

CW3E Atmospheric River Outlook

For California DWR's AR Program

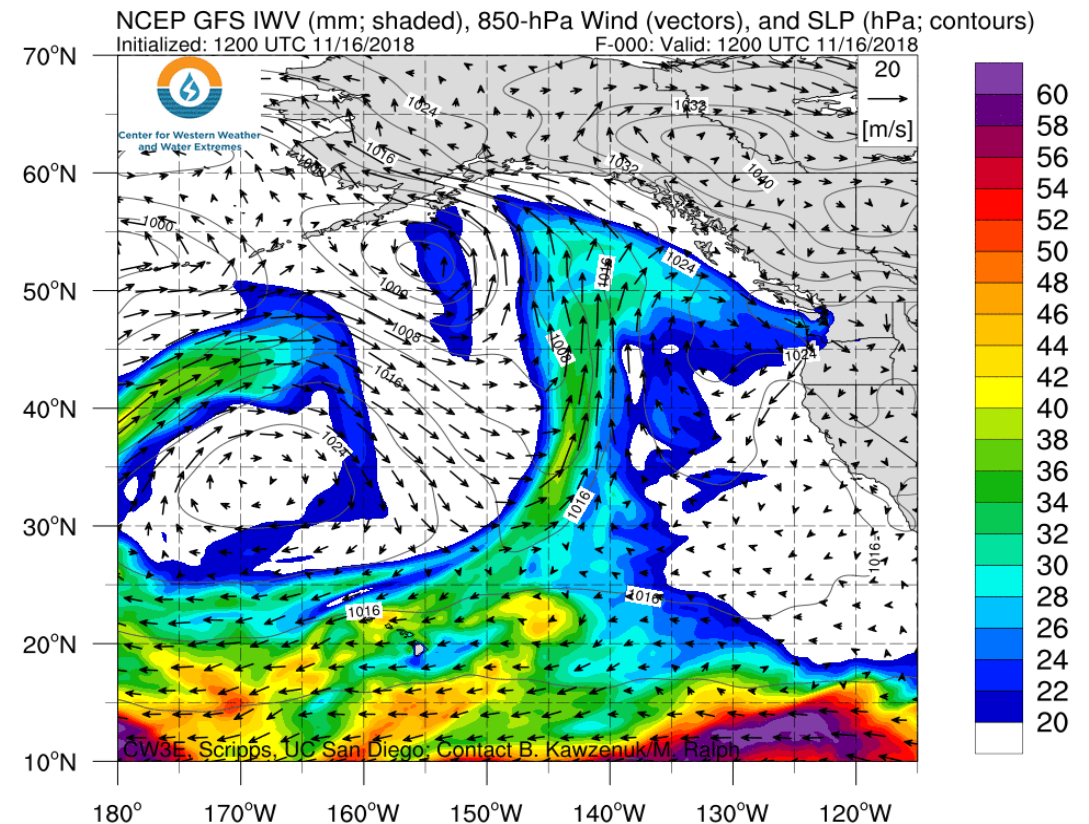
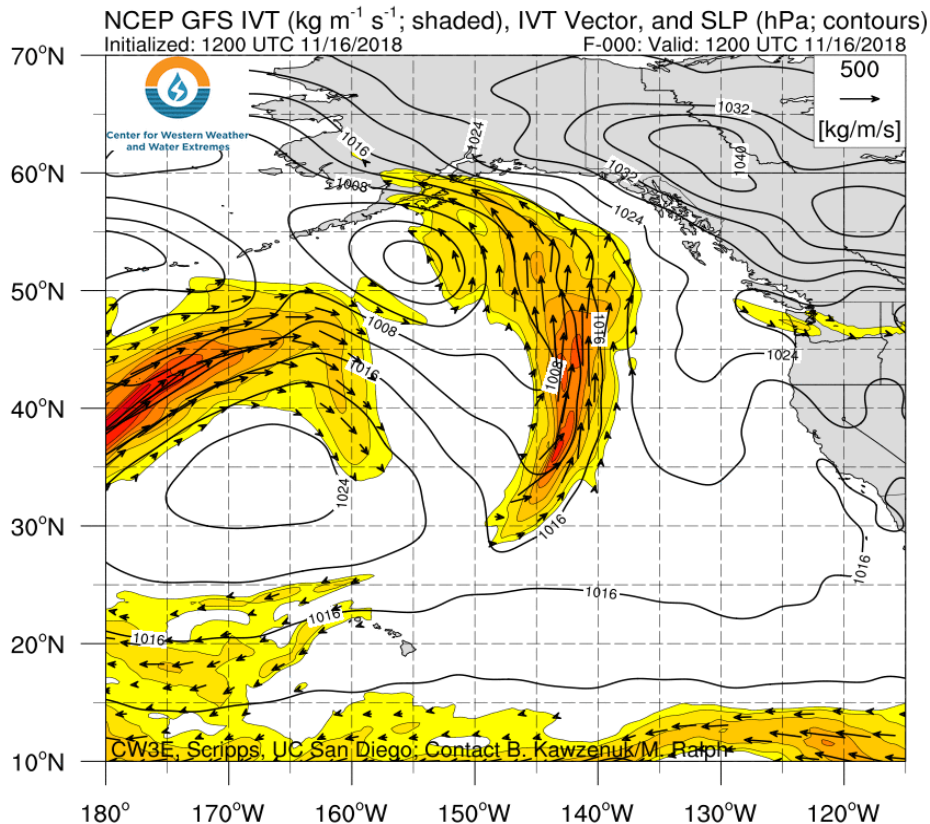


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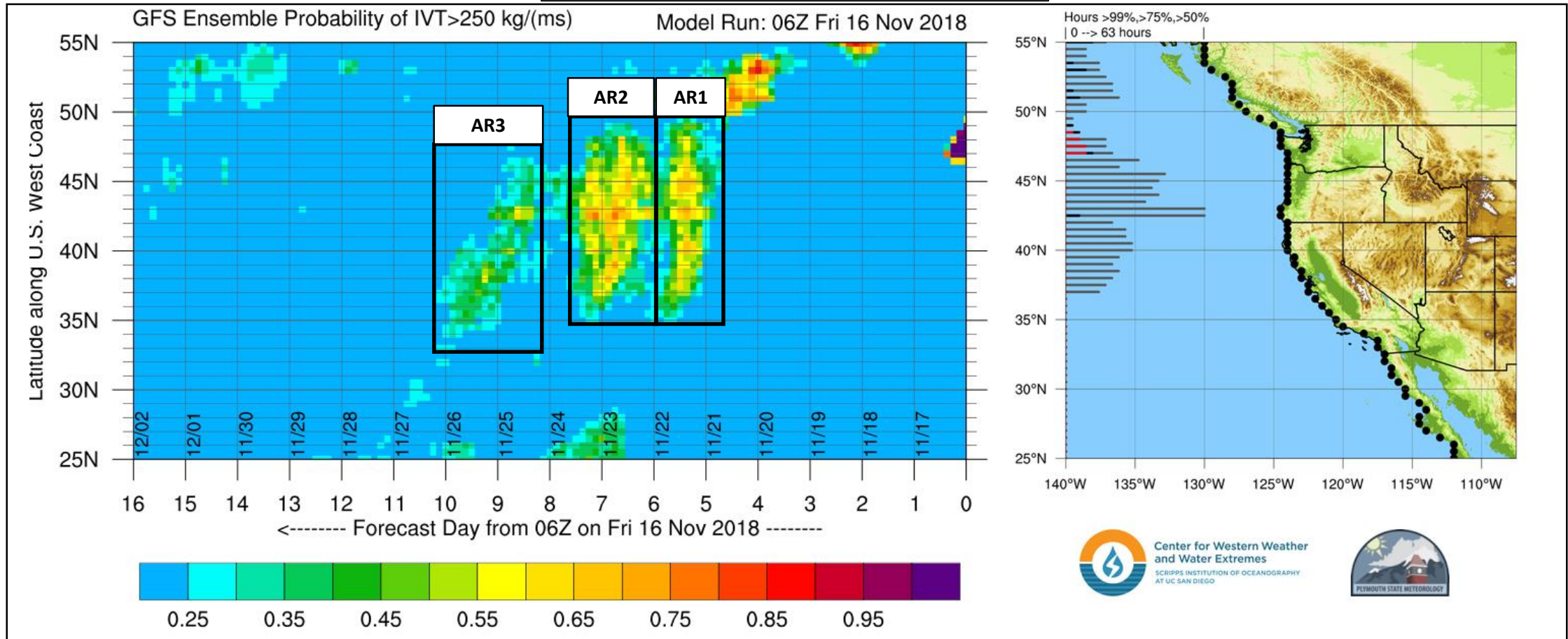
Potential for Atmospheric River Activity over California Next Week

- Multiple systems are currently forecasted to potentially bring AR conditions and much needed precip. to California next week
- Each of the 3 ARs are currently forecast to bring weak AR conditions (IVT magnitudes of $250\text{--}500\text{ kg m}^{-1}\text{ s}^{-1}$) to portions of CA
- **These ARs could bring much needed relief to currently active fires in California**
- **The precipitation could also reduce the extremely smoky conditions across most of California**
- Since these ARs are in the extended forecast (5–8 days), forecast uncertainty in onset, duration, and magnitude of AR conditions and precipitation is currently very high (stay tuned as time progresses closer to landfall)





Odds of AR Conditions Along Coast



- The GFS is currently forecasting AR conditions for two separate ARs, one on 21 November that is currently forecast to be weaker with light precipitation and a second on 22 November that is forecast to bring potentially heavier precipitation to Northern California
- 50–80% of GFS ensemble members are forecasting at least weak AR conditions ($IVT > 250 \text{ kg m}^{-1} \text{ s}^{-1}$) within the two separate systems along the coast between 36°N and 47°N from 21 to 23 November 2018 (25–50 % chance of a third AR between 24 and 26 November)

AR Outlook: 16 November 2018

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There is currently a considerable amount of uncertainty in the on-set, duration, and magnitude of AR conditions associated with both ARs forecast for Northern California

Magnitude of Potential AR 1 (21 November)

- Maximum predicted IVT $\sim 700 \text{ kg m}^{-1} \text{ s}^{-1}$
- Mean IVT $\sim 350 \text{ kg m}^{-1} \text{ s}^{-1}$
- Minimum IVT $< 250 \text{ kg m}^{-1} \text{ s}^{-1}$

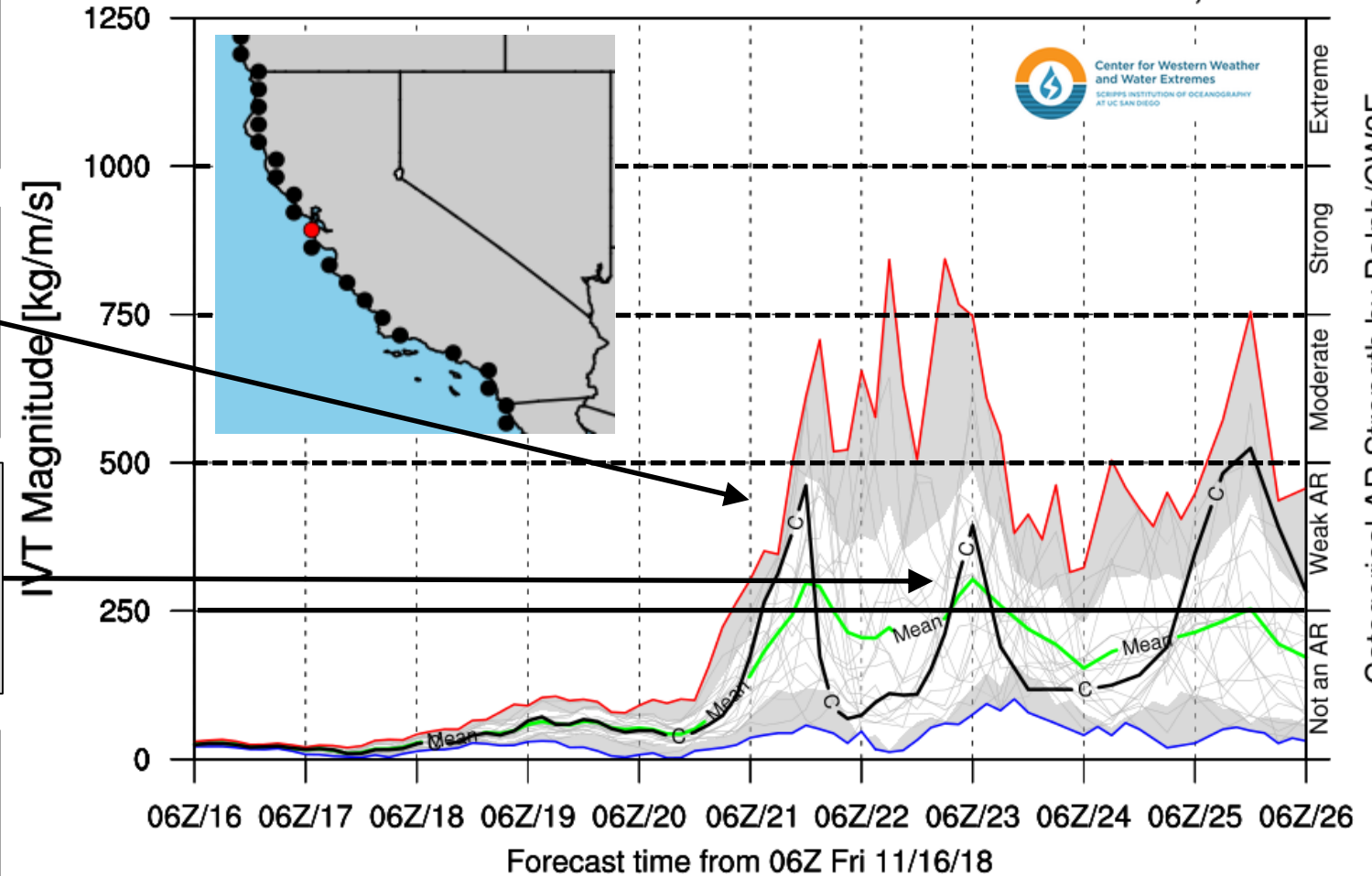
Magnitude of Potential AR 2 (23 November)

- Maximum predicted IVT $\sim 800 \text{ kg m}^{-1} \text{ s}^{-1}$
- Mean IVT $\sim 350 \text{ kg m}^{-1} \text{ s}^{-1}$
- Minimum IVT $< 250 \text{ kg m}^{-1} \text{ s}^{-1}$

The forecast duration of both ARs is currently between 12 and 18 hours with larger uncertainty (+/- 12 hours)

GFS Ensemble Init: 06Z Fri 11/16/18

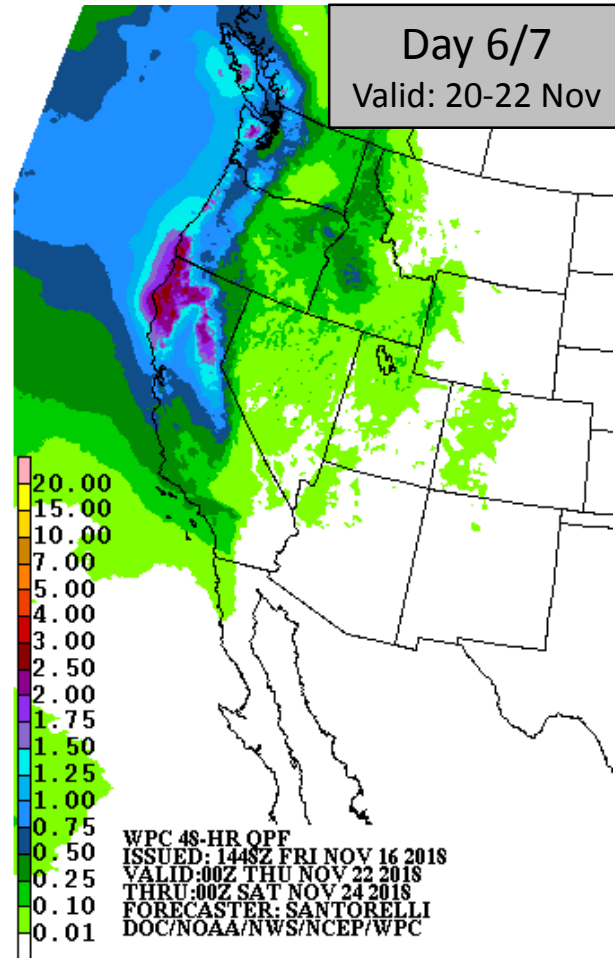
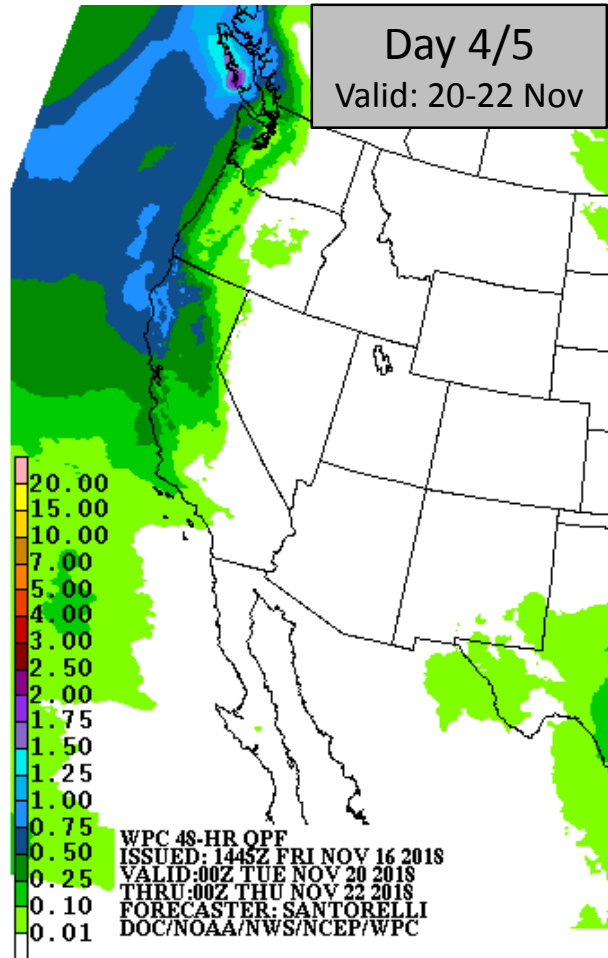
LatLon: 37.5N;122.5W



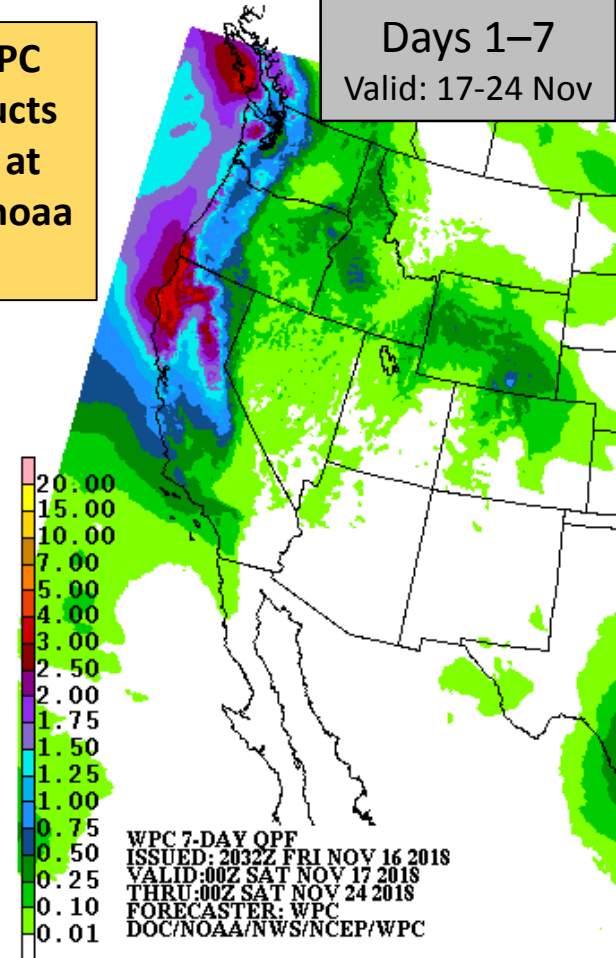
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NOAA WPC
QPF products
available at
wpc.ncep.noaa.gov



The NOAA WPC is currently forecasting .1 to 1 inches of precipitation over portions of Northern CA in association with the first AR on 20–22 Nov.

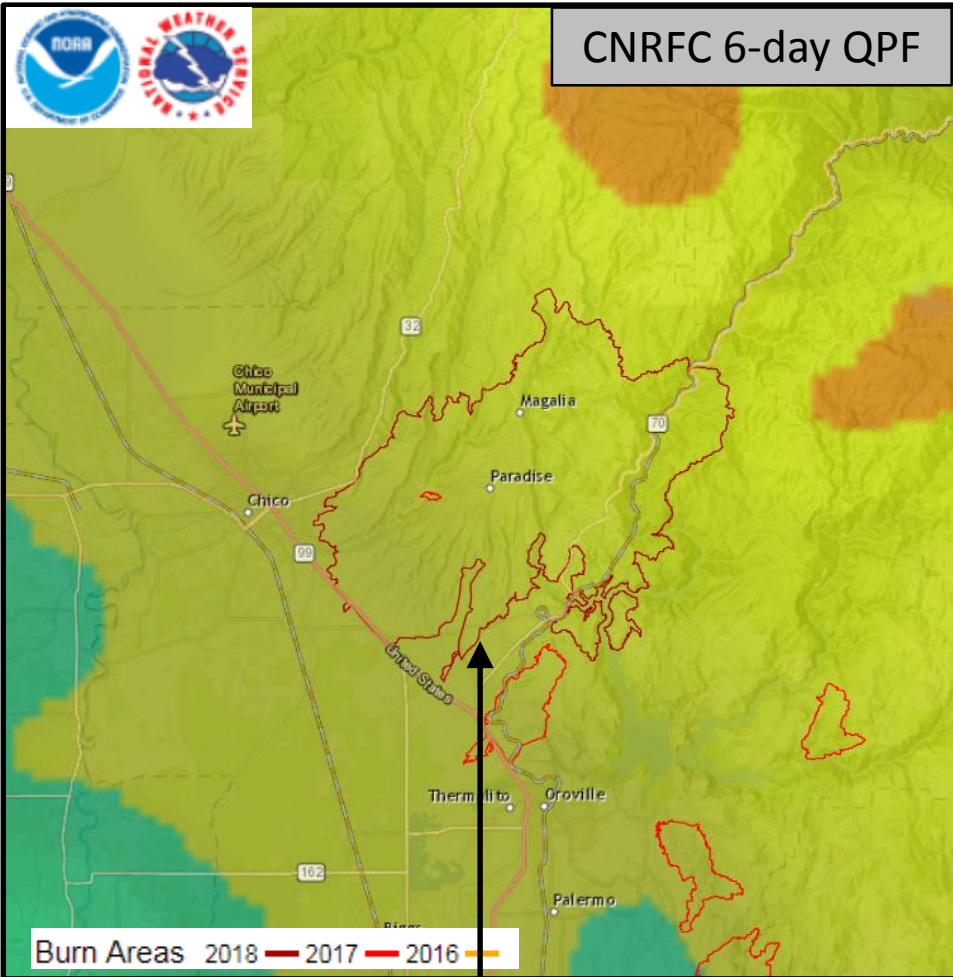
The second is currently forecast to bring higher precipitation accumulations (.75 to 3 inches) to Northern California and portions of Coastal SoCal on 22-24 Nov.

1-7 day WPC QPF is currently predicting precipitation accumulations as high as 4 inches over Coastal NorCal and 2.5 inches over the Northern Sierra Mountains

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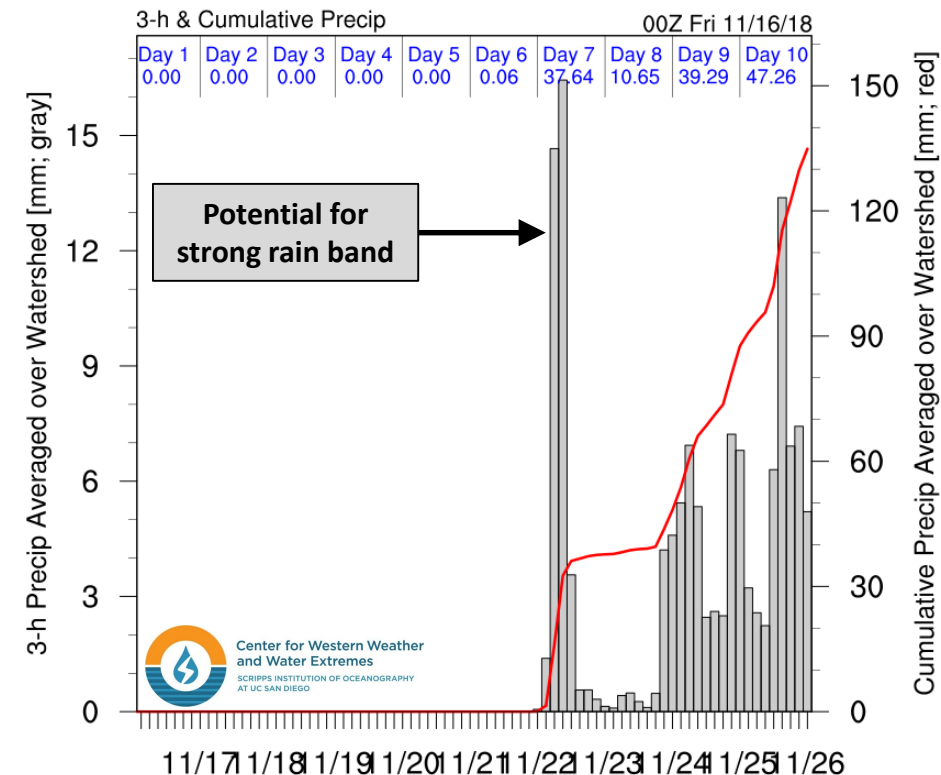
CNRFC 6-day QPF

These forecasted ARs could bring some potentially beneficial precipitation to Northern California where the destructive Camp fire is currently burning near Paradise, CA

NWS California Nevada River Forecast Center forecast products are located at cnrfc.noaa.gov

CW3E Watershed forecast products at cw3e.ucsd.edu/DSMaps/D_S_watershed.html

North Fork Feather Watershed



Total: 135 mm | 333748 AcreFeet

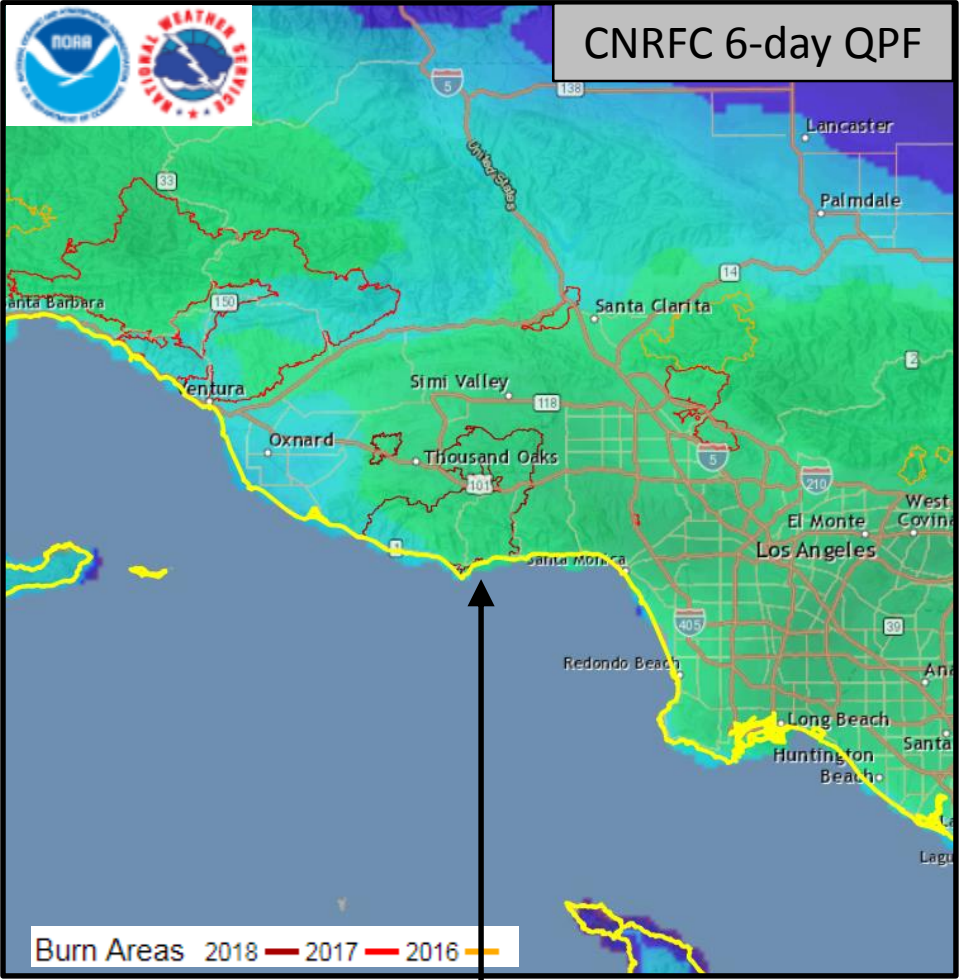
The NCEP GFS is also forecasting ~135 mm (5.3 inches) over the North Fork Feather watershed (near the Camp fire) over the next 10 days (Additional precipitation past 6-days)

The NWS CNRFC is currently forecasting 1–1.9 inches of precipitation over the next 6-days over the Camp fire near Paradise, CA

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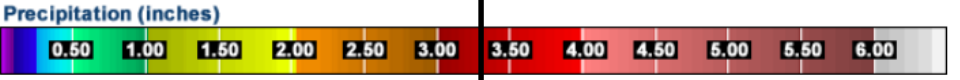
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These systems may also bring precipitation to Southern California where the Woolsey fire is currently burning

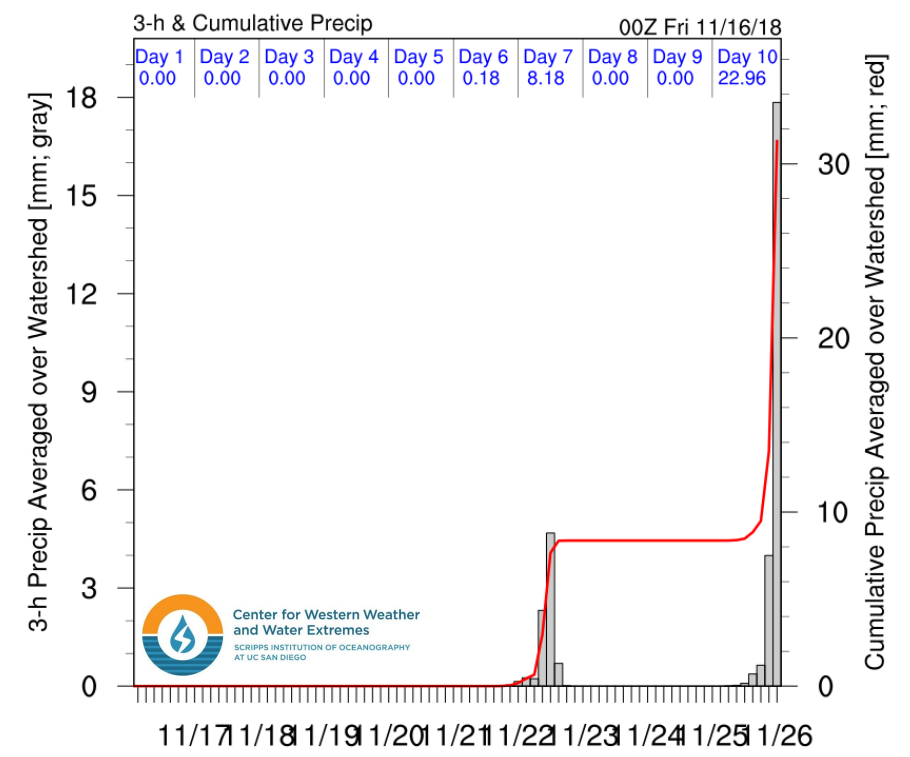
NWS California Nevada River Forecast Center forecast products are located at cnrfc.noaa.gov

CW3E Watershed forecast products at cw3e.ucsd.edu/DSMaps/D_S_watershed.html



The NWS CNRFC is currently forecasting ~.5 in. of precipitation for the next 6-days over the currently active Woolsey fire near Thousand Oaks, CA

Santa Barbara Coastal Watershed



Total: 31 mm | 44104 AcreFeet

The NCEP GFS is also forecasting ~31 mm (1.2 inches) over the Santa Barbara Coastal watershed over the next 10 days, most of which is forecast to fall during the third and most uncertain AR