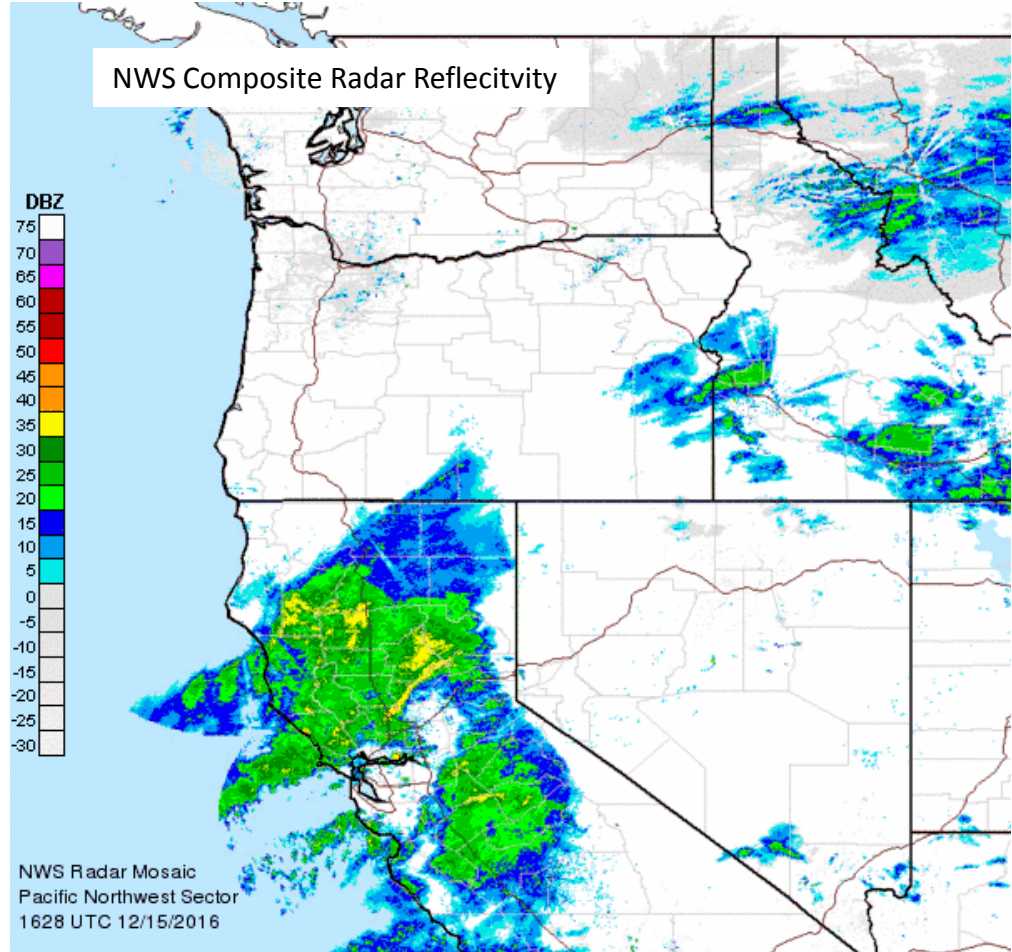


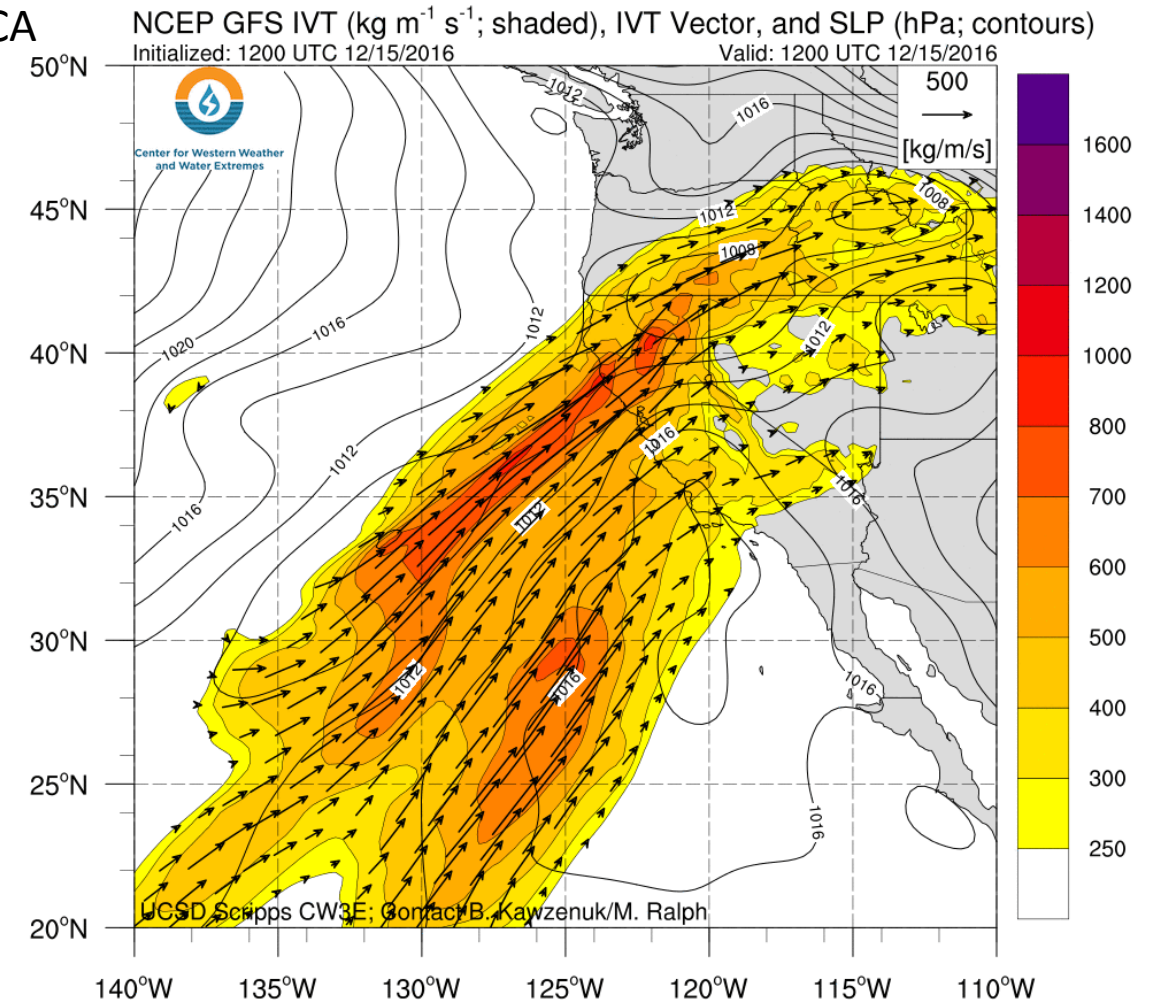
# CW3E Atmospheric River Update

For California DWR's AR Program



## Update on AR Impacting California

- The AR has begun to move southward as precipitation continues to fall over northern California
- 48-h precipitation accumulations range from 1–10 inches over portions of northern CA



- AR conditions could last up to 24 more hours over northern CA resulting in as much as 1–3 more inches of precipitation
- Flood warnings have been issued by the NWS at locations in Oregon and northern California
- Visit [weather.gov](http://weather.gov) for point specific watches, advisories and warnings

Summary by C. Hecht & F.M. Ralph 1 PM PT Thurs 15 Dec. 2016

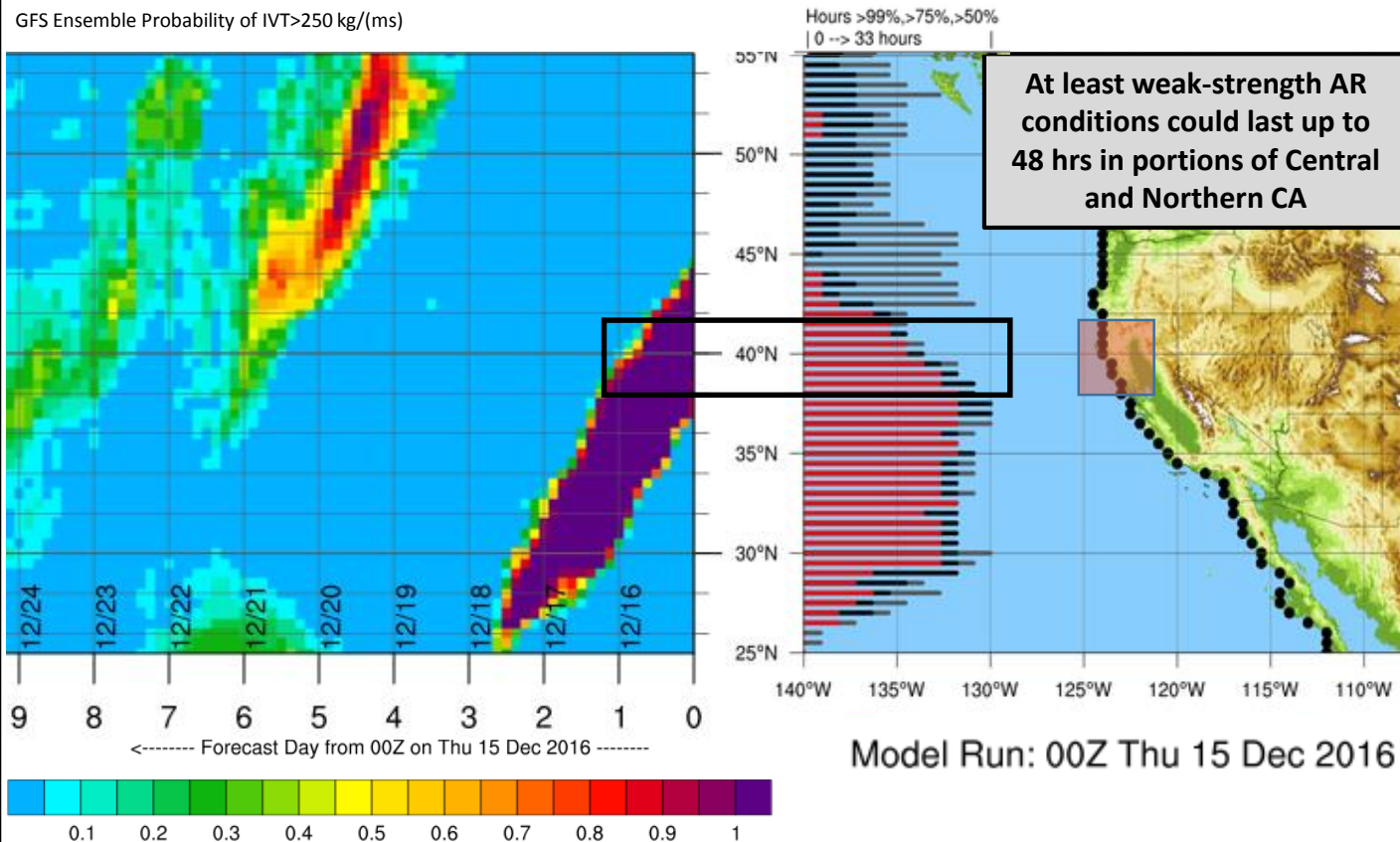
# AR Update: 15–17 December 2016

For California DWR's  
AR Program

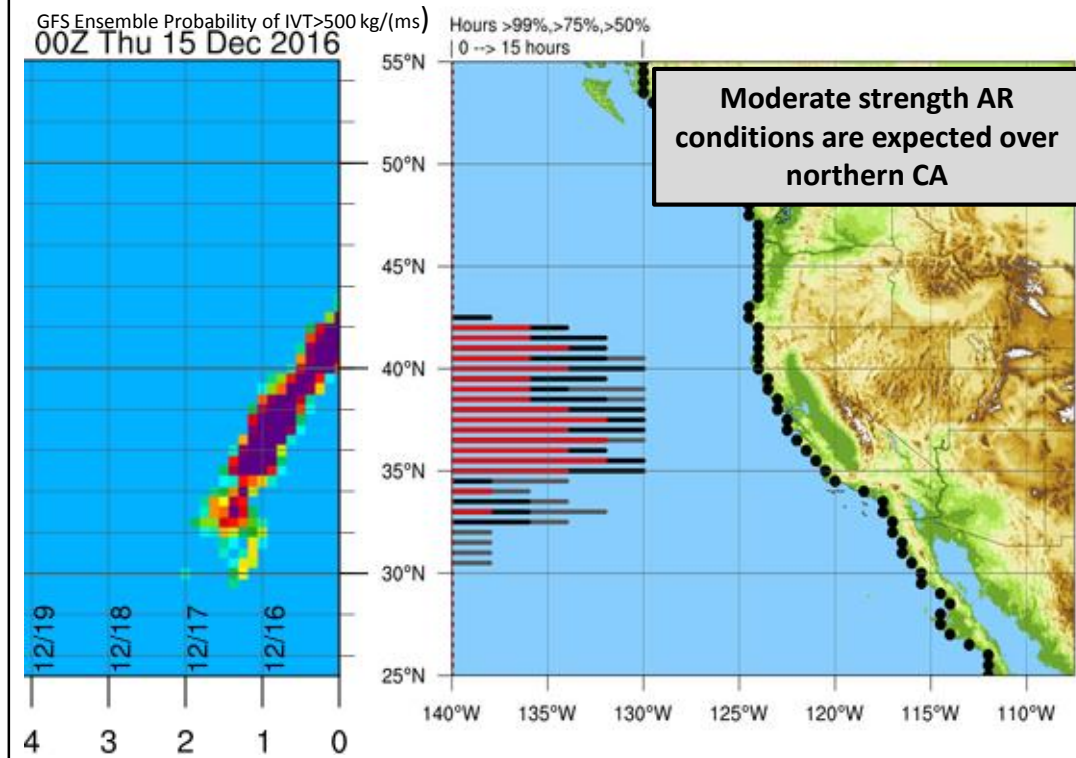


Center for Western Weather  
and Water Extremes  
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AT UC SAN DIEGO

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



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



- AR conditions ( $IVT > 250 \text{ kg m}^{-1} \text{ s}^{-1}$ ) are expected to last up to 24 more hours in portions of northern California that have already received precipitation accumulations before the AR propagates southward over southern California
- The chances of moderate strength ( $IVT > 500 \text{ kg m}^{-1} \text{ s}^{-1}$ ) conditions over northern and central CA have continued to increase with durations of ~6-h expected

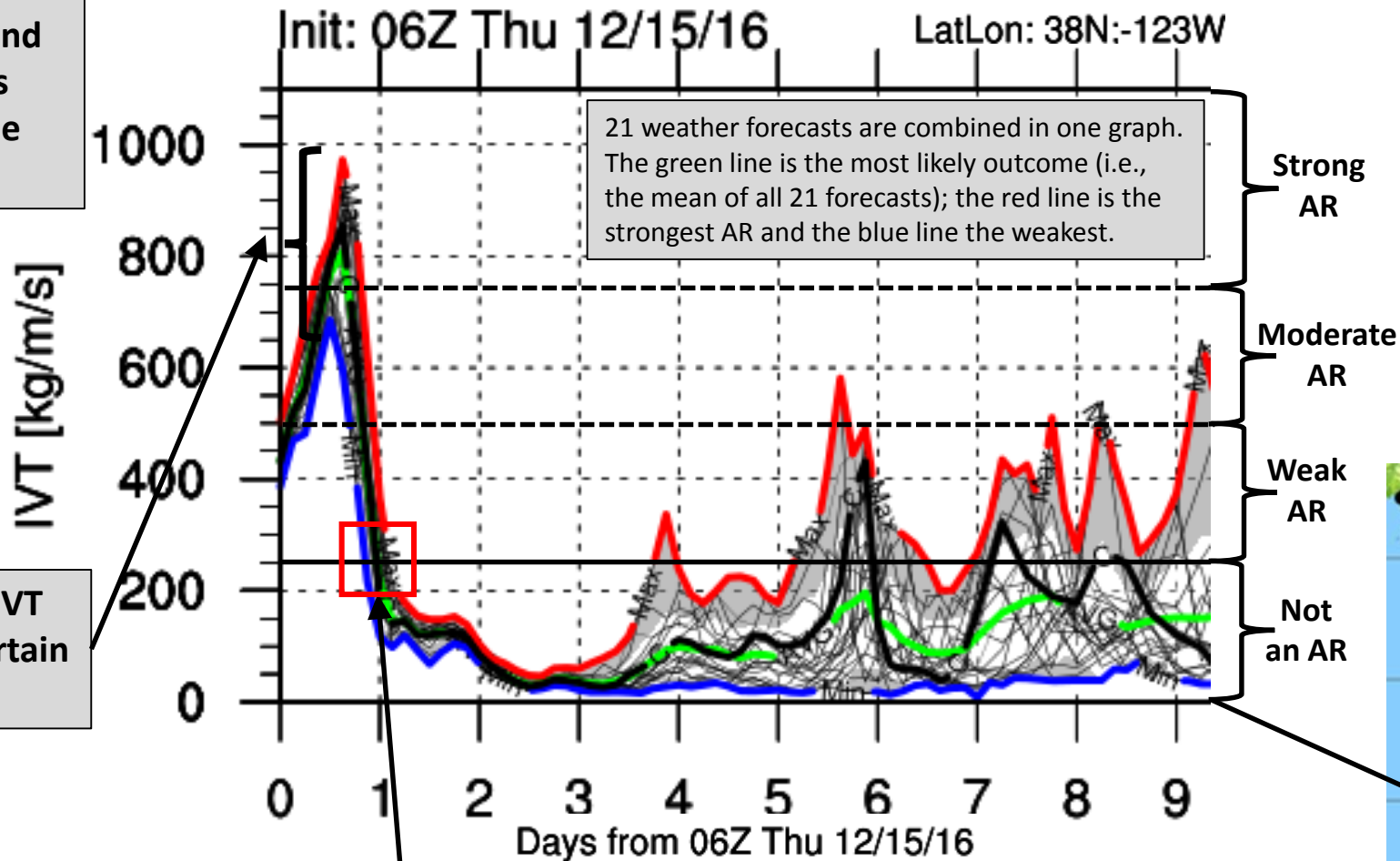
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Forecasts of IVT magnitude have developed more agreement in duration and magnitude as time has progressed closer to the event



Forecasts of maximum IVT magnitude are now uncertain by +/-15%

AR Conditions are expected to last until ~6 UTC on Friday 16 Dec. 2016



# AR Update: 15–17 December 2016

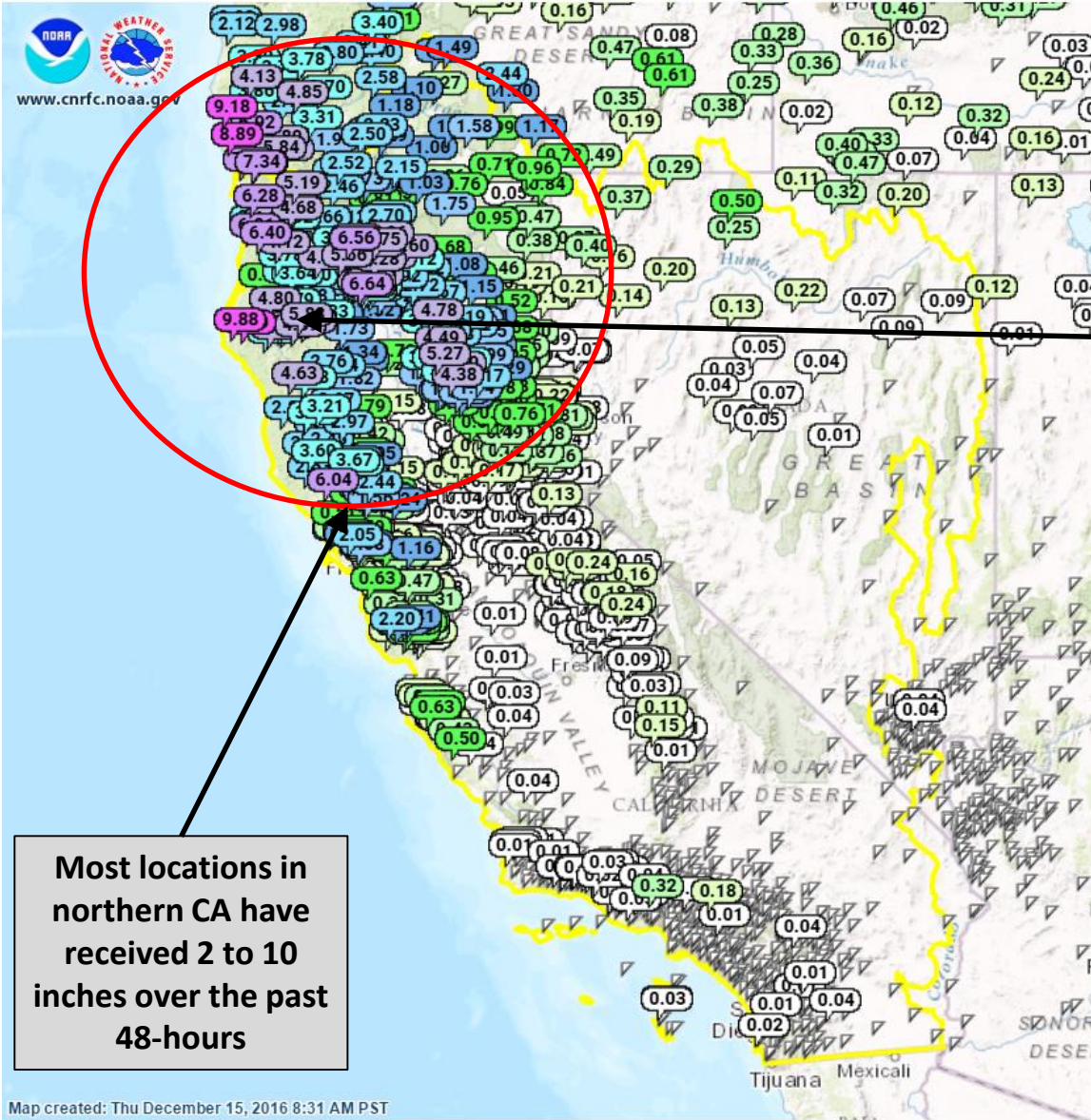
For California DWR's AR Program



Center for Western Weather and Water Extremes

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Observed Precip - Last 48 Hours - Raw



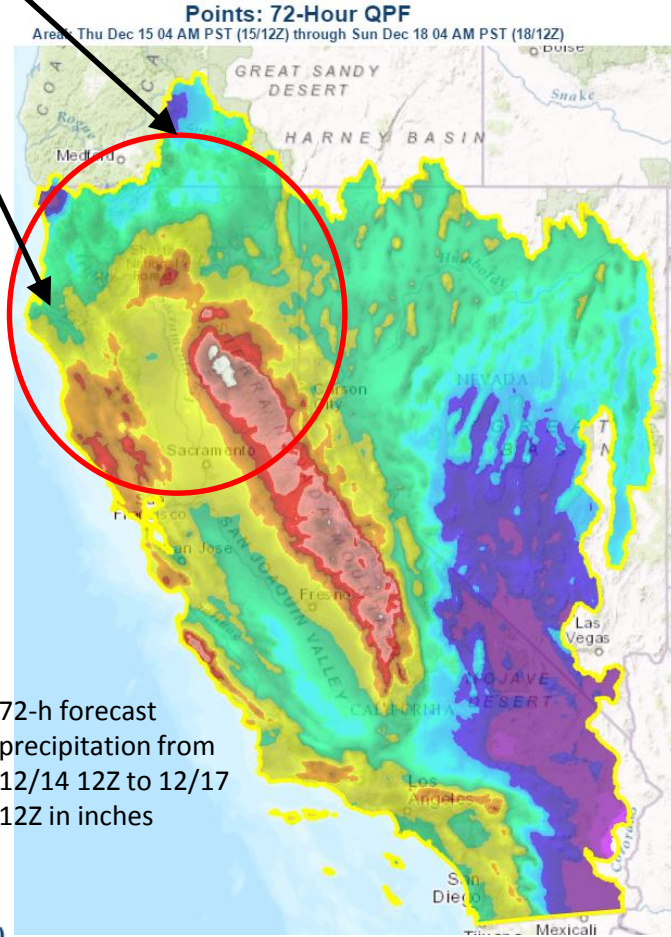
Most locations in northern CA have received 2 to 10 inches over the past 48-hours

An additional 1–3 inches of rain could fall over portions of northern California with the high elevations of the Sierra Nevada Mts. forecast to receive another 7 inches

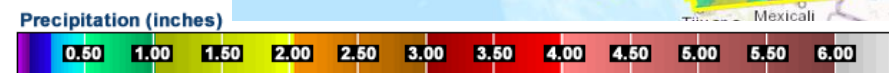
By the end of the event, total precipitation accumulations could be as high as 12–13 inches in some locations

Portions of southern California are forecast to receive 72-h precipitation accumulations of 1–3 inches

For Official NOAA-CNRFC Precipitation Forecasts see <http://www.cnrfc.noaa.gov/ol.php?type=QPF>



72-h forecast precipitation from 12/14 12Z to 12/17 12Z in inches



# AR Update: 15–17 December 2016

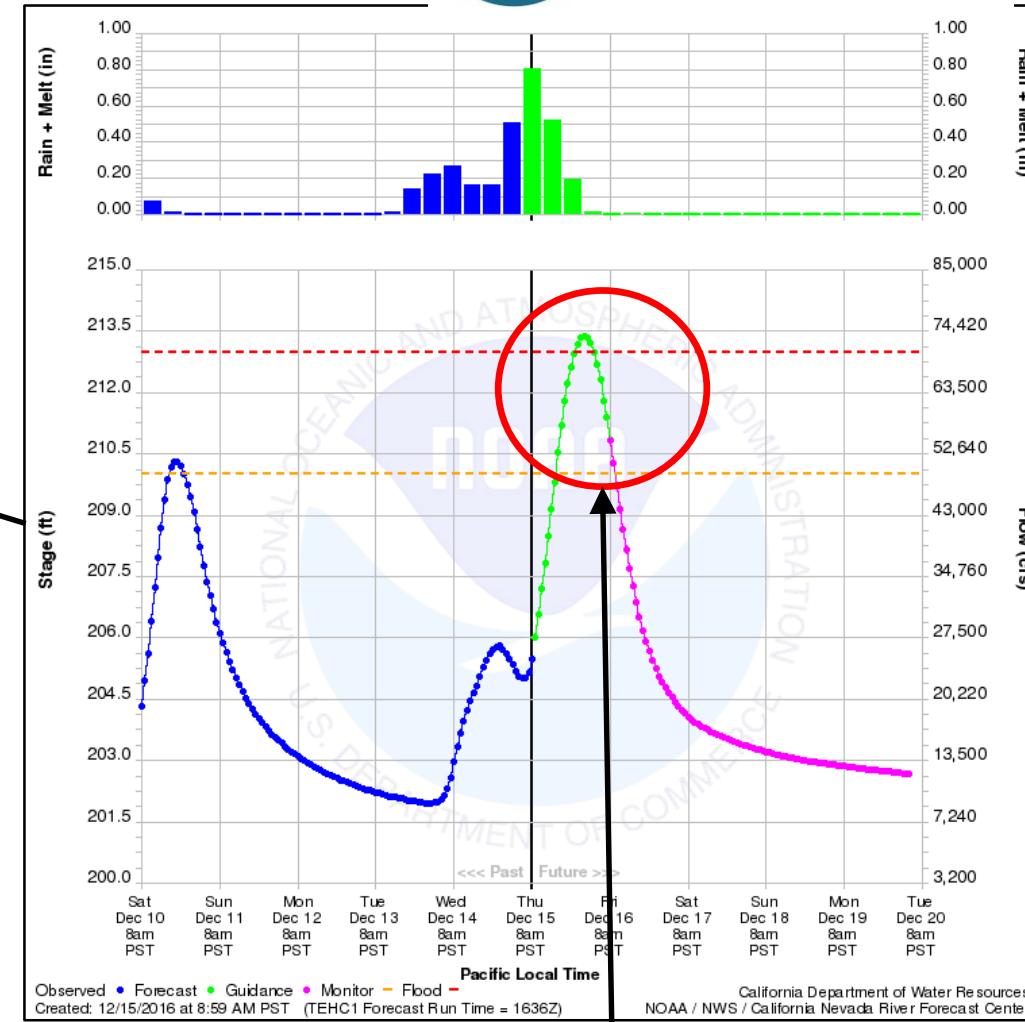
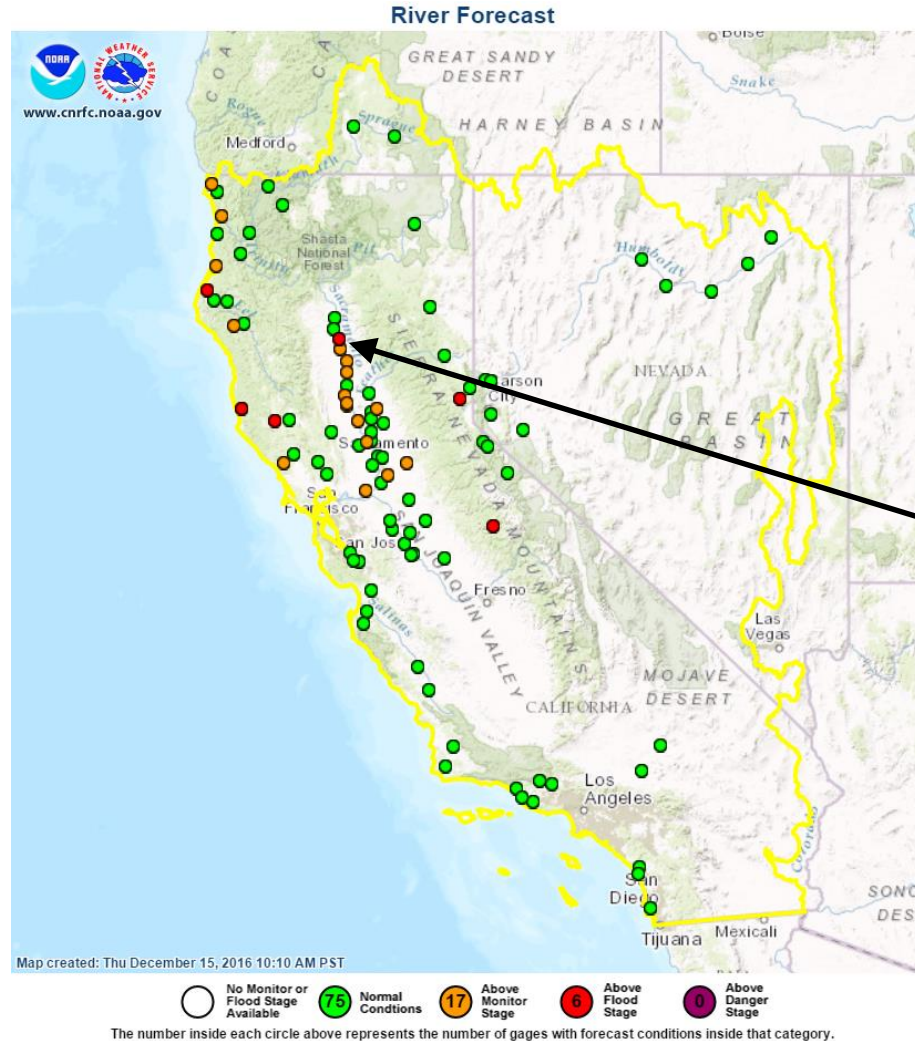
For California DWR's AR Program



Stream flow forecasts are similar to prior day with 7 gages expected to reach above flood stage

17 river gages are expected to rise above monitor stage, which is 1 more than yesterday

For official NOAA-NWS CNRFC Streamflow Forecasts see [http://cnrfc.noaa.gov/rfc\\_guidance.php](http://cnrfc.noaa.gov/rfc_guidance.php)



The forecast stage height for the Sacramento River at Tehama Bridge is now at 213.4 feet, which is .4 feet above flood stage

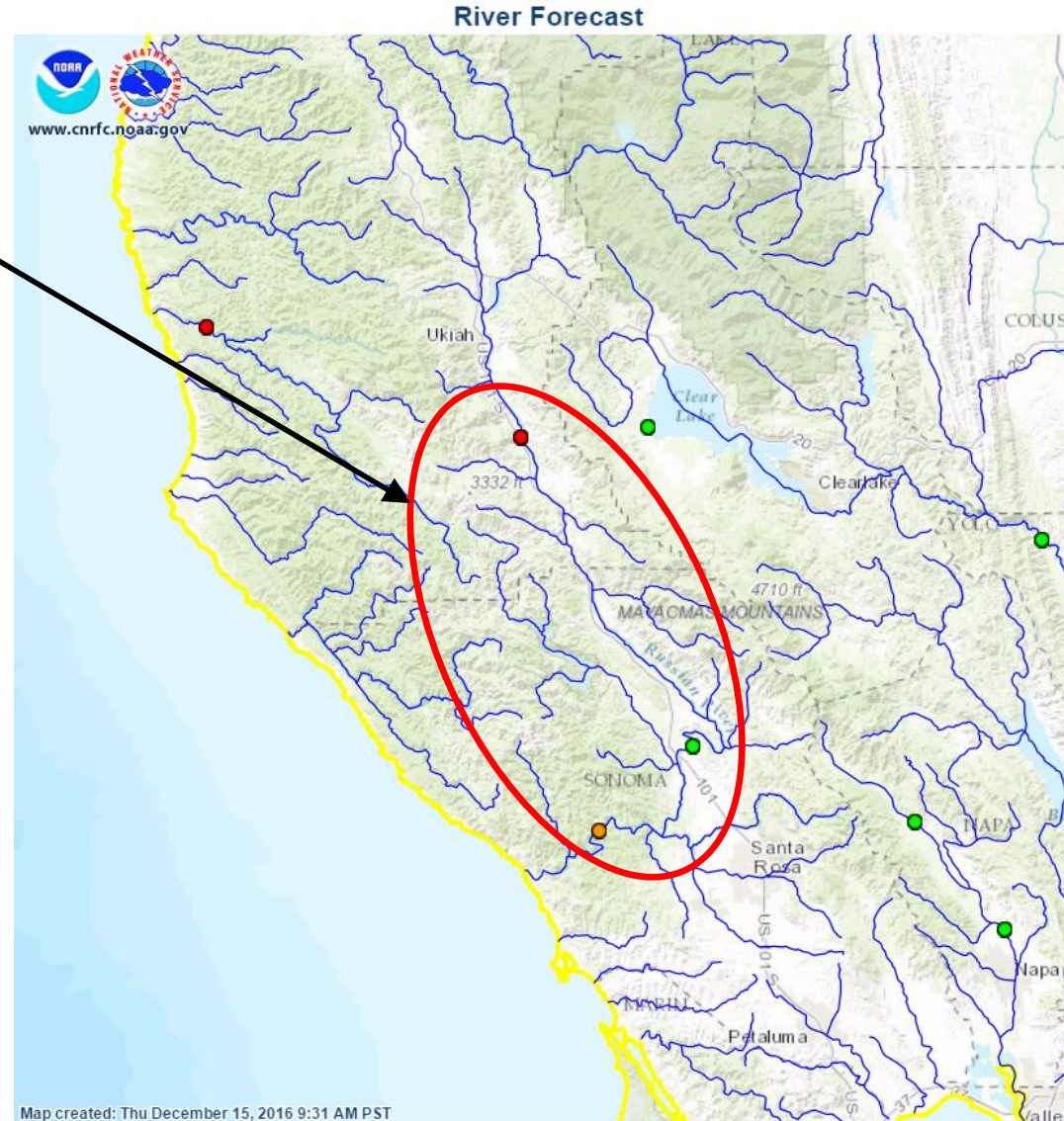
# AR Update: 15–17 December 2016

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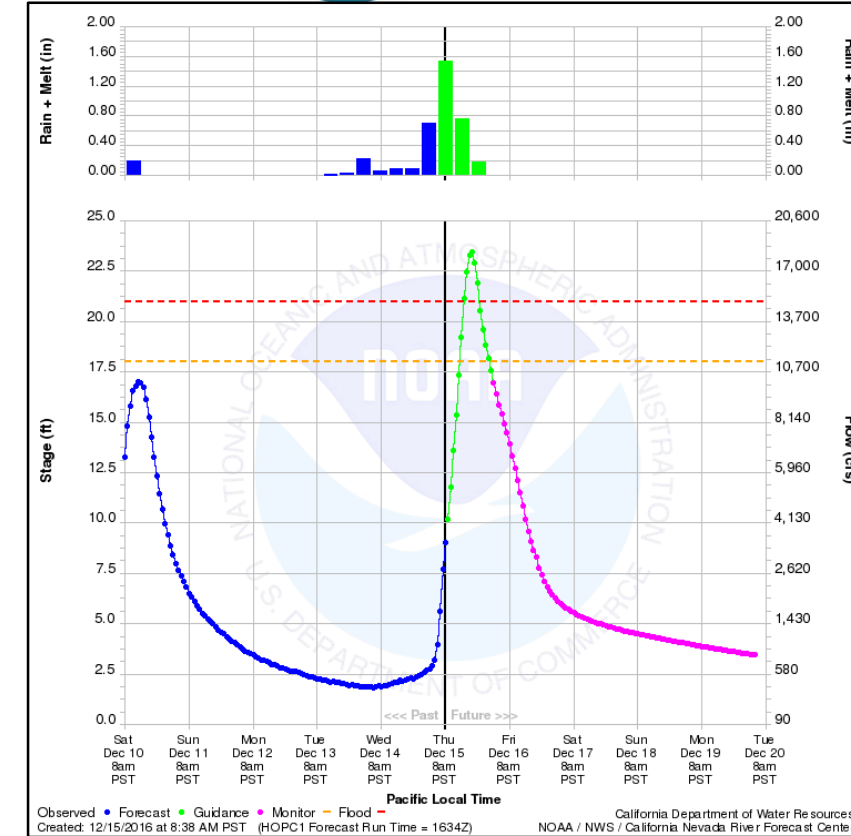
Out of the 3 gages on the Russian River, the gage at Hopland is expected to rise above flood stage while the gage at Guerneville is expected to rise above monitor stage

For official NOAA-NWS CNRFC Streamflow Forecasts see [http://cnrfc.noaa.gov/rf\\_c\\_guidance.php](http://cnrfc.noaa.gov/rf_c_guidance.php)



  No Monitor or Flood Stage Available  
 75 Normal Conditions  
 17 Above Monitor Stage  
 6 Above Flood Stage  
 0 Above Danger Stage

The number inside each circle above represents the number of gages with forecast conditions inside that category.



The forecast stage height for the Russian River at Hopland has begun to rise and is expected to reach 23.5 feet, 2.5 feet above flood stage