

# CW3E Event Summary: 6–8 Dec 2019

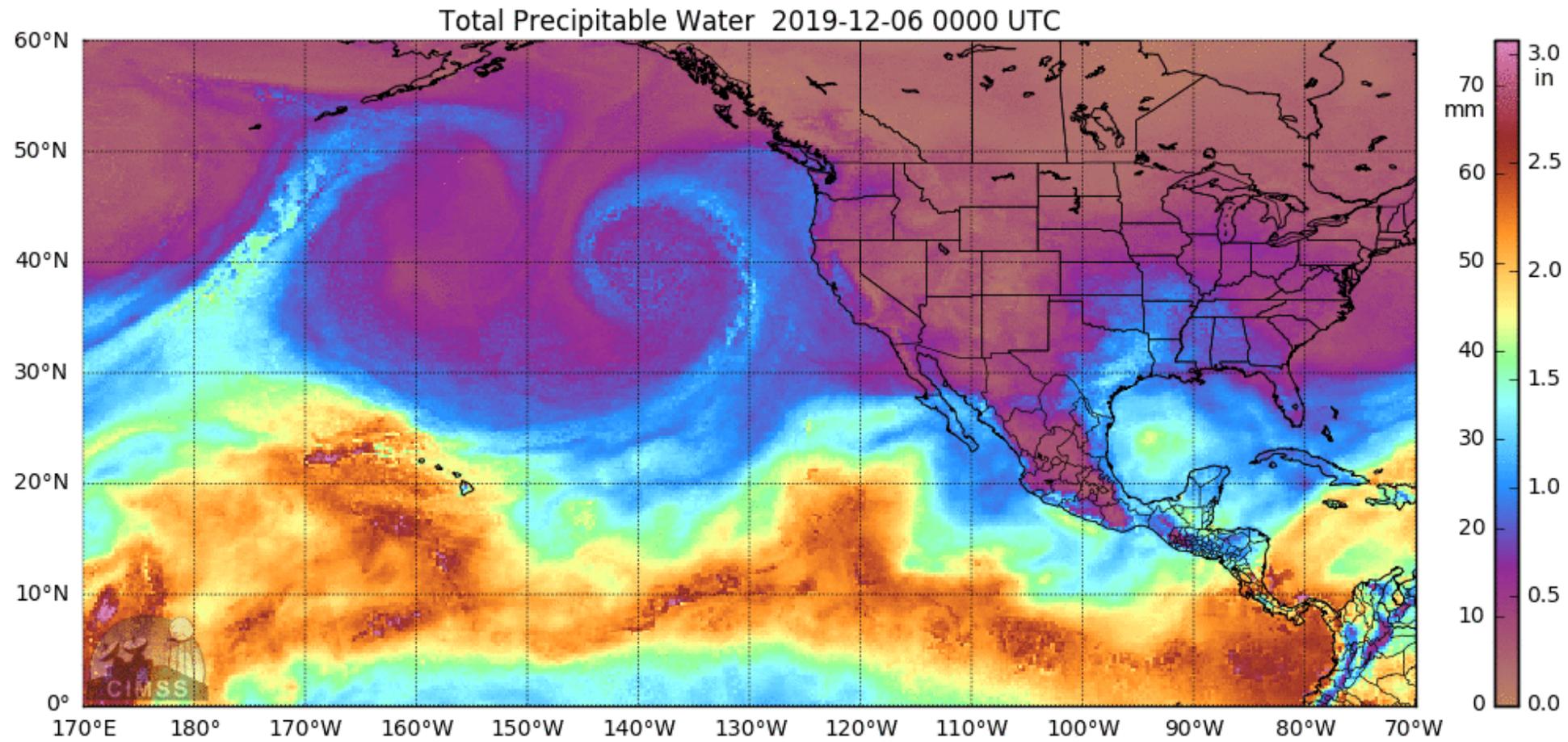


Center for Western Weather  
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## Landfalling AR brings another round of heavy rainfall and mountain snowfall to Northern CA

- The AR was associated with a large midlatitude cyclone over the Northeast Pacific Ocean
- Storm total precipitation exceeded 5 inches in some parts of the Coast Ranges, Klamath Mountains, and Sierra Nevada
- Higher elevations in the Sierra Nevada received 1-2 feet of snow



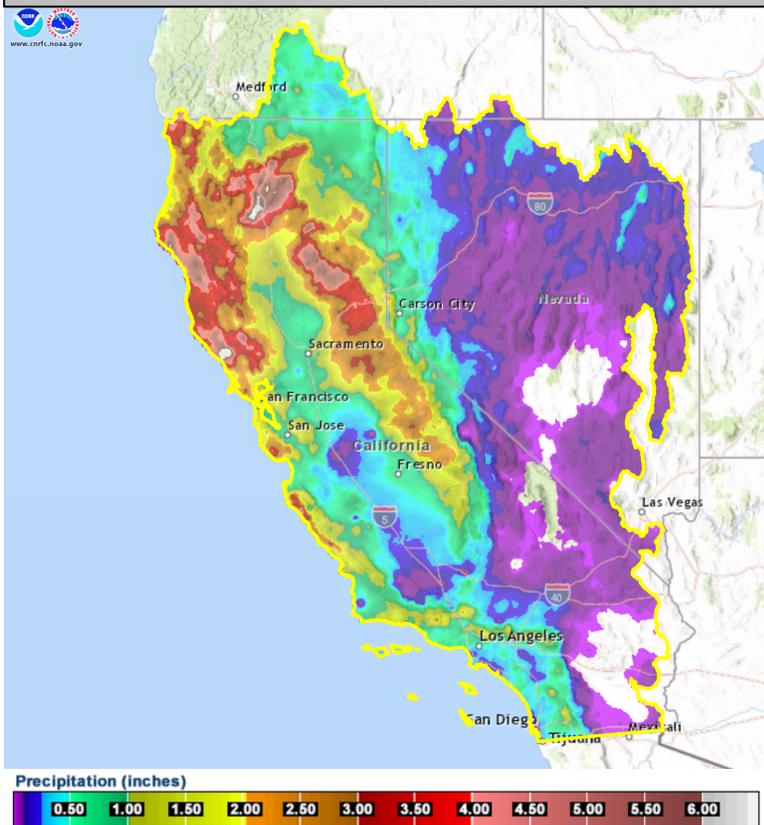
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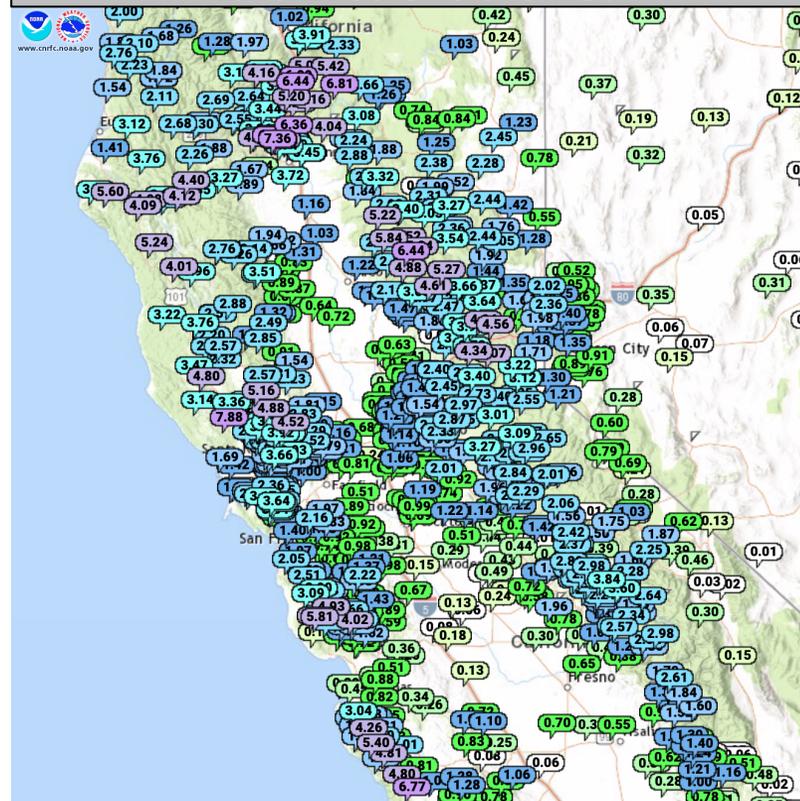
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**CNRFC 72-h QPE:**  
Valid 1200 UTC 6–9 Dec

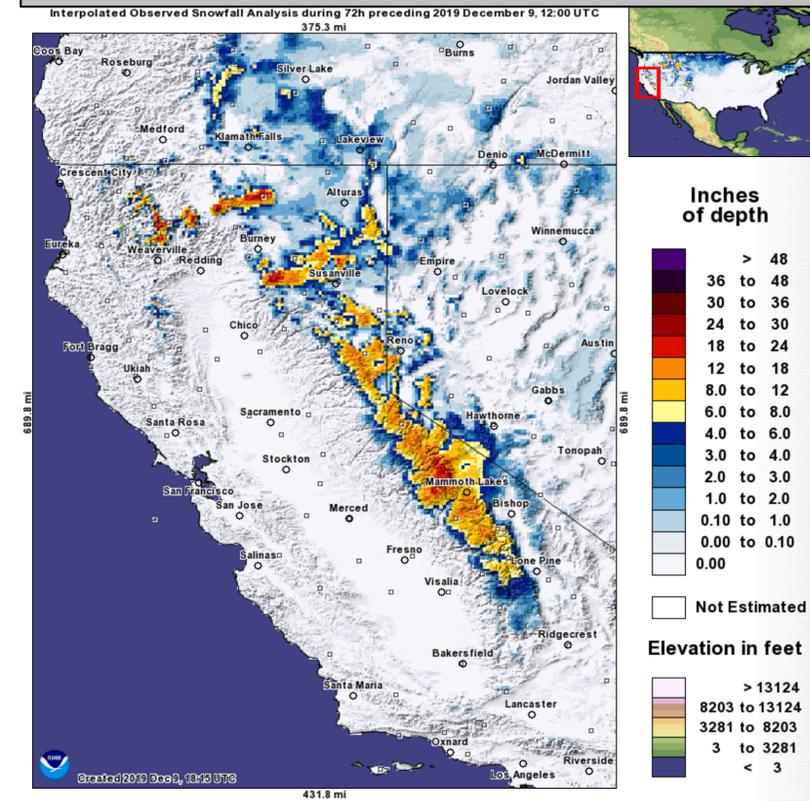


**72-h Observed Precipitation (Raw):**  
Valid 1200 UTC 6–9 Dec



Source: NOAA/NWS CNRFC, <https://www.cnrfc.noaa.gov/>

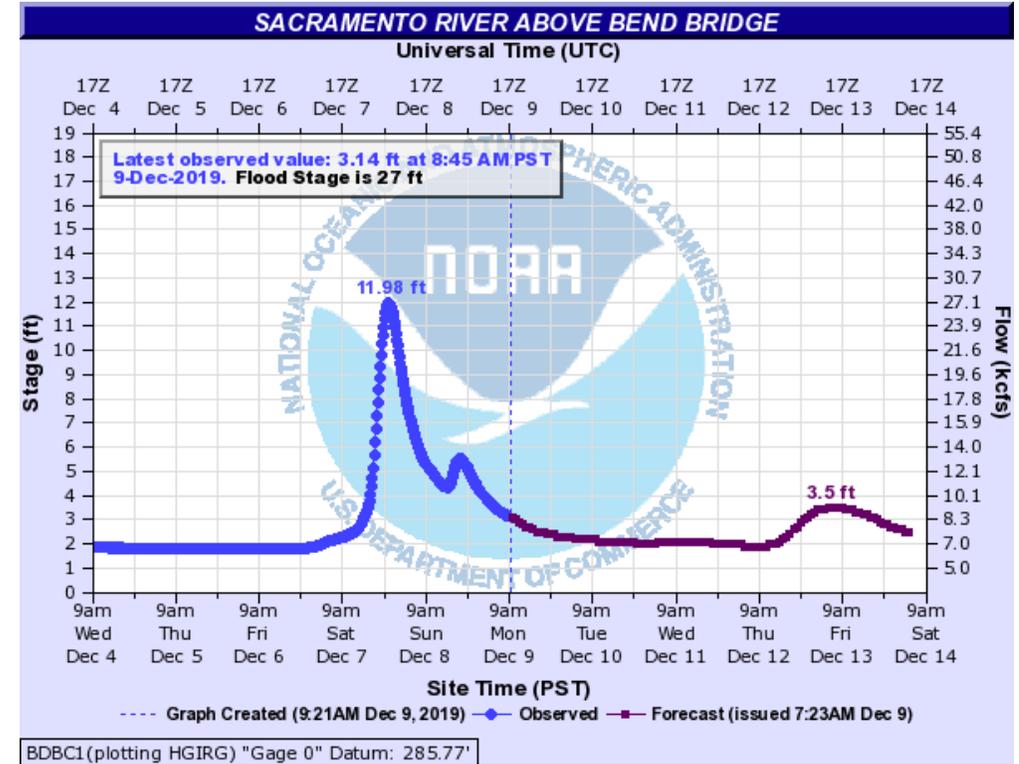
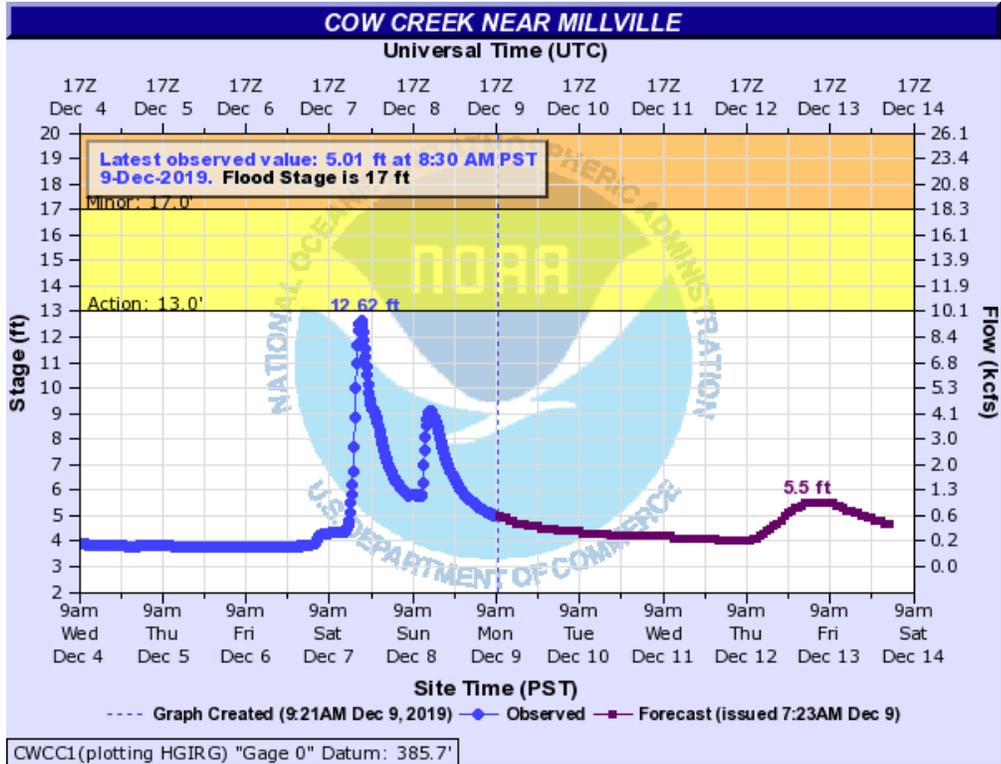
**72-h Interpolated Snowfall:**  
Valid 1200 UTC 6–9 Dec



Source: NOAA/NWS NOHRS, <https://www.nohrsc.noaa.gov/>

- Heaviest precipitation (3-7 inches) occurred over the Northern CA Coast Ranges, the Klamath Mountains, and the Northern Sierra Nevada
- A few stations in the Central CA Coast Ranges also reported > 5 inches of rainfall
- An estimated 1-2 feet of snow fell over parts of the Sierra Nevada (primarily above 8,000 feet)
- Due to relatively mild conditions and high freezing levels, little snowfall was observed below 6,000 feet

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Source: NOAA/NWS Advanced Hydrologic Prediction Service, <https://water.weather.gov/ahps/>

- Heavy rainfall on 7 Dec triggered a rapid rise in stage height (> 8 feet in 6 hours) at Cow Creek near Millville, CA, and the Sacramento River above Bend Bridge
- Redding Airport recorded 0.72 inches of rainfall in a 1-hour period ending 1 PM PST 7 Dec and set a new daily rainfall record (2.72 inches)
- NWS Sacramento received several reports of flooded roadways in Shasta and El Dorado Counties

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## Flood Advisory Tehama & Shasta Counties



Until 4:45 PM Saturday,  
December 7, 2019

### Hazards

- Heavy rain
- Urban and small stream flooding
- Avoid walking or driving through flood waters!

### Locations Include

- Redding, Palo Cedro, Anderson, Rosewood, Cottonwood

**Turn Around Don't Drown!**



NWS Sacramento



## Flood Advisory Far Eastern Sacramento, El Dorado & Amador Counties



Until 8:30 PM  
Saturday, December 7,  
2019

### Hazards

- Heavy rain
- Urban and small stream flooding

### Locations Include

- Placerville, El Dorado Hills, Rancho Murieta, Camino, Shingle Springs, Diamond Springs

**Turn around don't Drown**



NWS Sacramento

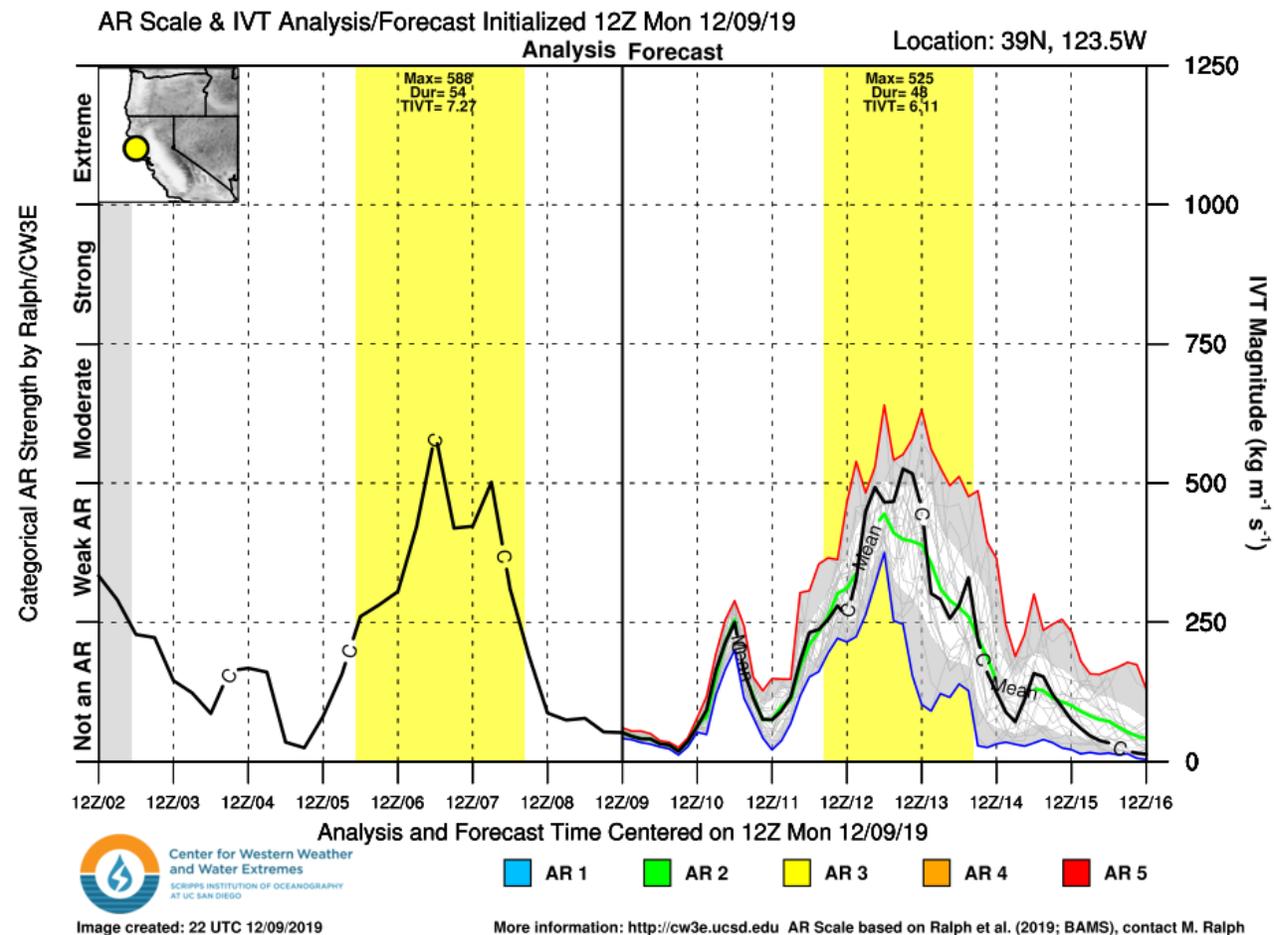
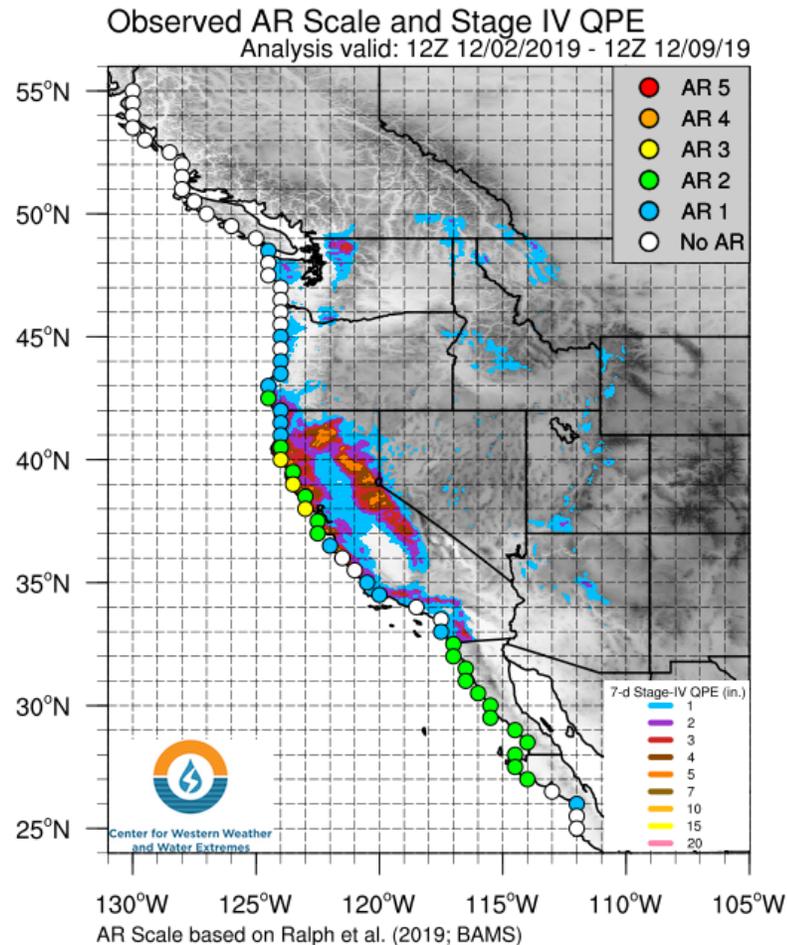
Source: NOAA/NWS Sacramento, <https://www.weather.gov/sto/>

- NWS radar indicated regions of intense rainfall near Redding, CA, and Placerville, CA, during the afternoon and evening of 7 Dec
- In response, NWS Sacramento issued Flood Advisories for Shasta and El Dorado Counties (where street flooding was reported)

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- Heavy precipitation on 6–8 Dec was associated with a landfalling AR along the coast of Northern CA and southern OR
- AR3 conditions (duration  $\geq 48$  hours; max IVT  $\geq 500 \text{ kg m}^{-1} \text{ s}^{-1}$ ) were observed near Point Arena, CA
- Another landfalling AR is expected to impact Northern CA later this week

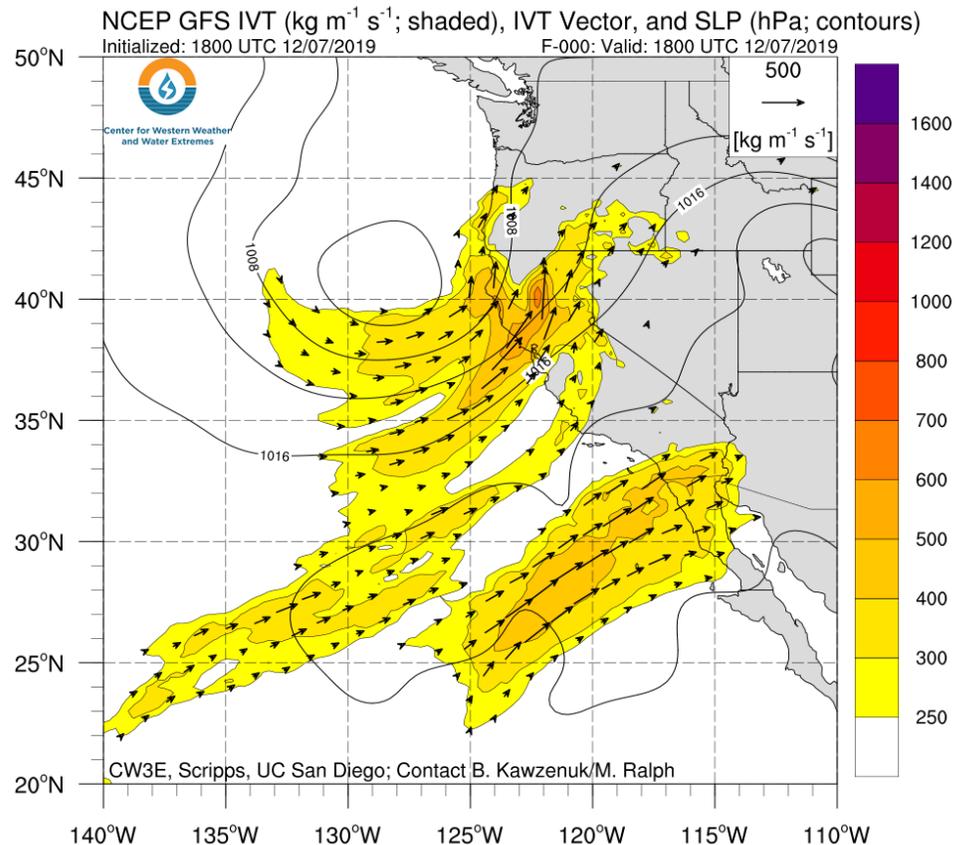
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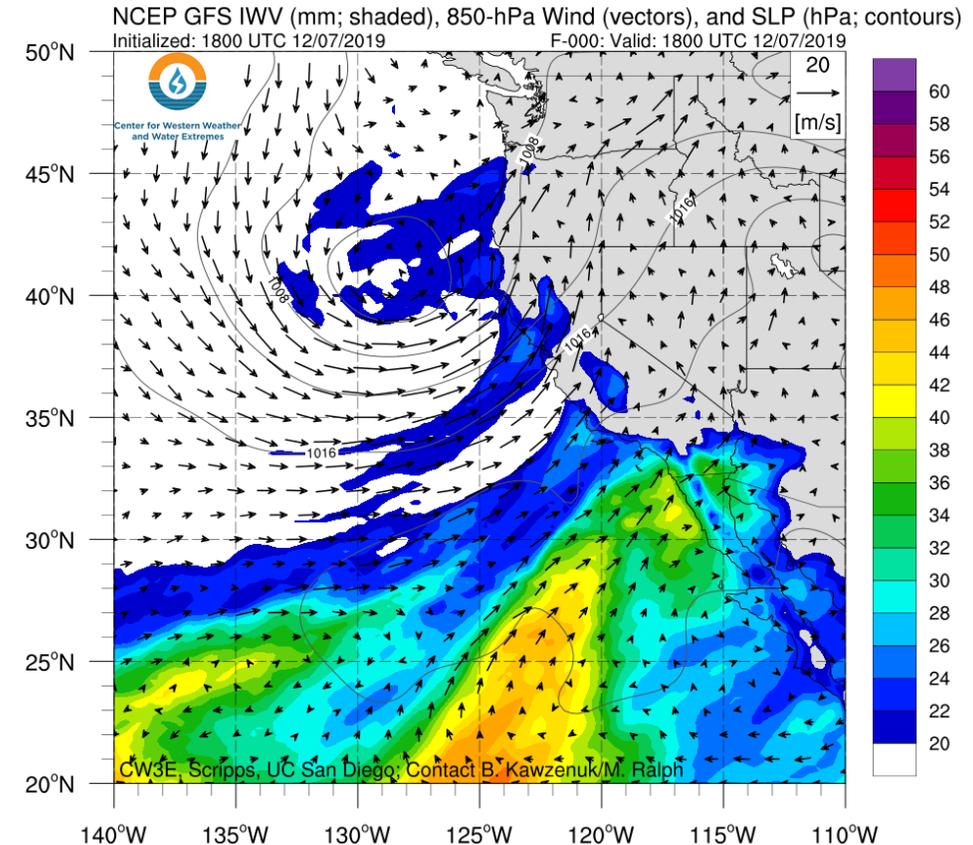
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## GFS IVT Analysis: 1800 UTC 7 Dec



## GFS IWV Analysis: 1800 UTC 7 Dec



- 1800 UTC 7 Dec GFS analysis shows high IVT values ( $> 500 \text{ kg m}^{-1} \text{ s}^{-1}$ ) and IWV values ( $> 20 \text{ mm}$ ) penetrating into the northern Sacramento Valley
- The orientation of the IVT vectors and 850-hPa wind vectors suggests that upslope moisture flux likely enhanced precipitation amounts over the Northern CA Coast Ranges, the Klamath Mountains, and the Northern Sierra Nevada

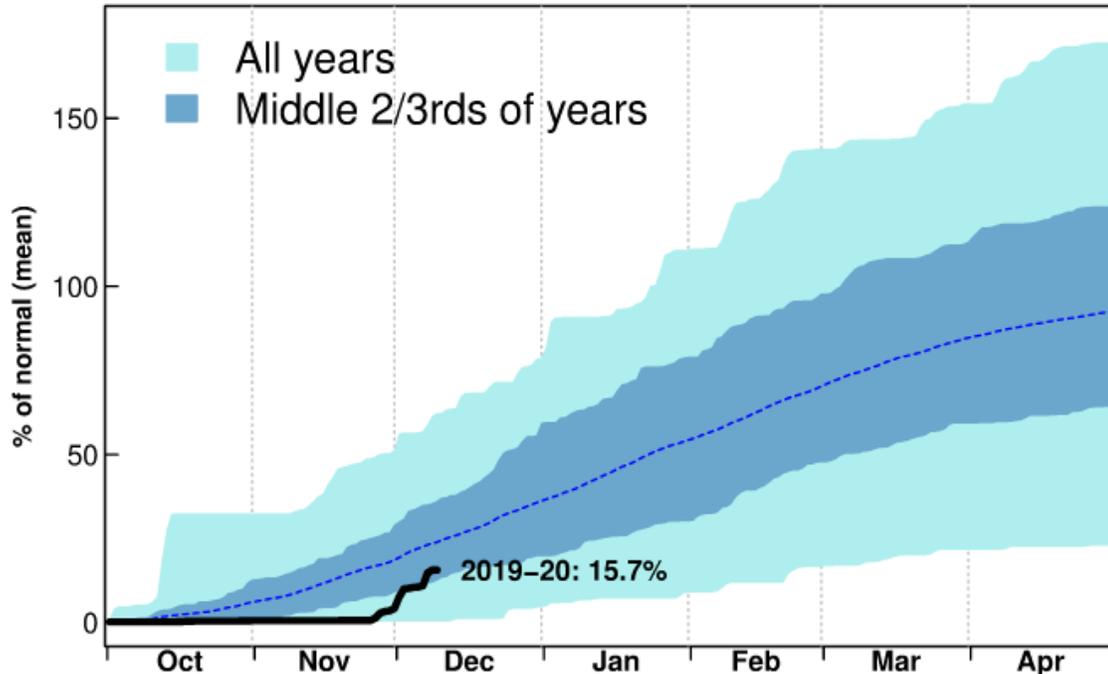
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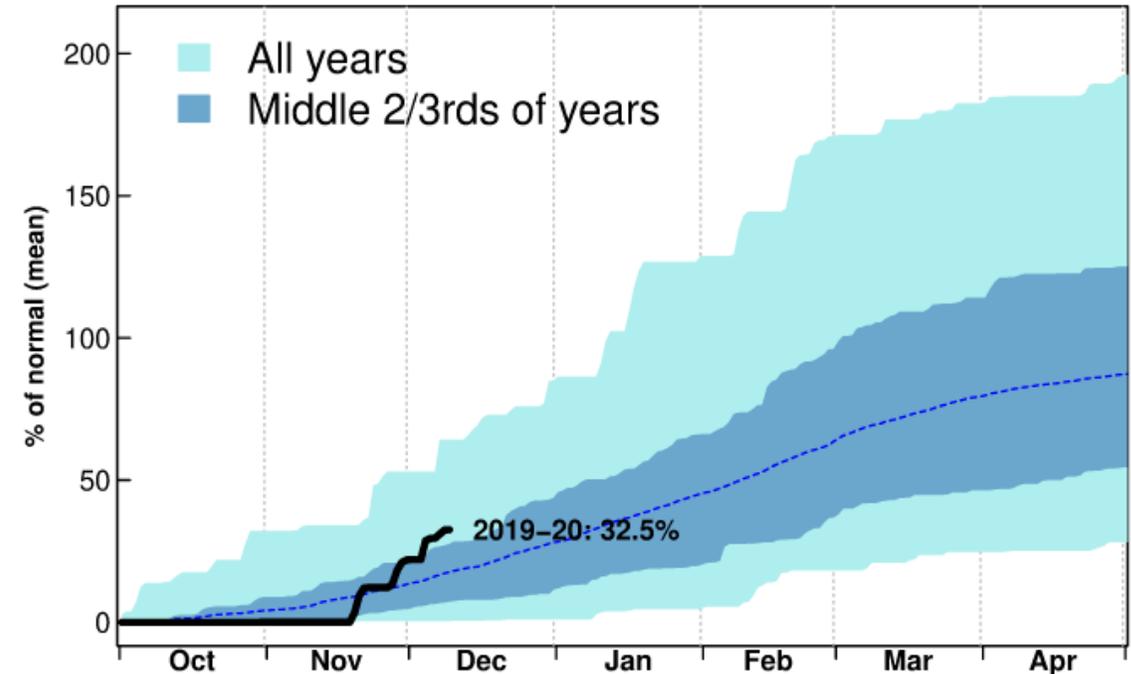
## Northern Sierra Nevada Precipitation

8\_sta\_index precip for all years, data through 2019/12/09



## San Diego County Precipitation

SD\_county precip for all years, data through 2019/12/09



Source: California–Nevada Applications Program, <https://scripps.ucsd.edu/programs/cnap/>

- The recent wet pattern has helped reduce precipitation deficits over the Northern Sierra Nevada, but total water year-to-date precipitation remains below the long-term mean
- By comparison, total water year-to-date precipitation is well above the long-term mean in Southern CA
- As of 9 Dec, San Diego County has already received > 30% of its normal total water year precipitation