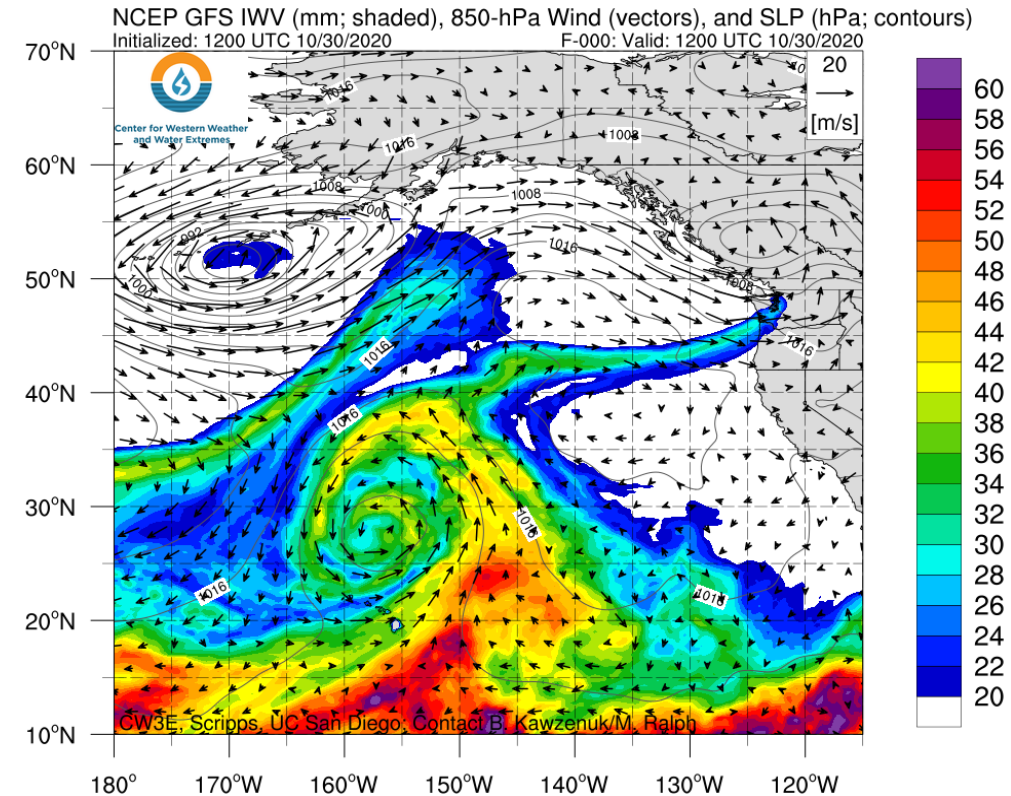
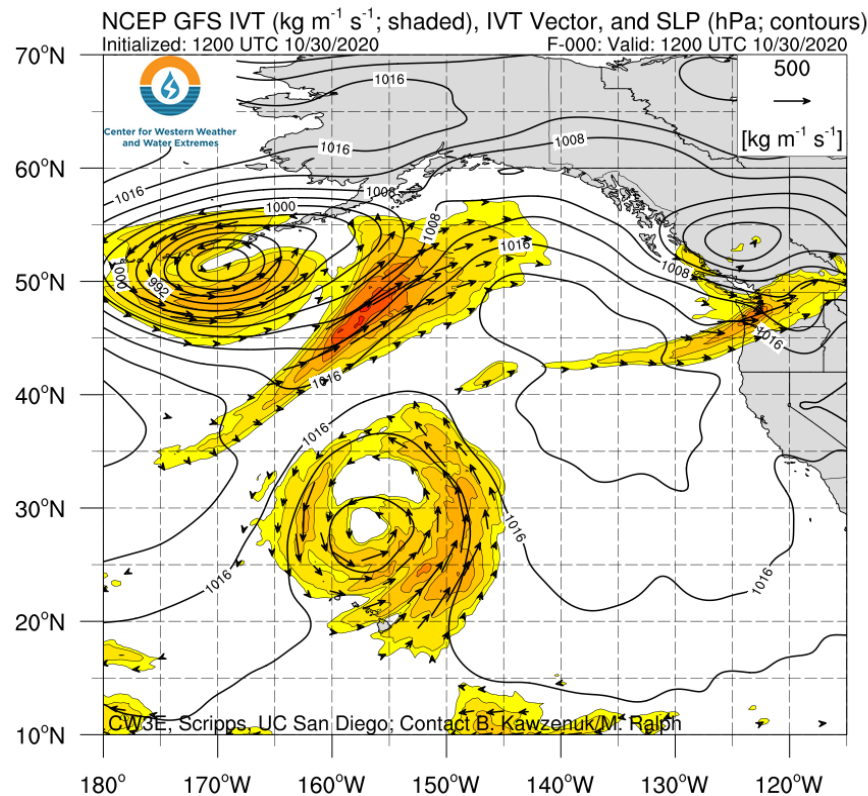


## Active weather pattern to bring landfalling AR activity and precipitation to the Pacific Northwest

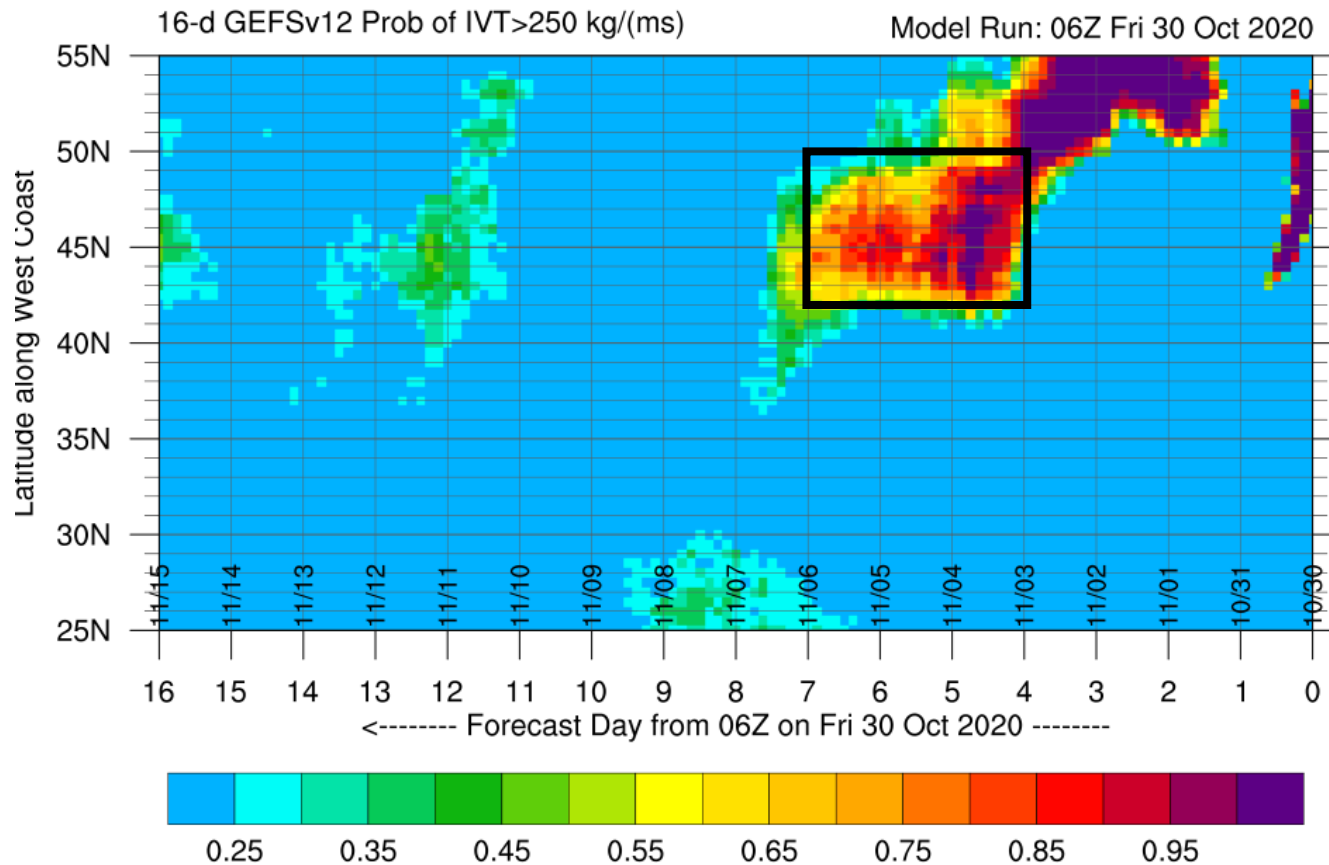
- A series of storms is forecast to produce a prolonged period of AR conditions across portions of Oregon and Washington next week
- Current forecasts suggest that AR 3/AR 4 conditions (based on the Ralph et al. 2019 AR Scale) are possible over coastal Oregon and Washington
- AR 2/AR 3 conditions are also possible over portions of interior Oregon and Washington
- 7-day precipitation totals may exceed 5 inches in the Olympic Mountains and North Cascades



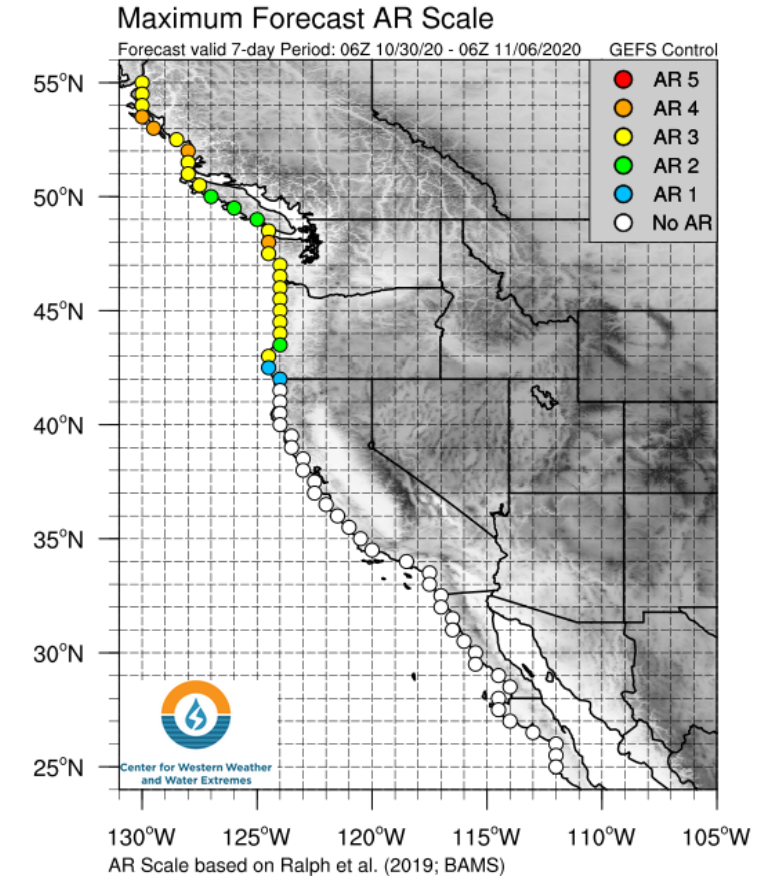
# AR Outlook: 30 Oct 2020

For California DWR's AR Program

## Probability of AR Conditions: Coastal Transect



## AR Scale: Coastal Transect



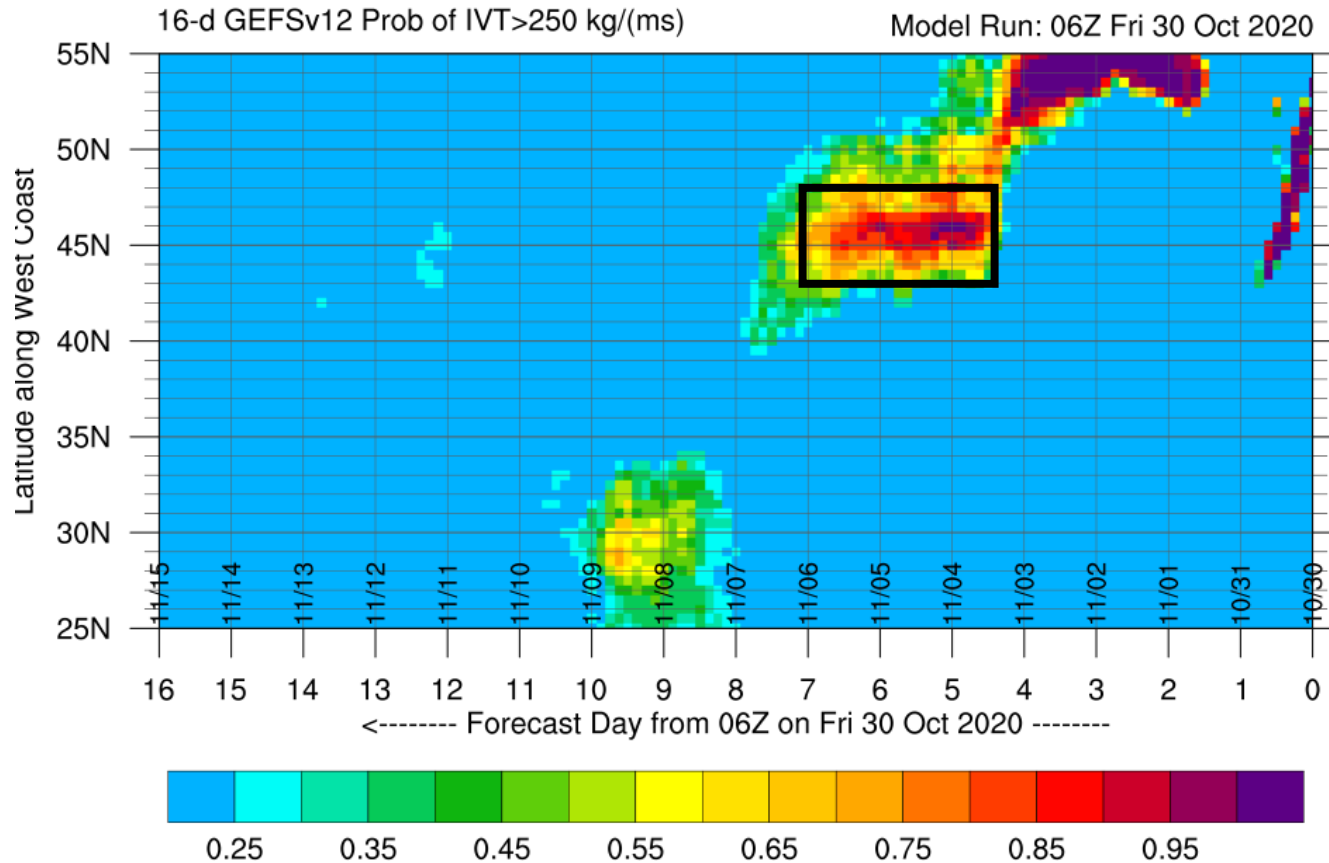
\*GEFS = NCEP Global Ensemble Forecast System (United States)

- GEFS coastal AR landfall tool shows a long period with high confidence (> 70% probability) in AR conditions ( $IVT \geq 250 \text{ kg m}^{-1} \text{ s}^{-1}$ ) between northern Oregon and southern British Columbia starting on 3 Nov
- The GEFS control member is currently predicting a long-duration (> 48 h) AR over coastal Oregon and Washington, with AR 3/AR 4 conditions possible in some locations (based on the Ralph et al. 2019 AR Scale)

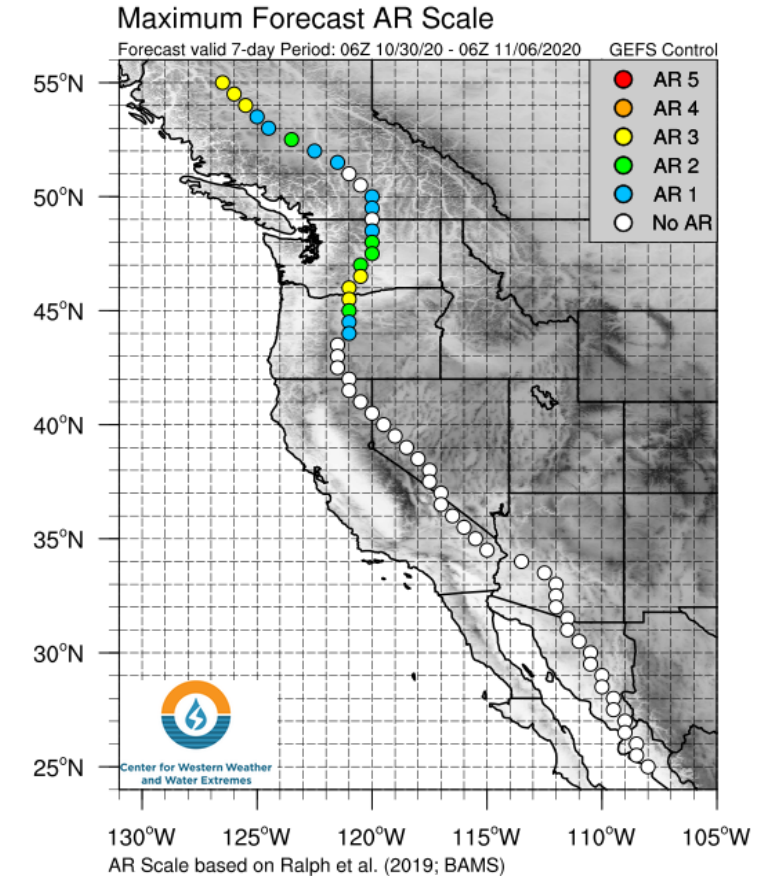
# AR Outlook: 30 Oct 2020

For California DWR's AR Program

## Probability of AR Conditions: Inland Transect



## AR Scale: Inland Transect



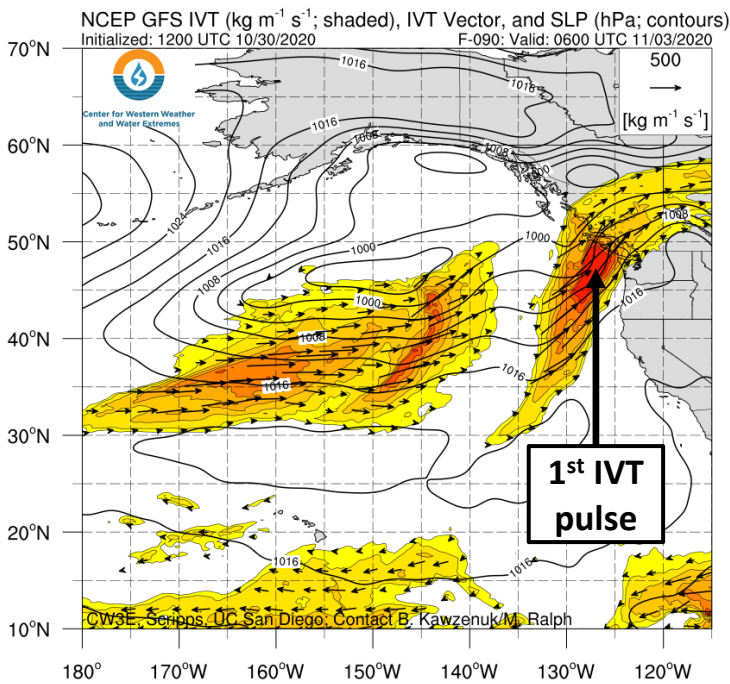
- GEFS inland AR landfall tool also shows high confidence (> 70%) in a period of AR conditions over interior portions of the Pacific Northwest
- The GEFS control member is currently predicting AR 2/AR 3 conditions in north-central Oregon and south-central Washington

# AR Outlook: 30 Oct 2020

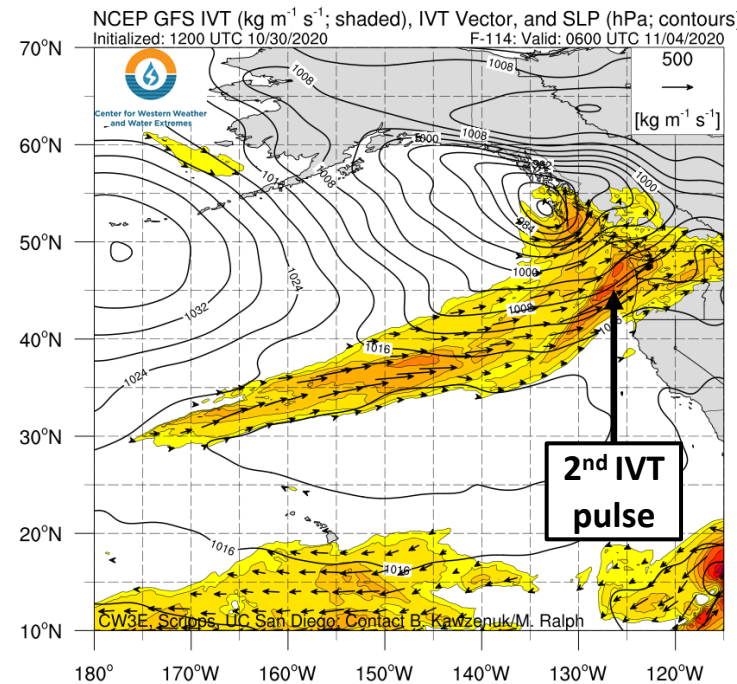
For California DWR's AR Program

## GFS IVT & SLP Forecasts

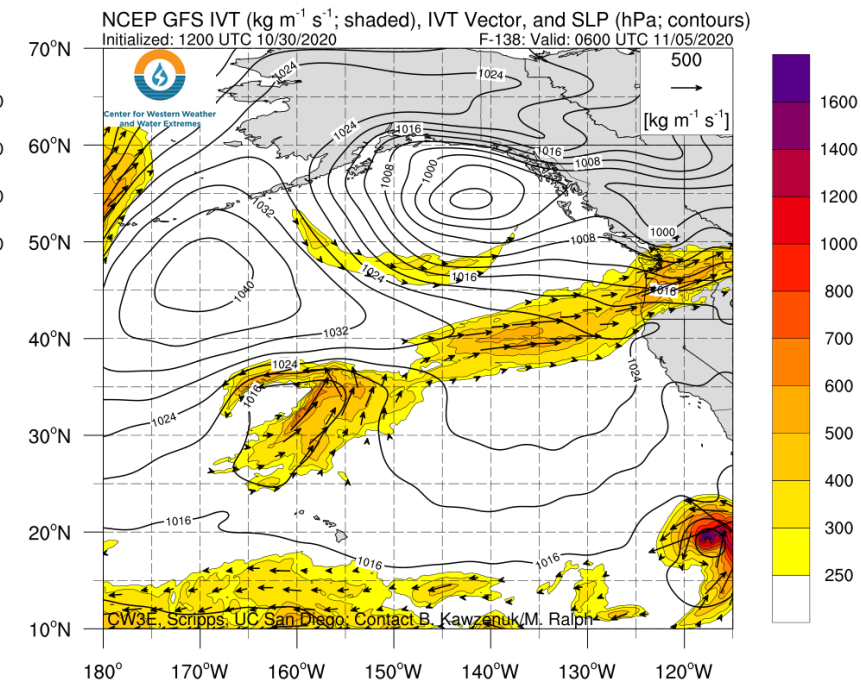
A) Valid: 0600 UTC 3 Nov (F-90)



B) Valid: 0600 UTC 4 Nov (F-114)



C) Valid: 060 UTC 5 Nov (F-138)



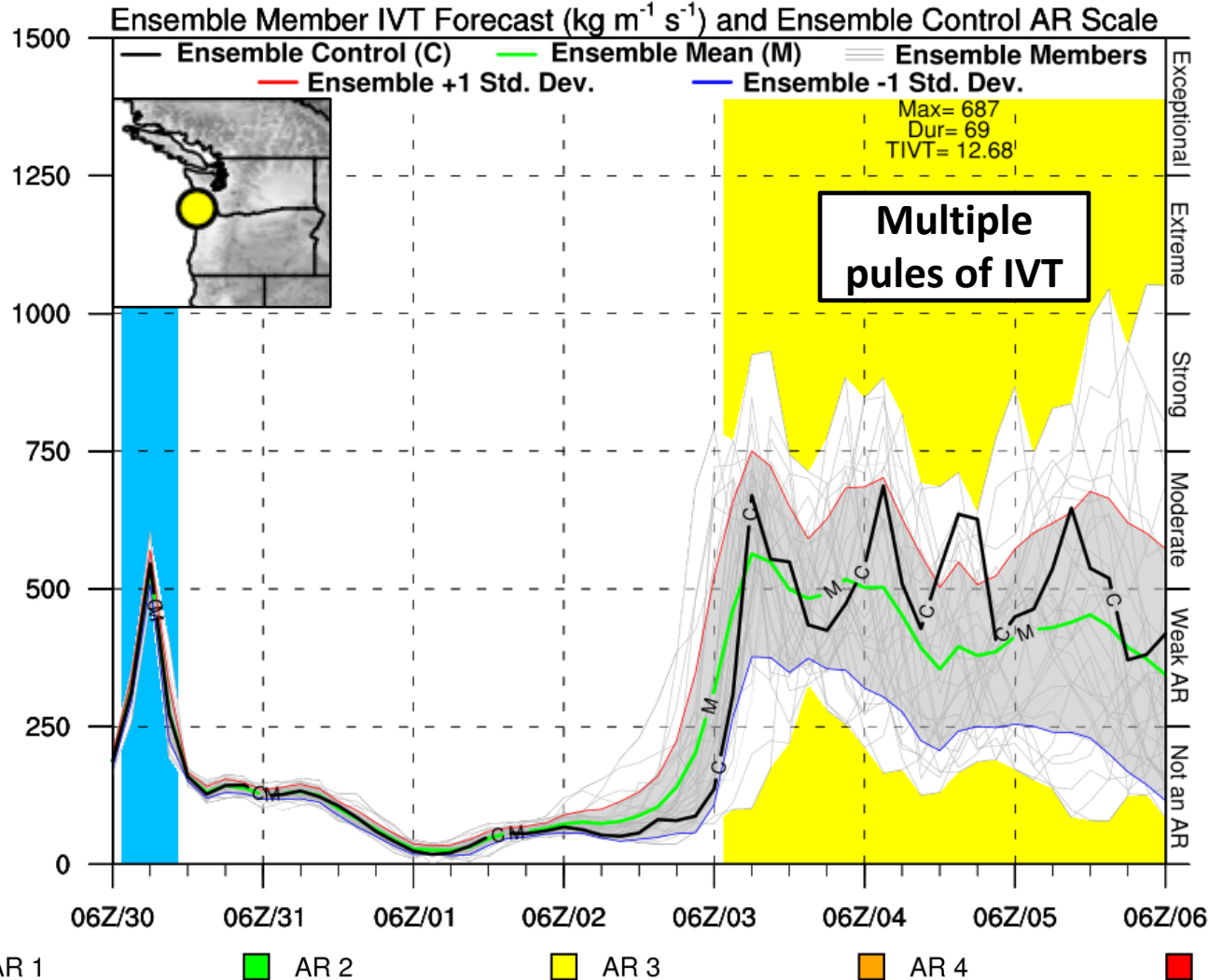
- Landfalling AR activity over Oregon and Washington will be associated with a series of storms that are forecast to develop over the Northeast Pacific Ocean and move northeastward in rapid succession
- The first IVT pulse will be associated with a weakening AR downstream of a decaying surface cyclone over the Gulf of Alaska (Figure A)
- The second IVT pulse will be associated with a second surface cyclone that is forecast to strengthen as it approaches southeastern Alaska and British Columbia (Figure B)
- AR conditions are forecast to persist across Oregon and Washington after the second cyclone moves onshore and weakens (Figure C)

# AR Outlook: 30 Oct 2020

For California DWR's AR Program

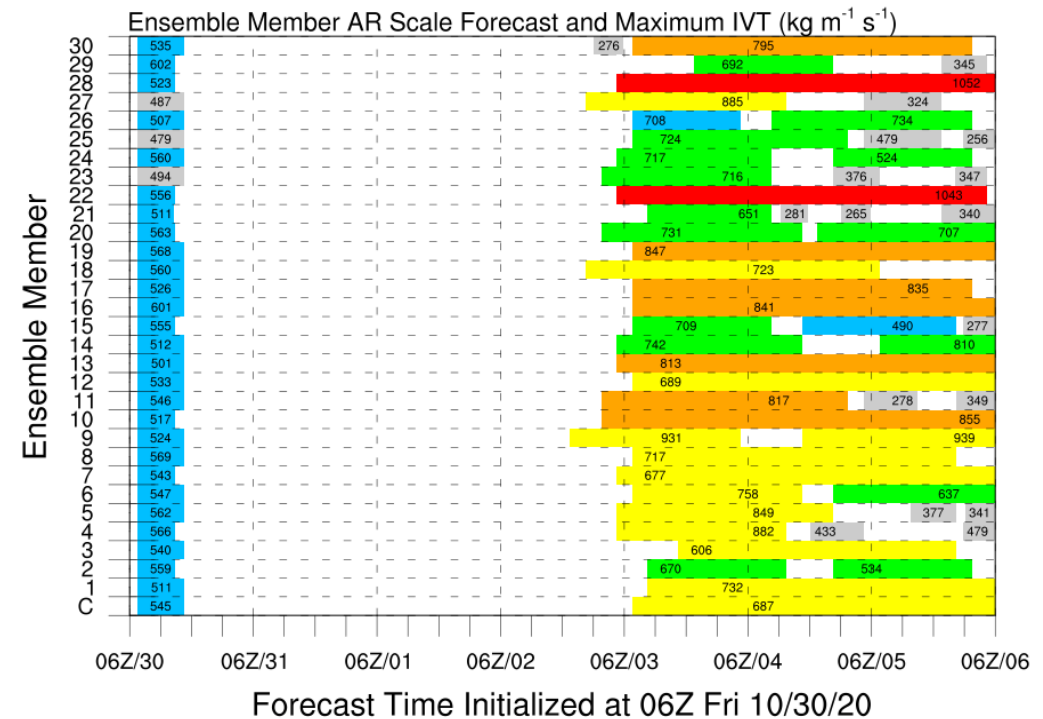
## GEFS AR Scale & IVT Forecasts

GFS Ensemble Initialized: 06Z Fri 10/30/20



Categorical AR Strength by Ralph/CW3E

- The GEFS IVT forecast plumes show multiple pules of IVT between 3 and 6 Nov
- The GEFS control member is currently forecasting a maximum IVT of 687 and at least 69 h of continuous AR conditions [AR 3 based on the Ralph et al. (2019) AR Scale] at  $46^\circ\text{N}$ ,  $124^\circ\text{W}$  (near the OR/WA border)
- There is considerable uncertainty in IVT magnitude and AR duration, but 21/31 (68%) ensemble members are currently predicting an AR 3 or greater

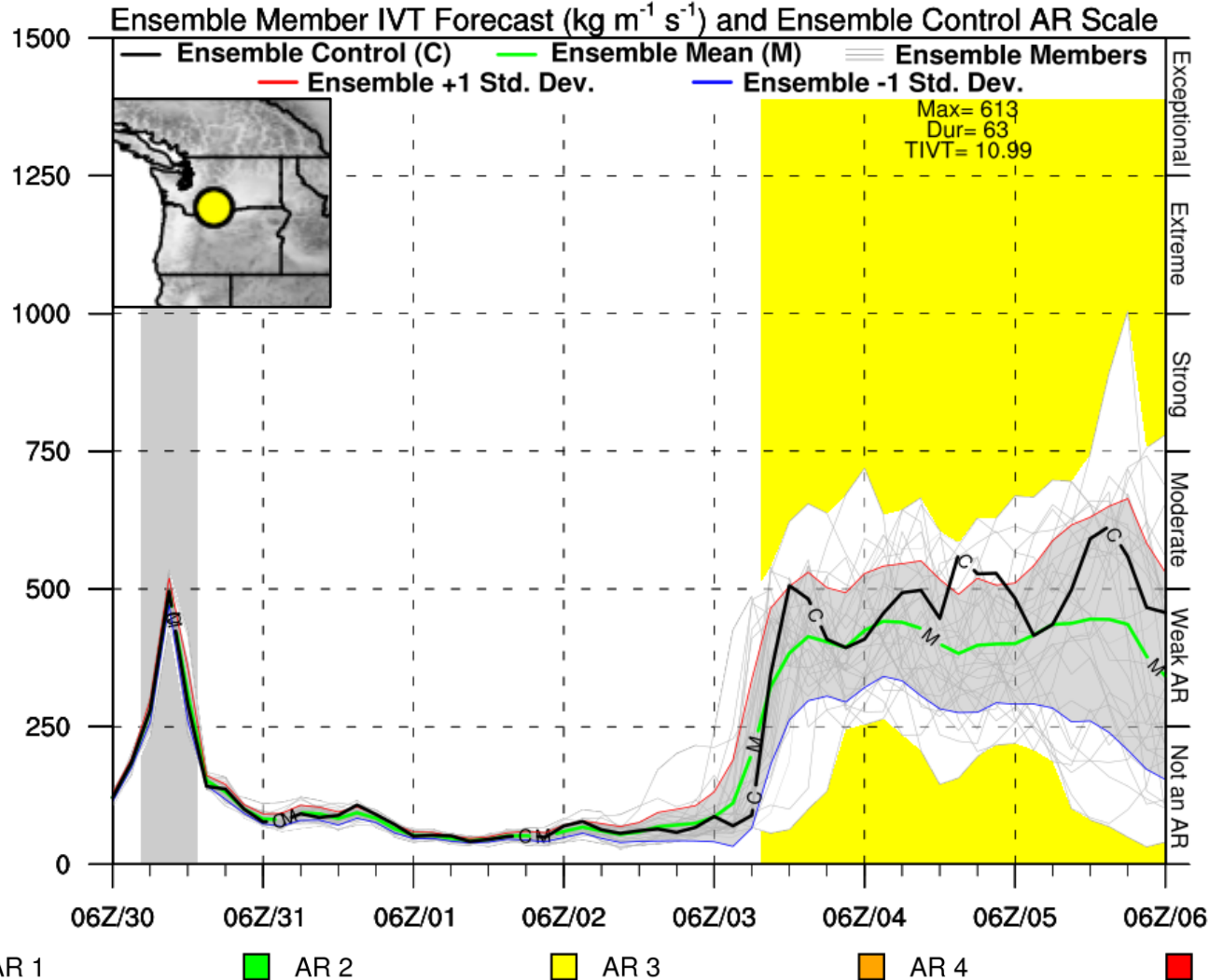


# AR Outlook: 30 Oct 2020

For California DWR's AR Program

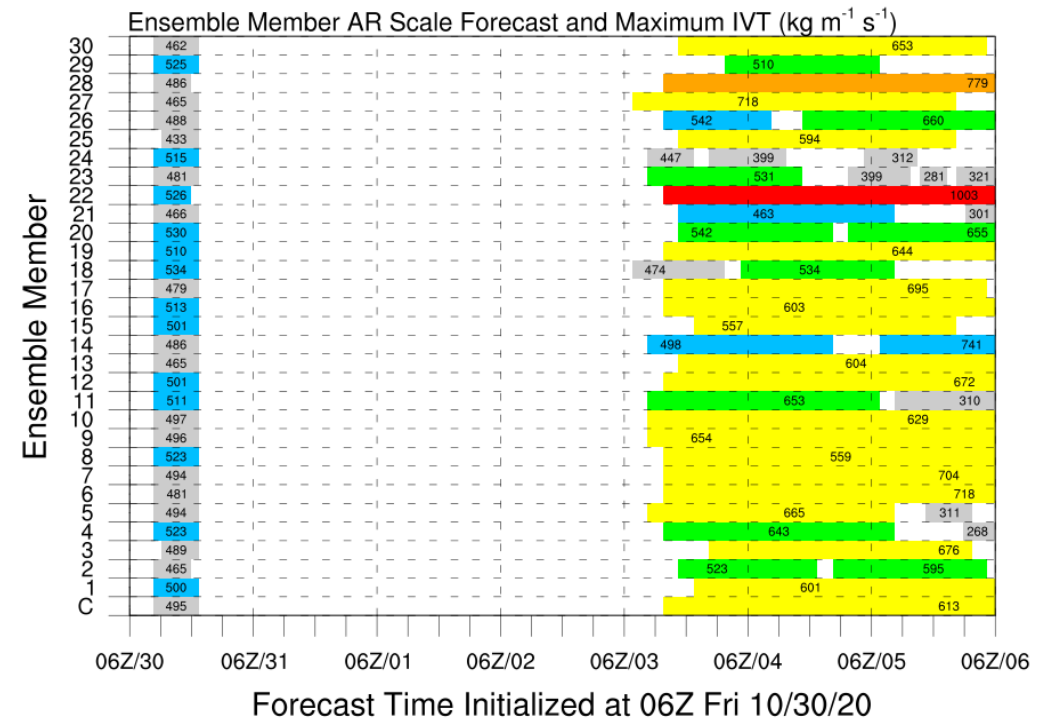
## GEFS AR Scale & IVT Forecasts

GFS Ensemble Initialized: 06Z Fri 10/30/20



Categorical AR Strength by Ralph/CW3E

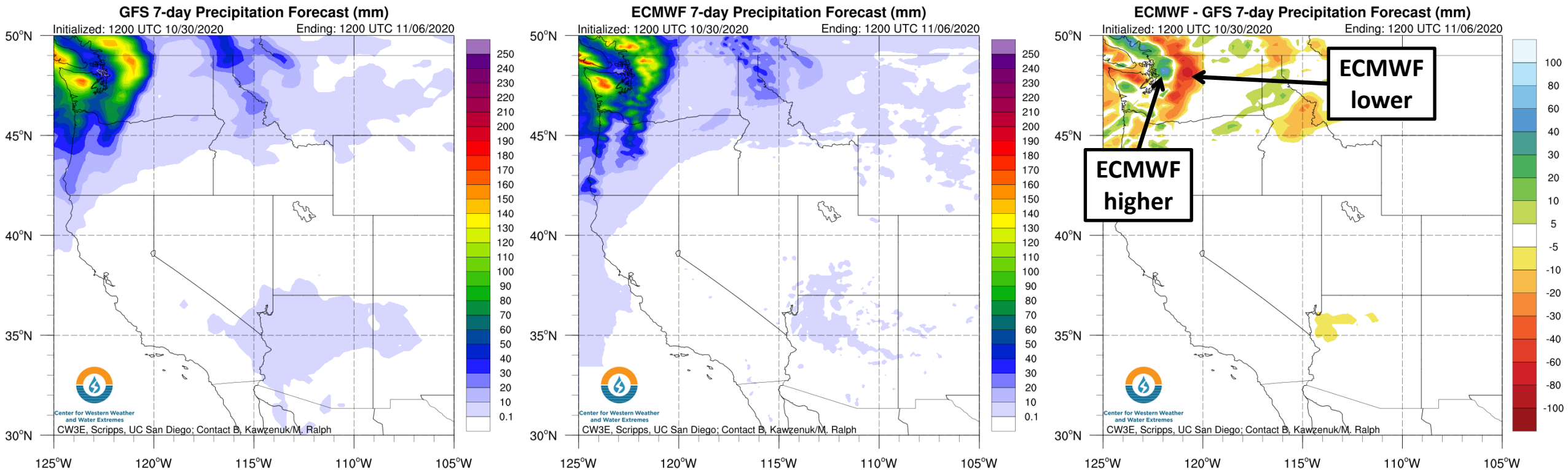
- The GEFS IVT forecast plumes also suggest that interior portions of the Pacific Northwest will experience a prolonged period of AR conditions
- AR 3 conditions are currently forecast at  $46^\circ\text{N}$ ,  $121^\circ\text{W}$  (south-central WA)
- There is some uncertainty in IVT magnitude and AR duration, but more than 50% (18/31) of ensemble members are predicting AR 3 conditions



# AR Outlook: 30 Oct 2020

For California DWR's AR Program

## Model 7-day QPF: Valid 1200 UTC 30 Oct – 6 Nov



\*GFS = NCEP Global Forecast System (United States)

\*ECMWF = European Center for Medium-Range Weather Forecasts (Europe)

- GFS and ECMWF are both forecasting at least 2–5 inches of precipitation across much of western Washington and extreme northwestern Oregon during the next 7 days, with higher amounts possible over the Olympic Mountains and North Cascades
- Lighter precipitation amounts are forecast over the Rocky Mountains in northern Idaho and northwestern Montana
- The ECMWF is currently forecasting higher precipitation amounts in the western foothills of the North Cascades, and lower precipitation along the crest and eastern slopes of the Washington Cascades