



Center for Western Weather
and Water Extremes

SCRIPPS INSTITUTION OF OCEANOGRAPHY
AT UC SAN DIEGO

CW3E Subseasonal Outlook: 24 February 2026

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UC San Diego



CW3E Subseasonal Outlooks: Glossary & Context

- The outlooks are based on CW3E subseasonal forecast products that can be found here: https://cw3e.ucsd.edu/s_and_s_forecasts/
- CW3E subseasonal (2–6 weeks lead time) atmospheric river, ridging, and circulation regime products use three different global ensemble prediction systems to create these products:
 - NCEP CFSv2 (US Model): Weeks 2–4
 - ECCO (Canadian Model): Weeks 2–4
 - ECMWF (European model): Weeks 2–4
- *On the following slides, the term confidence refers to the forecasters' interpretation of the magnitude of the anomalies, the level of ensemble agreement, and the skill of the products used to generate the forecasts. All the tools used are shown in the outlook presentation.*
- *The thresholds for below-normal, near-normal, and above-normal conditions are determined by forecast product and noted on each forecast product slide*

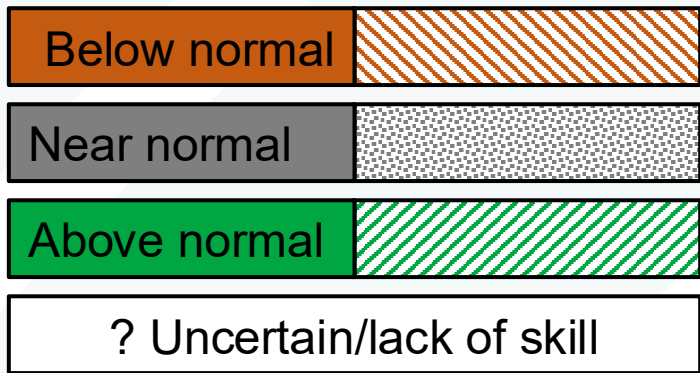
Summary: Subseasonal Precipitation Outlook by Model

This slide shows the CW3E synthesis of subseasonal products by model

Forecasts Initialized 23 Feb 2026

Region	Week 2 (2–8 Mar)				Week 3 (9–15 Mar)				Week 4 (16–22 Mar)			
	NCEP ^{1,2,3,4}	ECMWF ¹	ECMWF ^{1,2}	Multi-Model Forecast	NCEP ^{1,2,3,4}	ECMWF ¹	ECMWF ^{1,2}	Multi-Model Forecast	NCEP ^{1,2,3,4}	ECMWF ¹	ECMWF ^{1,2}	Multi-Model Forecast
WA/OR	Below normal	Near normal	Uncertain	Uncertain	Below normal	Near normal	Below normal	Below normal	Below normal	Below normal	Below normal	Below normal
Northern CA	Below normal	Below normal	Uncertain	Below normal	Below normal	Near normal	Below normal	Below normal	Below normal	Below normal	Below normal	Below normal
Central CA	Below normal	Near normal	Uncertain	Uncertain	Below normal	Near normal	Below normal	Below normal	Uncertain	Uncertain	Below normal	Uncertain
Southern CA	Below normal	Near normal	Below normal	Below normal	Uncertain	Near normal	Below normal	Uncertain	Uncertain	Uncertain	Below normal	Uncertain

Higher Confidence | Lower Confidence



- Forecasts lean toward below-normal precipitation in Northern and Southern CA during Week 2; more uncertainty over Central CA
- Forecasts lean toward below-normal precipitation in Northern and Central CA during Week 3
- Forecasts lean toward below-normal precipitation precipitation in Northern CA during Week 4

Subseasonal products included in this Outlook:

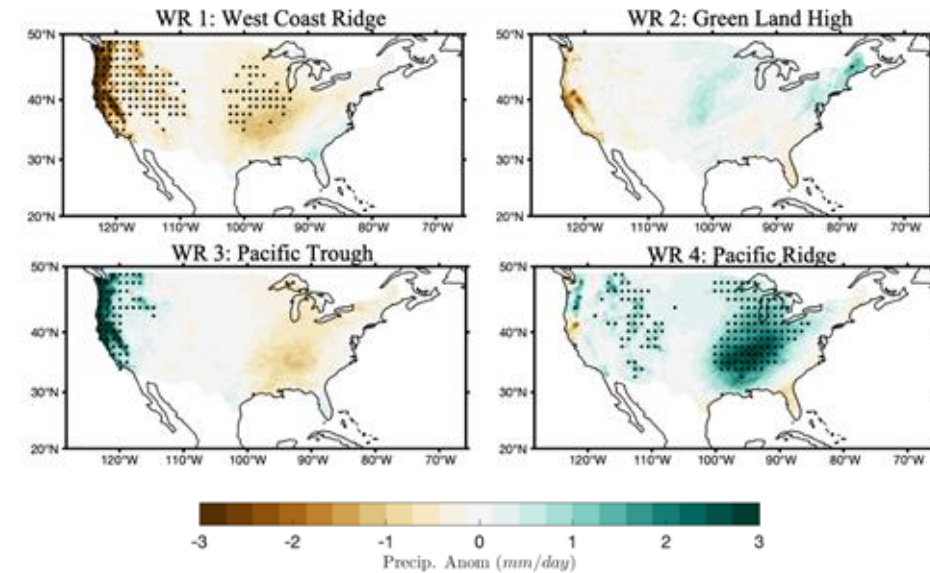
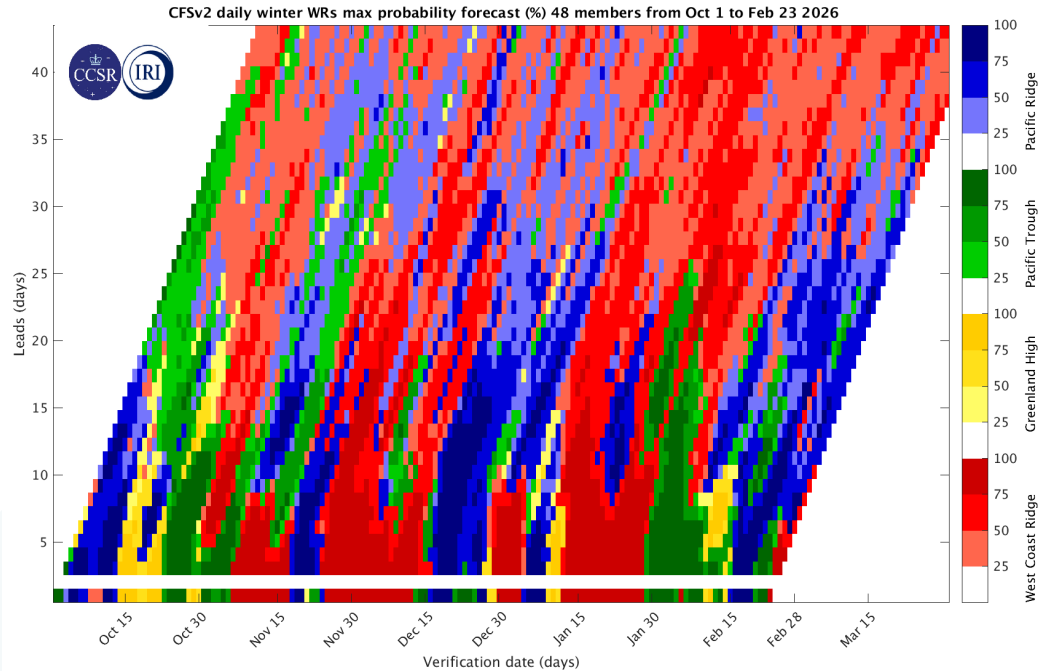
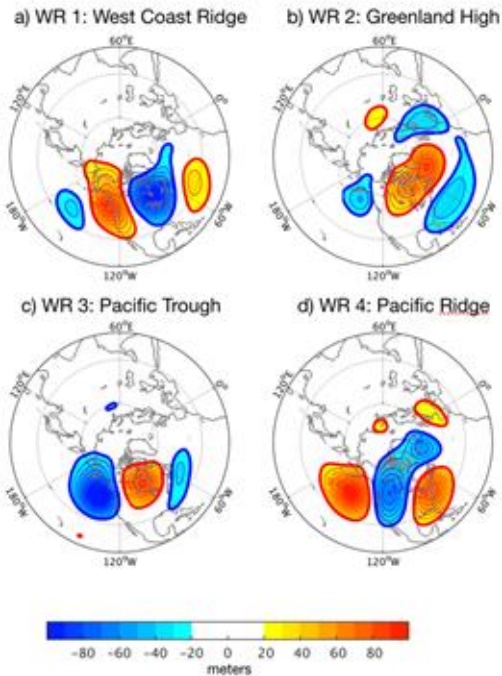
¹CW3E/JPL Atmospheric River Activity Forecasts ([DeFlorio et al. 2019](#), [Zhang et al. 2023](#))


²CW3E/JPL Ridging Forecasts ([Gibson et al. 2020](#))

³IRI North American Weather Regime Forecasts ([Robertson et al. 2020](#))


⁴CW3E West Coast Weather Regime Forecasts (Guirguis et al. [2023a](#) and [2023b](#))

Potential Regime Shifts and Persistence



Product	Week 2 (2–8 Mar)	Week 3 (9–15 Mar)	Week 4 (16–22 Mar)
IRI North American Weather Regime Forecasts	West Coast Ridge  Pacific Ridge	Pacific Ridge	Pacific Ridge

 Regime Persistence (Pacific Ridge)

 Regime Shift

 Uncertain

- Potential for regime shift from West Coast Ridge (dry pattern over CA) to Pacific Ridge (near-normal precipitation and cool pattern over CA) late in Week 2, followed by potential regime persistence during Weeks 3-4 (16–22 Mar)

Summary

MJO/QBO Conditions

- Weak MJO convection is currently located over the Indian Ocean (Phase 3); QBO is in the easterly phase
 - Weak MJO has limited impacts on mid-latitude weather and climate
 - MJO/QBO tool is unavailable due to weak MJO conditions
- NCEP is forecasting MJO convection to remain weak through Weeks 1–2

Week 2 Forecasts (2–8 Mar):

- Models agree on slightly below-normal AR activity over Northern CA and near-normal AR activity over Southern CA
 - In Central CA, NCEP and ECMWF are forecasting high confidence in slightly below-normal AR activity, whereas ECCO is forecasting near-normal AR activity
- Ridging outlooks show high likelihood persistent South-ridge activity (wet conditions in Northern CA and dry conditions in Southern CA) over the southwestern US during Weeks 1–2
 - NCEP is also forecasting above-normal North-ridge activity (dry conditions in CA) with high confidence, whereas ECMWF is forecasting near-normal North-ridge activity
- IRI North American weather regime tool shows moderate likelihood of transition from West Coast Ridge (dry pattern in CA) to Pacific Ridge (near-normal precipitation and cool pattern in CA) during the middle of Week 2
- CW3E West Coast weather regime tool shows patterns associated with below-normal precipitation in CA, especially Southern CA, during Week 2

Summary

Week 3 Forecasts (9–15 Mar):

- NCEP and ECMWF generally agree on slightly below-normal to below-normal AR activity over Northern and Central CA
 - In Northern CA, ECCC is forecasting near-normal to slightly below-normal AR activity
 - In Central CA, ECCC is forecasting near-normal AR activity
 - In Southern CA, NCEP and ECCC are forecasting near-normal to slightly below-normal AR activity, whereas ECMWF is forecasting below-normal AR activity with high confidence
- Ridging outlooks show some uncertainty in ridging activity near the US West Coast during Weeks 3–4
 - ECMWF is forecasting above-normal North-ridge activity with moderate confidence, whereas NCEP is forecasting near-normal North-ridge activity
- IRI North American weather regime tool shows moderate likelihood of persistent Pacific Ridge during Weeks 3 – 4
- CW3E West Coast weather regime tool shows moderate likelihood of patterns associated with below-normal precipitation in Northern and Central CA during Week 3

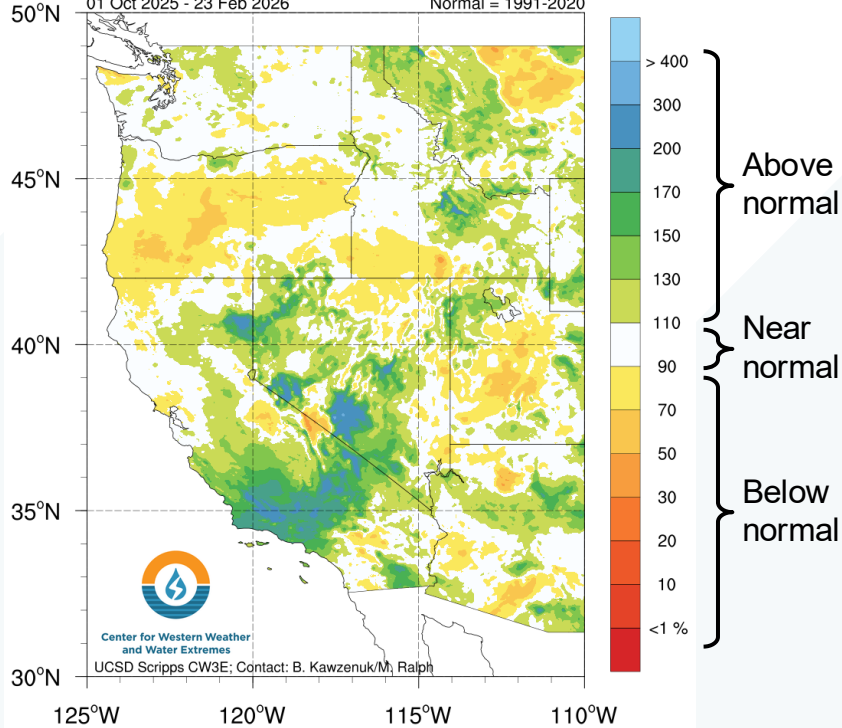
Week 4 Forecasts (16–22 Mar):

- Models agree on slightly below-normal to below-normal AR activity over Northern CA during Week 4
 - In Central CA, ECCC and ECMWF are forecasting near-normal to slightly below-normal AR activity with high confidence, whereas NCEP is forecasting near-normal AR activity
 - In Southern CA, NCEP is forecasting near-normal to slightly above-normal AR activity, ECCC is forecasting near-normal AR activity, and ECMWF is forecasting near-normal to slightly below-normal AR activity with high confidence
- CW3E West Coast weather regime tool shows high degree of uncertainty in WRs

Hydrologic Summary

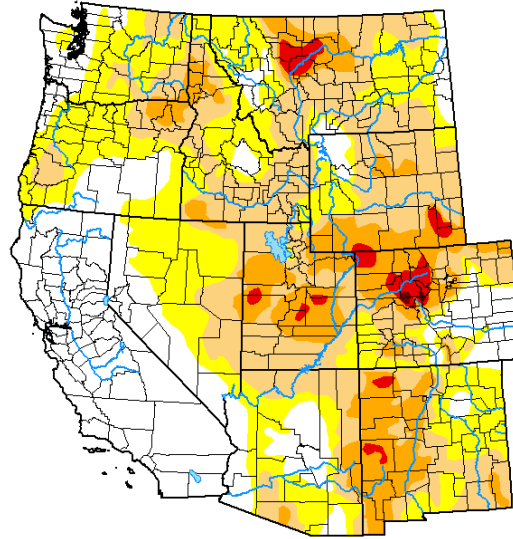
Precipitation

PRISM Water Year to Date Precipitation Anomaly (%)
01 Oct 2025 - 23 Feb 2026 Normal = 1991-2020



Drought Conditions

U.S. Drought Monitor West



February 17, 2026

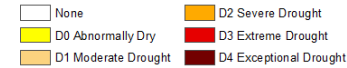
(Released Thursday, Feb. 19, 2026)

Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	28.13	71.87	44.15	15.41	2.03	0.07
Last Week 02-10-2026	30.36	69.64	39.77	14.54	1.43	0.07
3 Months Ago 11-18-2025	28.37	71.63	54.62	27.45	4.06	0.00
Start of Calendar Year 01-06-2026	40.61	59.39	36.26	14.36	1.16	0.06
Start of Water Year 09-30-2025	18.15	81.85	64.82	44.12	12.00	0.69
One Year Ago 02-18-2025	29.93	70.07	48.78	27.72	12.78	0.26

Intensity:



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>

Author:

Richard Tinker
CPC/NOAA/NWS/NCEP



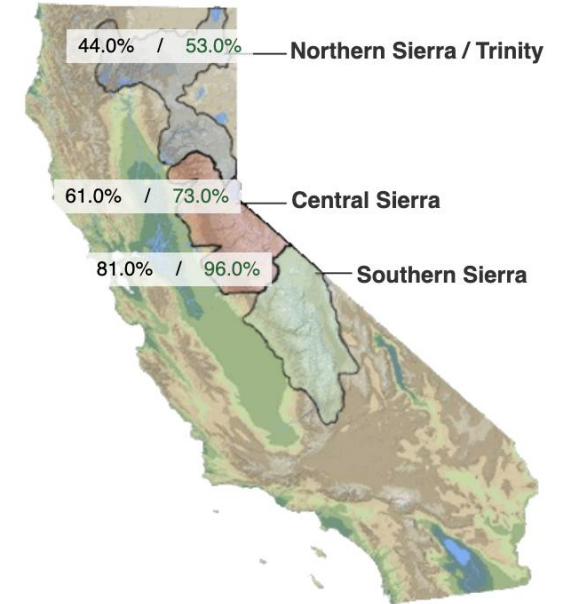
droughtmonitor.unl.edu

Snowpack Conditions

Provided by the California Cooperative Snow Surveys

Data For: 24-Feb-2026

% Apr 1 Avg. / % Normal for this Date



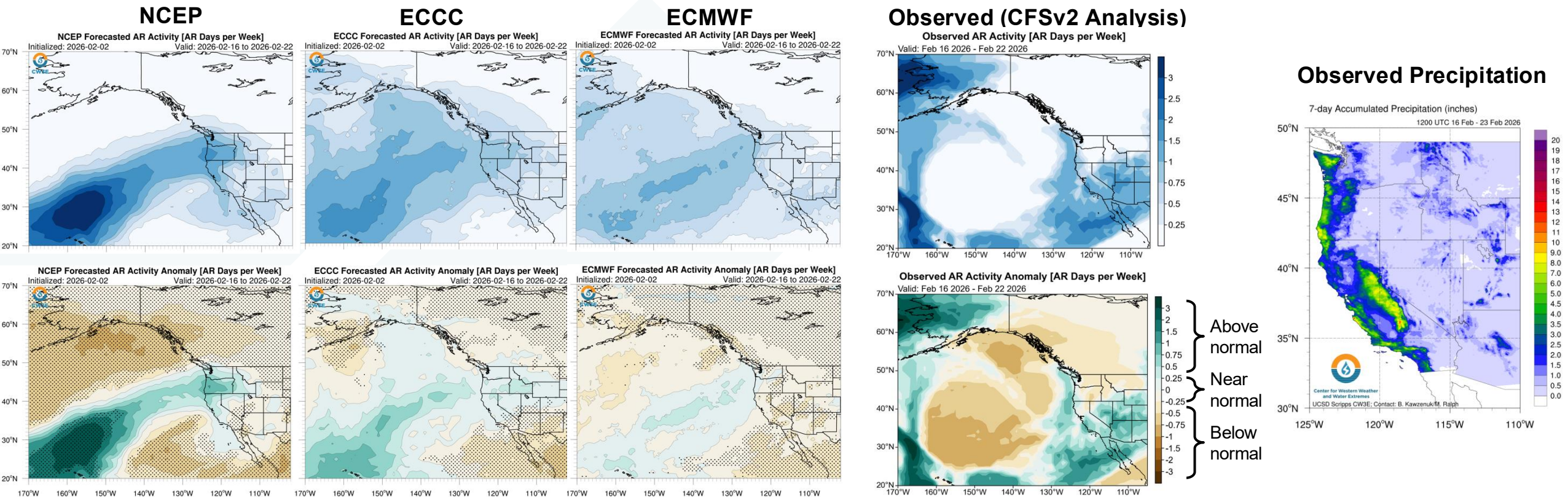
Source: California DWR

Disclaimer: In addition to climate indicators, the U.S. Drought Monitor also uses impact reports from local observers about crop failures or water restrictions to quantify drought.

- As of 23 Feb, water-year-to-date precipitation is still running **well-above normal (>150% of normal)** in portions of Central and Southern CA and **slightly below normal to slightly above normal (70–130% of normal)** across most of the rest of the state
- SoCal (especially San Diego County) and the Northern Sierra region are now running much closer to normal conditions compared to this same time last week
- The most recent drought monitor update is showing no drought over all of CA
- As of 24 Feb, estimated snowpack is below normal in the Northern Sierra Nevada/Trinity region (53% of normal), slightly below normal in the Central Sierra Nevada (**73% of normal**), and near normal in the Southern Sierra Nevada (**96% of normal**)

Looking Back: Week 3 AR Activity Forecasts

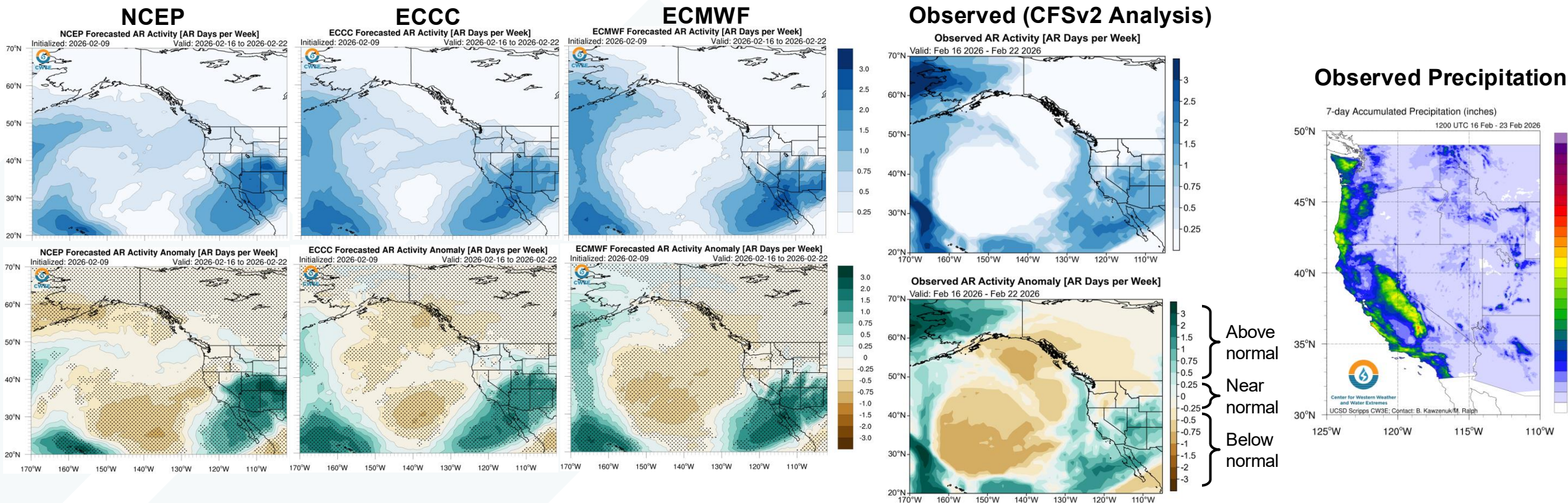
Forecasts Initialized 2 Feb 2026; Valid: 16–22 Feb 2026



- At 3-week lead times, all models failed to capture the observed large-scale circulation pattern and underestimated AR activity over Southern CA
- NCEP and ECCC overestimated AR activity over Northern CA and the Pacific Northwest
- Several mid-level troughs and ARs produced 5–9 inches of precipitation along the U.S. West Coast and the Sierra Nevada during 16–22 Feb

Looking Back: Week 2 AR Activity Forecasts

Forecasts Initialized 9 Feb 2026; Valid: 16–22 Feb 2026

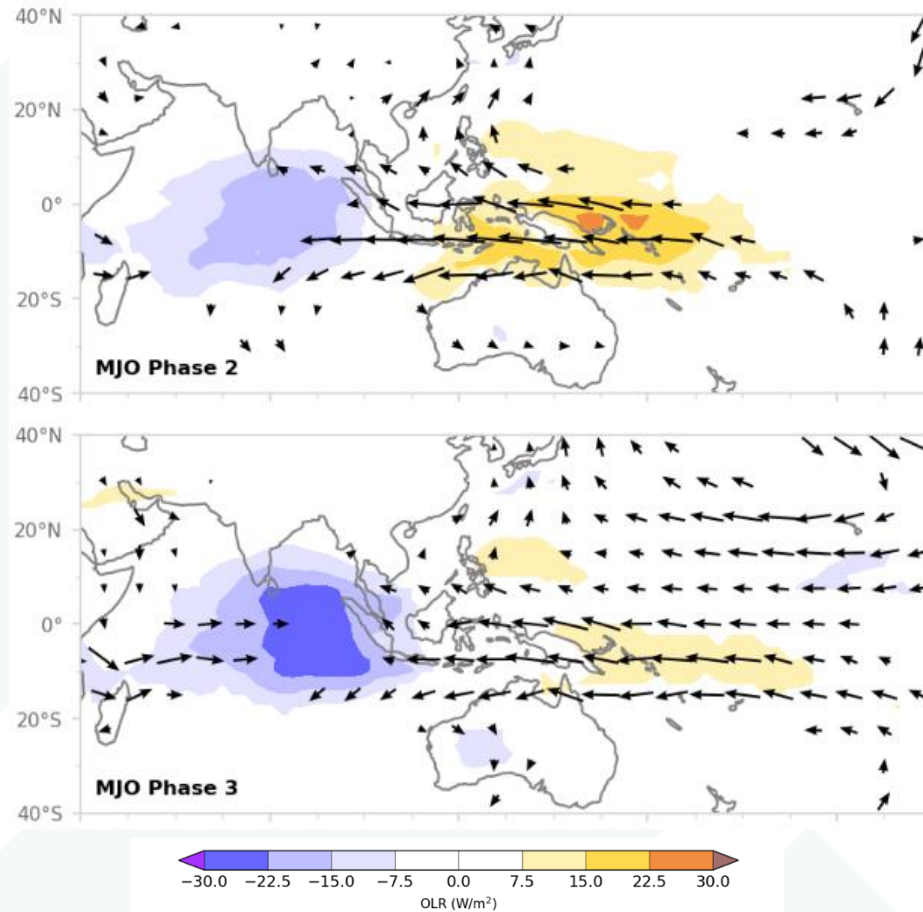


Shading: Fractional # of AR days forecast over a 7-day period (top) and forecast minus model climatology (bottom; green/blue = higher than climatology; brown = lower than climatology)

- At 2-week lead times, all models generally captured the large-scale pattern and AR activity over Southern CA
- All models failed to capture the meridional axis of observed AR activity along the Pacific Northwest coast
- Several mid-level troughs and ARs produced 5–9 inches of precipitation along the U.S. West Coast and the Sierra Nevada during 16–22 Feb

Dynamical Model MJO Forecasts (NCEP)

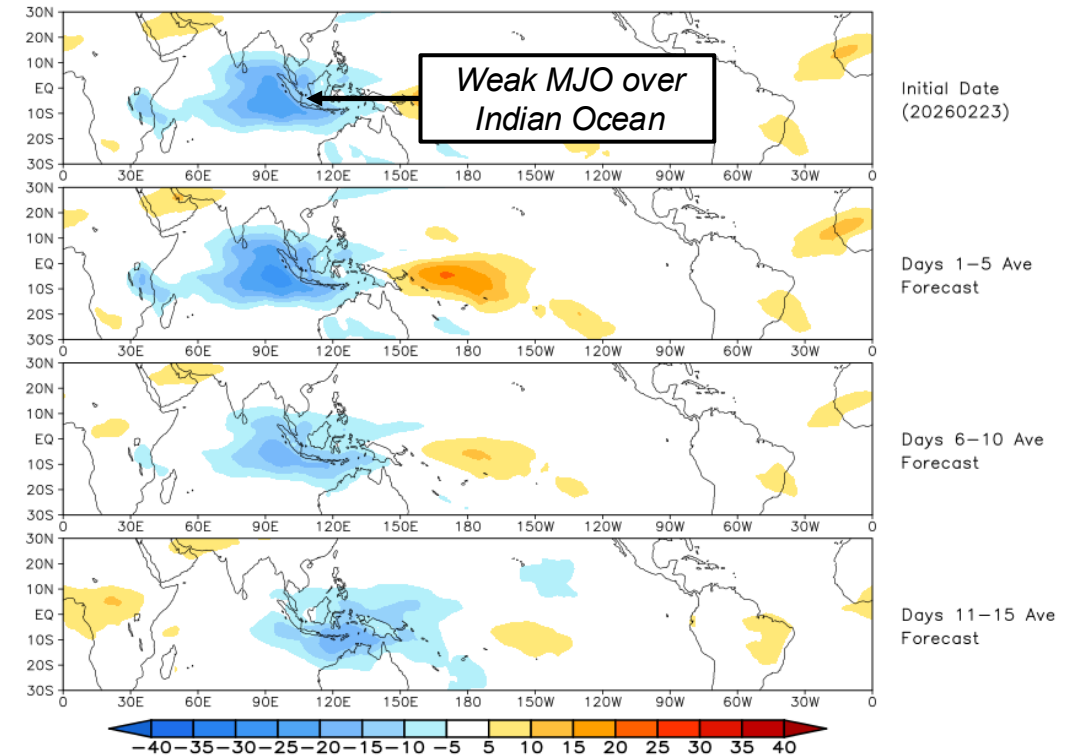
Observed MJO Phases 2&3 (Indian Ocean)



OLR = Outgoing longwave radiation

Weeks 1–2 MJO Prediction

OLR prediction of MJO-related anomalies using GFS model reconstruction by RMM1 & RMM2 (20260223)



- As of 23 Feb, weak MJO convection is currently located over the Indian Ocean (Phase 3)
- NCEP is forecasting MJO convection to remain weak through Weeks 1–2
- Weak MJO has limited impacts on mid-latitude weather and climate

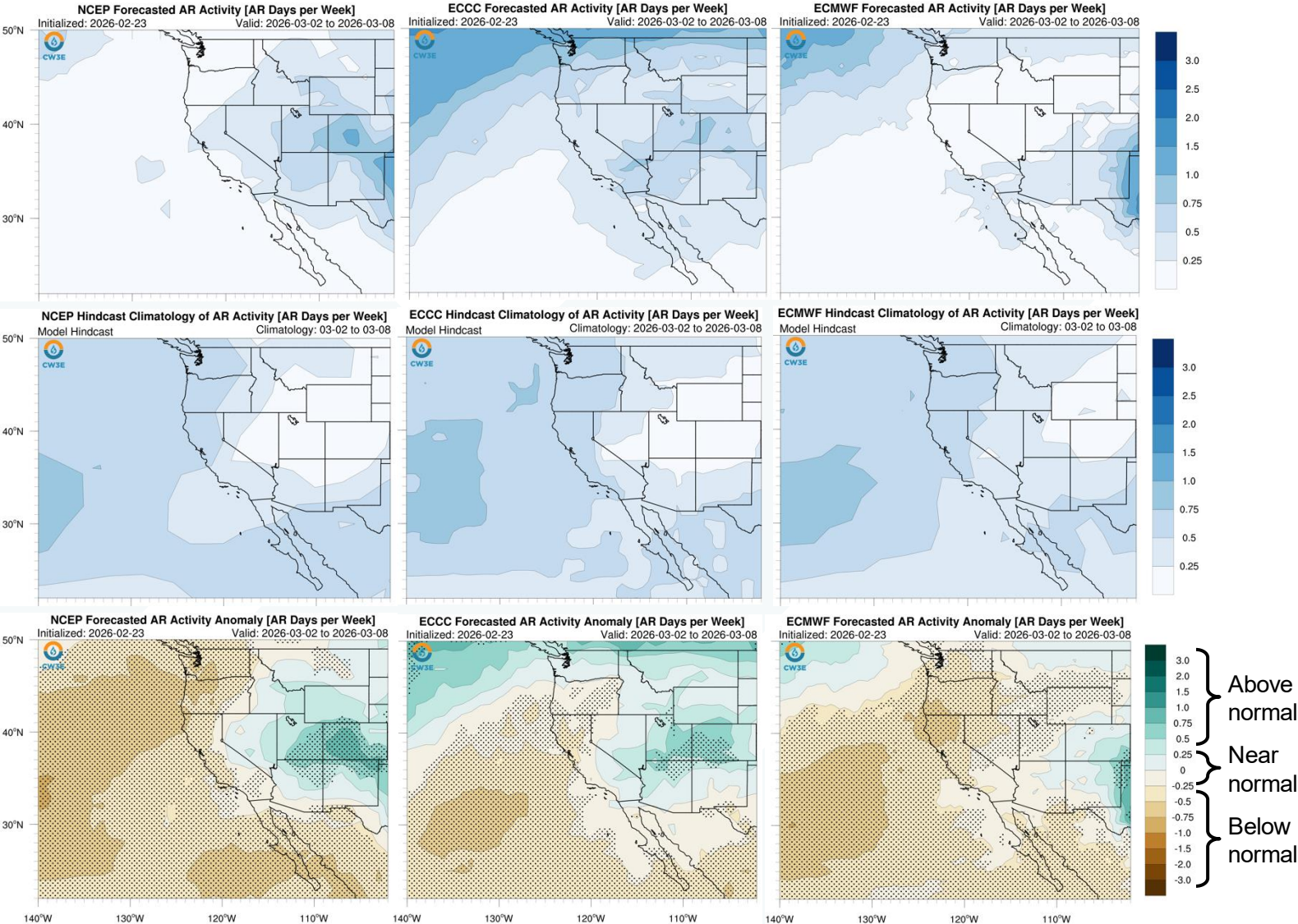
AR Activity Forecasts: Week 2 (NCEP vs. ECCC vs. ECMWF)

Forecasts Initialized 23 Feb 2026

NCEP

ECCC

ECMWF



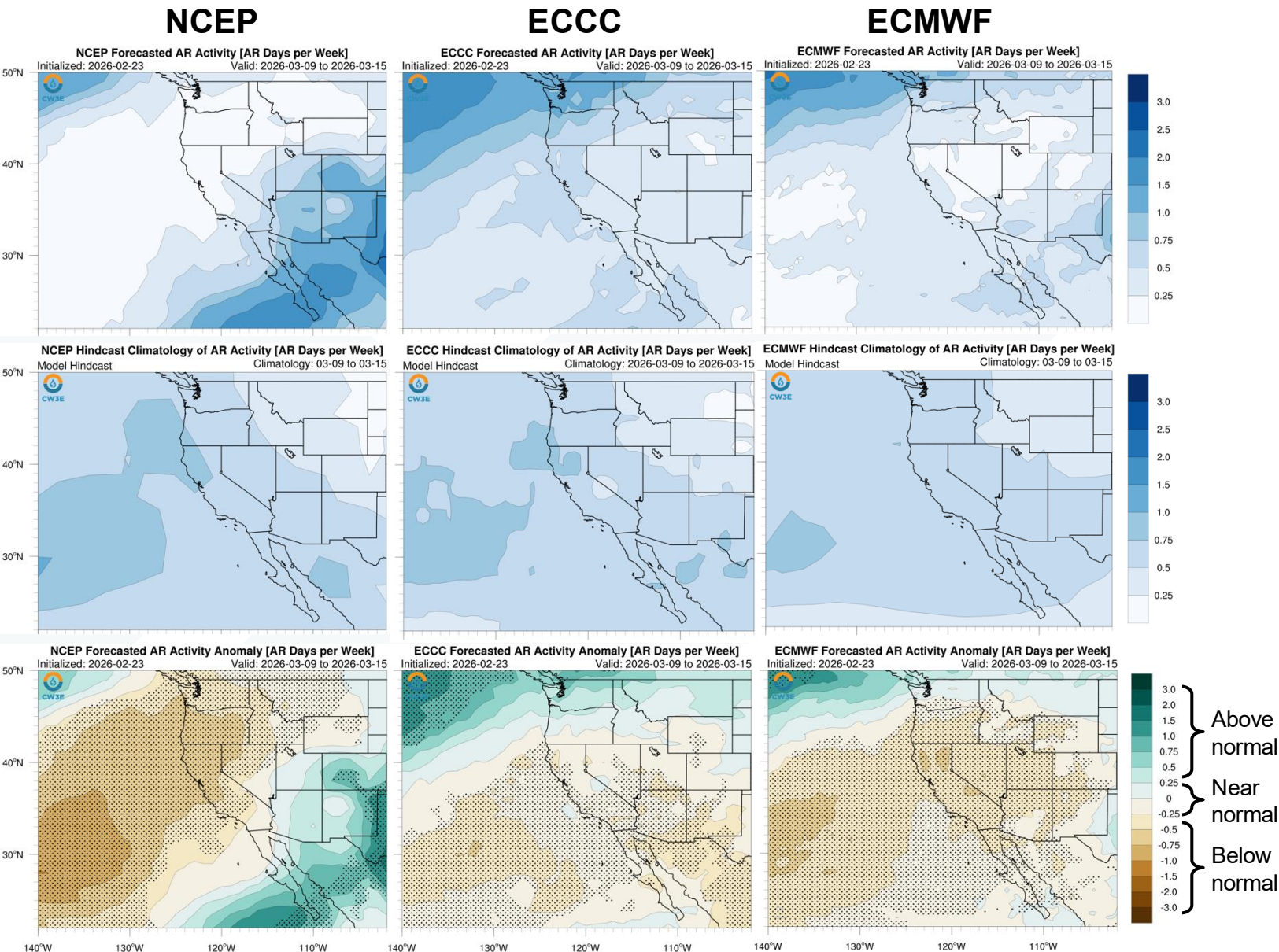
- All models show high confidence in slightly below-normal AR activity over Northern CA, and near-normal AR activity over Southern CA during Week 2 (2–8 Mar)
- In Central CA, NCEP and ECMWF are forecasting high confidence in slightly below-normal AR activity, whereas ECCC is forecasting near-normal AR activity

Models agree on slightly below-normal AR activity over Northern CA and near-normal AR activity over Southern CA during Week 2 (2–8 Mar)

Shading: Fractional # of AR days forecast over a 7-day period (top), model climatology (middle), and forecast minus model climatology (bottom; green/blue = higher than climatology; brown = lower than climatology)

AR Activity Forecasts: Week 3 (NCEP vs. ECCC vs. ECMWF)

Forecasts Initialized 23 Feb 2026



- In Northern CA, NCEP and ECMWF are forecasting high confidence in slightly below-normal to below-normal AR activity, whereas ECCC is forecasting near-normal to slightly below-normal AR activity during Week 3 (9–15 Mar)
- In Central CA, NCEP and ECMWF are forecasting high confidence in slightly below-normal to below-normal AR activity, whereas ECCC is forecasting near-normal AR activity
- In Southern CA, NCEP and ECCC are forecasting near-normal to slightly below-normal AR activity, whereas ECMWF is forecasting slightly below-normal AR activity with high confidence

NCEP and ECMWF generally agree on slightly below-normal to below-normal AR activity over Northern and Central CA during Week 3 (9–15 Mar)

Shading: Fractional # of AR days forecast over a 7-day period (top), model climatology (middle), and forecast minus model climatology (bottom; green/blue = higher than climatology; brown = lower than climatology)

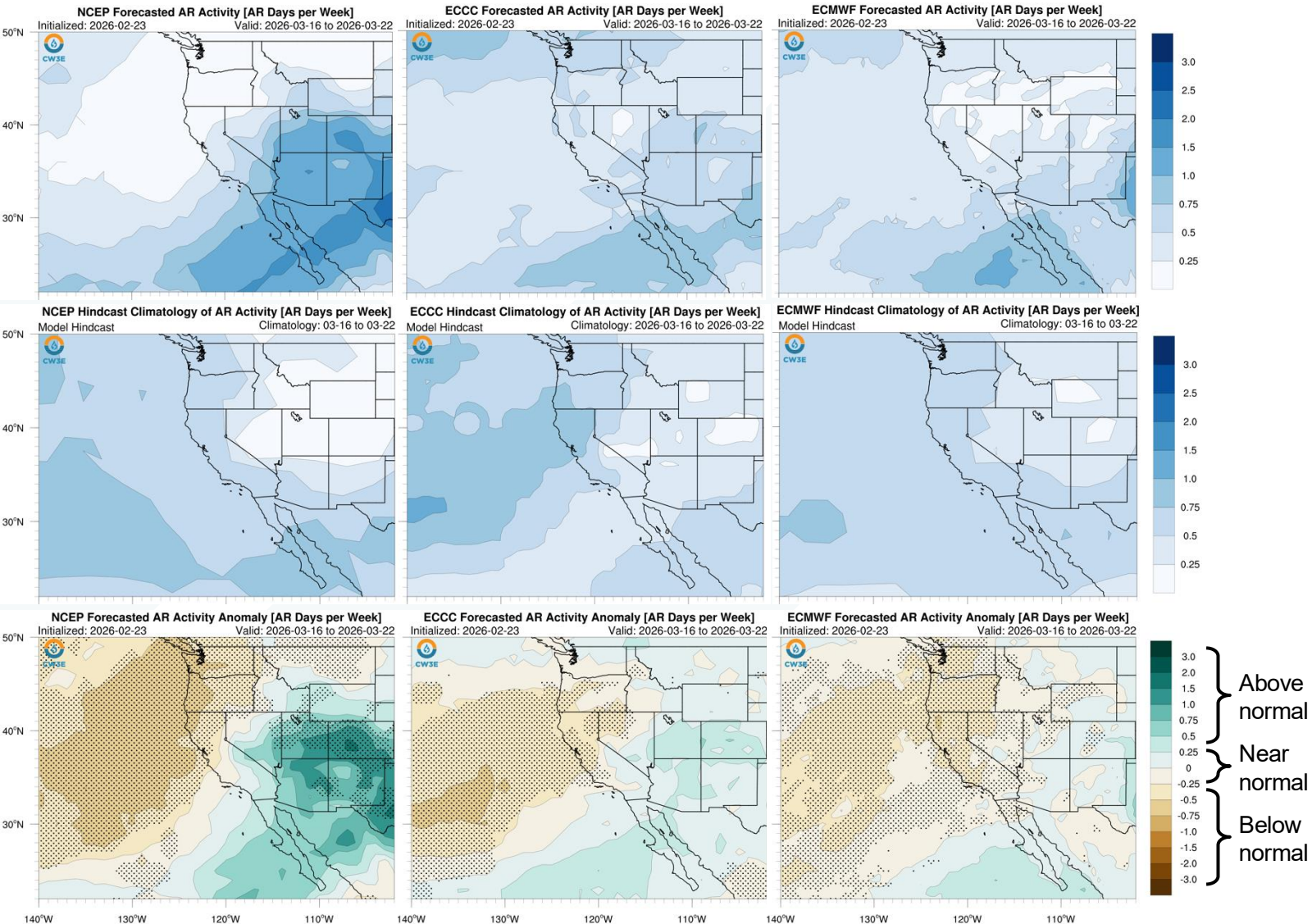
AR Activity Forecasts: Week 4 (NCEP vs. ECCC vs. ECMWF)

Forecasts Initialized 23 Feb 2026

NCEP

ECCC

ECMWF

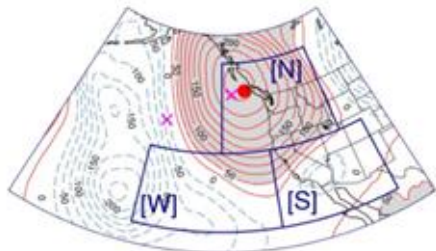


- All models are forecasting high confidence in slightly below-normal to below-normal AR activity over Northern CA during Week 4 (16–22 Mar)
- In Central CA, ECCC and ECMWF are forecasting near-normal to slightly below-normal AR activity with high confidence, whereas NCEP is forecasting near-normal AR activity
- In Southern CA, NCEP is forecasting near-normal to slightly above-normal AR activity, ECCC is forecasting near-normal AR activity, and ECMWF is forecasting near-normal to slightly below-normal AR activity with high confidence

Models agree on slightly below-normal to below-normal AR activity over Northern CA during Week 4 (16–22 Mar)

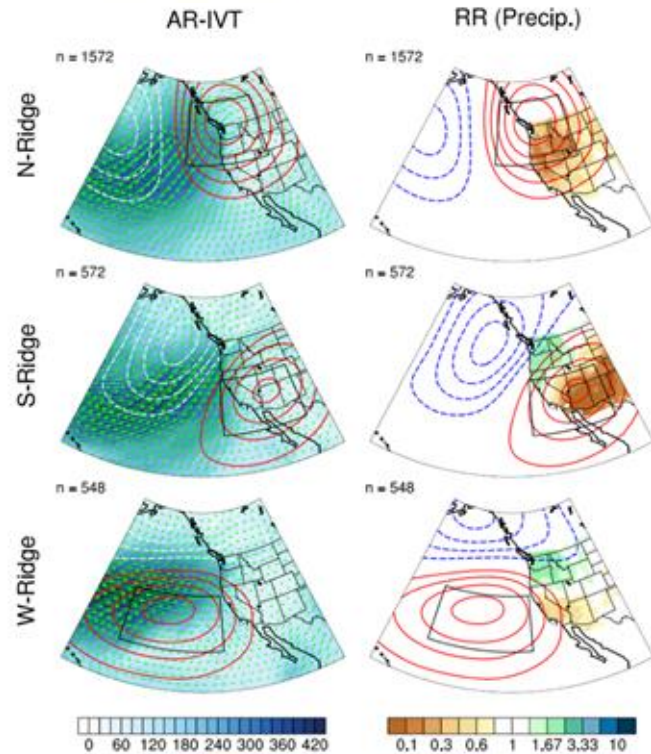
Shading: Fractional # of AR days forecast over a 7-day period (top), model climatology (middle), and forecast minus model climatology (bottom; green/blue = higher than climatology; brown = lower than climatology)

Background Info: Subseasonal Ridging Outlooks



N = North Ridge
S = South Ridge
W = West Ridge

This slide contains background information about the three different ridge types in CW3E's subseasonal ridging outlook tool



How each ridge type typically influences precipitation

Left: Maps showing the average influence of each ridge type (red contours) on integrated vapor transport (IVT, blue shading indicates greater moisture transport, arrows indicate direction) during atmospheric river events

Right: Maps showing the 'Relative Risk' (RR) of precipitation under each ridge type. Brown shading indicates a reduced chance of precipitation when ridging occurs. For example, a RR value of 0.2 indicates a 5-fold reduction in the likelihood of precipitation

- The North-Ridge type is typically associated with widespread dry conditions across the entire western US
- The South-Ridge type is typically associated with dry conditions in Southern CA and the Colorado River Basin and wet conditions in the Pacific Northwest
- The West-Ridge type is typically associated with dry conditions over Central and Southern CA and wet conditions over the Pacific Northwest



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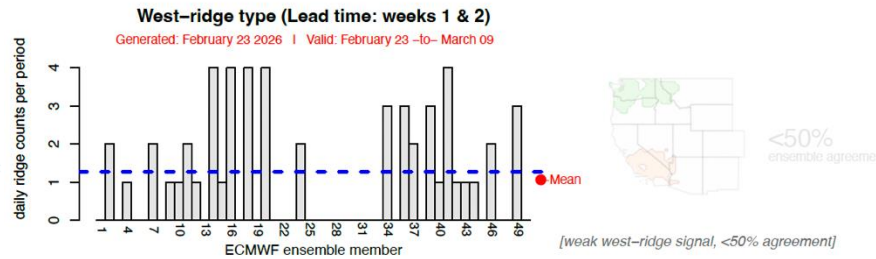
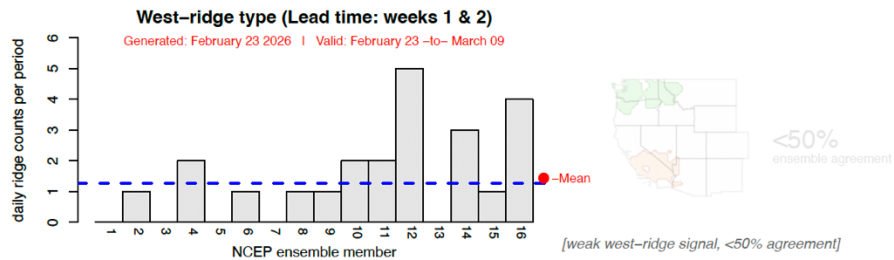
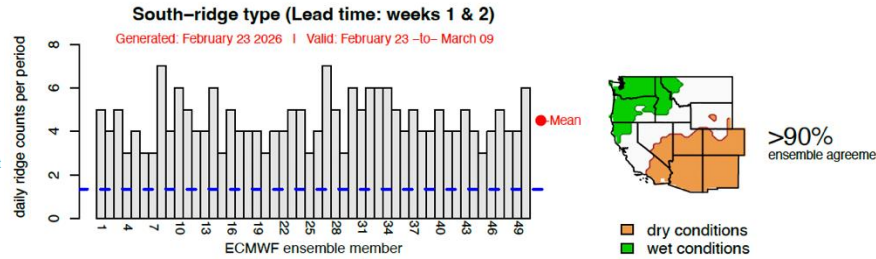
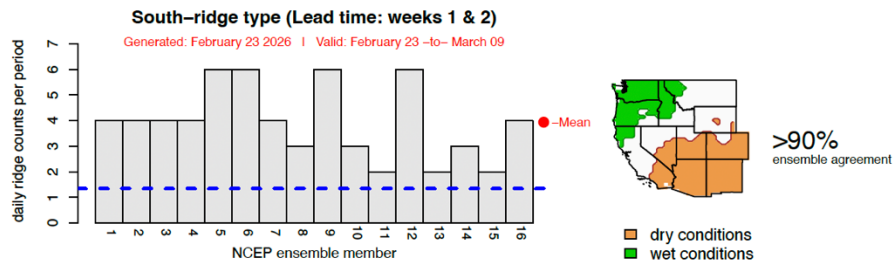
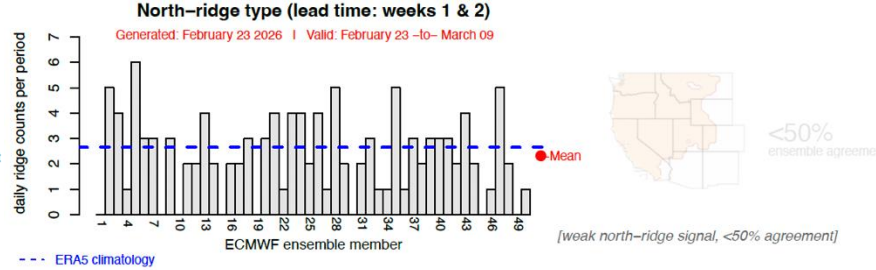
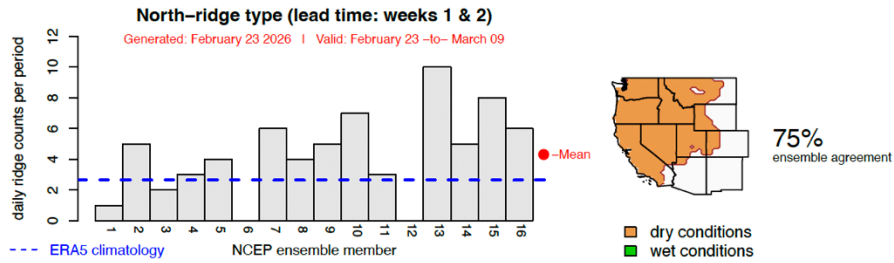
Contact: pgibson@ucsd.edu
Reference: Gibson et al. (2020)
Journal of Climate

Ridging Forecasts: Weeks 1–2 (NCEP vs. ECMWF)

Forecasts Initialized 23 Feb 2026

NCEP

ECMWF



- Both models are forecasting above-normal South-ridge activity with high confidence (>90% ensemble agreement) during Weeks 1–2 (23 Feb – 9 Mar)
- NCEP is also forecasting above-normal North-ridge activity with high confidence (75% ensemble agreement), whereas ECMWF is forecasting near-normal North-ridge activity
- Both models are forecasting near-normal West-ridge activity

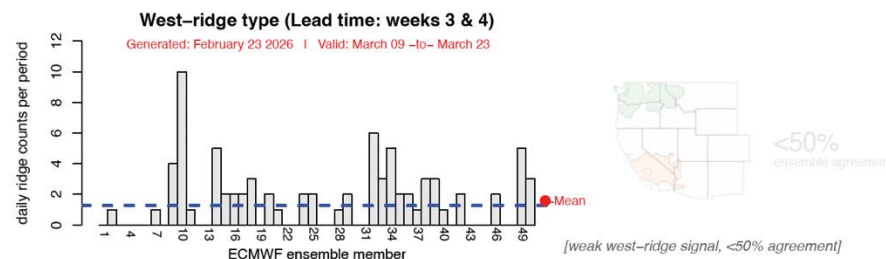
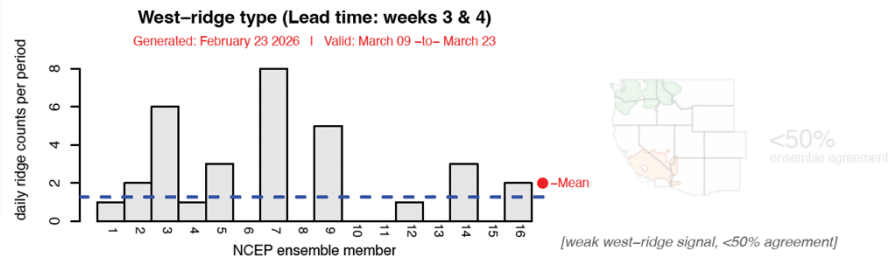
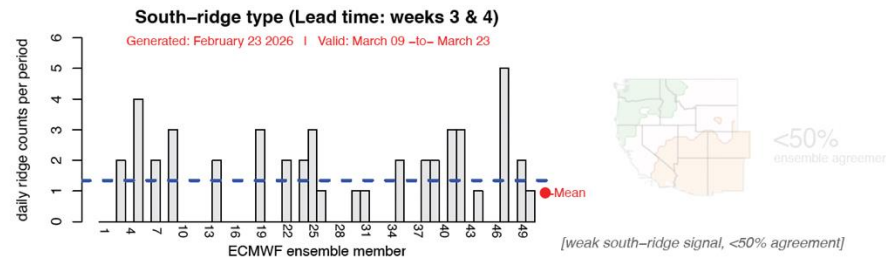
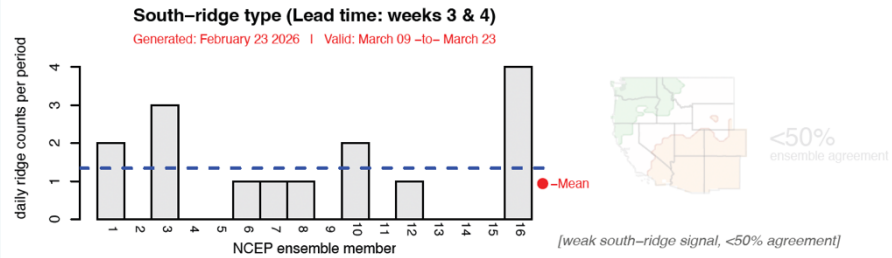
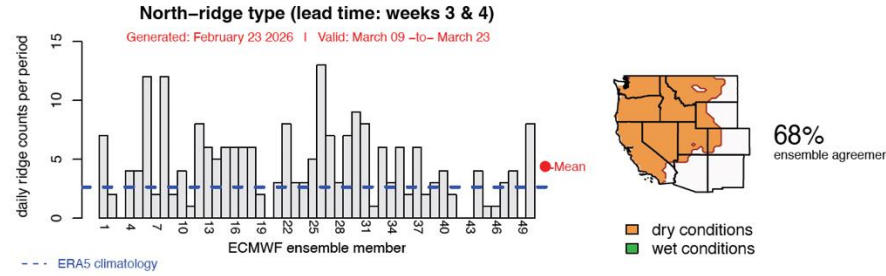
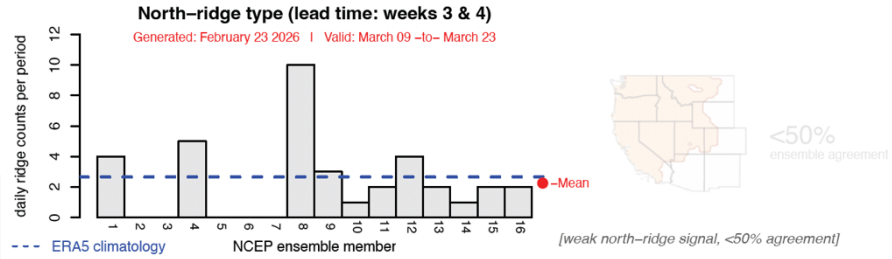
Models show high likelihood of persistent ridging activity over the southwestern US during Weeks 1–2 (23 Feb – 9 Mar)

Ridging Forecasts: Weeks 3–4 (NCEP vs. ECMWF)

Forecasts Initialized 23 Feb 2026

NCEP

ECMWF

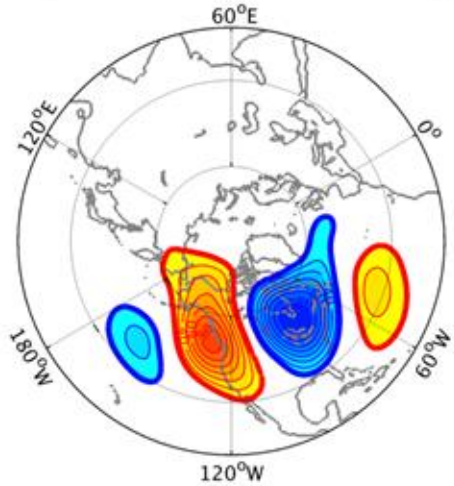


- ECMWF is forecasting above-normal North-ridge activity with moderate confidence (68% ensemble agreement), whereas NCEP is forecasting near-normal North-ridge activity during Weeks 3–4 (9 – 23 Mar)
- Both models are also forecasting near-normal South-ridge activity, and West-ridge activity

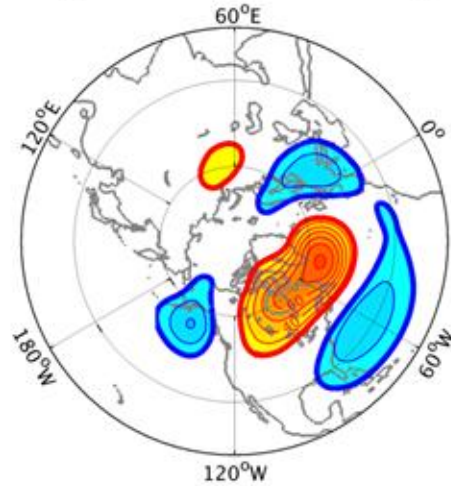
Models show some uncertainty in ridging activity near the US West Coast during Weeks 3–4 (9 – 23 Mar)

Background Info: IRI Subseasonal Weather Regime Forecasts

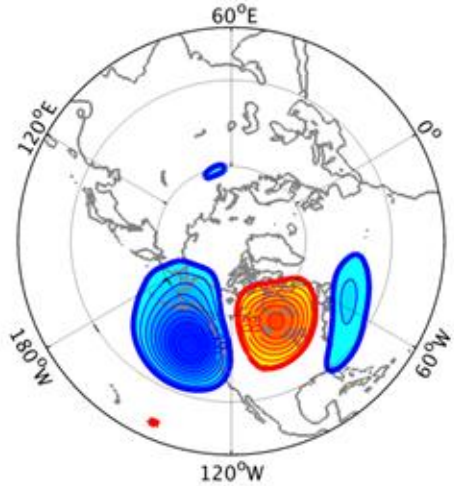
a) WR 1: West Coast Ridge



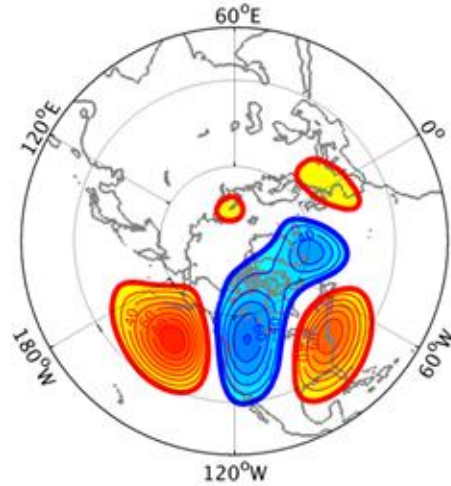
b) WR 2: Greenland High



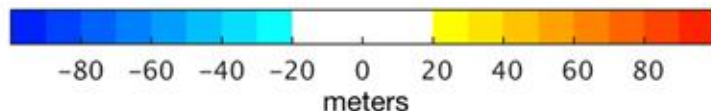
c) WR 3: Pacific Trough



d) WR 4: Pacific Ridge



Geopotential Height Anomaly



This slide contains background information about IRI's North American weather regime forecast product

- Four dominant weather regimes identified using cluster analysis on daily 500-hPa geopotential height anomalies from MERRA data (1981–2015)

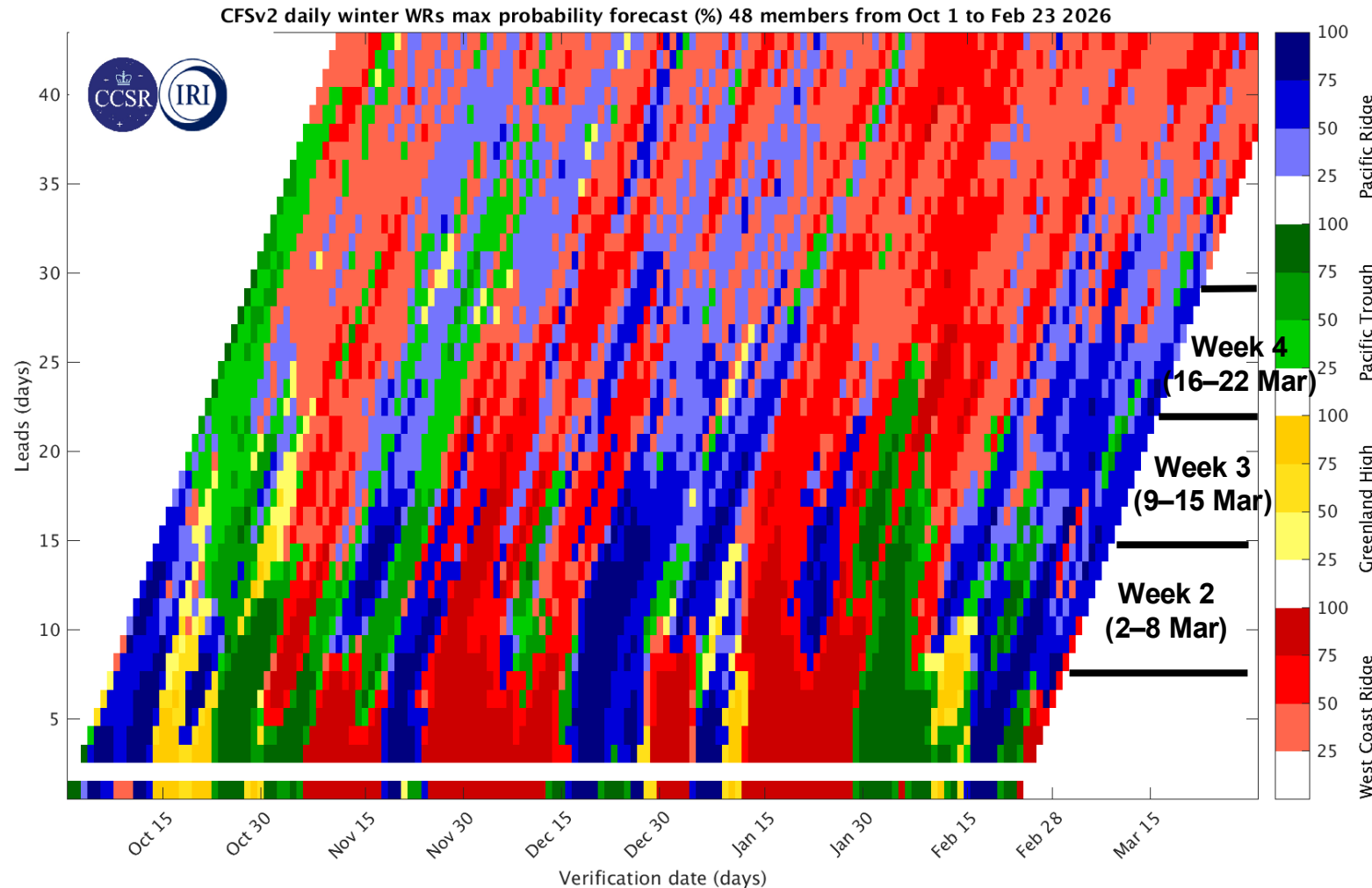
Reference: [Robertson et al. \(2020\)](#)

For more information about the forecast product:

<https://wiki.iri.columbia.edu/index.php?n=Climate.S2S-WRs>

IRI North American Weather Regime Forecasts

Forecasts Initialized 23 Feb 2026

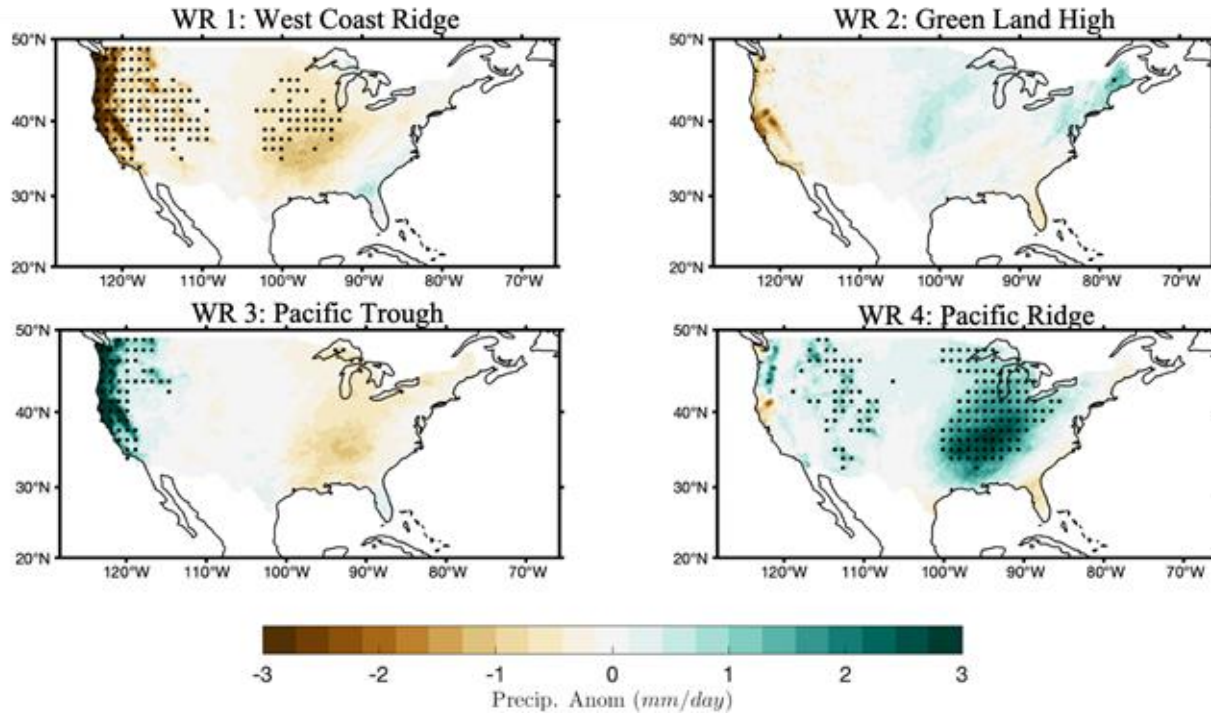


- Daily forecast out to 45-day lead time based on NCEP CFSv2 ensemble
- Moderate likelihood (50–75% ensemble agreement) of transition from West Coast Ridge to Pacific Ridge during the middle of Week 2 (5 – 8 Mar)
- Moderate likelihood of persistent Pacific Ridge during Weeks 3 – 4 (9 – 22 Mar)

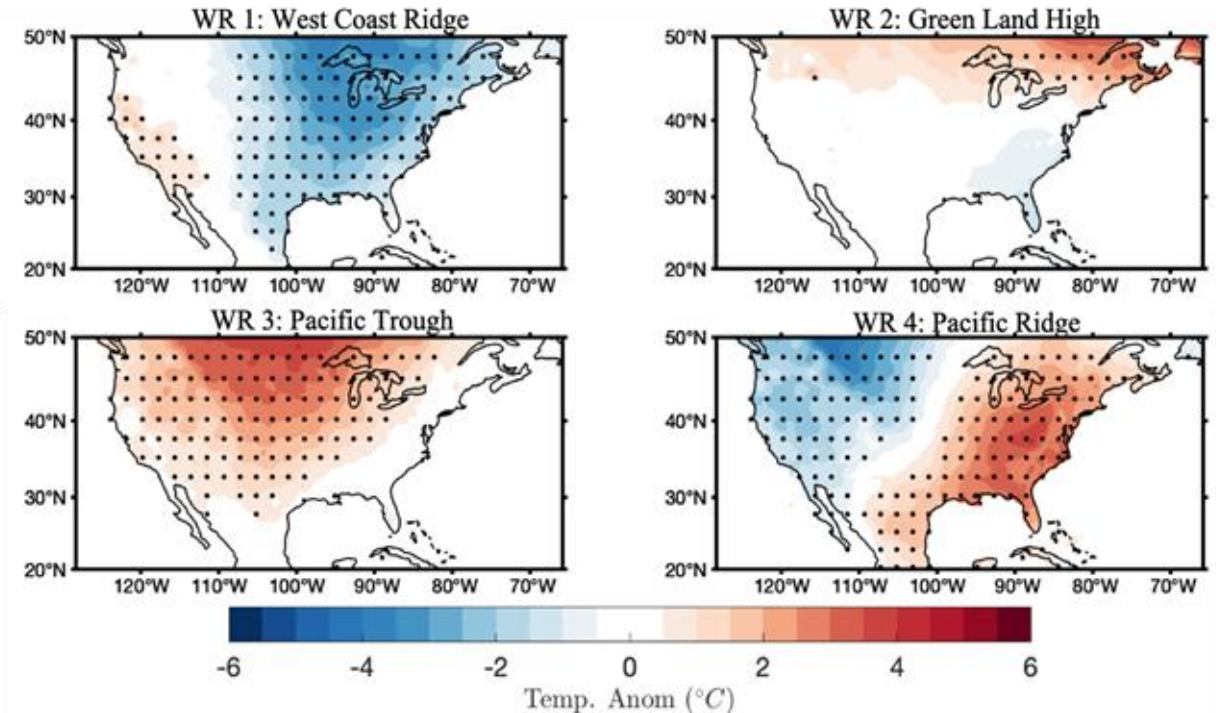
This graphic shows the which of the four North American weather regimes (different colors) is most likely to occur over the next 45 days. Darker (lighter) shading denotes higher (lower) probability of a particular regime. See the next slide for temperature/precipitation implications.

IRI North American Weather Regime Forecasts

Precipitation Anomalies



Temperature Anomalies



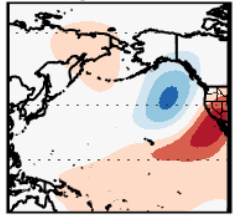
This graphic shows composite mean precipitation (left) and temperature (right) anomalies associated with each weather regime. Stippling (black dots) indicate statistically significant anomalies.

- Below-normal precipitation and above-normal temperature predicted over CA during early Week 2 (2–4 Mar) with moderate confidence in West Coast Ridge regime
- Near-normal precipitation and below-normal temperature predicted over CA during second half of Week 2 through Week 4 (5 – 22 Mar) with moderate confidence in Pacific Ridge regime

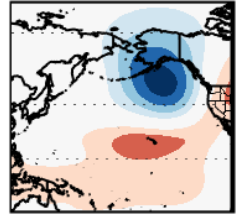
Background Info: Hybrid Weather Regime Impacts Forecast

a) NP4 Mode

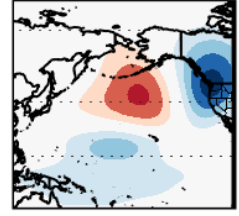
Patterns



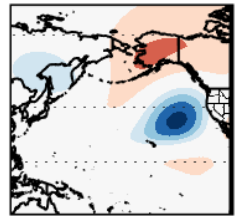
Alaskan-Pacific



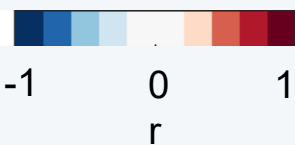
Canadian-Pacific



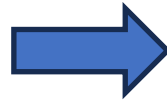
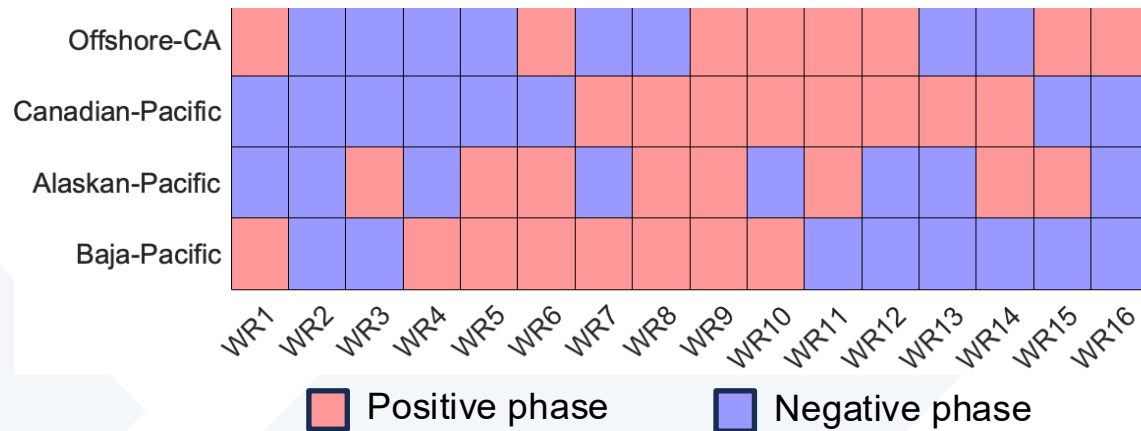
Offshore-CA



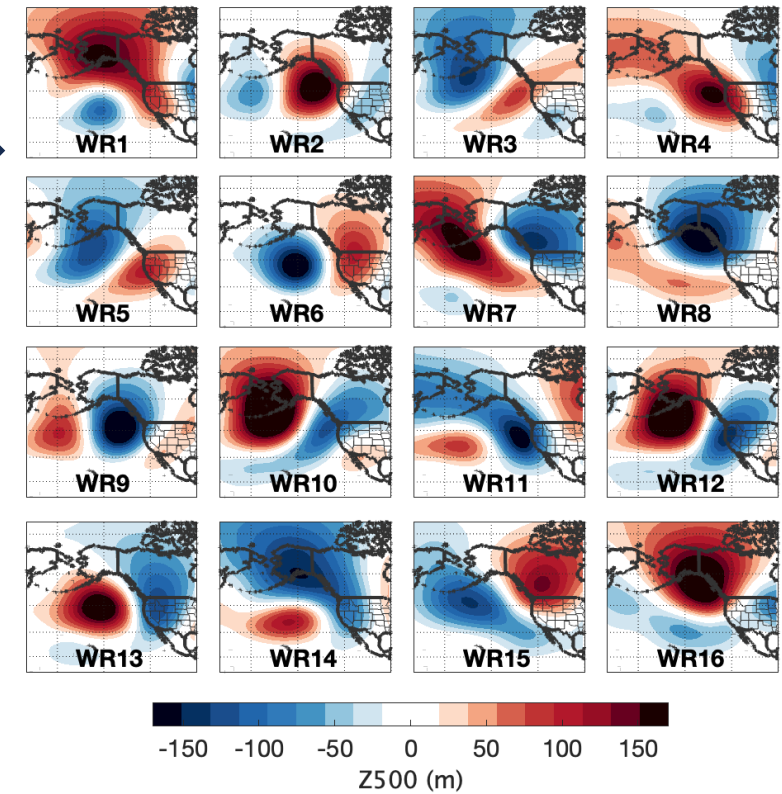
Z500 rEOFs



b) NP4 Mode Phase Combinations



c) Daily Weather Regimes



a) NP4 Mode Patterns

Four key modes of atmospheric variability over the North Pacific (called the “NP4 Modes”, shown in the positive phase) capture most of the variance in atmospheric circulation in this region.

b) NP4 Mode Phase Combinations

The day-to-day changes in the amplitude and phase of the NP4 modes control ridge-trough positioning over the West Coast.

c) Daily Weather Regimes

Sixteen daily weather regimes are defined by the joint phase state of the four NP4 modes. These represent short-duration daily weather patterns.

Relevance to West Coast Weather

These regimes are historically linked to impactful West Coast weather, including AR landfalls, precipitation and flooding, temperature extremes, Santa Ana winds, and wildfire conditions.

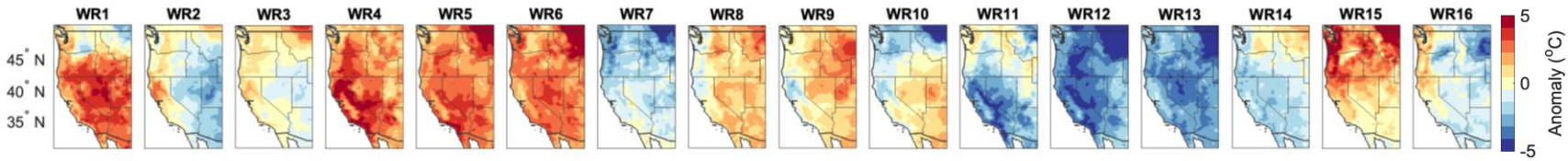
This slide contains background information about CW3E’s hybrid weather regimes forecast product.

Reference:

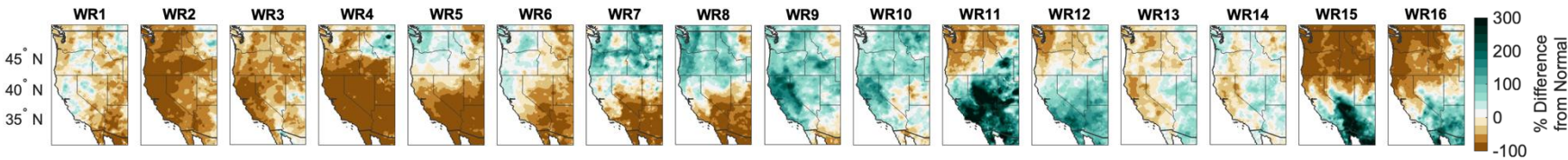
Guirguis et al. [2023a](#) and [2023b](#)

Hybrid Weather Regime Impacts Forecast

a) Temperature Anomaly Associated With Each Weather Regime



b) Precipitation Anomaly Associated With Each Weather Regime



Forecasts Initialized 23 Feb 2026

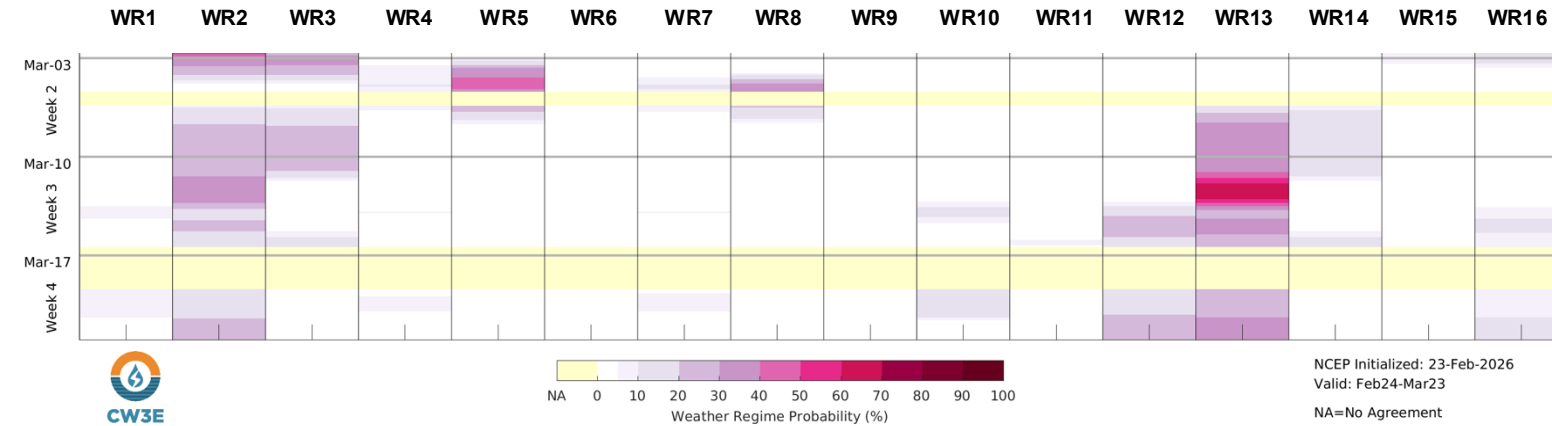
Week 2 (3–9 Mar): Forecast favors regimes that tilt the odds towards below normal precipitation across CA (and especially Southern CA), despite no single WR emerging as the most likely.

Week 3 (10–16 Mar): Dominated by WRs 2&13, which are both associated with below-normal precipitation in Northern and Central CA.

Week 4 (17–23 Mar): High degree of uncertainty in WRs.

Valid 3–23 Mar

c) Weather Regime Forecast



a-b: Weather regime impacts based on historical relationships
c: Forecast weather regime probability based on the NCEP dynamical model

NA=No Agreement/Uncertain