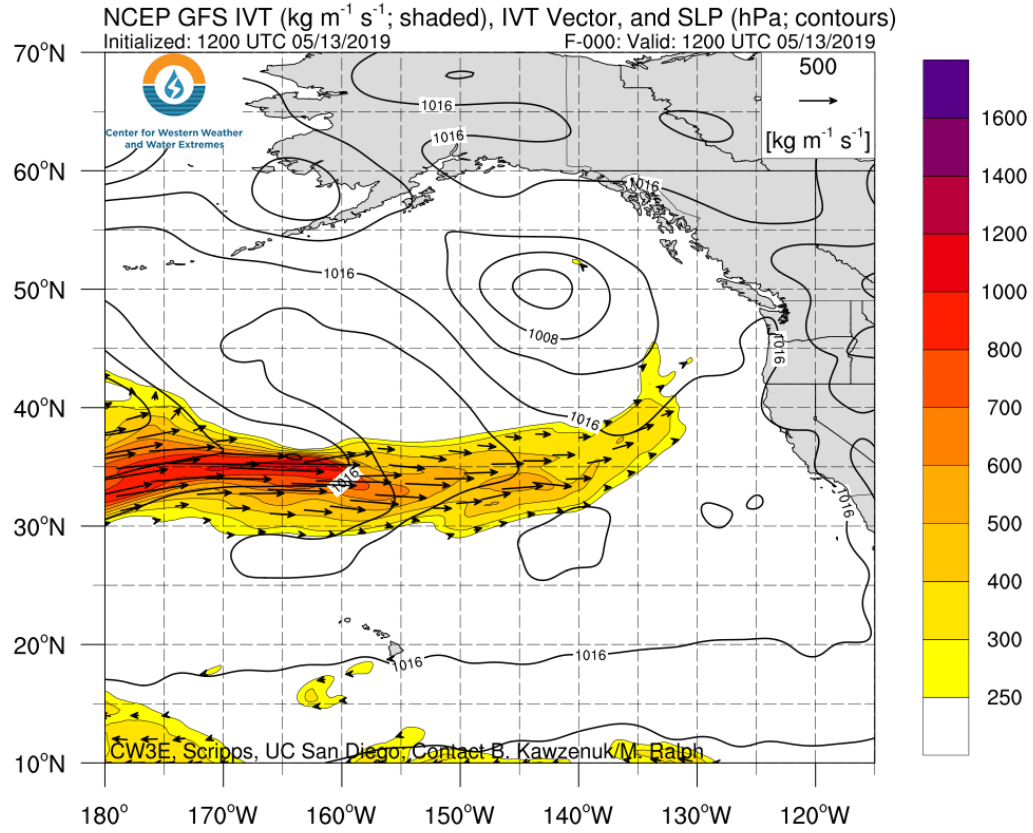
CW3E Atmospheric River Outlook

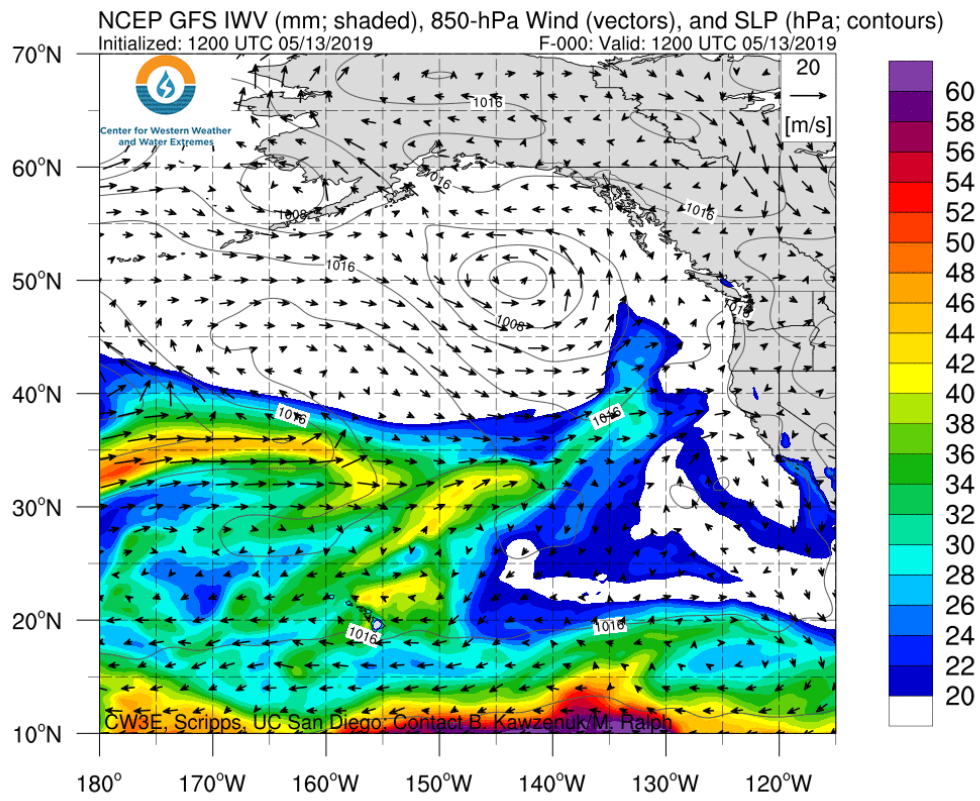
For California DWR's AR Program

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

Late Season Atmospheric Rivers Forecast to Impact Washington, Oregon, and Northern California This Week

- Multiple ARs are forecast to make landfall over the U.S. West Coast between 14 and 17 May 2019
- The development of a secondary low as the initial landfalling AR leads to the landfall of a secondary AR over Northern CA
- Forecast certainty in AR magnitude and duration is currently lower for the second AR
- As much as 5–6 inches of precipitation could fall over Northern CA and Southern Oregon during the next 10 days
- The GEFS is currently suggesting the potential for additional AR activity between 19 and 22 May, but uncertainty is currently high

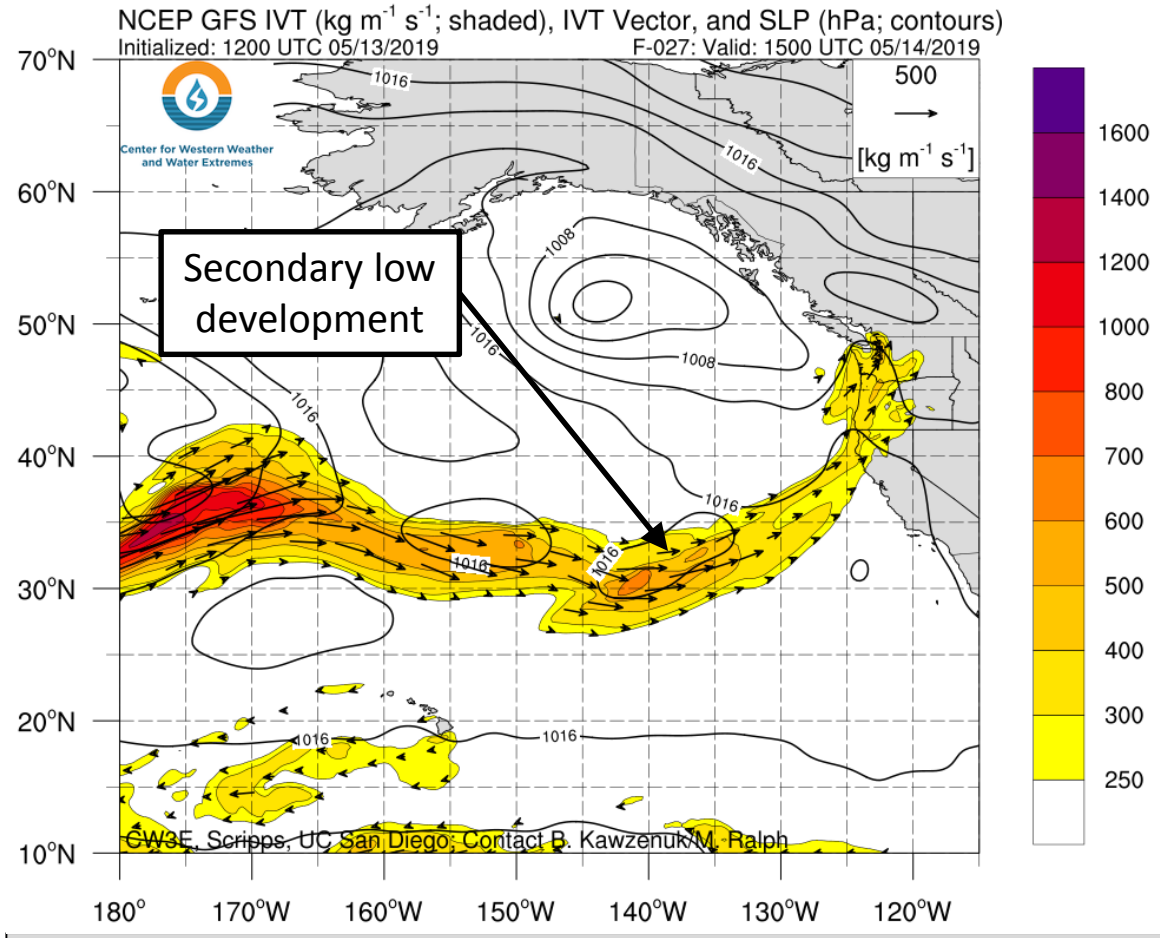


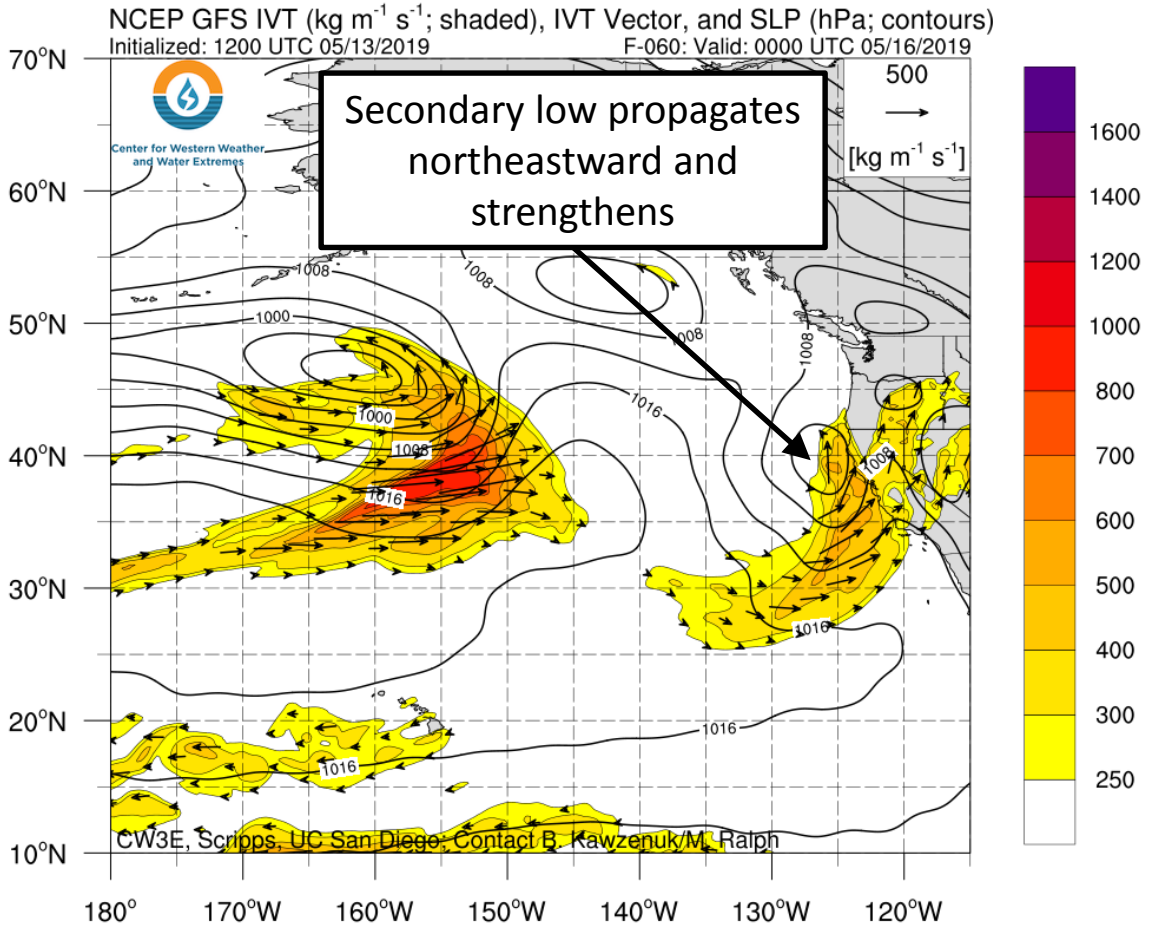


AR Outlook: 13 May 2019

For California DWR's AR Program

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





As the initial AR is impacting Northern California, Oregon, and Washington, a secondary low-pressure system develops along the upstream portion of the AR over the Eastern Pacific

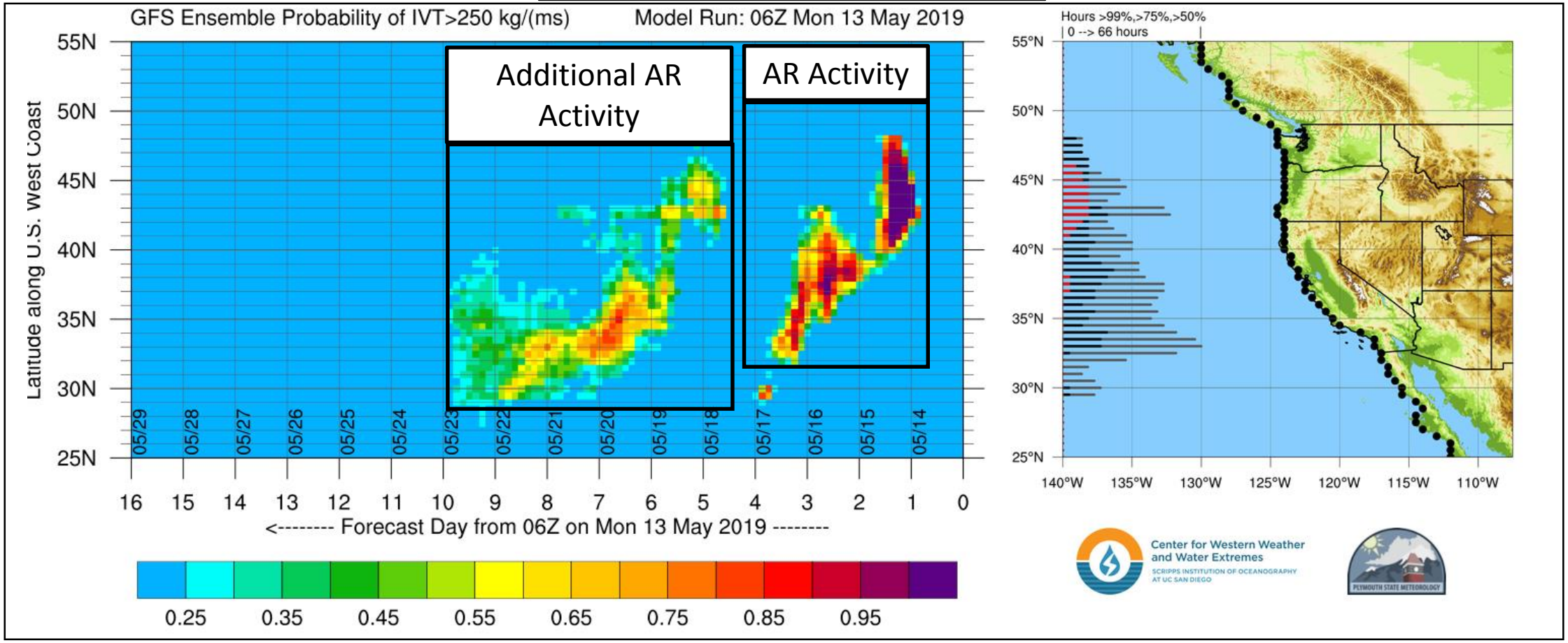
- **The secondary low that develops along the AR strengthens and propagates northeastward toward the Northern CA Coast**
- **The proximity of the low to the coast and landfalling AR will likely lead to additional precipitation on top of the precipitation produced by the AR**

AR Outlook: 13 May 2019

For California DWR's AR Program

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

Odds of AR Conditions Along Coast



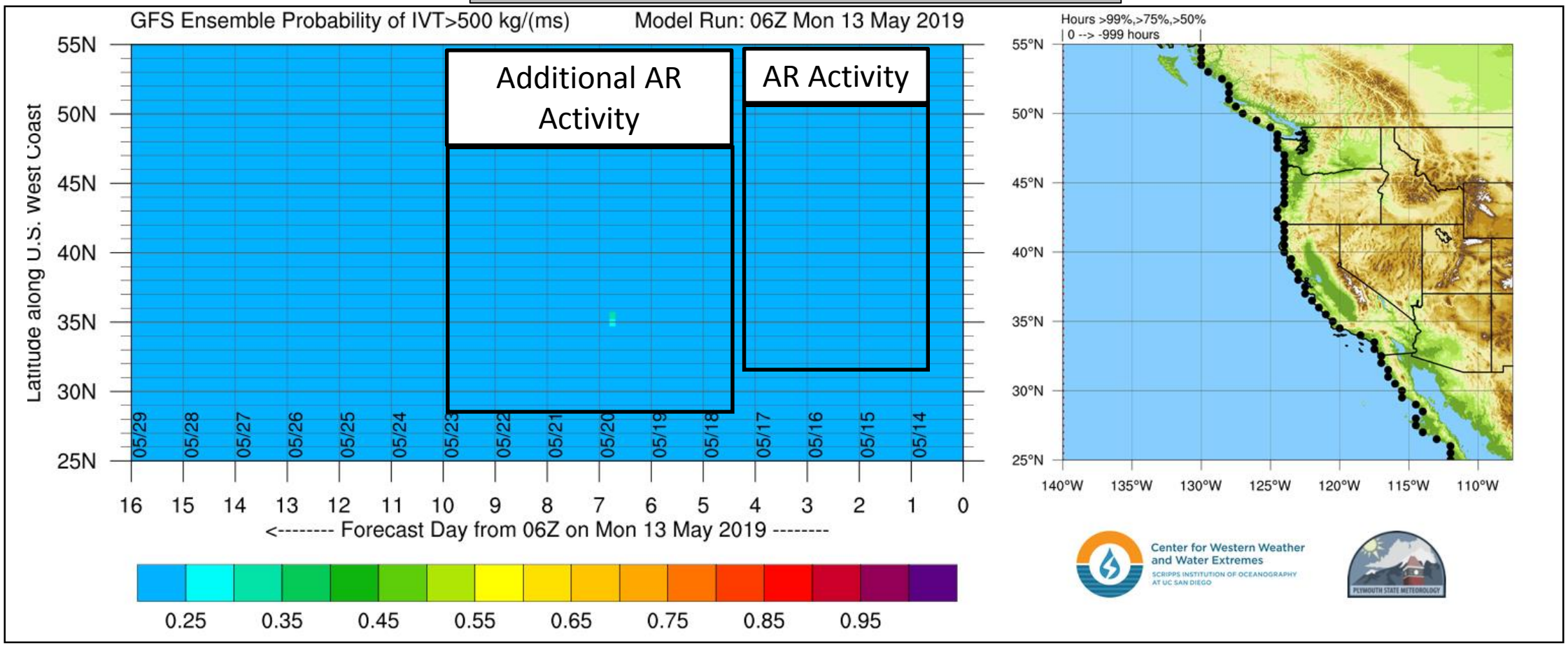
- **The GFS Ensemble is currently forecasting a high probability (>95% of ensemble members) of AR conditions (IVT >250 kg m^{-1} s^{-1}) associated with the initial landfalling AR over Oregon and Washington on 14 May 2019**
- **There is currently higher uncertainty in forecast AR conditions associated with the AR produced by the secondary low on 15 May**
- **The GEFS highlighting the potential for additional AR activity over CA between 18 and 22 May but uncertainty is considerably high**

AR Outlook: 13 May 2019

For California DWR's AR Program

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

Odds of Moderate AR Conditions Along Coast



The GEFS is currently suggesting little to no possibility (<25%) of moderate AR conditions (IVT >500 kg m^{-1} s^{-1}) over the U.S. West Coast during the landfalling AR

AR Outlook: 13 May 2019

For California DWR's AR Program

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

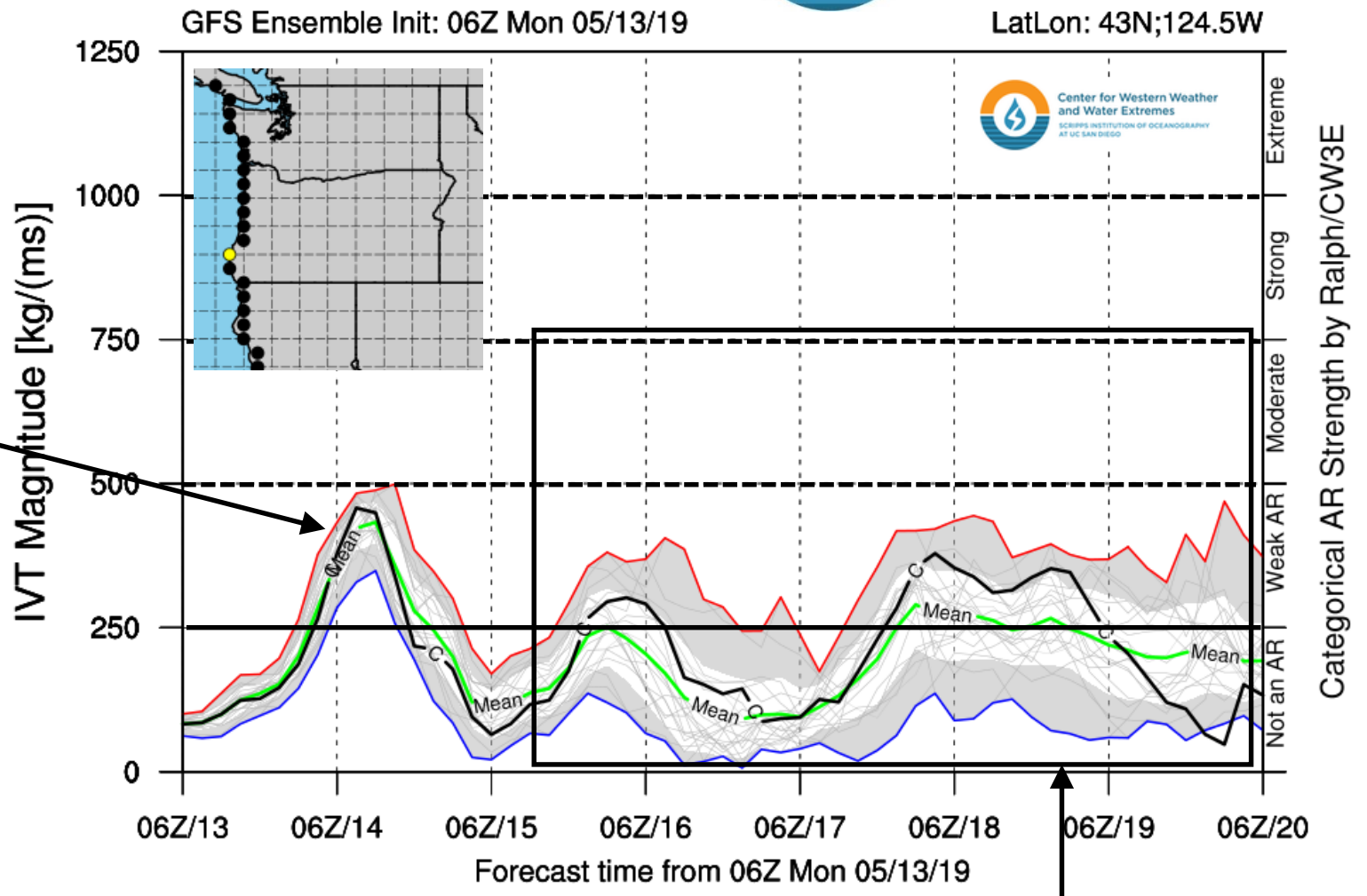
The GEFS is currently predicting weak to potentially moderate strength AR conditions over southern Coastal Oregon

Maximum Magnitude of first potential AR

- Maximum predicted IVT ~500 kg m^{-1} s^{-1}
- Mean IVT ~450 kg m^{-1} s^{-1}
- Control IVT ~475 kg m^{-1} s^{-1}

Forecast duration of AR conditions

- Weak 18 hours +/– 6



There is currently large uncertainty in in forecast AR conditions beyond the initial AR landfall over Southern Oregon

AR Outlook: 13 May 2019

For California DWR's AR Program

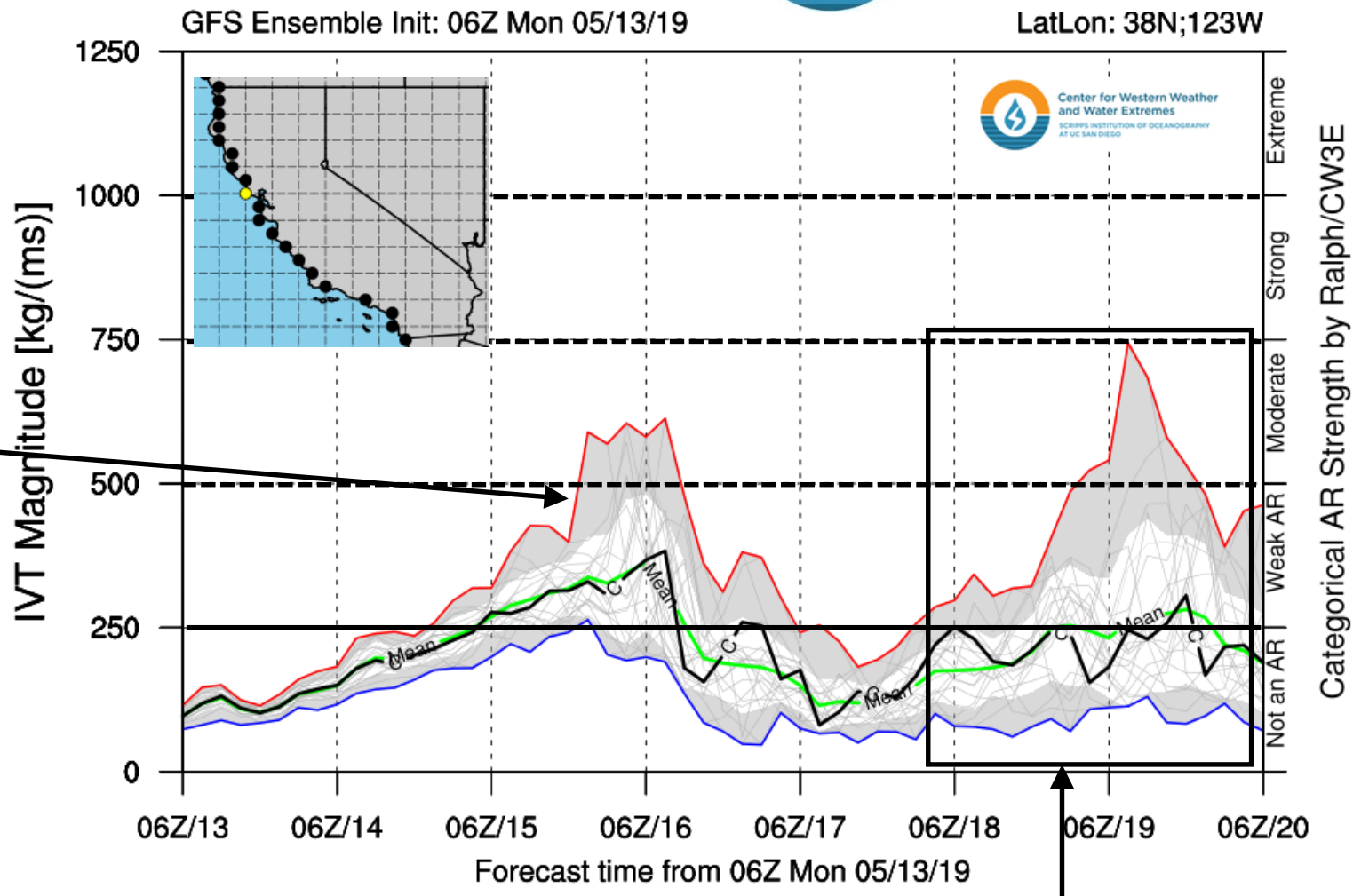
Center for Western Weather and Water Extremes
SCRIPPS INSTITUTION OF OCEANOGRAPHY AT UC SAN DIEGO

The GEFS is currently predicting weak to moderate strength AR conditions associated with the second AR over Coastal Sonoma County

Maximum Magnitude of first potential AR

- Maximum predicted IVT ~600 kg m^{-1} s^{-1}
- Mean IVT ~375 kg m^{-1} s^{-1}
- Control IVT ~375 kg m^{-1} s^{-1}

Forecast Duration: 30 hours +/– 18

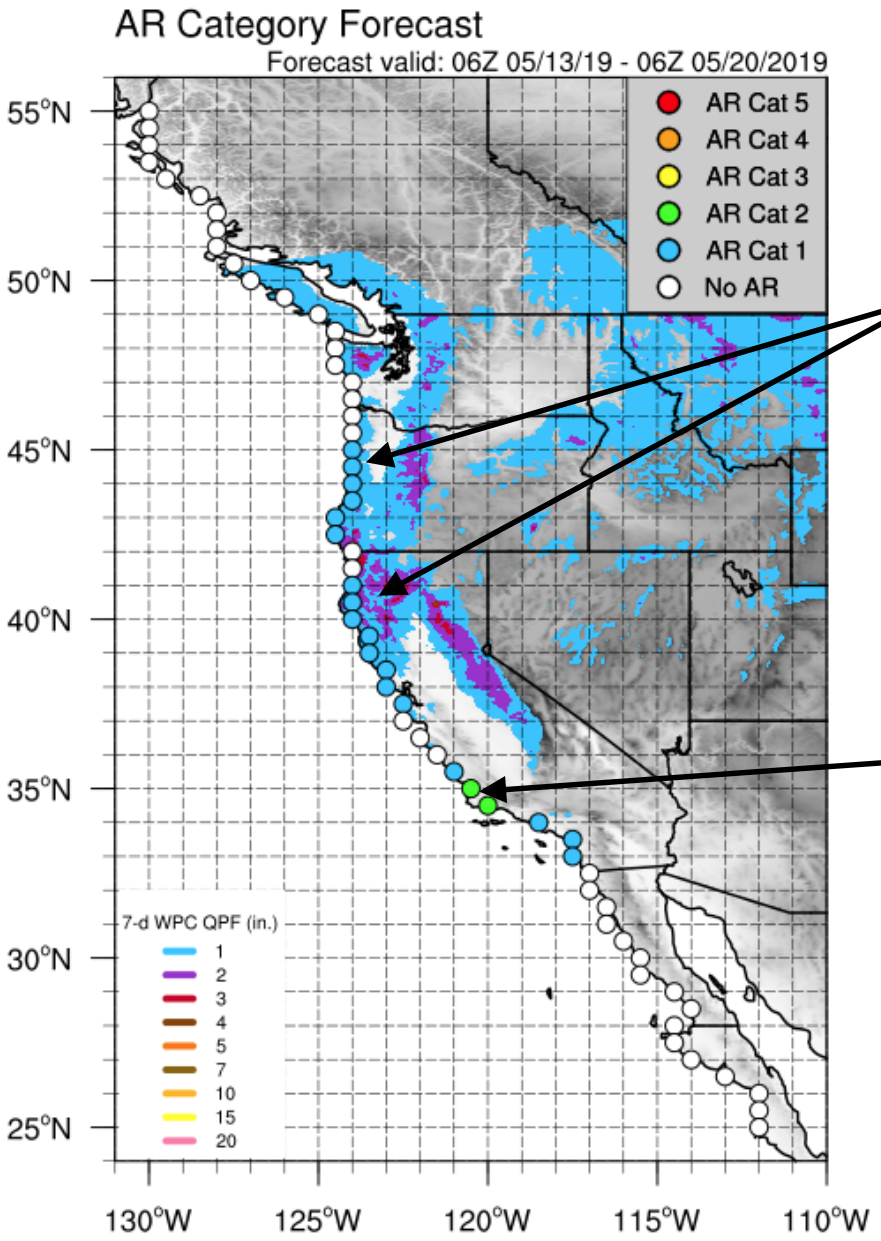


While uncertainty in forecast AR conditions associated with the additional AR activity is currently high, some ensemble members suggest the potential for another moderate AR

AR Outlook: 13 May 2019

For California DWR's AR Program

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



The ARs forecast to make landfall are predicted to produce AR Category 1 conditions for much of Coastal Northern California and Oregon based on the recently published AR Category Scale (Ralph et al. 2019)

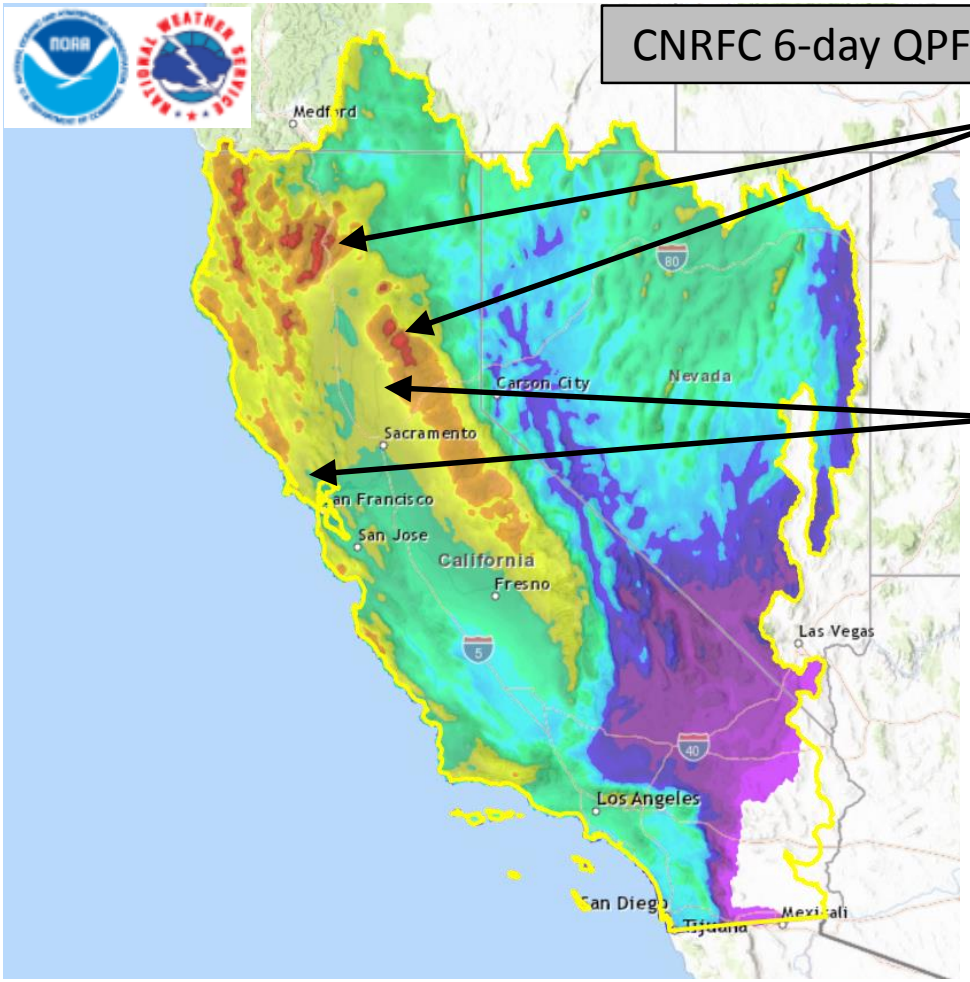
The additional AR activity forecast to potentially make landfall between 18 and 22 May 2019 could bring AR Category 2 conditions, but forecast certainty in AR condition onset, duration, and magnitude is considerably high at this time

AR Outlook: 13 May 2019

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

AMBASSADOR WRN WEATHER-READY NATION

CNRFC 6-day QPF



The CNRFC is currently forecasting as much as 3.5 inches of precipitation over the Coastal, Sierra Nevada Mountains, and Trinity Alps in Northern California for the next 6-days

1 – 2 inches is forecast for lower elevations and across Northern CA

The NWRFC is currently forecasting as much as 3–6 inches to fall over the Coastal Mountains of Southern Oregon and 2–3 inches over Northern Washington during the next 10 days

Precipitation products from cnrfc.noaa.gov and nwrfc.noaa.gov

NWRFC 10-day QPF