

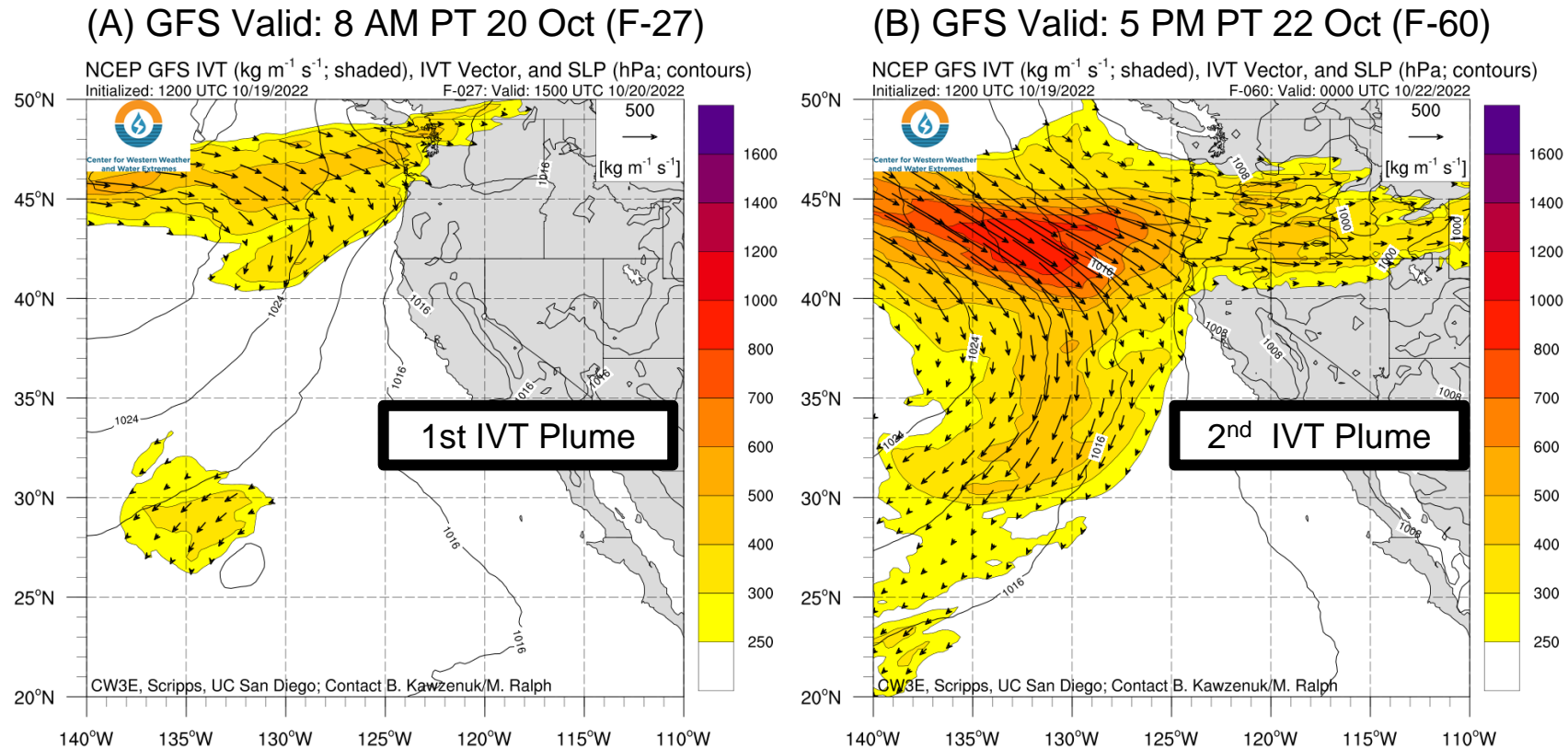
# CW3E Atmospheric River Outlook: 19 October 2022

## First Atmospheric River of Water Year 2023 to Bring Precipitation to Washington and Oregon

- Two plumes of IVT will make landfall, one Thursday over northern Washington, followed by a second stronger pulse Friday into Saturday along the coast of Washington and Oregon.
- This event will bring weak AR1 conditions (based on the Ralph et al. 2019 AR Scale) to the coastal PNW
- The NWS Weather Prediction Center (WPC) is forecasting 1–2 inches of precipitation in the coastal PNW over the 5 days, with the highest precipitation totals of 2.5–3.0 inches forecast in the Washington and Oregon Cascades
- Although significant hydrologic impacts are not expected, this system will bring beneficial precipitation to regions currently experiencing drought conditions and extremely low soil moisture
- This precipitation will likely improve firefighting conditions across the Cascades and lead to improved air quality across the PNW

# CW3E AR Outlook: 19 October 2022

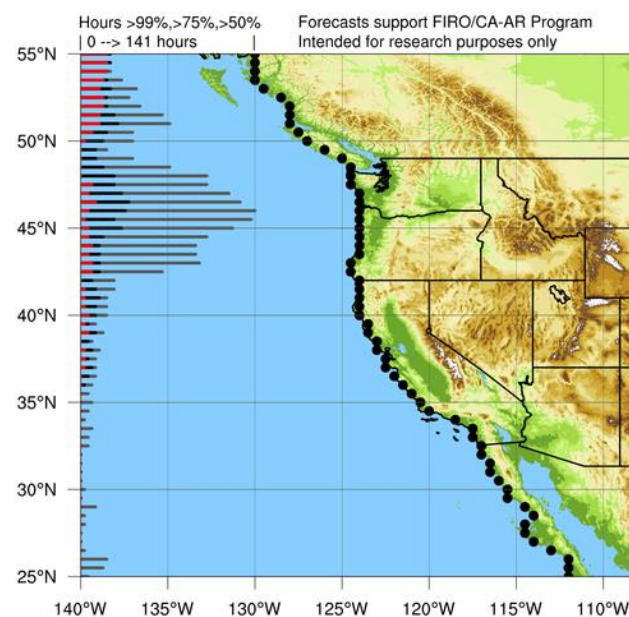
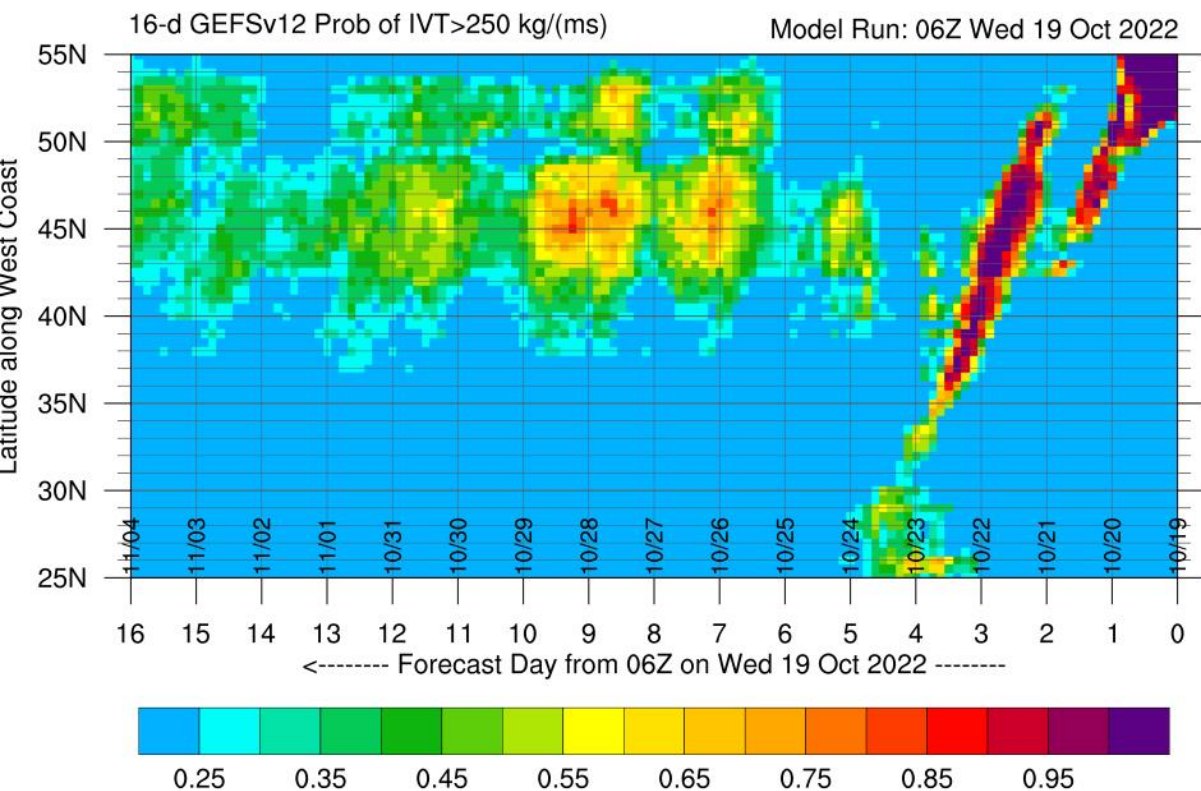
## Model IVT & SLP Forecasts



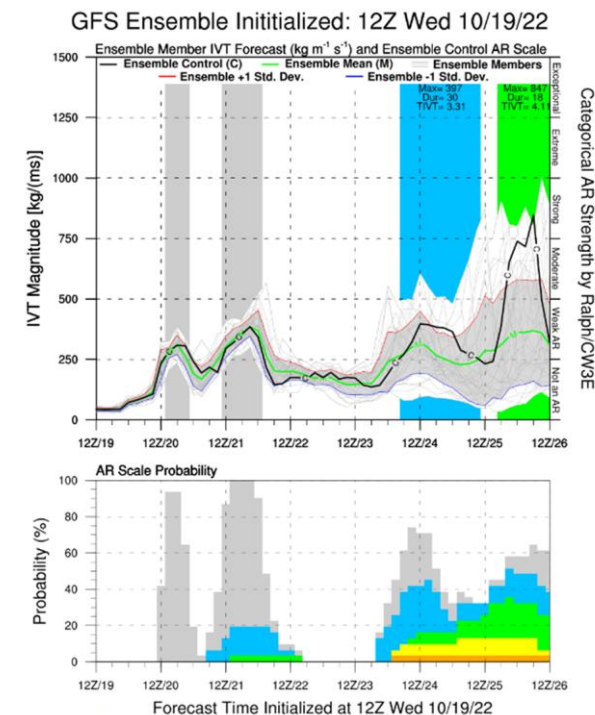
- An initial weak AR pulse is forecast to make landfall in northern Washington on Thursday between 12Z 20–00Z 21 Oct (5 AM PT 21–5 PM PT 22 Oct) with a maximum IVT magnitude of approx.  $400 \text{ kg m}^{-1} \text{ s}^{-1}$
- The secondary AR pulse is forecast to make landfall along coastal Washington and Oregon from Friday into Saturday, between 06Z 21–12Z 22 Oct (11 PM PT 21–5 AM PT 22 Oct) with a maximum IVT magnitude of approx.  $500 \text{ kg m}^{-1} \text{ s}^{-1}$
- The northwesterly orientation of the IVT plume during the secondary event is not favorable for precipitation in northern California.

# CW3E AR Outlook: 19 October 2022

## Probability of AR Conditions Along Coast (GEFS)



## AR Scale

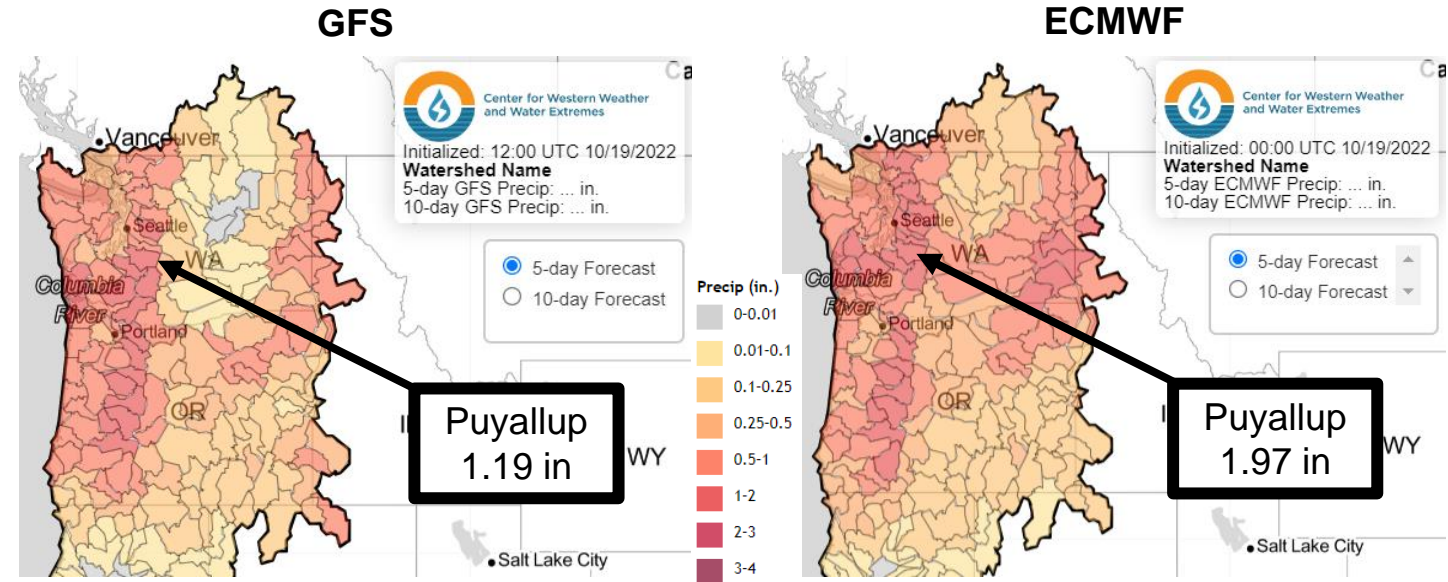
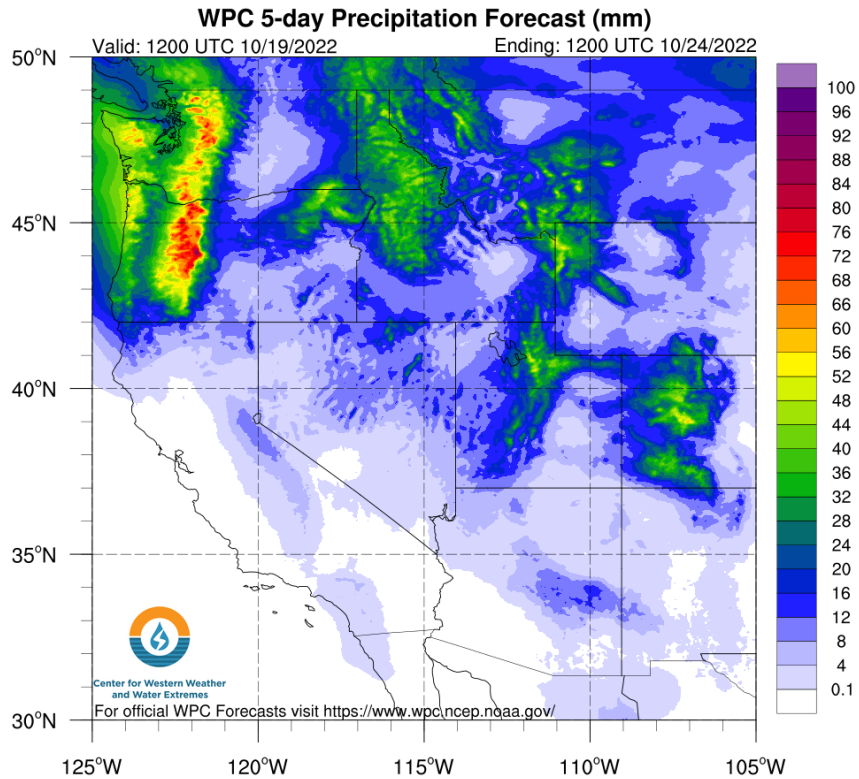


- CW3E's AR Landfall tool illustrates the two plumes of IVT as they make landfall over the next five days.
- The 06Z GEFS shows high confidence (> 85% probability) in AR conditions ( $\text{IVT} > 250 \text{ kg m}^{-1} \text{ s}^{-1}$ ) over portions of coastal Washington and Oregon in association with this AR event between 12Z 20–12 Z 22 Oct
- The AR Scale tool shows two short duration pulses of IVT along the coast at 45.5 N

# CW3E AR Outlook: 19 October 2022

## Precipitation Forecasts

### 5-day Watershed Precipitation Forecasts (Initialized 00/12Z 19 Oct)

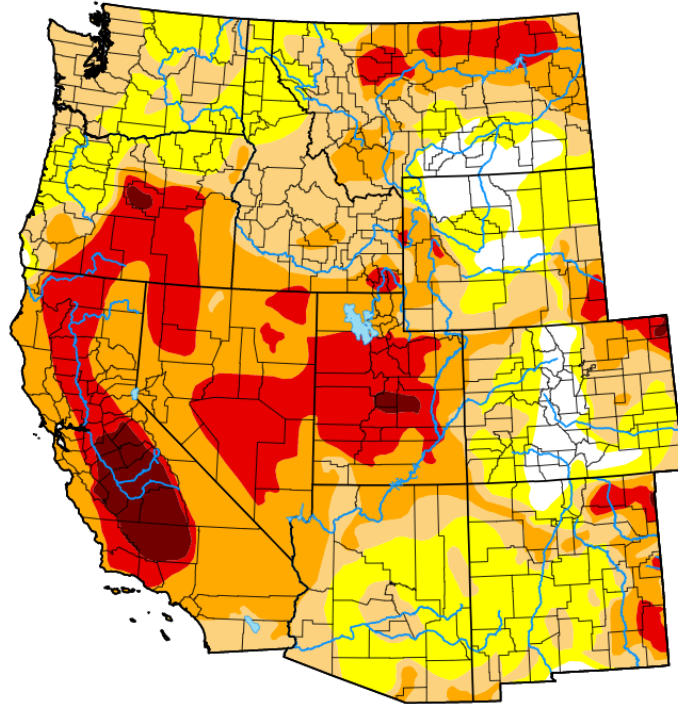
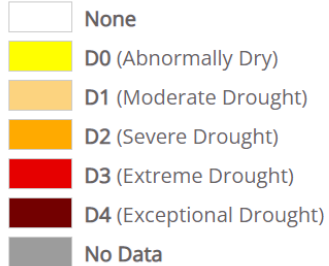


- The NWS Weather Prediction Center (WPC) is forecasting 1–2 inches of precipitation over the coastal Pacific Northwest over the next 5 days, with the highest precipitation totals of 2.5–3.0 inches forecast in the Washington and Oregon Cascades
- The 12Z GFS is forecasting 1.19 inches of mean areal precipitation in the Puyallup Watershed over the next 5 days, while the 00Z ECMWF is forecasting 1.97 inches over the same watershed during this period.

## Drought & Soil Moisture Impacts

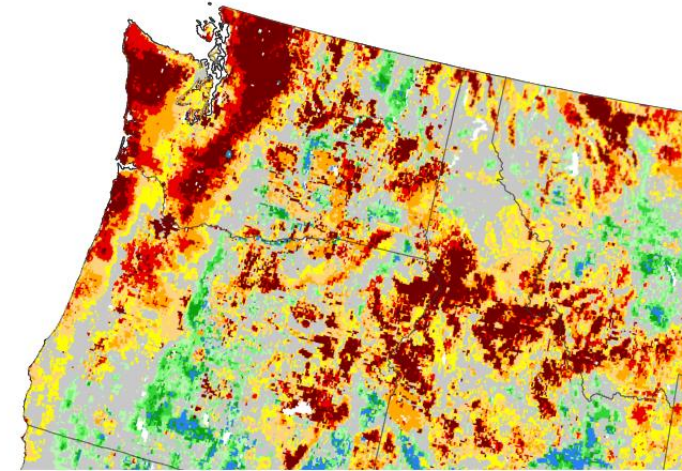
### US Drought Monitor

#### Intensity

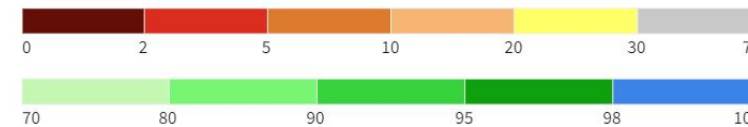


<https://droughtmonitor.unl.edu/>

NASA SPoRT-LIS 0-100 cm Soil Moisture Percentile



0-100 cm Soil Moisture Percentile



Source(s): NASA  
Updates Daily - 10/19/22

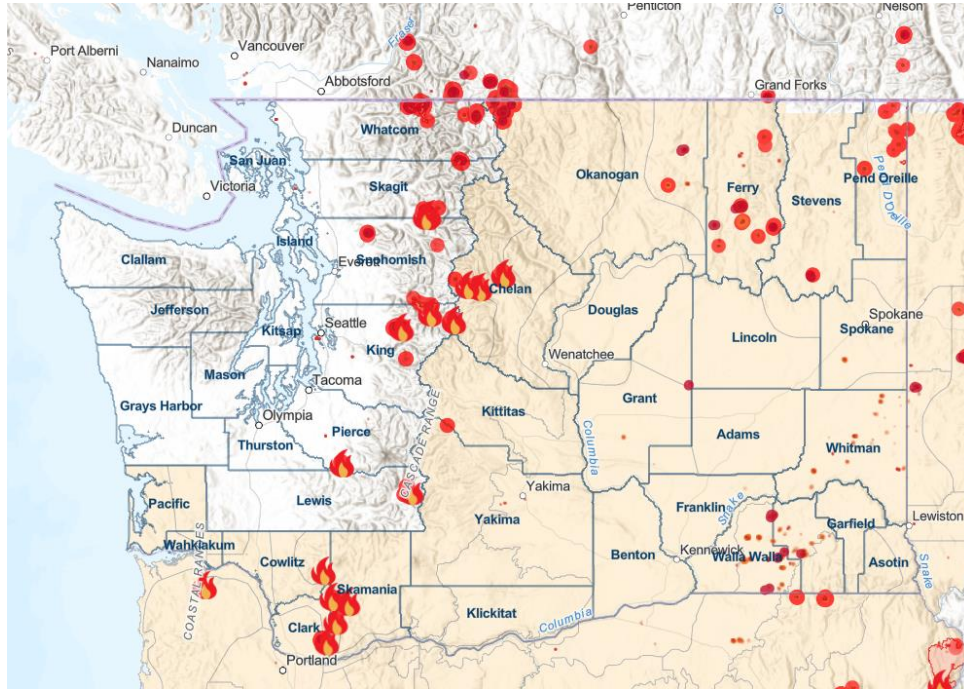
[Drought.gov](https://drought.gov)

- A persistent high pressure system over the PNW has brought a prolonged period of warm, dry weather to the area
- “Abnormally dry” and “moderate drought” conditions persist in Washington, with extreme drought conditions in interior Oregon
- Soil moisture is also extremely low in the region, with NASA SPoRT indicating 0–100 cm soil moisture profiles below the 5<sup>th</sup> percentile across much of the coastal ranges of the PNW and the Washington and Oregon Cascades

# CW3E AR Outlook: 19 October 2022

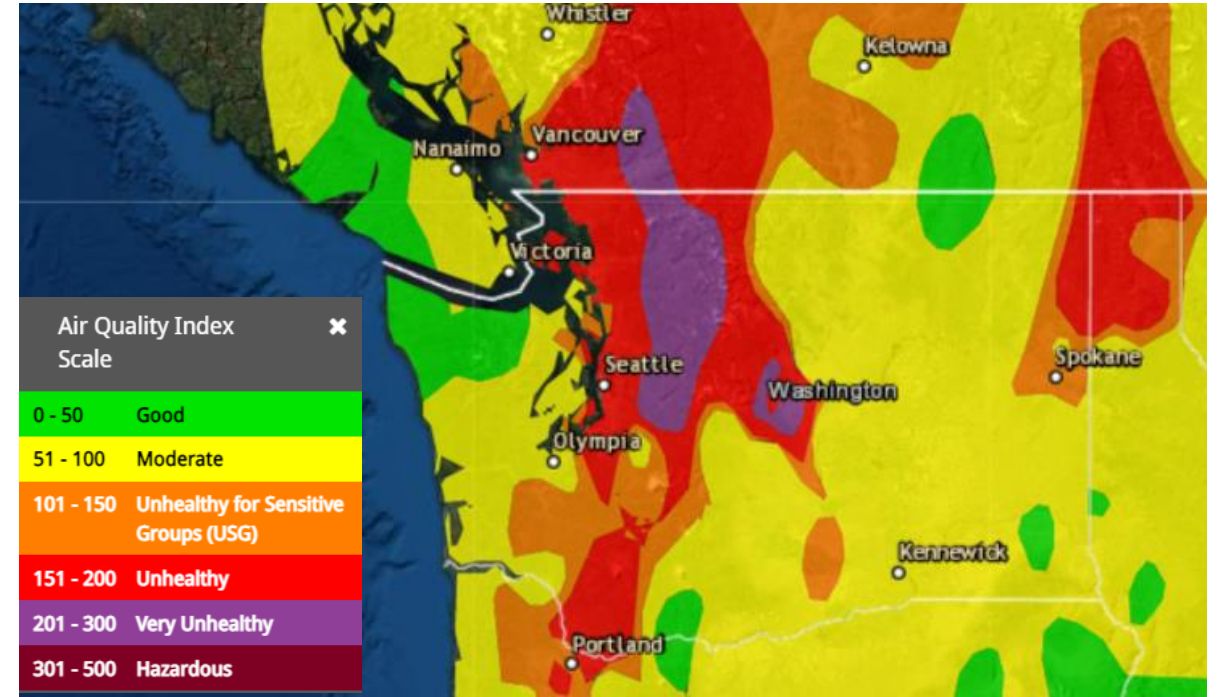
## Fire & Air Quality Impacts

### Washington State Wildfires 10/19/2022



<https://www.dnr.wa.gov/Wildfires>

### AirNow AQI 10/19/2022



<https://www.airnow.gov/?city=Seattle&state=WA&country=USA>

- This storm is forecast to bring 2–3 inches of rain to a region currently experiencing multiple large wildfires
- The precipitation will also lead to improved air quality across the PNW, which has been experiencing unhealthy air quality