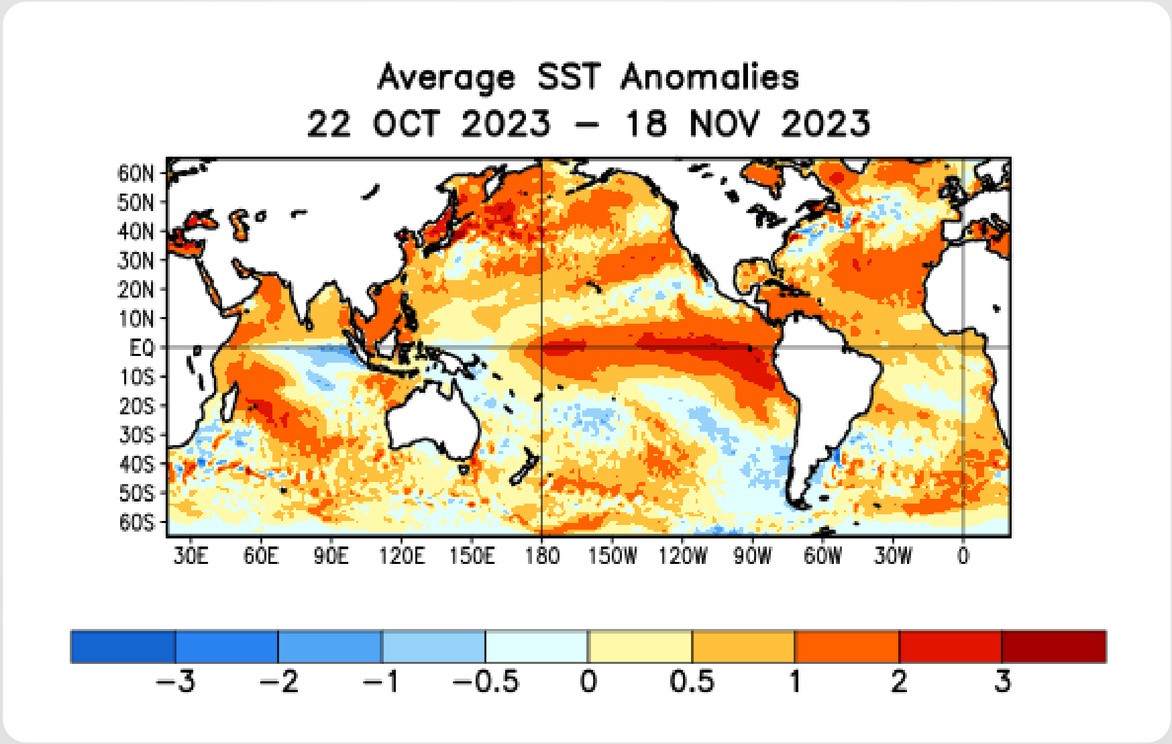
Water Year Outlook 2024

November 30, 2023



Michael L. Anderson, State Climatologist

Forecasting the Water Year

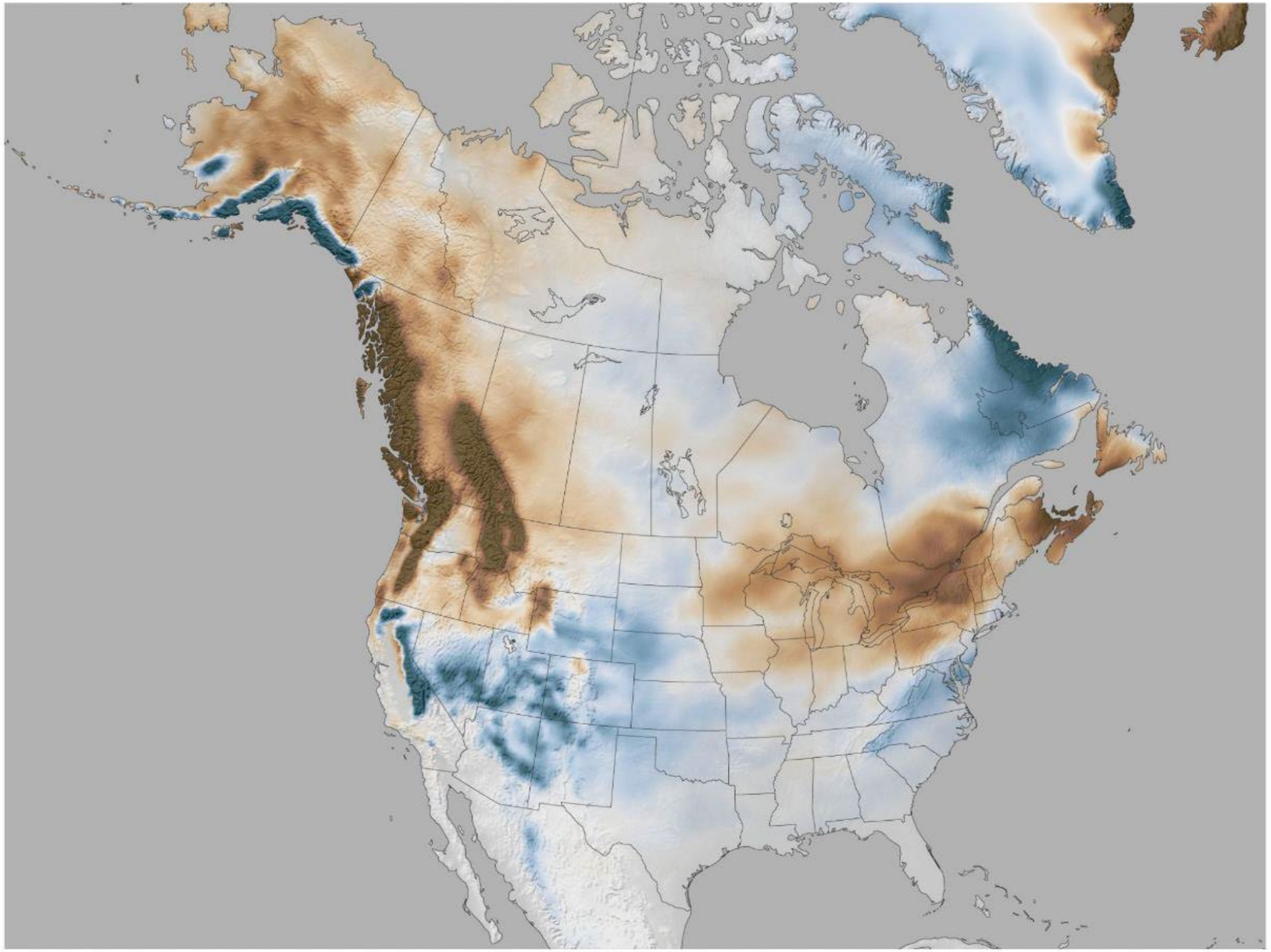
- Fall (October/November)
  - Precipitation Onset
  - Temperature: Anomalous, Extreme or Record-Setting
  - Soil Moisture State with Snowpack Initiation
- Winter (December/January/February)
  - Wet/Dry
  - Notable Anomalies
- Spring (March/April/May)
  - Late-Season Bailout or Early Shutoff?
  - Peak Snowpack Timing and Magnitude
- Summer (June/July/August/September)
  - Drying Timing, Pace and Scale
  - Extreme Heat Events
  - Tropical Activity
- Multi-Year Prediction – What about next year?

Climate Change: How much different will the next decade be?

El Niño Returns to the Eastern Tropical Pacific

- Last El Niño winter was in water year 2019
- 7 events in 21st Century so far
  (2 dry, 3 near average, 2 wet)
- This event expected to peak near end of calendar year
- Sub-seasonal climate influences are important

Snowfall during all El Niño winters (Jan–Mar)



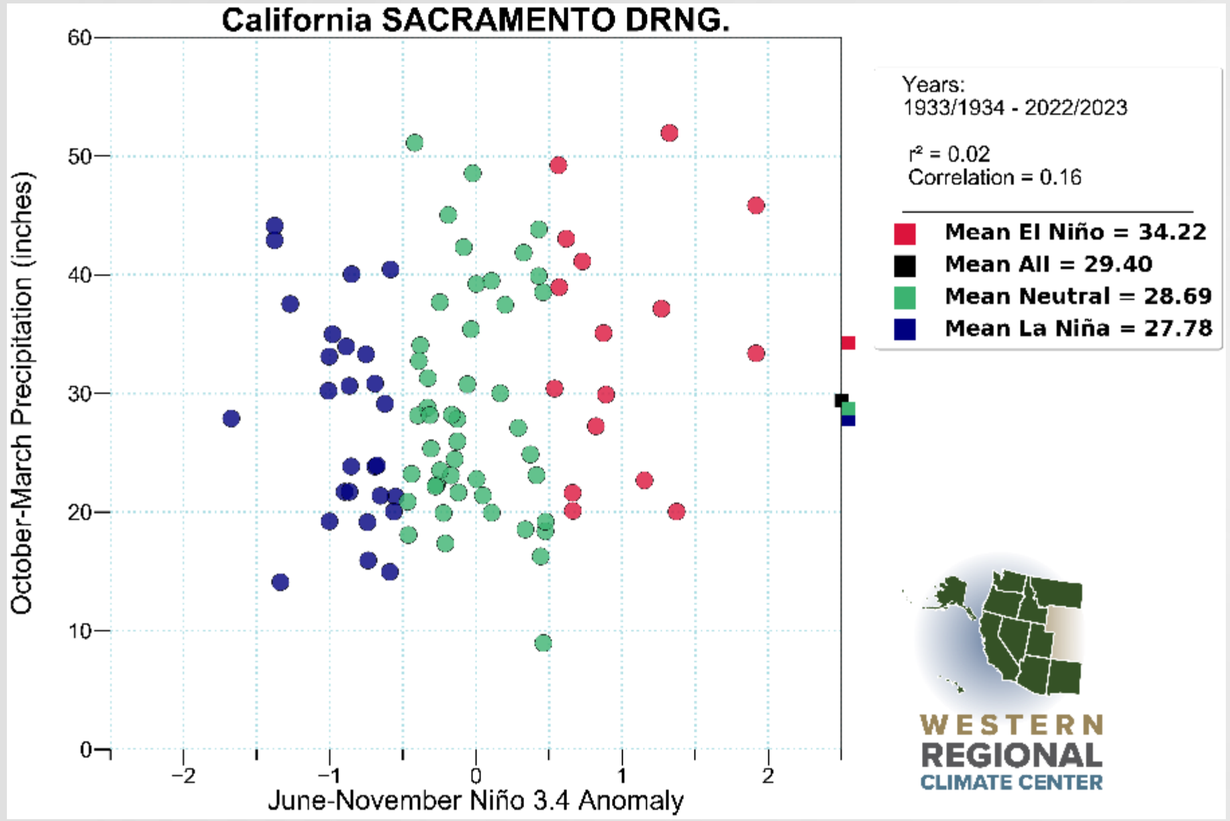
El Niño winters (1959–2023)
vs. 1991–2020 average
(detrended)

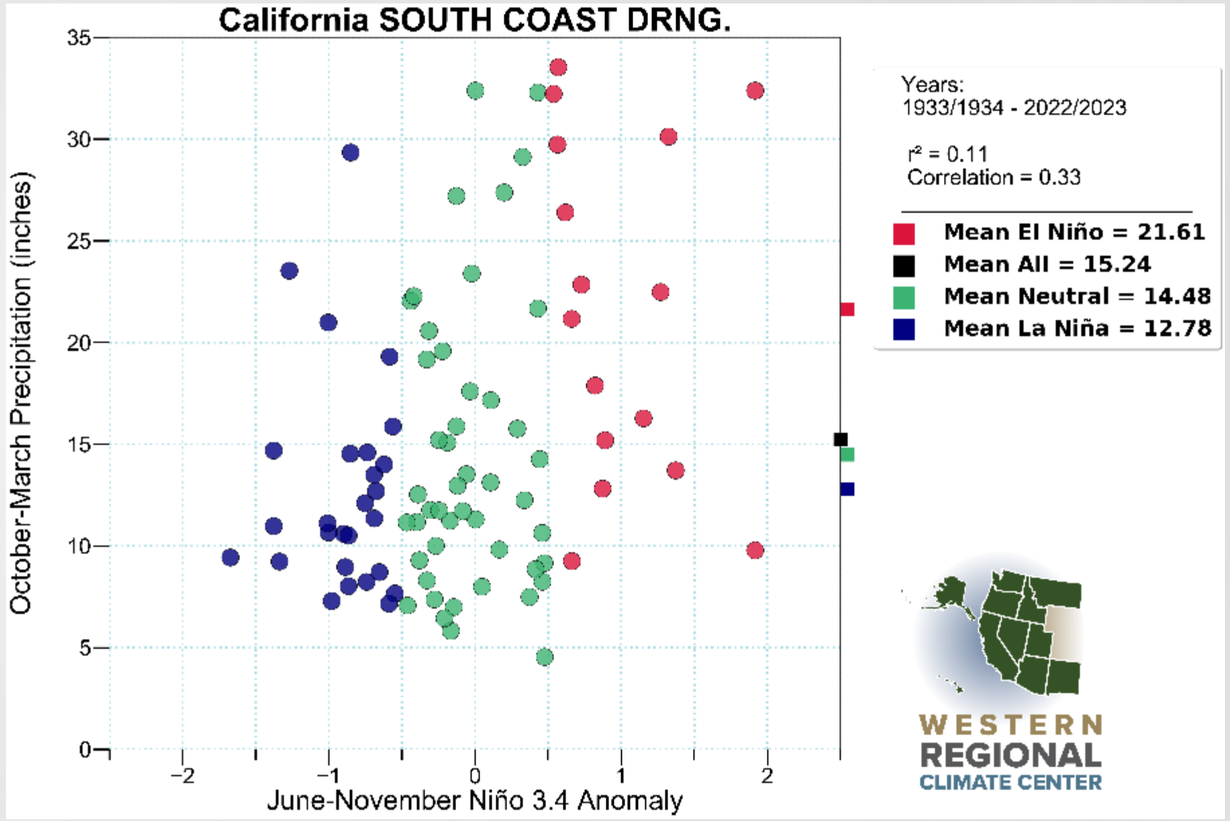
difference from average snowfall (inches)

−10 −8 −6 −4 −2 0 2 4 6 8 10

NOAA Climate.gov
Data: ERA5

Precipitation Outcomes with ENSO





[WRCC: SOI-Precipitation Relationships (dri.edu)]

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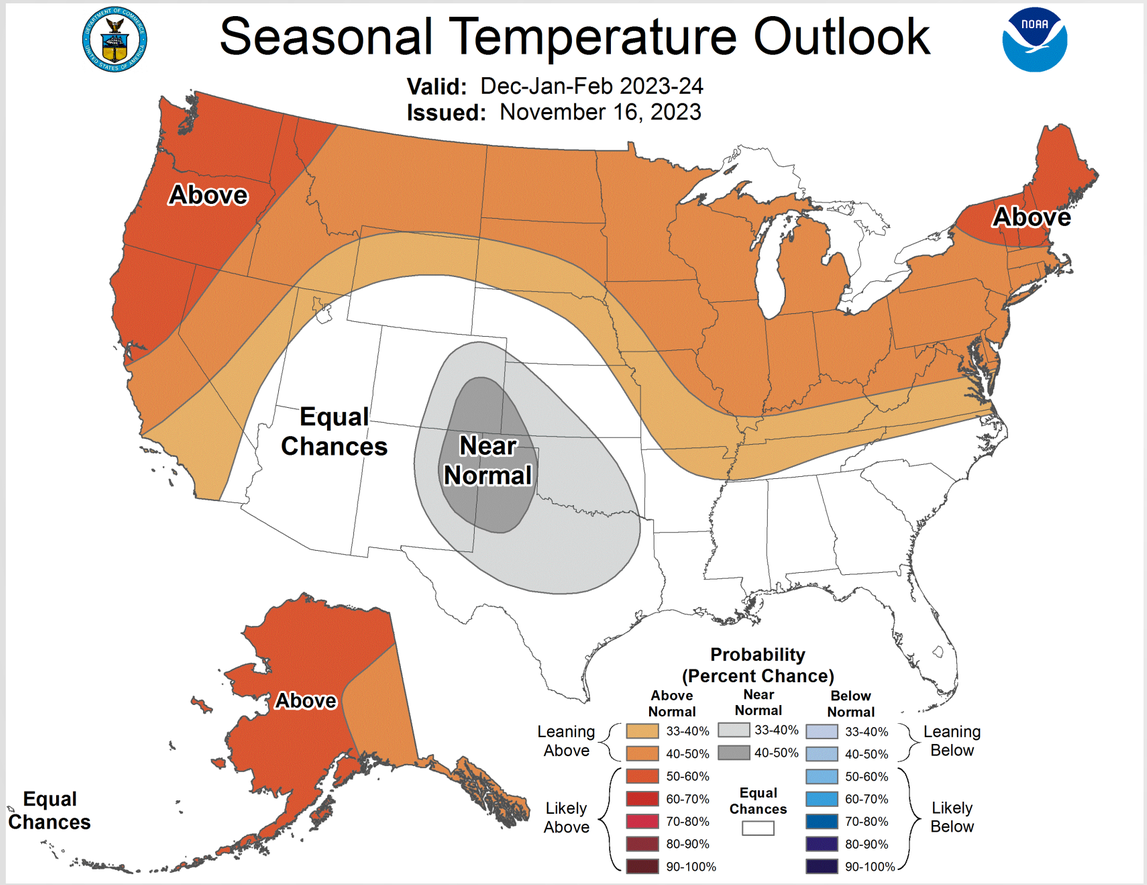
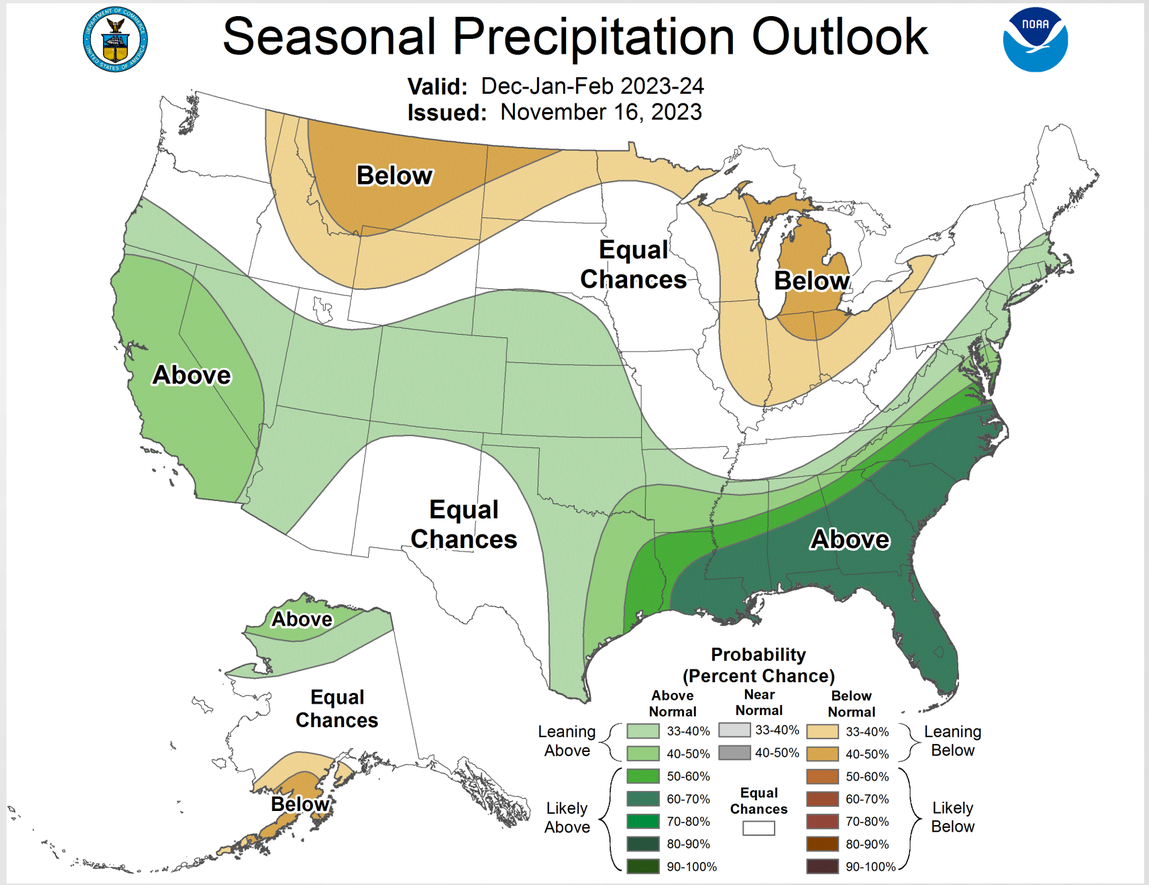
NOAA Climate Prediction Center Outlooks





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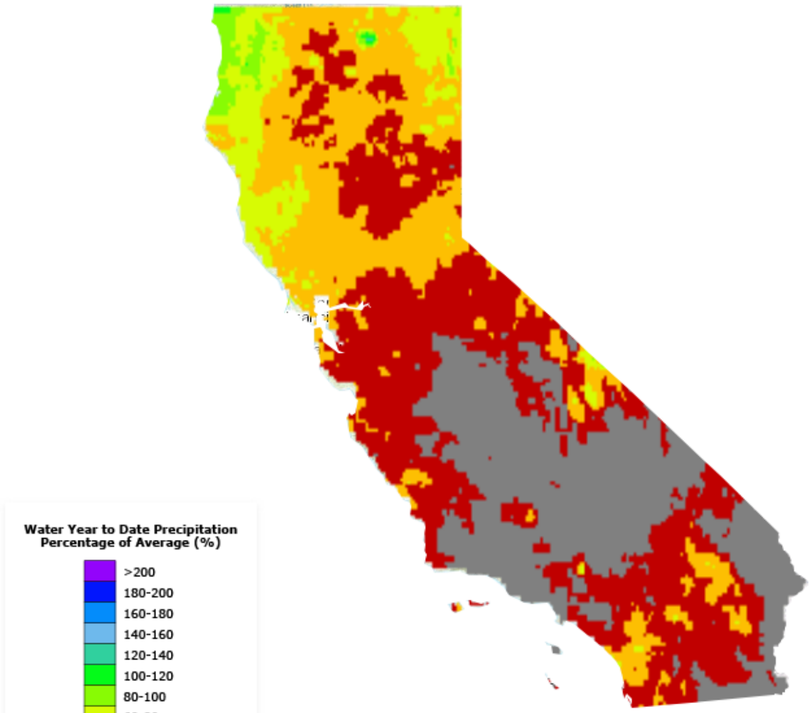
WY 2024 Precipitation to Date
12/18/23: 46% of average



Precipitation as of 12/18/2023

California's annual precipitation can vary greatly from year to year and region to region. The map of California shows how this water year's precipitation compares to what has been observed historically. The chart below provides a summary of California's current statewide precipitation statistics.

Precipitation Statistics (period of record: 1981-current)

Statewide as of 12/18/2023

Water Year to Date: **2.88"**

% of Average: **46%**

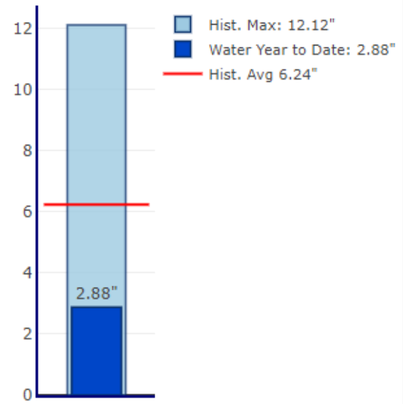
Precipitation % of average for full water year through September 30th: **12%**

Historical Record to Date:

Max: **12.12"**

Mean: **6.24"**

Min: **1.68"**



Precipitation for water year to date is 46% of historical average

California's new Water Year began Oct. 1, 2023 and ends Sept. 30, 2024. Graphics on this site use data for WY 2023-24. To view WY 2022-23 data, visit the yearly summary page.

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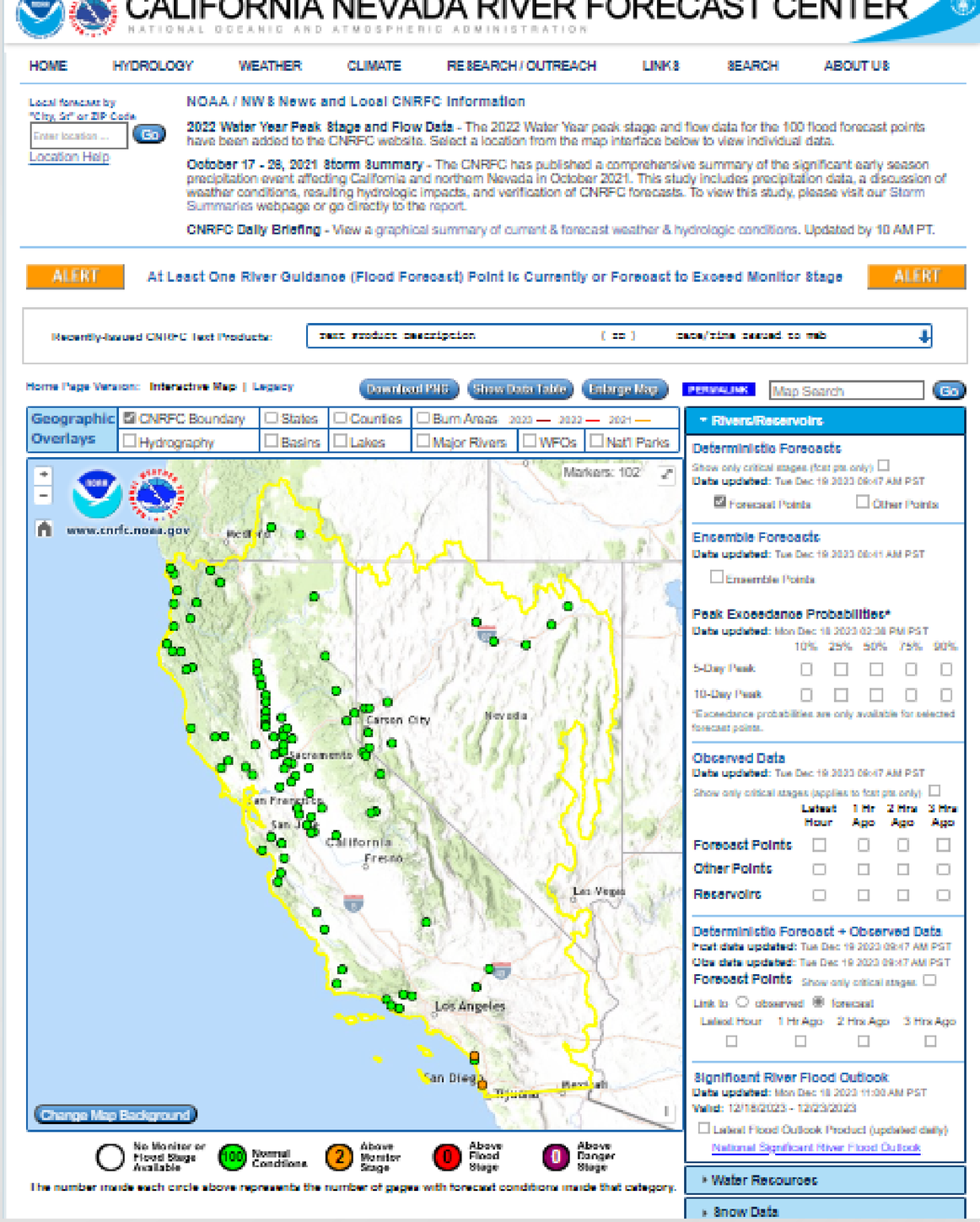
CNRFC Web Page
cnrfc.noaa.gov



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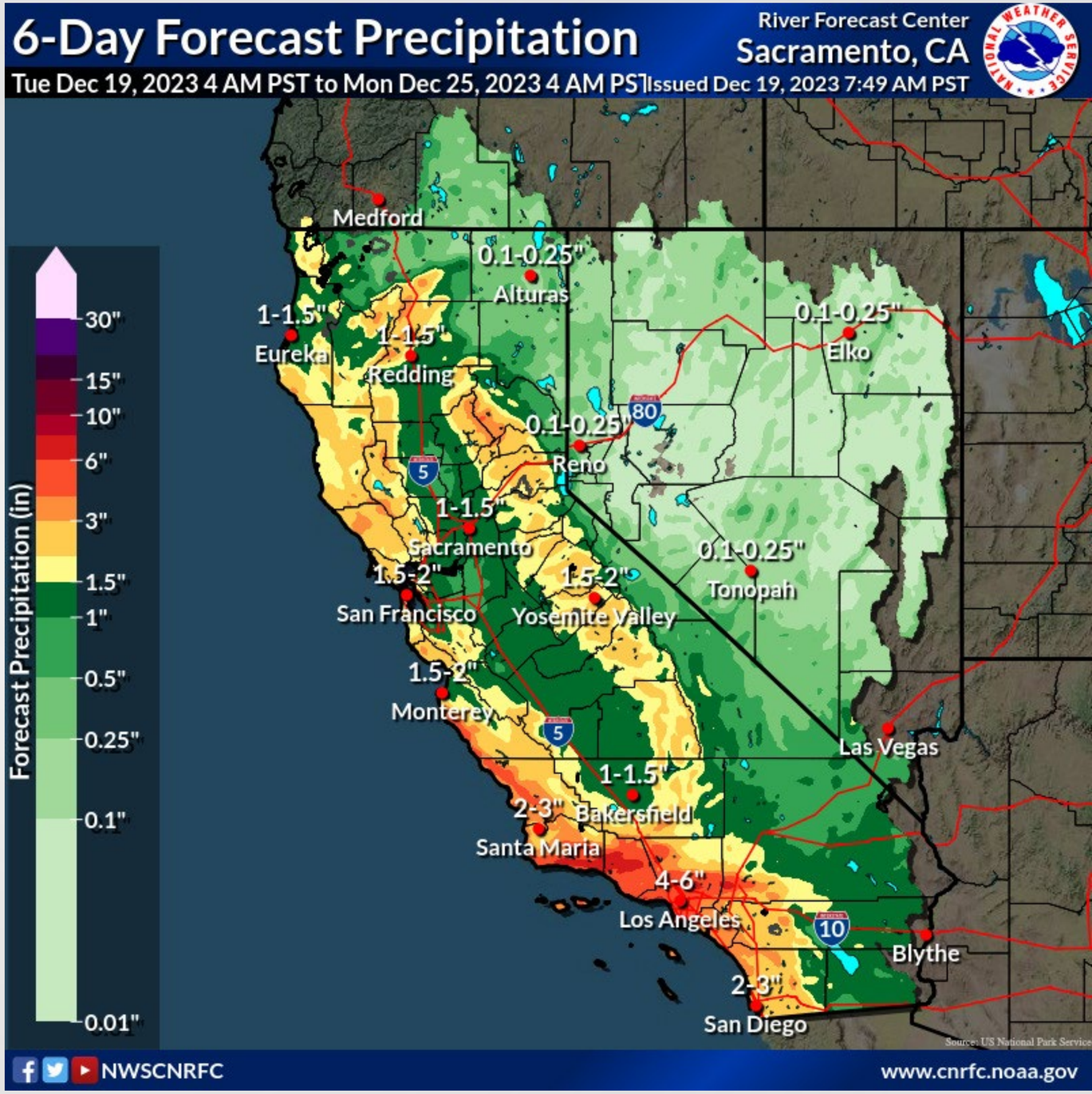
CNRFC 6-Day Precipitation Forecast 12/19/23

- Map of precipitation expected over next 6 days
- 6-hour and daily accumulations for days 1 to 3
- Daily accumulations for day 4 to 6



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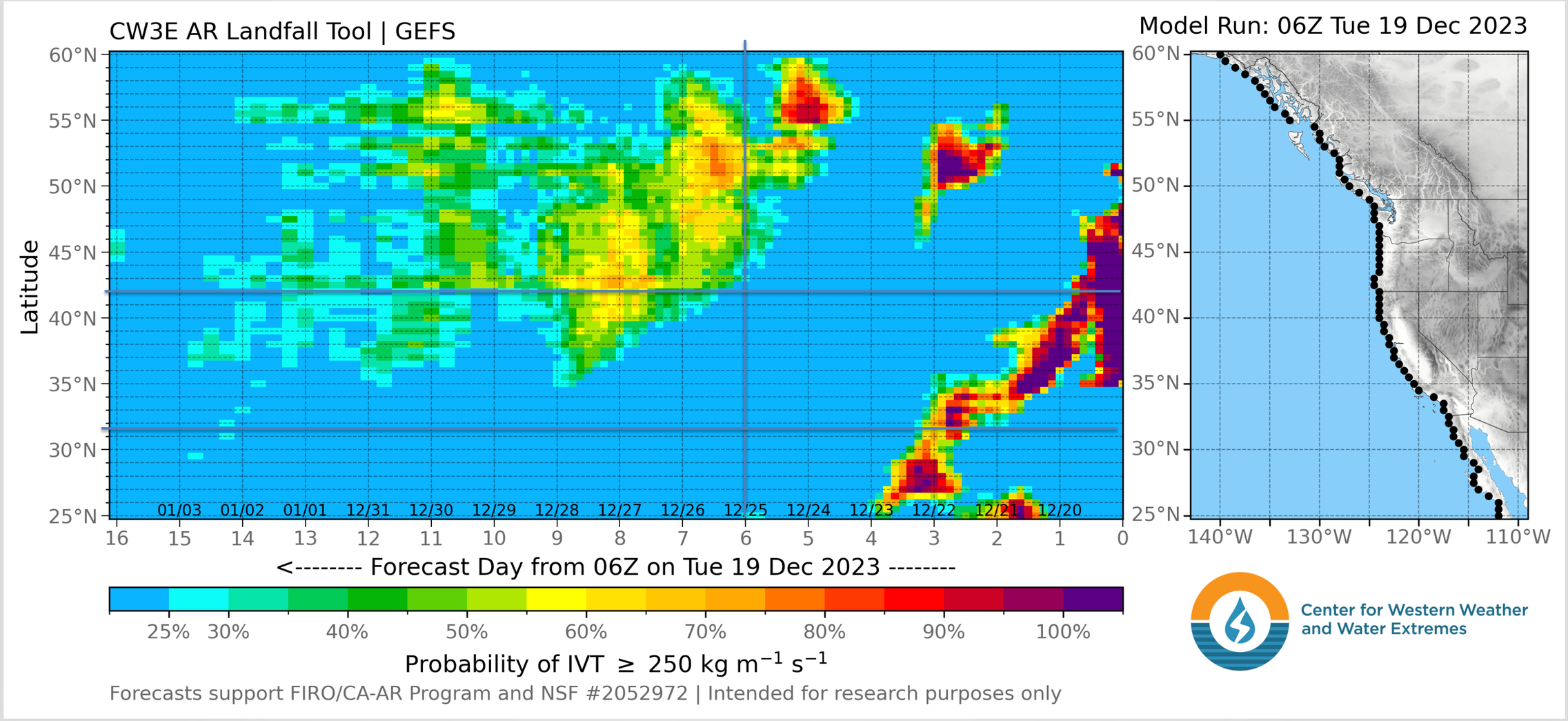
Water Vapor Transport Forecast



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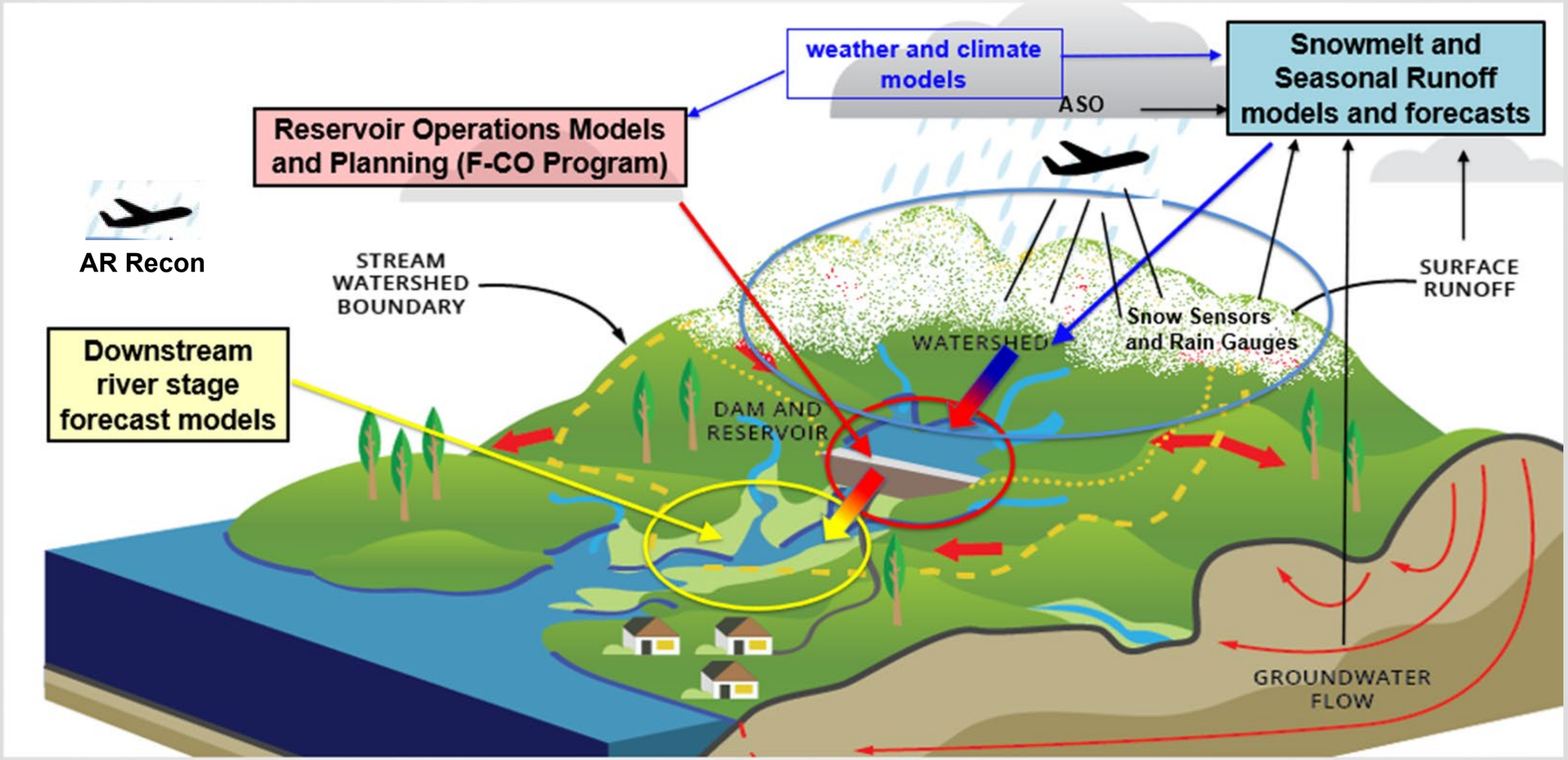
Observations and Forecasts Informing Water Management



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Final Thoughts

- Slow start to WY2024
- WY 2023 full of extremes and transitions
- Expect more of the same in WY2024
- The wet days will likely be wetter than usual; greater likelihood of coastal hazards
- Timing, pace and scale of storms will play a key role in impacts and water year outcomes.

Questions?

- Email: Michael.L.Anderson@water.ca.gov
- Websites:
  - https://cnrfc.noaa.gov (NWS CNRFC)
  - https://cw3e.ucsd.edu (Scripps Center for Western Weather and Water Extremes)
  - https://cww.water.ca.gov (California Water Watch