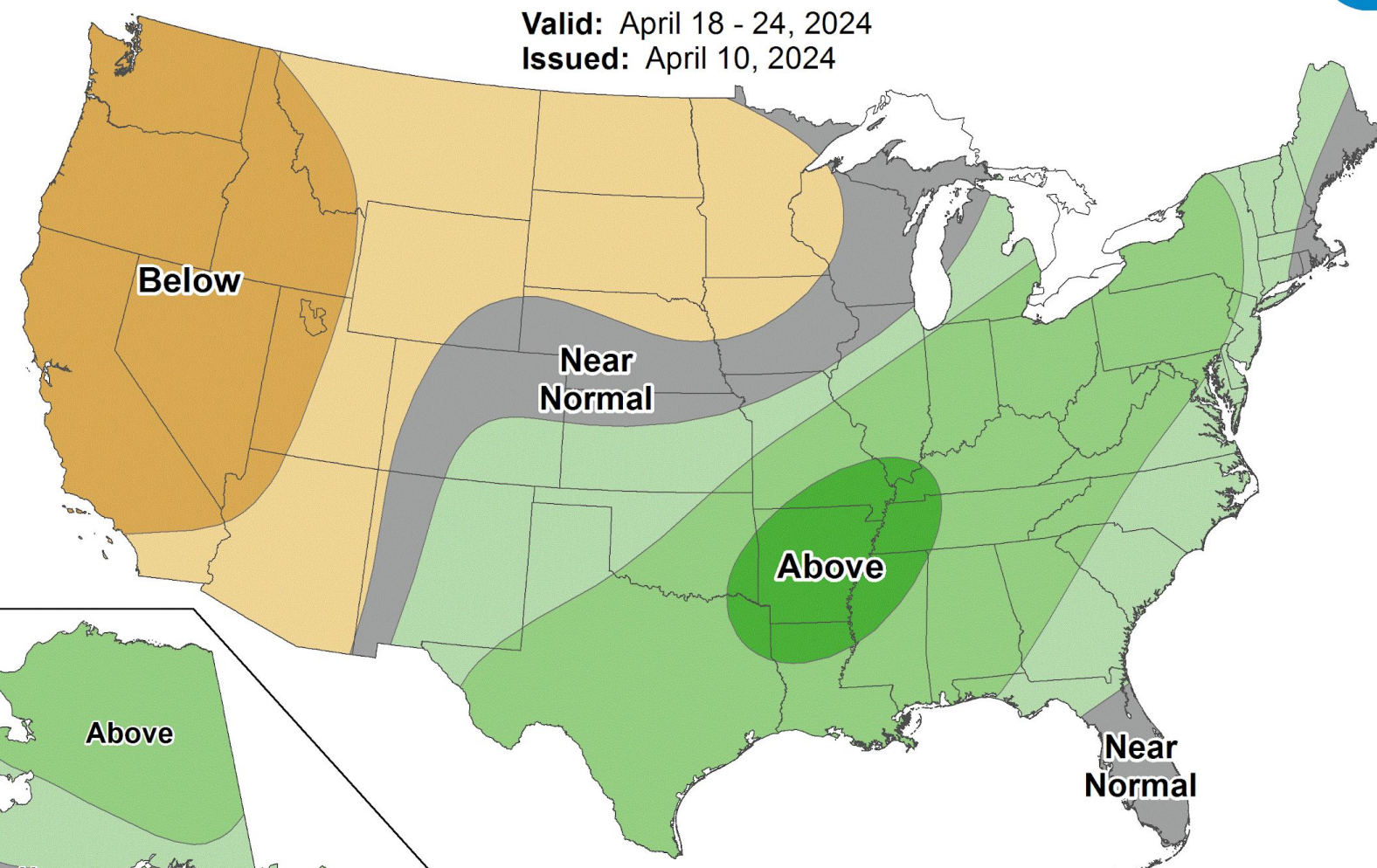
Valid: April 18 - 24, 2024  
Issued: April 10, 2024



## 8-14 Day Precipitation Outlook



Valid: April 18 - 24, 2024  
Issued: April 10, 2024







# CFS Weeklies - Looking Further Ahead 15-21 Days

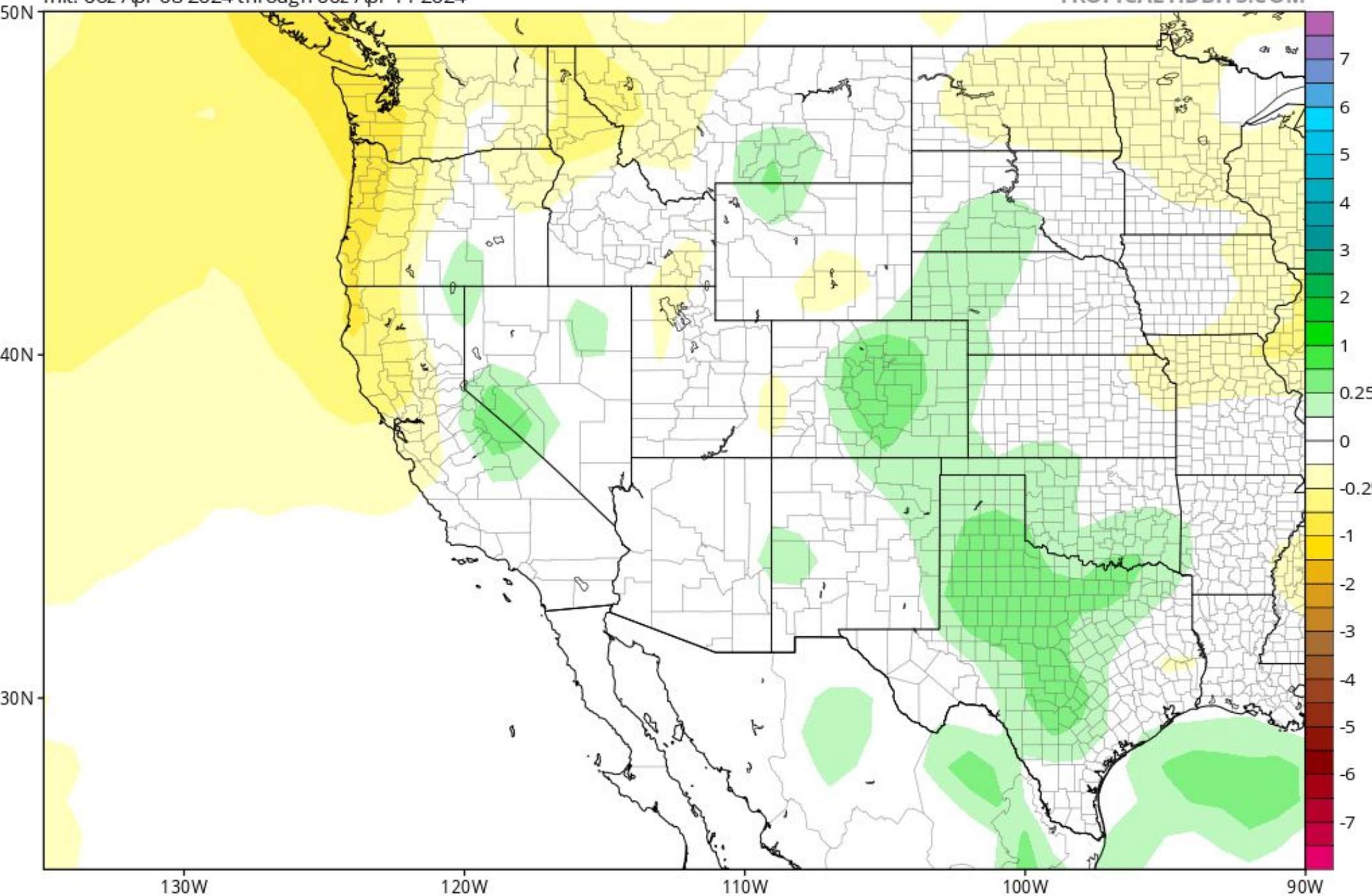
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Reno, NV  
Thursday, April 11

CFSv2 Accumulated Precip. Anomaly (in) from 00z25Apr2024 to 00z02May2024 (Days 15-21)

Average of last 48 forecasts (12 runs x 4 members)

Init: 06z Apr 08 2024 through 00z Apr 11 2024

TROPICALTIDBITS.COM

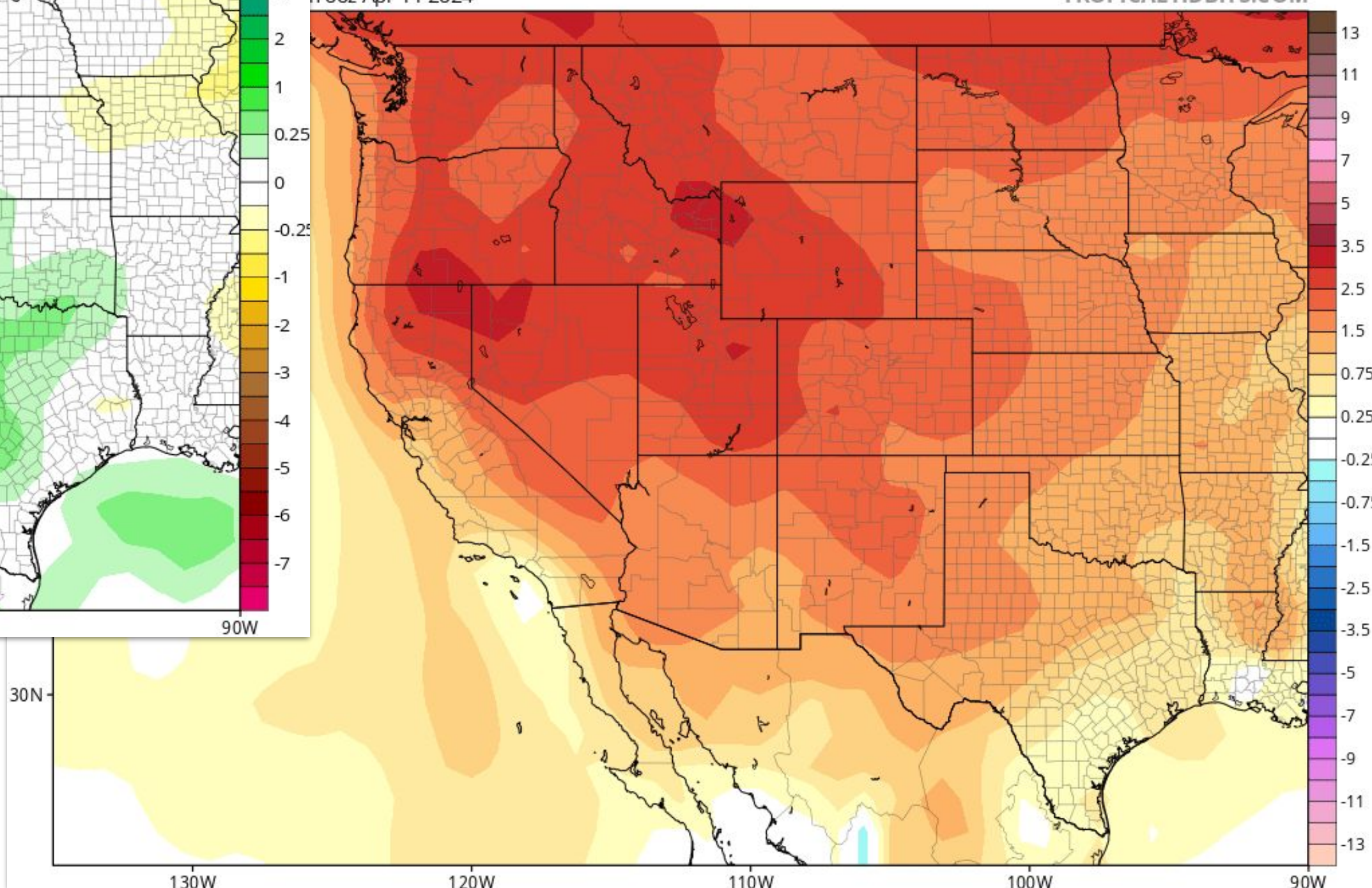


Temperature Anomaly (°C) from 00z25Apr2024 to 00z02May2024 (Days 15-21)

(12 runs x 4 members)

Init: 06z Apr 11 2024

TROPICALTIDBITS.COM







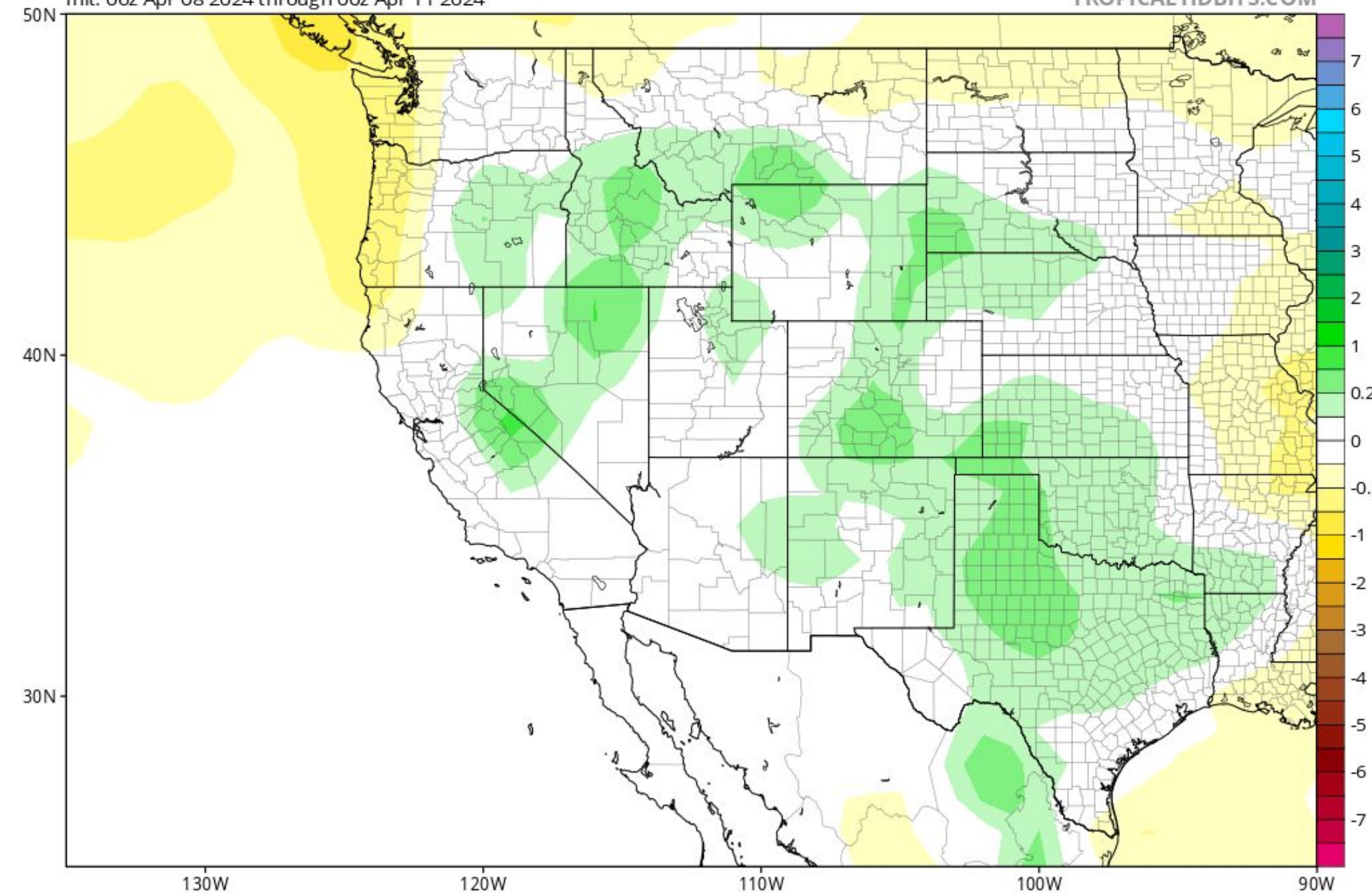
# CFS Weeklies - Looking Further Ahead 22-28 days

Weather Forecast Office  
Reno, NV  
Thursday, April 11

CFSv2 Accumulated Precip. Anomaly (in) from 00z02May2024 to 00z09May2024 (Days 22-28)

Average of last 48 forecasts (12 runs x 4 members)  
Init: 06z Apr 08 2024 through 00z Apr 11 2024

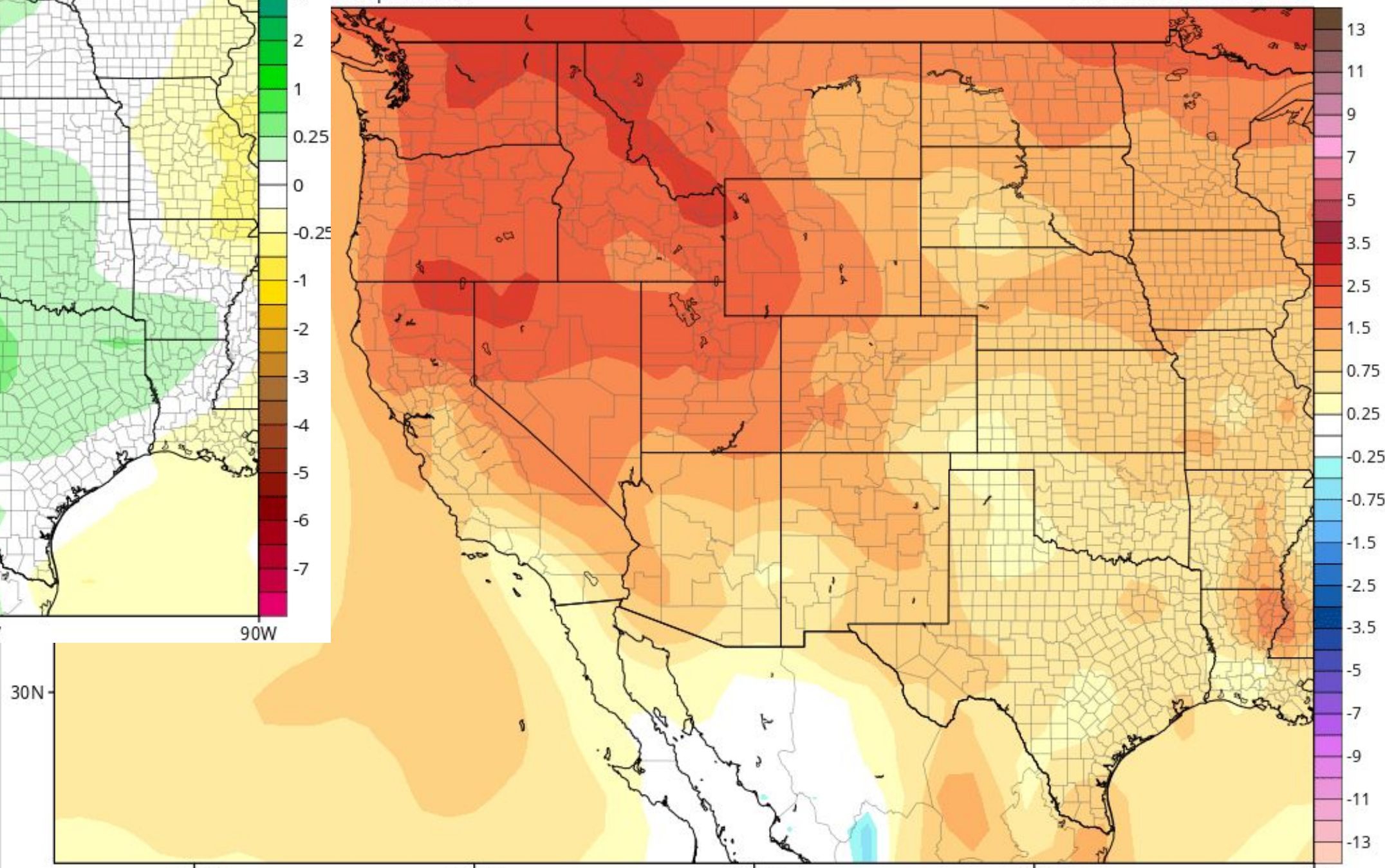
TROPICALTIDBITS.COM



Temperature Anomaly (°C) from 00z30Apr2024 to 00z07May2024 (Days 22-28)

Average of last 48 forecasts (12 runs x 4 members)  
Init: 00z Apr 09 2024

TROPICALTIDBITS.COM







# CFS Weeklies - Looking Further Ahead 29-35 days

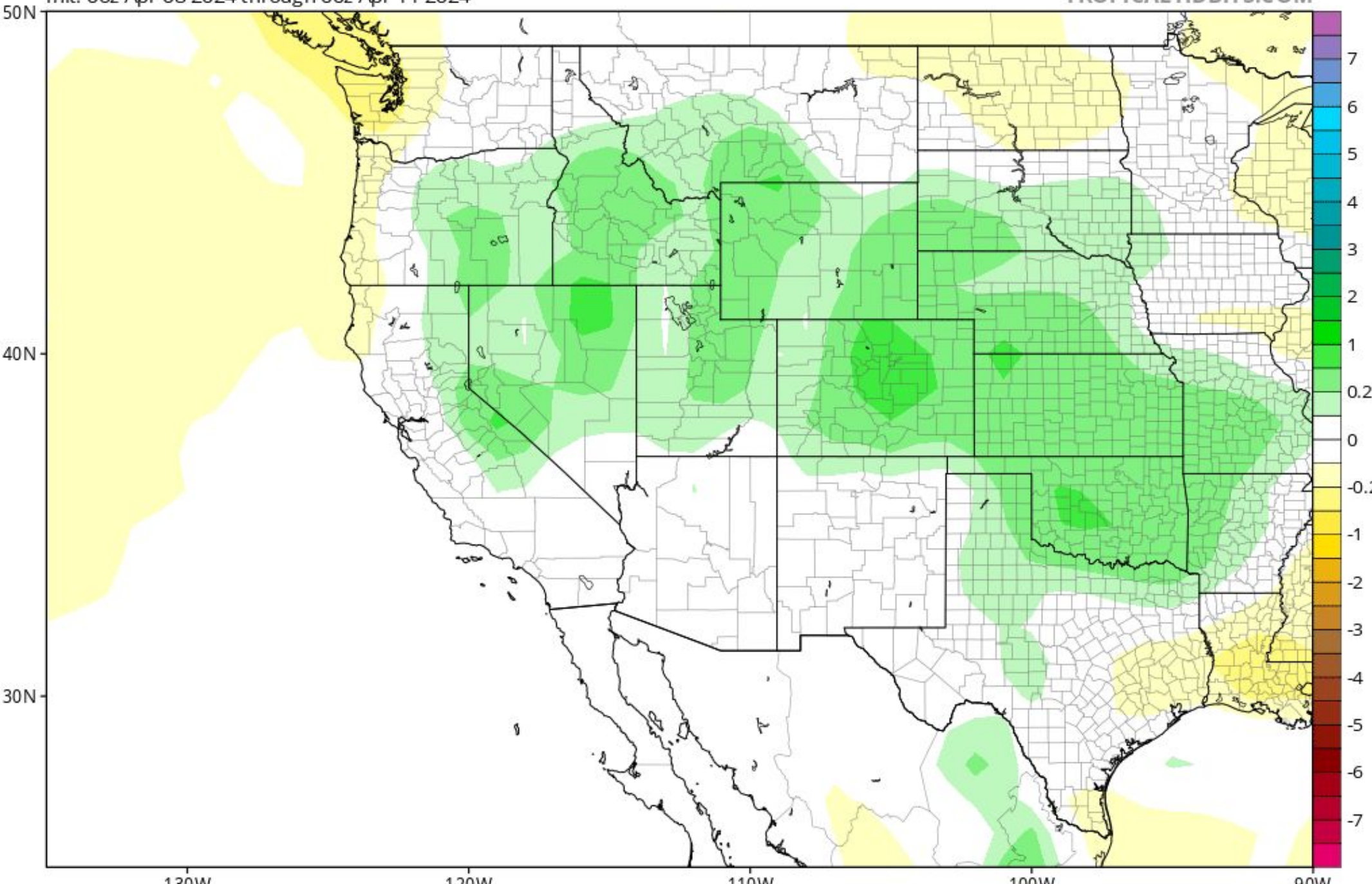
Weather Forecast Office  
Reno, NV  
Thursday, April 11

CFSv2 Accumulated Precip. Anomaly (in) from 00z09May2024 to 00z16May2024 (Days 29-35)

Average of last 48 forecasts (12 runs x 4 members)

Init: 06z Apr 08 2024 through 00z Apr 11 2024

TROPICALTIDBITS.COM

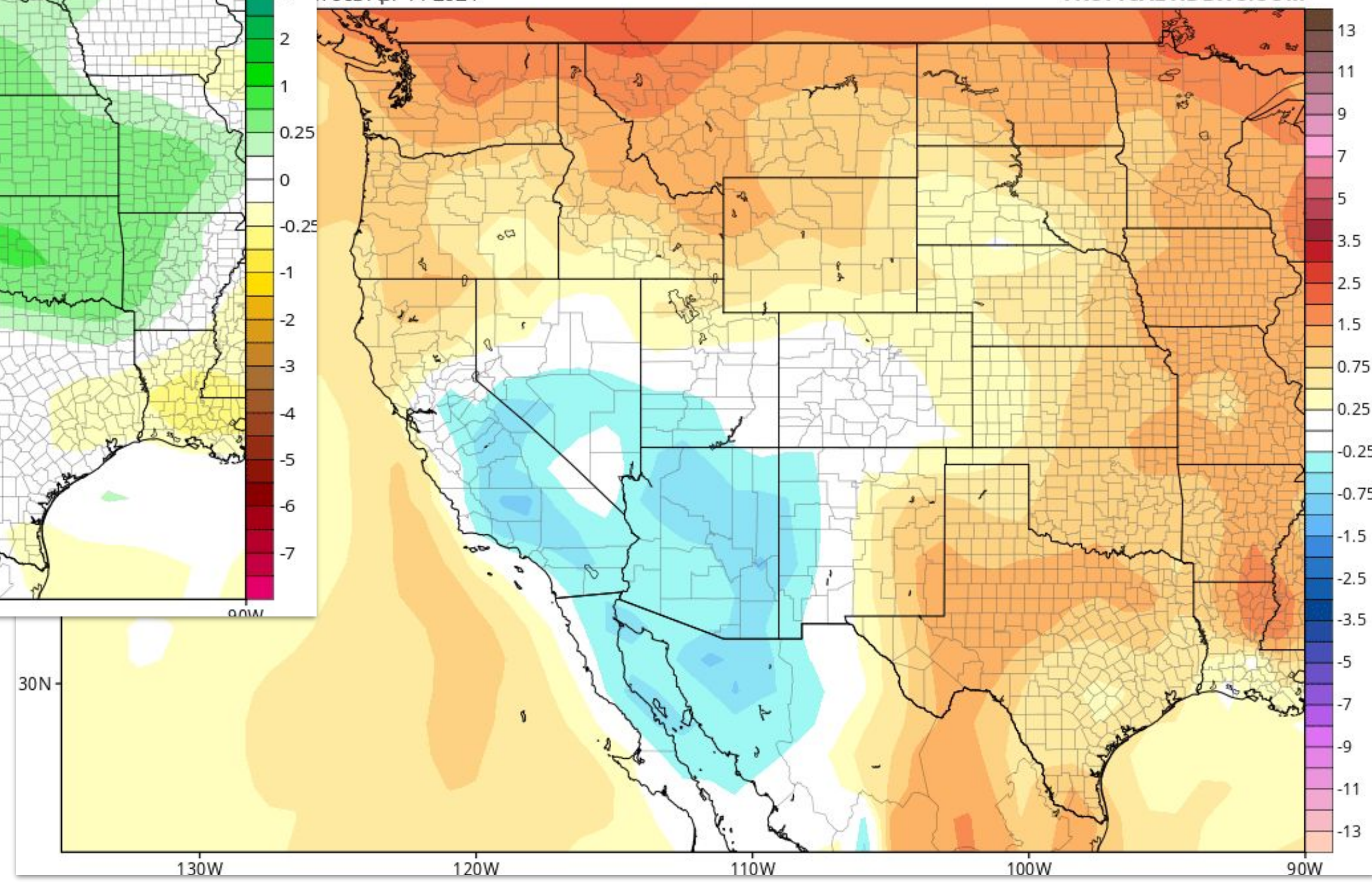


Temperature Anomaly (°C) from 00z09May2024 to 00z16May2024 (Days 29-35)

(12 runs x 4 members)

Init: 06z Apr 11 2024

TROPICALTIDBITS.COM



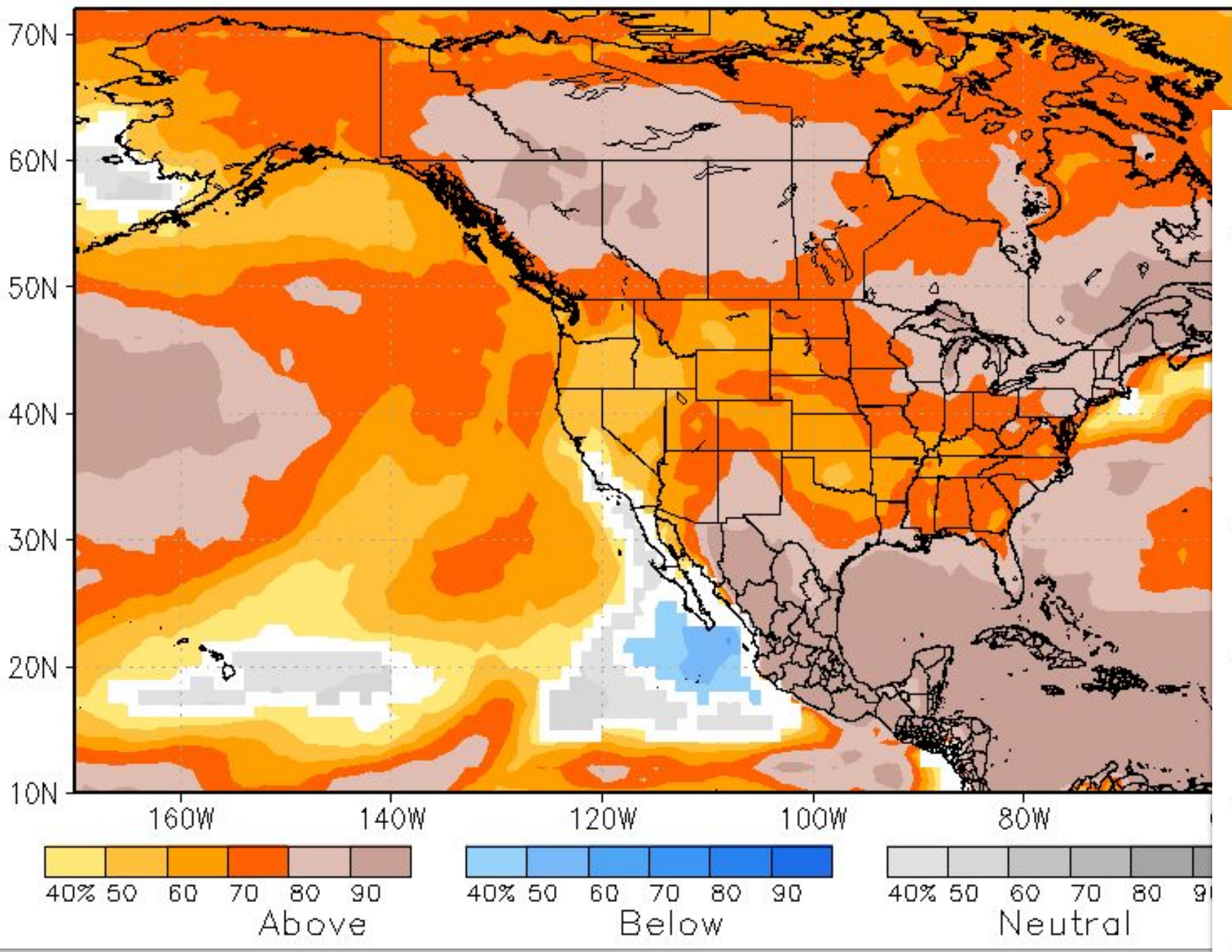




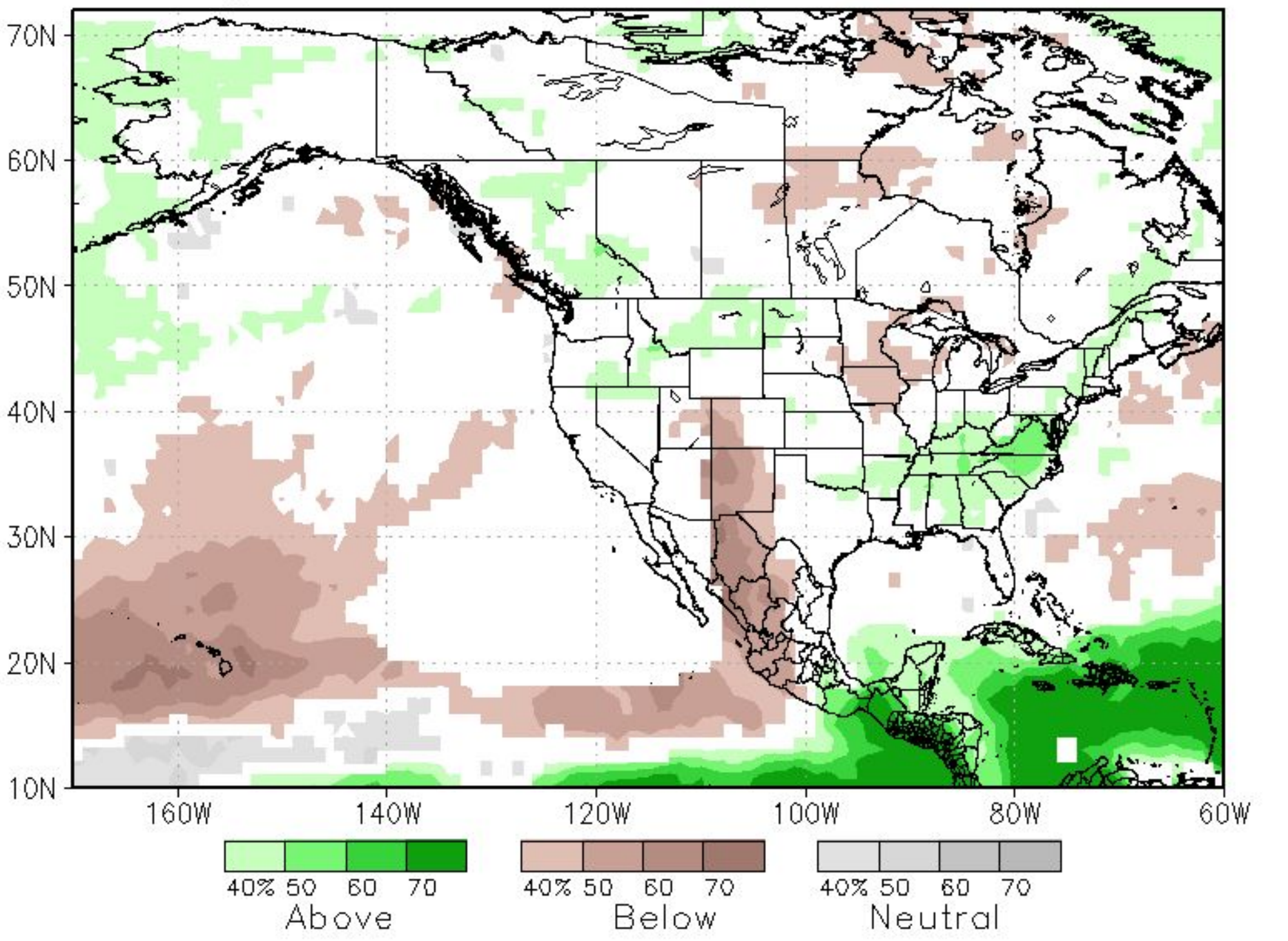
# Outlook for May-June-July

Weather Forecast Office  
Reno, NV  
Thursday, April 11

NMME prob fcst TMP2m IC=202404 for lead 1 2024 MJJ



NMME prob fcst Prate IC=202404 for lead 1 2024 MJJ



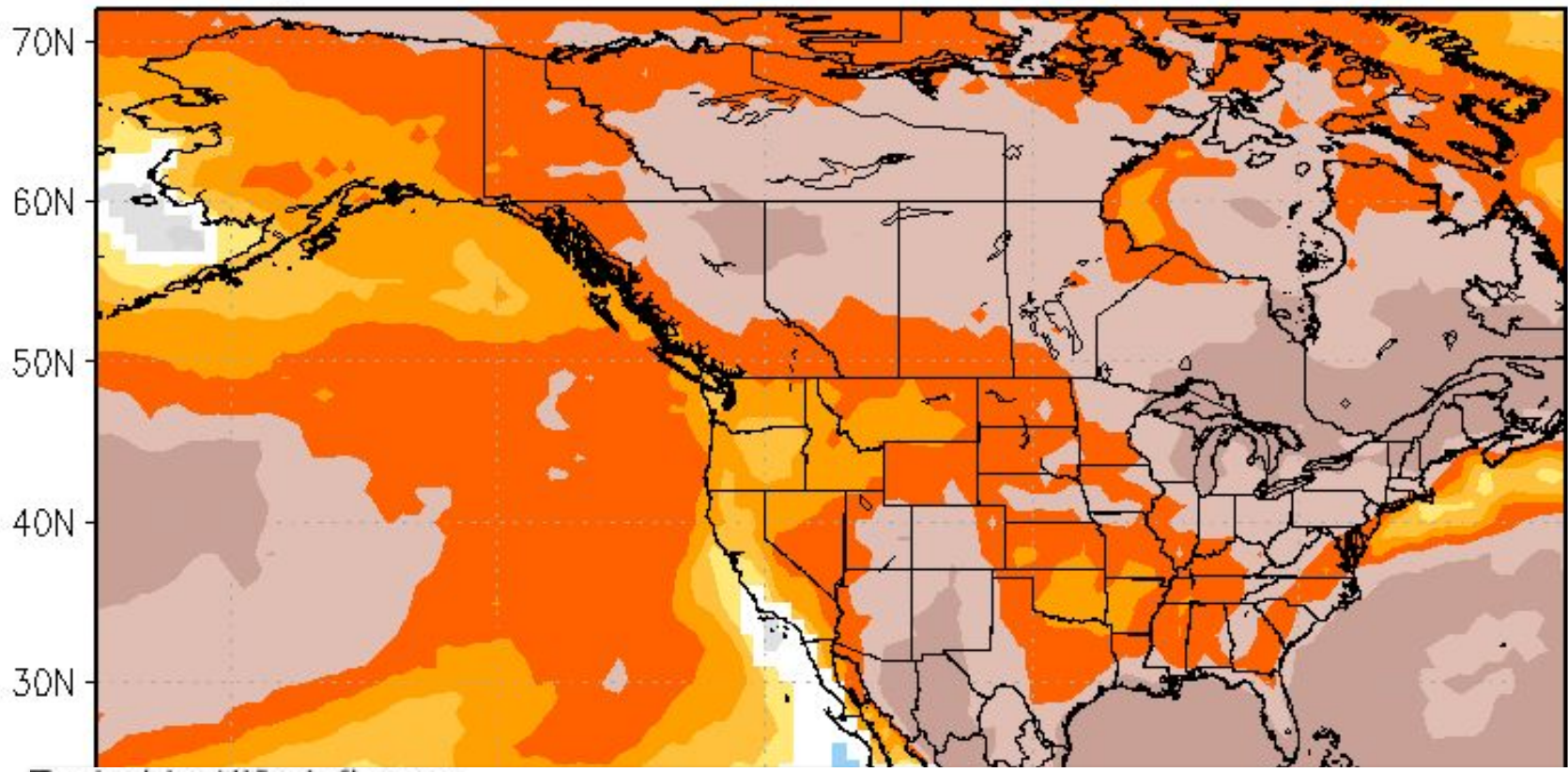




# Outlook for June-July-August

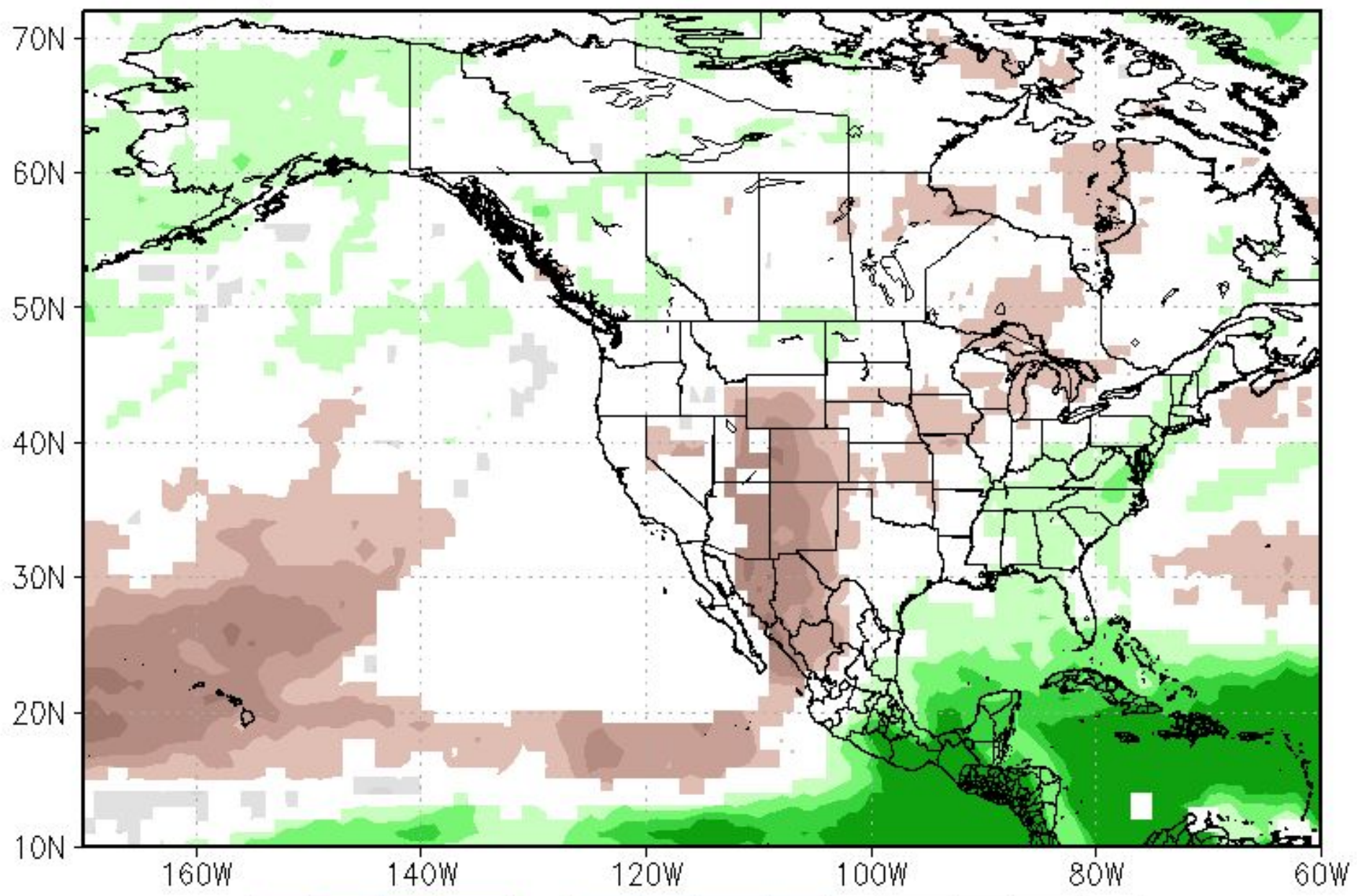
Weather Forecast Office  
Reno, NV  
Thursday, April 11

NMME prob fcst TMP2m IC=202404 for lead 2 2024 JJA

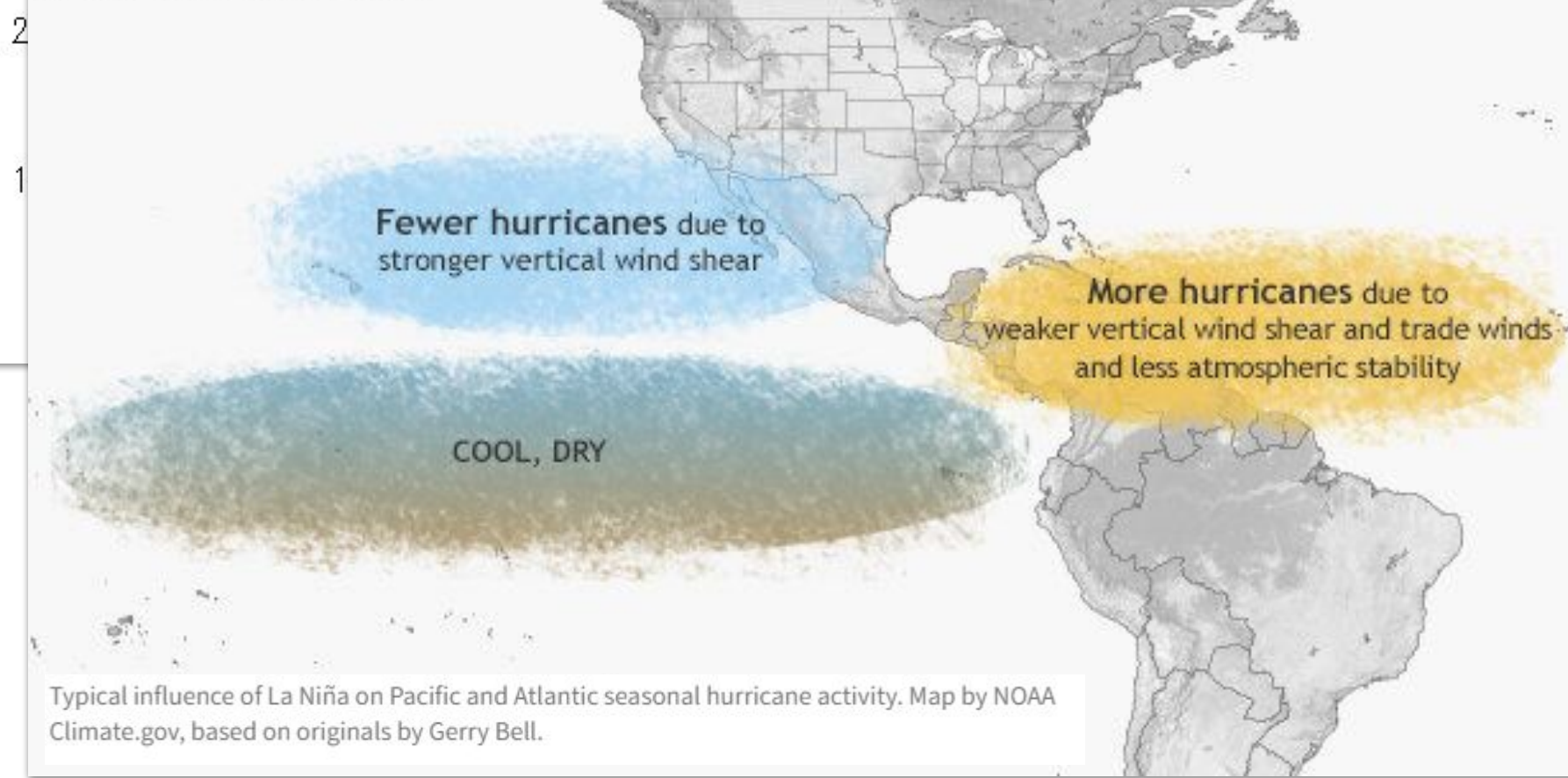


## The big question mark - how will La Niña affect the monsoon?

NMME prob fcst Prate IC=202404 for lead 2 2024 JJA



Typical La Niña influence



Typical influence of La Niña on Pacific and Atlantic seasonal hurricane activity. Map by NOAA Climate.gov, based on originals by Gerry Bell.



# Competing Factors for Great Basin Fire Activity



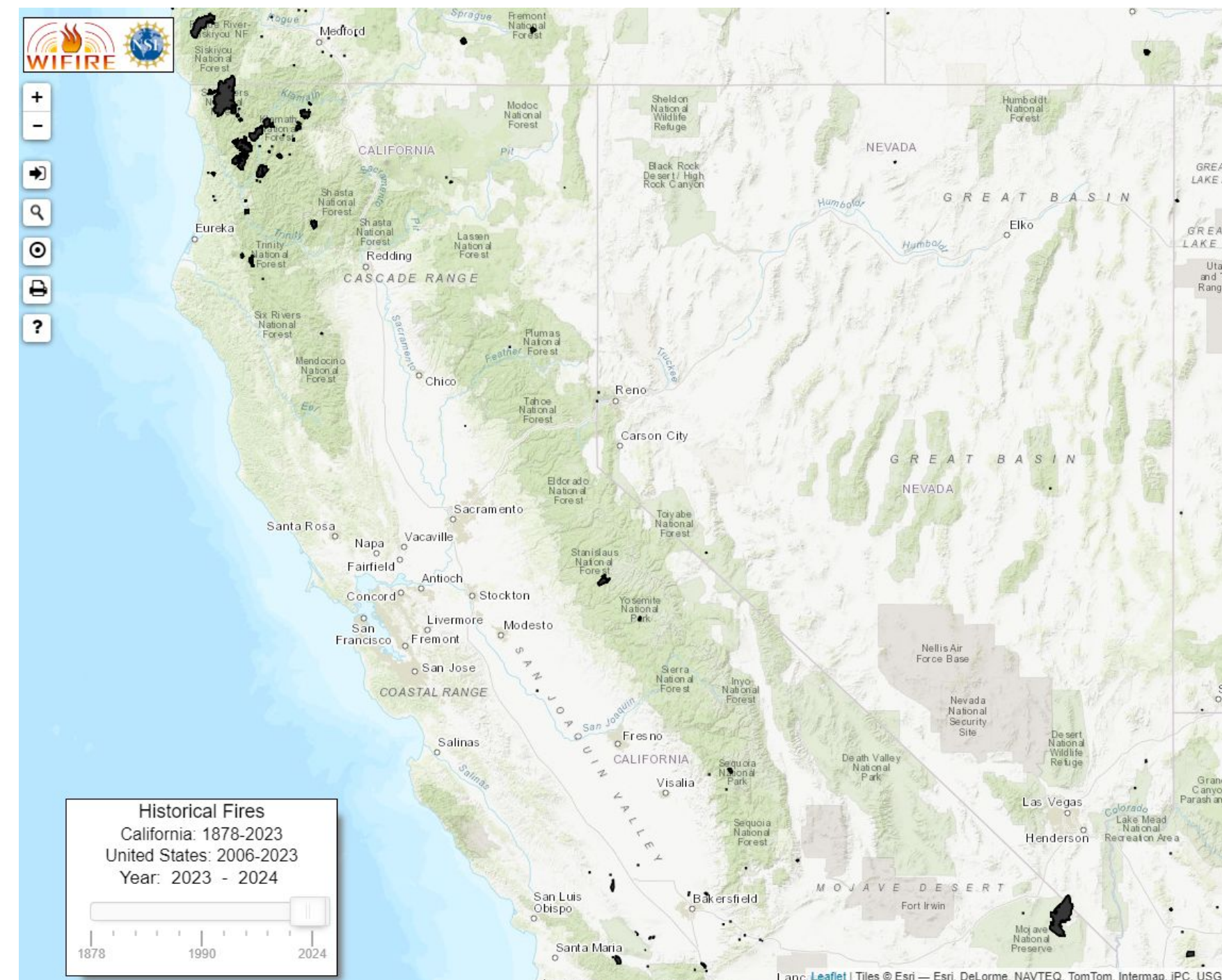
**Lots of carryover fine fuels from 2023  
+ a decent crop expected this year.**



**But, heavy snows can compact them  
lessening the surface area to burn.**



Mosquito Fire "Smoke Tsunami" Sept 2022



- Almost certain to have more fire activity compared to 2023!
- Great Basin: back to back wet years favor plentiful fuel growth, so leaning near to above normal on fire activity.
- Sierra: average snowpack + carryover moisture from 2023 - leaning near to below normal. Unusually hot summer could change that.
- Delayed start to fire season in areas with above normal snowpack.

**2023: a historically quiet  
fire season for CA & NV**





# Official Predictive Services Outlook

Weather Forecast Office  
Reno, NV  
Thursday, April 11

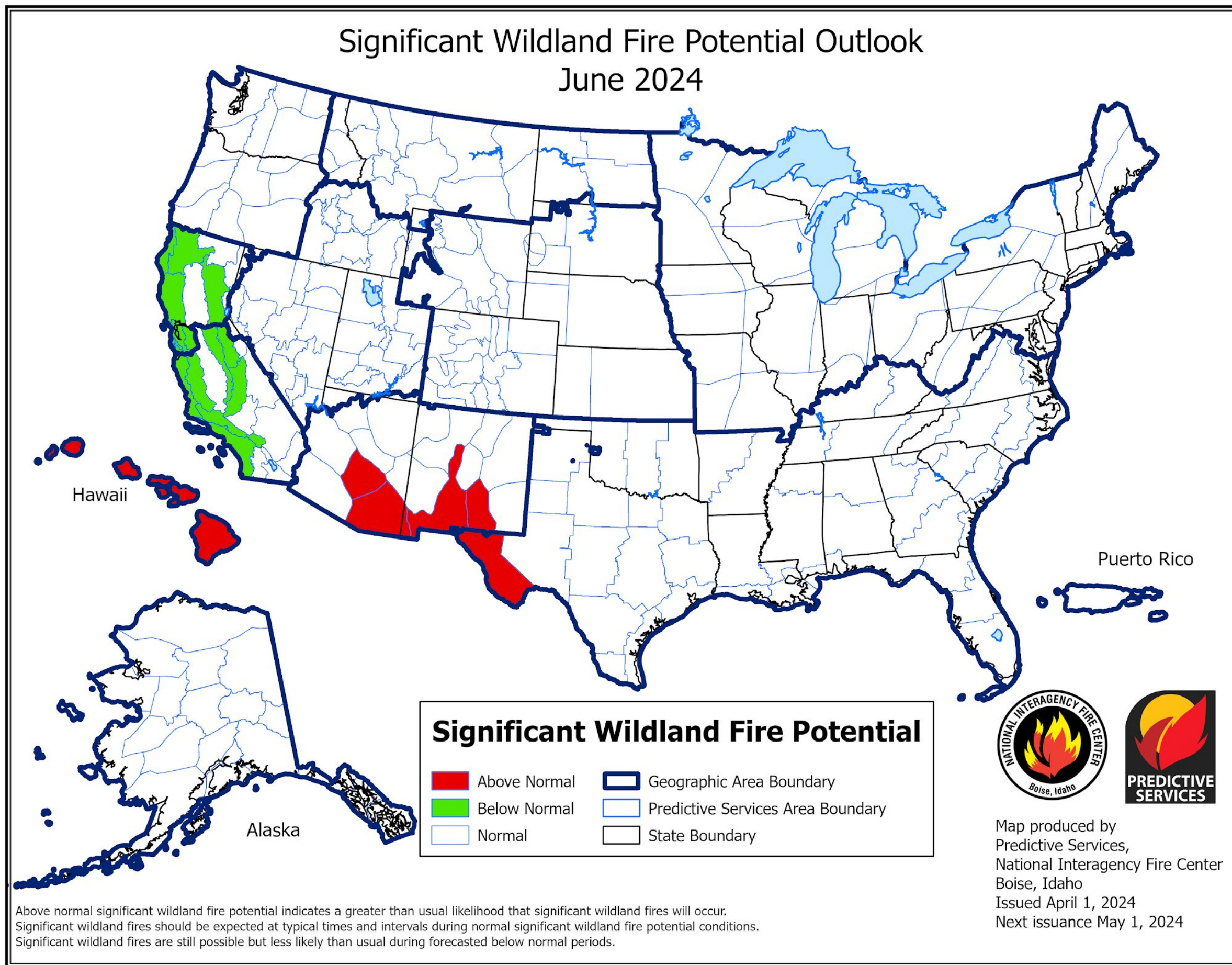






# Official Predictive Services Outlook

Weather Forecast Office  
Reno, NV  
Thursday, April 11

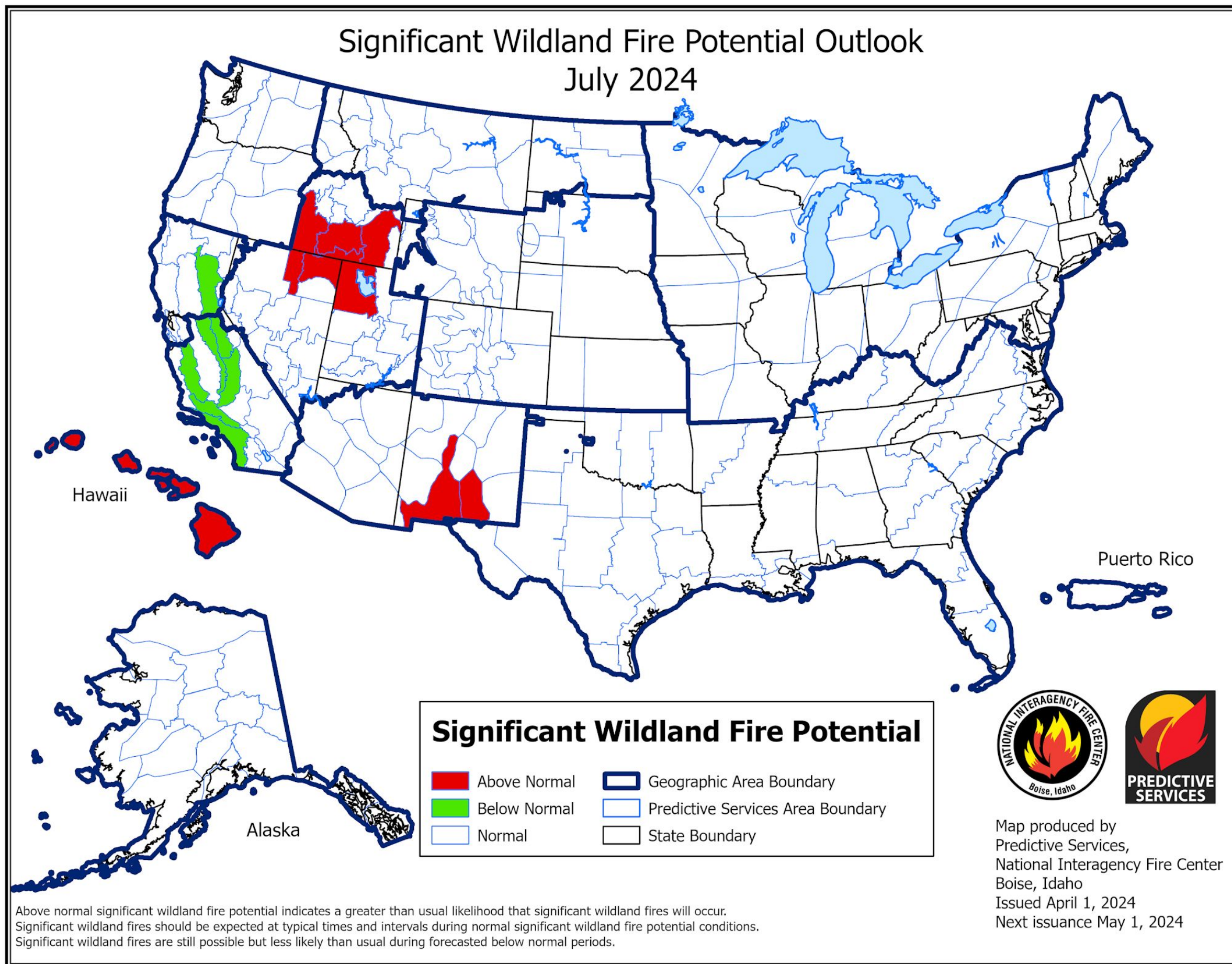




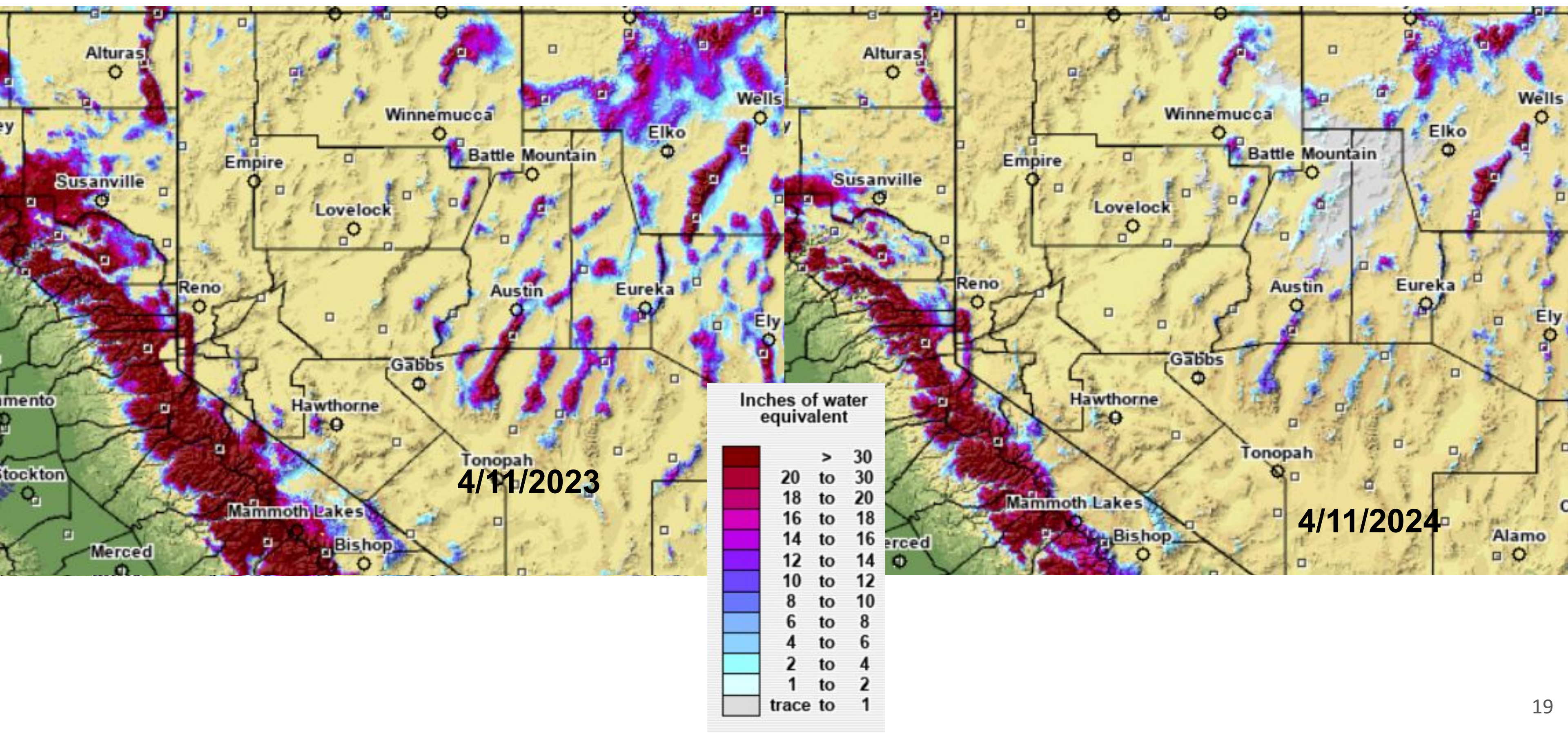


# Official Predictive Services Outlook

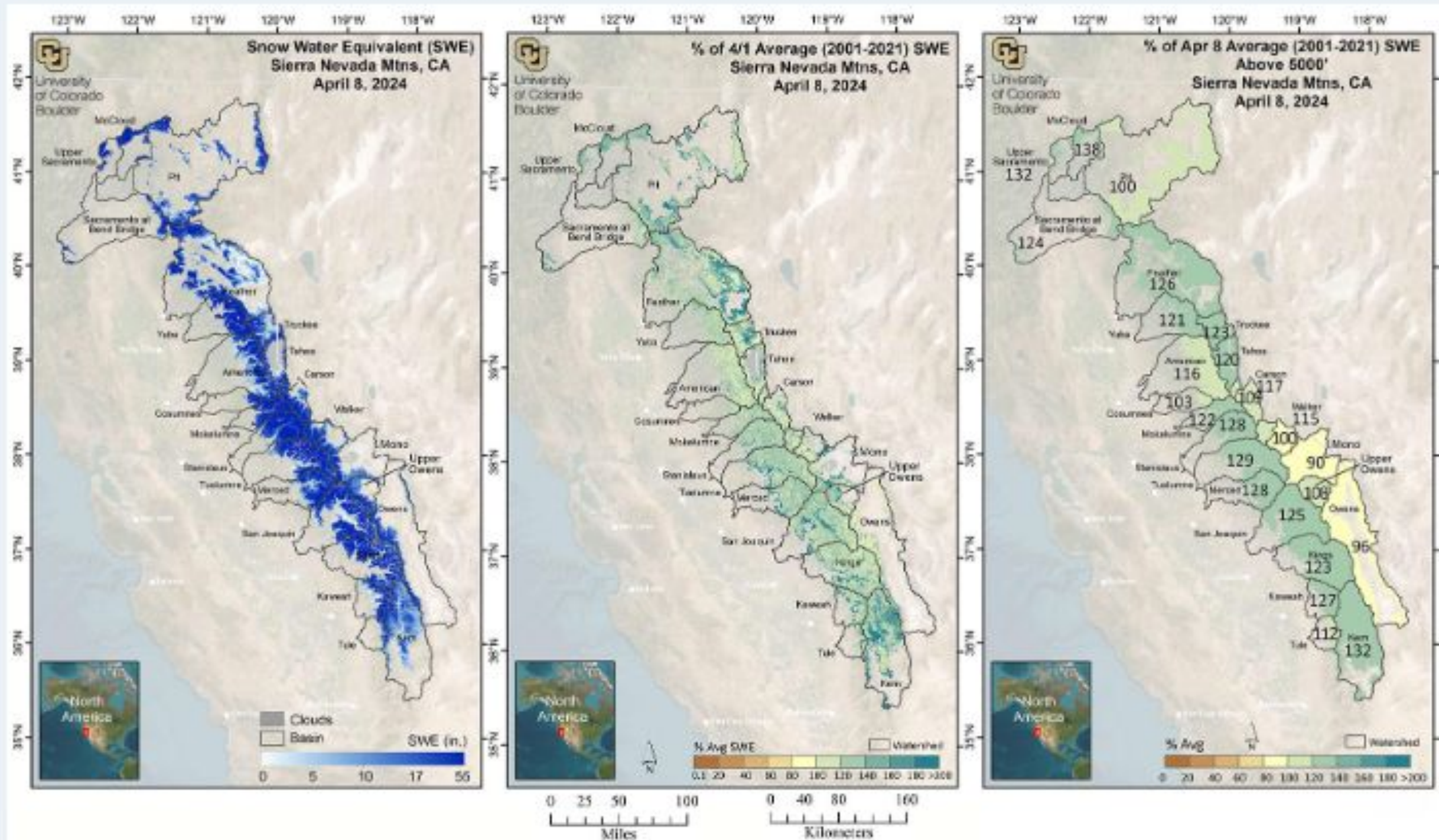
Weather Forecast Office  
Reno, NV  
Thursday, April 11











See full report [Here.](#)

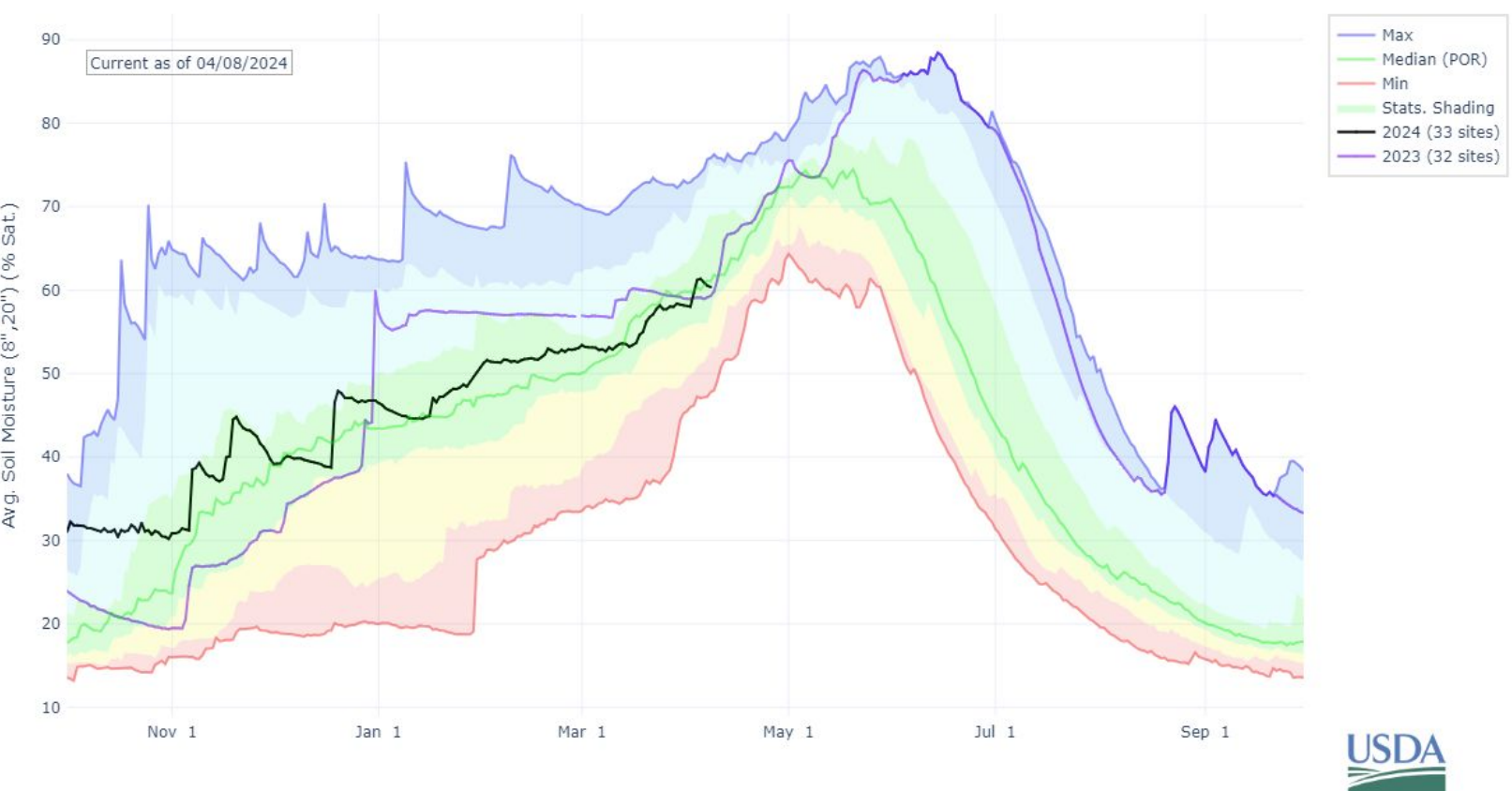
**Figure 1. Estimated SWE and % of Average SWE across the Sierra Nevada.** SWE amounts for April 8, 2024 (left), and percent of average (2001-2021) SWE for April 8, 2024 for the Sierra Nevada, calculated for each pixel (middle) and basin-wide (right). Basin-wide percent of average is calculated across all model pixels >5000' elevation.



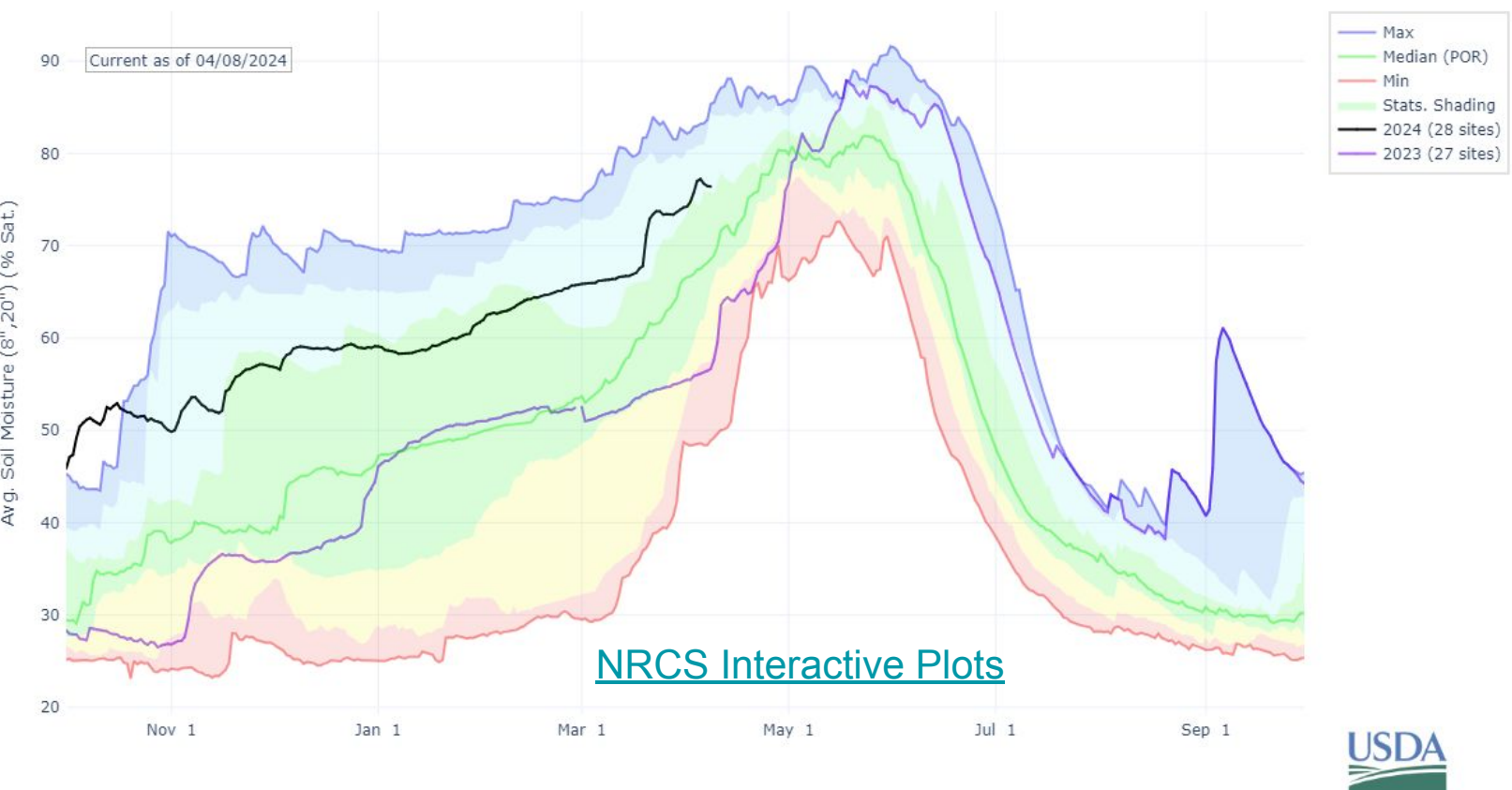


# Soil Moisture

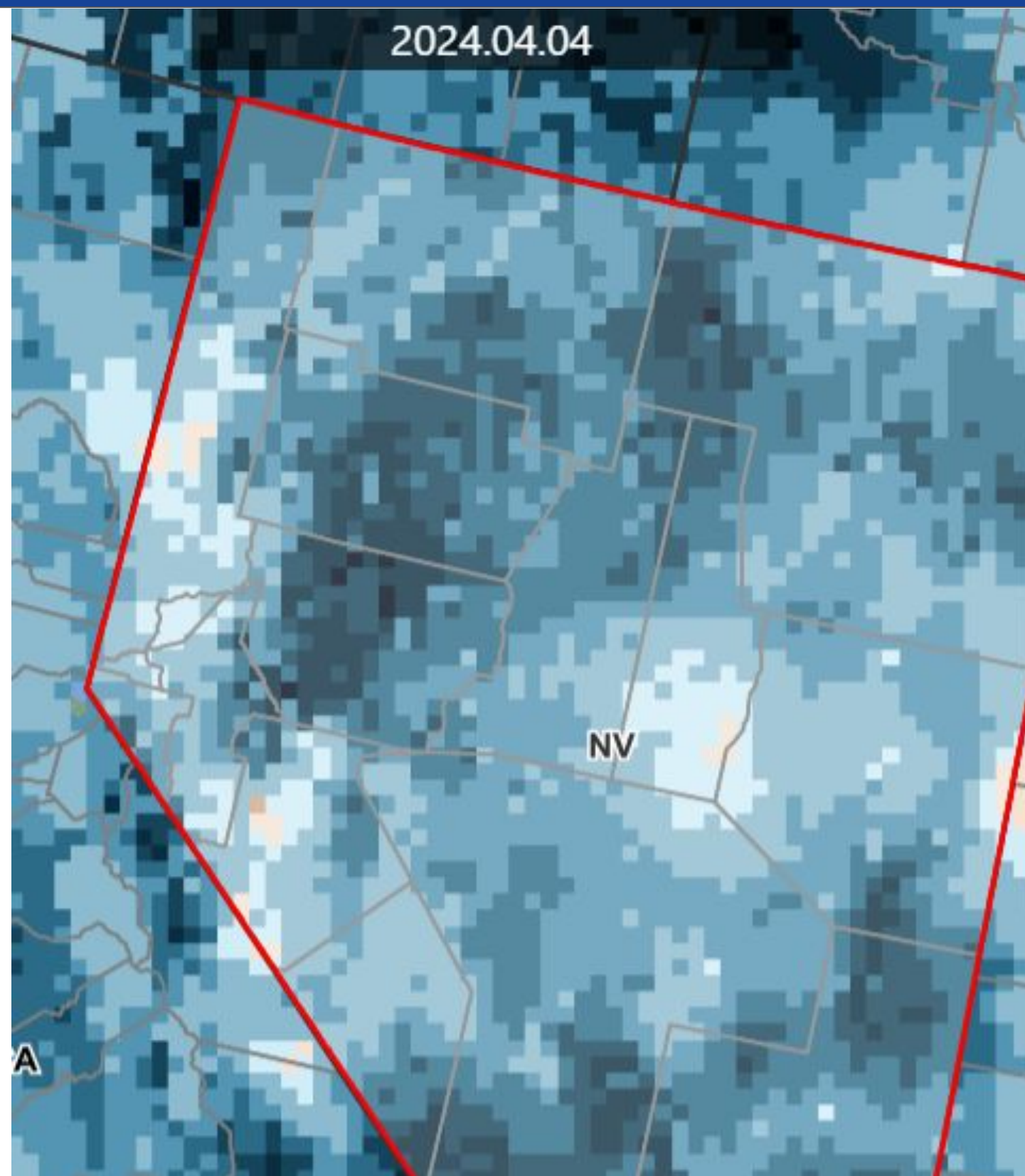
AVG. SOIL MOISTURE (8",20") IN EASTERN SIERRA



AVG. SOIL MOISTURE (8",20") IN HUMBOLDT ABOVE IMLAY



[NRCS Interactive Plots](#)



[USDA Crop-CASMA](#)

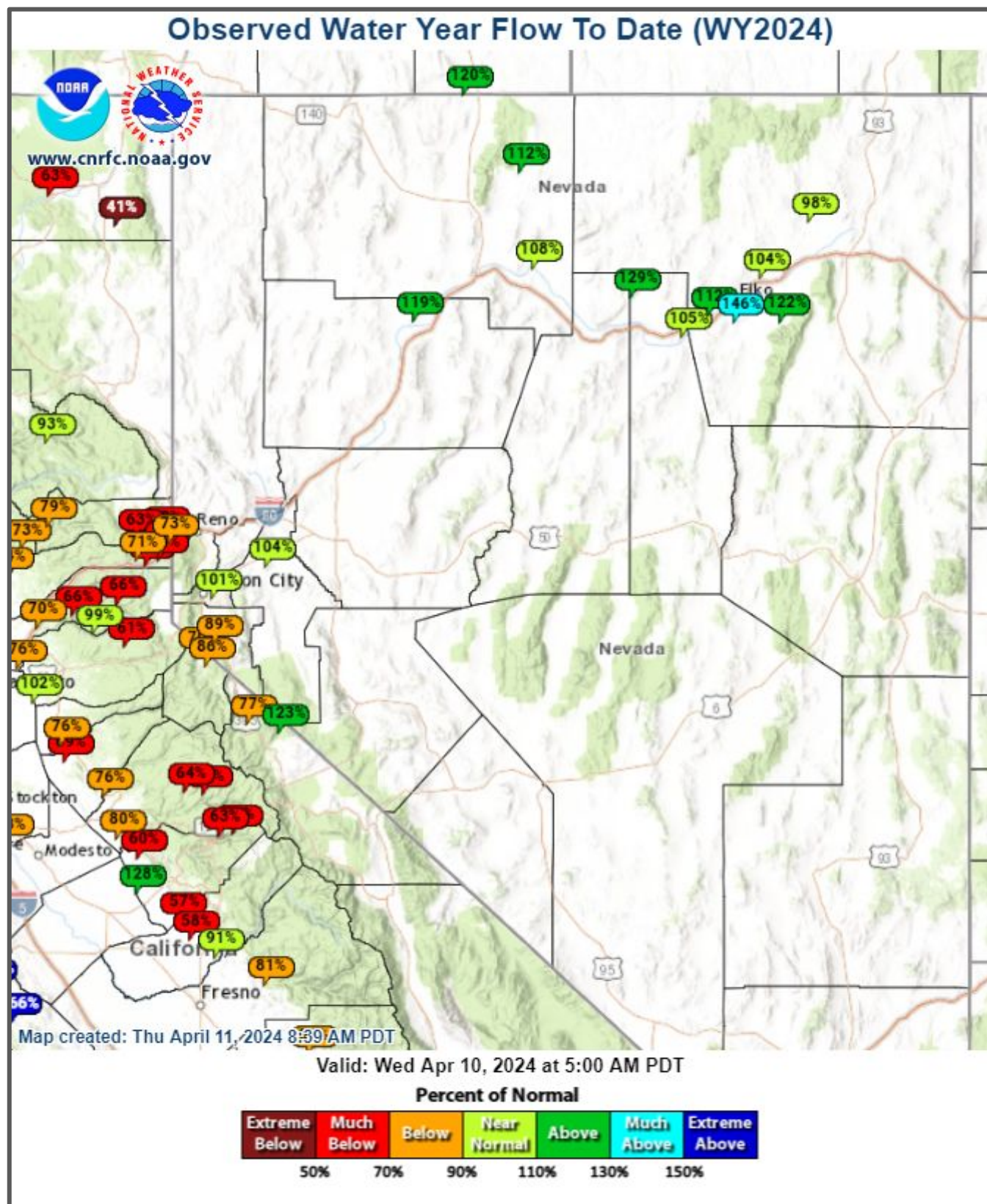
- <-70%
- 70%~-50%
- 50%~-40%
- 40%~-30%
- 30%~-20%
- 20%~-10%
- 10%~0%
- 0%
- 0%~10%
- 10%~20%
- 20%~30%
- 30%~40%
- 40%~50%
- 50%~70%
- >70%



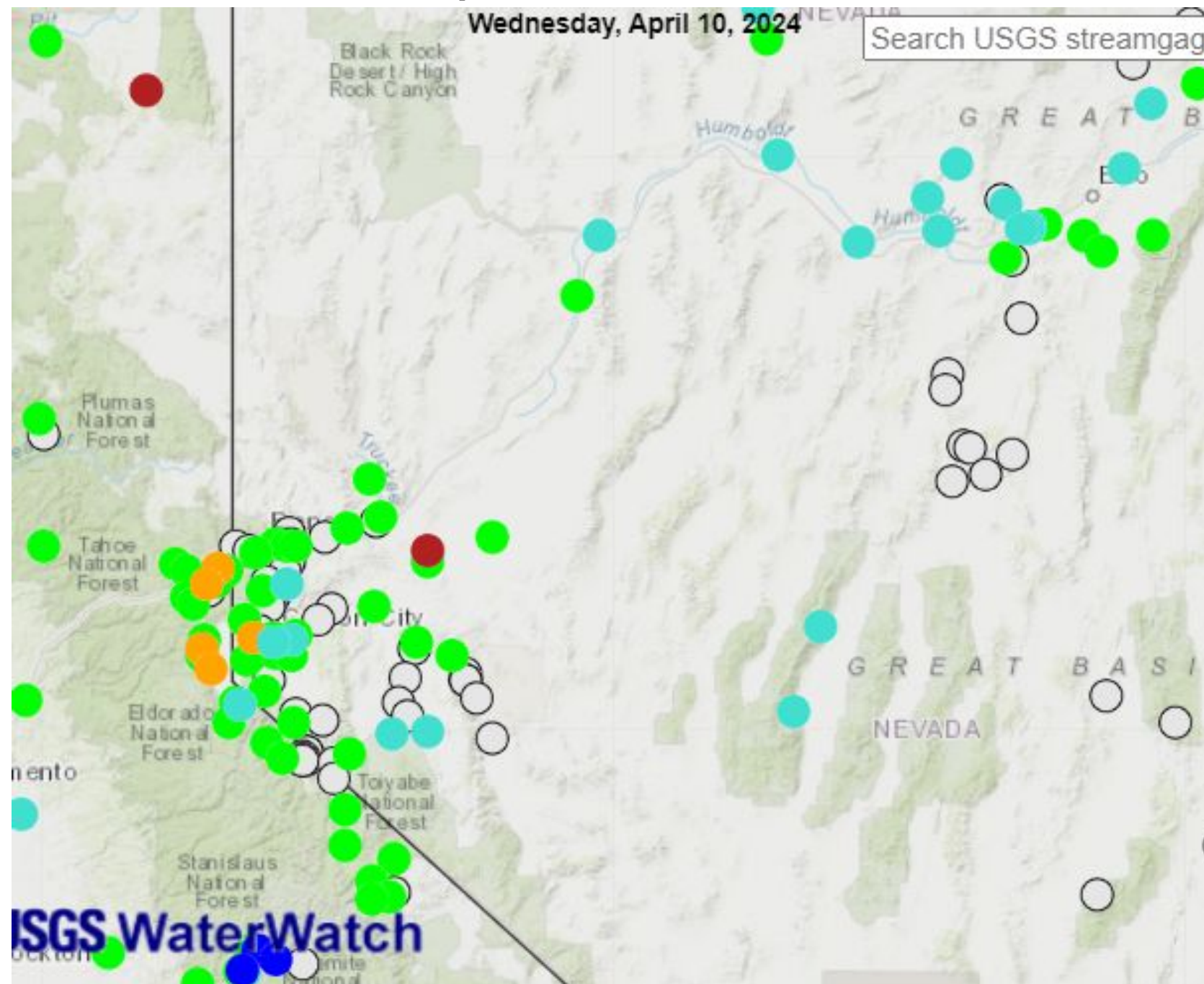


# Observed Streamflow

Weather Forecast Office  
Reno, NV  
Thursday, April 11



## USGS 28-day Streamflow



Explanation - Percentile classes							
Low	<10	10-24	25-75	76-90	>90	High	Not-ranked
	Much below normal	Below normal	Normal	Above normal	Much above normal		

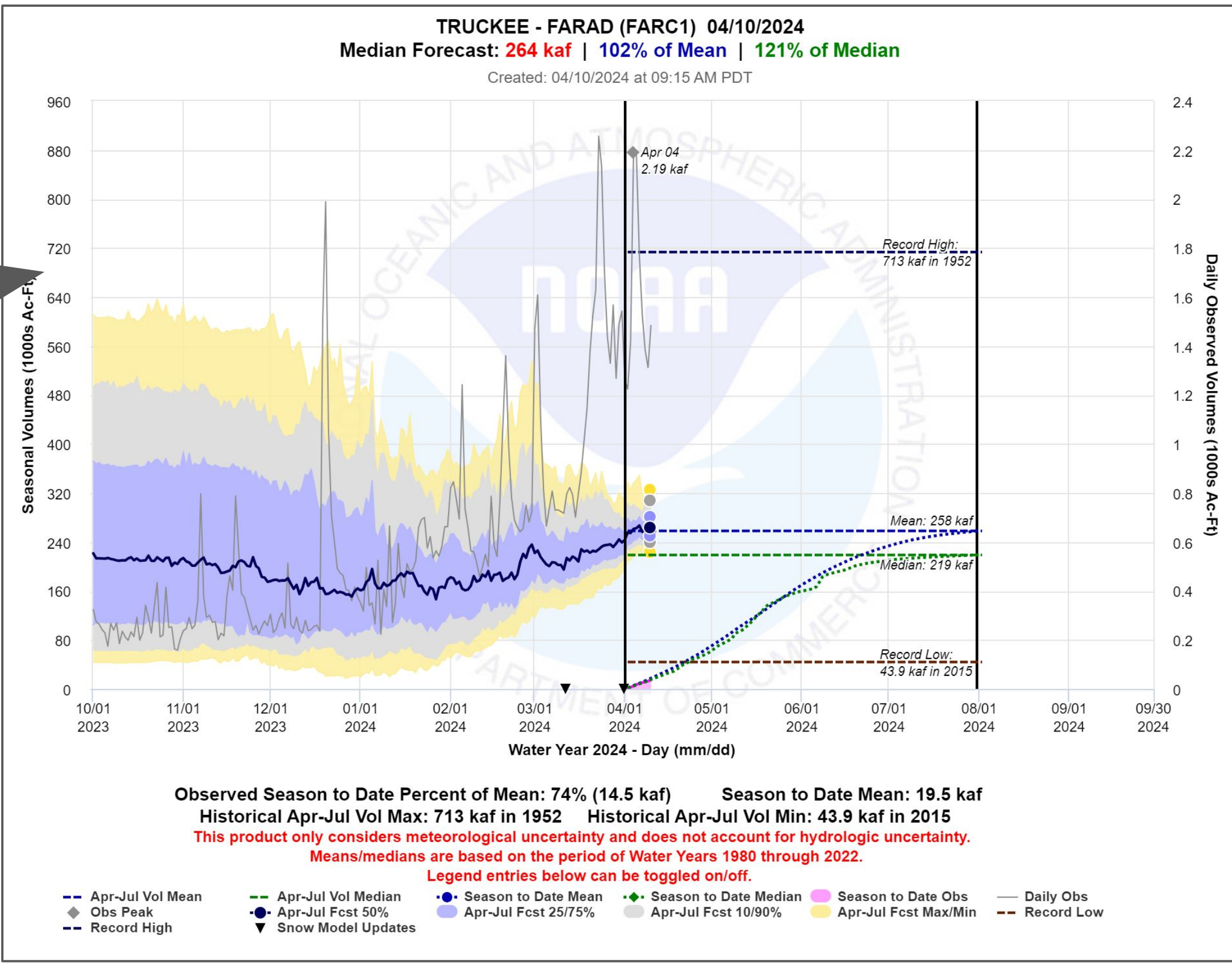
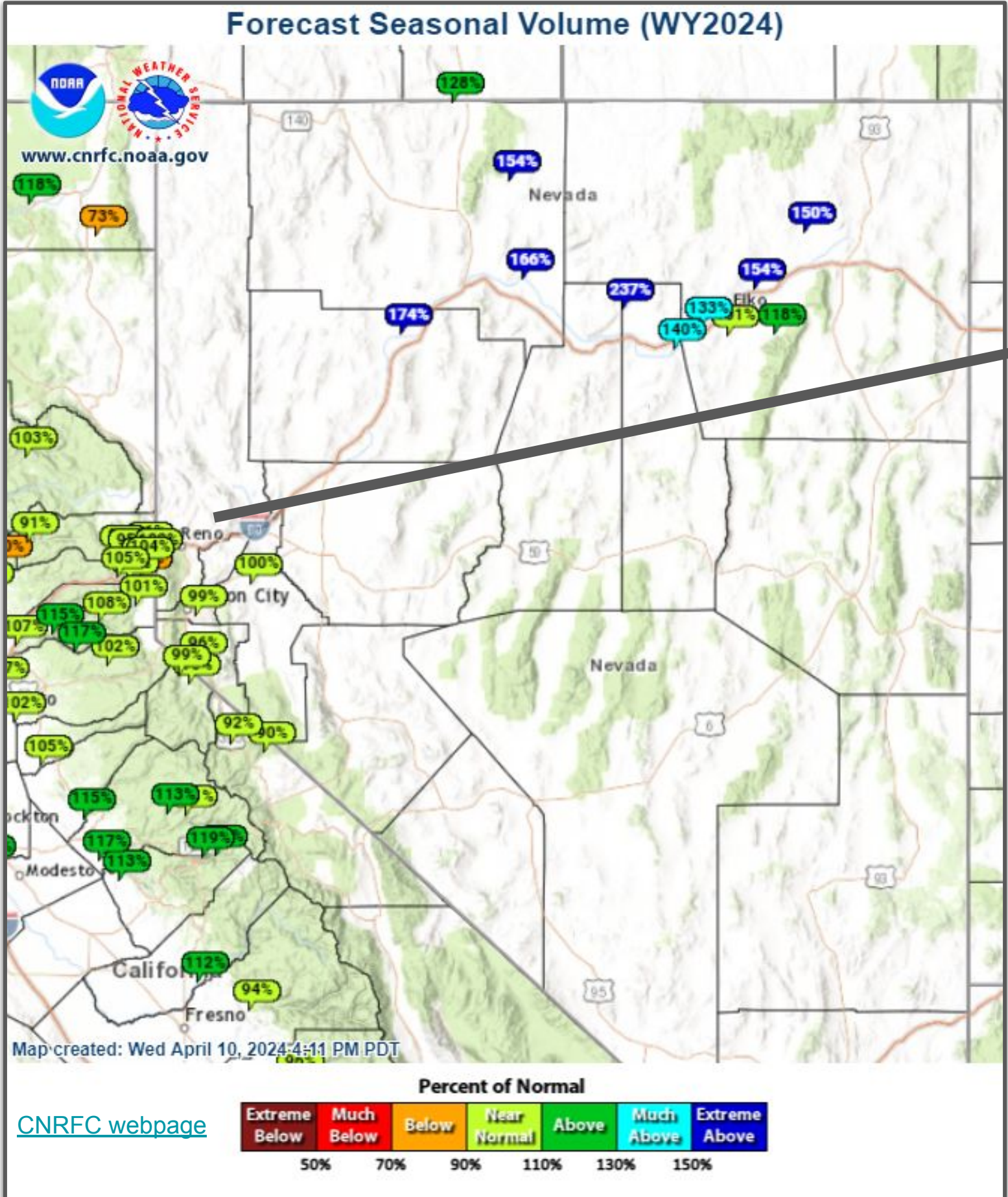
[CNRFC webpage](http://www.cnrfc.noaa.gov)



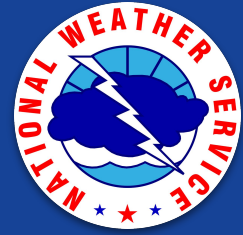


# 2024 Water Supply Outlook (April-July)

Weather Forecast Office  
Reno, NV  
Thursday, April 11

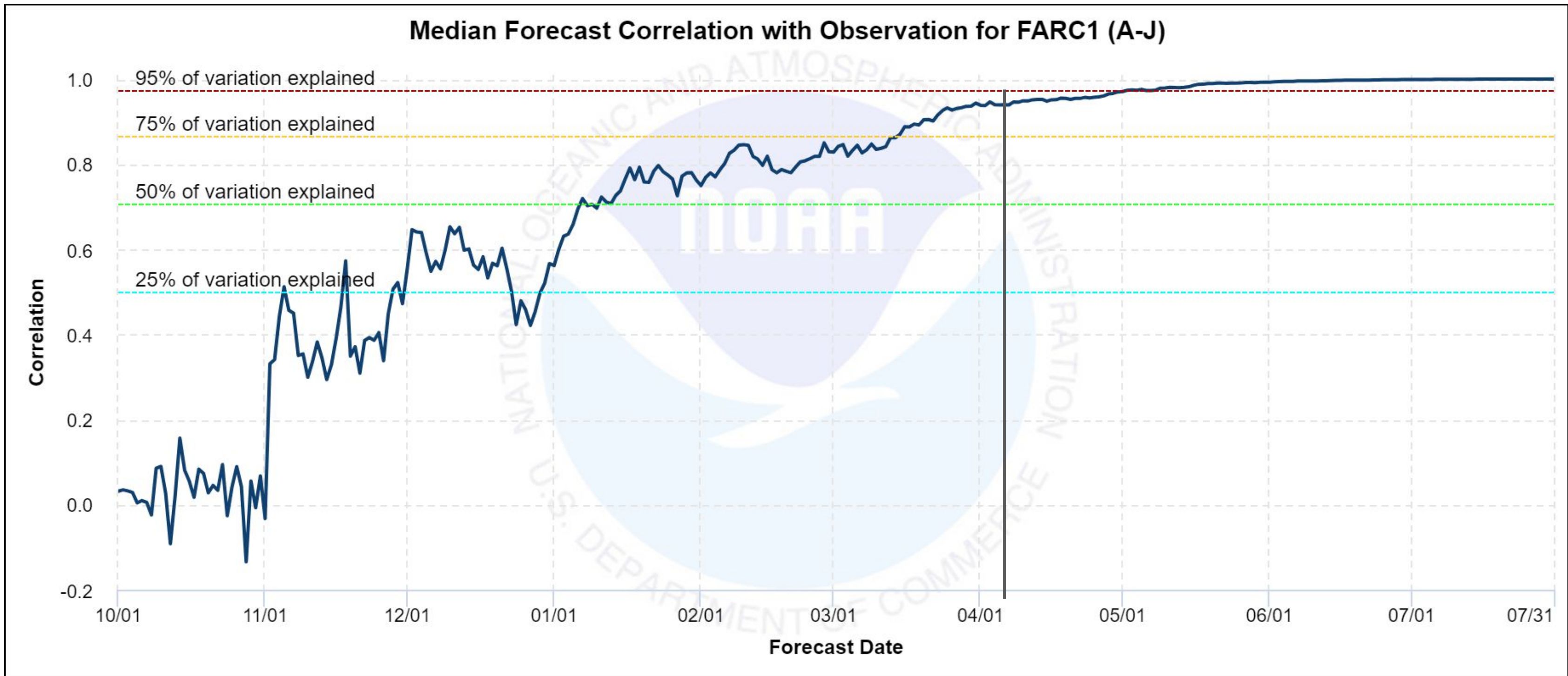






# 2024 Water Supply Outlook (April-July)

Weather Forecast Office  
Reno, NV  
Thursday, April 11



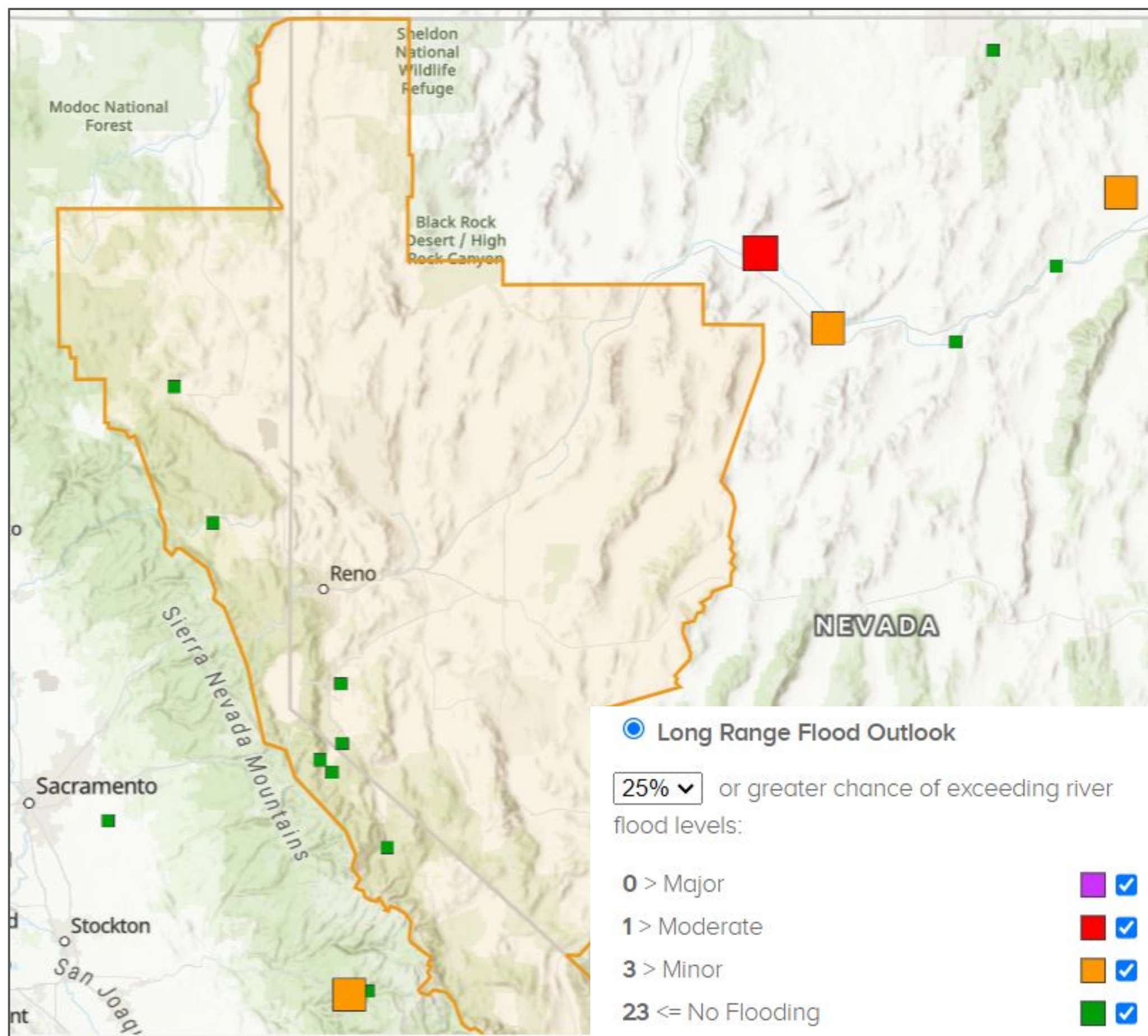
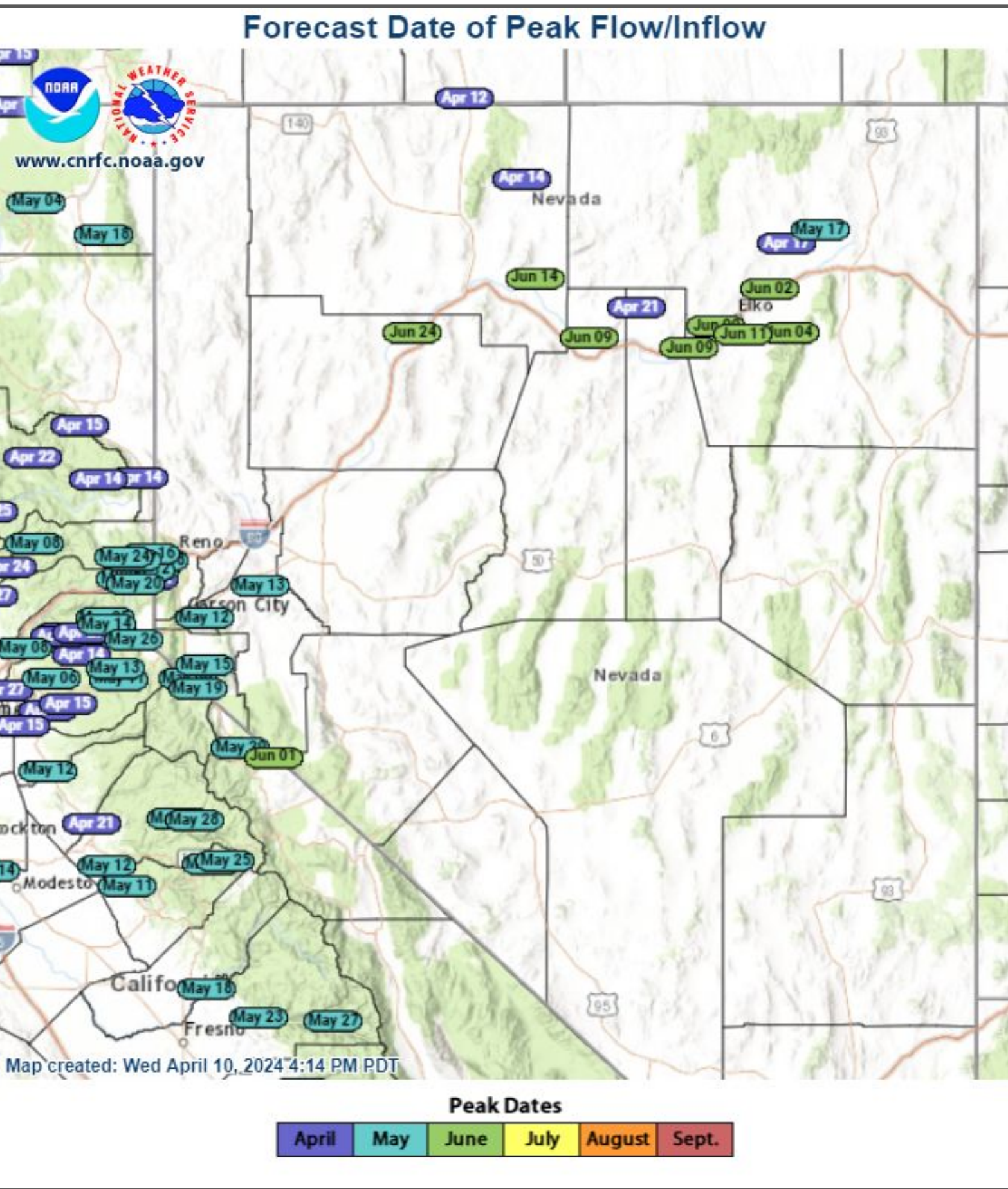
Note: Forecast spread is driven by meteorological uncertainty and does not account for hydrologic uncertainty, Late Spring probability range is artificially low due to this fact.





# Runoff timing and Flood Risk

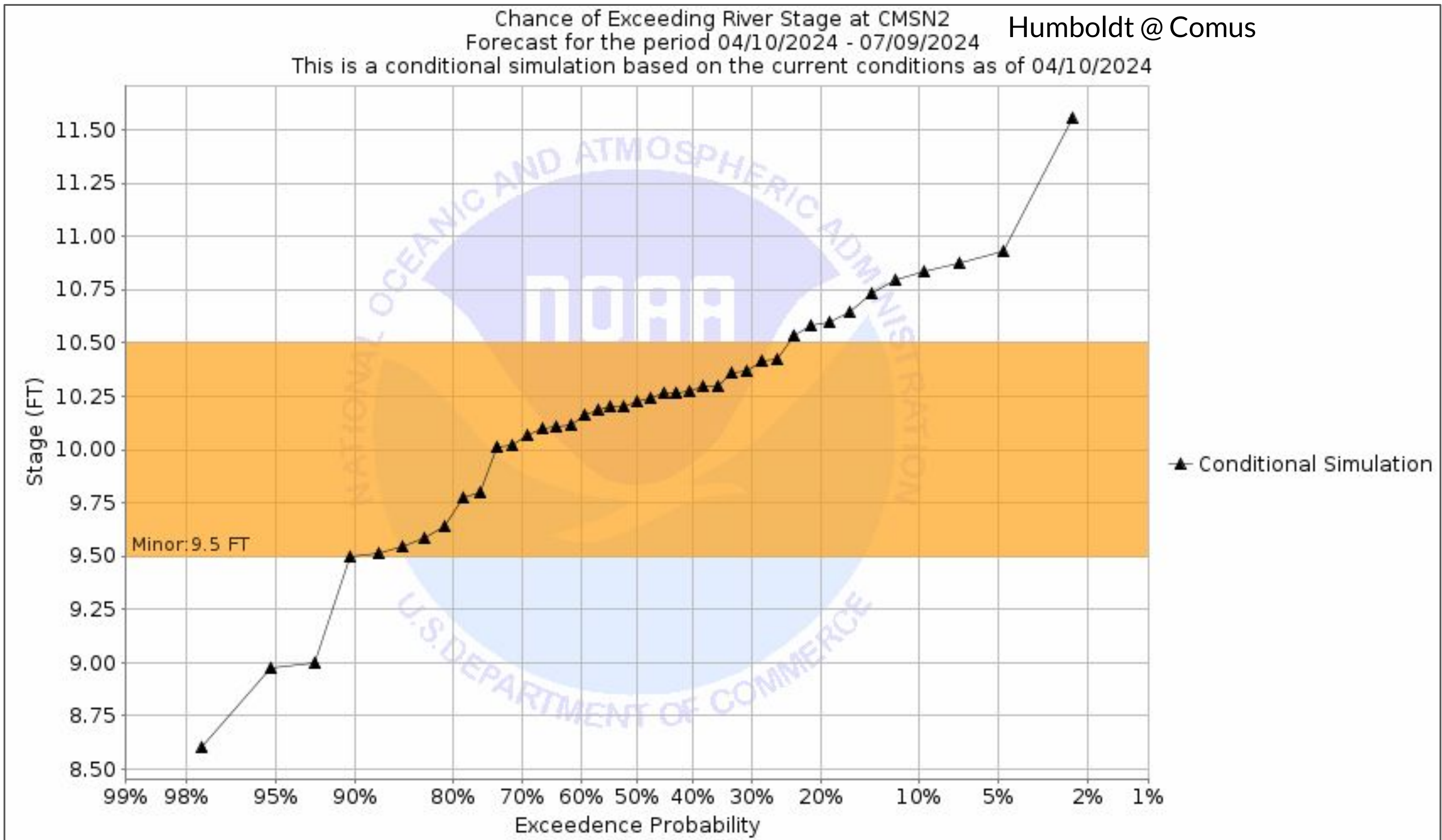
Weather Forecast Office  
Reno, NV  
Thursday, April 11







# Lower Humboldt Flood Risk

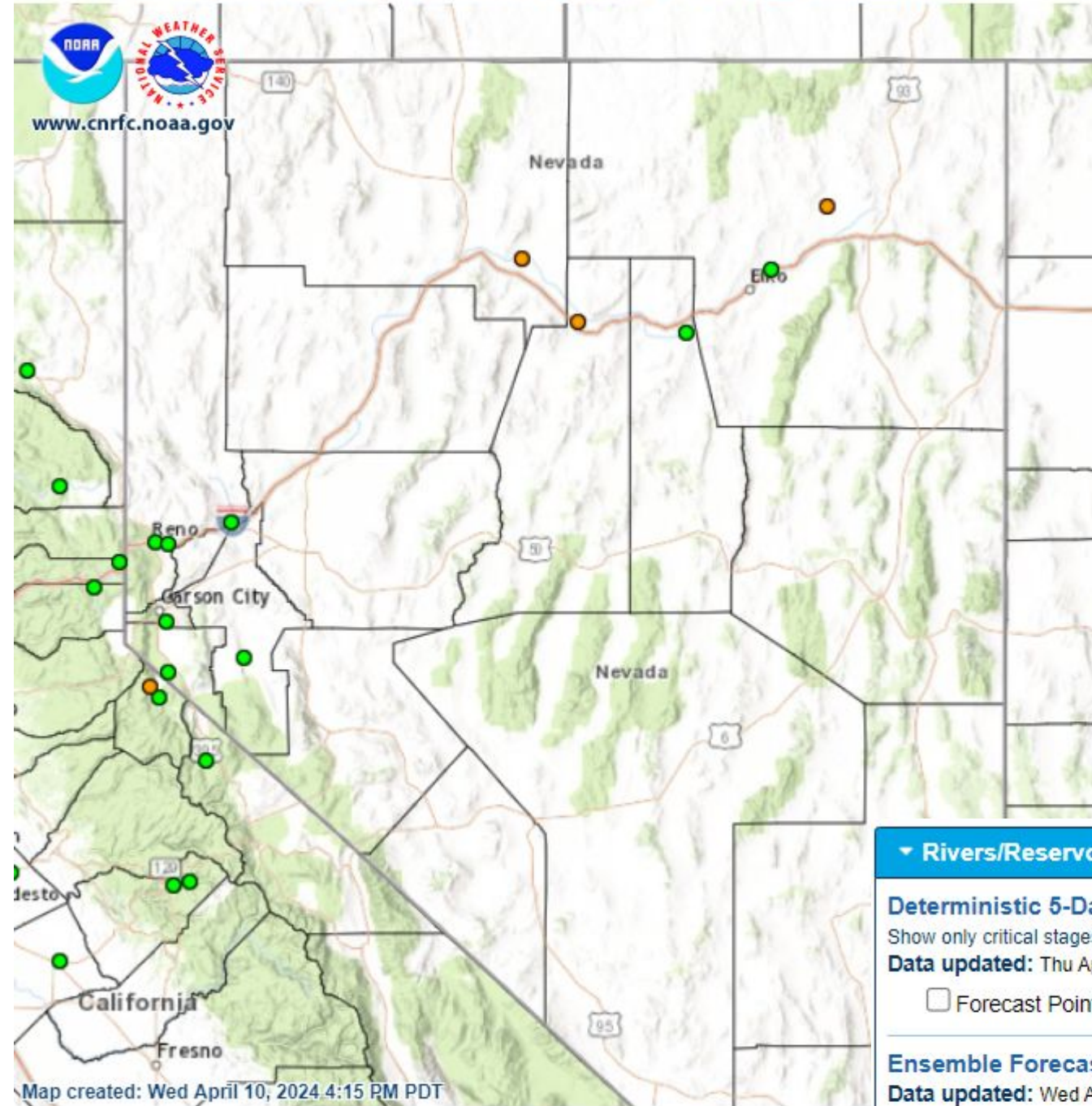






# 5-10 day flows and flood risk

Ensemble River Forecast (10-day 10% Exceedance)



Map created: Wed April 10, 2024 4:15 PM PDT

No Monitor or Flood Stage Available  
 85 Normal Conditions  
 9 Above Monitor Stage  
 0 Above Flood Stage

The number inside each circle above represents the number of gages with forecast conditions.

**Rivers/Reservoirs**

**Deterministic 5-Day Forecasts**

Show only critical stages (fcst pts only)

Data updated: Thu Apr 11 2024 08:36 AM PDT

Forecast Points  Other Points

**Ensemble Forecasts**

Data updated: Wed Apr 10 2024 01:16 PM PDT

Ensemble Points

**Peak Exceedance Probabilities\***

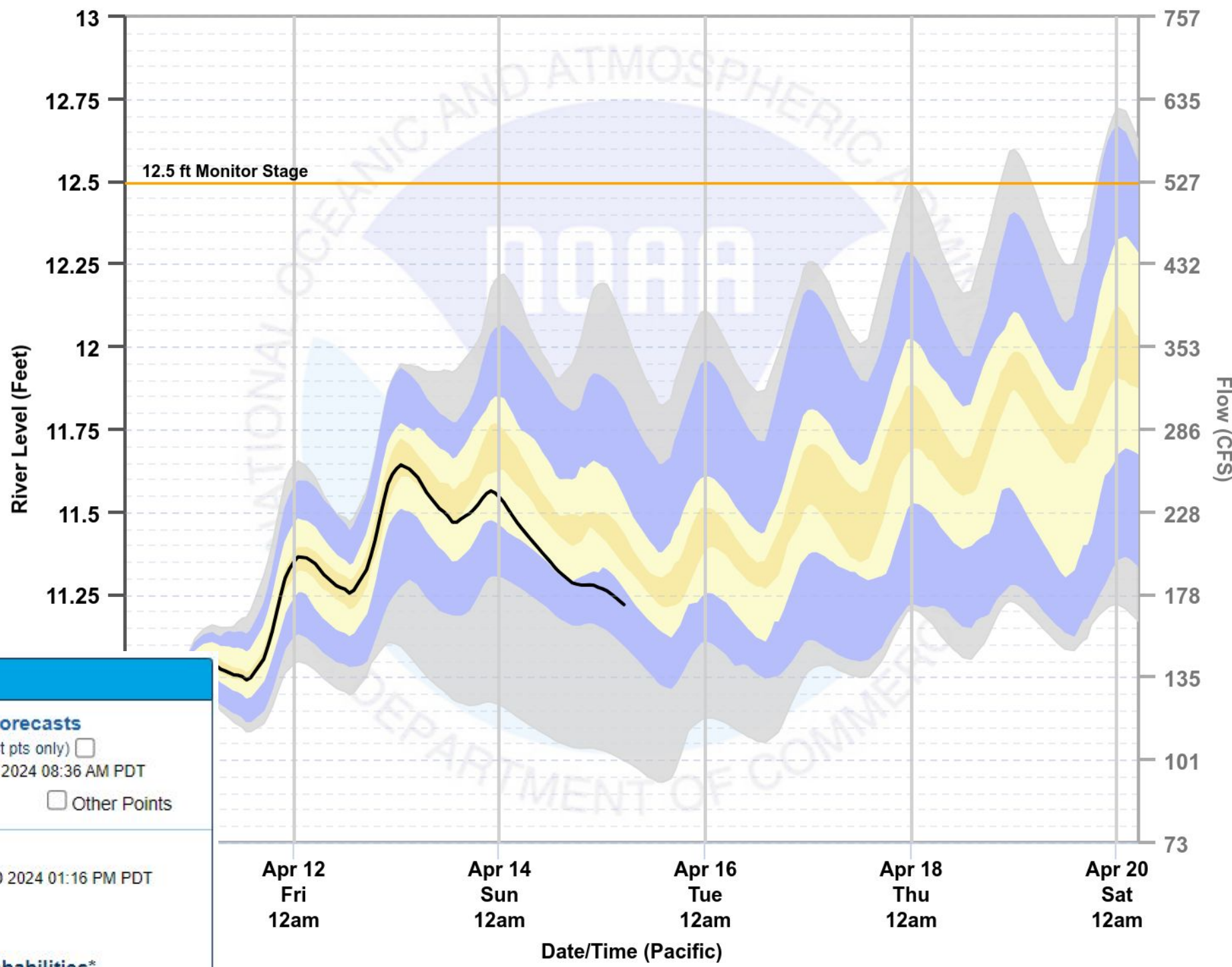
Data updated: Thu Apr 11 2024 08:34 AM PDT

	10%	25%	50%	75%	90%
5-Day Peak	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10-Day Peak	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

\*Exceedance probabilities are only available for selected forecast points.

Hourly River Level Probabilities  
WEST FORK CARSON RIVER - WOODFORDS (WOOC1)

Created: 04/10/2024 at 1:39 PM PDT



Chance of River Level Exceedance (Feet)  
Forecast Period: 04/10/2024 11 am - 04/20/2024 5 am

	Feet	Flow (CFS)
Max	12.72	757
5%	12.67	635
10%	12.45	527
25%	12.33	432
50%	12.06	353
75%	11.90	286
90%	11.74	228
95%	11.69	178
Min	11.52	135

- Official Forecast (Deterministic)
- Ensemble Mean
- Model Traces
- Hourly Probabilities
  - 0-5% chance
  - 5-25% chance
  - 25-40% chance
  - 40-60% chance





# Tim's Snowmelt Flood Risk Matrix

Location	Likelihood of minor/nuisance flooding	Likelihood of moderate to major flooding
Pit River nr Canby	Light Green	Light Green
Susan River at Susanville	Light Green	Light Green
Middle Fork of the Feather nr Portola	Light Green	Light Green
Truckee near Reno	Light Green	Light Green
Truckee at Vista	Light Green	Light Green
West fork of Carson Woodfords	Yellow	Light Green
East Fork of Carson Garderville	Light Green	Light Green
Carson nr Carson City	Light Green	Light Green
West Walker River blw Little Walker	Yellow	Light Green
East Walker	Light Green	Light Green
Walker River nr. Mason	Light Green	Light Green
Lower Humboldt nr Imlay	Red	Yellow
Mono County small Streams*	Yellow	Light Green
* no specific flood stages set		

Unlikely (<10%)
Low Probability (10-30%)
Moderate Probability (30-60%)
High Probability (60-90%)
Very High Probability (>90%)

- Relatively low Snowmelt flood risk in NE California and W. Nevada except for the lower Humboldt!
- Also Watch Martin Creek, Mary's River, Owyhee, and Bruneau!
- Matrix is based on current condition and short-term outlook, a major April or early May warm rain event or a prolonged cool and wet spring could greatly increase the risk of flooding.





# Goodbye AHPS, Hello NWPS

Weather Forecast Office  
Reno, NV  
Thursday, April 11

River Observations | River Forecasts | Long-Range Flood Risk | Precipitation | Download

Auto Refresh: OFF | Print this map | Permalink | BOOKMARK

Maximum Forecast Flood Category Through: 04/16/2024 15:04:33 UTC

Day 1 2 3 4 5 6 | Entire Period

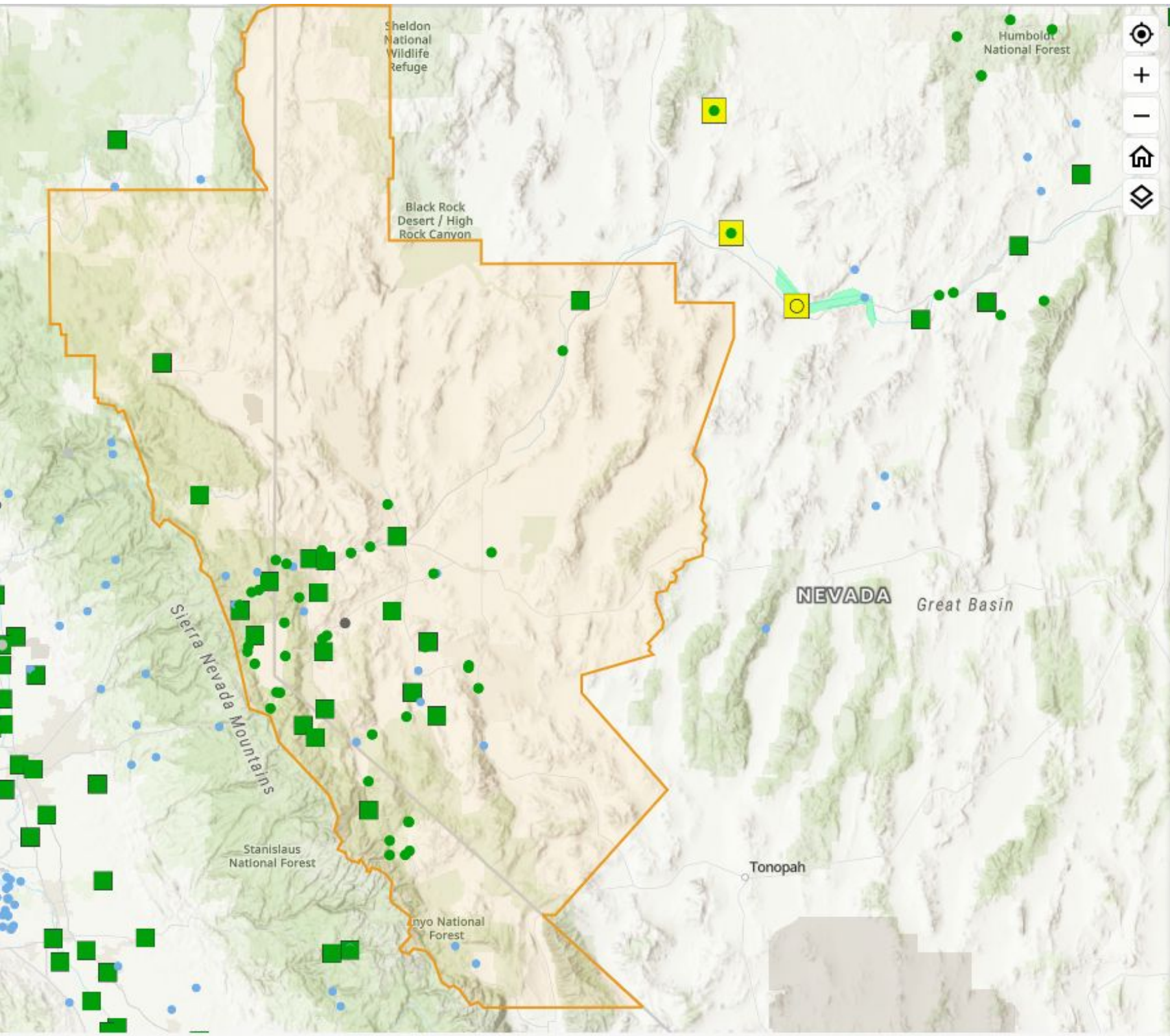
129 total gauges | 0 gauges in flood

Switch Basemap | Reset View

- Forecast available
- Probability and forecasts available
- Major Flooding
- Moderate Flooding
- Minor Flooding
- Near Flood Stage
- No Flooding
- Forecasts Are Not Current
- No Forecast Within Selected Timeframe
- Out of Service
- Flood Category Not Defined
- At or Below Low Water Threshold

Last map update:  
04/10/2024 at 08:03:36 am PDT  
04/10/2024 at 15:03:36 UTC

What is UTC time? | Map Help | Disclaimer



Map | Topographic

Layers

▼ River Gauge

- Observations & Forecasts
- Long Range Flood Outlook

CATEGORIES	OBSERVATION	FORECAST
Major Flood	0	0
Moderate Flood	0	0
Minor Flood	0	0
Action	1	3
No Flood	230	97
Flood Category Not Defined	204	0
No Forecast Available	0	0
Low Water Threshold	0	0
Data Not Current	22	0
Out of Service	10	0

Limit by boundary  
 Only display Partner FIM Gauges

> Hazards  
 > Precipitation Estimate  
 Enabled

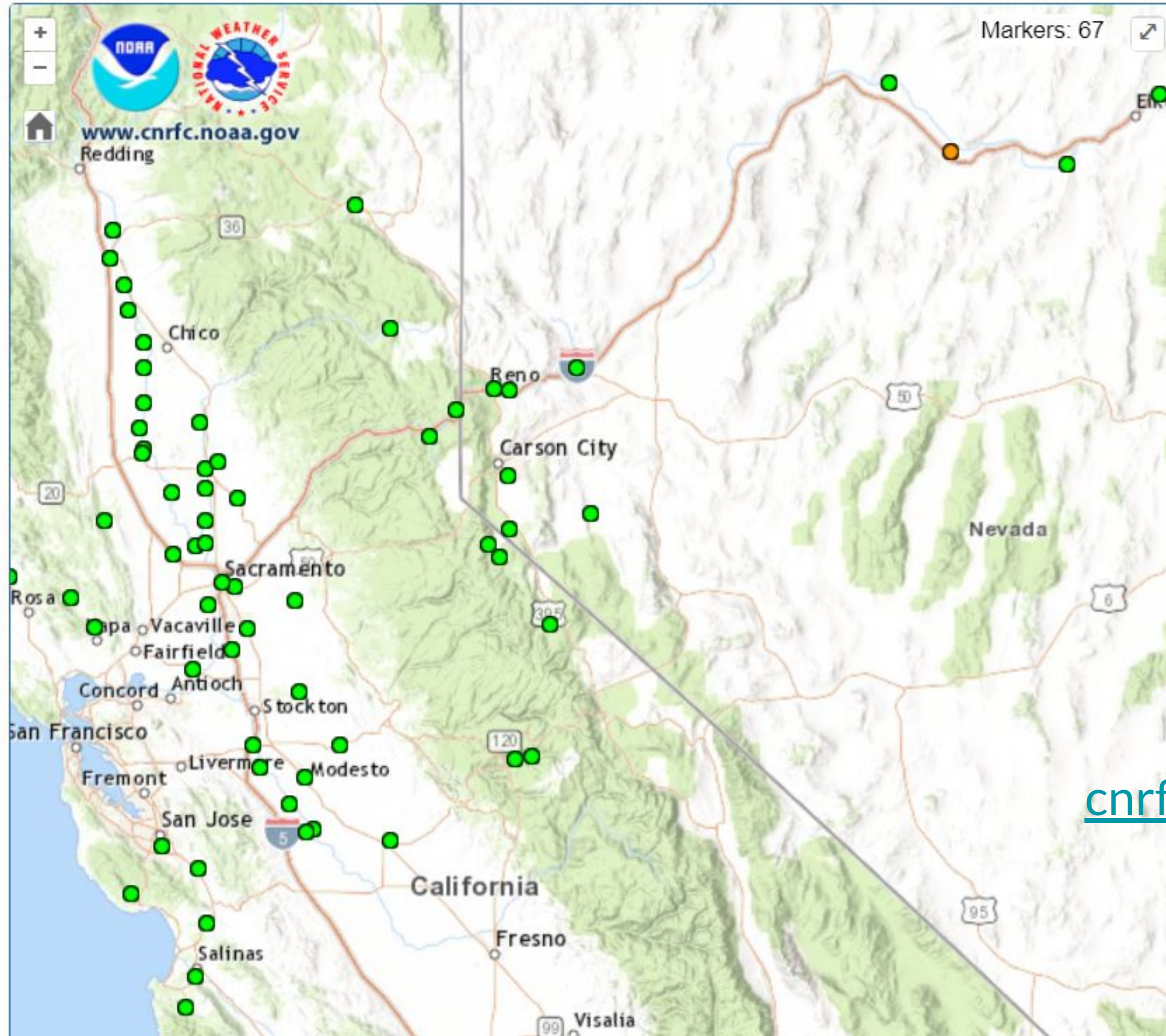
[Water.noaa.gov](http://Water.noaa.gov)



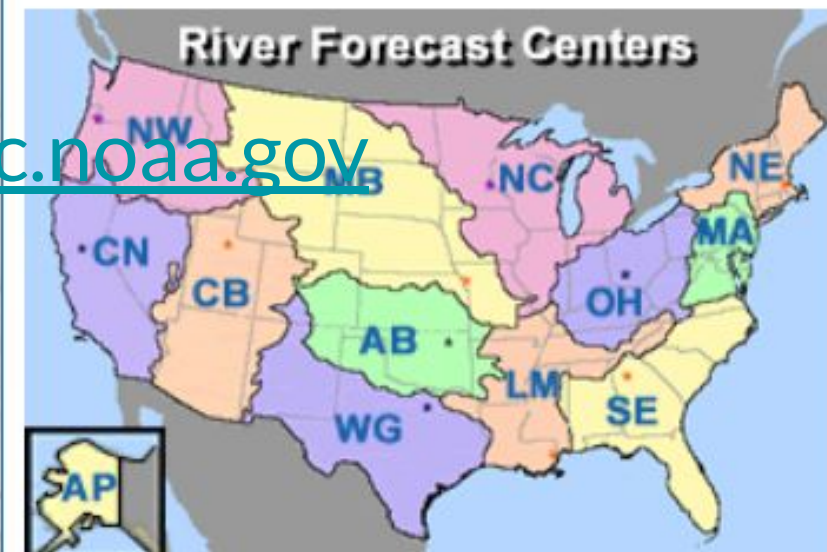


# CNRFC Page expanding resources

<b>Geographic Overlays</b>	<input type="checkbox"/> CNRFC Boundary	<input type="checkbox"/> States	<input type="checkbox"/> Counties	<input type="checkbox"/> Burn Areas	2023 <span style="color: red;">—</span> 2022 <span style="color: orange;">—</span> 2021 <span style="color: yellow;">—</span>
	<input type="checkbox"/> Hydrography	<input type="checkbox"/> Basins	<input type="checkbox"/> Lakes	<input type="checkbox"/> Major Rivers	<input type="checkbox"/> WFOs



- ▶ Rivers/Reservoirs
  - ▶ Water Resources
  - ▶ Snow Data
  - ▶ Observed Precipitation (QPE)
  - ▶ Forecast Precipitation (QPF)
  - ▶ Observed Temperatures
  - ▶ Forecast Temperatures
  - ▶ Freezing Levels
  - ▶ Flash Flood Guidance/Debris Flow
  - ▶ Water Temperatures
  - ▶ Climate/Drought
  - ▶ QPF Verification
  - ▶ Watches/Warnings/Advisories
- Reset View      Clear All Overlays



[cnrfc.noaa.gov](http://cnrfc.noaa.gov)

**NORTHWEST RIVER FORECAST CENTER**

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

River and Hydrology    Water Supply    Observations    Weather Forecasts    Climate    NWRFC

Locate NWS ID:      Criteria List    Quick Zooms    Refresh Data    Last Refresh: 2024-04-10 11:10:28 PDT    Permalink    11:10:46 PDT

**River and Hydrology**

Wed, Apr 10, 2024, 11:00 AM PDT

- 10 Day Forecast Points
- 10 Day Forecast & Data Points
- 120 Day Forecast (Staus)
- 120 Day Forecast (% of Avg)

Return Stations

--Select River--

--Select Region--

Get Station:

**Overlays**

- NWRFC Boundary
- NWRFC Basins
- NWS HSAs
- Counties
- States

**Burn Areas**

- 2023 —
- 2022 —
- 2021 —
- 2020 —

- ▶ Observed Precipitation
- ▶ Forecast Precipitation
- ▶ Observed Temperatures
- ▶ Forecast Temperatures



- No big storms in outlook, but week storms and cooler temps will slow/delay snowmelt.
- February through March snowpack gains huge for the Sierra, exceeding normal peak snowpack and near average water supply conditions.
- Rare consecutive big snowpack years on the Humboldt Basin and water supply way above normal.
- Most stream flows and soil moisture are near to above normal, which will benefit runoff efficiency.
- Reservoir storage remain in excellent condition.
- Currently low (but not zero) flood risk for E. side of Sierra.
- High risk for minor flooding along lower Humboldt (as well as some upstream segments and tributaries).
- **Flood risk will be either exacerbated or mitigated by late spring and early summer weather.**

