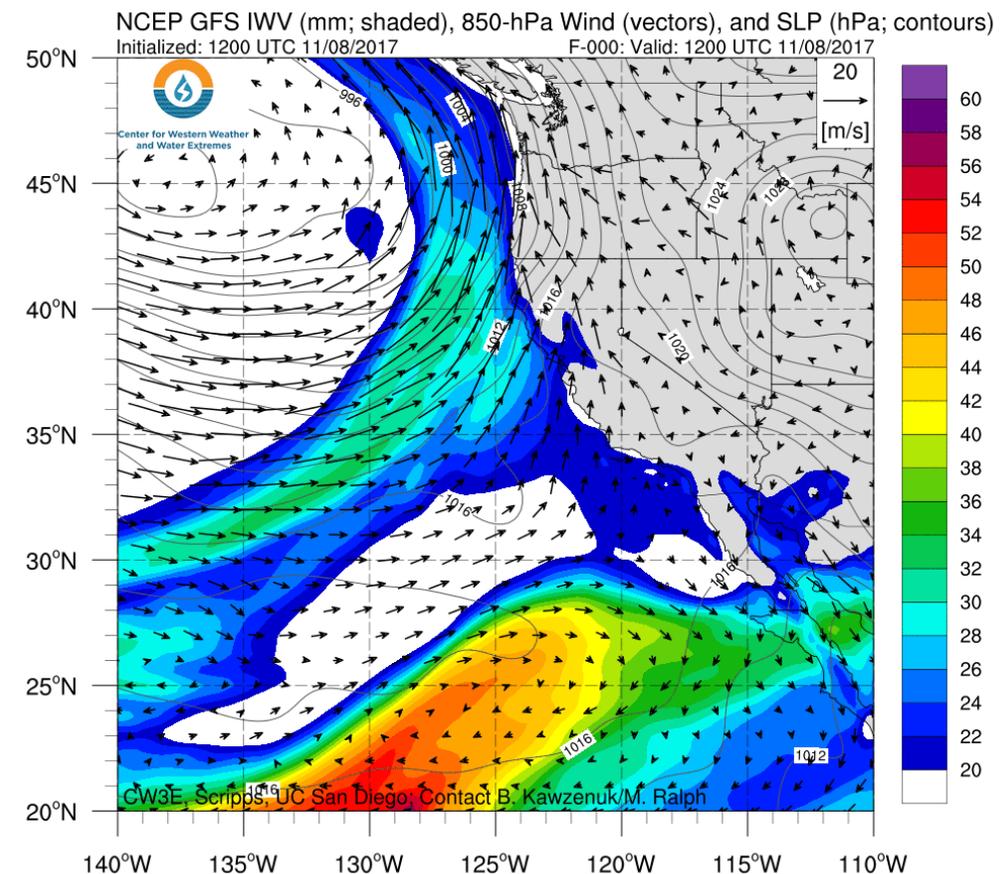
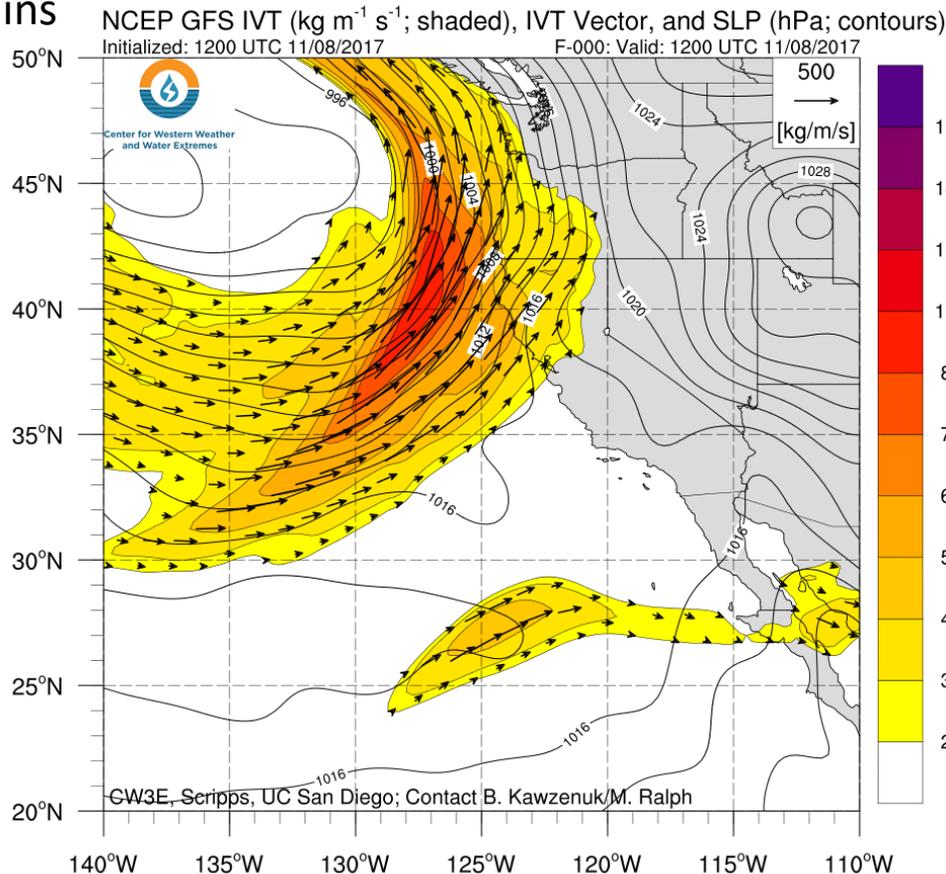


CW3E Atmospheric River Update – Outlook



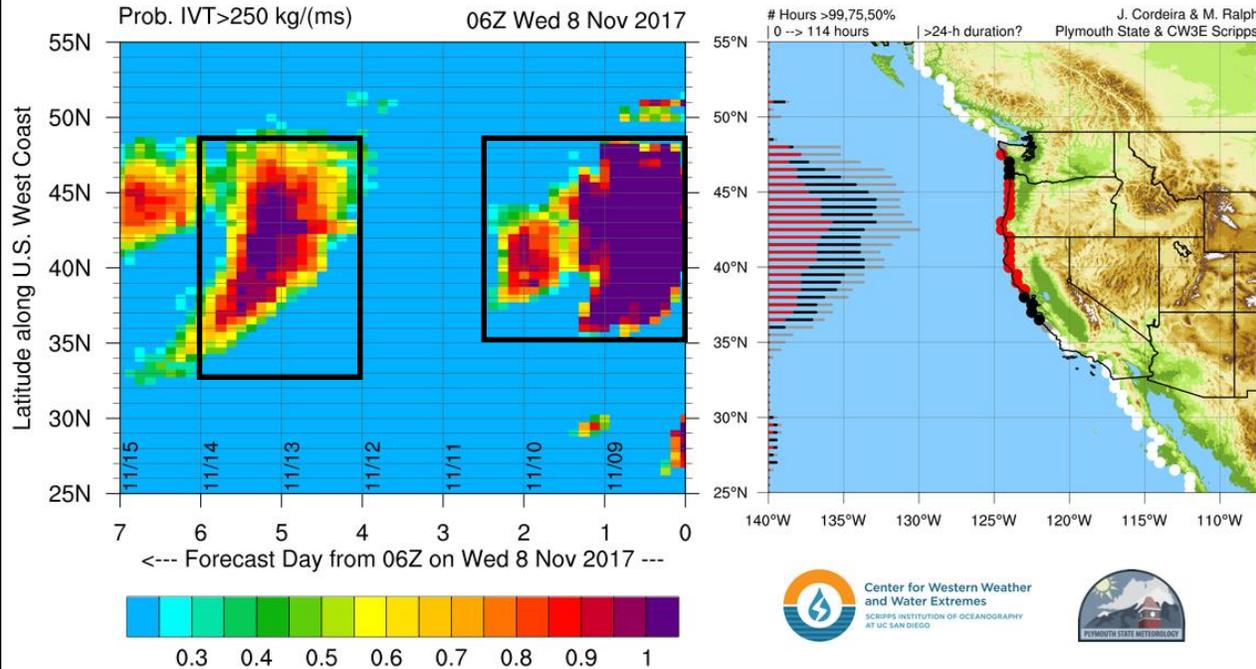
Two AR Forecasted to Make Landfall over the U.S. West Coast in the Next Week

- A strong AR is currently making landfall over the U.S. West Coast
- This AR is expected to produce up to 6 inches of precipitation over northern CA
- The southerly orientation of this AR will result in the heaviest precipitation over the north Central Valley
- A second, moderate strength, AR is forecasted to make landfall over northern CA, OR, and WA on 12 November 2017
- The second AR is expected to make landfall further north resulting in the highest precipitation over the Olympic and Cascade mountains

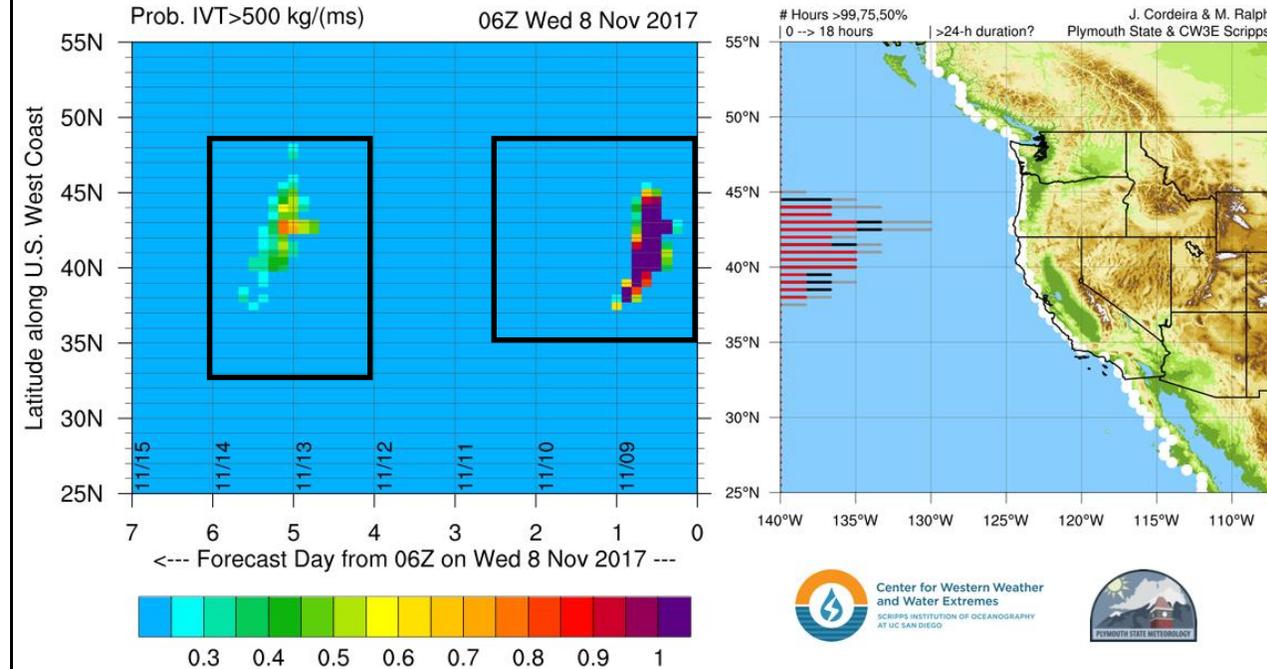




Odds of at least a **WEAK** AR making landfall



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



- All GEFS members agree on the presence and continuation of weak AR conditions ($IVT > 250 \text{ kg m}^{-1} \text{ s}^{-1}$) over northern CA, OR, and WA during 8–9 November 2017
- There is also high certainty (>95%) of weak AR conditions over northern CA, and OR during 12–14 November 2017

- All GEFS members agree on the presence of moderate AR conditions ($IVT > 500 \text{ kg m}^{-1} \text{ s}^{-1}$) over northern CA, and OR on 8 November 2017
- ~60% of GEFS members are currently predicting moderate AR conditions over northern CA and OR during the second AR

AR Outlook: 8 November 2017

For California DWR's AR Program



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

There is high certainty in the GEFS of the magnitude and some uncertainty in the end time of the AR conditions over southern OR during 8–9 Nov

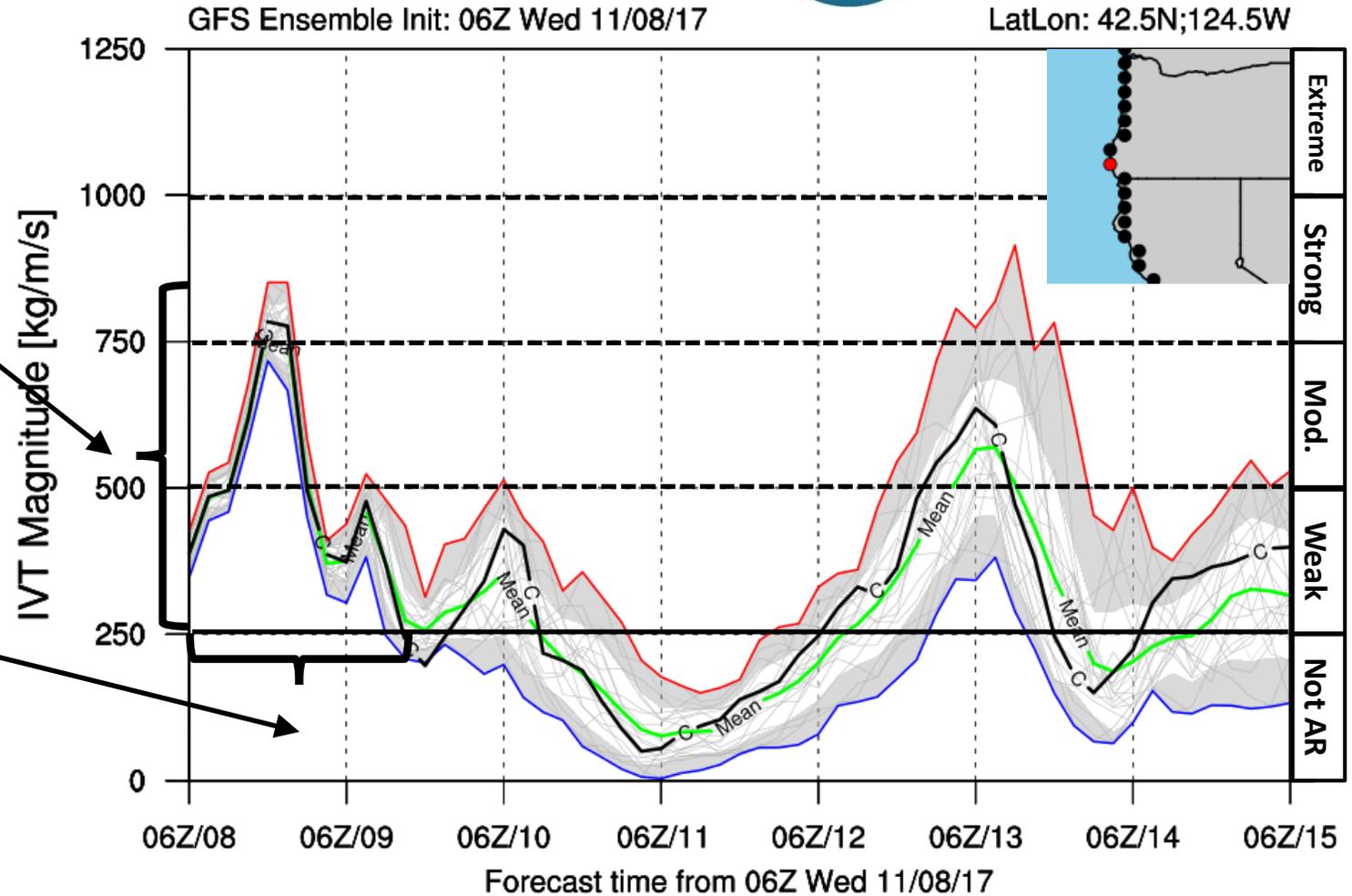
Magnitude of Potential AR

- Maximum possible IVT $\sim 850 \text{ kg m}^{-1} \text{ s}^{-1}$
- Mean IVT $\sim 770 \text{ kg m}^{-1} \text{ s}^{-1}$
- Minimum possible IVT $\sim 700 \text{ kg m}^{-1} \text{ s}^{-1}$

Duration of AR conditions

- Weak: $\sim 30 \text{ hours} \pm 6 \text{ h}$
- Moderate: $\sim 12 \text{ hours} \pm 3 \text{ h}$
- Strong: $\sim 6 \text{ hours} \pm 3 \text{ h}$

Most GEFS members agree that this AR will be a strong AR ($\text{IVT} > 750 \text{ kg m}^{-1} \text{ s}^{-1}$) over southern Oregon



AR Outlook: 8 November 2017

For California DWR's AR Program



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

There is uncertainty in the GEFS of the onset, magnitude, and end time of the AR conditions over southern OR during 12–14 Nov

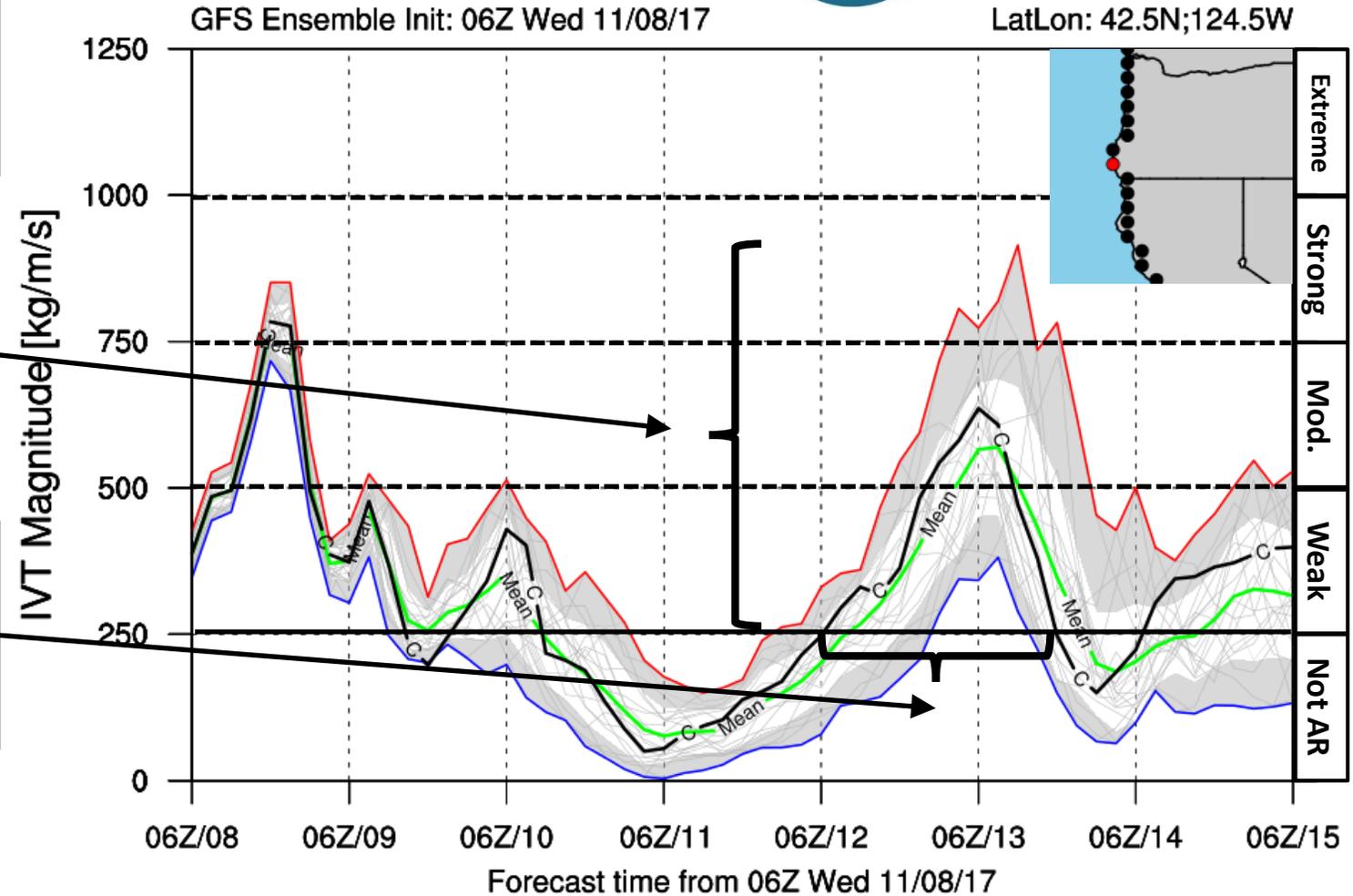
Magnitude of Potential AR

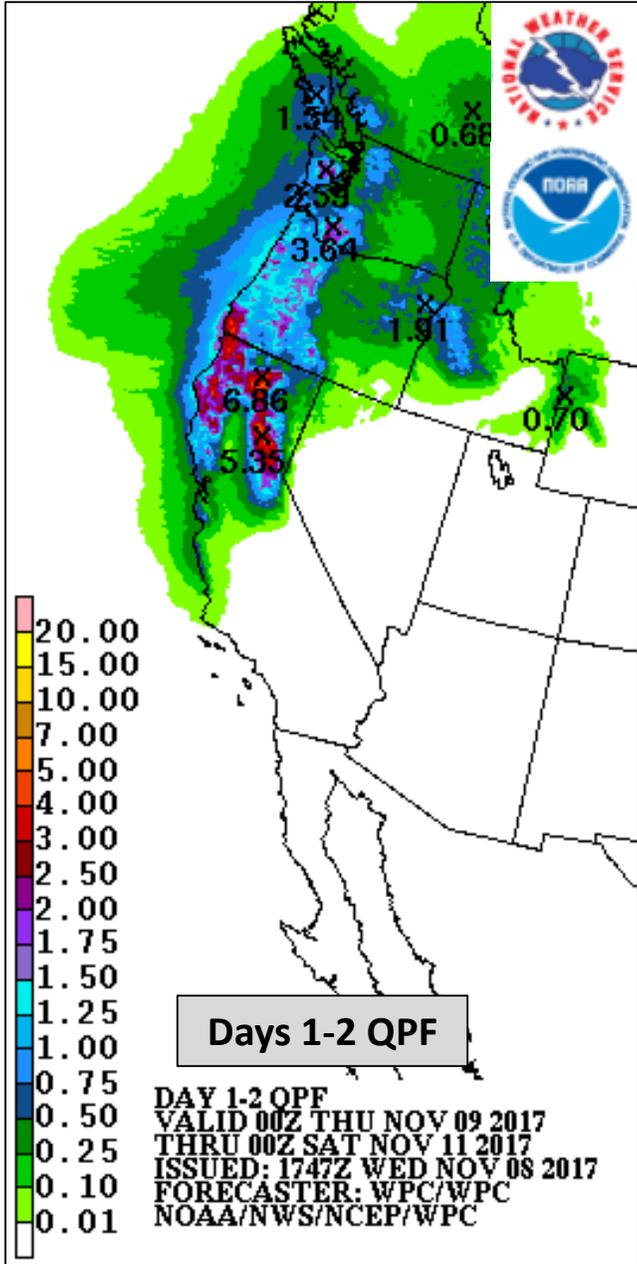
- Maximum possible IVT $\sim 900 \text{ kg m}^{-1} \text{ s}^{-1}$
- Mean IVT $\sim 600 \text{ kg m}^{-1} \text{ s}^{-1}$
- Minimum possible IVT $\sim 375 \text{ kg m}^{-1} \text{ s}^{-1}$

Duration of AR conditions

- Weak: $\sim 36 \text{ hours } \pm 12 \text{ h}$
- Moderate: $\sim 12 \text{ hours } \pm 12 \text{ h}$
- Strong: $\sim 6 \text{ hours } \pm 3 \text{ h}$

Only three GEFS members predict that this will be a strong AR ($\text{IVT} > 750 \text{ kg m}^{-1} \text{ s}^{-1}$) while most agree this will at least be a moderate AR over southern Oregon





Weather Prediction Center QPF

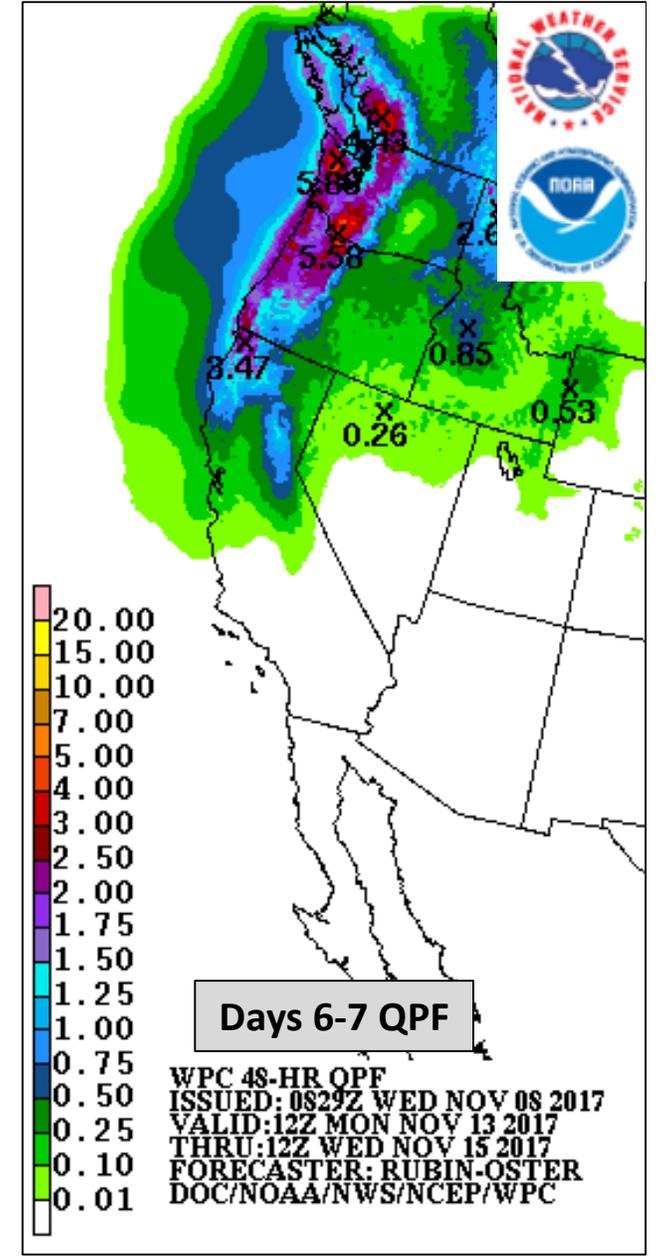
The first AR is expected to produce up to 6.86 inches of precipitation over the next two days over the northern Sierra Nevada

Coastal northwest CA could receive over 3 inches of precipitation in some locations with much of western OR receiving >1.25 inches over the next two days

The AR during 12–14 Nov 2017 is expected to be further north than the current AR resulting in the heaviest precipitation over the Olympic and Cascade Mountains.

Two day precipitation accumulations over the Cascade and Olympic mountains are forecast to be >5 inches.

Northwest CA could see >3 inches of precipitation over the coastal mountains

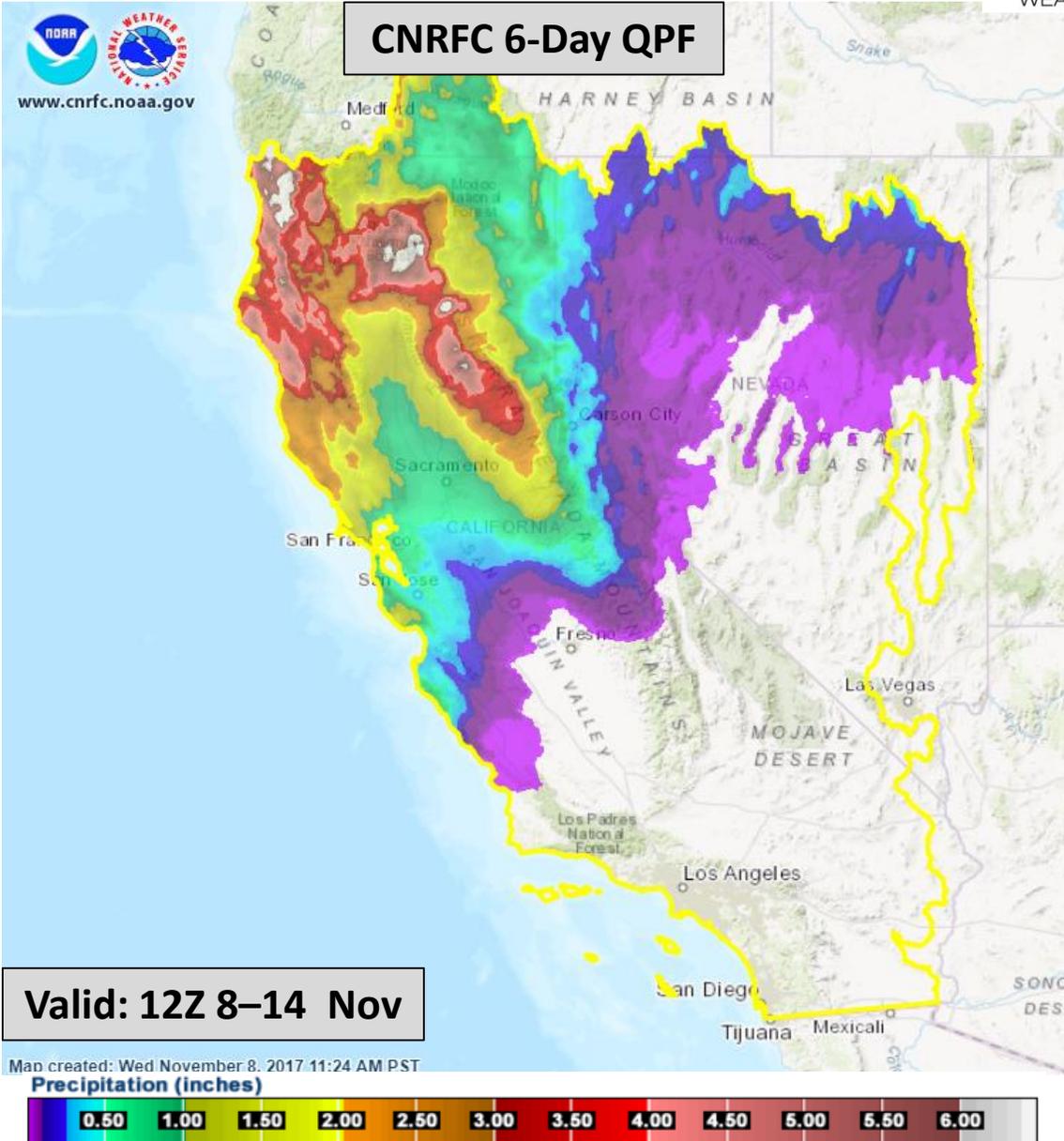


AR Outlook: 8 November 2017



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

California Nevada River Forecast Center



CNRFC quantitative precipitation forecast is predicting up to 8 inches of precipitation over the Sierra Nevada and northwest CA coastal ranges over the next six days.

Due to the southerly orientation of the current AR, the north Central Valley is expected to receive heavy precipitation. Greater than 5 inches of precipitation is forecast over locations with elevations <3000 ft.