



Quick Look at Atmospheric River Forecast to Impact California Early This Week

Updated: 24 November 2024

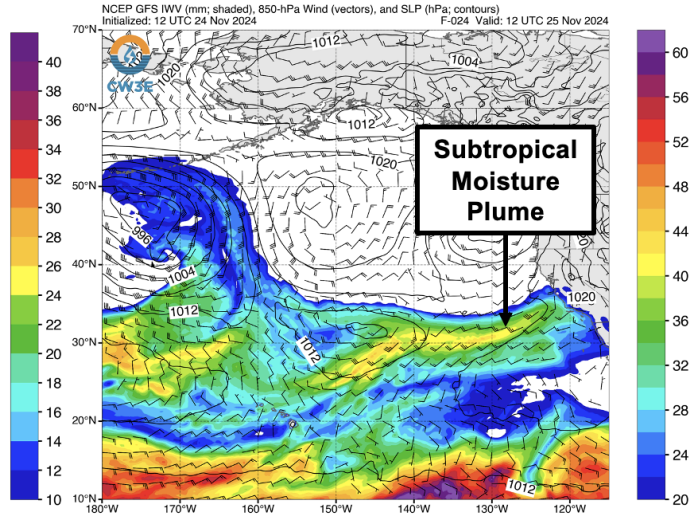
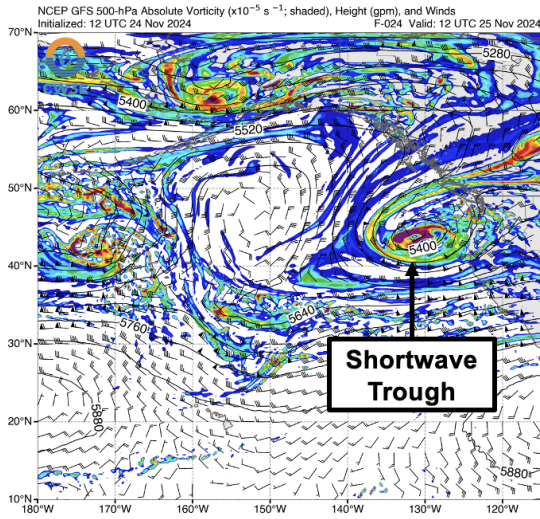
Coming on the heels of a major atmospheric river (AR) event, another AR will make landfall over California on Monday, bringing a heavy rain and mountain snow to Central California.

Forecast Highlights:

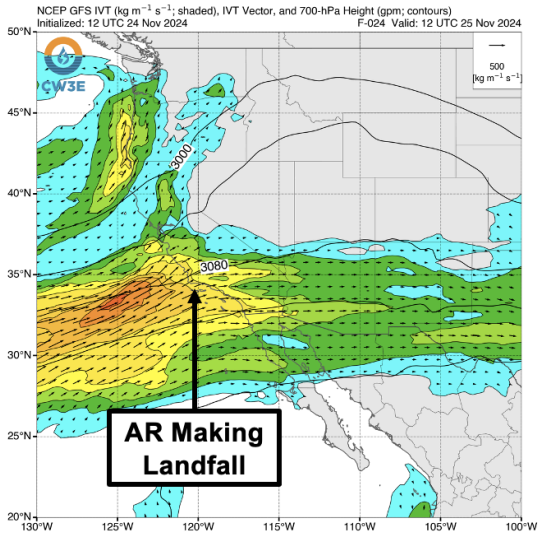
- The upper-level shortwave trough that has been parked off the US West Coast for several days will interact with a region of subtropical moisture, resulting in AR landfall over Central and Southern California early Mon 25 Nov.
- This AR is forecast to penetrate into the interior western US, bringing AR conditions ($\geq 250 \text{ kg m}^{-1} \text{ s}^{-1}$) to the Upper Colorado River Basin.
- The NCEP GEFS is indicating a very high likelihood ($> 90\%$ probability) of an AR 3 (based on the Ralph et al. 2019 AR Scale) over San Luis Obispo County, with maximum IVT magnitudes $> 500 \text{ kg m}^{-1} \text{ s}^{-1}$ and AR conditions lasting > 48 hours. While weaker IVT magnitudes are forecast farther south, AR conditions may persist for > 72 hours over coastal Southern California, resulting in an AR 2.
- The National Weather Service (NWS) is forecasting at least 3–6 inches of precipitation in the Central and Southern Sierra Nevada through early Wed 27 Nov, as well as 1–4 inches of precipitation in the Sierra Foothills, San Joaquin Valley, and Central California Coast Ranges.
- The NWS Weather Prediction Center (WPC) has issued a **marginal risk ($\geq 5\%$; level 1 of 4)** of rainfall exceeding flash flood guidance over the Sierra Foothills, San Joaquin Valley, and Central California Coast Ranges for Mon 25 Nov into early Wed 27 Nov.
- At least 1–5 feet of snow are forecast above 7,000 feet in the Central and Southern Sierra Nevada, with the highest amounts expected near the Sierra Crest between Yosemite and Sequoia National Parks. Inland penetration of the AR is also forecast to contribute to significant snowfall accumulations (at least 1–3 feet) over the higher terrain in central Utah and west-central Colorado.
- Major-to-extreme winter storm impacts are expected in the Central and Southern Sierra Nevada, where the NWS has issued Winter Storm Warnings. Moderate-to-major winter storm impacts are expected over the higher terrain in central Utah and west-central Colorado.

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

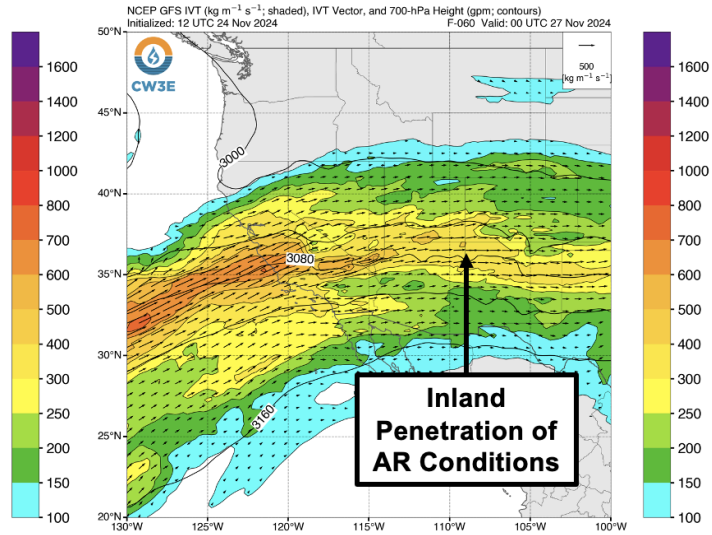
GFS 500-hPa Vorticity/Geopotential Height and IWV/SLP: Valid 4 AM PST 25 Nov



**GFS 700-hPa Geopotential Height and IVT:
Valid 4 AM PST 25 Nov**

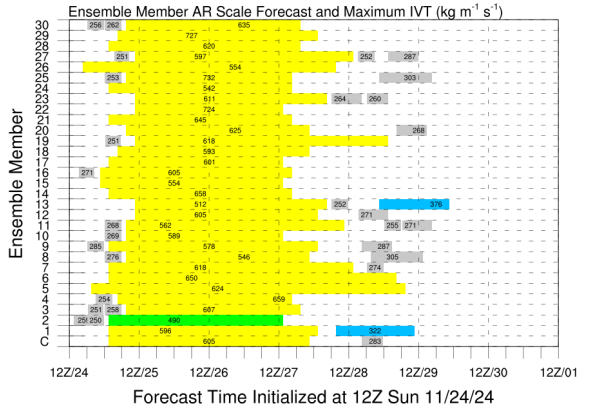
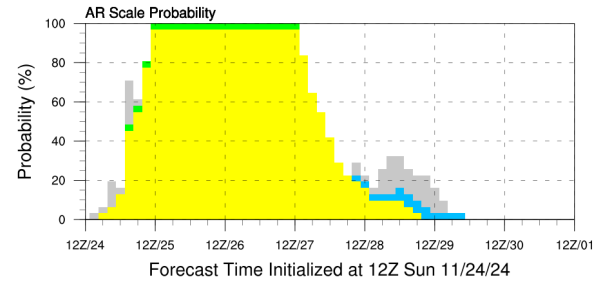
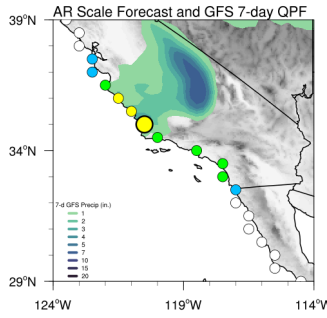
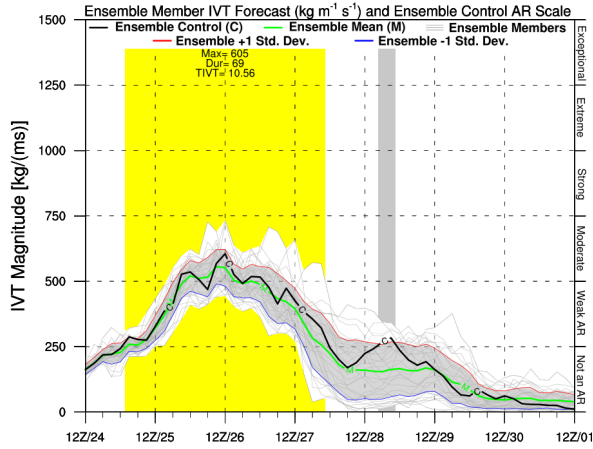


**GFS 700-hPa Geopotential Height and IVT:
Valid 4 PM PST 26 Nov**



GFS Ensemble Initialized: 12Z Sun 11/24/24

Location: 35°N 120.5°W

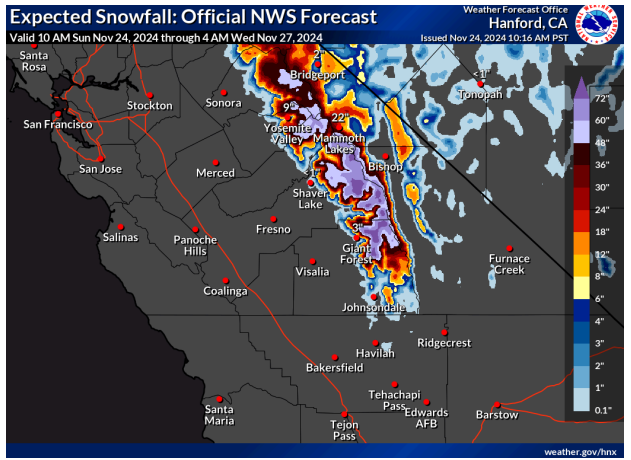
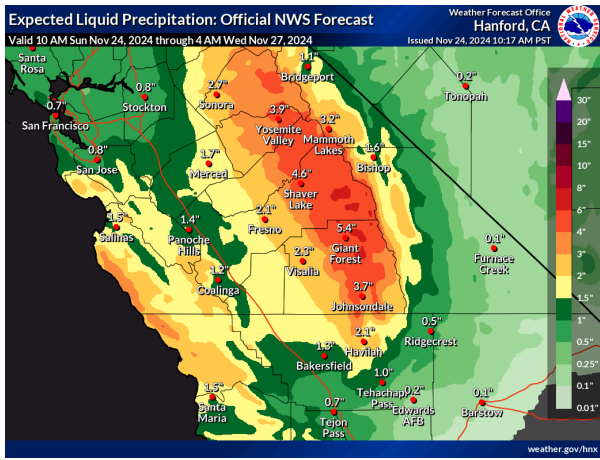



Center for Western Weather and Water Extremes
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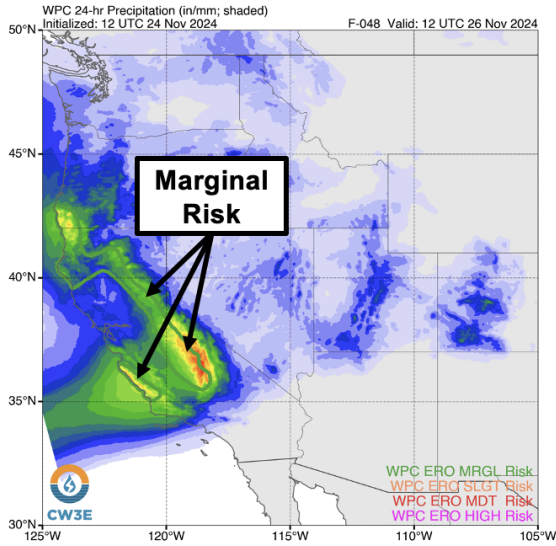
Image created: 17 UTC 11/24/2024

AR 1 AR 2 AR 3 AR 4 AR 5

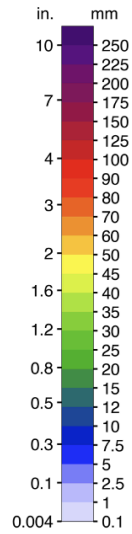
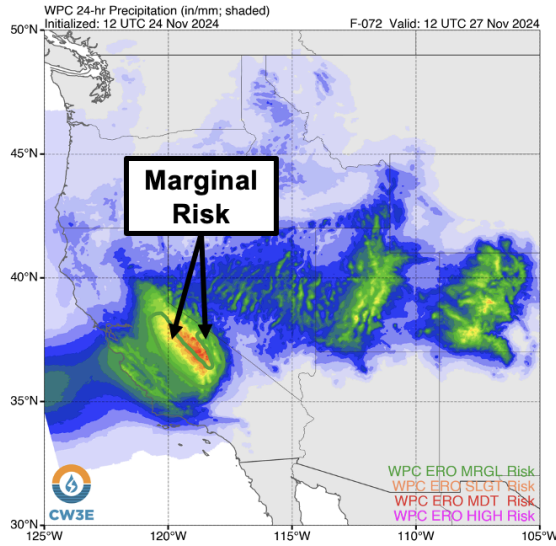
More information: <http://cw3e.ucsd.edu> AR Scale based on Ralph et al. (2019; BAMS), contact M. Ralph



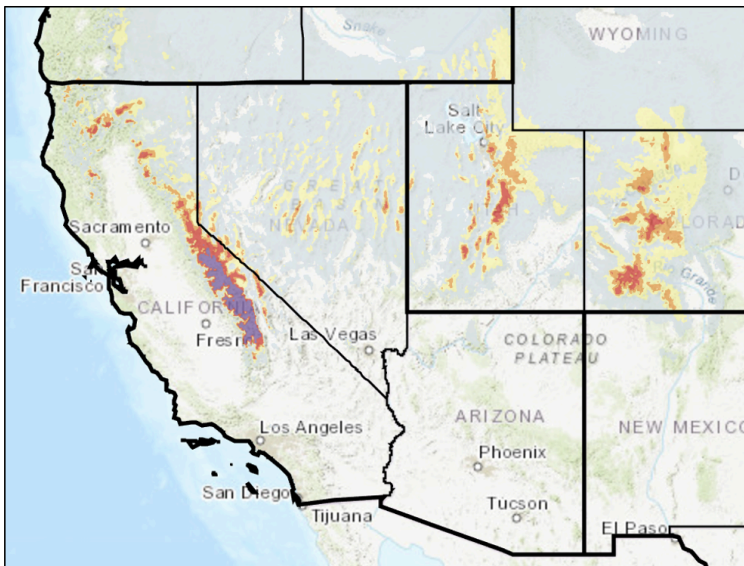
**WPC Day 2 QPF and ERO: Valid
24-h Period Ending 4 AM PST 26 Nov**



**WPC Day 3 QPF and ERO: Valid
24-h Period Ending 4 AM PST 27 Nov**



**WPC Winter Storm Severity Index
Valid: 7 AM PST 24 Nov – 4 AM PST 27 Nov**



Potential Winter Storm Impacts	
	<p>Winter Weather Area Expect Winter Weather. • Winter driving conditions. Drive carefully.</p>
	<p>Minor Impacts Expect a few inconveniences to daily life. • Winter driving conditions. Use caution while driving.</p>
	<p>Moderate Impacts Expect disruptions to daily life. • Hazardous driving conditions. Use extra caution while driving. • Closures and disruptions to infrastructure may occur.</p>
	<p>Major Impacts Expect considerable disruptions to daily life. • Dangerous or impossible driving conditions. Avoid travel if possible. • Widespread closures and disruptions to infrastructure may occur.</p>
	<p>Extreme Impacts Expect substantial disruptions to daily life. • Extremely dangerous or impossible driving conditions. Travel is not advised. • Extensive and widespread closures and disruptions to infrastructure may occur. • Life-saving actions may be needed.</p>

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

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