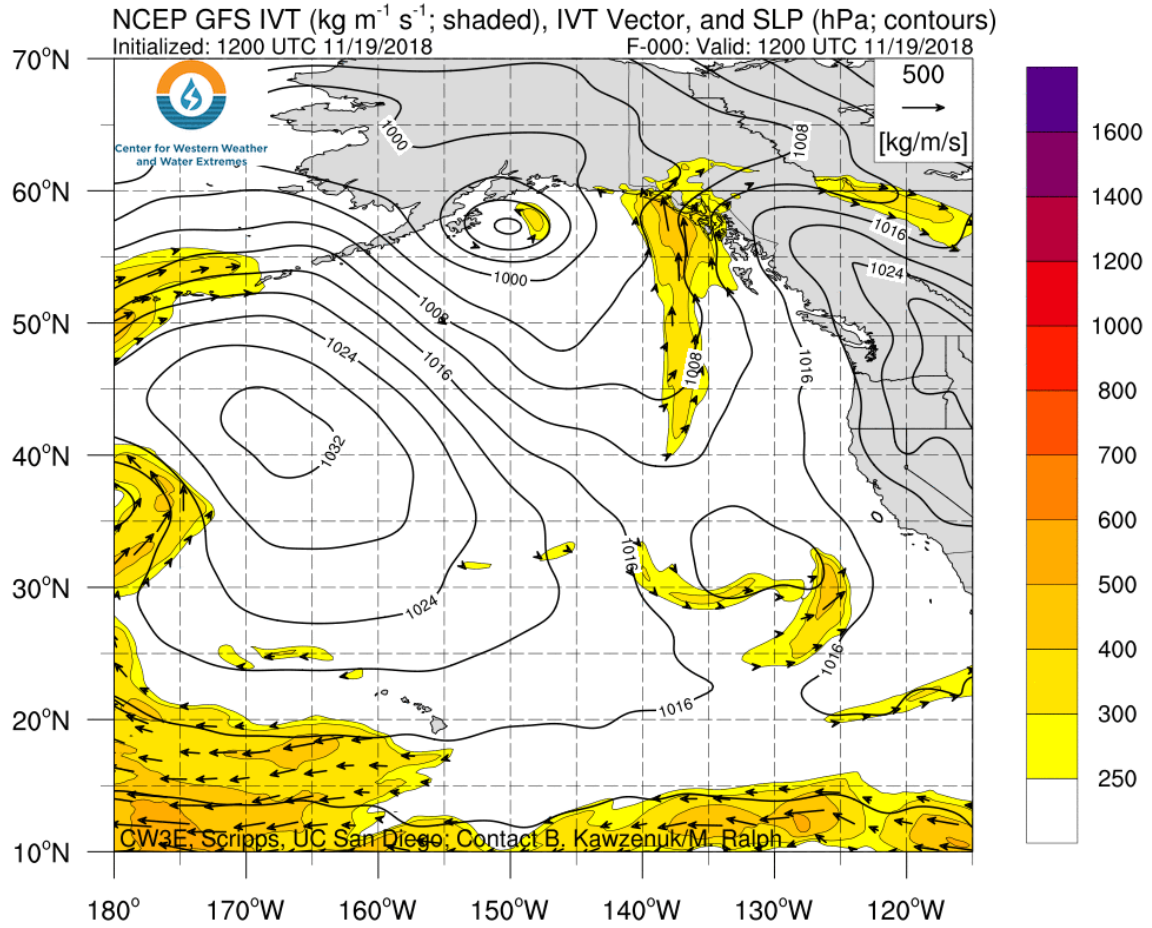
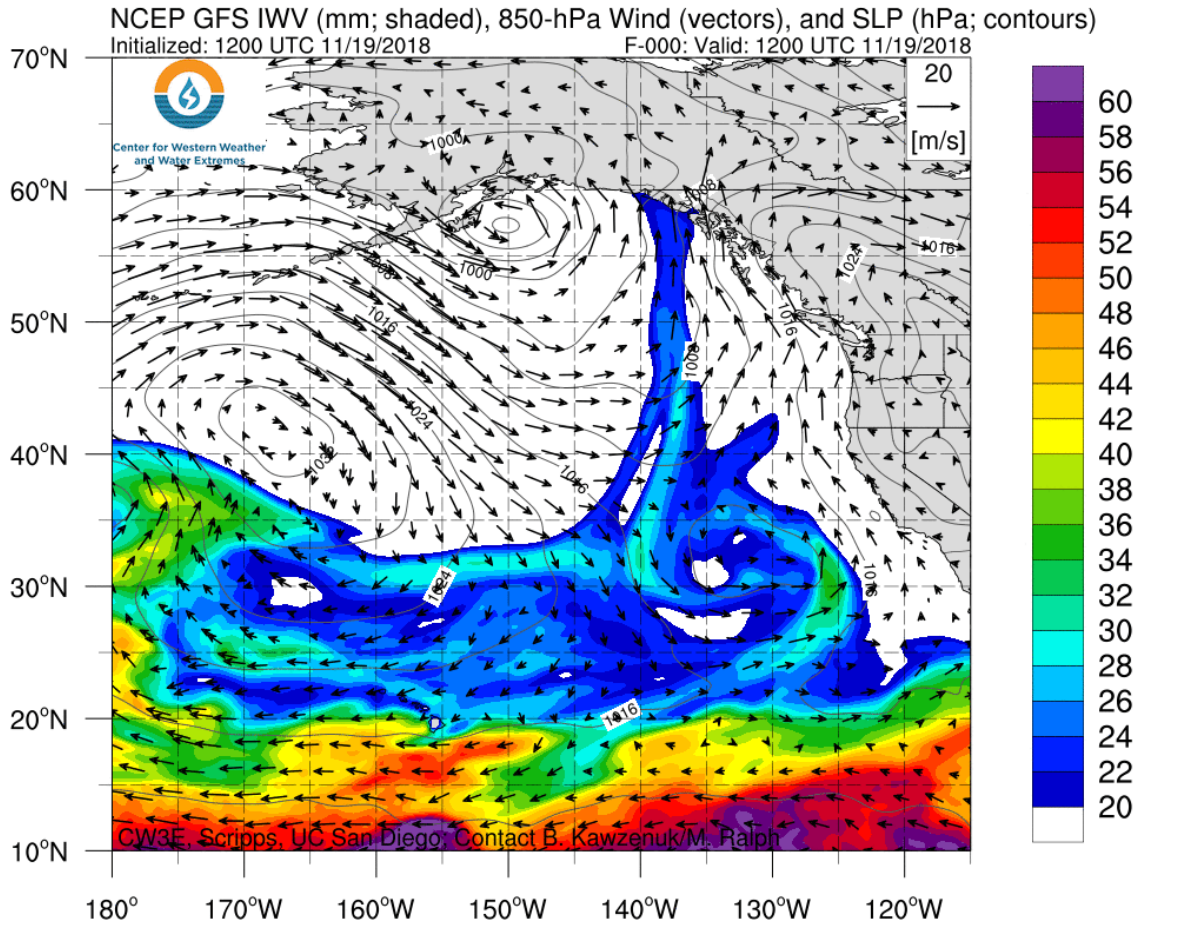
CW3E Atmospheric River Outlook

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

Update on the Multiple ARs forecast to Impact California this Week

- Forecast confidence in the onset, duration, and magnitude of AR conditions has increased since the last update on 16 Nov.
- The GEFS is currently suggesting that the 2nd AR could bring moderate AR conditions (IVT 500–750 kg m^{-1} s^{-1}) to coastal CA
- NOAA WPC 1-5 precipitation accumulations have increased to ~6 inches over portions of Northern California
- **The precipitation may bring much needed relief to the currently active fires and smoky conditions over CA**
- The GEFS is also suggesting the potential for AR activity in the extended forecast (8–13 days) but uncertainty is currently high





AR Outlook: 19 November 2018

For California DWR's AR Program

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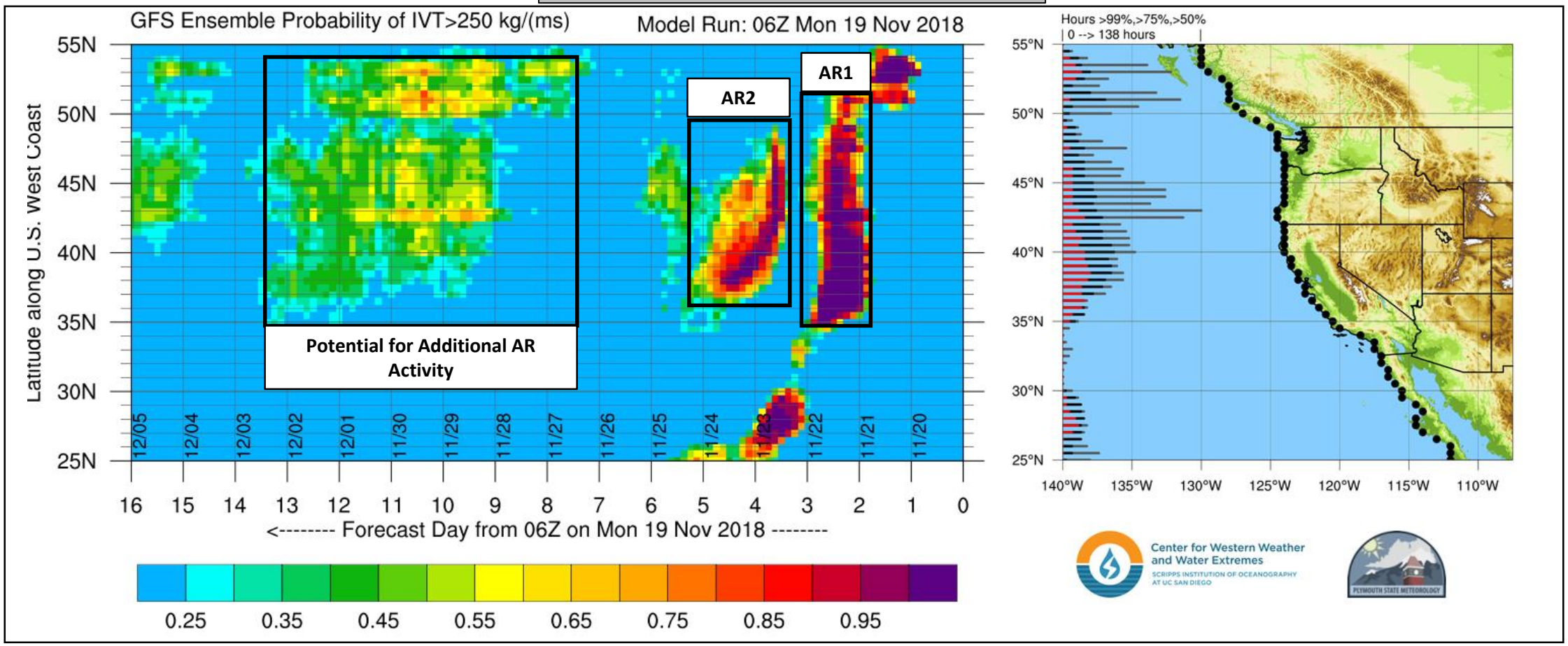
Odds of AR Conditions Along Coast



- **Forecast confidence of AR conditions over the Coast have increased to >90% within both AR 1 and AR 2**
- **AR conditions are forecasted from ~35˚ to 52˚N for 12–24 hrs. associated w/ AR1 and from 37˚ to 48˚N for 6–36 hrs. associated w/ AR2**

- **The GEFS is also highlighting the potential for more AR activity in the extended forecast (8–13 days) suggesting the active pattern may remain through next week, though forecasting confidence is currently low (25–55% of ensemble members forecasting AR conditions)**

AR Outlook: 19 November 2018

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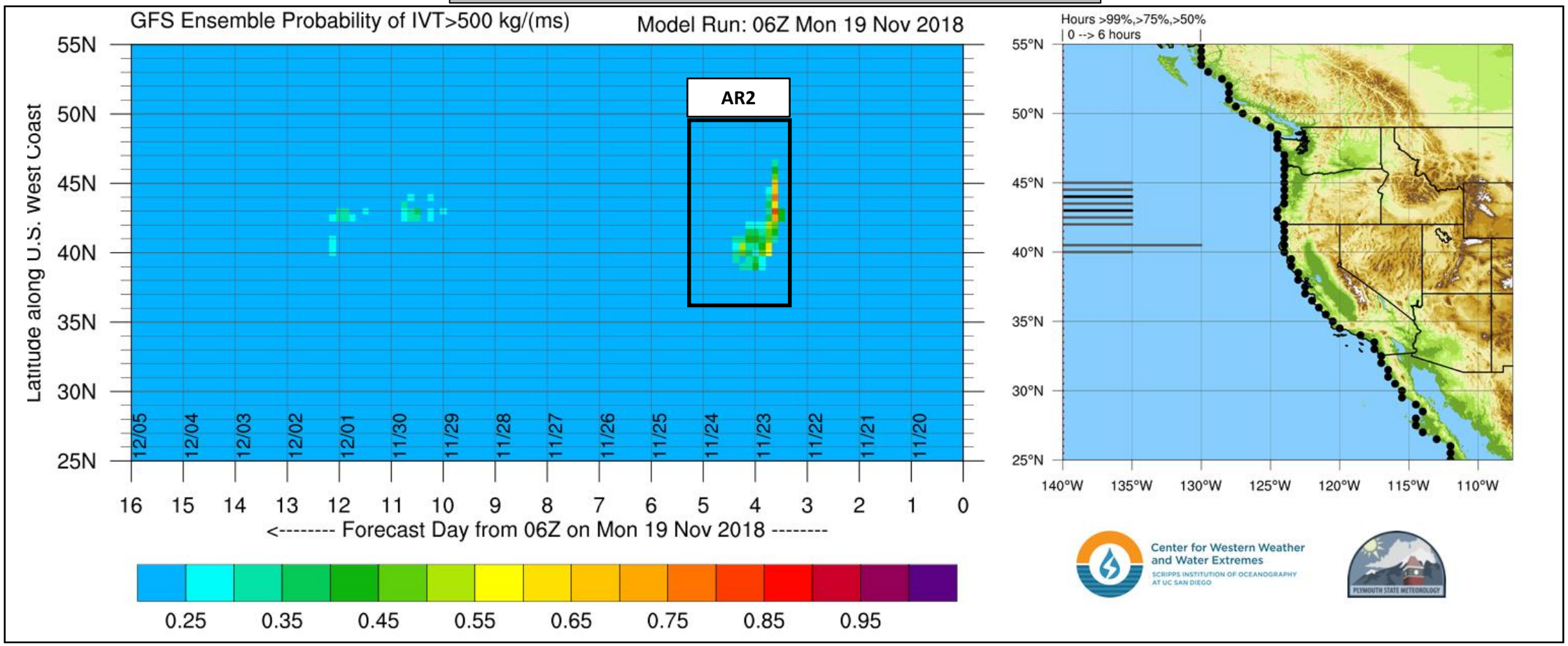
Odds of Moderate AR Conditions Along Coast



- **The GEFS is indicating the potential (25–80% of Ensemble members) for moderate AR conditions (IVT 500–750 kg m^{-1} s^{-1}) between 40˚N and 45˚N for 3–12 hours in association with AR 2 between 18Z on the 22nd and 18Z on the 23rd of November**

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Forecast confidence in onset, duration, and magnitude has increased since our last outlook on 16 November 2018

Magnitude of Potential AR 1 (21 November)

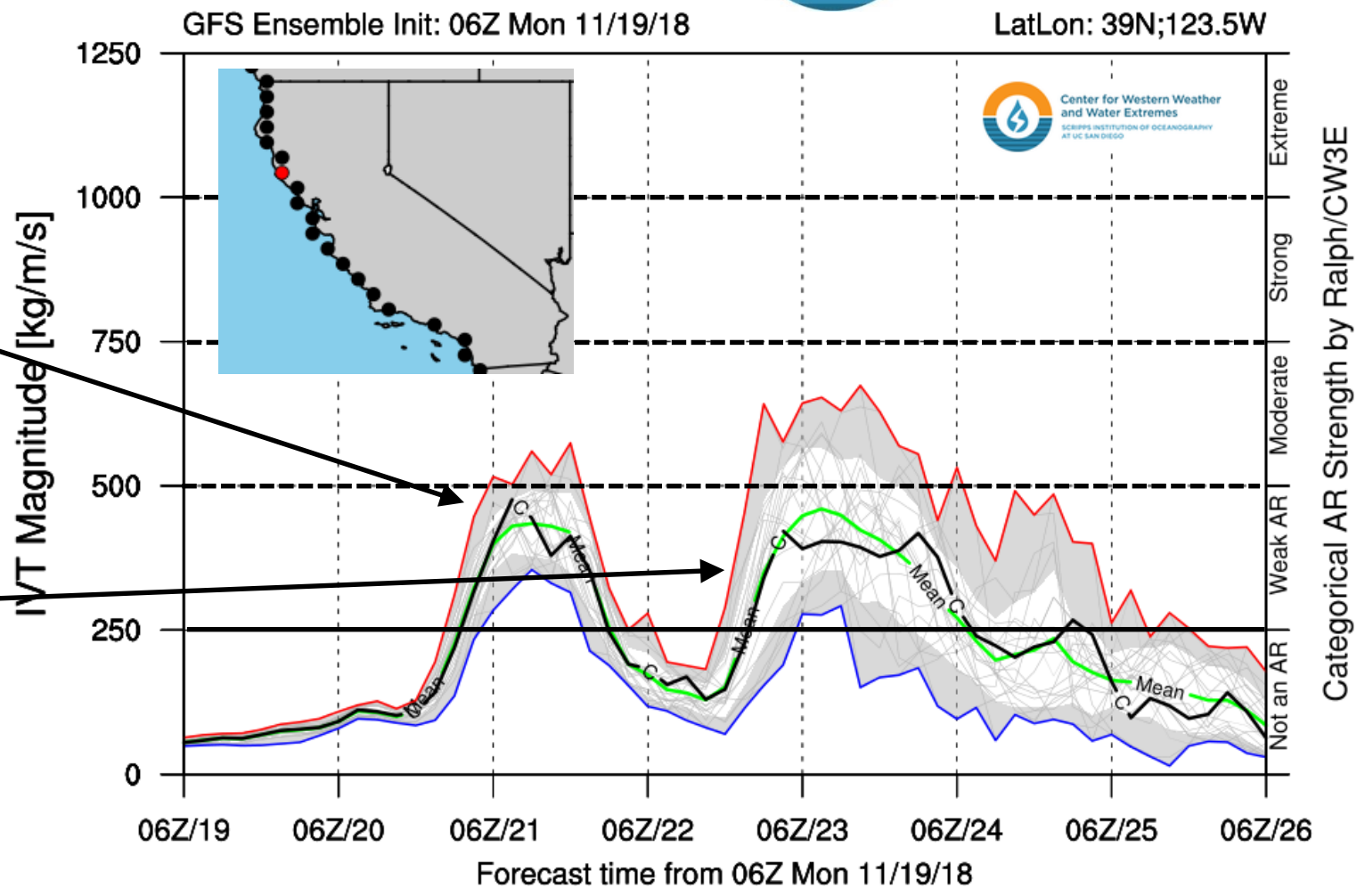
- Maximum predicted IVT ~600 kg m^{-1} s^{-1}
- Mean IVT ~450 kg m^{-1} s^{-1}
- Minimum IVT ~350 kg m^{-1} s^{-1}

Magnitude of Potential AR 2 (23 November)

- Maximum predicted IVT ~700 kg m^{-1} s^{-1}
- Mean IVT ~450 kg m^{-1} s^{-1}
- Minimum IVT ~300 kg m^{-1} s^{-1}

Forecast Duration of AR Conditions

- AR 1 18 hours +/– 6
- AR 2 30 hours +/– 18



AR Outlook: 19 November 2018

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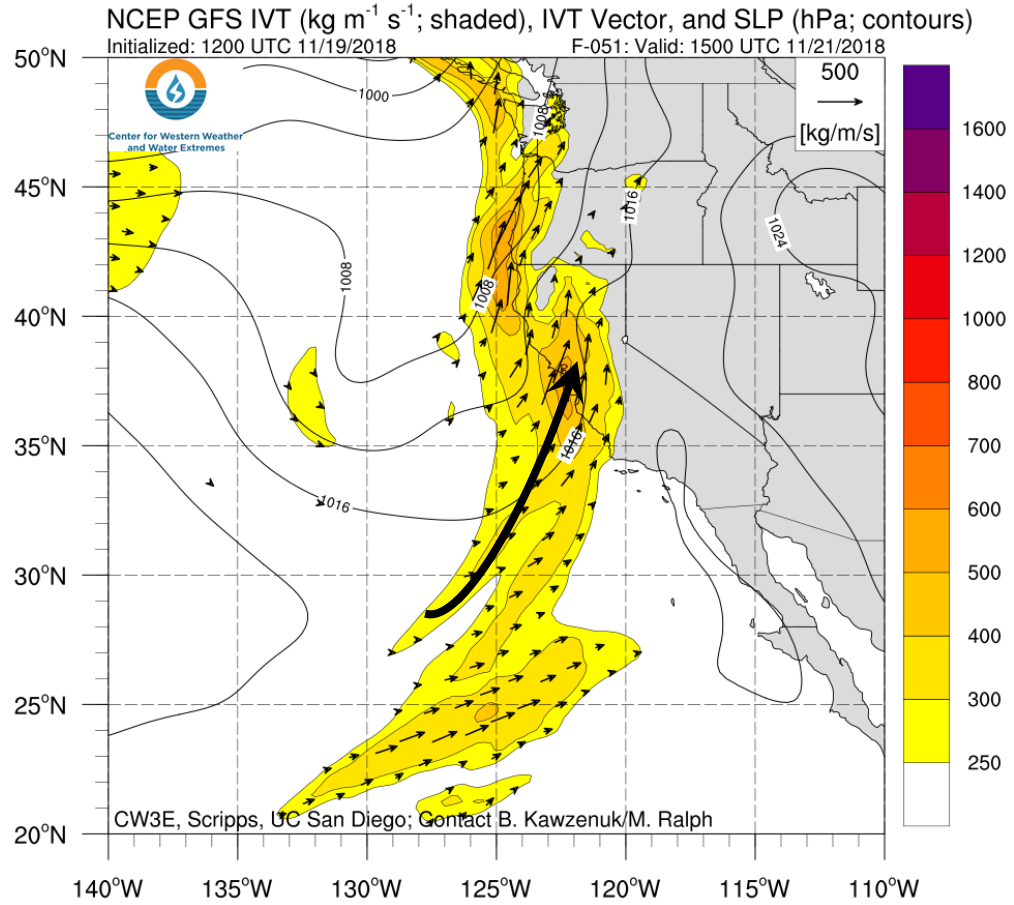
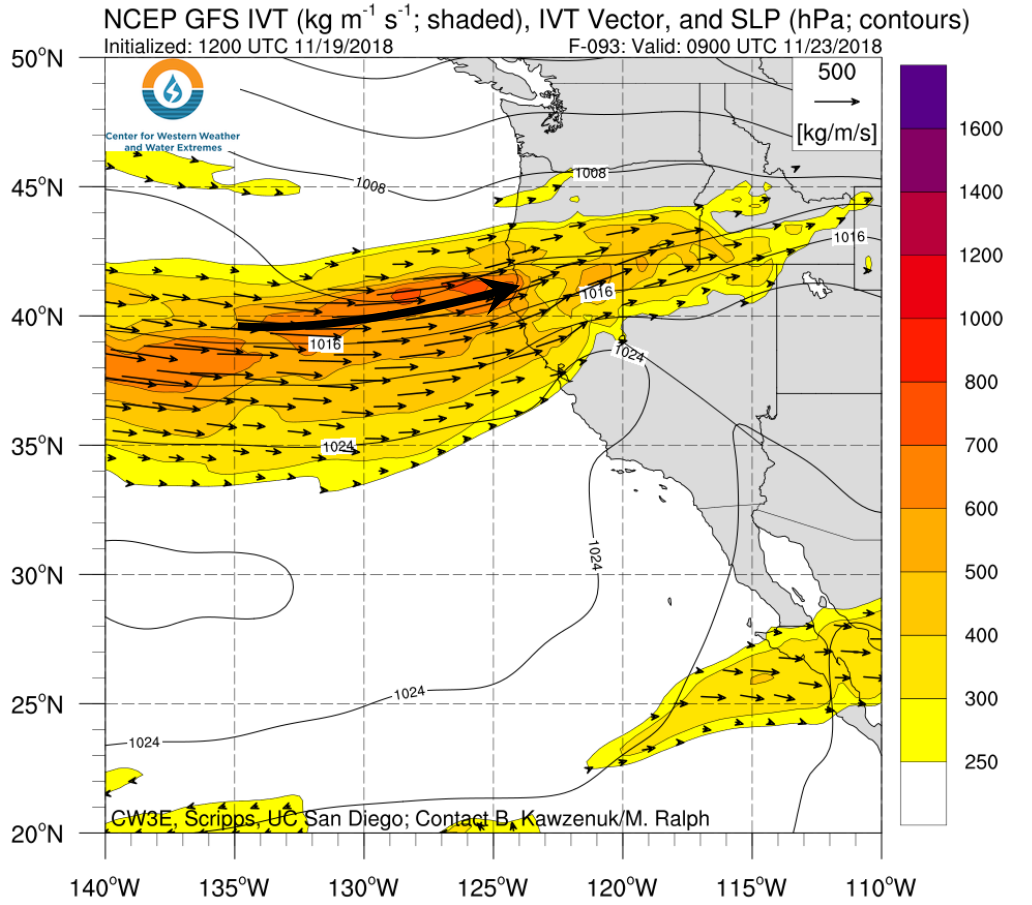


The orientation of the integrated vapor transport (IVT) associated with AR 1 is currently forecast to have a more southerly orientation which may not be as efficient for upslope moisture transport of the Coastal and Sierra-Nevada Mts. compared to a southwesterly oriented AR.



The second AR is forecast to be associated with west/southwesterly IVT, which will likely have different impacts than the first AR. These differences are highlighted in the precipitation forecast

AR Outlook: 19 November 2018

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

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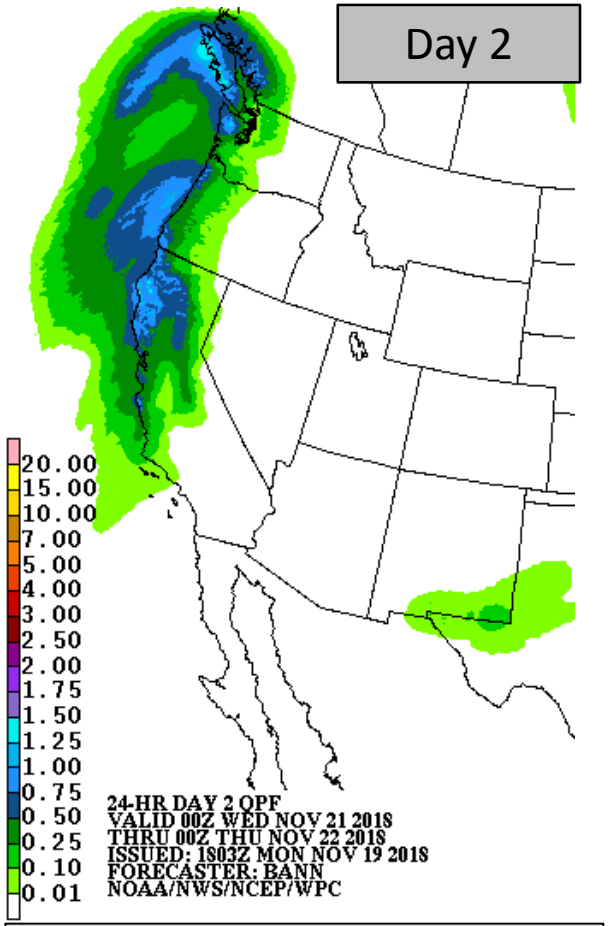
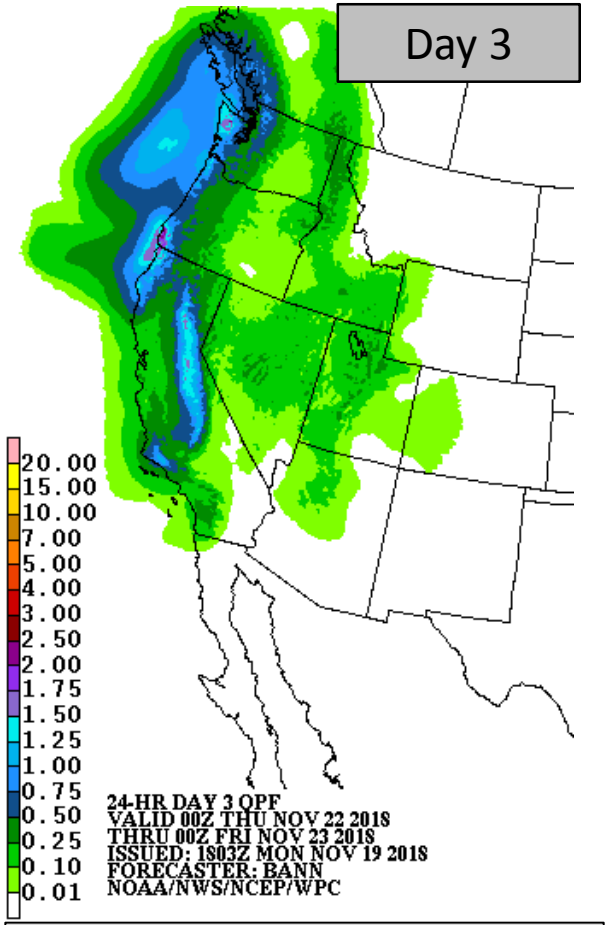
Day 2



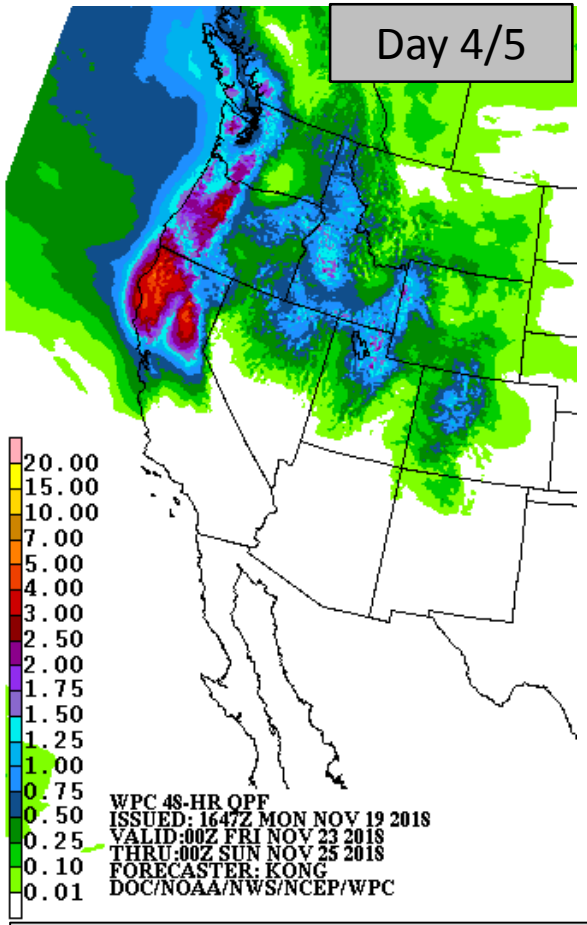
Precip. forecasts for day 2 (AR 1) range from .75–1.25 in. over North-Coastal CA to ~.25 in. over the Northern Sierra and Bay Area

Day 3



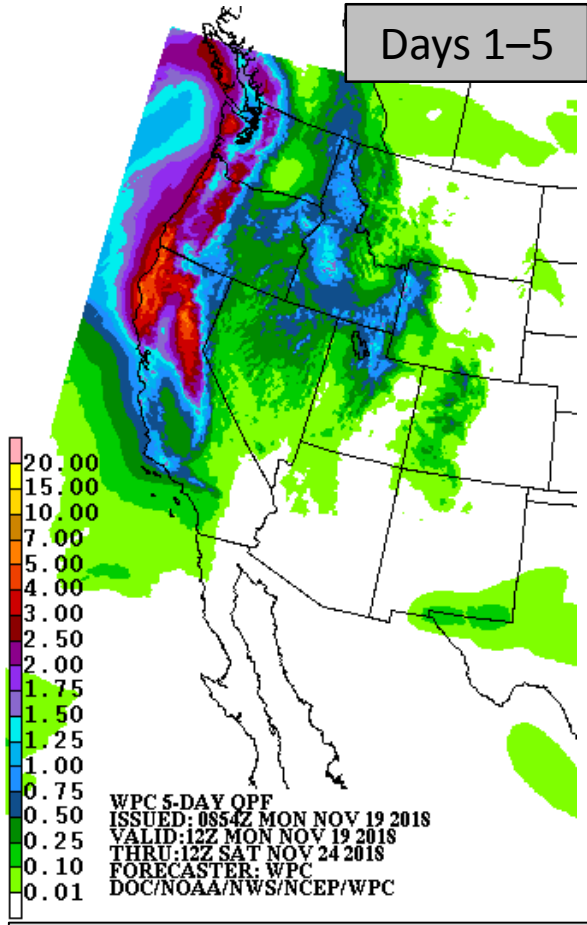
Precip. forecasts for day 3 (AR 1 and 2) range from .75–2 in. over the Sierra-Nevada Mts. To .1–1.25 over SoCal

Day 4/5



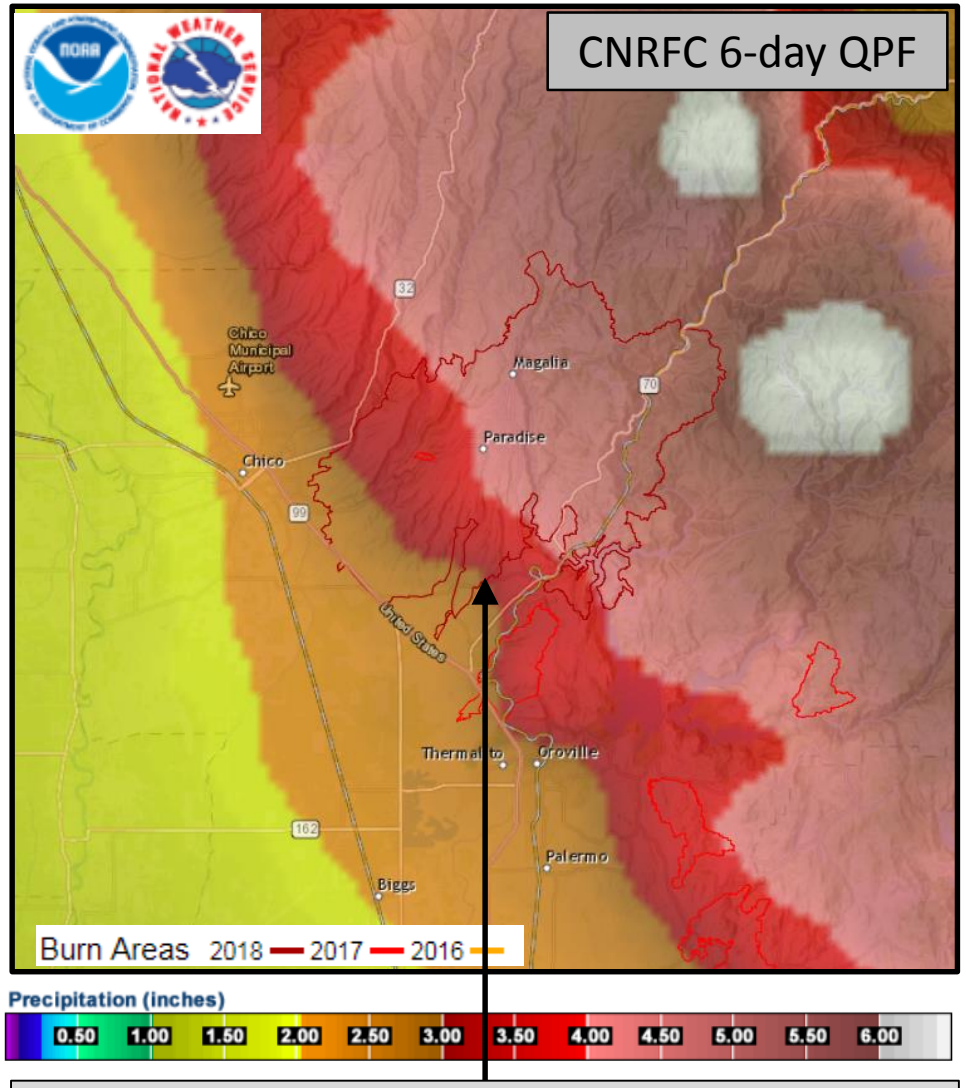
Forecast precip. for days 4/5 (AR 2) range from 4–6 inches over the Northern CA Coast Range, Trinity Alps, And Sierra-Nevada Mts.

Days 1–5



Total forecast precip. amounts for the next 5 days range from 6 in. over North-Coastal CA and N. Sierra to ~1 in over SoCal and the Northern Central Valley

AR Outlook: 19 November 2018



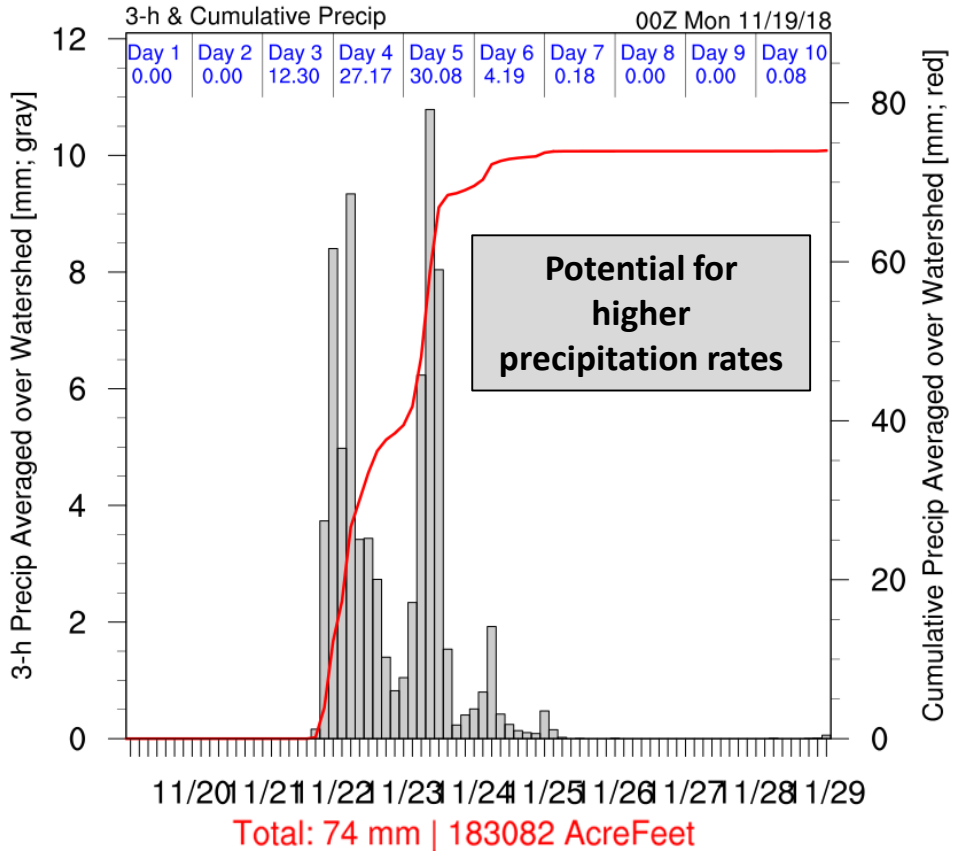
The NWS CNRFC is currently forecasting 2.5–6 inches of precipitation over the next 6-days for the Camp fire near Paradise, CA

CNRFC 6-day forecast precipitation for the Camp fire near Paradise, CA has increased since the last outlook on 16 November

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

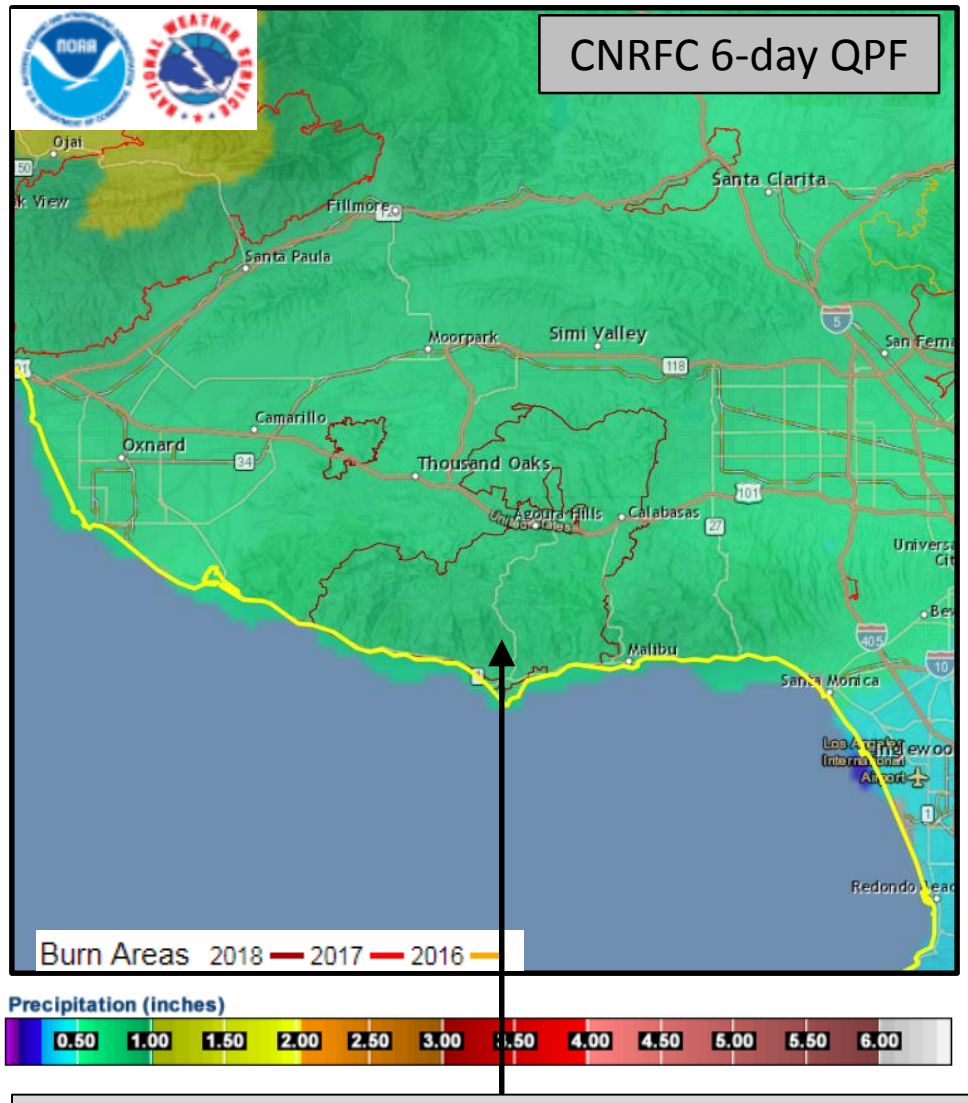
CW3E Watershed forecast products at cw3e.ucsd.edu/DSMaps/DS_watershed.html

North Fork Feather Watershed



The NCEP GFS is currently forecasting 74 mm (2.9 in) of watershed average precip. for the Middle Fork Feather River near the Camp fire (Note that the total precipitation is averaged over the watershed)

AR Outlook: 19 November 2018



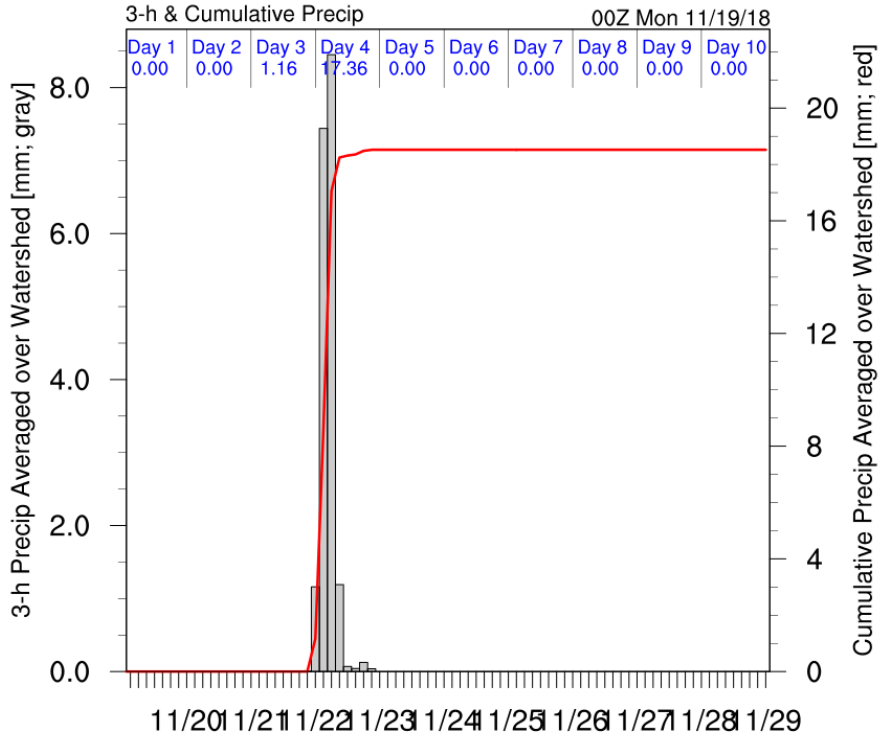
The NWS CNRFC is currently forecasting .5–.75 in. of precipitation for the next 6-days for the currently active Woolsey fire near Thousand Oaks, CA

CNRFC 6-day precipitation forecasts for the Woolsey fire near Thousand Oaks, CA have increased slightly since the last outlook on 16 November

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

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

Santa Barbara Coastal Watershed



Total: 19 mm | 26078 AcreFeet

The NCEP GFS is forecasting ~19 mm (.75 inches) of watershed average precip. over the Santa Barbara Coastal watershed for the next 10 days