

Quick Look at the ARs Forecast to Bring Additional Rainfall to Northern California

Updated: 11 December 2024

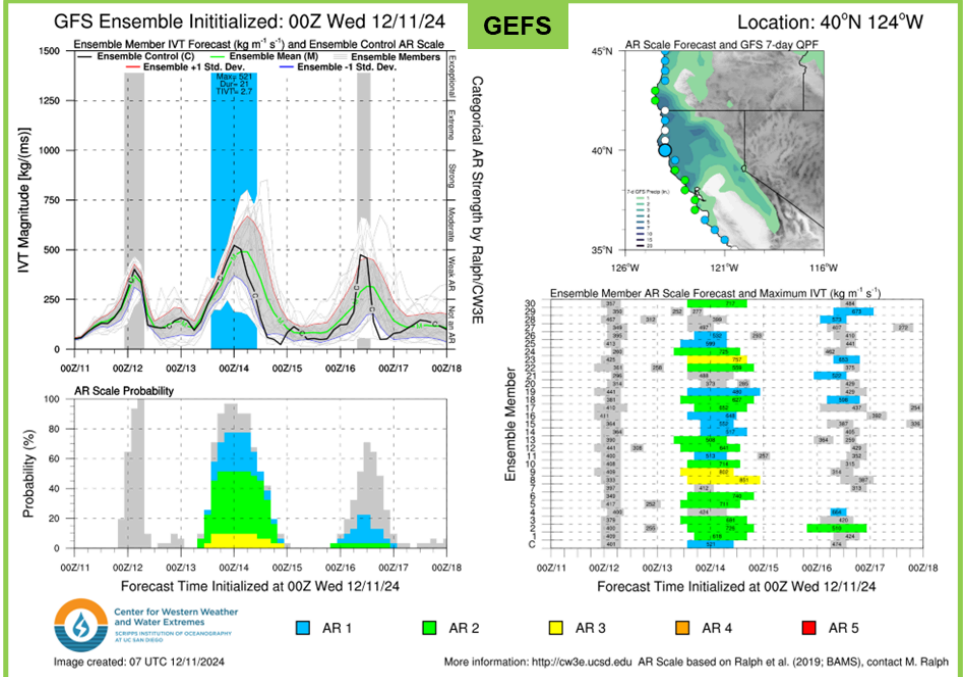
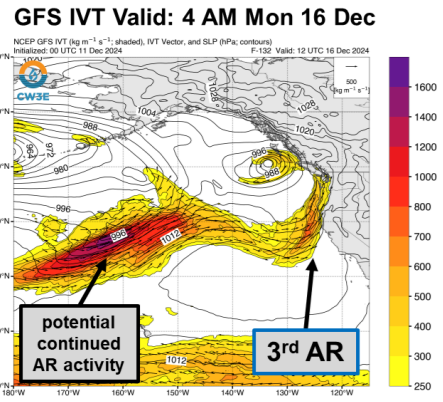
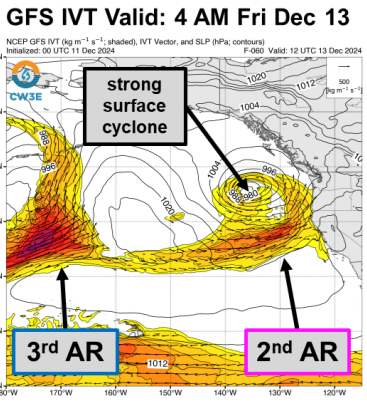
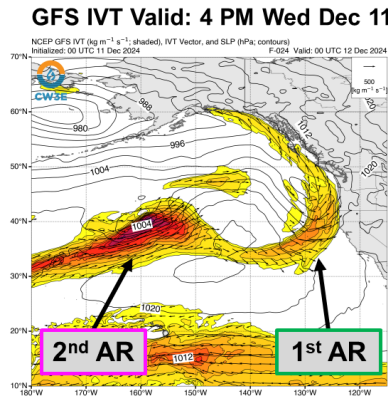
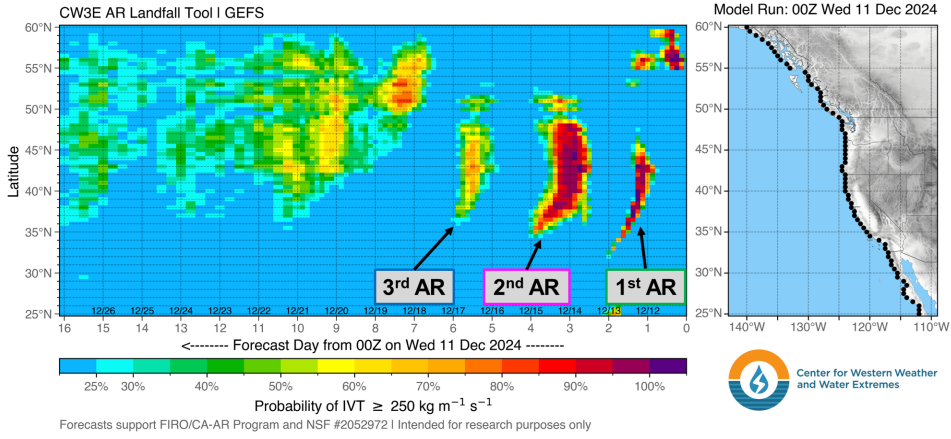
A series of three atmospheric rivers (ARs) are forecast to move onshore over California between now and Monday, with additional rain and snow forecast for the region.

Forecast Highlights:

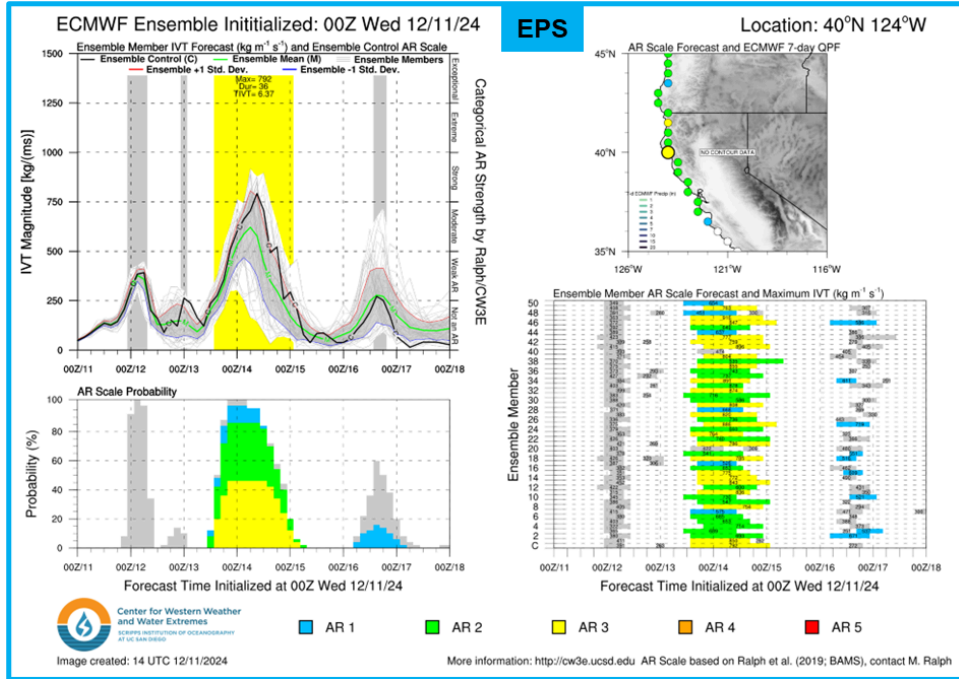
- A series of three ARs are forecast to move onshore over Northern California between Thu 12 Dec and Mon 16 Dec, bringing precipitation to the region.
- The 1st AR is forecast to move onshore later today and bring a brief period (< 24 hour) of weak AR conditions ($IVT < 500 \text{ kg m}^{-1} \text{ s}^{-1}$) to northern California.
- The 2nd AR is also forecast to move onshore over Northern California between 4 AM 13 Dec - 4 PM 14 Dec with southwesterly oriented $IVT > 700 \text{ kg m}^{-1} \text{ s}^{-1}$ in the core of the AR. Minor secondary cyclogenesis is possible along the tail of this AR, slightly increasing AR duration.
- The EPS model is forecasting a strong AR with higher IVT over a longer duration as compared to the GEFS model with the 2nd AR. The EPS is forecasting > 40% likelihood of AR3 conditions at 40°N, 124°W, whereas the GEFS is forecasting only ~10% likelihood of AR3 conditions.
- A 3rd weak AR is forecast to move onshore over the US West Coast at 4 AM 16 Dec, with the potential for additional AR activity over the Northeast Pacific late next week, although considerable uncertainty remains over the intensity and timing of this AR activity.
- The NWS Weather Prediction Center (WPC) is forecasting at least 2.5 inches of precipitation over Northern California over the next 5 days, with 4-7 inches of rain possible over the Coast Ranges, Klamath Mountains, Southern Cascades, and Northern Sierra Nevada.
- The heaviest precipitation is expected over Northern California during the 2nd AR and the NWS WPC has issued a marginal (at least 5%) risk excessive rainfall outlook (ERO) over the Coast Ranges and Northern Sierra Nevada between Fri 13 Dec and early Sun 15 Dec.
- The NWS California-Nevada River Forecast Center is forecasting multiple stream gages in the Sacramento Valley to rise above Action/Monitor stage. Ensemble forecasts currently show a 20% chance of exceeding Minor flood stage at the Russian River at Hopland and a 14% chance of exceeding Minor flood stage along the Sacramento River at Tehama Bridge.
- Multiple model quantitative precipitation forecasts over the Russian River watershed are showing > 10% of normal annual precipitation over the next 7 days.
- NWS 72-hour snowfall forecasts for the period between 4 AM Wed Dec 11 and 4 AM Sat Dec 14 range from 12-24 inches of snow over the Southern Cascades and Northern Sierra Nevada, with isolated areas of > 48 inches of snow over the Trinity Alps.

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

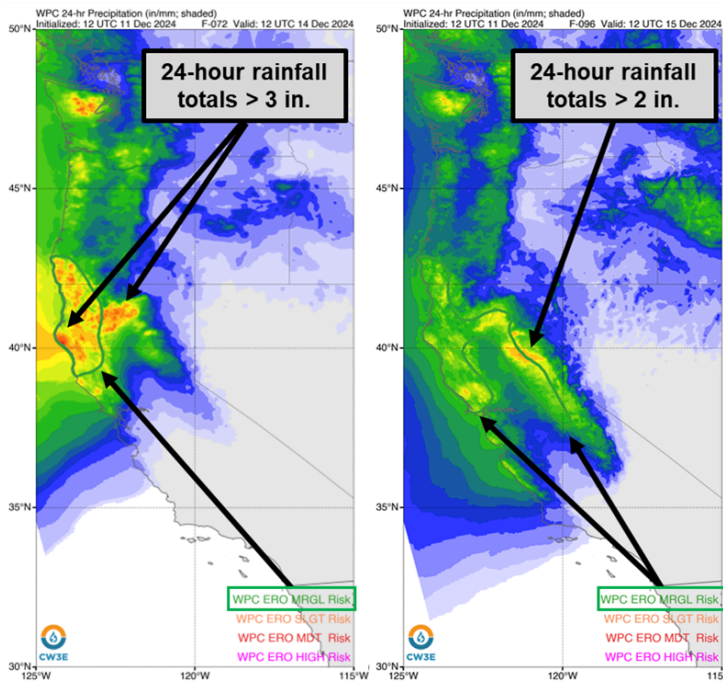
Stay tuned to the CW3E webpage for a full AR Update



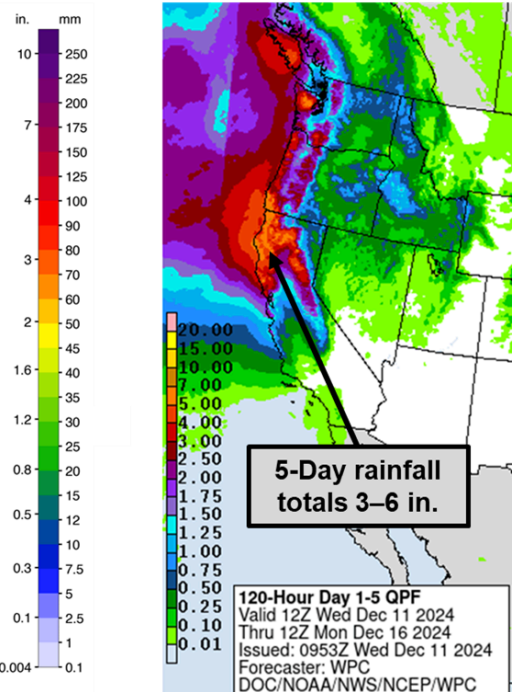
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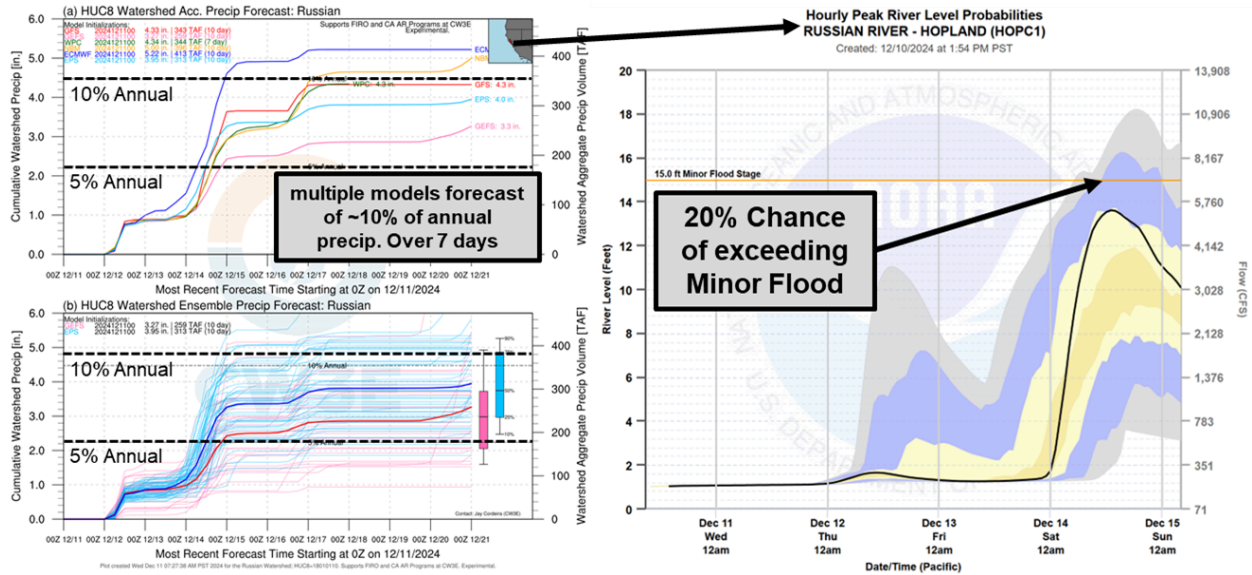
WPC Days 3-4 24-h QPF: Valid Ending 4 AM 14-15 Dec



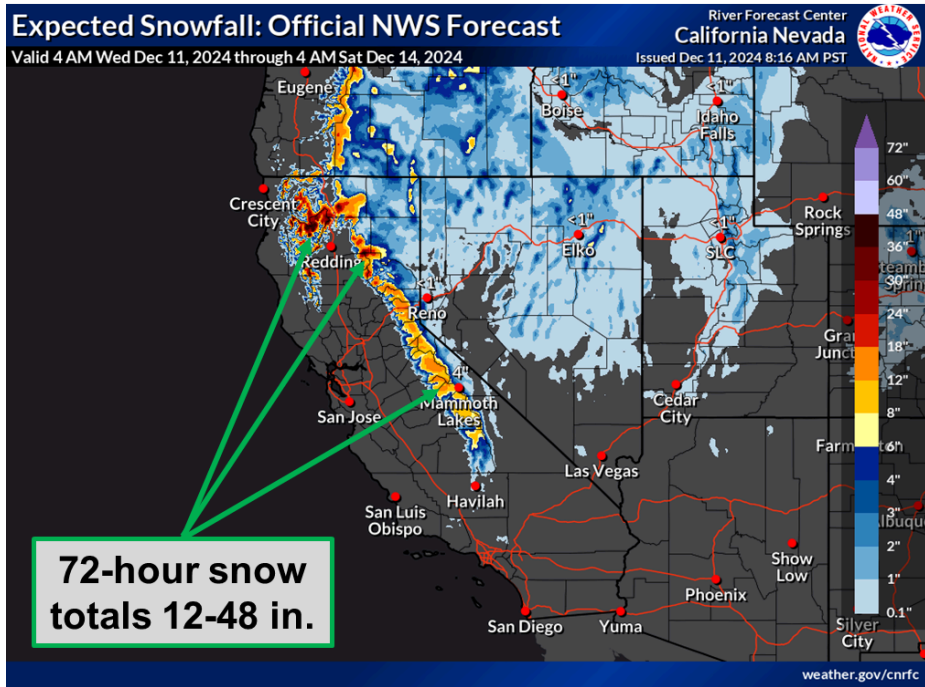
WPC Days 1-5 Total QPF



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National Weather Service – Expected Snowfall Totals



Additional Considerations:

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

In-depth AR forecasts products can be found here:
<http://cw3e.ucsd.edu/iwv-and-ivt-forecasts/>

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