

Quick Look at the Storm Currently Impacting California

Updated: 13 October 2025

A weak atmospheric river, an AR 1, and a cutoff low will bring primarily beneficial early-season precipitation to California and help reduce the risk of wildfire over Southern California.

Forecast Highlights:

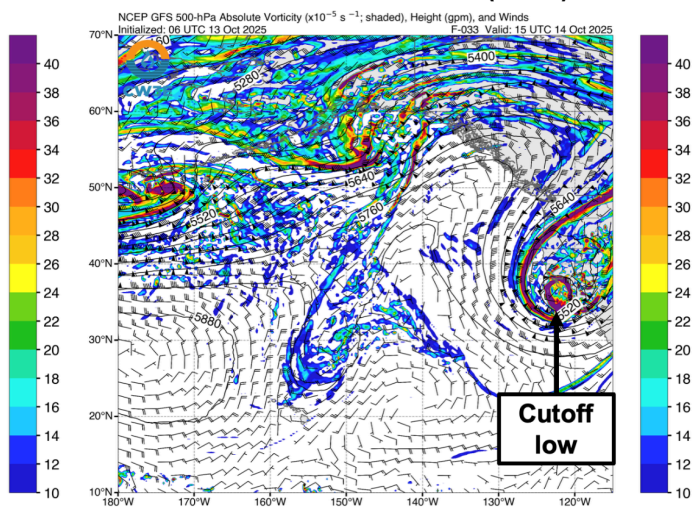
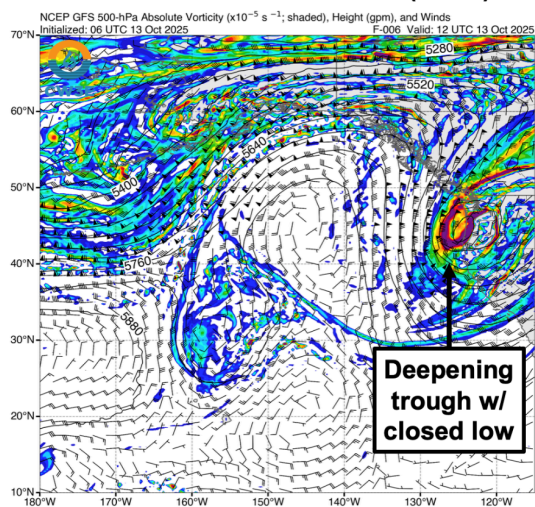
- A deepening upper-level trough will propagate southward along the US West Coast over the next 24 hours and develop into a cutoff low over California by early Tue 14 Oct.
- On the southern periphery of the cutoff low, an atmospheric river (AR) reaching AR 1 on the Ralph et al. (2019) AR Scale will briefly impact portions of Central and Southern California.
- Moisture transport from the AR and forcing for ascent downstream of the trough/cutoff low and will produce widespread precipitation throughout California today into tomorrow.
- While the duration of AR conditions is expected to be limited, strong low-to-midlevel south-southwesterly moisture transport will favor orographic enhancement of precipitation over the Southern California Transverse Ranges.
- CW3E's West-WRF model is also showing the formation of a narrow cold-frontal rainband (NCFR) within the core of the AR, which could produce short-duration high-intensity rainfall in the Transverse Ranges tomorrow morning.
- The NWS Weather Prediction Center (WPC) is forecasting 0.5–2 inches of total precipitation over much of coastal California, the Central Valley, and the Northern Sierra Nevada, with higher amounts (2–4 inches) expected over the Central and Southern Sierra Nevada and Transverse Ranges through 5 AM PT Wed 15 Oct.
- The WPC has issued a **marginal risk** (level 1 of 4; $\geq 5\%$ probability) excessive rainfall outlook (ERO) for much of coastal California, the Central Valley, and the foothills of the Sierra Nevada valid today through the morning of Wed 15 Oct.
- A **slight risk** (level 2 of 4; $\geq 15\%$ probability) ERO has been issued for the central and eastern sections of the Transverse Ranges for the 24-hour period ending 5 AM PT Wed 15 Oct due to the potential for higher-intensity rainfall within the AR over recent burn scar areas.
- As the trough/cutoff low digs southward, freezing levels in the Central and Southern Sierra are forecast to drop below 8,000 feet later today, favoring significant snowfall accumulations at higher elevations.
- Snowfall totals of 12–36 inches are forecast above 7,000 feet in the Central and Southern Sierra Nevada. The combination of heavy snow and gusty winds is expected to produce major winter storm impacts in these areas.
- Precipitation from this event may provide some drought relief and will significantly help reduce the risk of wildfire in portions of coastal Southern California. A study by [Cayan et al. \(2022\)](#) showed that the risk of large fires in coastal Southern California is significantly reduced after autumn onset precipitation of ~ 0.35 inches or greater in a 3-day period.

Stay alert to official NWS forecasts, watches, and warnings at [weather.gov](https://www.weather.gov) and follow guidance from local emergency management officials

GFS 500-hPa Vorticity & Geopotential Height

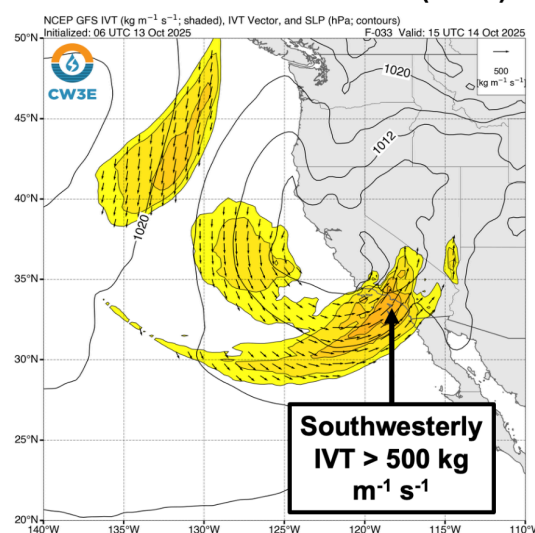
Valid 5 AM PDT 13 Oct (F-006)

Valid 8 AM PDT 14 Oct (F-033)



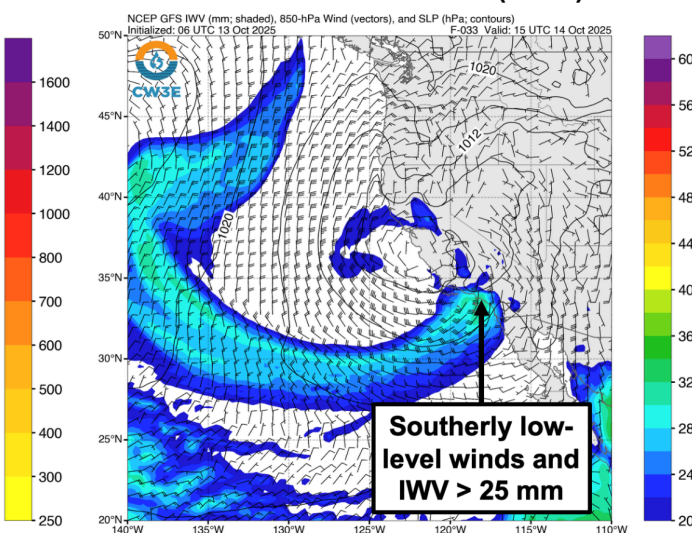
GFS IVT & SLP

Valid 8 AM PDT 14 Oct (F-033)



GFS IWV, 850-hPa Wind & SLP

Valid 8 AM PDT 14 Oct (F-033)



GEFS Ensemble Initialized 06 UTC 13 Oct 2025

Location: 33.5°N, 117.5°W

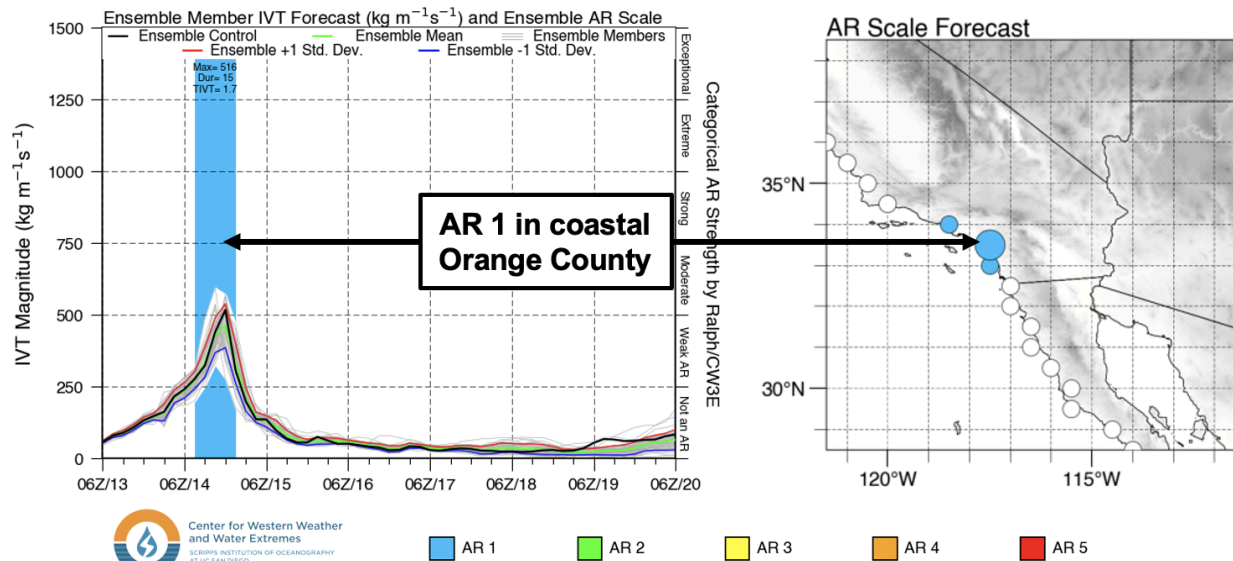
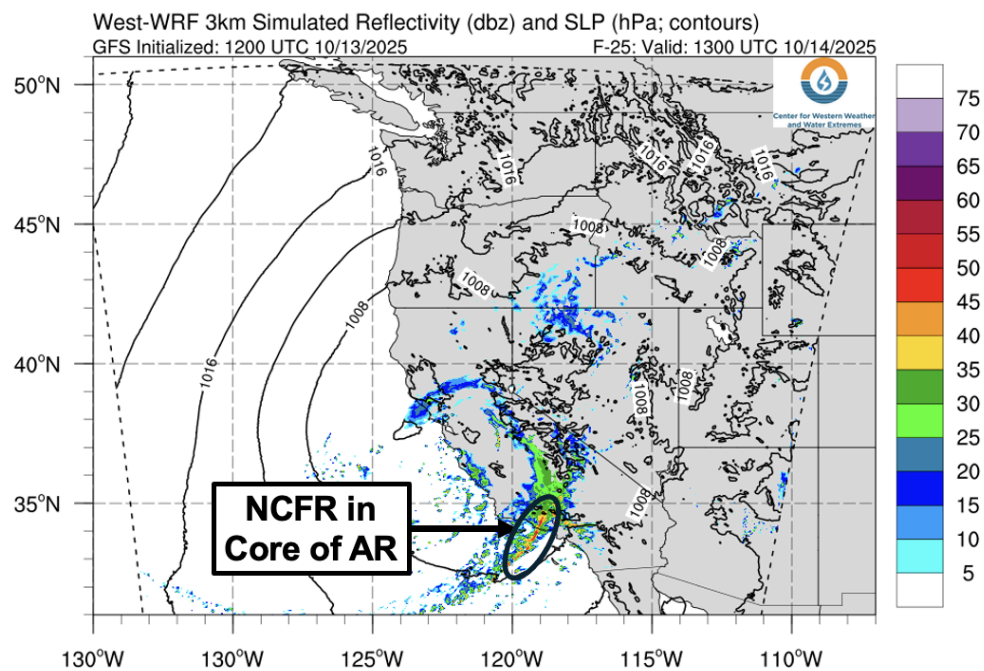
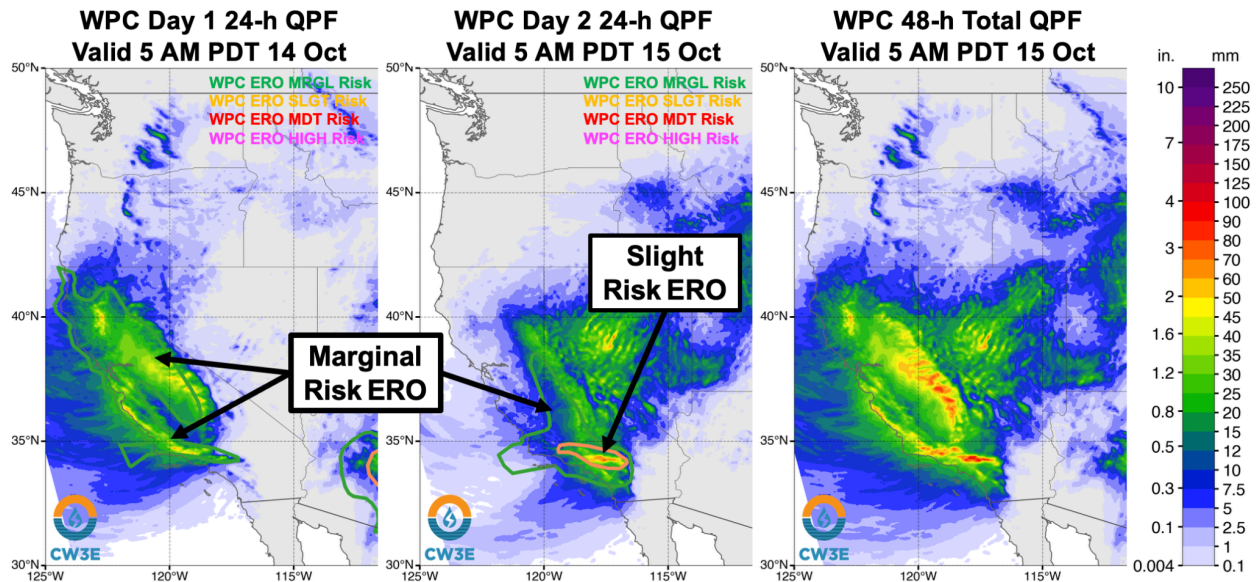


Image created 11 UTC 13 Oct 2025

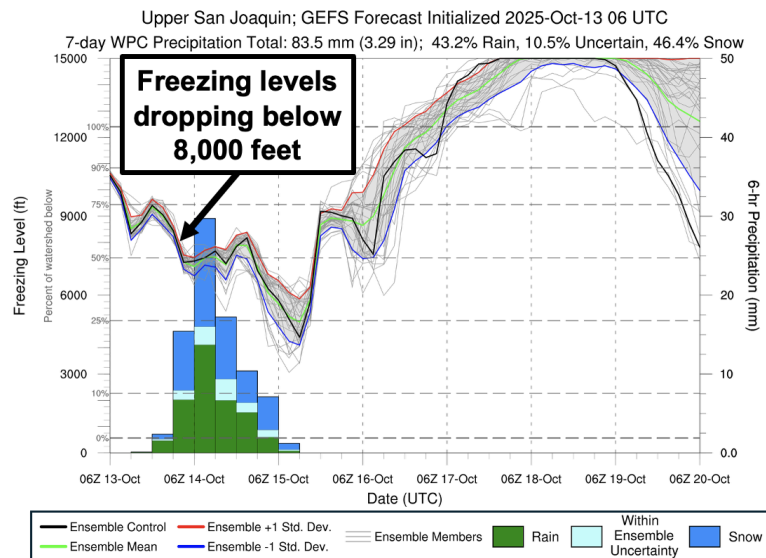
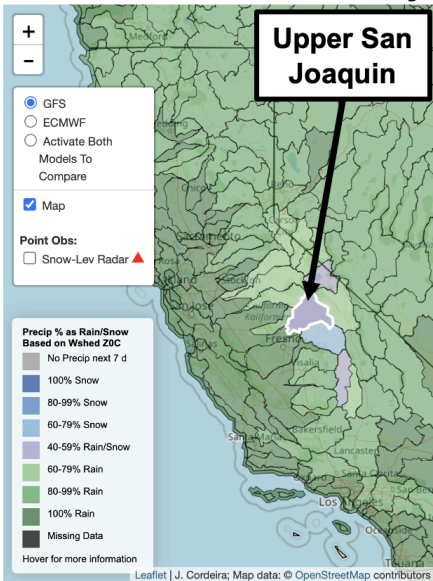
More information: <https://cw3e.ucsd.edu> AR Scale based on Ralph et al. (2019; BAMS)

West-WRF Simulated Reflectivity & SLP Valid 6 AM PDT 14 Oct (F-025)

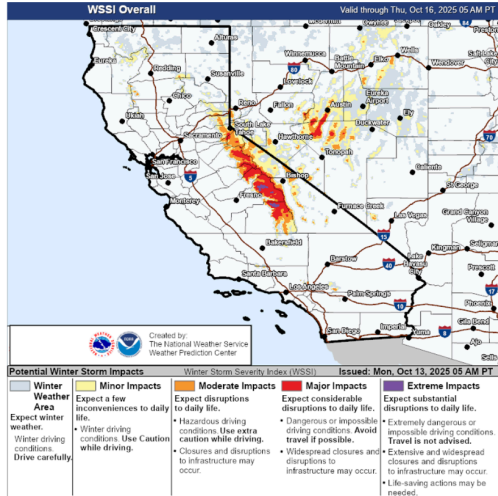




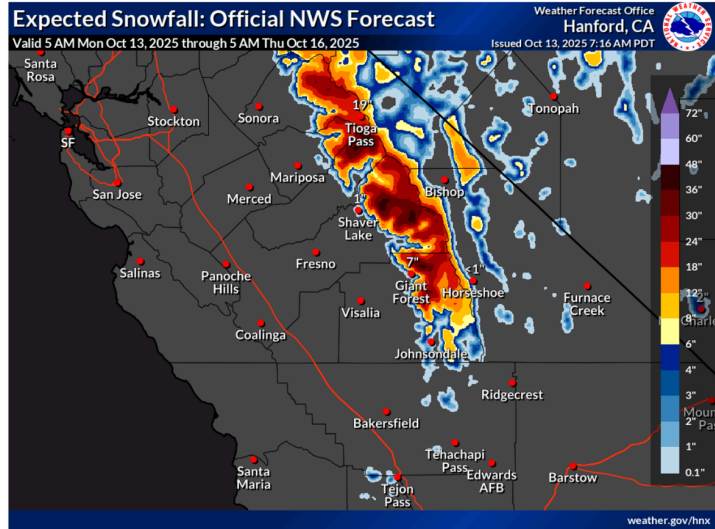
GEFS 7-day Watershed Freezing Level Forecasts



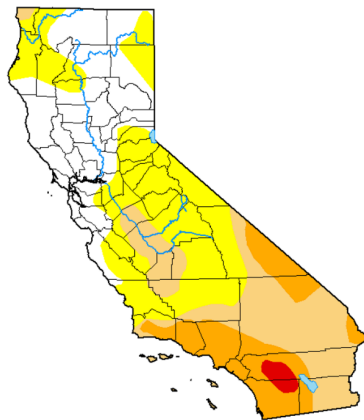
WPC Days 1–3 Winter Storm Severity Index: Valid through 5 AM PDT 16 Oct



NWS Forecast Snowfall: Valid through 5 AM PDT 16 Oct



U.S. Drought Monitor California



October 7, 2025
(Released Thursday, Oct. 9, 2025)
Valid 8 a.m. EDT

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	27.20	72.80	38.52	15.64	1.25	0.00
Last Week (9-30-2025)	26.78	73.22	38.52	16.61	1.25	0.00
3 Months Ago (7-30-2025)	23.99	76.01	39.27	23.01	5.90	0.10
Start of Calendar Year (1-1-2025)	39.11	60.89	35.93	10.43	1.06	0.00
Start of Water Year (10-1-2024)	28.40	71.60	10.67	0.08	0.00	0.00
One Year Ago (10-08-2024)	24.68	75.32	13.77	1.72	0.00	0.00

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>

Author:
Curtis Riggall
National Drought Mitigation Center

USDA NDMC NOAA droughtmonitor.unl.edu

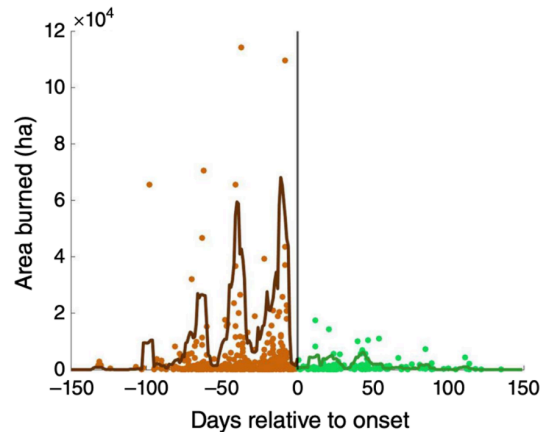


Figure 5 from Cayan et al. (2022): Fires ≥ 100 ha that started before (brown) and after (green) autumn 8.5 mm precipitation onset, arranged according to days before or after (x-axis) and showing area burned (104 ha), y-axis. Dark lines are 7-day means centred on each day relative to first day of onset (vertical line).

Additional Considerations:

- Visit cnrfc.noaa.gov/ for specific river and stream forecasts and weather.gov/ for point specific watches, warnings, and forecasts.

In-depth AR forecasts products can be found here:

<https://cw3e.ucsd.edu/iwv-and-ivt-forecasts/>

Update by C. Castellano

cjcastellano@ucsd.edu