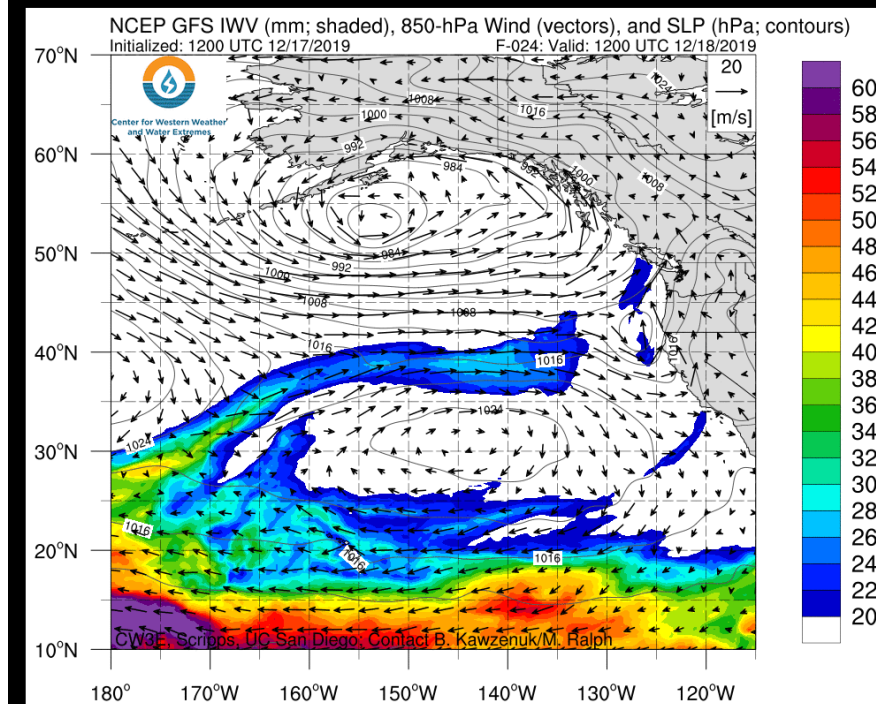
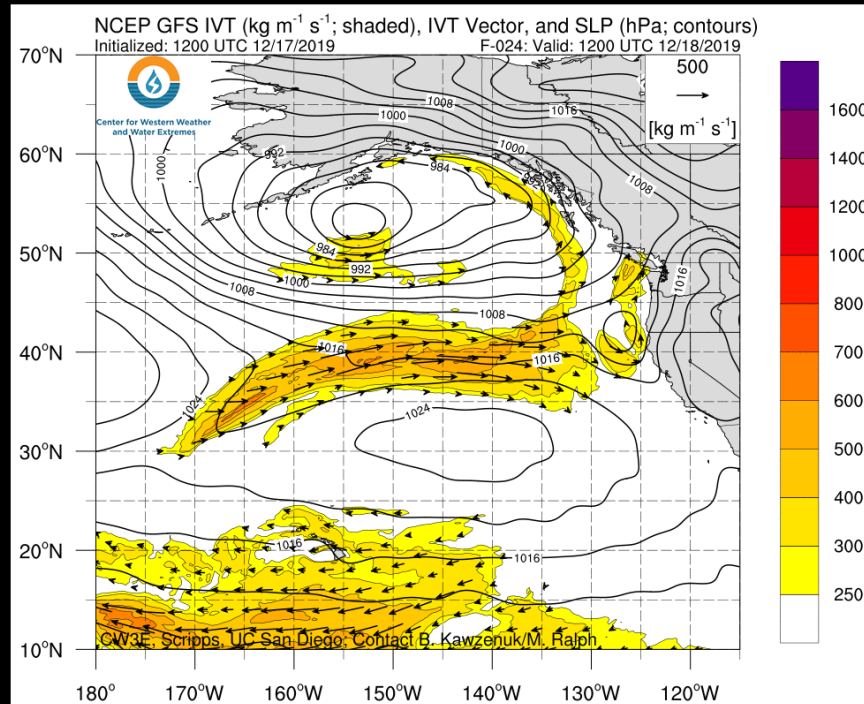




A landfalling AR will bring heavy rainfall and mountain snowfall to the Pacific Northwest this week

- A landfalling AR is forecast to impact Northern CA, OR, and WA during 18–21 Dec
- Some areas along the Oregon Coast may experience AR conditions for more than 48 hours
- At least 3-7 inches of rainfall is expected over the Oregon Coast Ranges, Olympic Mountains, and Cascade Mountains over the next 5 days, with more than 1 foot of snow possible in the North Cascades





Rising Rivers Later This Week

Wednesday December 18 – Saturday December 21, 2019

Information:

- Very wet weather is expected Wednesday into Saturday
- 3 to 6" of precipitation, heaviest across the Olympics & Cascades
- Rising rivers could lead to widespread or significant flooding

Prepare:

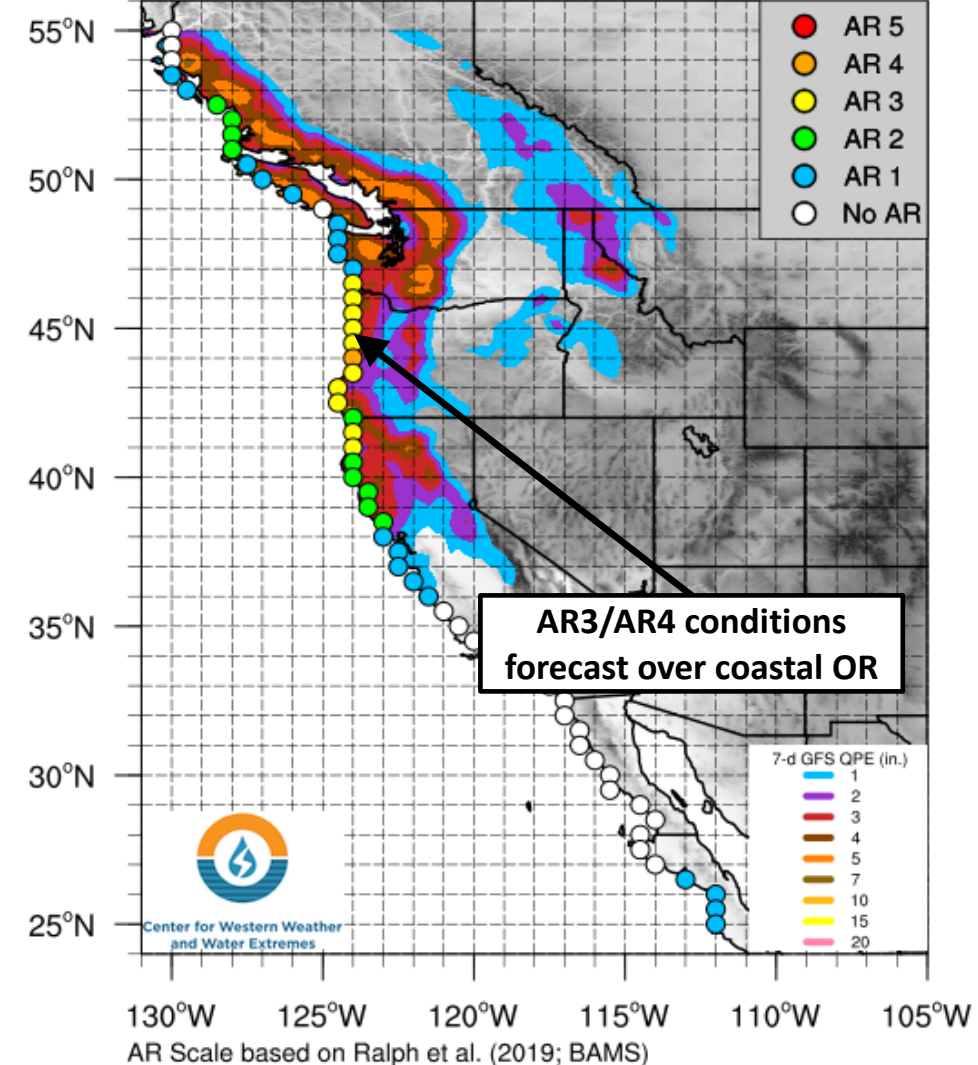
- If you live near a river or waterway, stay tuned to latest forecasts and monitor river levels



Issued by: NWS Seattle
11:30 am - December 16, 2019

GEFS Control AR Scale and GFS 7-day QPF

Forecast valid: 12Z 12/17/19 - 12Z 12/24/2019



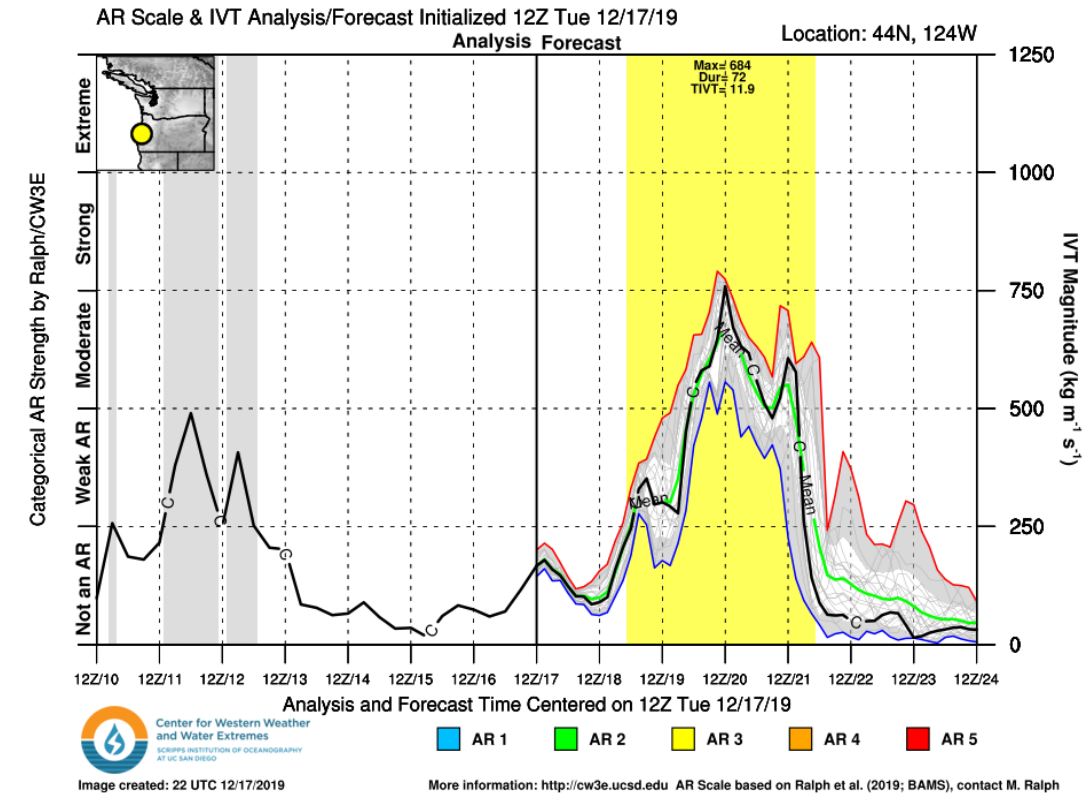
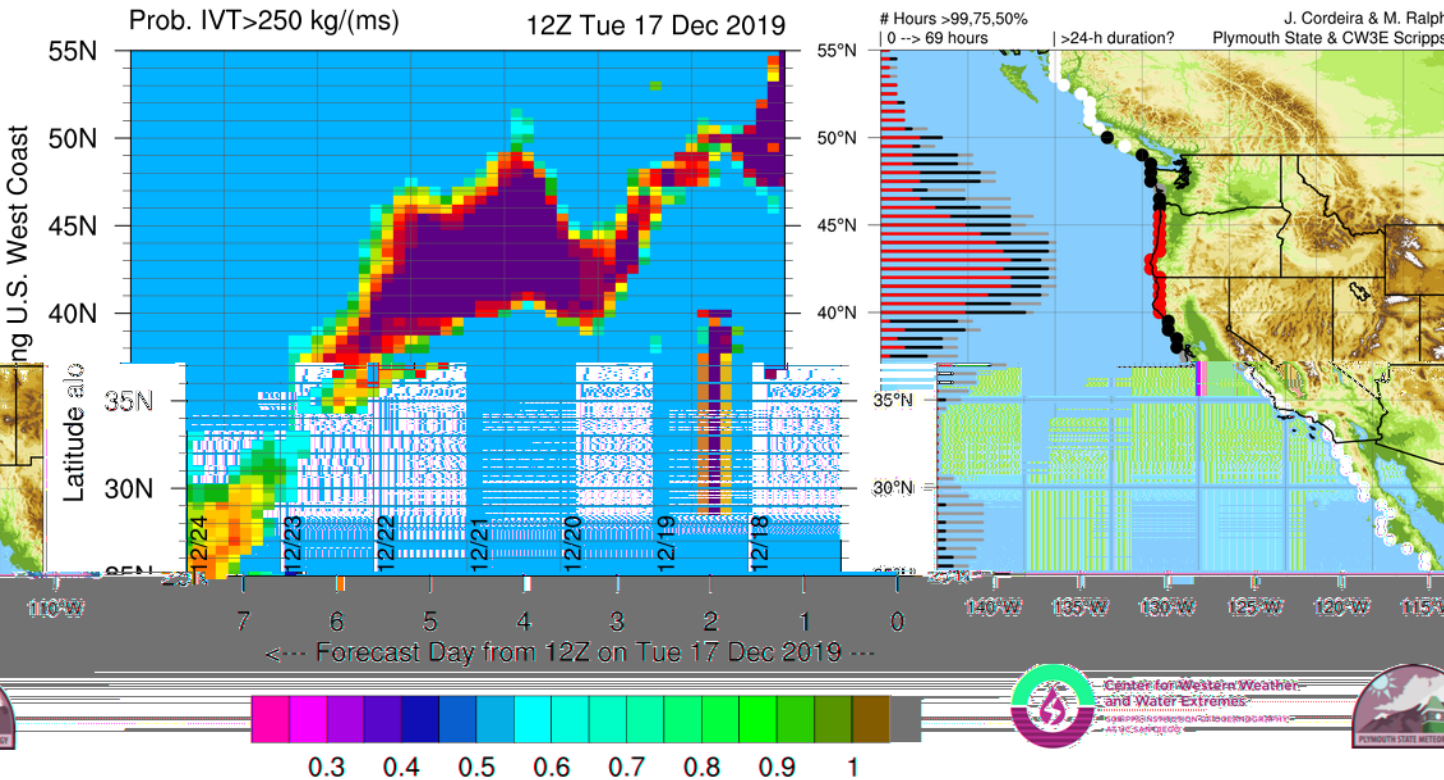
AR Outlook: 17 Dec 2019

For California DWR's AR Program



Center for Western Weather and Water Extremes

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- AR landfall tool shows high confidence (> 90%) in a prolonged period of AR conditions over coastal Northern CA and OR between 0000 UTC 19 Dec and 0000 UTC 22 Dec
- GEFS mean is currently suggesting AR3 conditions (max IVT > $500 \text{ kg m}^{-1} \text{ s}^{-1}$; duration > 48 hours) in western OR, but there is some uncertainty in the duration and magnitude
- A second landfalling AR over the Baja Peninsula may eventually bring AR conditions to the Southwest U.S. on 23–24 Dec

AR Outlook: 17 Dec 2019

For California DWR's AR Program



Center for Western Weather and Water Extremes

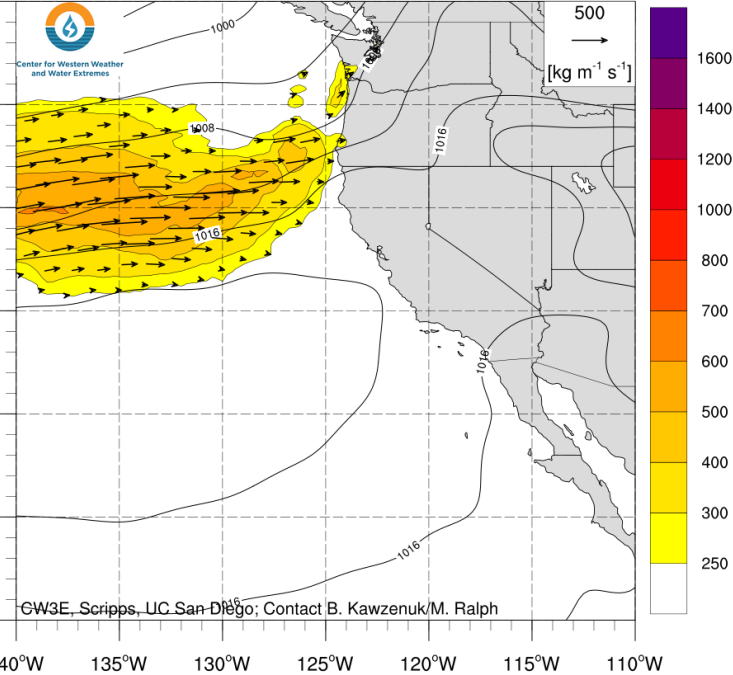
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F-36 Valid: 1200 UTC 19 Dec

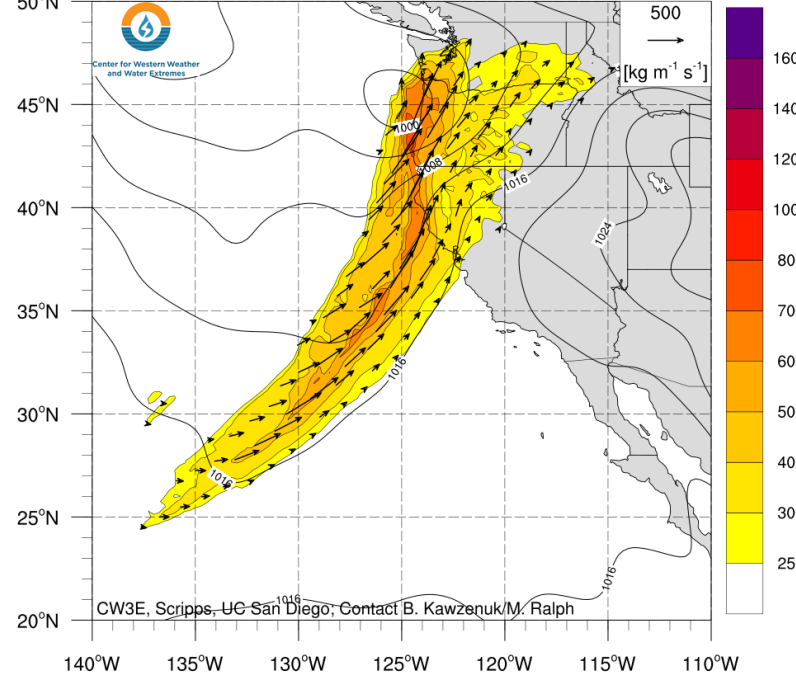
F-96 Valid: 1200 UTC 21 Dec

F-96 Valid: 1200 UTC 18–21 Dec

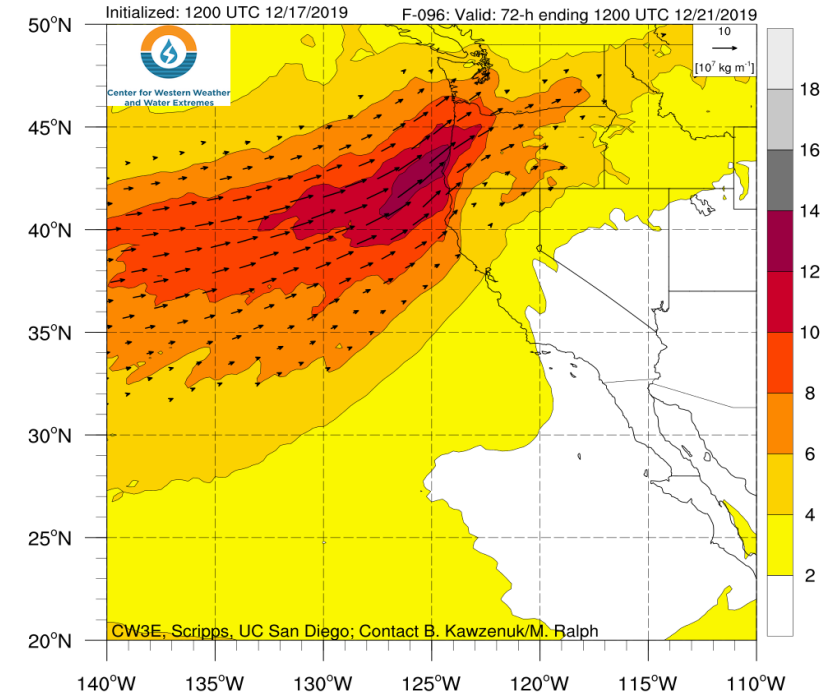
NCEP GFS IVT ($\text{kg m}^{-1} \text{s}^{-1}$; shaded), IVT Vector, and SLP (hPa; contours)
Initialized: 1200 UTC 12/17/2019 F-036: Valid: 0000 UTC 12/19/2019



NCEP GFS IVT ($\text{kg m}^{-1} \text{s}^{-1}$; shaded), IVT Vector, and SLP (hPa; contours)
Initialized: 1200 UTC 12/17/2019 F-096: Valid: 1200 UTC 12/21/2019



NCEP GFS 72-h Time-Integrated IVT (10^7 kg m^{-1}) and Vector



- A zonally elongated AR is expected to make landfall along the Oregon coast around 0000 UTC 19 Dec
- Over the following 48–72 hours, a series of frontal waves is forecast to propagate along the main AR axis, resulting in a prolonged period of enhanced moisture transport over coastal OR
- The last frontal wave is expected to develop into a weak surface low off the Oregon coast by 1200 UTC 21 Dec

AR Outlook: 17 Dec 2019

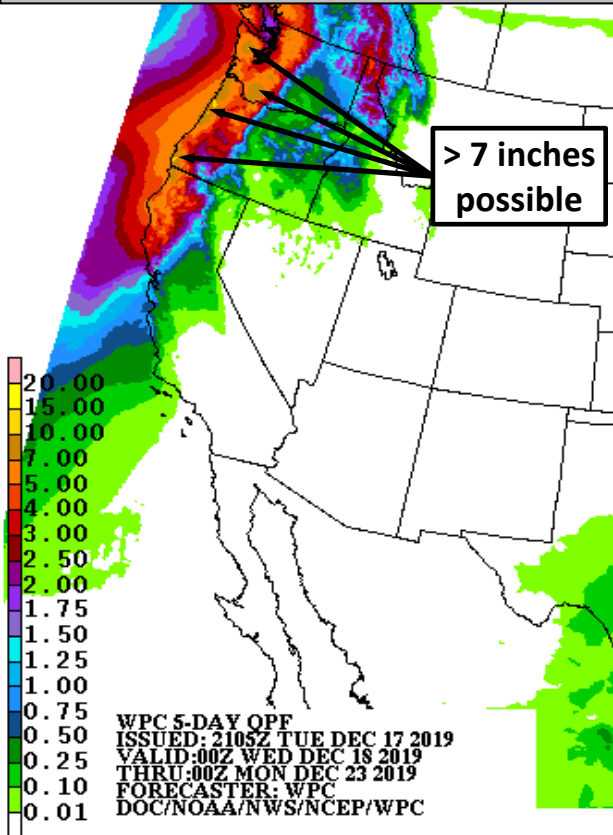
For California DWR's AR Program



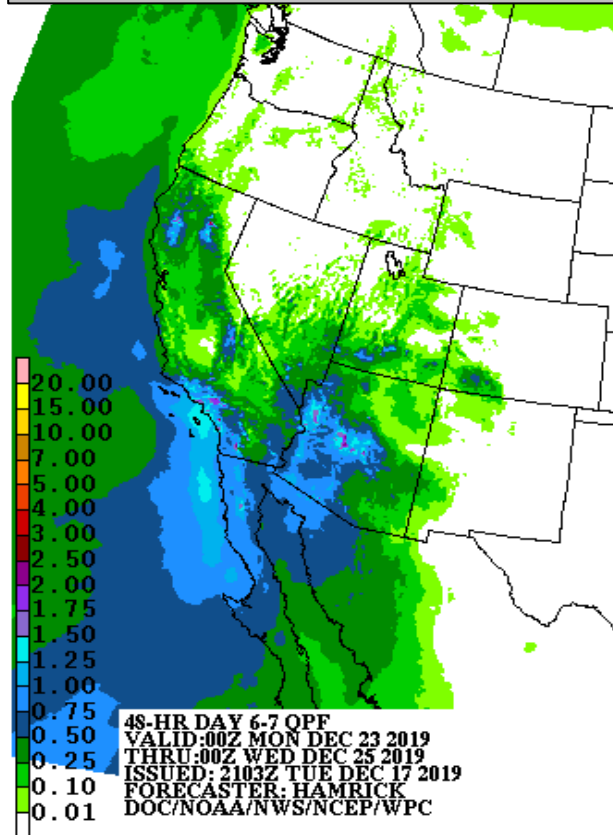
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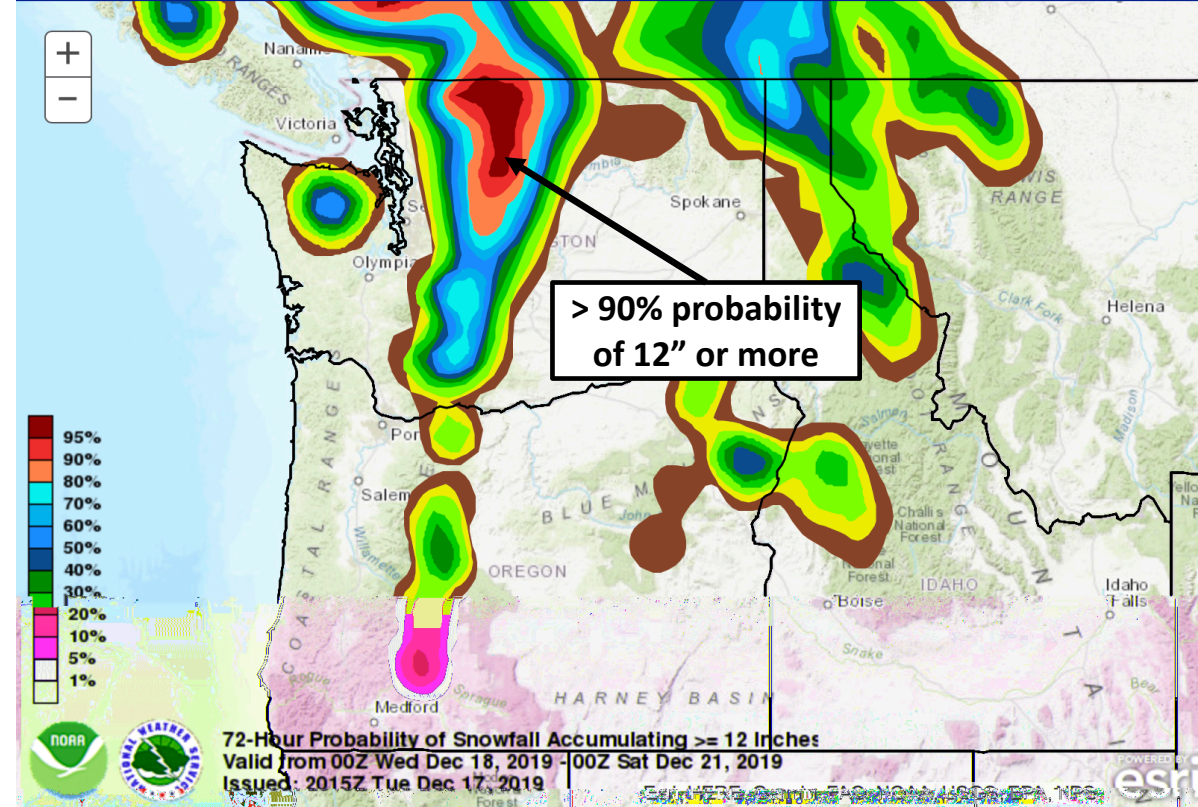
WPC 5-day QPF:
Valid 0000 UTC 18–23 Dec



WPC 48-hour QPF:
Valid 0000 UTC 23–25 Dec



72-Hour Probability of Snow Accumulating \geq 12"
Valid 00 UTC Wed December 18 through 00 UTC Sat December 21



Source: NOAA/NWS WPC, <https://www.wpc.ncep.noaa.gov/>

- At least 3–7 inches of precipitation are forecast over northwestern CA and much of western OR and WA by 0000 UTC 23 Dec
- Locally higher amounts are possible in the Oregon Coast Ranges, Olympic Mountains, and Cascade Mountains
- At least 12" of snowfall is expected over the North Cascades by 0000 UTC 21 Dec, with additional accumulating snow likely afterward
- Additional rainfall (0.5–1.5 inches) is currently forecast over Southern CA and AZ on 22–24 Dec in association with the second AR

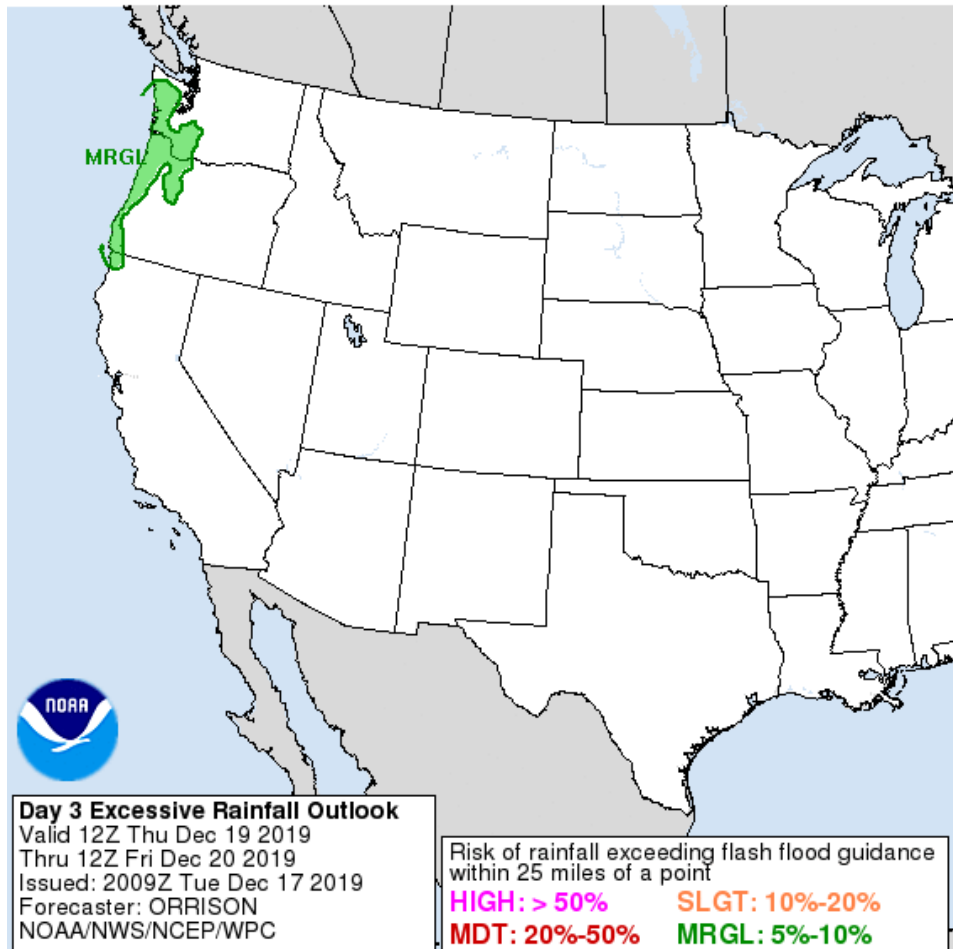
AR Outlook: 17 Dec 2019

For California DWR's AR Program

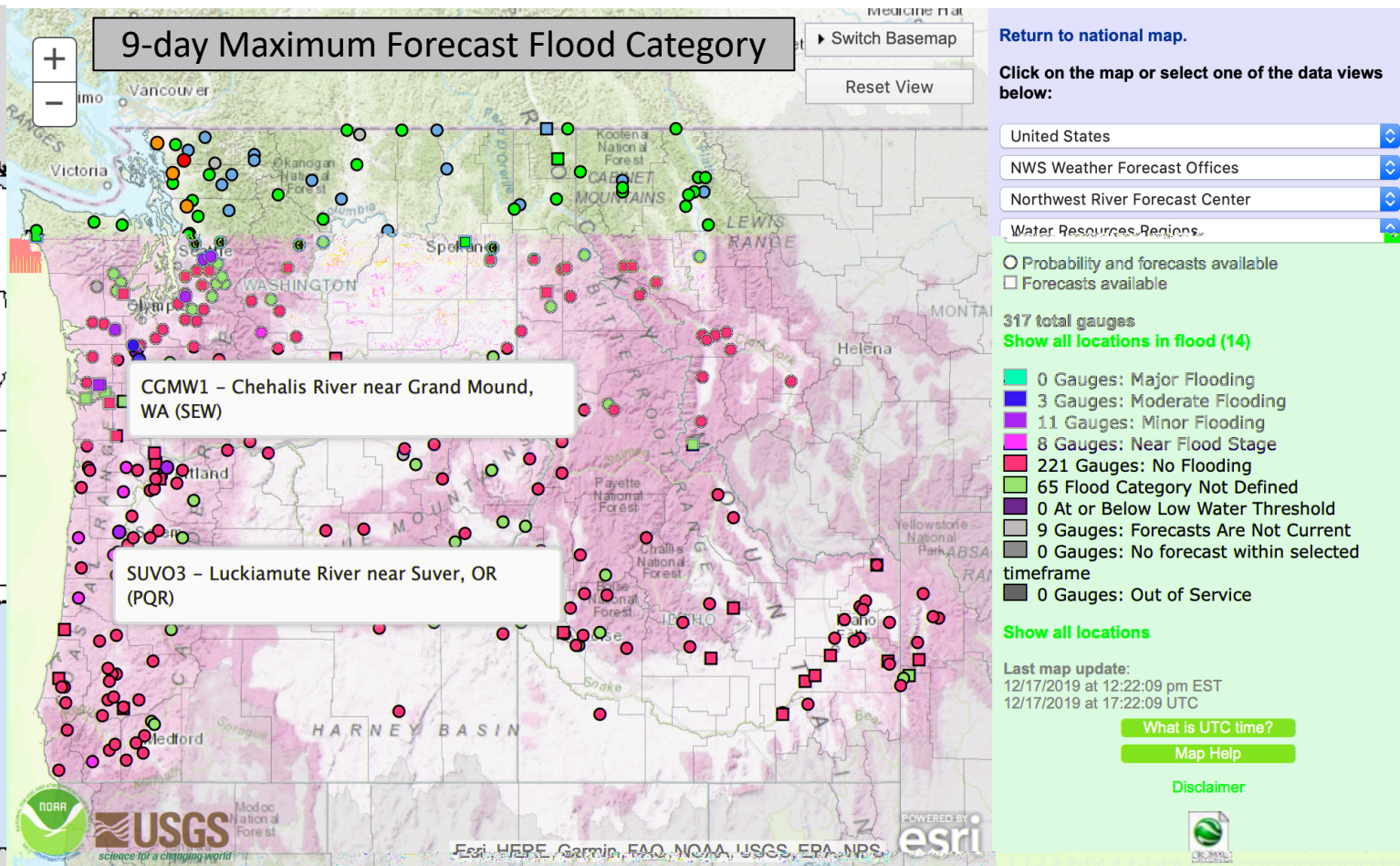


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Source: NOAA/NWS WPC, <https://www.wpc.ncep.noaa.gov/>



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

- WPC has issued an Excessive Rainfall Outlook for portions of western OR and WA
- Heavy rainfall, particularly over the Coast Ranges and Cascades, may produce downstream flood impacts at lower elevations

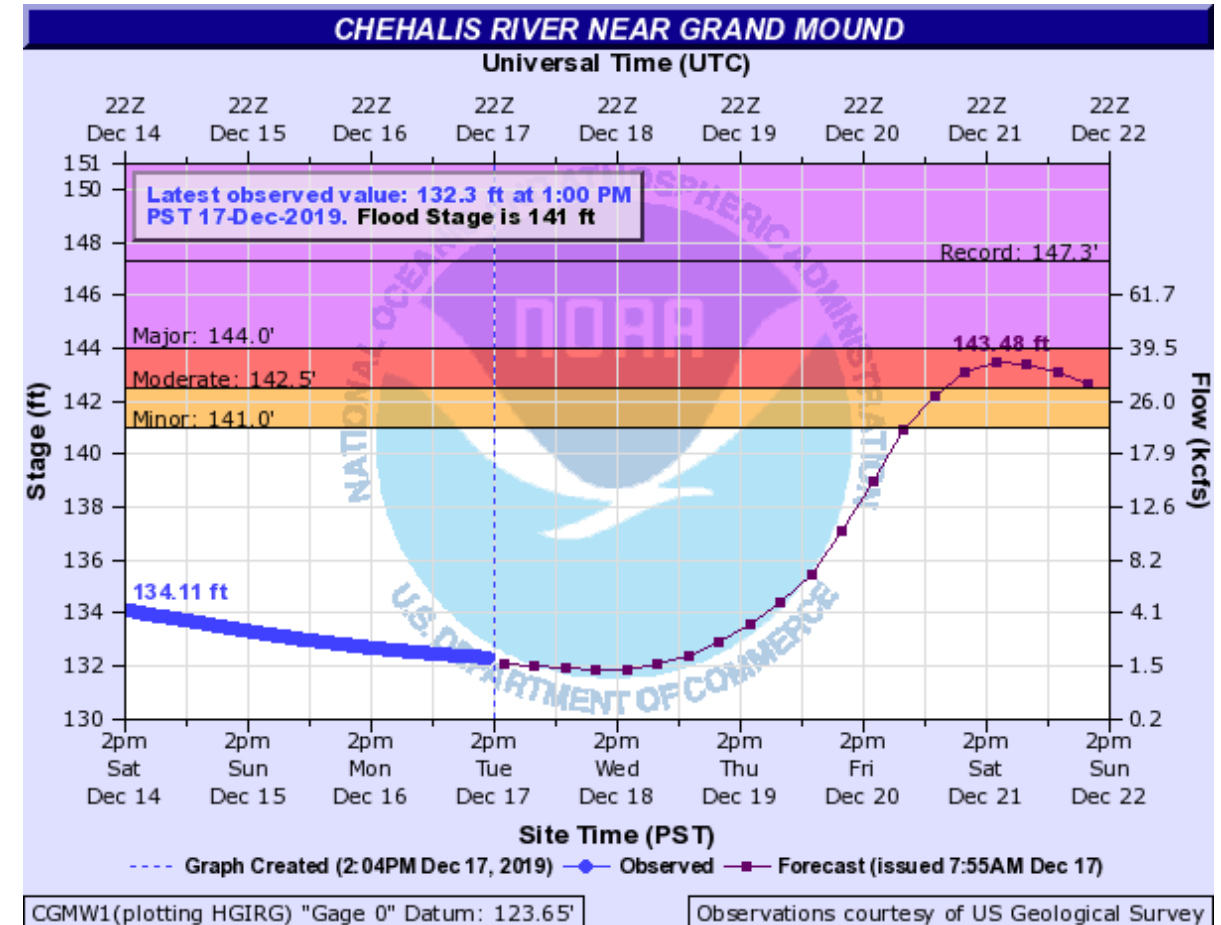
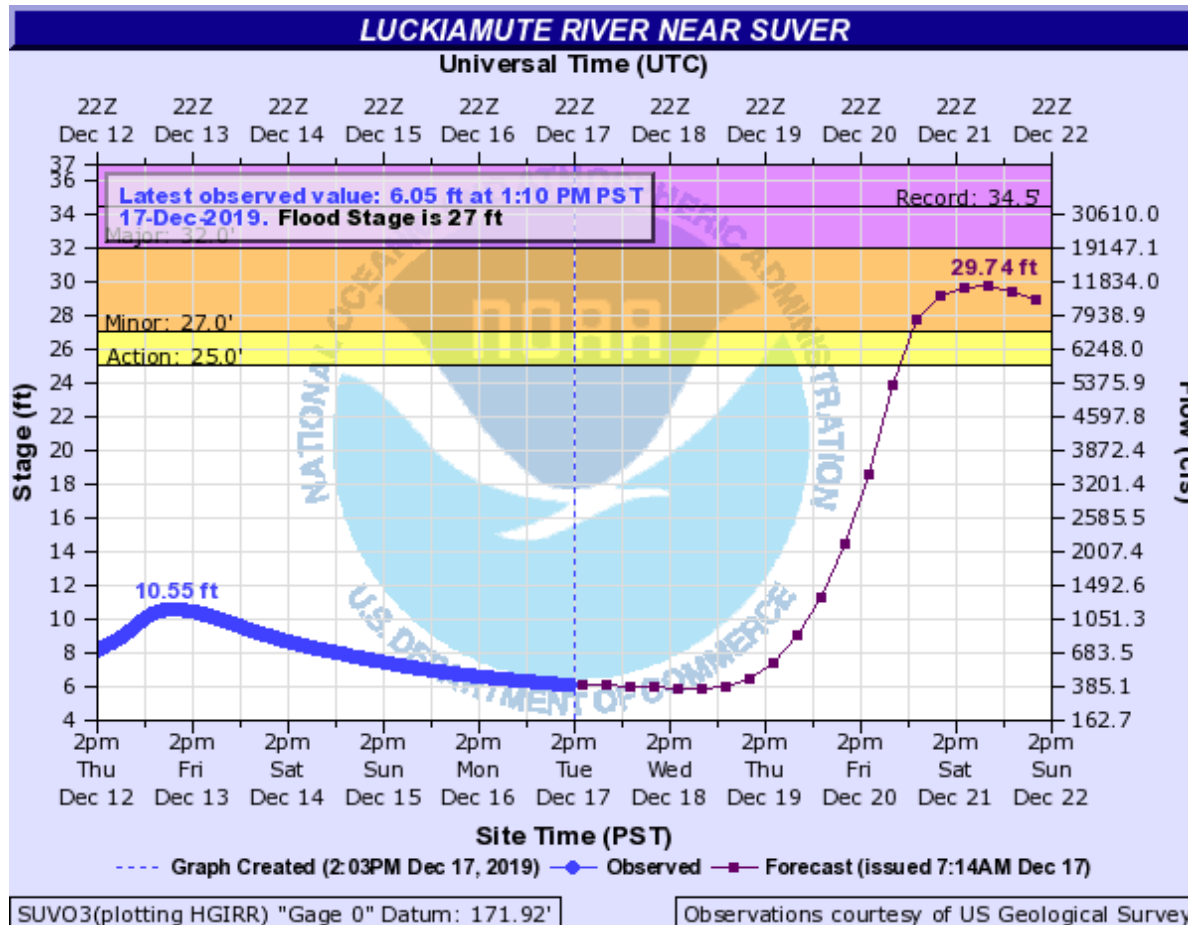
AR Outlook: 17 Dec 2019

For California DWR's AR Program



Center for Western Weather and Water Extremes

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Source: NOAA/NWS NWRFC, <https://www.nwrfc.noaa.gov/>

- The prolonged period of heavy rainfall, combined with rising snow levels, will result in significant increases in streamflow and stage height along rivers and tributaries in western Oregon and Washington
- NWRFC is anticipating minor-to-moderate river flooding in some locations on 21–22 Dec