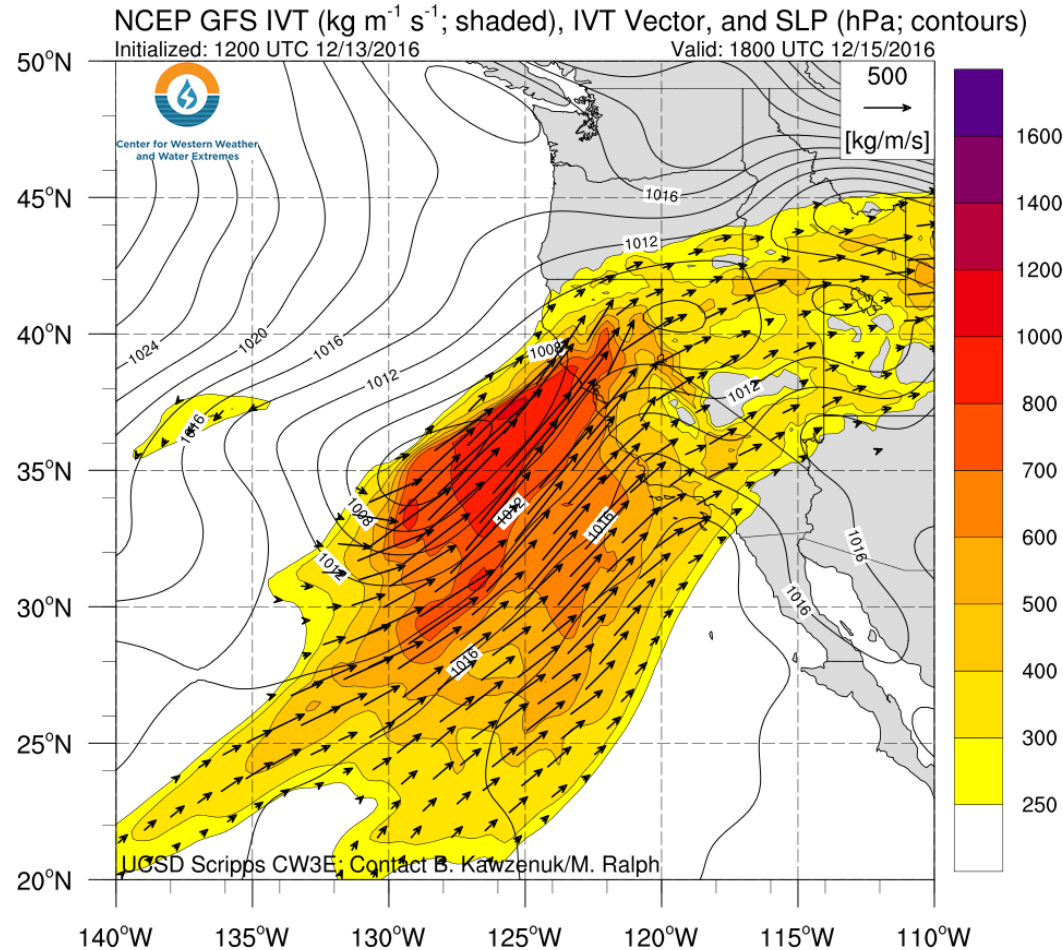


CW3E Atmospheric River Outlook

For California DWR's AR
Program

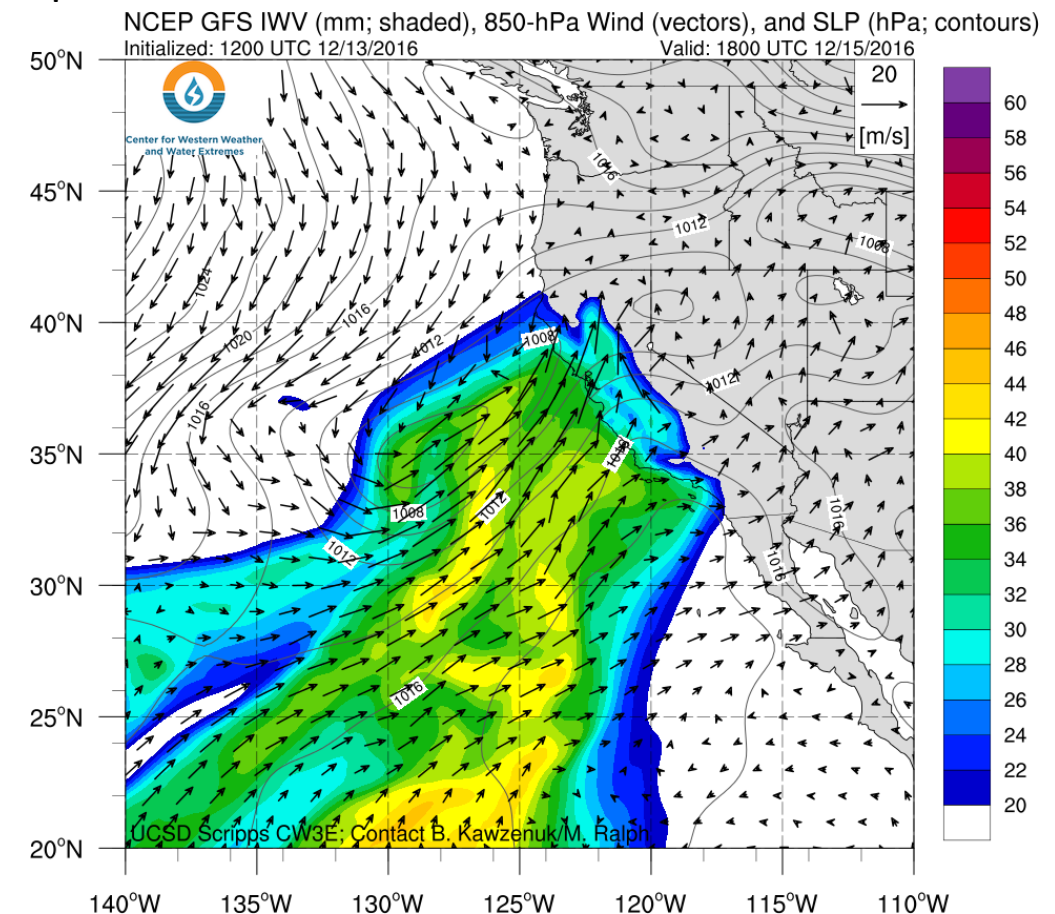


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Landfalling AR to impact California

- A moderate-strength AR is expected to make landfall in north/central California tonight, and could reach “strong” AR level
- The AR propagates southward later in the week bringing AR conditions to portions of southern California



Summary by C. Hecht & F.M. Ralph 1 PM PT Tue 13 Dec. 2016

- Current NWS precipitation forecasts predict higher precipitation amounts of over 10 inches in 3 days over the higher elevations of the Sierra Nevada Mts. with other locations in northern CA receiving 2-10 inches
- Recent heavy precipitation has primed soil conditions and river flows to raise concern for flooding in some locations in northern California, as seen in NWS river forecasts

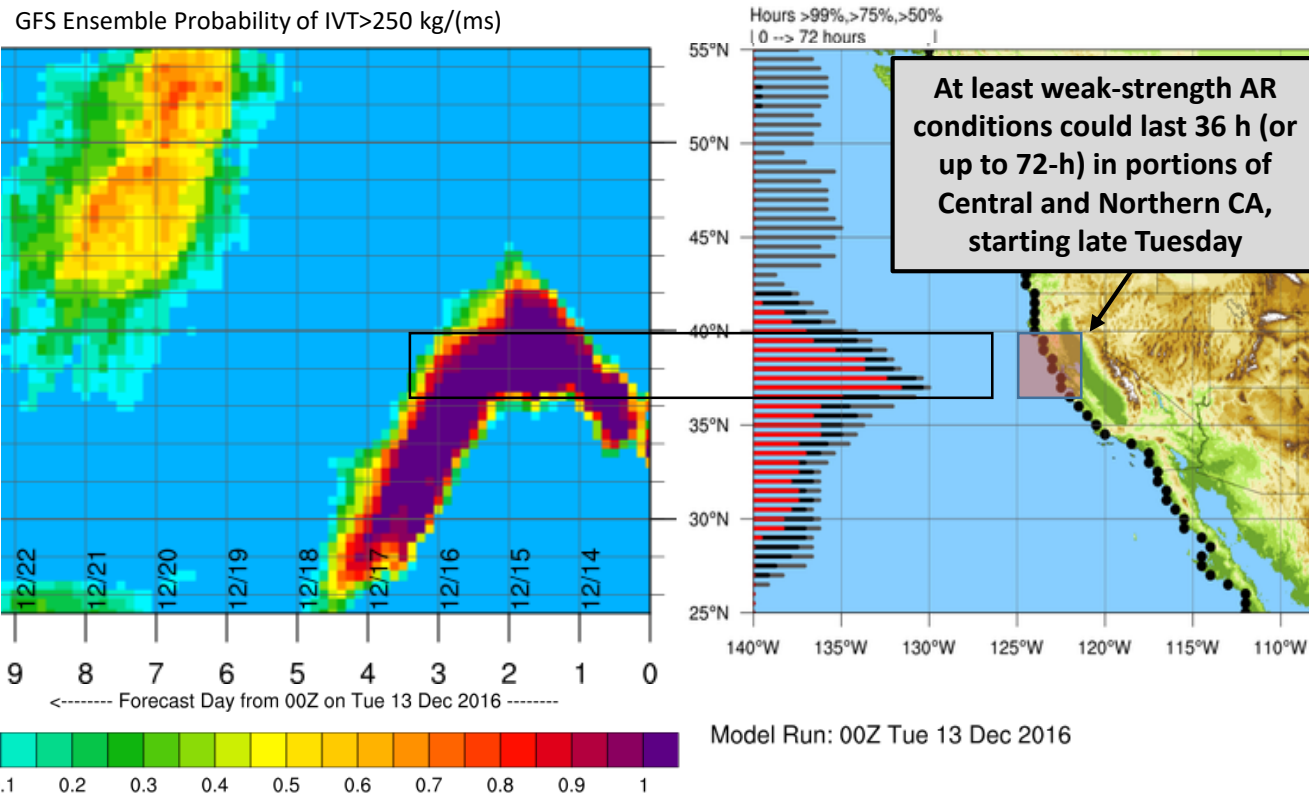
AR Outlook: 13–17 December 2016

For California DWR's
AR Program

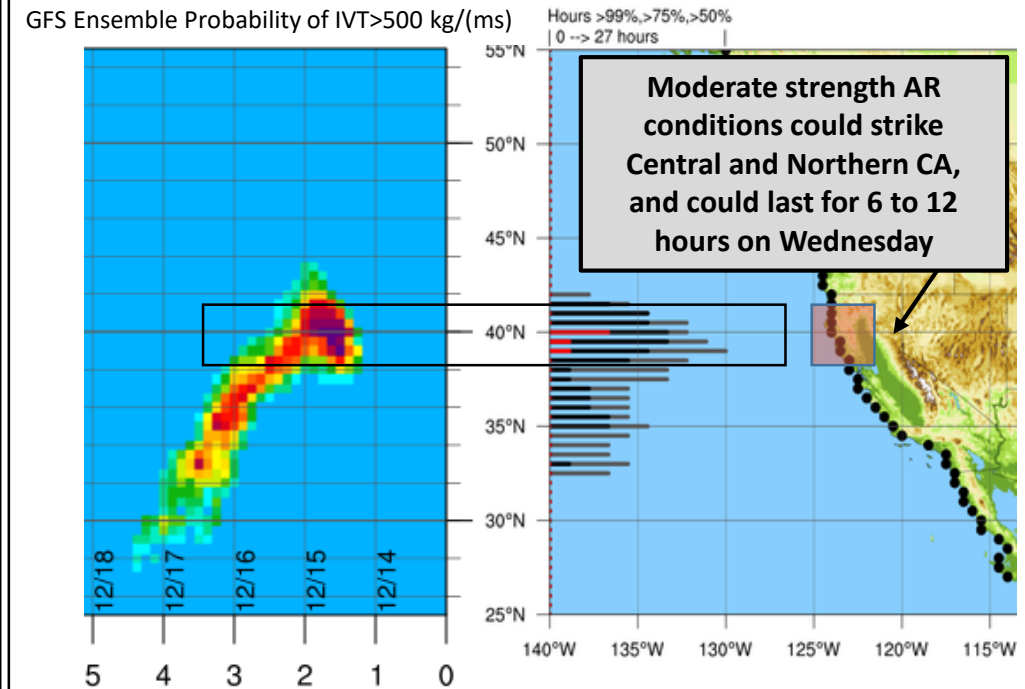


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Odds of at least a **WEAK** AR making landfall



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



- The probability of $IVT > 250 \text{ kg m}^{-1} \text{ s}^{-1}$ (at least minimal AR conditions) is high (~ 1) along the entire California Coast indicating high forecast confidence and the southward movement of the AR over time
- The chances of moderate strength AR conditions hitting for a few hours is high in Northern California, and moderate in Southern CA

Summary by C. Hecht & F.M. Ralph 1 PM PT Tue 13 Dec. 2016

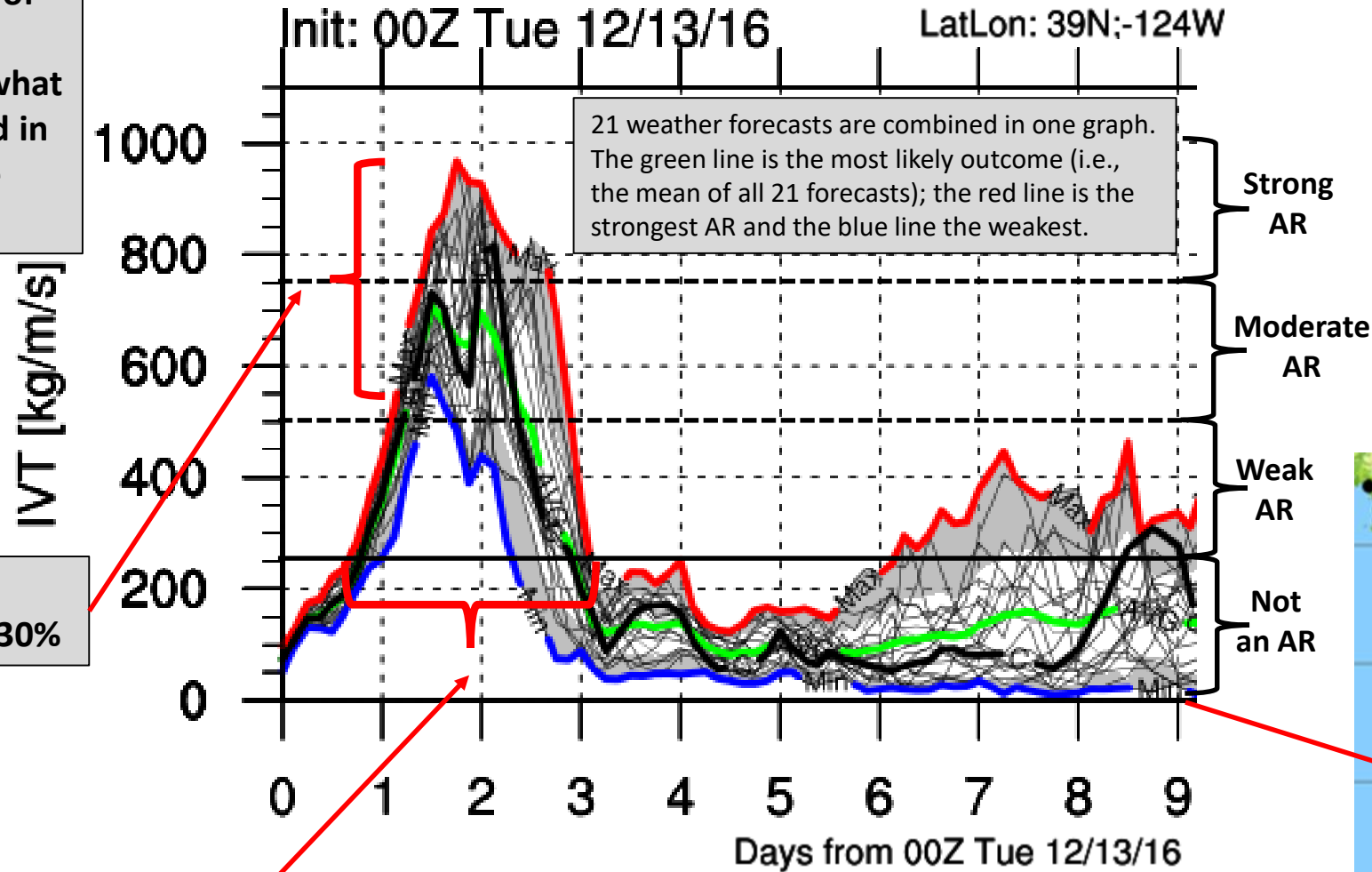
AR Outlook: 13–17 December 2016

For California DWR's AR Program



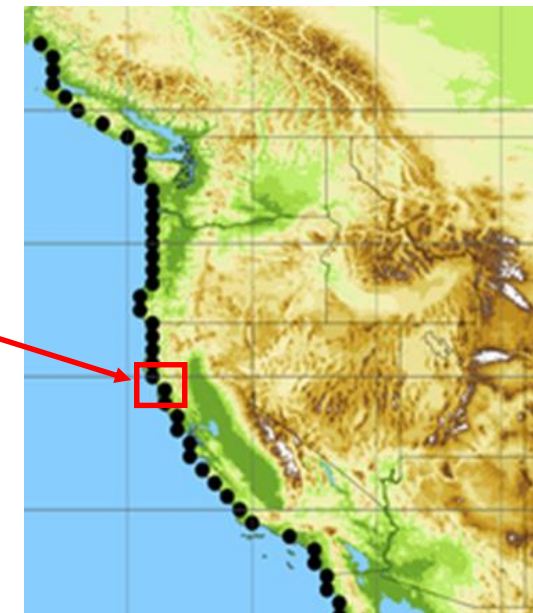
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While forecasts clearly show
a landfalling AR, details of
timing, duration, and
magnitude remain somewhat
uncertain, as is described in
this example near the
Russian River



AR's Max strength is
uncertain by as much as 30%

AR duration could range from 30 to 54 hours
(and moderate AR conditions could last >24 h)



Summary by C. Hecht & F.M. Ralph 1 PM PT Tue 13 Dec. 2016

AR Outlook: 13–17 December 2016

For California DWR's AR Program

Precipitation forecast over 3 days
ending 4 AM PT Friday 16 Dec 2016

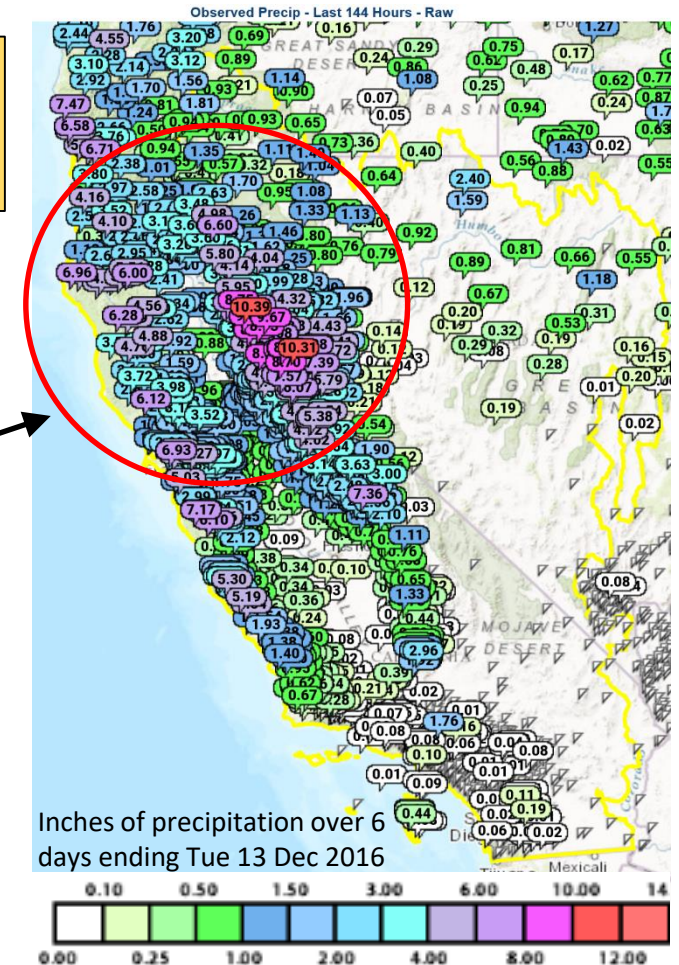
California-Nevada River Forecast Center (CNRFC) 3-day forecast
precipitation accumulations reach as high as 12.5 inches in the high
elevations of the Sierra Nevada Mountain Range

Precipitation could reach R-CAT 2
(12-16 inches in 3 days) at the
wettest mountain sites

Over the past week,
locations in the Sierra
Nevada and Coastal
Mountains have
received 5–10 inches of rain, which means soils
will not absorb as
much of the rain as
early season storms

For Official NOAA-CNRFC Precipitation
Forecasts see
[http://www.cnrfc.noaa.gov/ol.php?ty
pe=QPF](http://www.cnrfc.noaa.gov/ol.php?type=QPF)

Other locations,
such as the
southern Sierra
Nevada, Coastal
Mts of
northwestern CA,
and the Trinity Alps
at the northern end
of the Central
Valley are forecast
to receive 4–9
inches over 3 days



Summary by C. Hecht & F.M. Ralph 12 PM PT Fri 13 Dec. 2016

AR Outlook: 13–17 December 2016

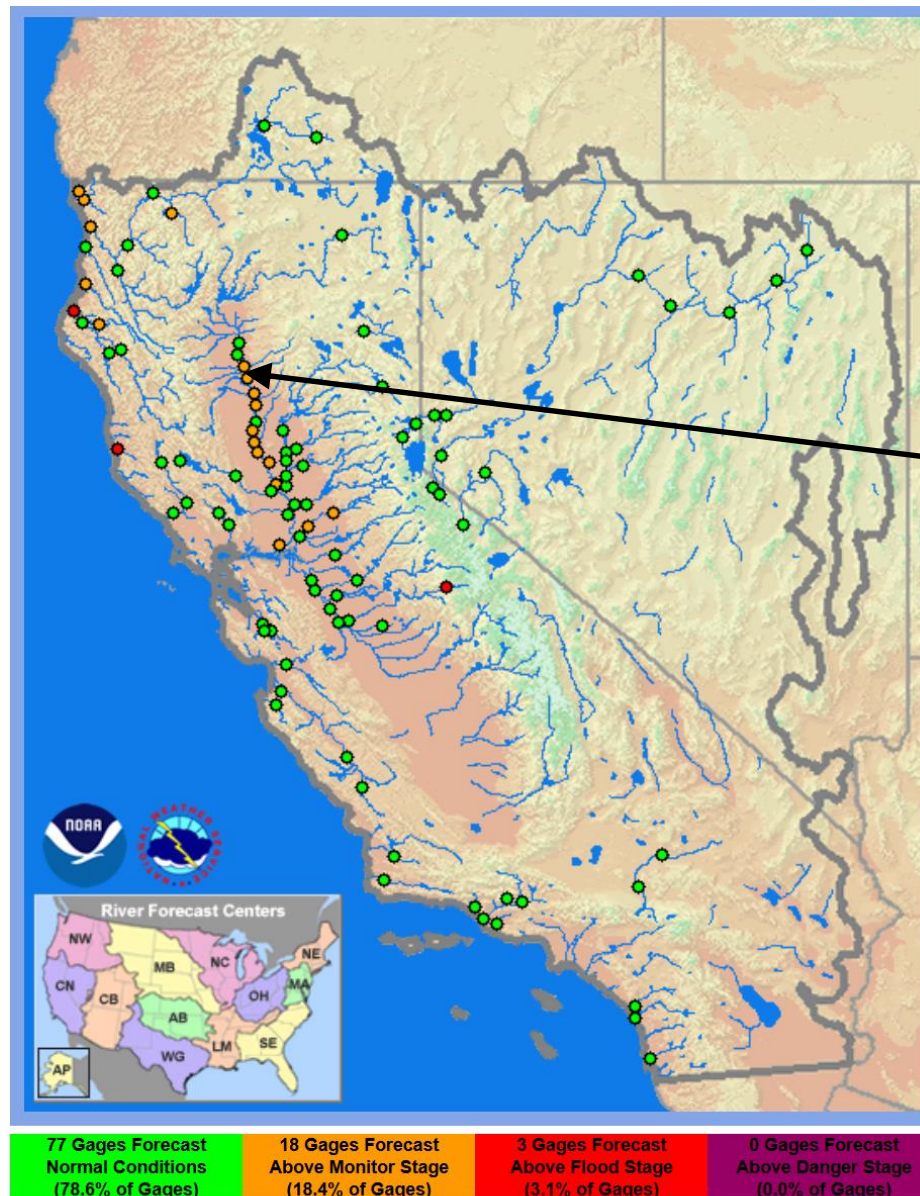
For California DWR's AR Program



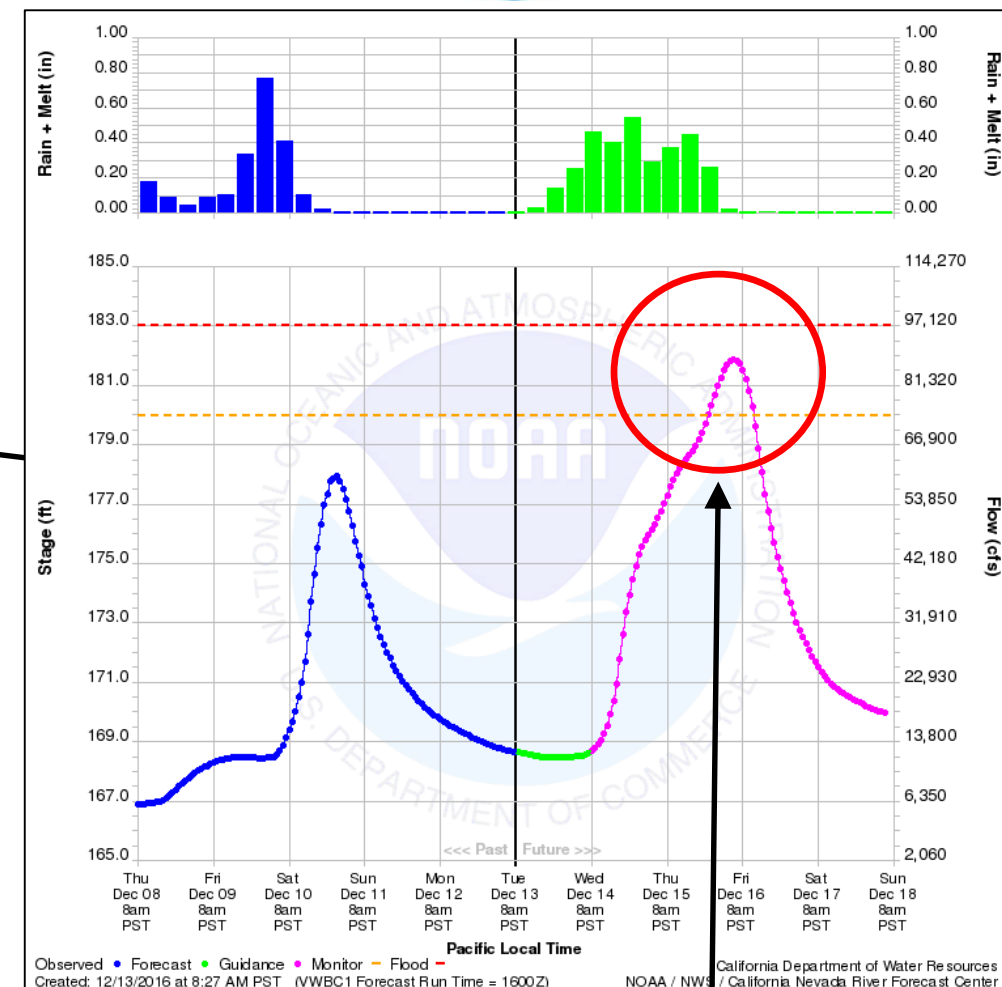
The River Forecast Center (RFC) is forecasting 3 rivers will reach flood stage

18 additional gages are forecast to reach above monitor stage in the Sacramento River Valley and Coastal Mts. Of northwestern CA

For official NOAA-NWS CNRFC Streamflow Forecasts see http://cnrfc.noaa.gov/rfc_guidance.php



Last Map Update: Tuesday December 13th 2016 at 1:30 PM PST (9 Minutes Old)



Wet soil conditions combined with recent precipitation over the weekend could allow for the Sacramento River at Tehama Bridge to reach near flood stage

AR Outlook: 13–17 December 2016

For California DWR's AR Program

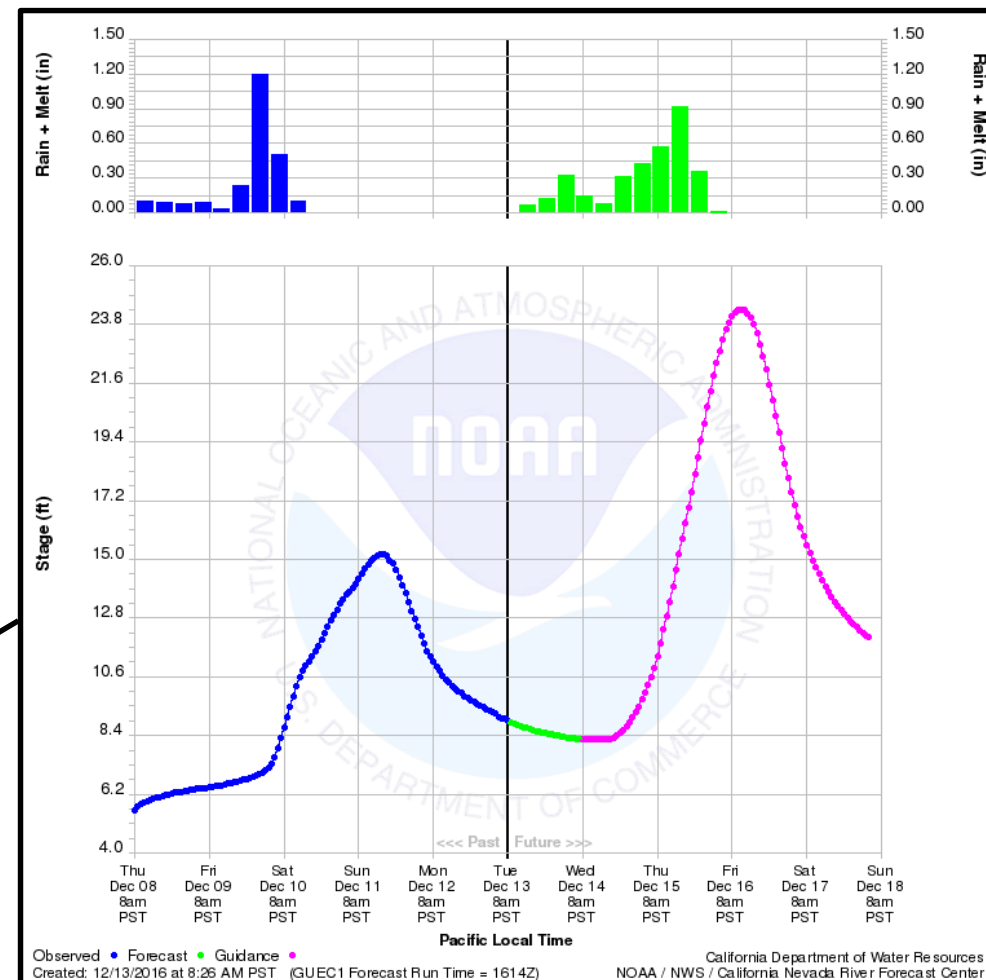
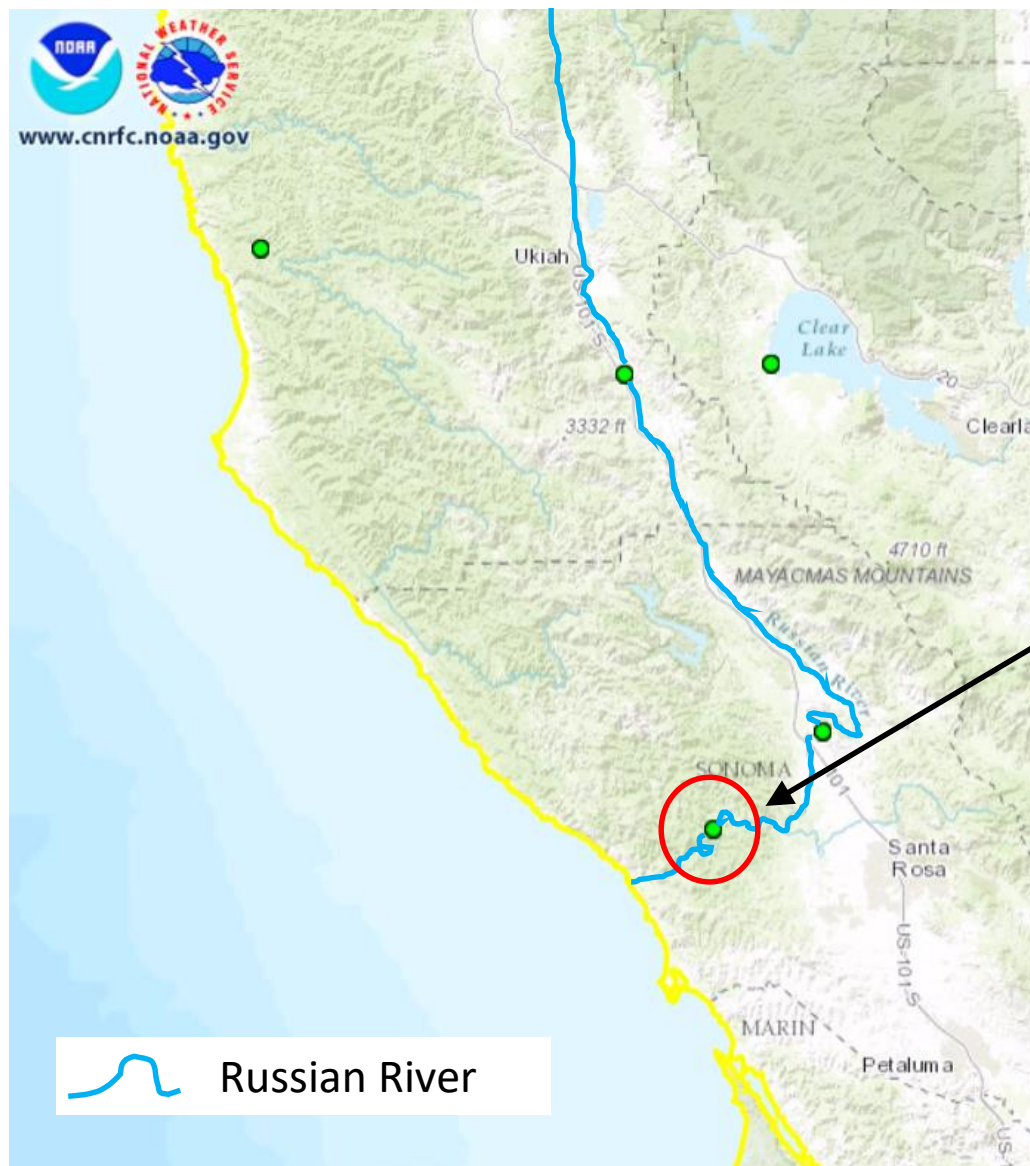


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The NWS predicts that the Russian River Watershed will receive 72-h precipitation accumulations ranging up to 3 or 4 inches. The river is forecast to stay below monitor stage.

For official NOAA-NWS CNRFC Streamflow Forecasts see
http://cnrfc.noaa.gov/rfc_guidance.php



The Russian River at Guerneville, CA is currently forecast to reach ~23.8 feet, which is ~5 feet below monitor stage and ~9 feet below flood stage