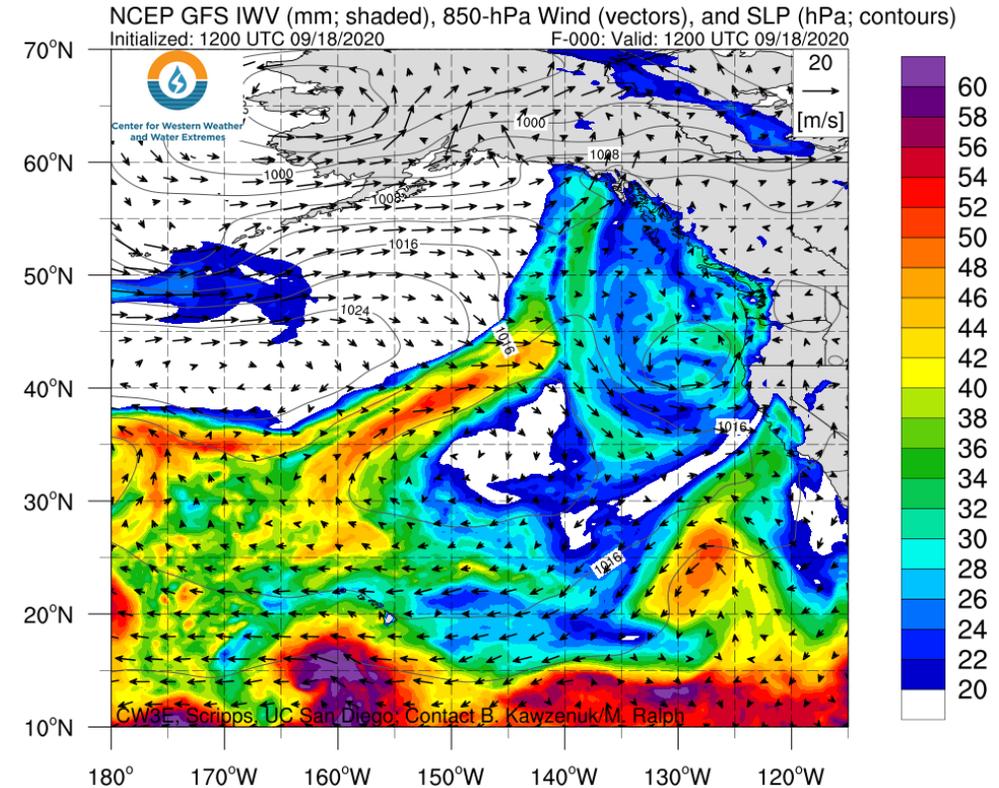
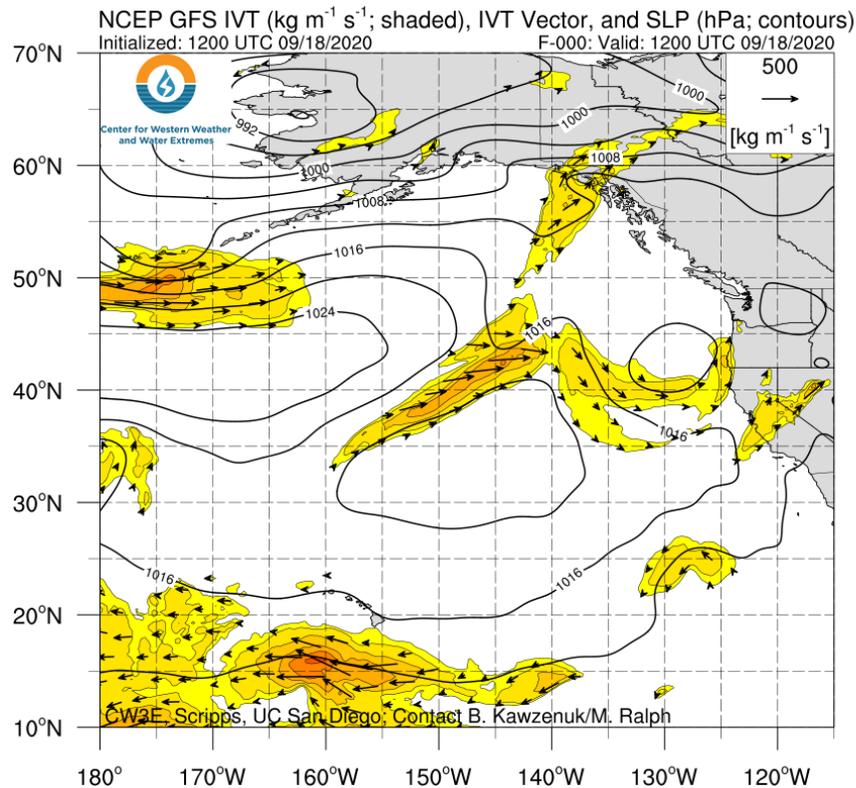




A Potentially Strong Atmospheric River Could Douse the Pacific Northwest Next Week

- Model forecasts are currently indicating the potential for a strong AR to make landfall over the PNW next week, but large ensemble spread in IVT forecasts is leading to **considerable uncertainty** in AR Scale (ranging from no AR to AR 5 in some locations)
- Forecasts of maximum IVT magnitude over the Washington Coast range from $< 400 \text{ kg m}^{-1} \text{ s}^{-1}$ to $> 1200 \text{ kg m}^{-1} \text{ s}^{-1}$.
- While forecast uncertainty is currently high, more than 4 inches of precipitation are possible over the Olympic Peninsula during the next 7 days (**Note: the 7-day forecast may not encompass the entirety of this event**)



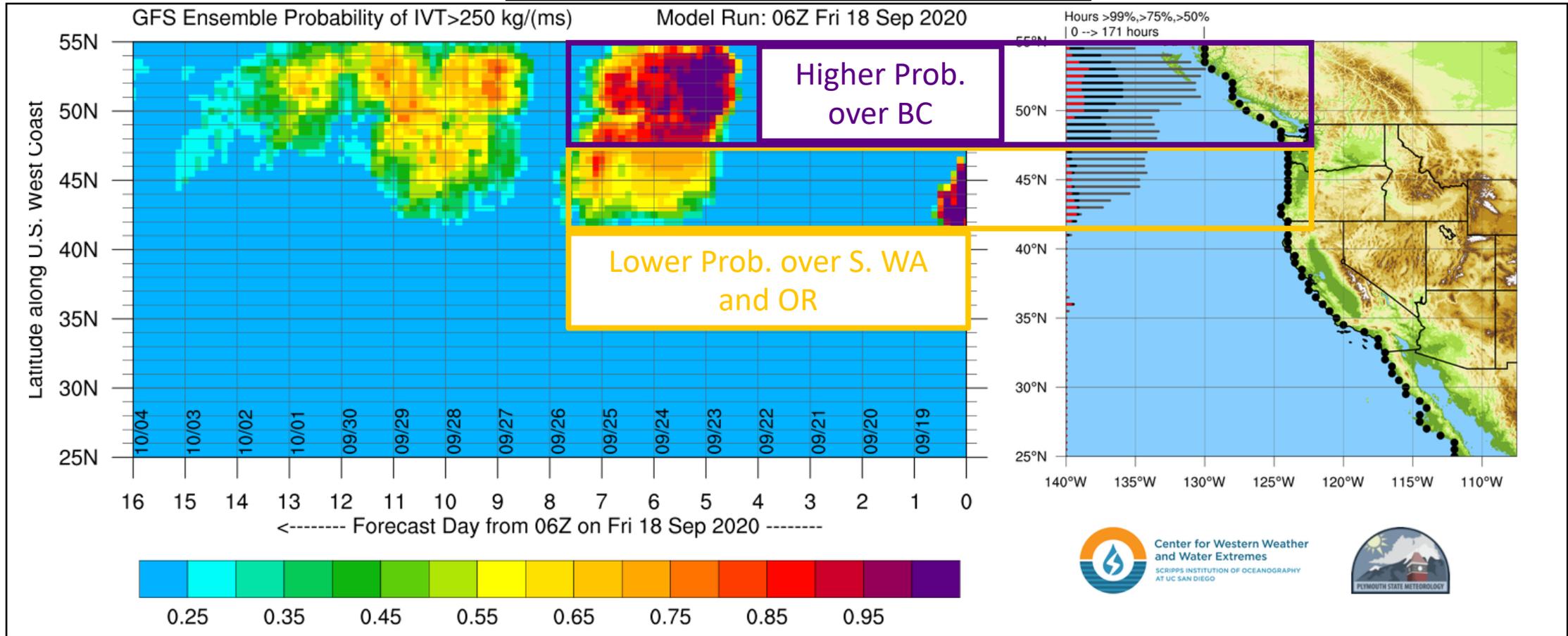
AR Outlook: 18 Sep 2020

For California DWR's AR Program



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Probability of AR Conditions Along Coast



- The GEFS is currently forecasting high ensemble probabilities (>95% of GEFS ensemble members) of at least weak AR conditions over British Columbia and lower ensemble probabilities (40–75%) over Coastal Washington and Oregon
- There is also considerable uncertainty in the probability of AR condition duration associated with this AR
- There is an additional period of higher probabilities of AR activity between days 8 and 14, but uncertainty is even higher

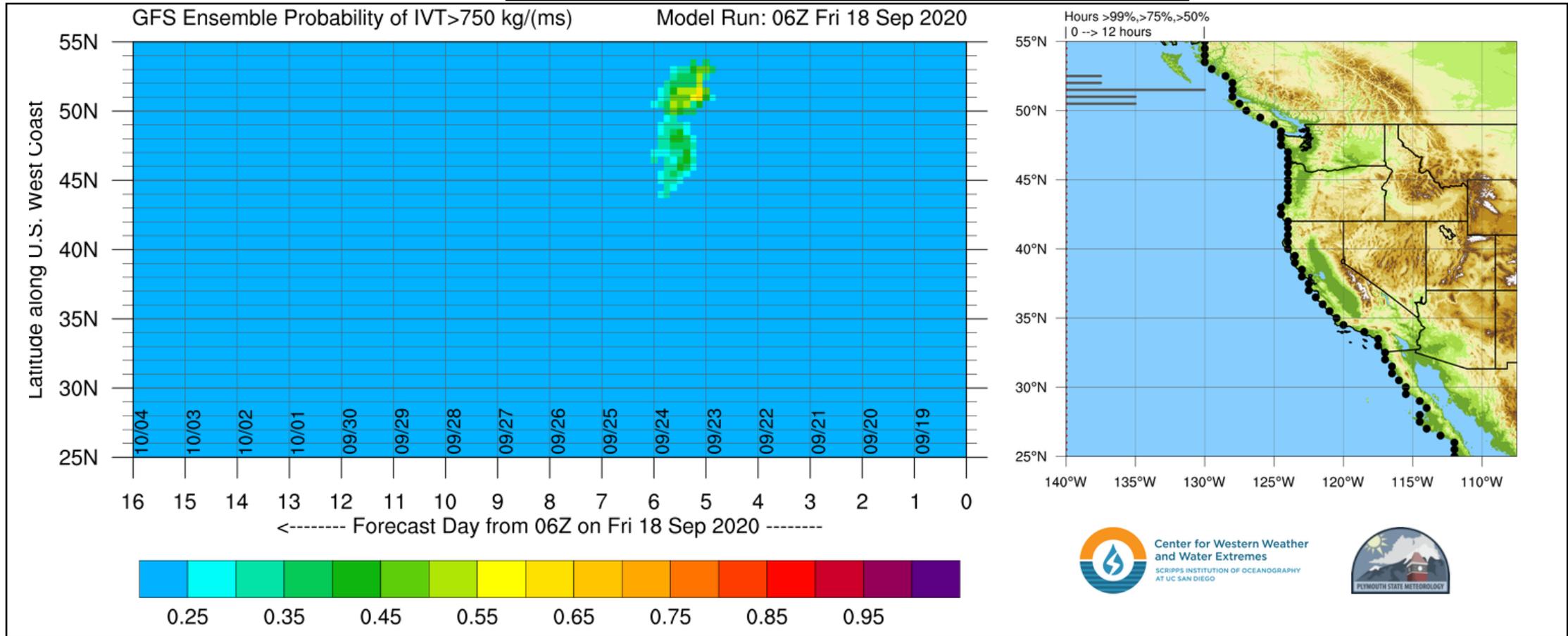
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Probability of Strong AR Conditions Along Coast



- The GEFS is currently forecasting ~60% ensemble probability of strong AR conditions (IVT > 750 kg m⁻¹ s⁻¹) over Coastal BC
- Probabilities of strong AR conditions over the Pacific Northwest of the U.S. range from 25% to 45%

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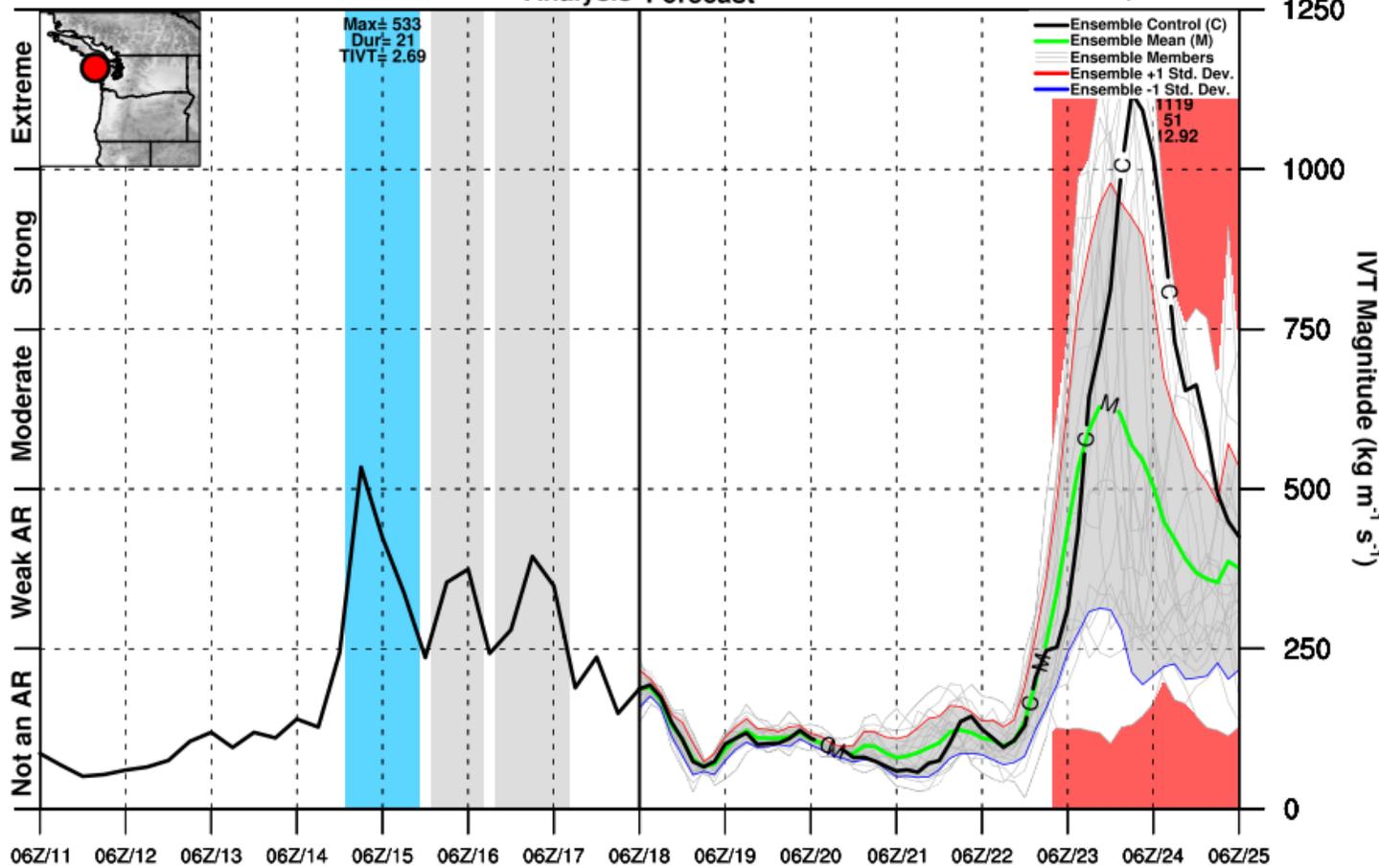
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GEFS AR Scale & IVT Forecasts

GEFS AR Scale & IVT Analysis/Forecast Initialized 06Z Fri 09/18/20

Analysis Forecast

Location: 48N, 124.5W



Analysis and Forecast Time Centered on 06Z Fri 09/18/20

AR 1 AR 2 AR 3 AR 4 AR 5

- 06Z GEFS control run is currently predicting an AR5 (max IVT > 1000 m⁻¹ s⁻¹; AR duration > 48 hours) over the Olympic Peninsula based on the Ralph et al. (2019) AR Scale
- Given the forecast lead time (5–6 days), there is still considerable uncertainty in the magnitude and duration of AR conditions
- The individual GEFS members exhibit a wide range of possibilities in AR Scale, but more than 50% are currently predicting an AR4 or AR5

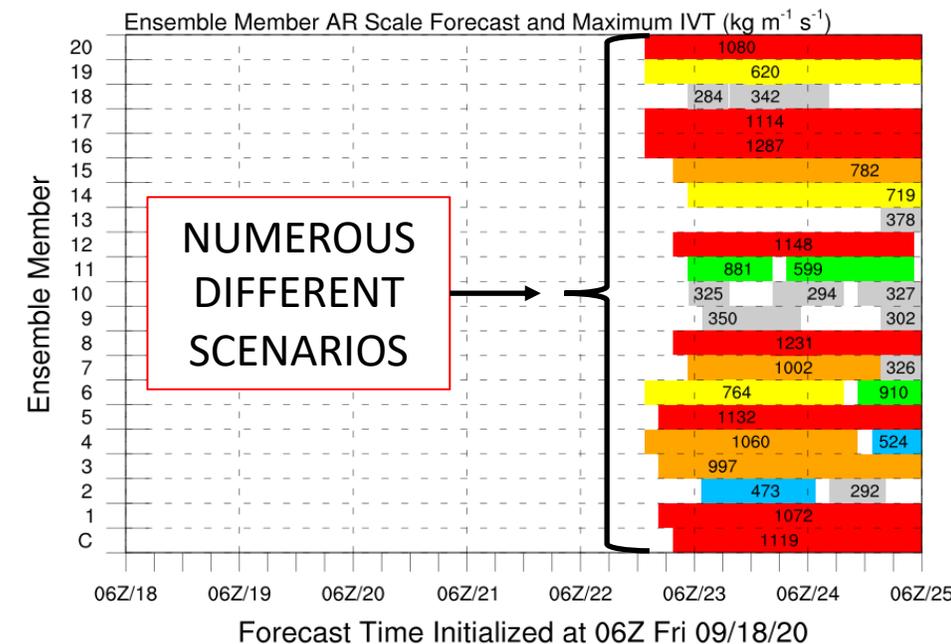


Image created: 15 UTC 09/18/2020

More information: <http://cw3e.ucsd.edu> AR Scale based on Ralph et al. (2019; BAMS), contact M. Ralph

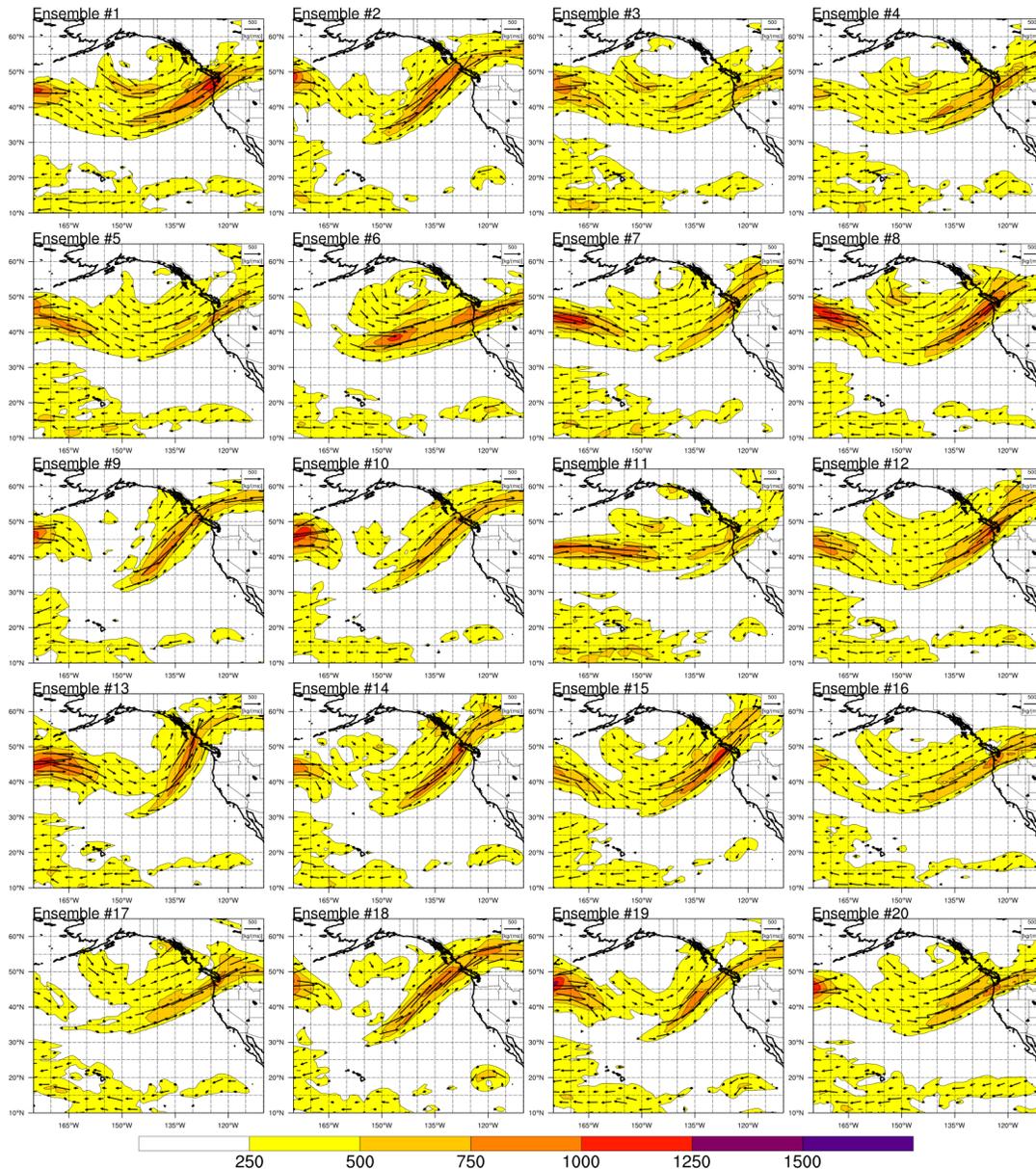
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GFS Ensemble IVT [kg/(ms)] valid 6Z Thu 09/24/20 | F+144h



- The source of uncertainty in forecast IVT and AR Scale over the Pacific Northwest is captured by the GFS Ensemble IVT thumbnail plots (valid at 06Z 24 Sep)
- The GFS ensemble shows two general possibilities: 1) the core of the AR (highest IVT values) makes landfall over coastal Washington, and 2) the core of the AR makes landfall over British Columbia
- The first pattern would result in a higher AR Scale and more significant precipitation impacts over the Pacific Northwest
- Additionally, there are large differences in the forecast magnitude of IVT within the core of the AR

AR Outlook: 18 Sep 2020

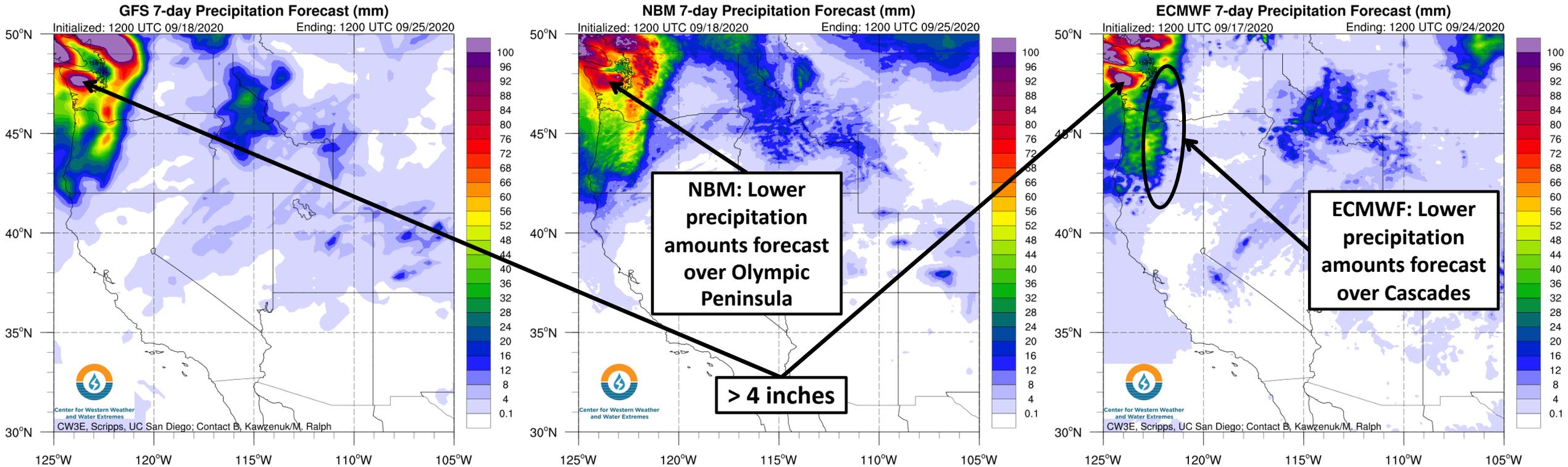
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WPC & Model 7-day QPF: Valid 1200 UTC 18–25 Sep



*GFS = NCEP Global Forecast System (United States)

*NBM = National Blend of Models (Blend of NWS and non-NWS models)

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

- GFS, NBM, and ECMWF are all forecasting at least 1–4 inches of precipitation across western Washington and Oregon during the next 7 days, with the heaviest precipitation expected over the Olympic Peninsula
- The NBM is currently forecasting lower precipitation amounts over the Olympic Peninsula than the GFS and ECMWF
- The ECMWF is currently forecasting lower precipitation amounts over the Cascades than the GFS and NBM

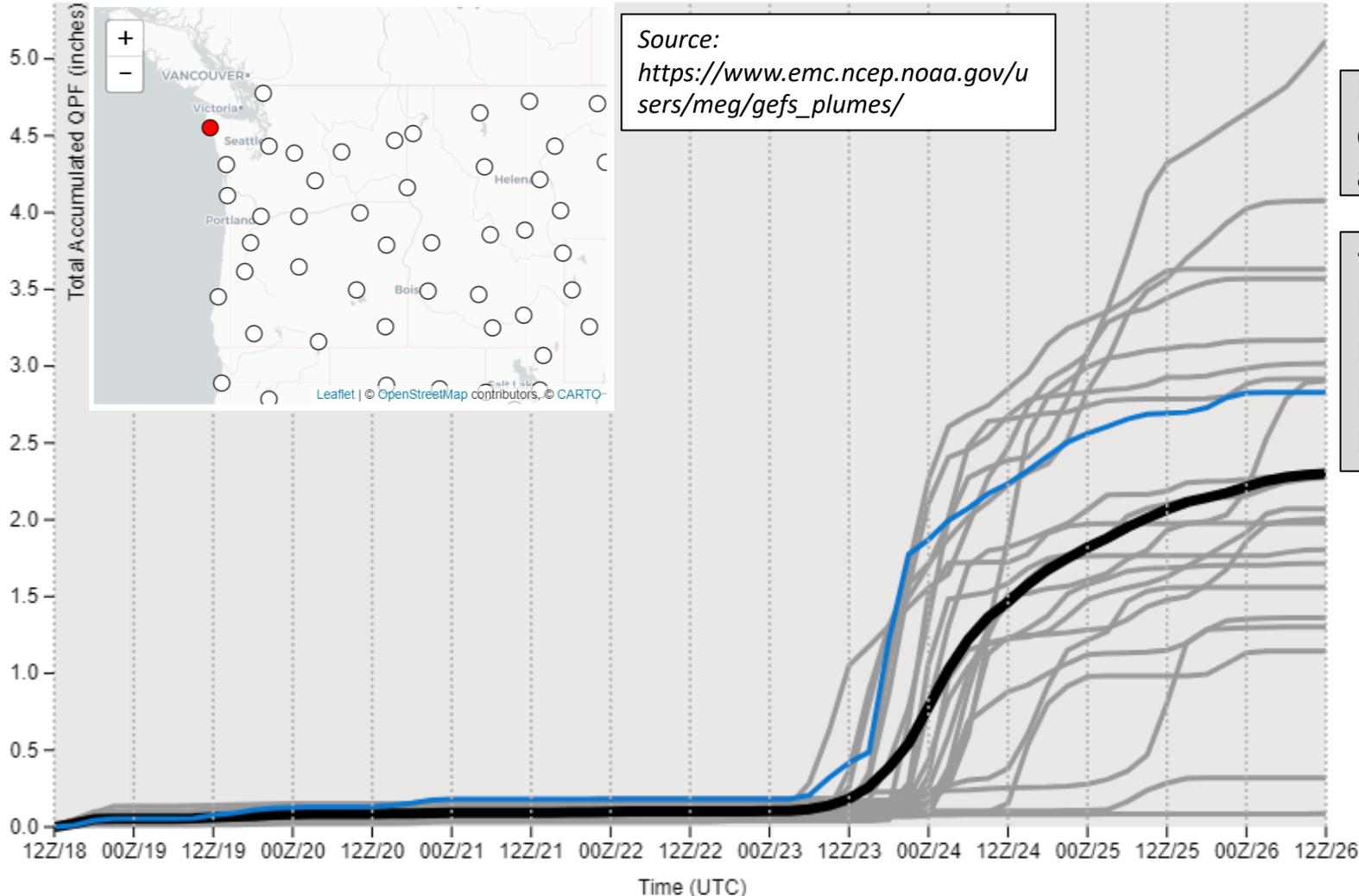
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EMC's GEFS plumes for: KUIL
12 UTC 18 September 2020 cycle



Ensemble forecasts of accumulated precipitation continue to highlight the large uncertainties associated with this event's forecast

7-Day Precipitation Accumulations
Ensemble Max: 5.12 inches
Deterministic: 2.83 inches
Ensemble Mean: 2.3 inches
Ensemble Minimum: 0.09 inches

About the plumes: Data for each station is interpolated from a 0.5-degree grid for both the GEFS (gray lines for control and perturbed members; black for mean) and GFS (blue line), though the native resolution of the GFS is ~13 km vs ~33 km in the GEFS. The precipitation-type plot uses the closest gridpoint to each station as opposed to interpolation and does not contain a trace for the GFS. In the 3-h accumulation plots, F00 values are derived from the previous cycle's forecast. All observed data are derived from hourly station reports. Zoom for more CONUS stations.

This site is not operational; therefore, data will be missing occasionally. The contact for this site is: alicia.bentley@noaa.gov

AR Outlook: 18 Sep 2020

As mentioned in the previous outlooks, there are numerous wildland fires burning across the Western U.S.

Large Fires Currently Burning

- Oregon: 12
- Washington: 8

While current precipitation forecasts are associated with high forecast uncertainty, any precipitation over the Pacific Northwest could bring some alleviation to the numerous active fires

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