

Quick Look at the AR Forecast to Bring Precipitation to the Washington *Updated: 9 January 2025*

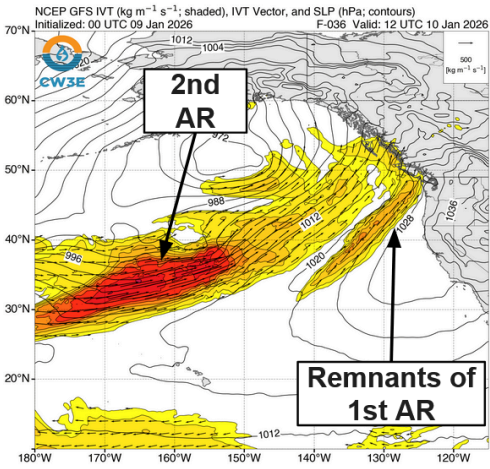
An atmospheric river (AR) is forecast to produce precipitation in western Washington this weekend into early next week.

Forecast Highlights:

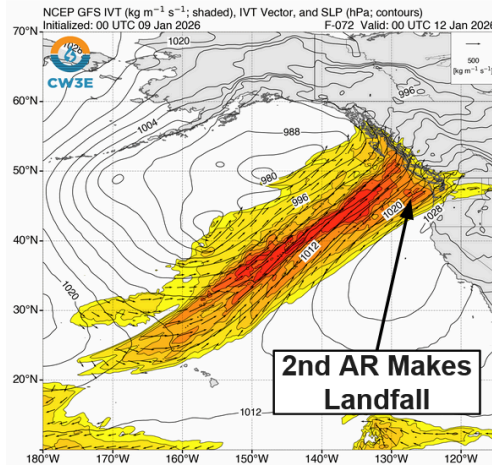
- Ensemble forecast guidance has become increasingly confident in an extended period of AR conditions over Washington for Sat 10 Dec through Mon 12 Dec.
- The remnants of an AR making landfall over southern Alaska and British Columbia today are forecast to propagate down the coast toward Washington. This moisture is forecast to initiate precipitation over western Washington tomorrow.
- The remnant AR is forecast to merge with the leading edge of a second AR expected to make landfall over the Pacific Northwest on Sun 11 Jan.
- A ridge building along the US West Coast and a trough digging over the Northeast Pacific will work together to steer the AR toward the north, with AR conditions likely continuing over Washington by the end of Mon 12 Dec.
- The ECMWF is forecasting longer duration of AR conditions, further southerly extent of the AR and the higher atmospheric moisture brought into the region from the AR than the GFS.
- Over the last three days, the CW3E's AR landfall tool based on the GEFS has shown increasing confidence (~60% -> ~99% confidence) in AR conditions over Washington and extended duration of AR conditions as the lag time between the two ARs has decreased.
- The Weather Prediction Center (WPC) is forecasting 4-6 inches of precipitation over the Olympic Peninsula, 2-4 inches over the northern Washington Cascades and ~1-2 in. over the foothills of the Washington Cascades for the 72-hour period ending 4 PM PT Tue 13 Dec.
- CW3E's watershed precipitation tool emphasizes the model-to-model uncertainty, where the EPS 10-day mean precipitation total for the Hoh-Quillayute watershed on the Olympic Peninsula is 1.5 inches higher than the GEFS. ~70% of EPS members and only ~20% of GEFS members are forecasting precipitation totals >5 in.
- Freezing levels are forecast to rise above 6,000 feet as the second AR makes landfall, indicating that the majority of the precipitation will likely fall as rain.
- The NWS Northwest River Forecast Center (NWRFC) is forecasting six gauges to reach action stage in western Washington by Tue 13 Dec due to the forecast precipitation.
- In coordination with the Air Force, CW3E's AR Reconnaissance field campaign is planning a sequence of flights to sample these ARs, nearby essential atmospheric structures, and regions of high forecast sensitivity.

Stay alert to official NWS forecasts, watches, and warnings at
[weather.gov](https://www.weather.gov)

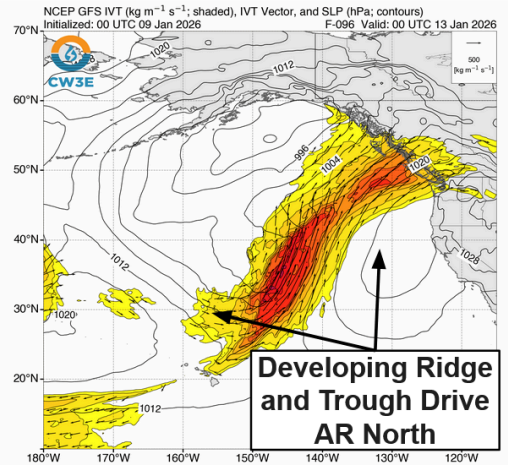
Valid: 4 AM PST Sat 10 Jan



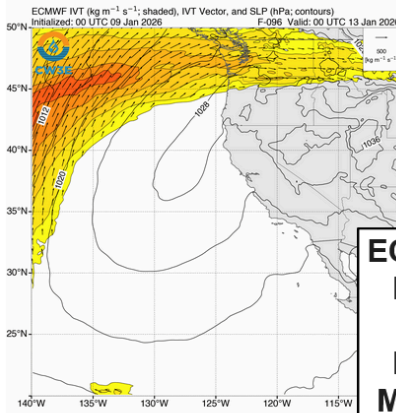
Valid: 4 PM PST Sun 11 Jan



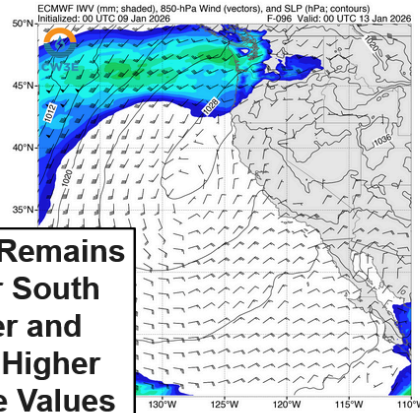
Valid: 4 PM PST Mon 12 Jan



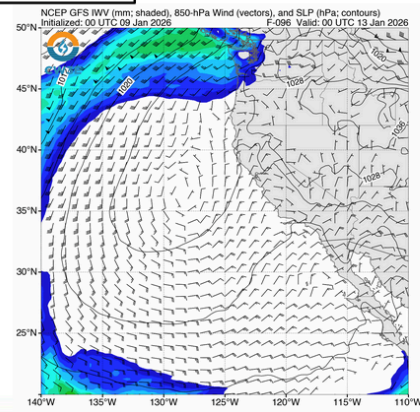
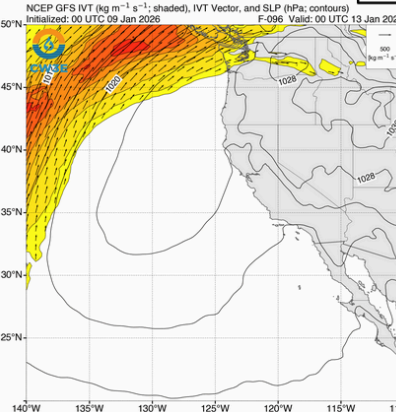
ECMWF

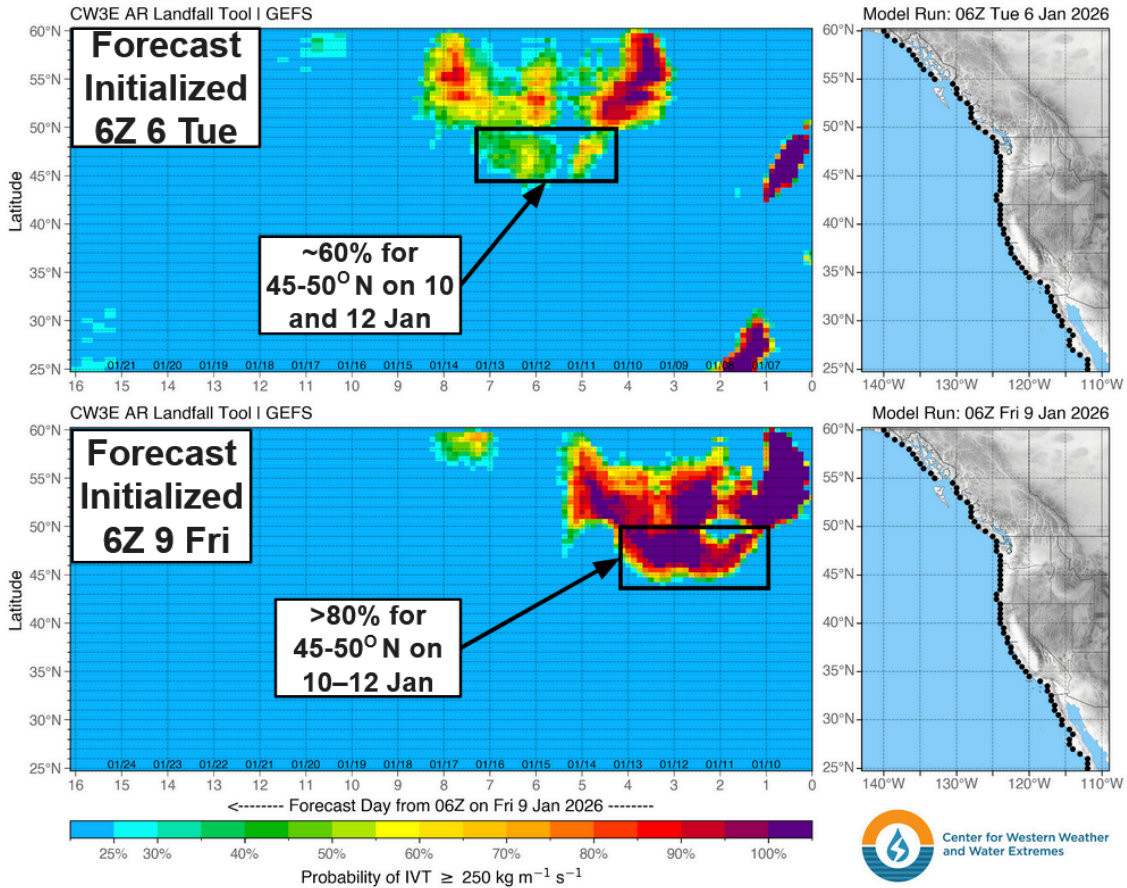


ECMWF Remains Further South Longer and Brings Higher Moisture Values

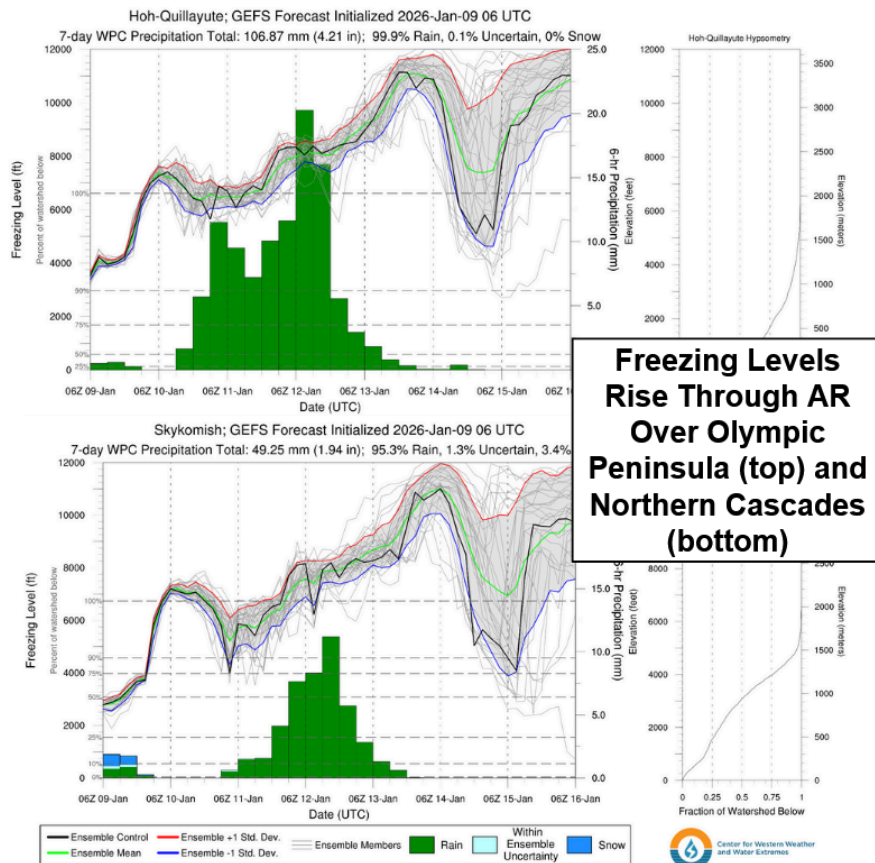


GFS

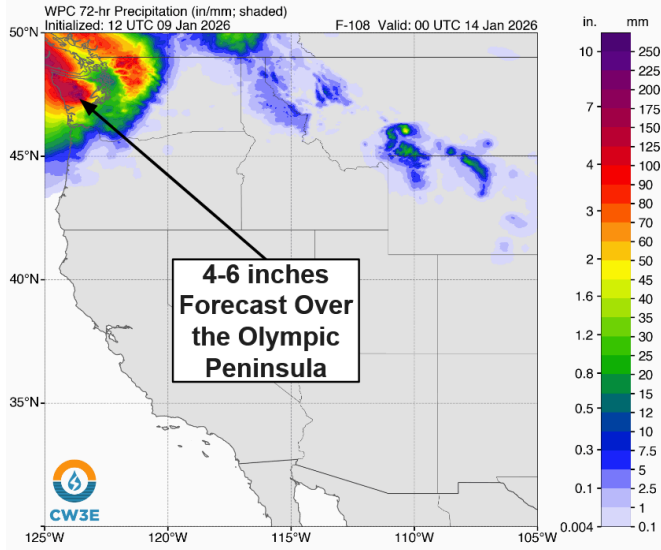




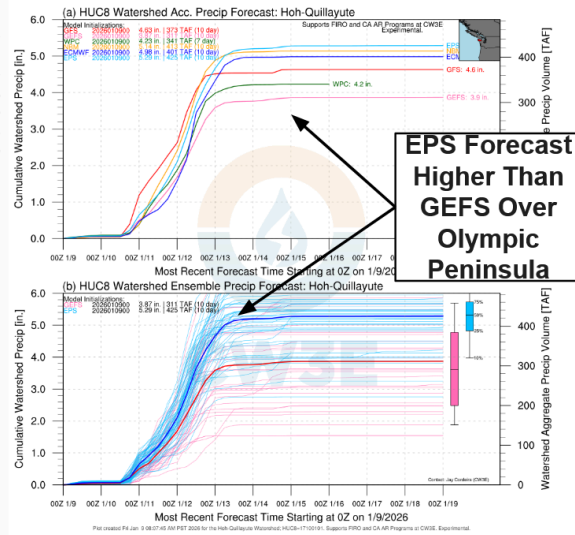
Forecasts support FIRO/CA-AR Program and NSF #2052972 | Intended for research purposes only



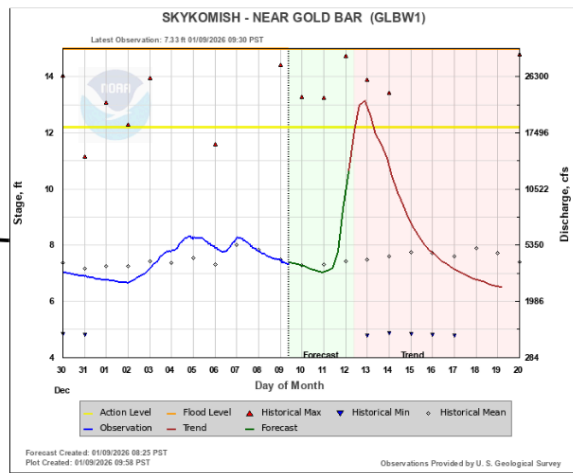
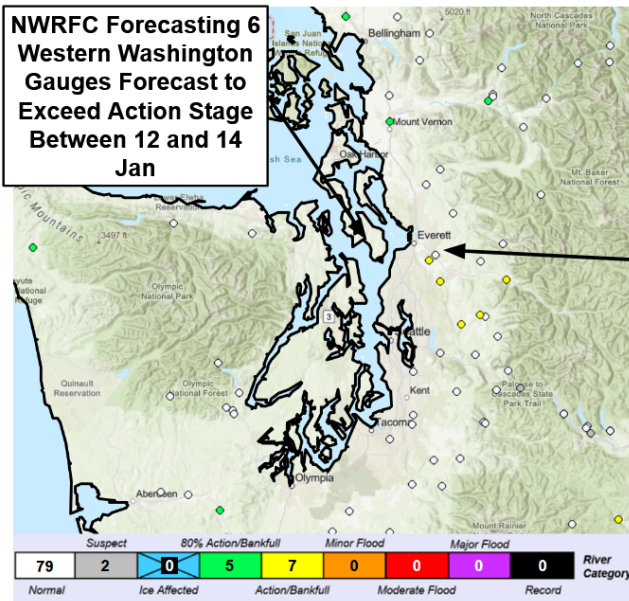
**WPC 72-Hour QPF:
Periods Ending 4 PM PT 13 Jan**



**Watershed Precipitation Forecast
for Hoh-Quillayute Watershed**



**NWRFC Forecasting 6
Western Washington
Gauges Forecast to
Exceed Action Stage
Between 12 and 14
Jan**



Additional Considerations:

Visit <https://www.weather.gov/nwrfc/> 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/>

Update by M. Steen
msteen@ucsd.edu