

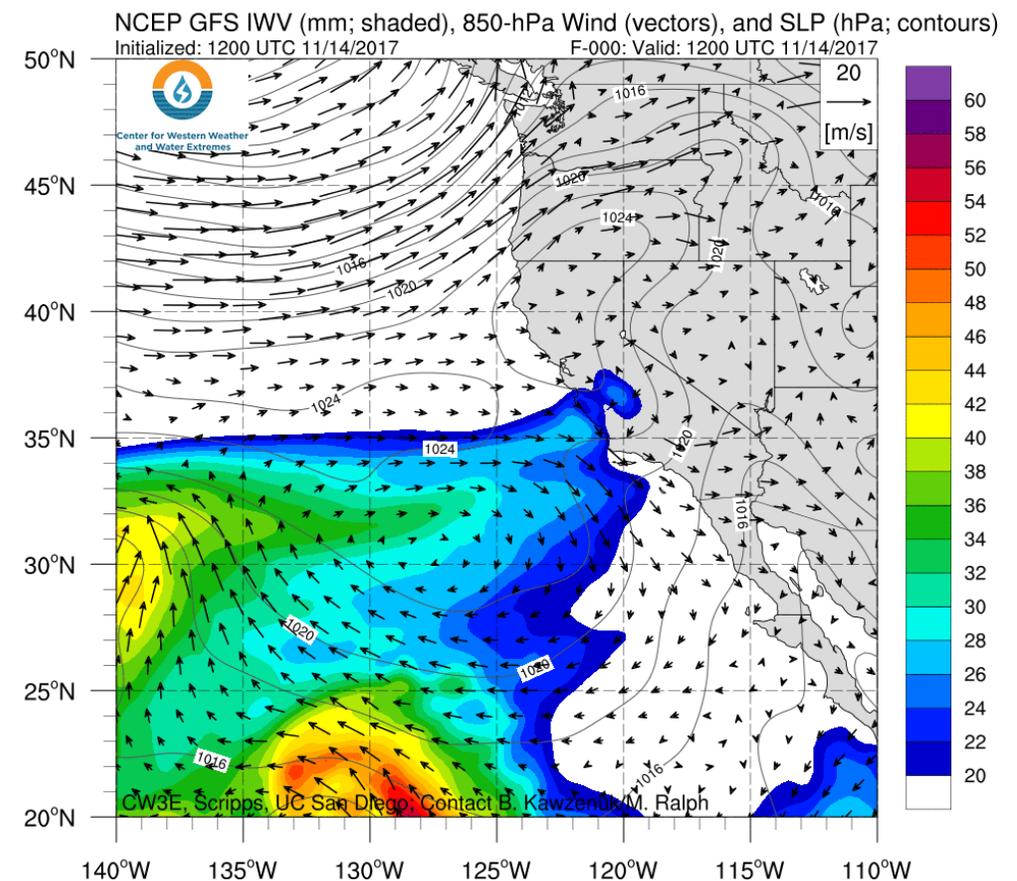
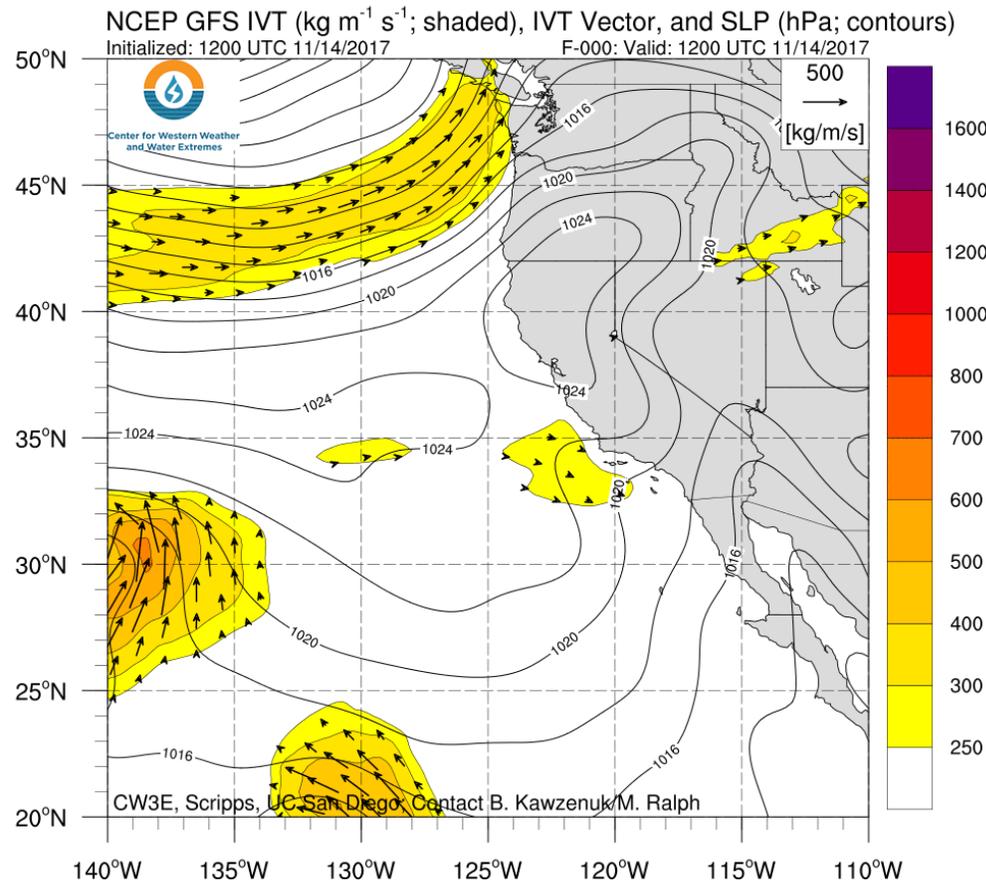
CW3E Atmospheric River Update – Outlook



Center for Western Weather
and Water Extremes
SCRIPPS INSTITUTION OF OCEANOGRAPHY
AT UC SAN DIEGO

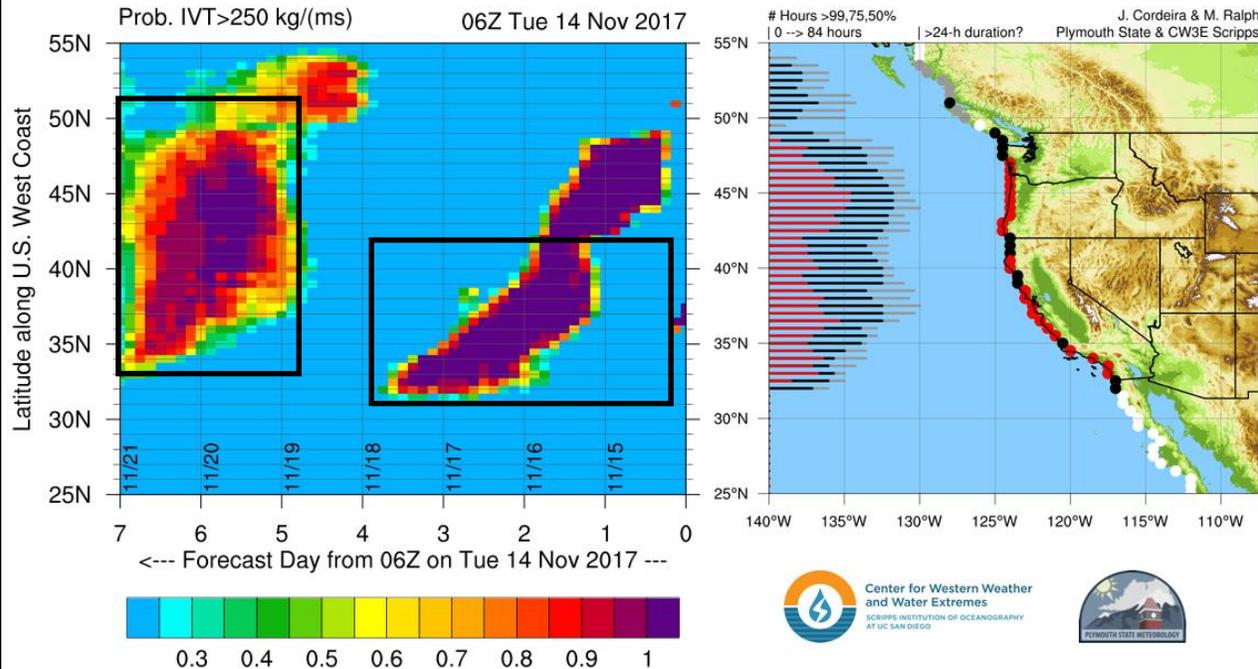
Two ARs Forecast to Impact the USWC over the Next Week

- An AR currently impacting the Pacific Northwest is expected to end in the next several hours
- A potentially strong AR (IVT $>750 \text{ kg m}^{-1} \text{ s}^{-1}$) is forecast to impact California between 15 and 17 November 2017
- A second AR is forecast to make landfall over the USWC between 19 and 21 November 2017
- Precipitation forecast range from 5–8 inches over higher elevations associated with the first AR
- Forecast uncertainty is currently high for the 19–21 November AR

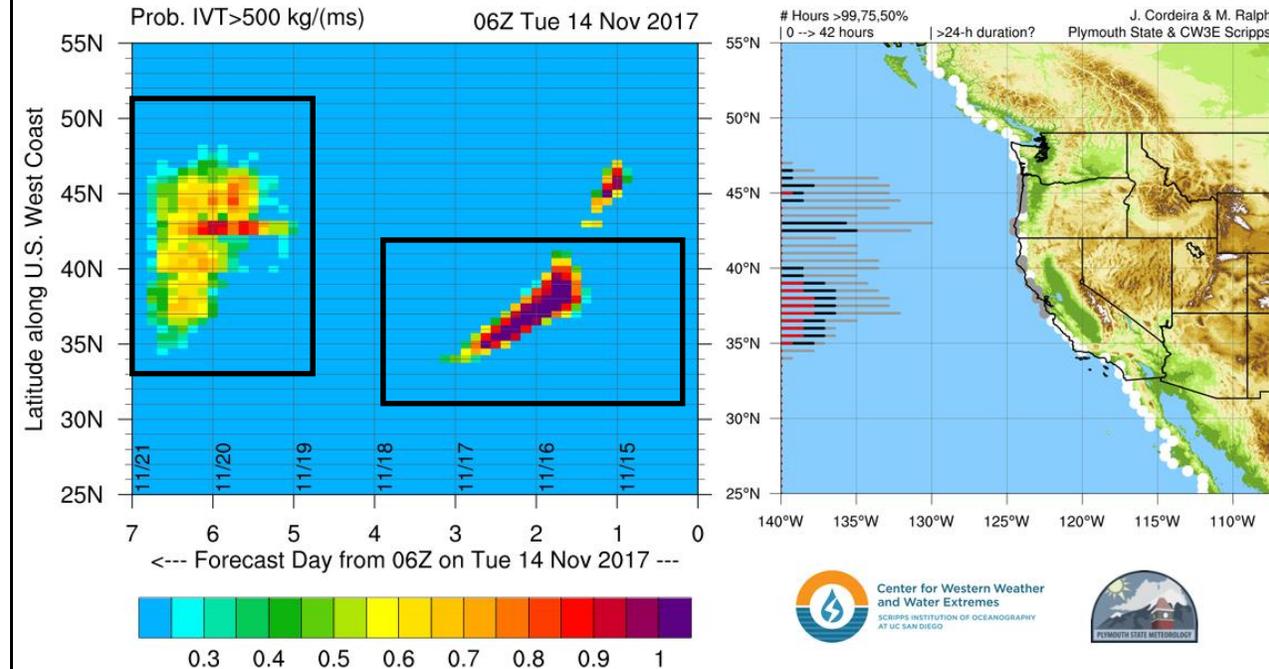




Odds of at least a **WEAK** AR making landfall



Odds of a **MODERATE-STRENGTH** AR making landfall



- There is high certainty (>95%) of weak AR conditions (IVT > 250 kg m⁻¹ s⁻¹) Over the entirety of California associated with the first AR between ~12 AM PST 15 Nov. and 11 AM PST 17 Nov.
- There is relatively high certainty (80–100%) of weak AR conditions over WA, OR, and Northern CA during 19–21 Nov.

- There is a high probability of moderate AR conditions (IVT > 500 kg m⁻¹ s⁻¹) lasting 6–12 hours over Northern California associated with the first AR.
- There is currently high uncertainty (50–80%) of moderate AR conditions associated with the second AR (19–21 Nov.)

AR Outlook: 14 November 2017

For California DWR's AR Program



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GEFS Ensemble members are in relatively high agreement of the onset, magnitude, and duration of AR conditions associated with the 15–17 Nov. AR

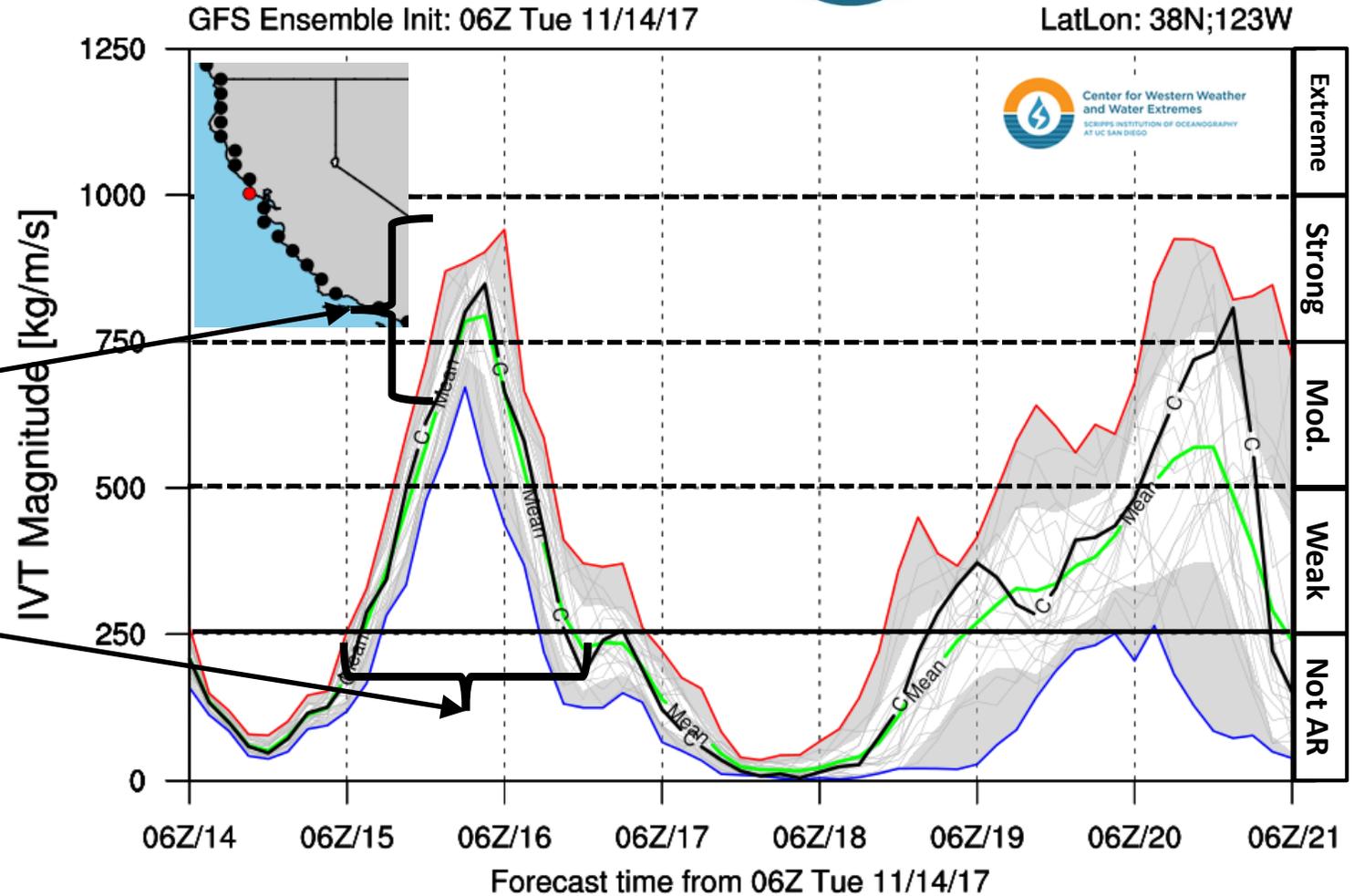
Magnitude of Potential AR

- Maximum possible IVT $\sim 950 \text{ kg m}^{-1} \text{ s}^{-1}$
- Mean IVT $\sim 800 \text{ kg m}^{-1} \text{ s}^{-1}$
- Minimum IVT $\sim 600 \text{ kg m}^{-1} \text{ s}^{-1}$

Duration of AR conditions

- Weak: $\sim 36 \text{ hours} \pm 12 \text{ h}$
- Moderate: $\sim 18 \text{ hours} \pm 6 \text{ h}$
- Strong: $\sim 12 \text{ hours} \pm 12 \text{ h}$

Several ensemble members and the deterministic forecast are suggesting the second AR could be strong over northern CA, though there is uncertainty amongst ensemble members



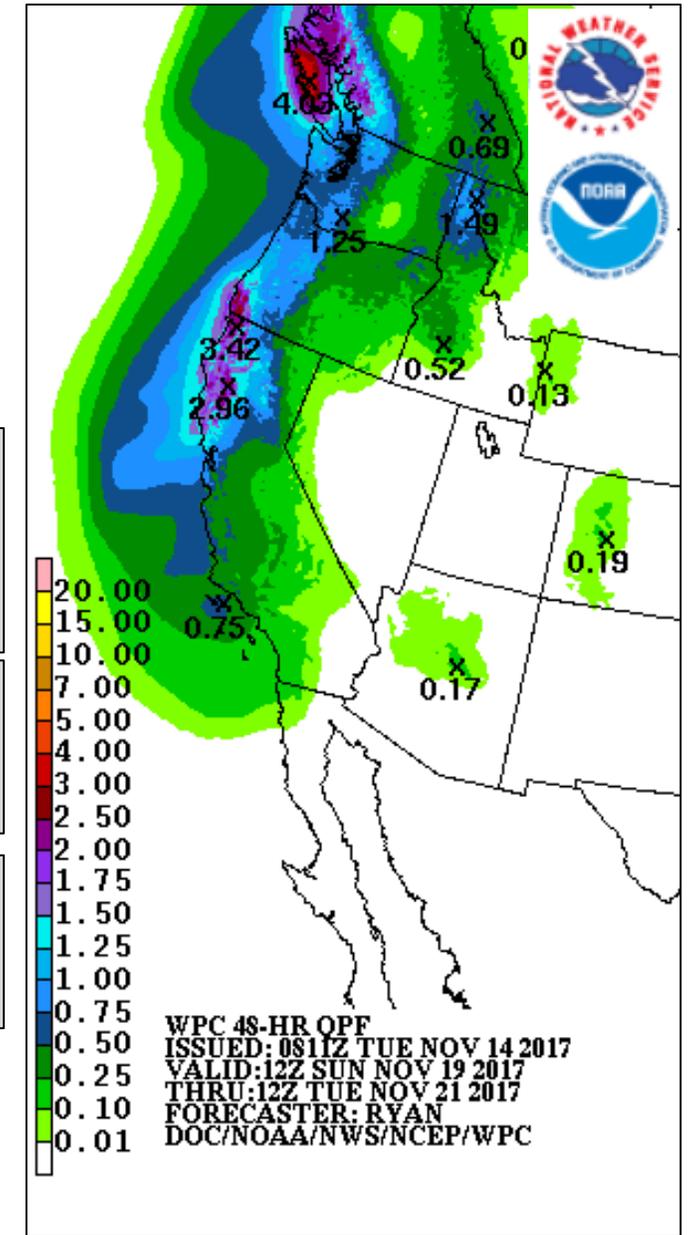
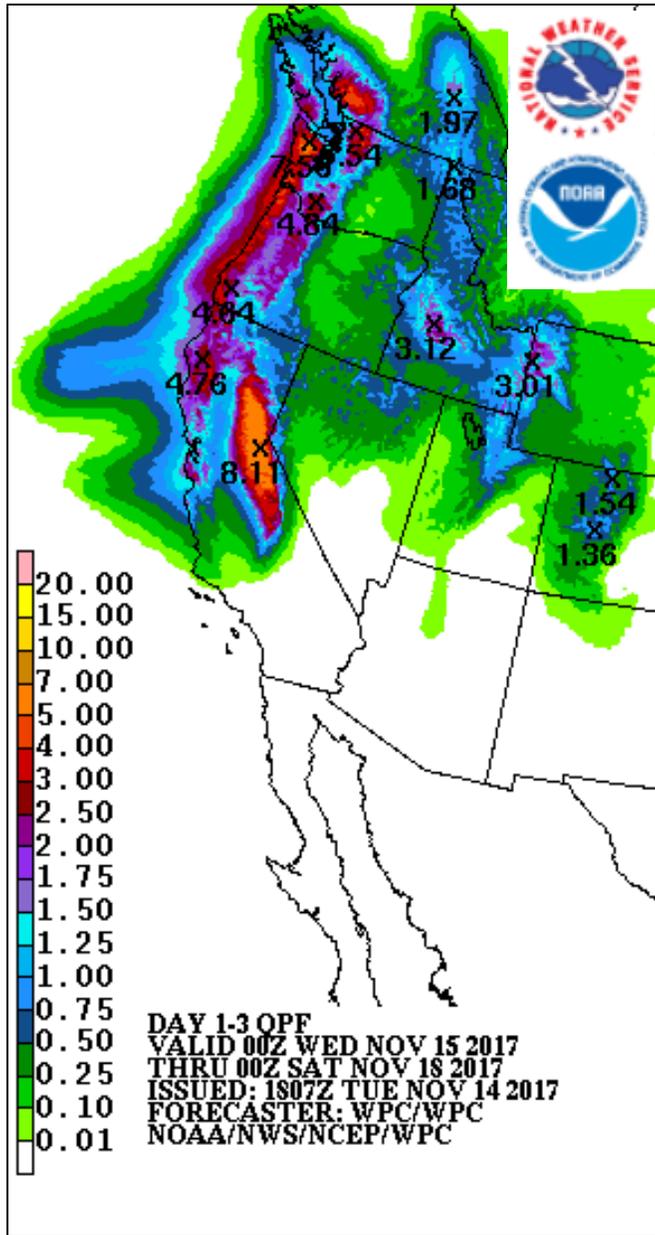
Weather Prediction Center QPF

NOAA WPC 1–3 day precip. forecasts are predicting 5–8 inches over higher elevations of the Coastal, Olympic, Cascade and Northern Sierra Mts. And 1–2 inches over lower elevations associated with the first AR

The second AR is forecast to produce ~2.5–3.5 inches of precipitation over the Coastal Mountains of Northern CA and Southern OR and .5–1.25 inches over lower elevations

Note that this NOAA WPC Day 6 and 7 precipitation forecast does not capture the entirety of the second AR

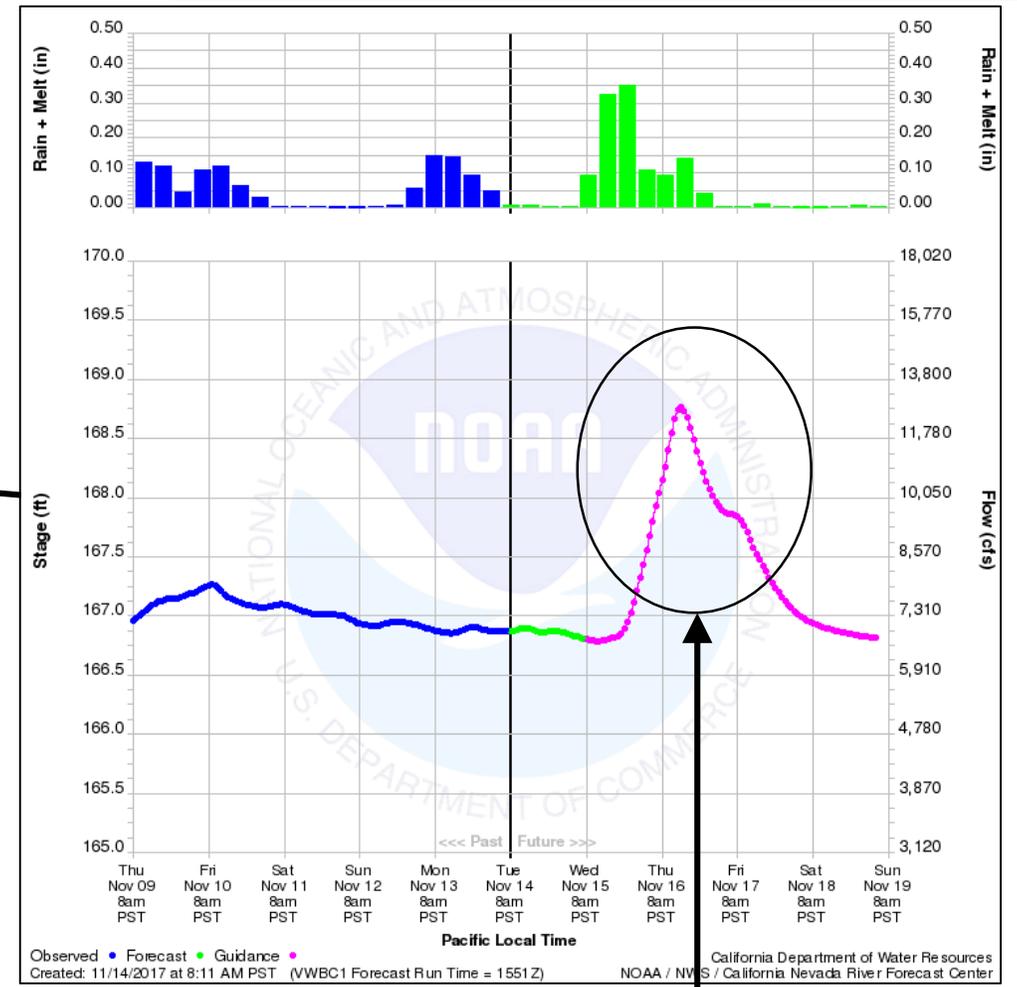
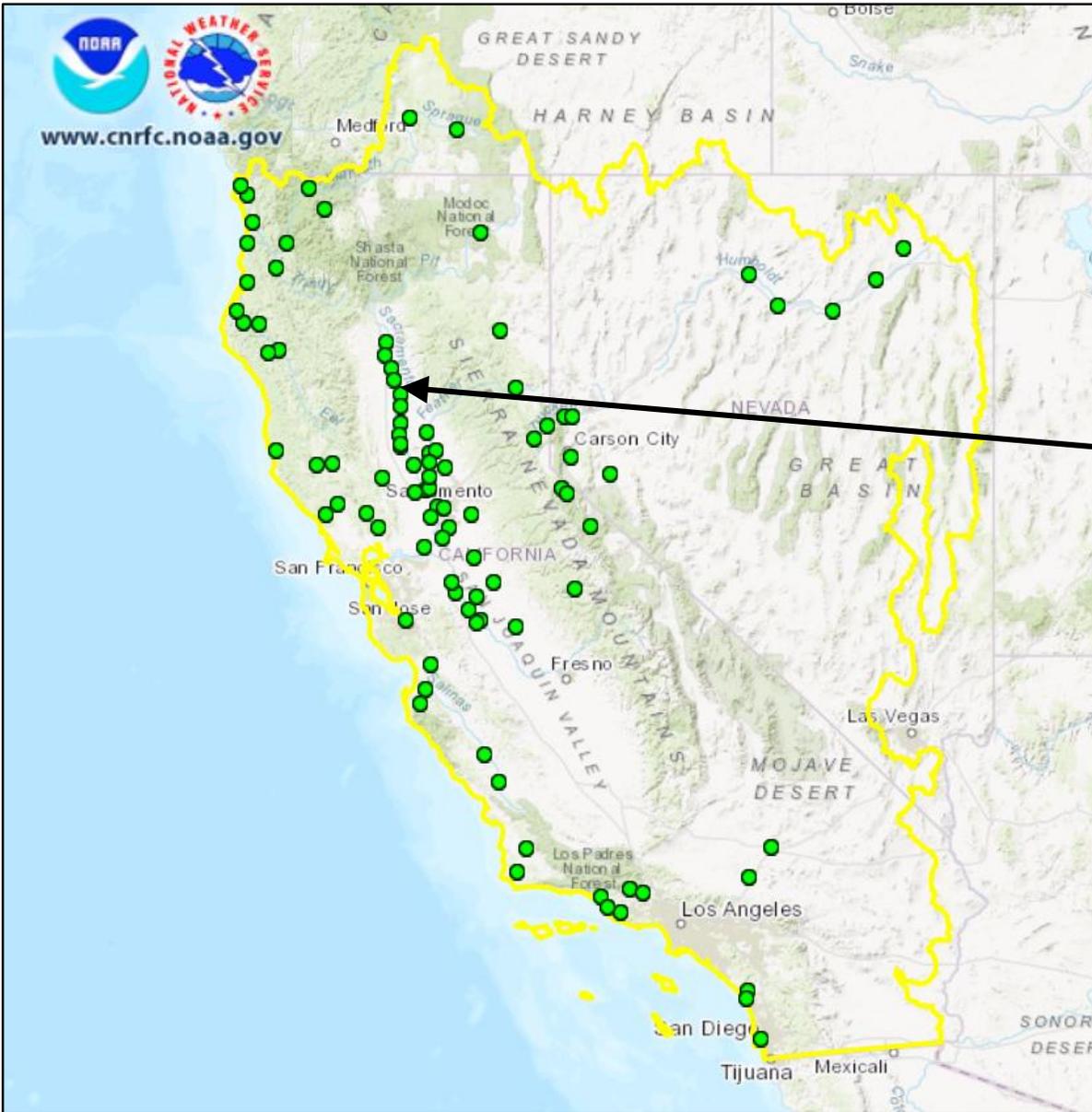
Precipitation totals associated with both ARs could locally reach >10 inches over higher elevations of the Northern U.S. West Coast



AR Outlook: 14 November 2017



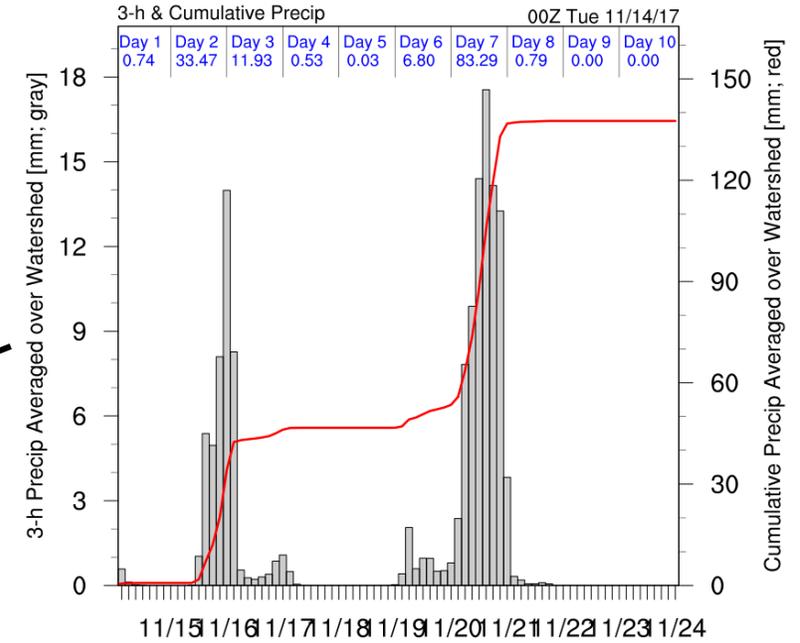
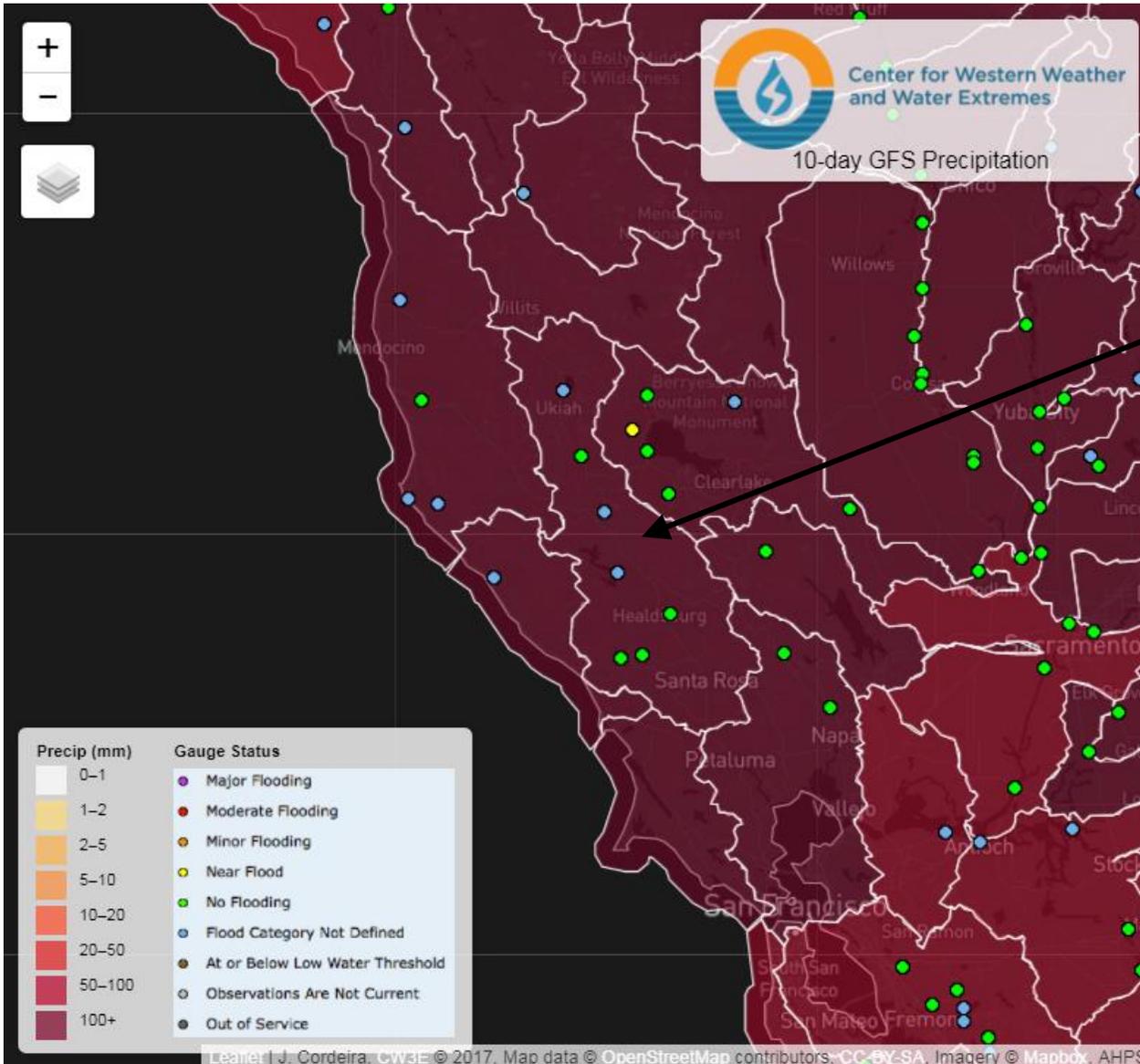
NOAA California Nevada River Forecast Center



While numerous rivers, like the Sacramento River, are forecast to see a rise in stage and flow, no rivers in California or Nevada are currently forecast to rise above monitor or flood stage

AR Outlook: 14 November 2017

Russian Watershed



Total: 138 mm | 428943 AcreFeet

The Russian River Watershed in northern California is forecast to receive ~5.4 inches of precipitation (averaged over the watershed) over the next 10 days

This forecast precipitation is not expected to create any flooding along the Russian River (indicated by green dots)

This information is provided in support of the Lake Mendocino Forecast Informed Reservoir Operations (FIRO). More information on FIRO can be found at

cw3e.ucsd.edu/firo/

Weather Prediction Center Snow Probability

There is currently a 30–80% chance of snow accumulations exceeding 12 inches over the Cascade Mountains in Washington and Oregon and the Sierra Nevada Mountains in California associated with the first AR from 4 AM PST 14 Nov. to 4 AM PST 17 Nov.

The probability of snow accumulations exceeding 12 inches increases with higher elevations

There is a locally higher probability (>80% chance) of snowfall exceeding 12 inches over the Northern Washington Cascade Mountains

