

Quick Look at Storms Forecast to Impact US West Coast This Week into Next Week

Updated: 24 March 2025

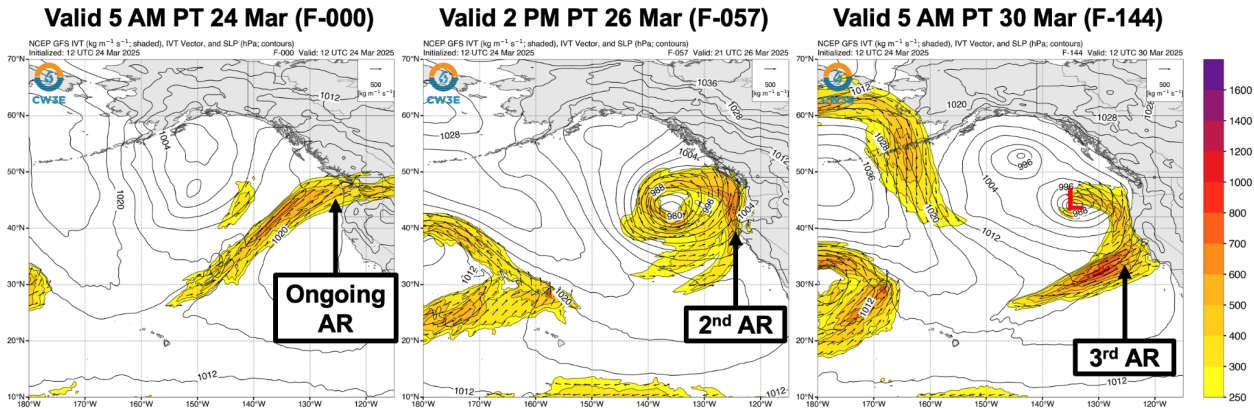
An unsettled weather pattern is forecast to continue into next week with the potential for multiple atmospheric river (AR) landfalls and heavy precipitation events over the US West Coast.

Forecast Highlights:

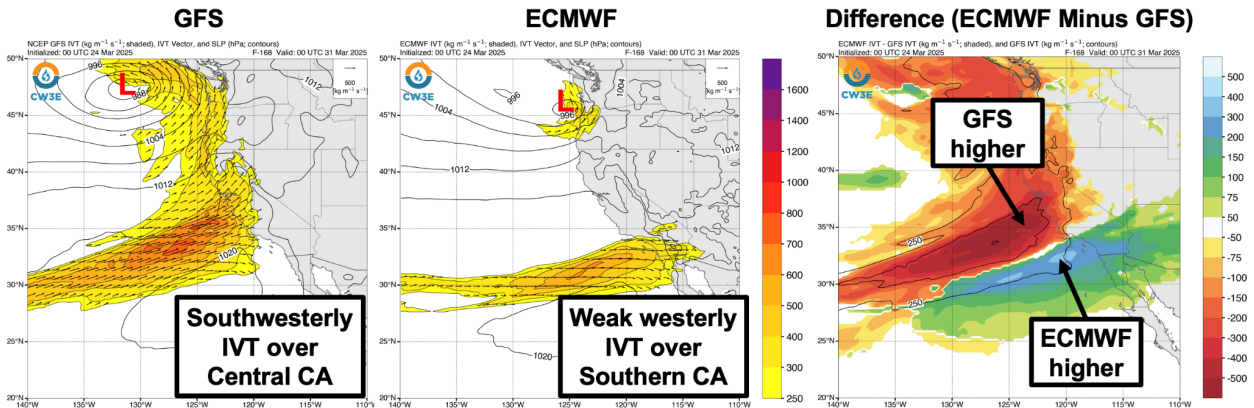
- An AR that made landfall over the Pacific Northwest early Sun 23 Mar will continue to impact Washington today.
- Following a brief break in activity, another AR associated with a strong low-pressure system is forecast to make landfall along the US West Coast on Wed 26 Mar and bring moderate AR conditions ($IVT \geq 500 \text{ kg m}^{-1} \text{ s}^{-1}$) to coastal Oregon. As the low stalls offshore, strong cyclonic flow around the storm may prolong AR conditions ($IVT \geq 250 \text{ kg m}^{-1} \text{ s}^{-1}$) into Fri 28 Mar.
- A third AR is forecast to make landfall over California on Sun 30 Mar, but there is considerable uncertainty in its location, magnitude, and orientation. The GFS is forecasting AR landfall over Central California with stronger, southwesterly IVT, whereas the ECMWF is forecasting AR landfall over Southern California with weaker, westerly IVT.
- CW3E's AR Landfall Tool based on the GEFS ensemble is indicating a very high likelihood (>90% probability) of AR conditions over coastal Washington, Oregon, and far Northern California in association with the second AR on Wed 26 Mar. GEFS is also showing a moderate-to-high likelihood (60–80% probability) of AR conditions over California on Sun 30 Mar (third AR) and 1–2 April.
- The GEFS control is forecasting an AR 3 in southern coastal Washington and northern coastal Oregon in association with the second AR and lingering moisture transport near the low. About 65% of GEFS members are forecasting an AR 3 at $45^\circ\text{N}, 124^\circ\text{W}$.
- The ongoing AR is forecast to produce 1–2 inches of additional precipitation in the Olympic Peninsula and Washington Cascades. A **marginal risk ($\geq 5\%$; level 1 of 4)** excessive rainfall outlook (ERO) for these areas valid for the period ending 5 AM PT Tue 25 Mar.
- The second AR is forecast to bring at least 2–5 inches of precipitation to portions of western Washington, western Oregon, and far Northern California, with higher amounts possible in the Olympic Mountains and near the Oregon/California border.
- Snowfall amounts over the next several days will be limited by anomalously warm temperatures and high freezing levels. Freezing levels in the Washington Cascades are forecast to rise to $\sim 10,000$ feet ahead of the second AR landfall, then rapidly fall below 6,000 feet as colder air moves into the region behind the AR.
- Uncertainty in AR activity this weekend and next week is driving large uncertainty in forecast precipitation across Northern and Central California over the next 10 days. While the GEFS and EPS ensemble means are both showing >4 inches of total mean areal precipitation in the Upper Yuba watershed, the spread in ensemble forecasts is quite large, with some members showing <2 inches and others showing >7 inches.

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

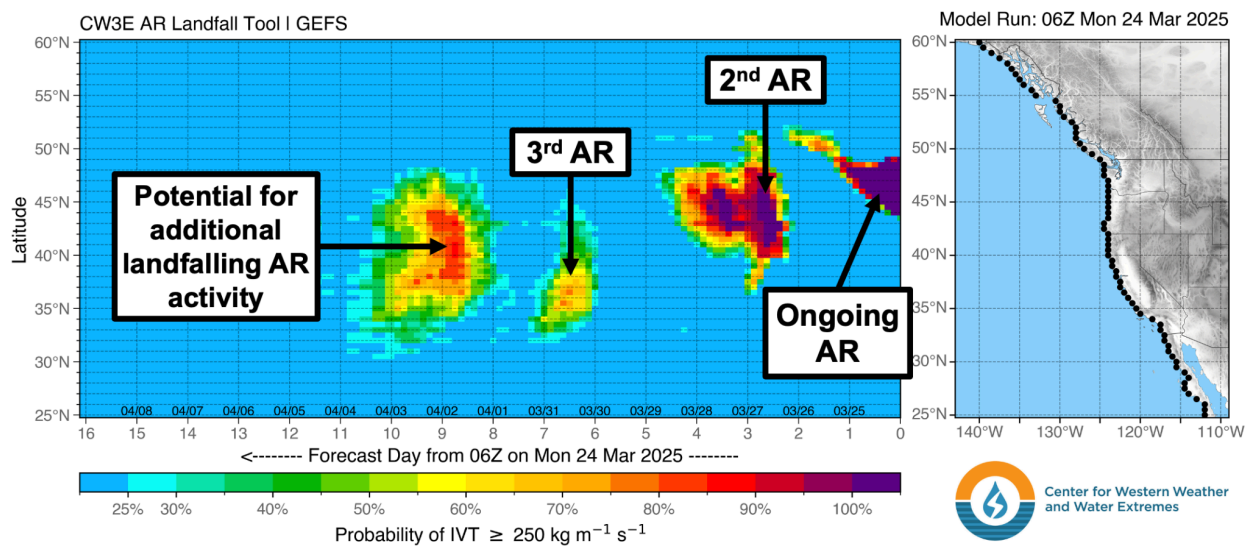
GFS IVT & SLP Analyses and Forecasts



GFS vs. ECMWF IVT Forecasts: Valid 5 PM PT 30 Mar (F-168)



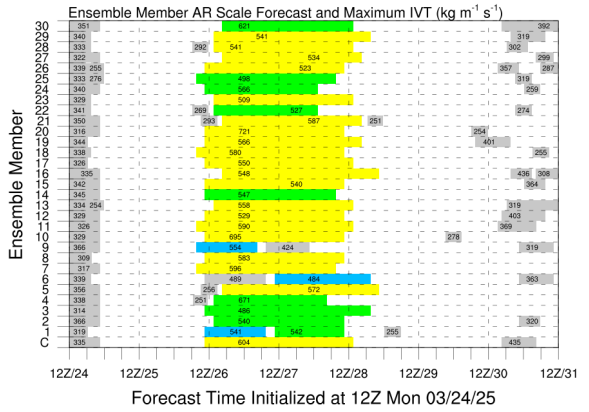
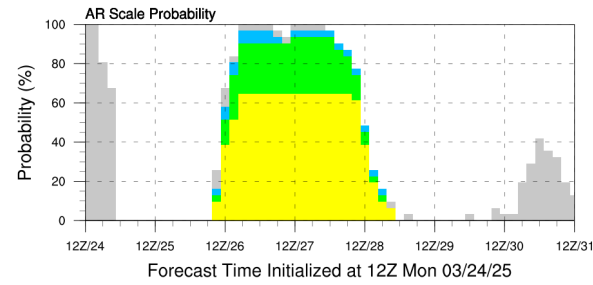
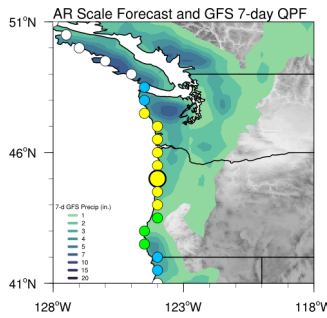
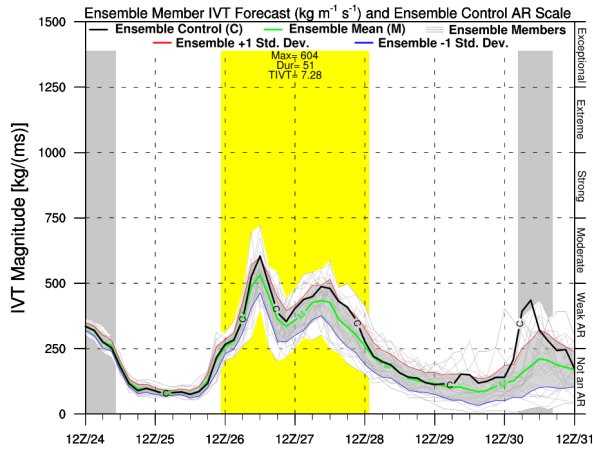
GEFS AR Landfall Tool Probability of AR Conditions Along the Coast



Forecasts support FIRO/CA-AR Program and NSF #2052972 | Intended for research purposes only

GFS Ensemble Initialized: 12Z Mon 03/24/25

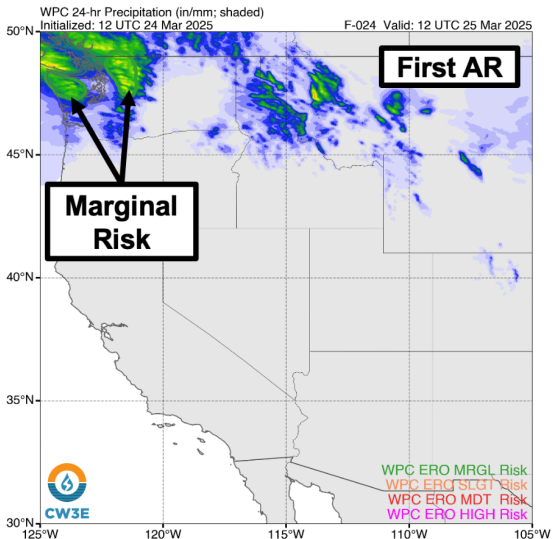
Location: 45°N 124°W



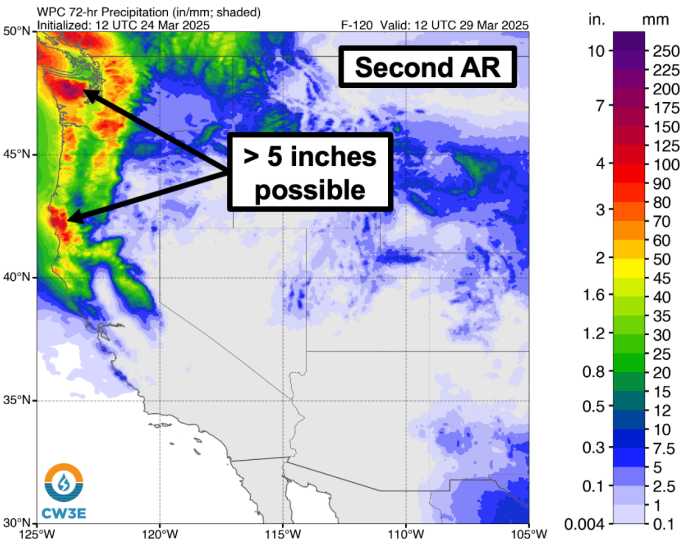
AR 1 AR 2 AR 3 AR 4 AR 5

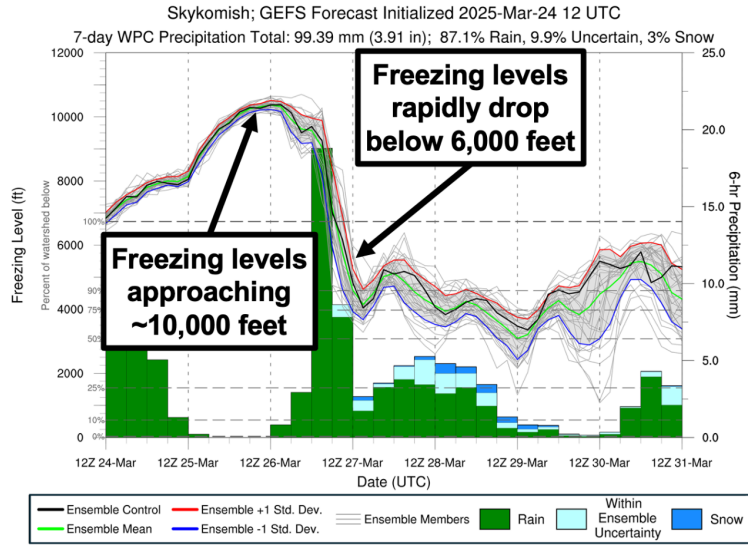
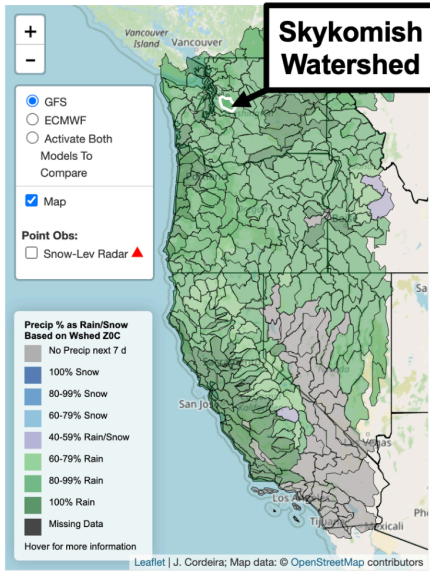
More information: <http://cw3e.ucsd.edu> AR Scale based on Ralph et al. (2019; BAMS), contact M. Ralph

WPC Day 1 QPF and ERO: Valid 24-h Period Ending 5 AM PT 25 Mar

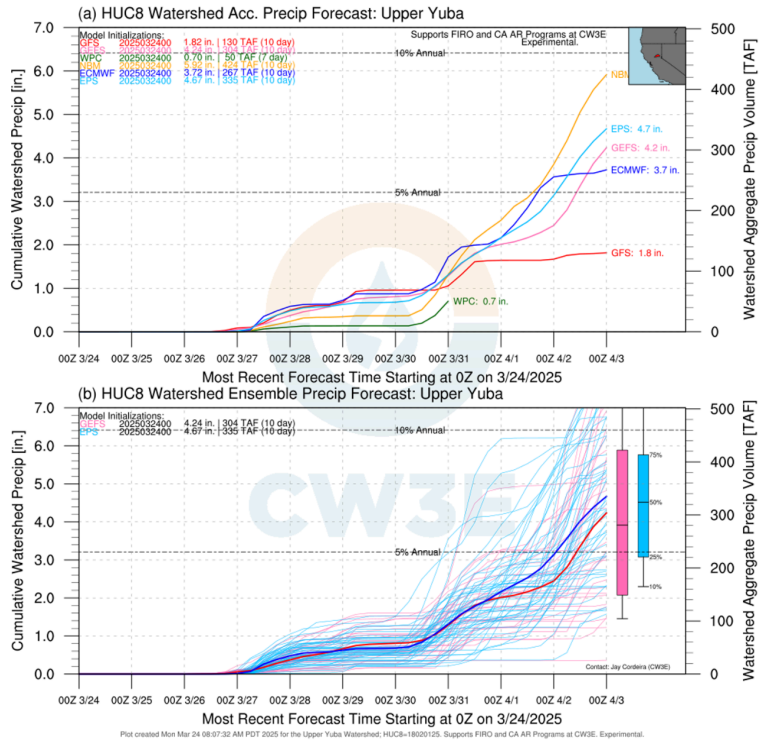
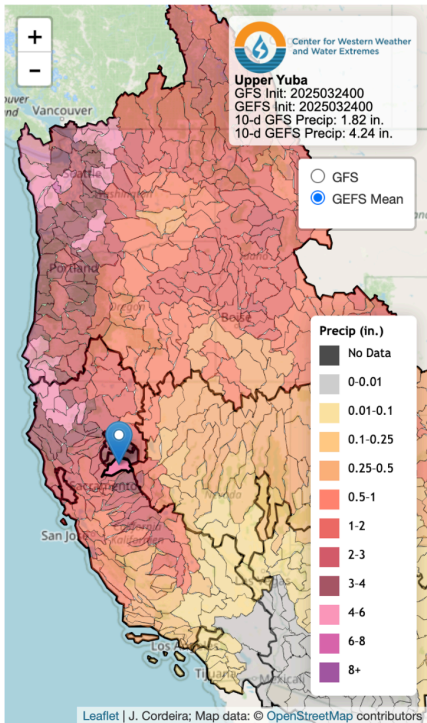


WPC 72-h Total QPF: Valid 5 AM PT 29 Mar





10-day GEFS Watershed QPF



Additional Considerations:

- Visit nwrfc.noaa.gov/ and 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

c.castellano@ucsd.edu