

Quick Look at the Potentially Impactful Atmospheric River Over Central and Southern California Next Week

Updated: 7 February 2025

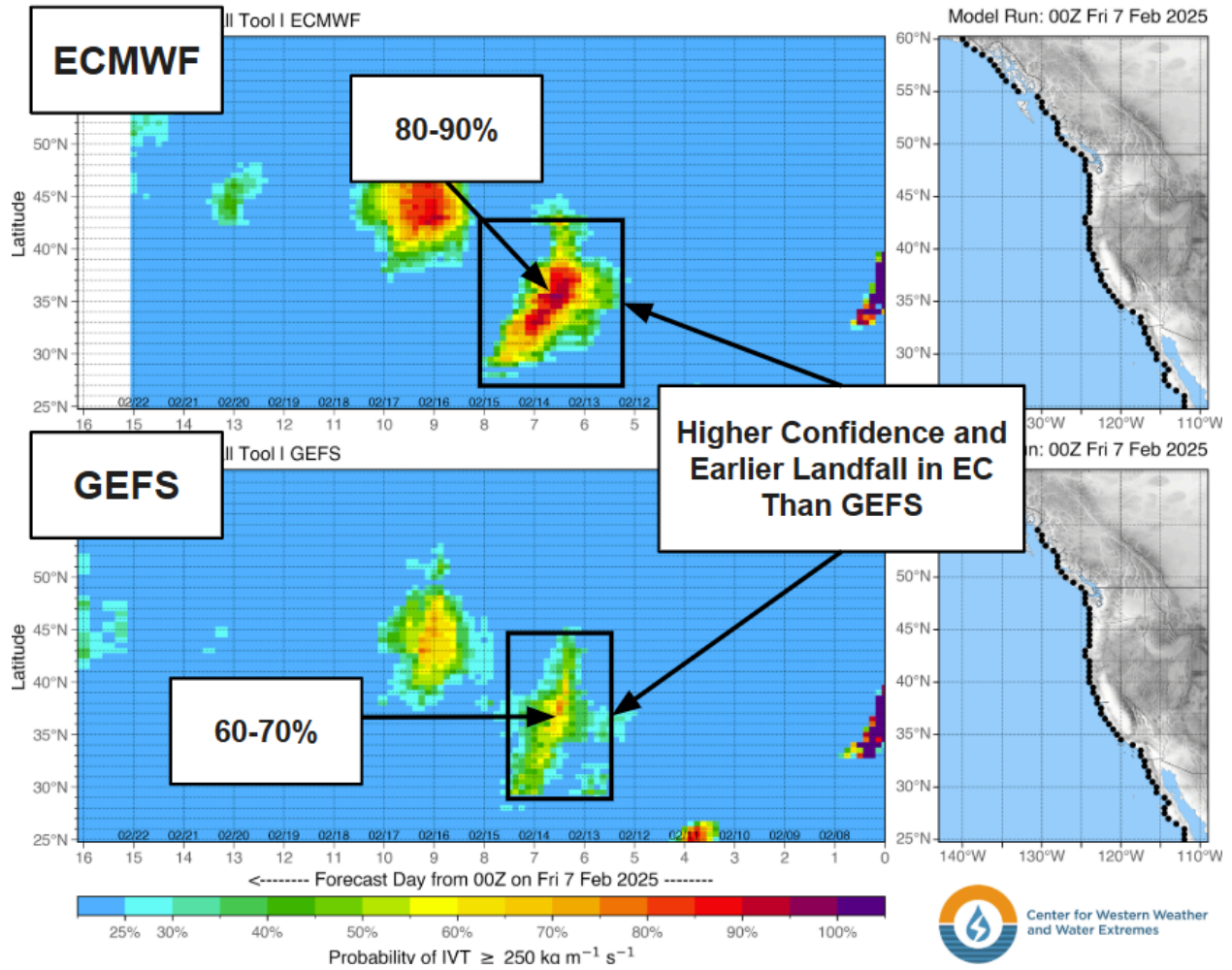
Ensemble models are indicating the potential for an impactful atmospheric river (AR) making landfall over Central and Southern California next week which may present flood and debris flow risk for regions impacted by the recent fires.

Forecast Highlights:

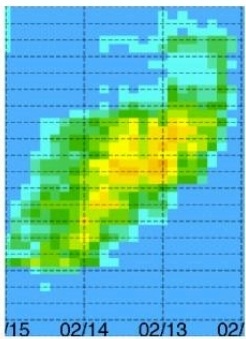
- Following the AR that makes landfall over California today, there is expected to be a break in AR conditions until the middle of next week.
- CW3E's AR Landfall tool based on both the GEFS and EPS is showing moderate to high confidence (50-80% probability) in AR conditions ($IVT \geq 250 \text{ kg m}^{-1} \text{ s}^{-1}$) over Central and Southern California beginning late on Wed 12 Feb and continuing through Fri 14 Feb.
- The EPS is also showing moderate confidence (50-60%) in a period of moderate AR conditions ($IVT \geq 500 \text{ kg m}^{-1} \text{ s}^{-1}$) over San Luis Obispo County at day 6 (Thu 13 Feb).
- The EPS is currently more confident in AR landfall than the GEFS (80-90% probability in EPS, 50-60% probability in GEFS for 33°-38° N). There has been much uncertainty over the last several days amongst the ensembles in the likelihood of AR conditions over Central and Southern California.
- The location of landfall and direction of moisture transport within the AR will be influenced by the location of the low-pressure system that develops alongside this AR.
- A low-pressure system that propagates further south is likely to wrap the AR into Southern California with southwesterly moisture transport that is optimal for heavy precipitation along the Transverse Ranges. This is a more common solution in the EPS than the GEFS.
- Overall, the EPS is forecasting higher precipitation amounts across the Sierra Nevada and Central and Southern California coasts than the GEFS over the next 10 days.
- The majority of EPS members are indicating the potential for precipitation to exceed 2 inches of mean areal precipitation in the Santa Ana watershed (10% of normal annual precipitation) whereas only a select few GEFS members forecast totals exceeding that amount.
- California-Nevada River Forecast Center (CNRFC) ensemble streamflow forecasts indicate that river levels are expected to rise as a result of the precipitation, however given the drought conditions and current low stream levels, riverine flooding is not likely at this time.
- Precipitation is much needed in Southern California, as much of the region is experiencing Severe to Extreme Drought conditions per the most recent Drought Monitor.
- While the precipitation will be beneficial for the region, short duration, high intensity precipitation coupled with dry, impenetrable grounds from drought and burn scars amplify the risk of heavy runoff resulting in debris flows and flash flooding.

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

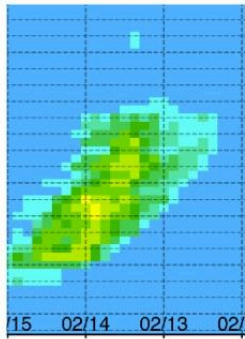
Stay tuned to the CW3E webpage for a full AR Update



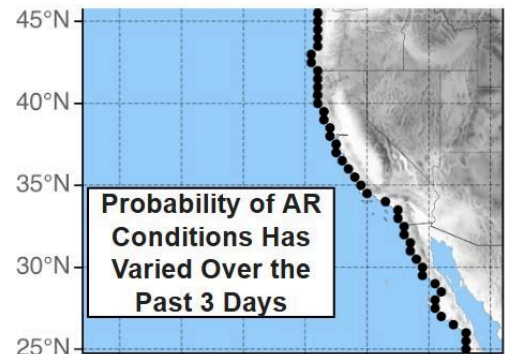
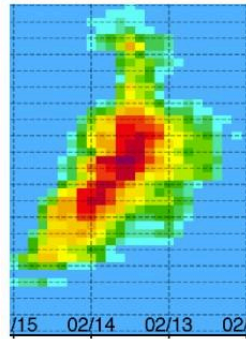
**EPS Landfall
00Z 5 Feb**



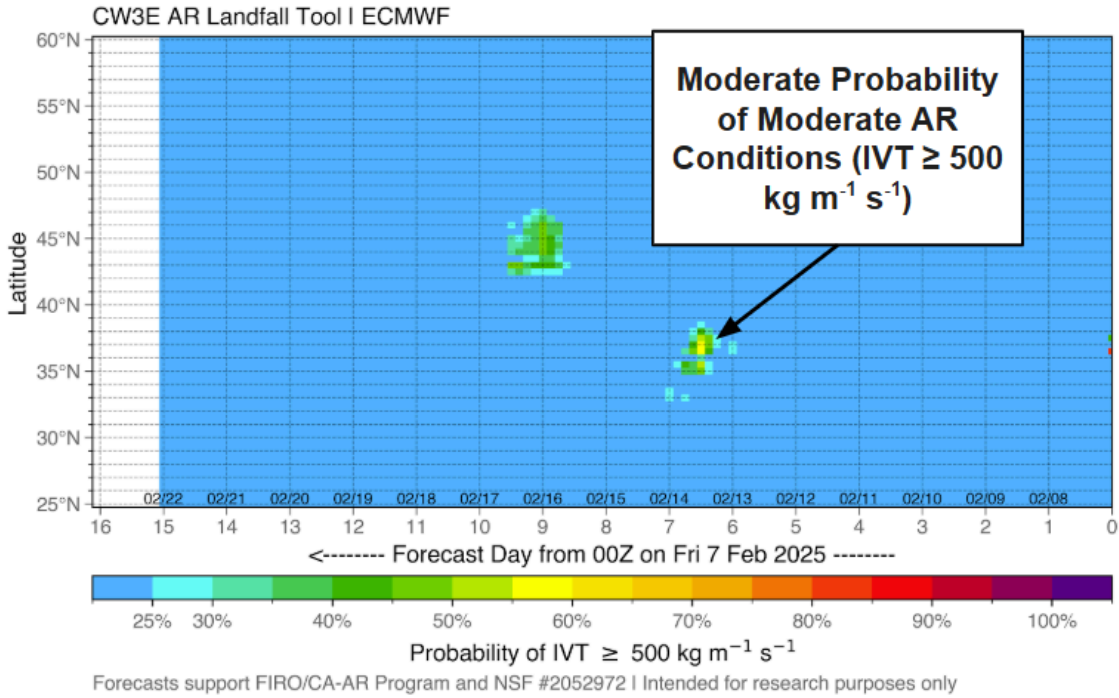
**EPS Landfall
00Z 6 Feb**



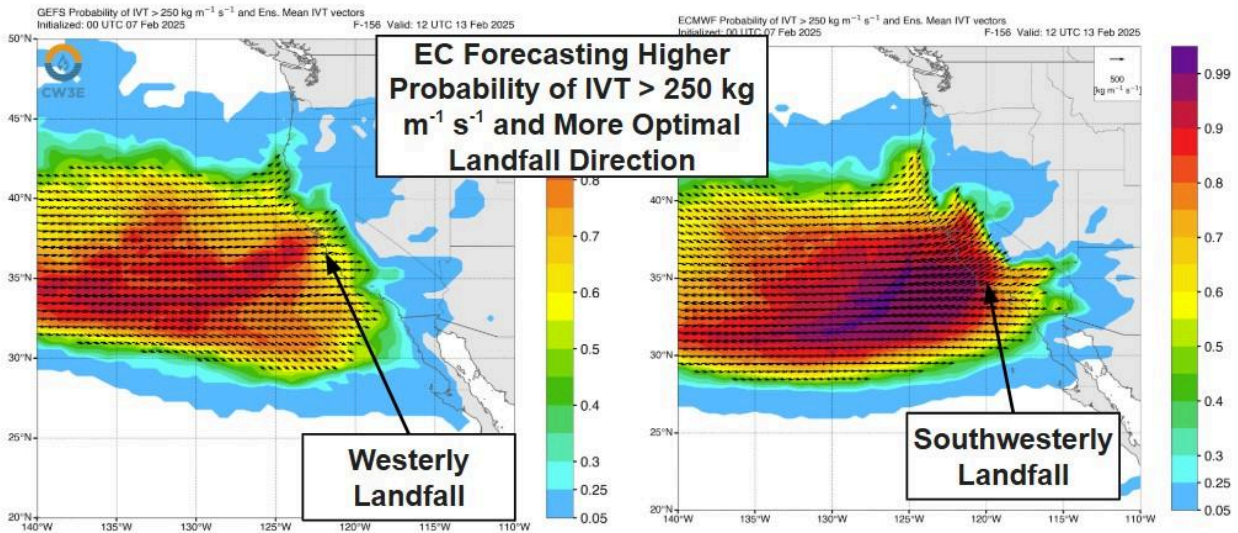
**EPS Landfall
00Z 7 Feb**



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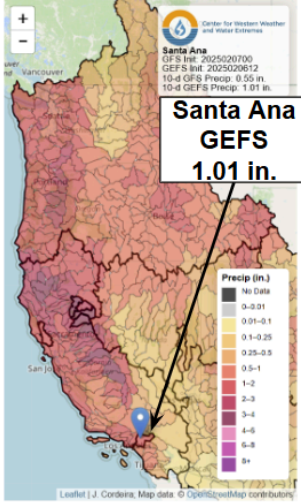


GEFS and ECMWF Ensemble IVT Probability Comparison
Valid: 4 AM PST Wed 12 Feb

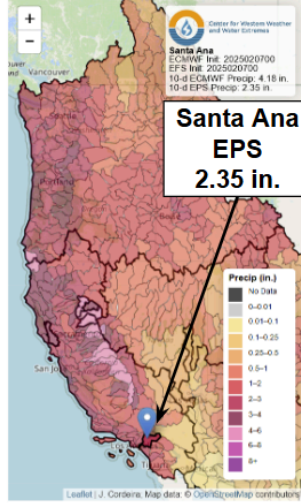


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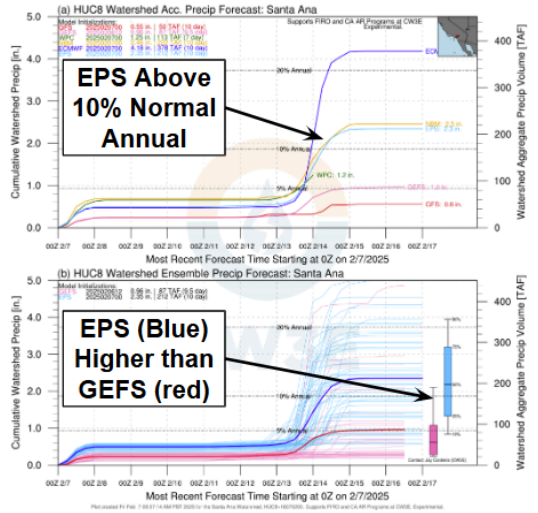
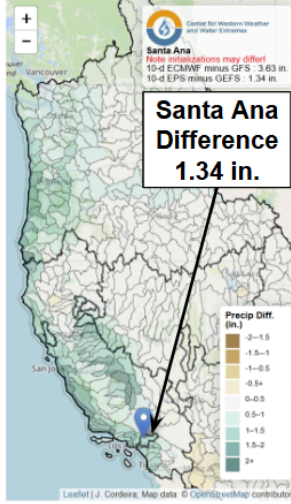
10-day GFS/GEFS Precipitation Forecasts



10-day ECMWF/EFS Precipitation Forecast



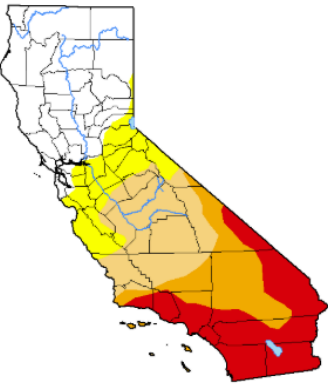
10-day Difference Precipitation Forecast



US Drought Monitor for California

U.S. Drought Monitor California

February 4, 2025
(Released Thursday, Feb. 6, 2025)
Valid 7 a.m. EST

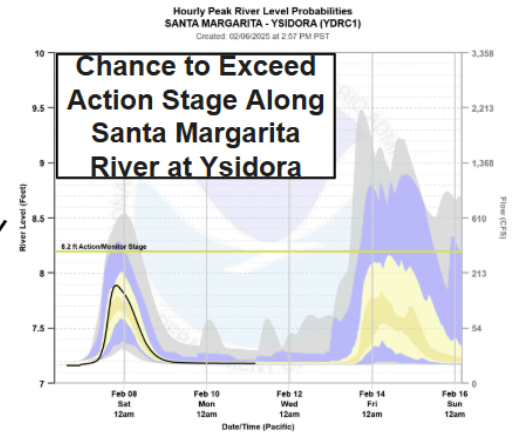
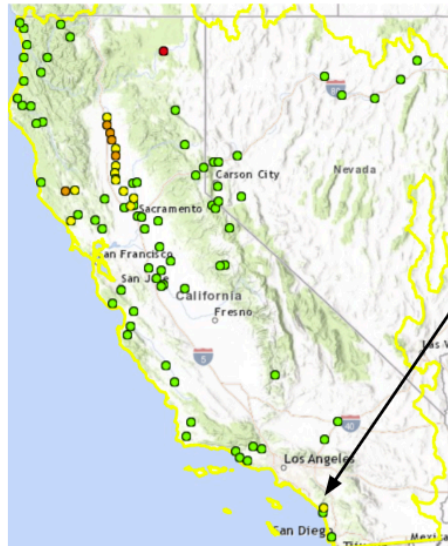


The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>

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droughtmonitor.unl.edu

CNRFC Ensemble 10-Day 25% Exceedance Stream Levels



Additional Considerations:

- Visit <https://www.weather.gov/cnrfc/> for specific river and stream forecasts and <https://www.weather.gov/> for point specific watches, warnings, and forecasts.

In-depth AR forecasts products can be found here:

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

Update by M. Steen

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