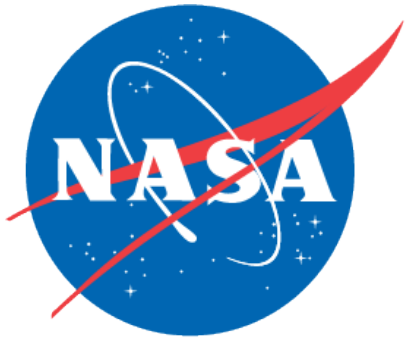
Weather and Air Quality: Reflection and Outlook During Smoke Conditions

Presenter: Megan Christiansen
Date: July 29, 2024

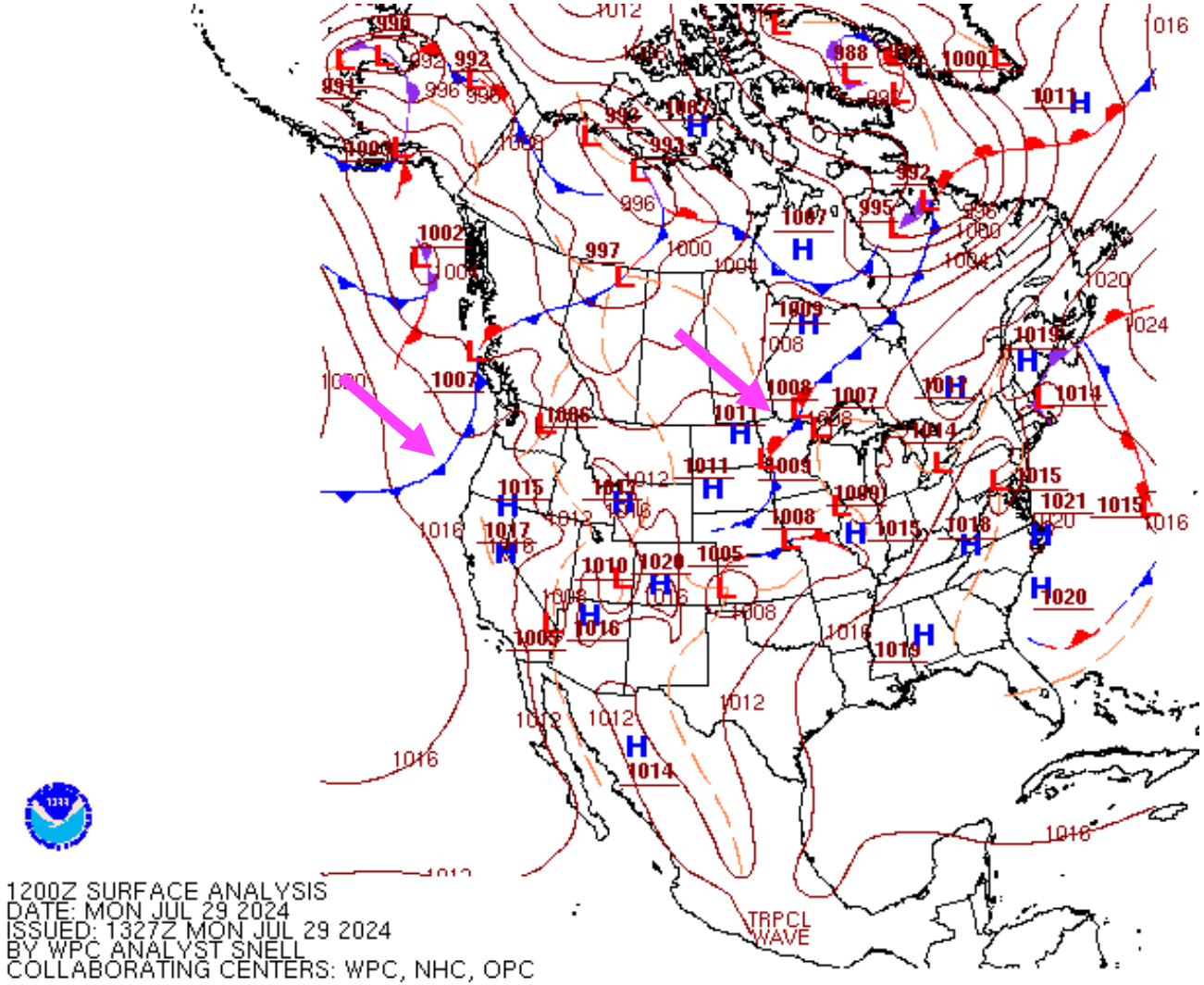


EARTH SCIENCE
APPLIED SCIENCES

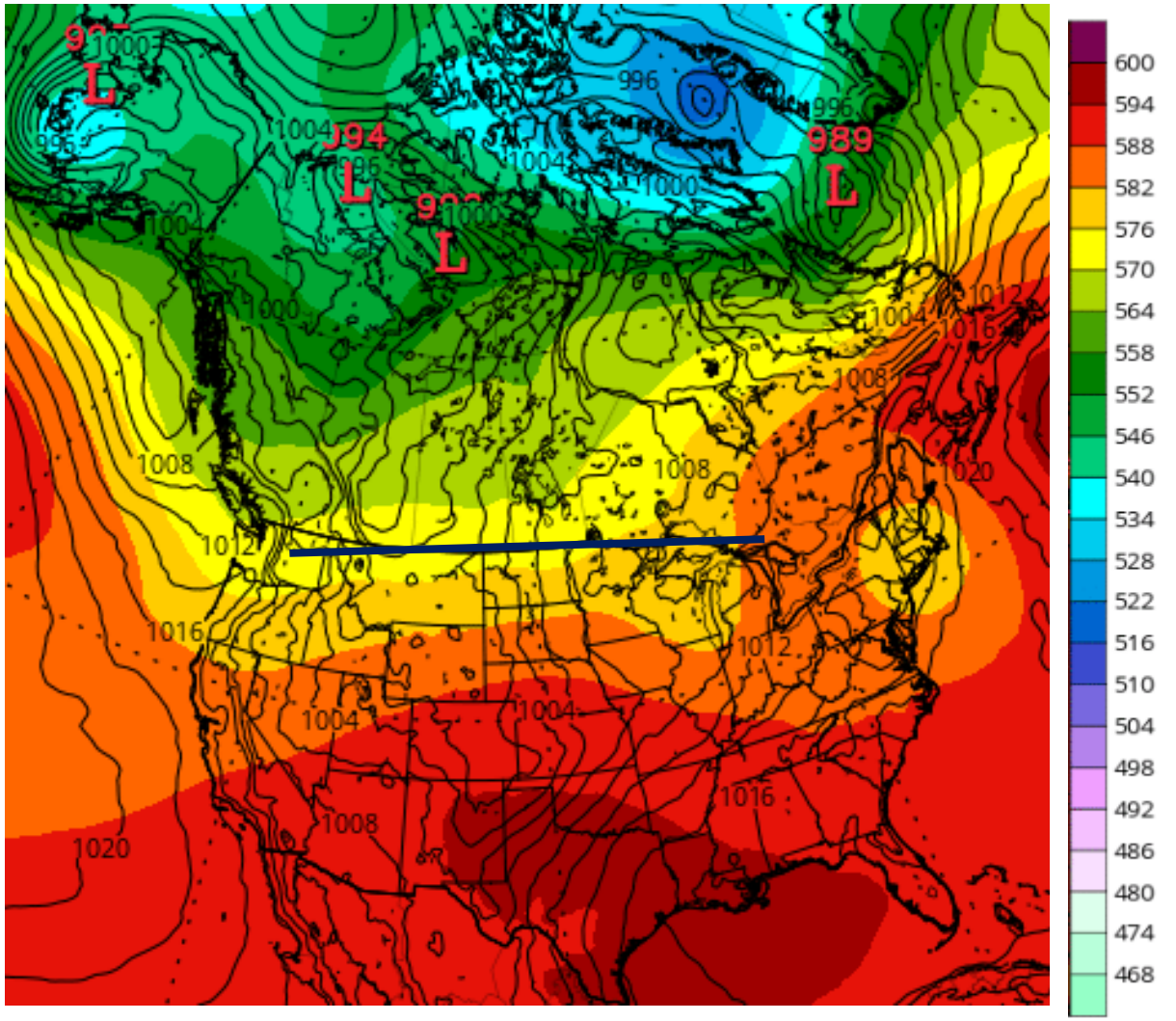
FireAQ is funded by NASA HAQ. We thank NASA GMAO and NRL for the model data products.

Current Status: July 29, 2024

Surface Analysis



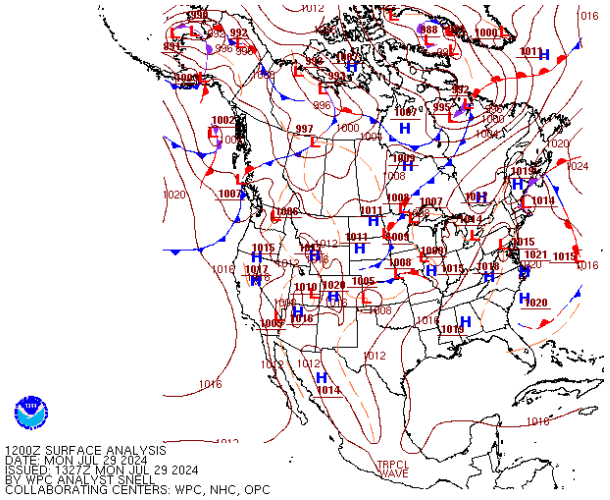
500 mb Contours



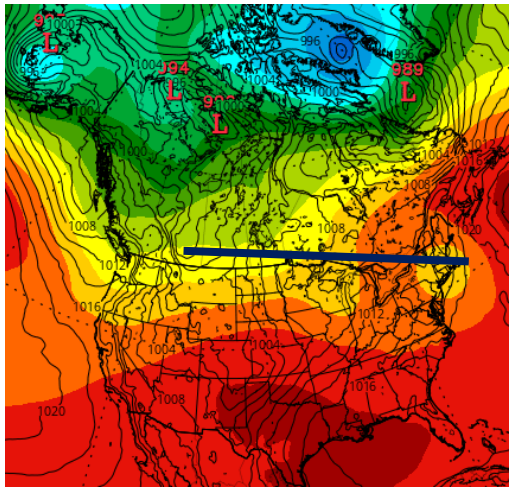
GFS 500mb Geopotential Height (dam) & MSLP (mb)
Init: 06z Jul 29 2024 Forecast Hour: [12] valid at 18z Mon, Jul 29 2024

Current Status: July 29, 2024

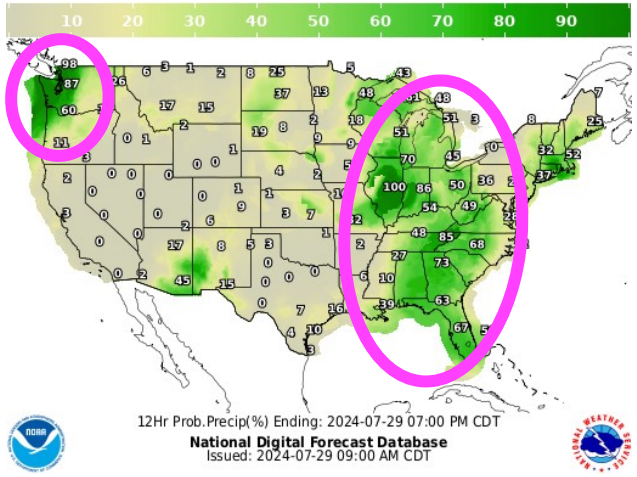
Surface Analysis



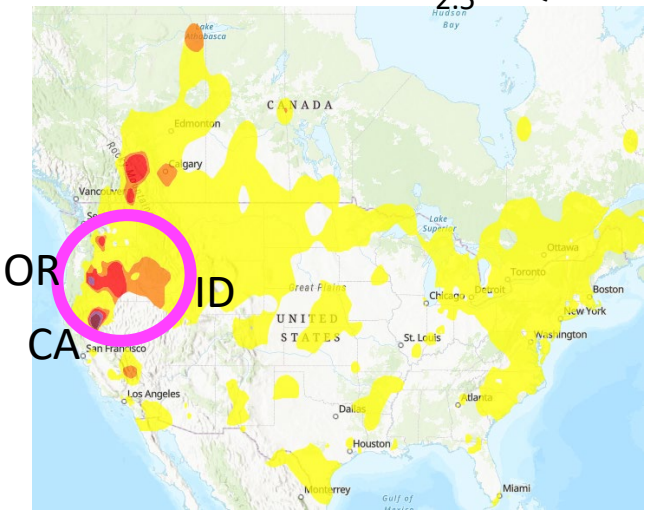
500 mb Contours

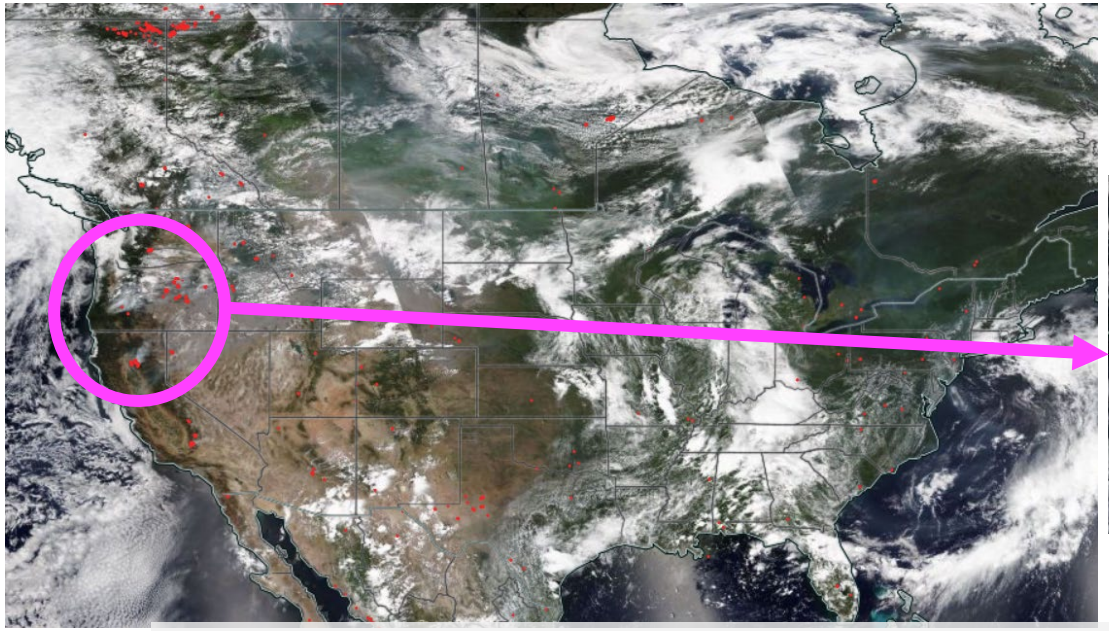


Precip. Prob.

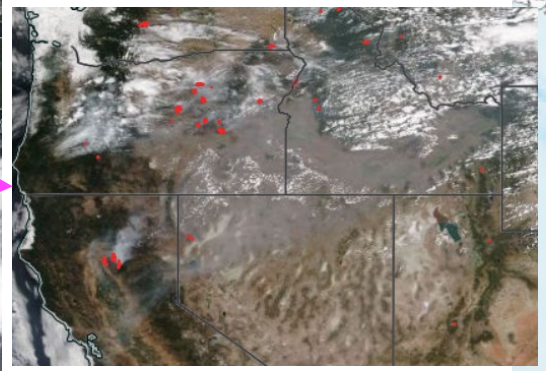


AirNow $PM_{2.5}$ AQI

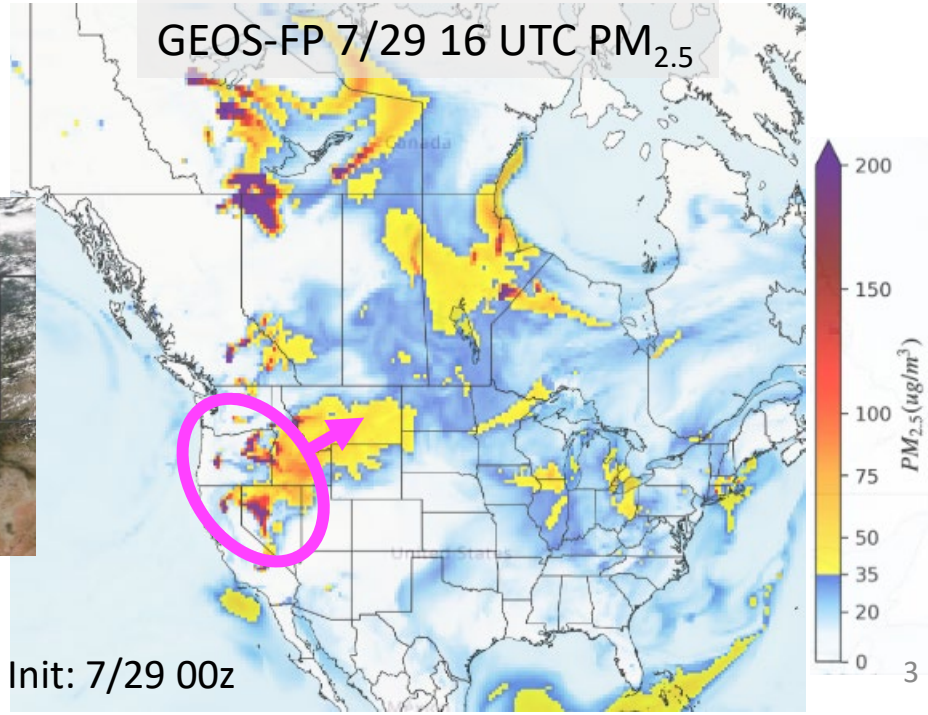




Sun 7/28



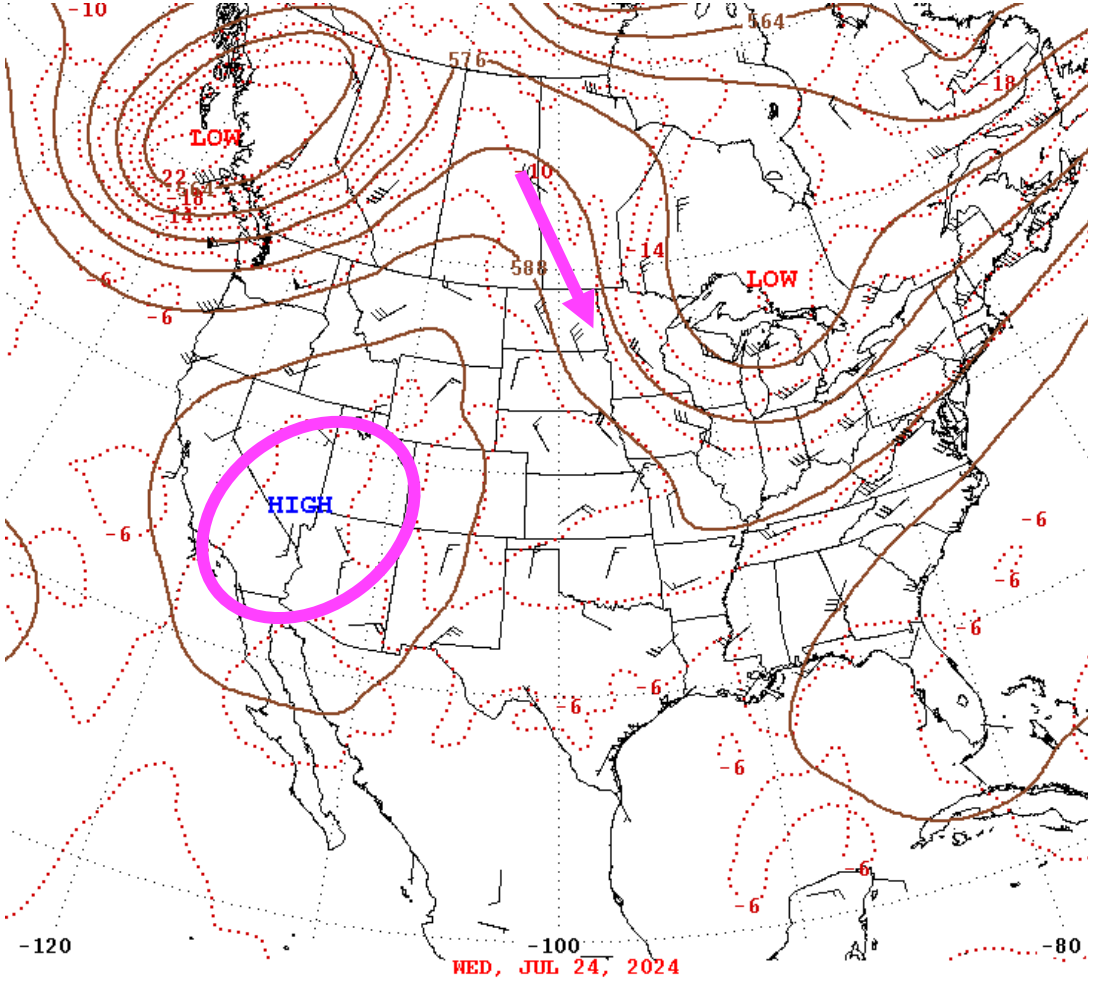
GEOS-FP 7/29 16 UTC $PM_{2.5}$



VIIRS NOAA 20 True Color: https://worldview.earthdata.nasa.gov

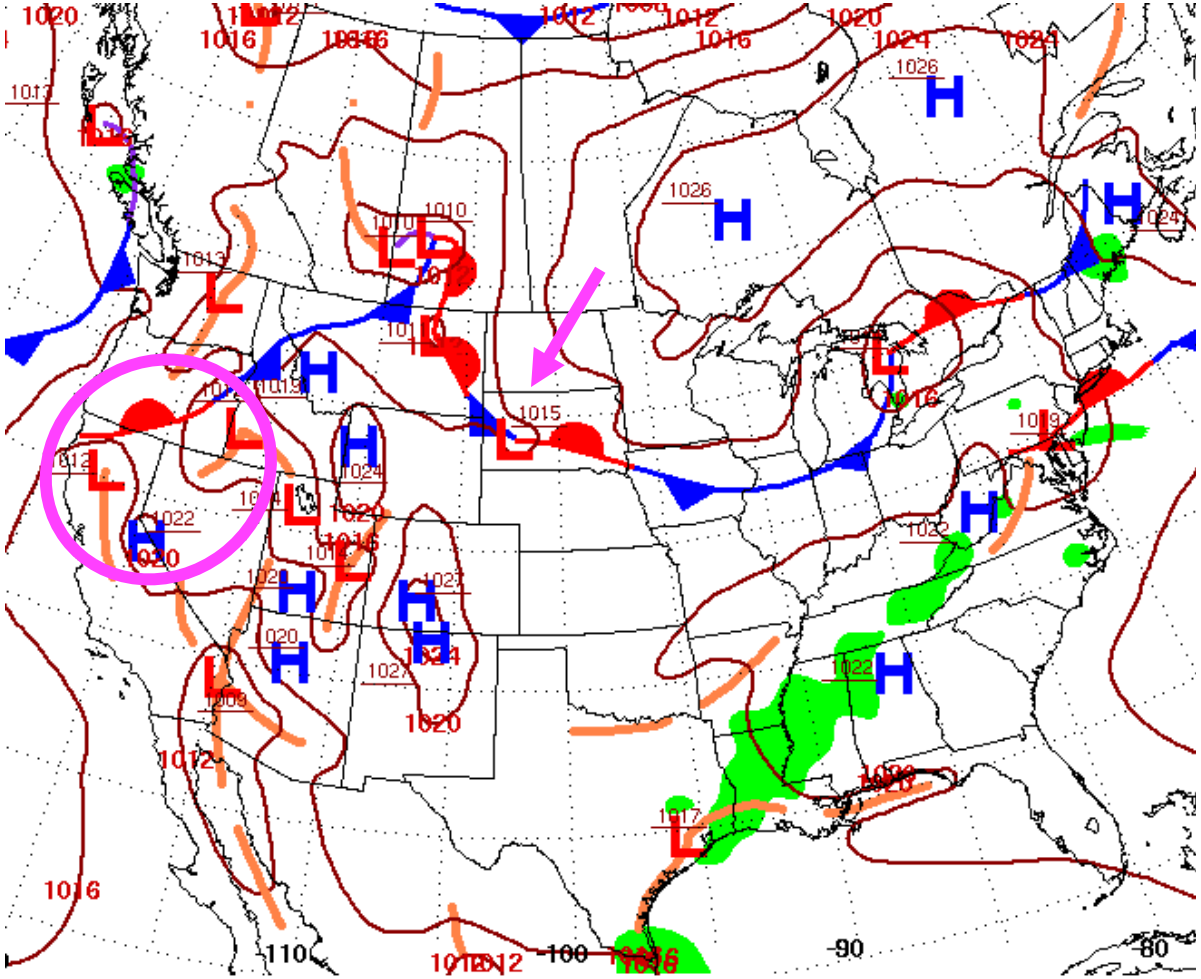
Air Quality Reflection: Wednesday July 24, 2024

500 mb Contours



500-Millibar Height Contours at 7:00 A.M. E.S.T.

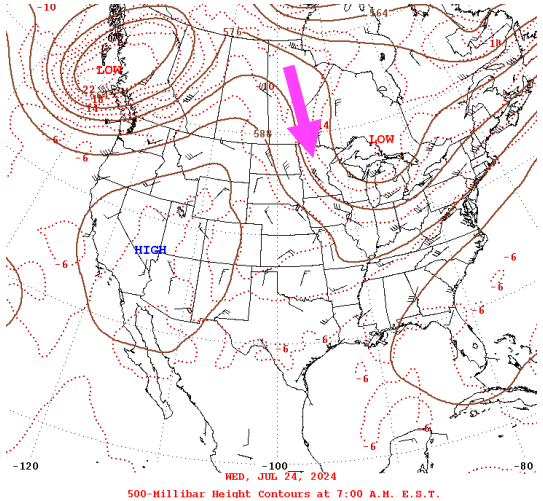
Surface Weather



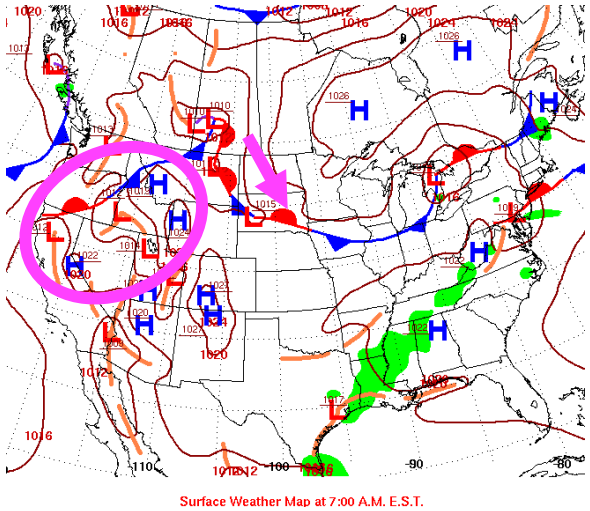
Surface Weather Map at 7:00 A.M. E.S.T.

Air Quality Reflection: Wednesday July 24, 2024

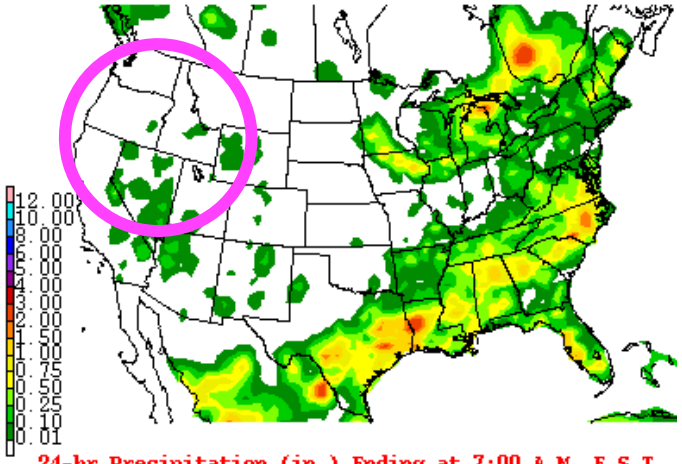
500 mb Contours



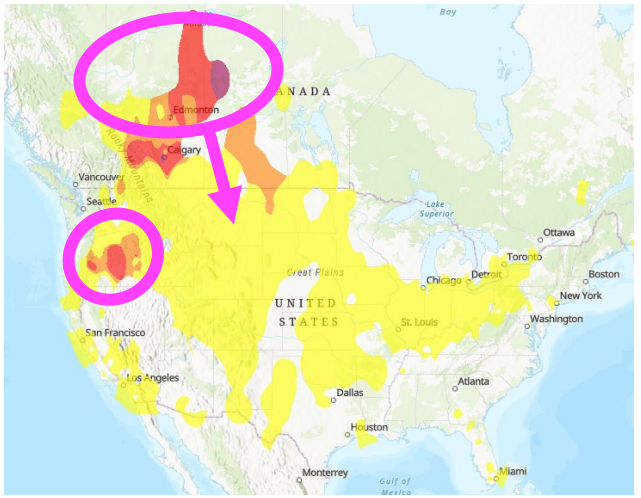
Surface Weather

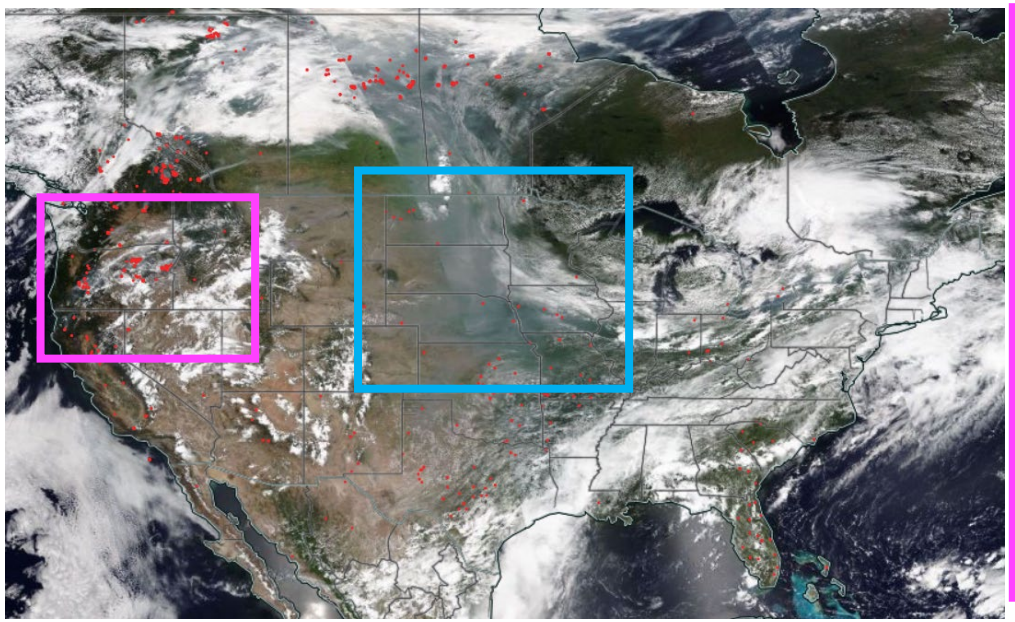


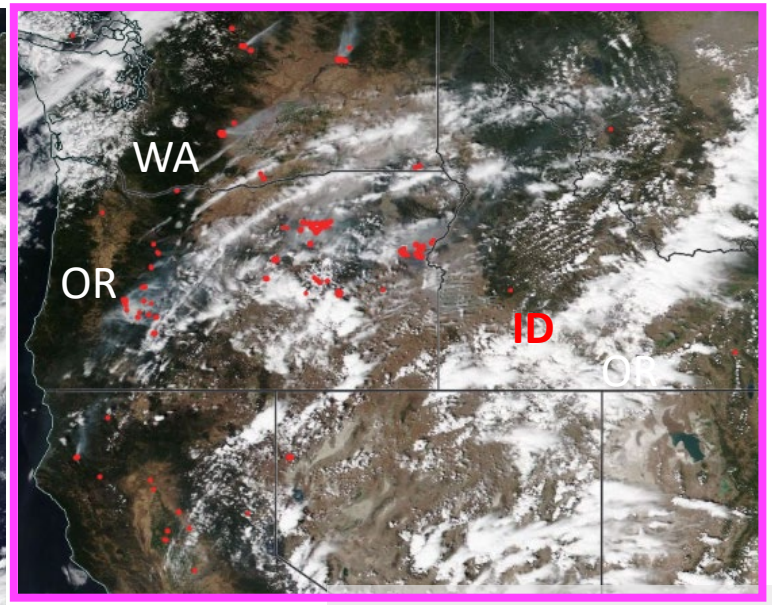
Precipitation

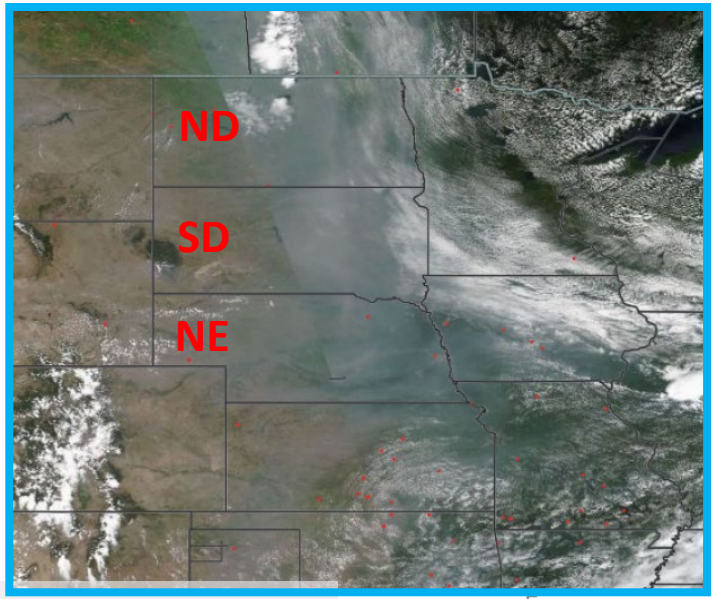


AirNow AQI





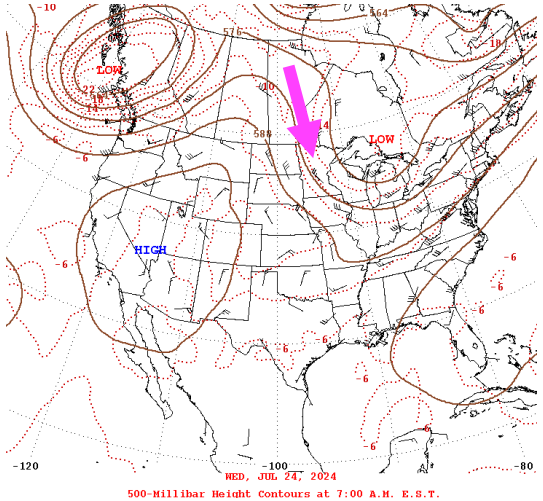




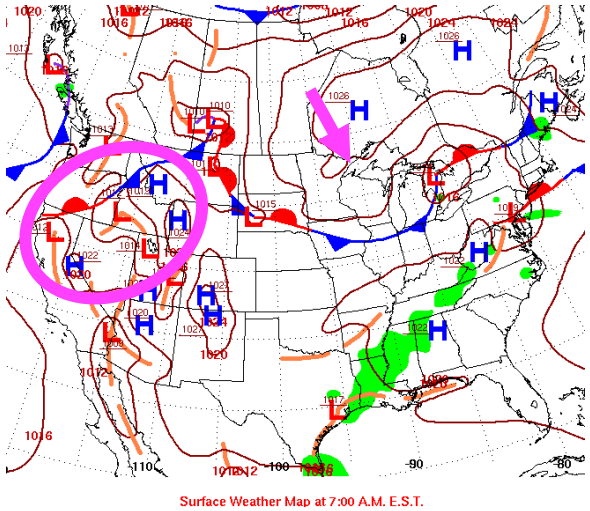
VIIRS Fire Anomalies (NASA Worldview)

Air Quality Reflection: Wednesday July 24, 2024

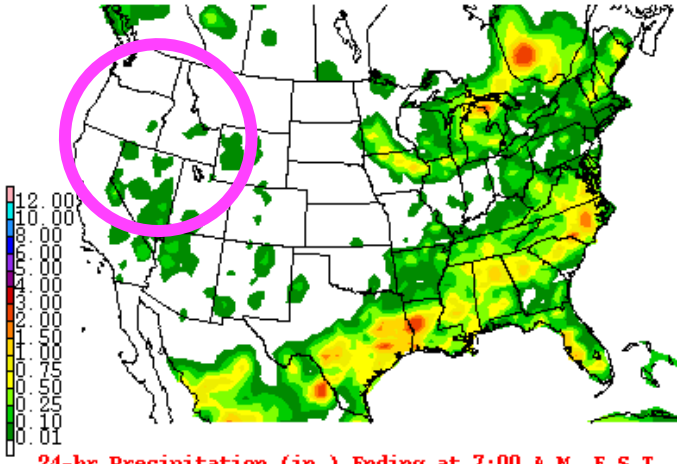
500 mb Contours



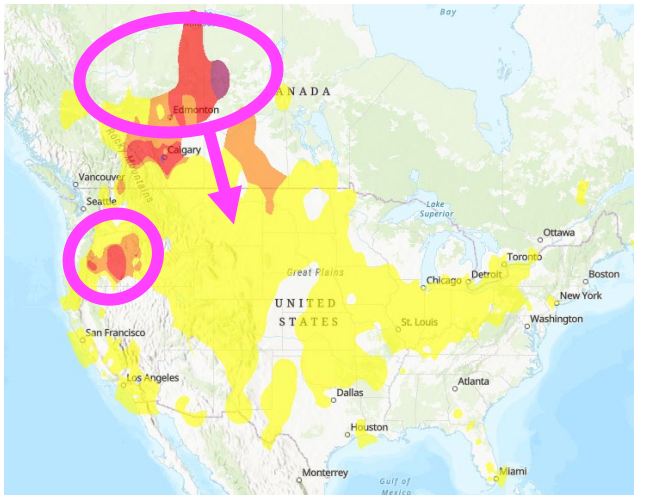
Surface Weather



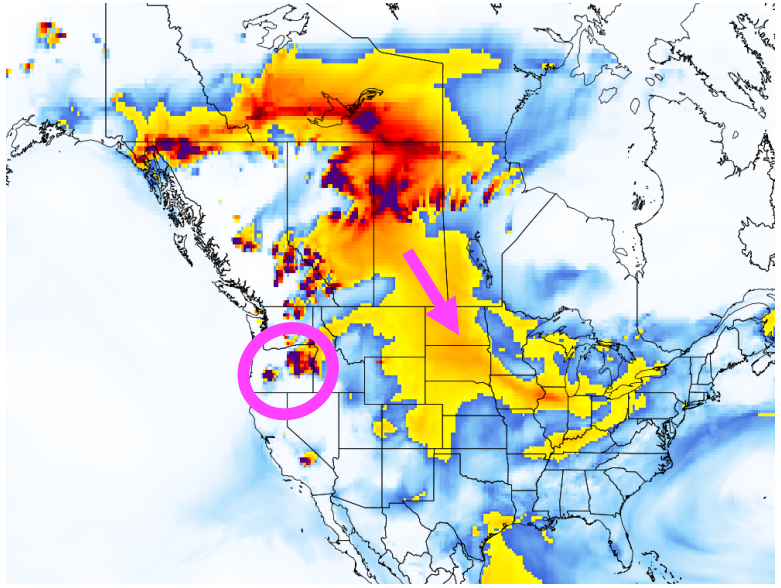
Precipitation



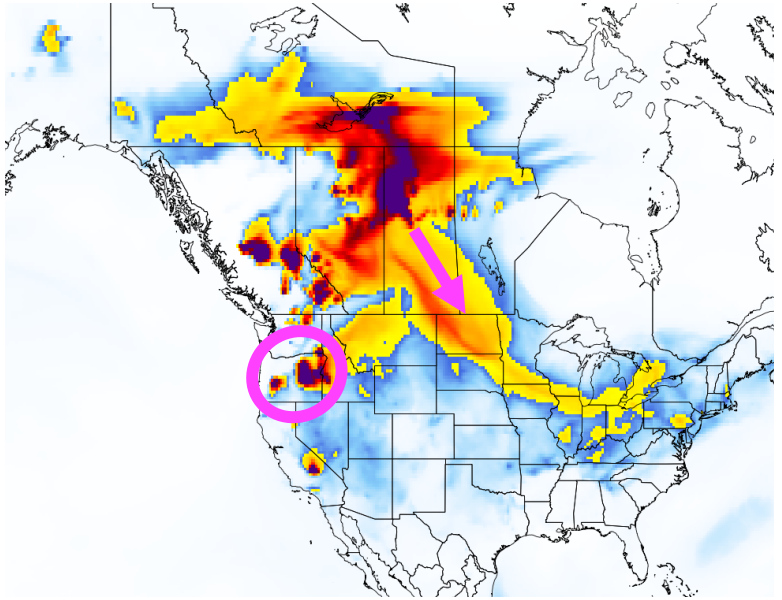
AirNow AQI



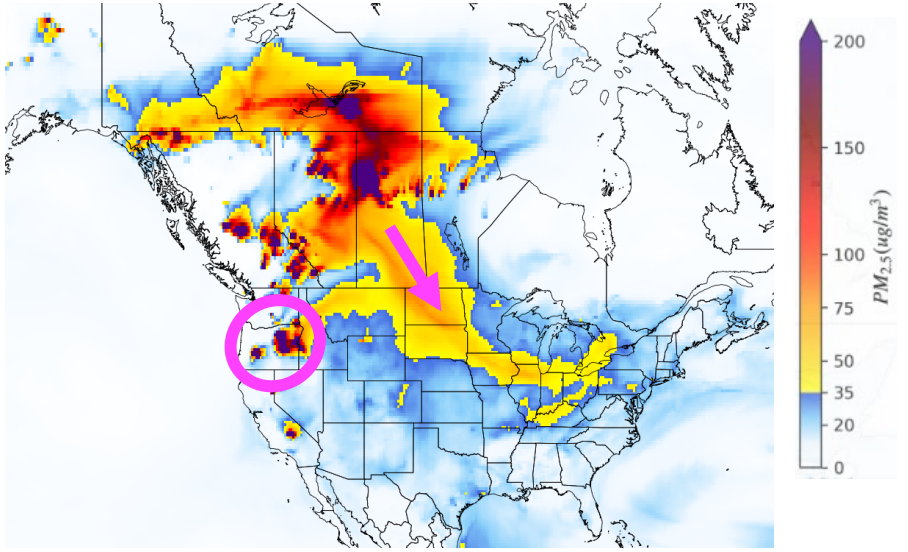
GEOS-FP



GEOS-CF

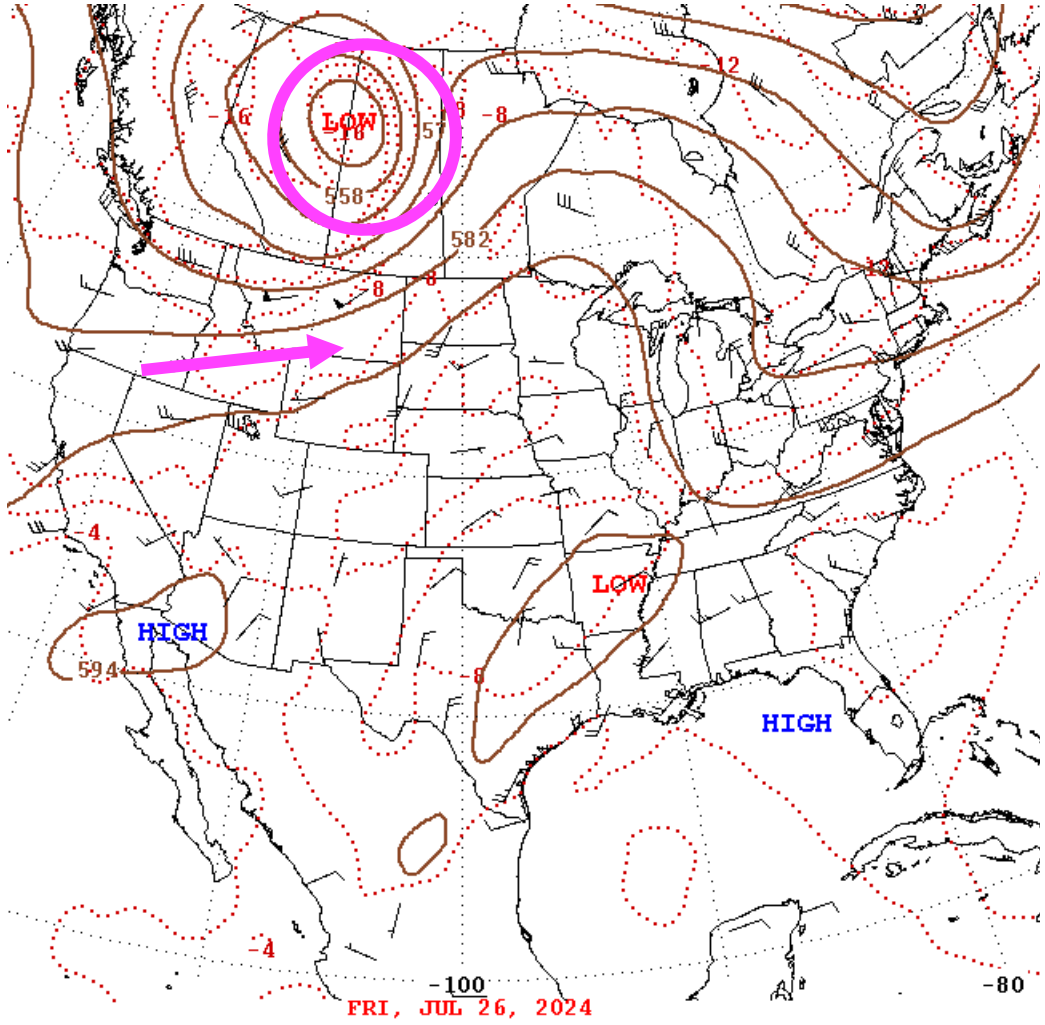


Ensemble



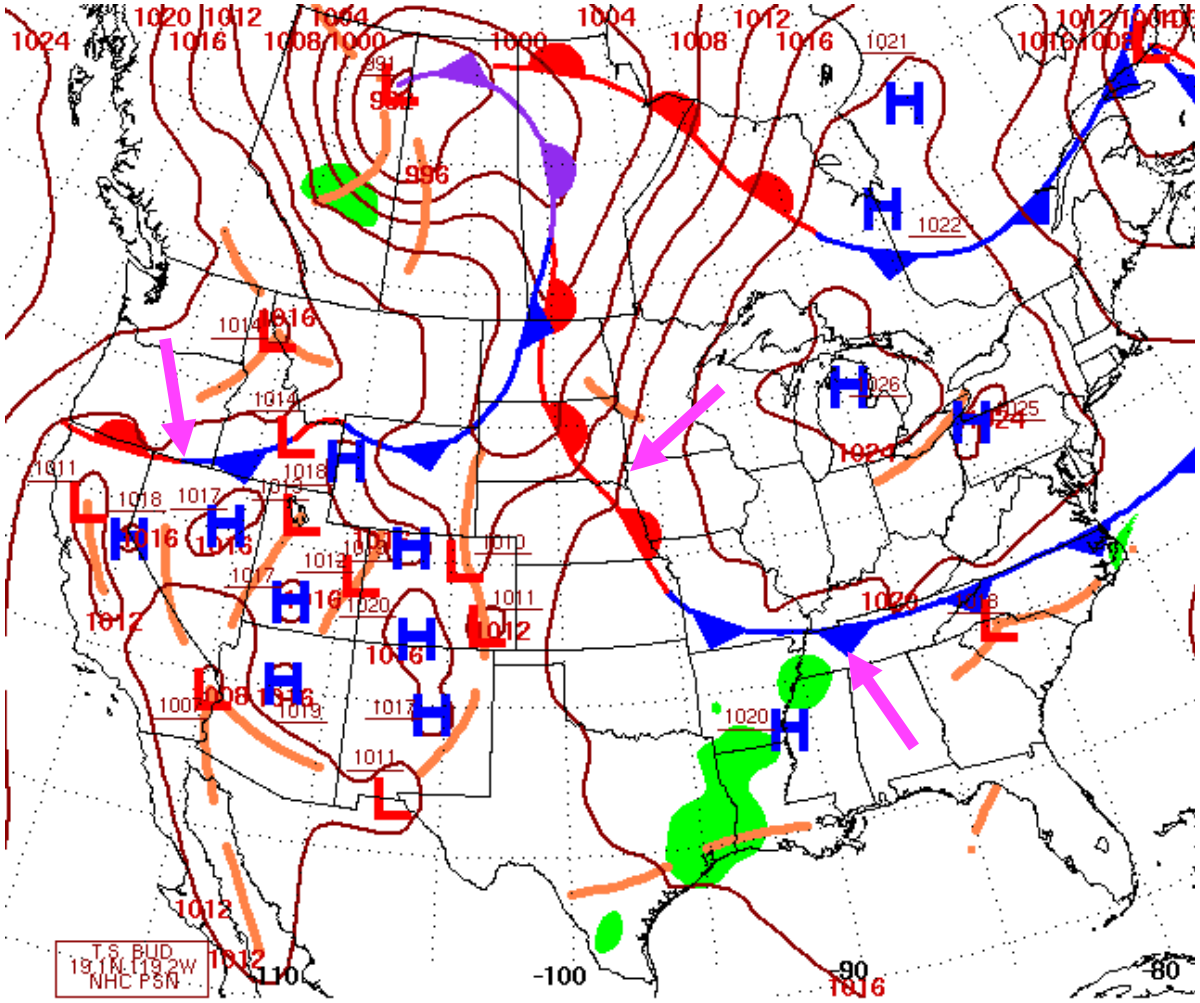
Air Quality Reflection: Friday July 26, 2024

500 mb Contours



500-Millibar Height Contours at 7:00 A.M. E.S.T.

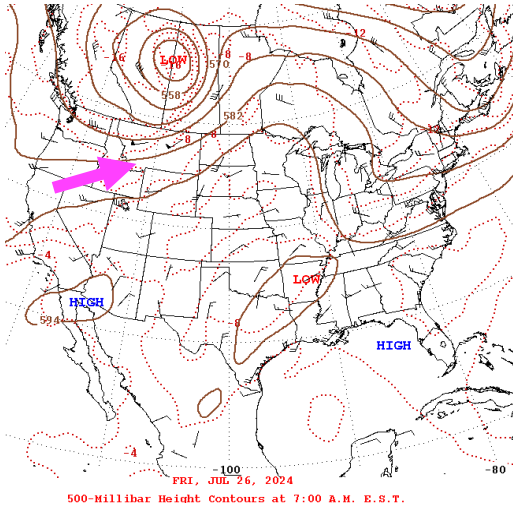
Surface Weather



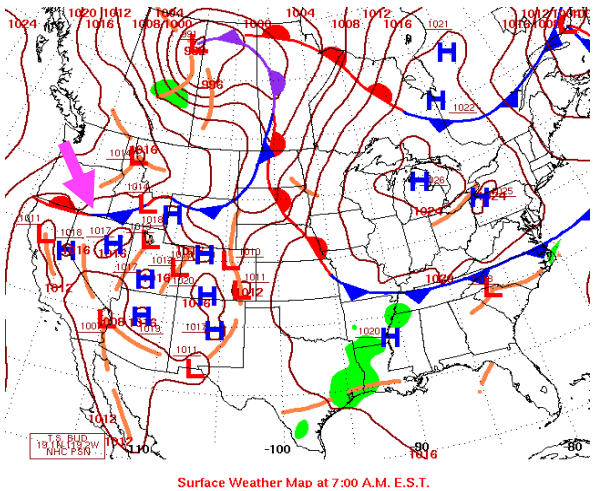
Surface Weather Map at 7:00 A.M. E.S.T.

Air Quality Reflection: Friday July 26, 2024

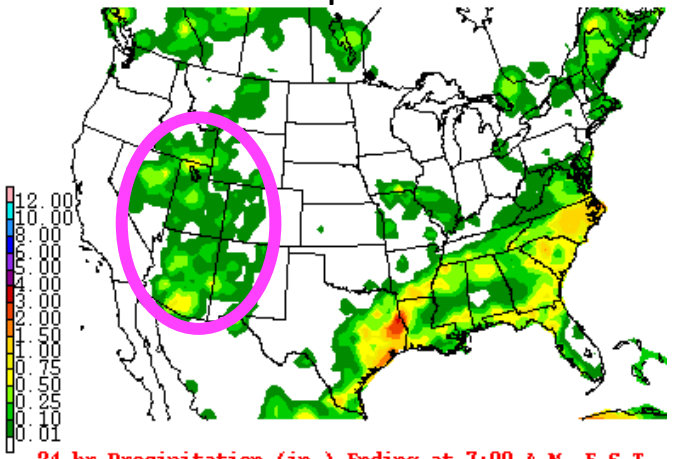
500 mb Contours



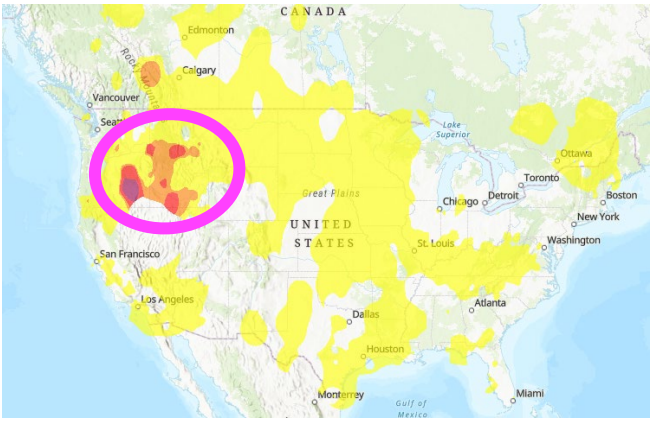
Surface Weather

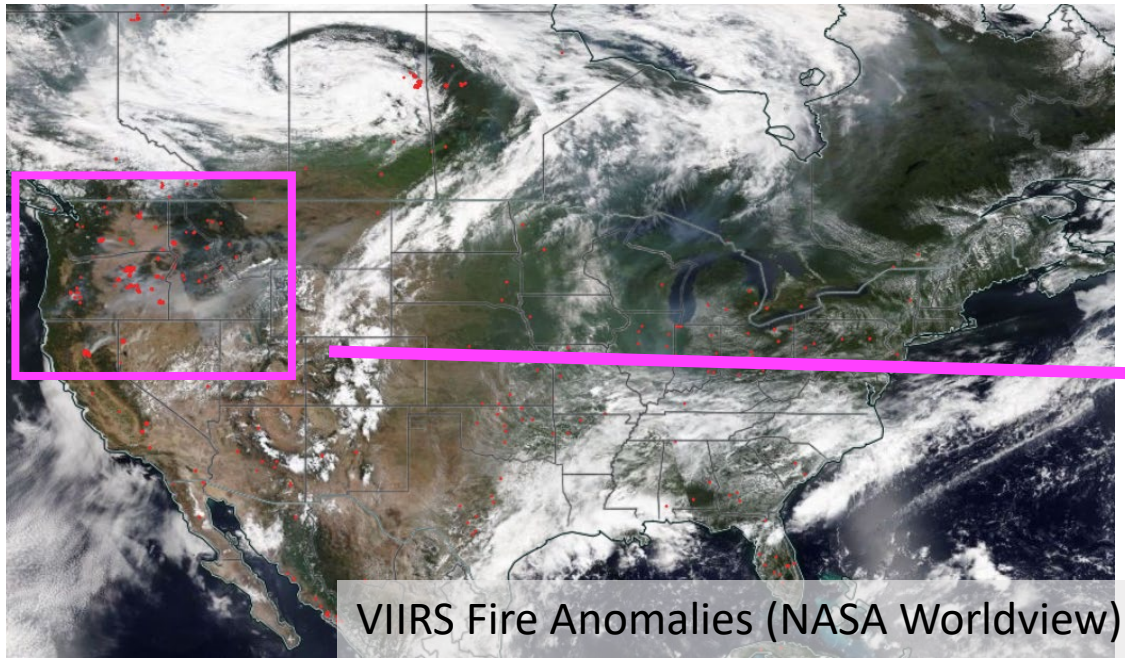


Precipitation

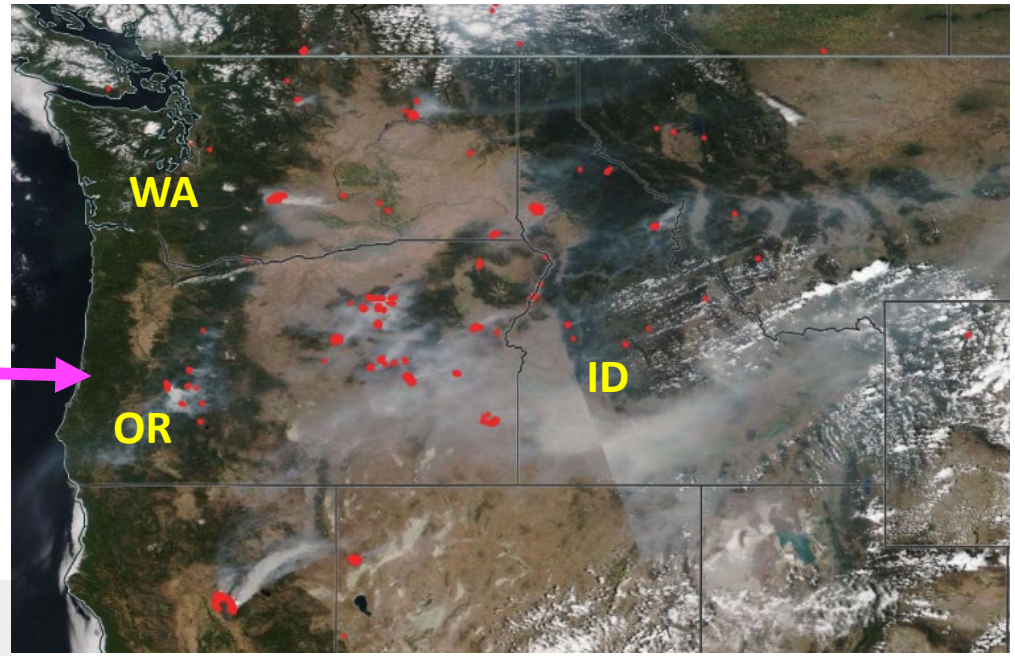


AirNow AQI



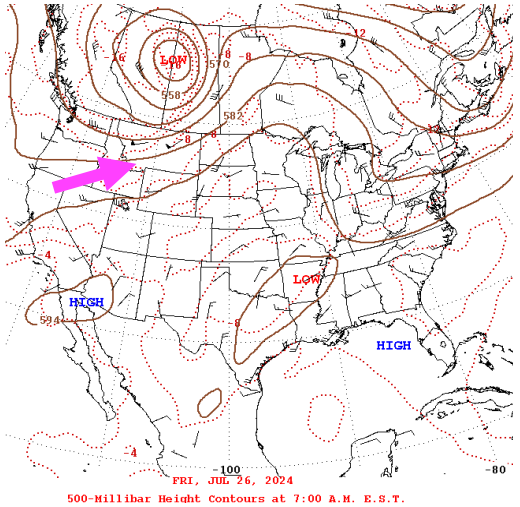


VIIRS Fire Anomalies (NASA Worldview)

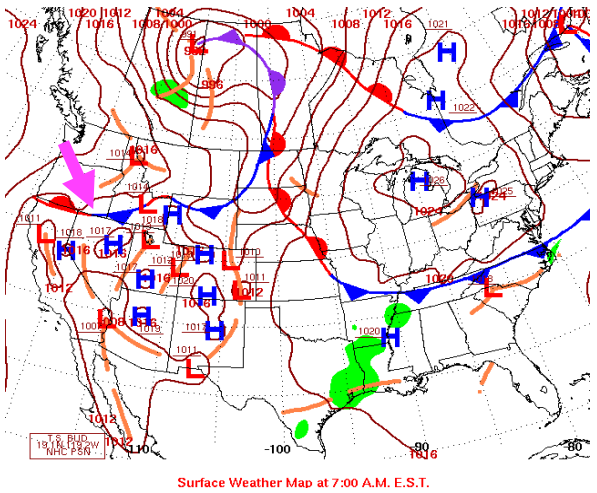


Air Quality Reflection: Friday July 26, 2024

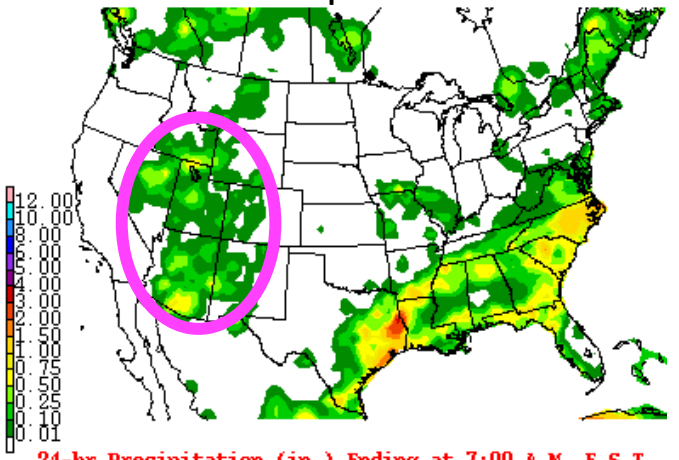
500 mb Contours



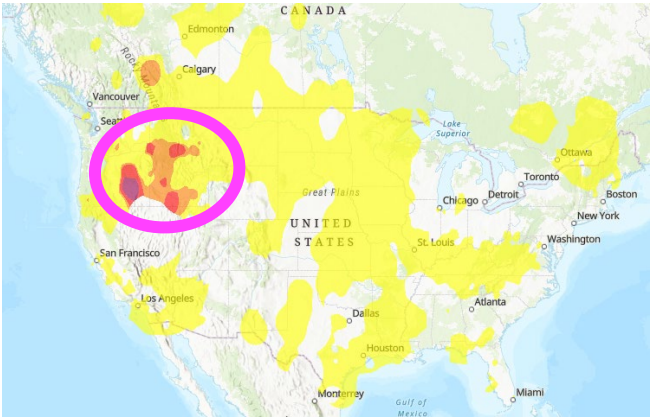
Surface Weather



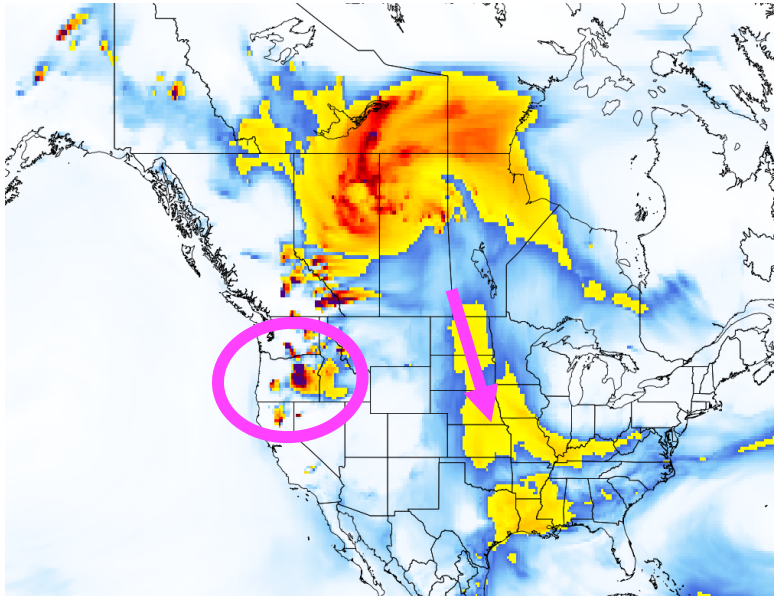
Precipitation



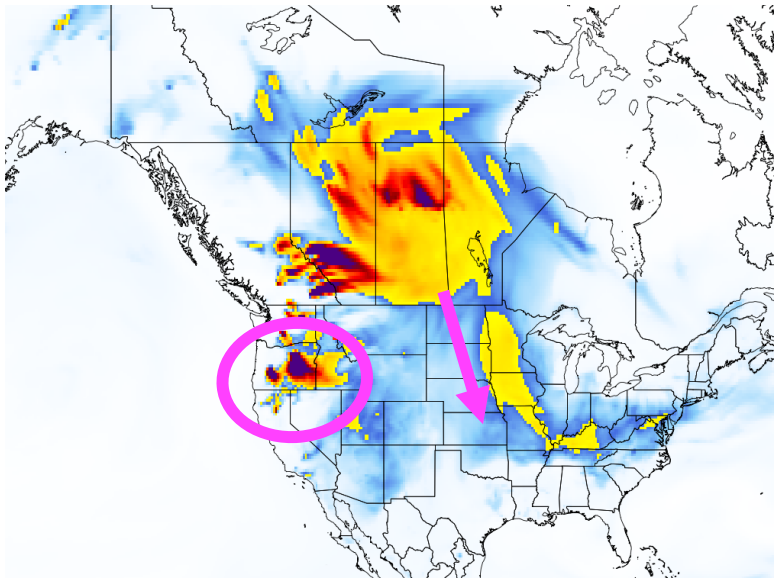
AirNow AQI



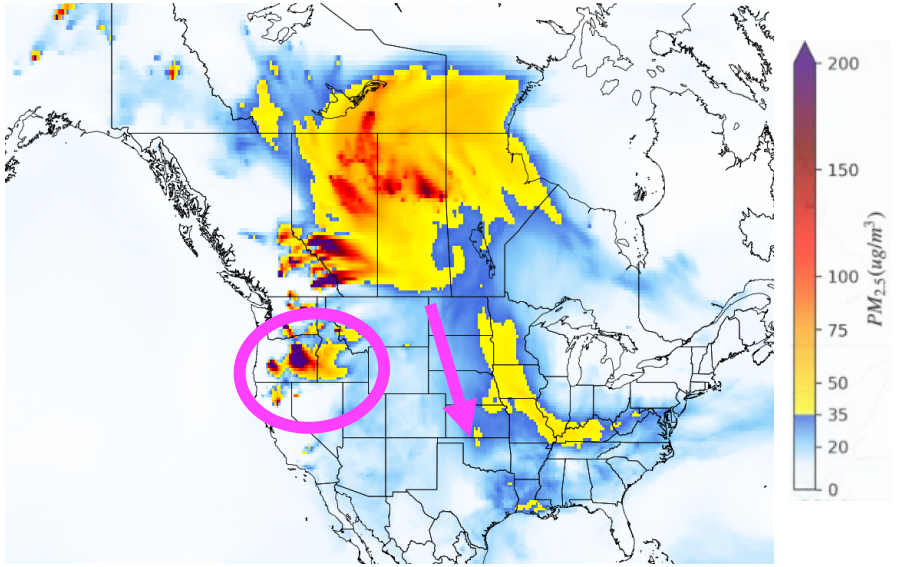
GEOS-FP



GEOS-CF

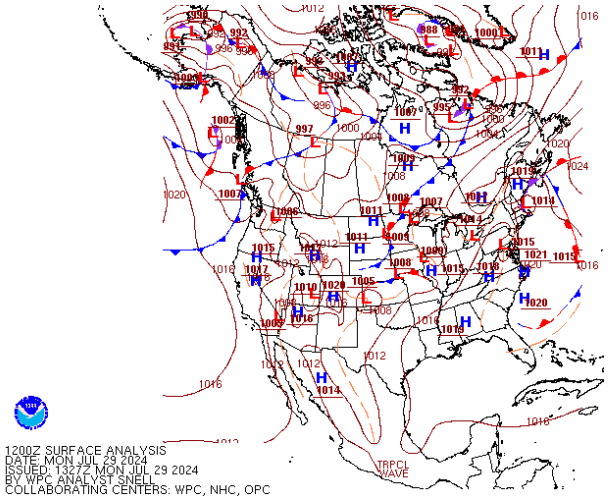


Ensemble

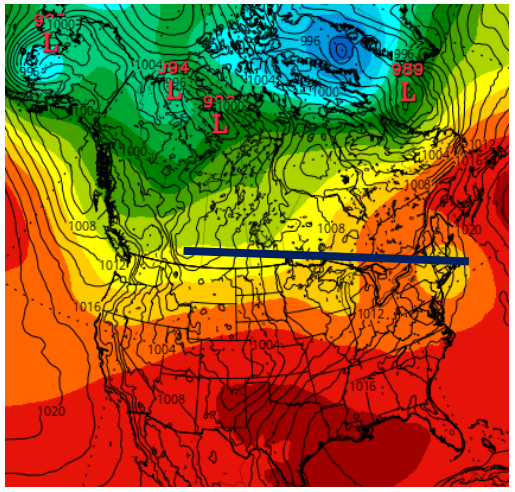


Current Status: July 29, 2024

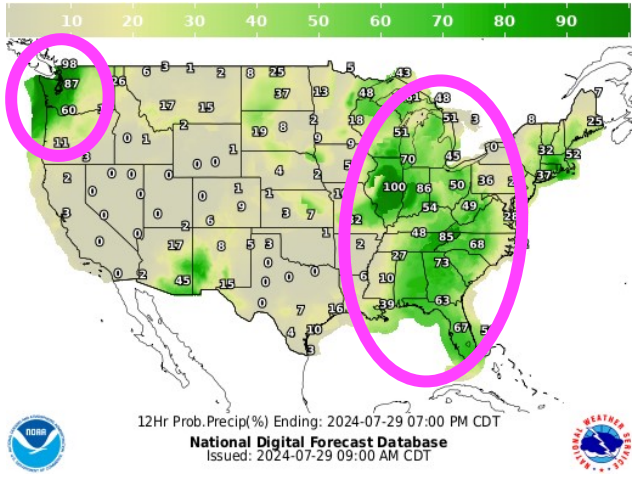
Surface Analysis



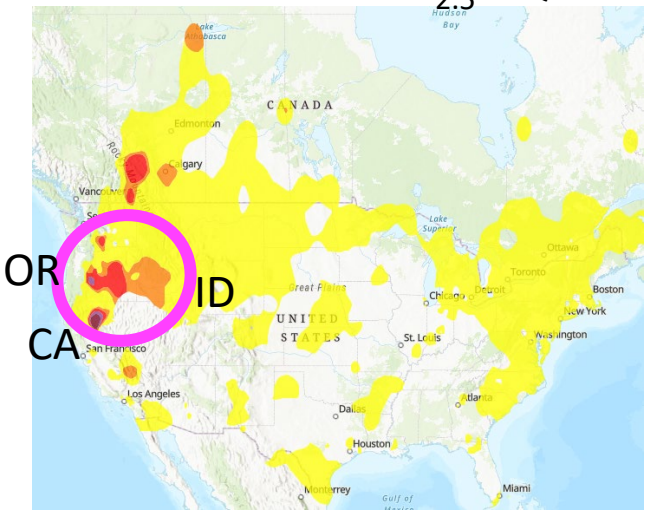
500 mb Contours

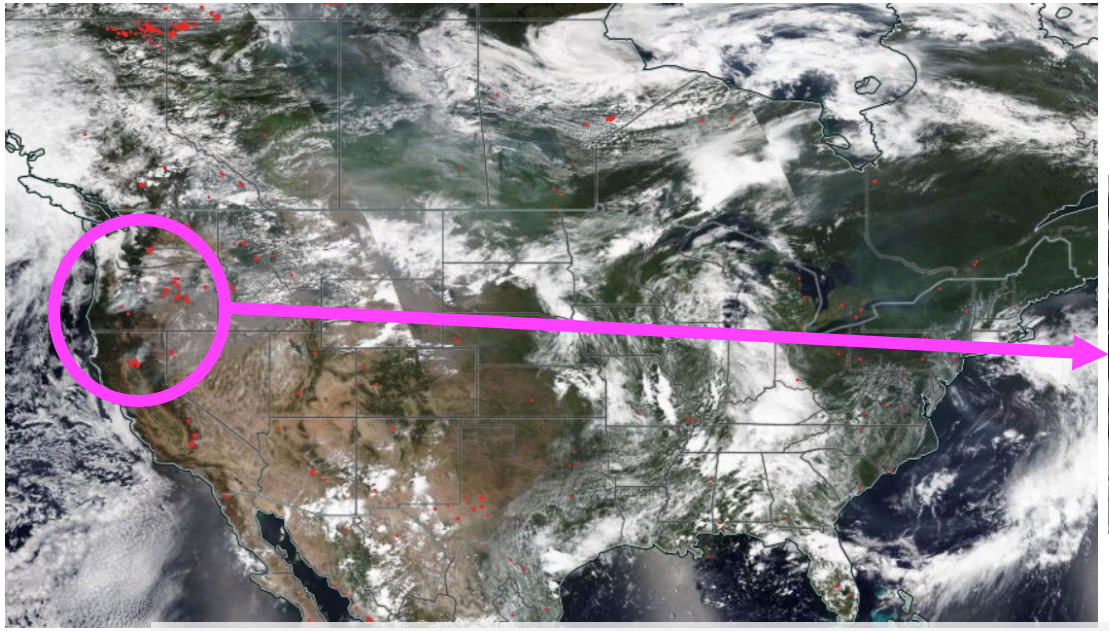


Precip. Prob.

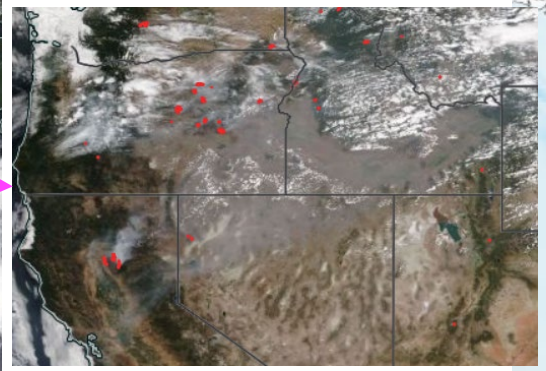


AirNow $PM_{2.5}$ AQI

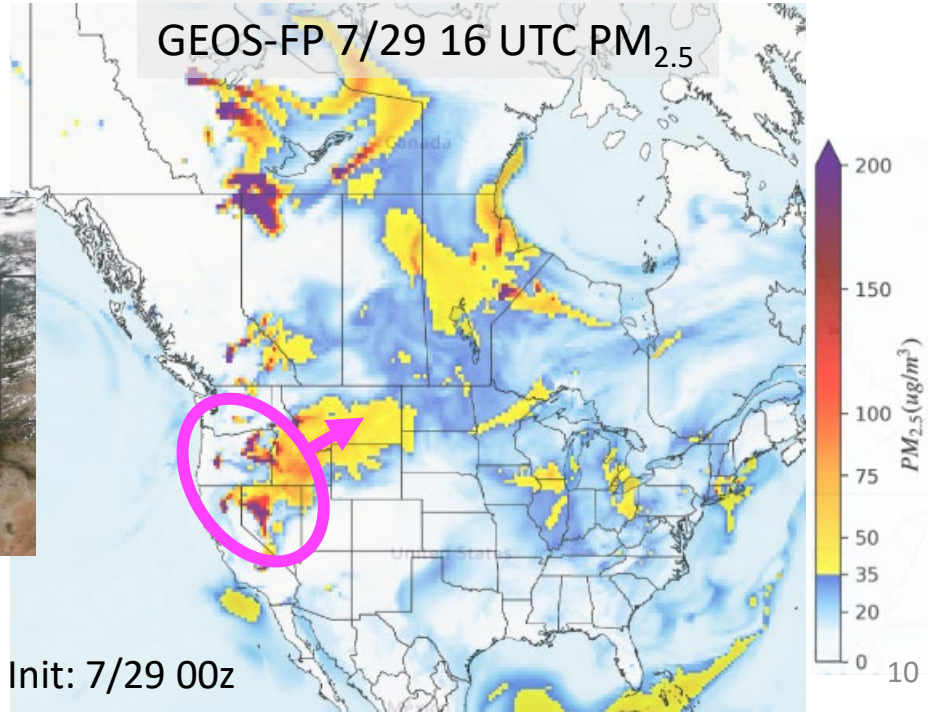




Sun 7/28



GEOS-FP 7/29 16 UTC $PM_{2.5}$



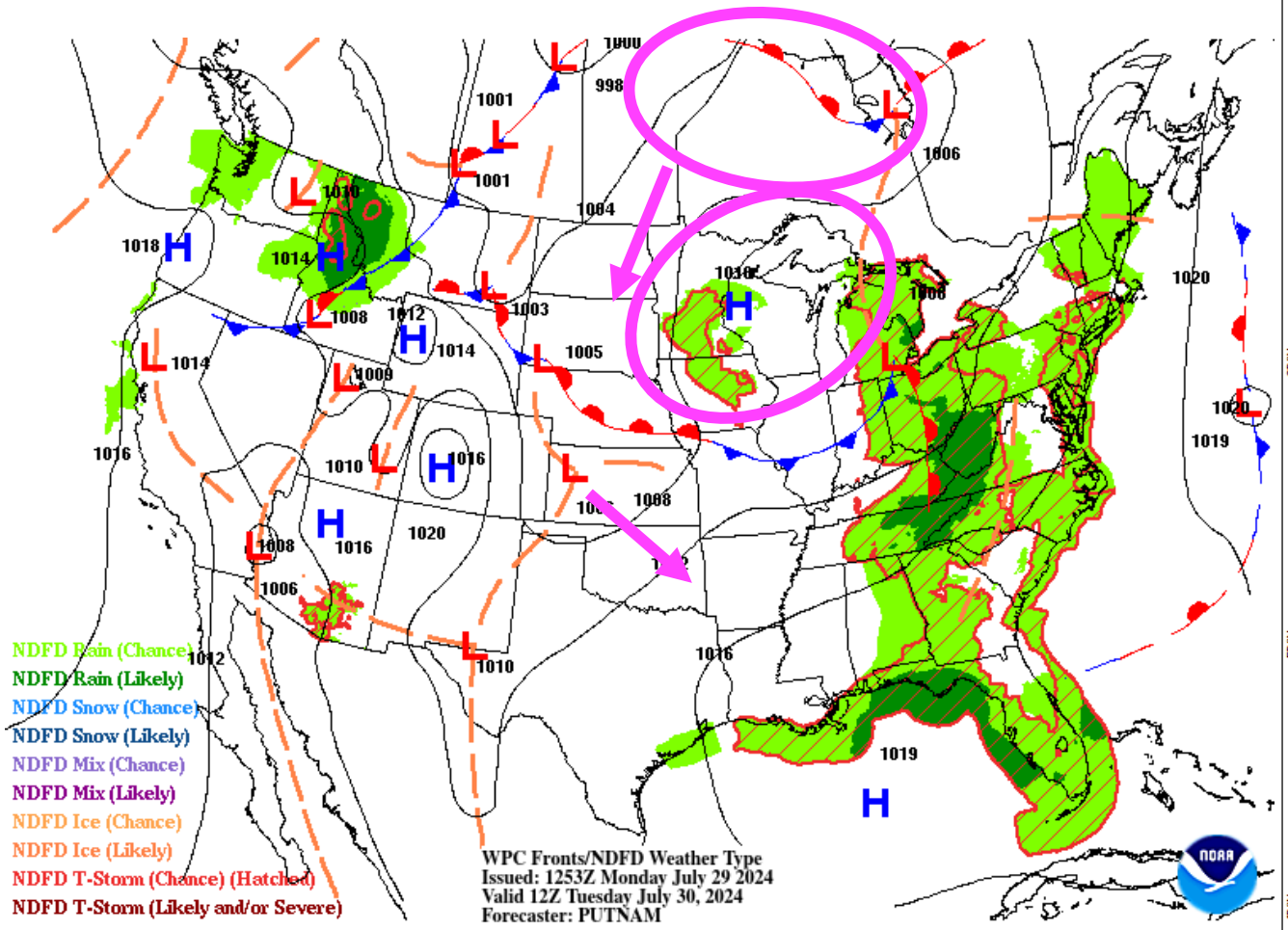
Init: 7/29 00z

VIIRS NOAA 20 True Color: https://worldview.earthdata.nasa.gov

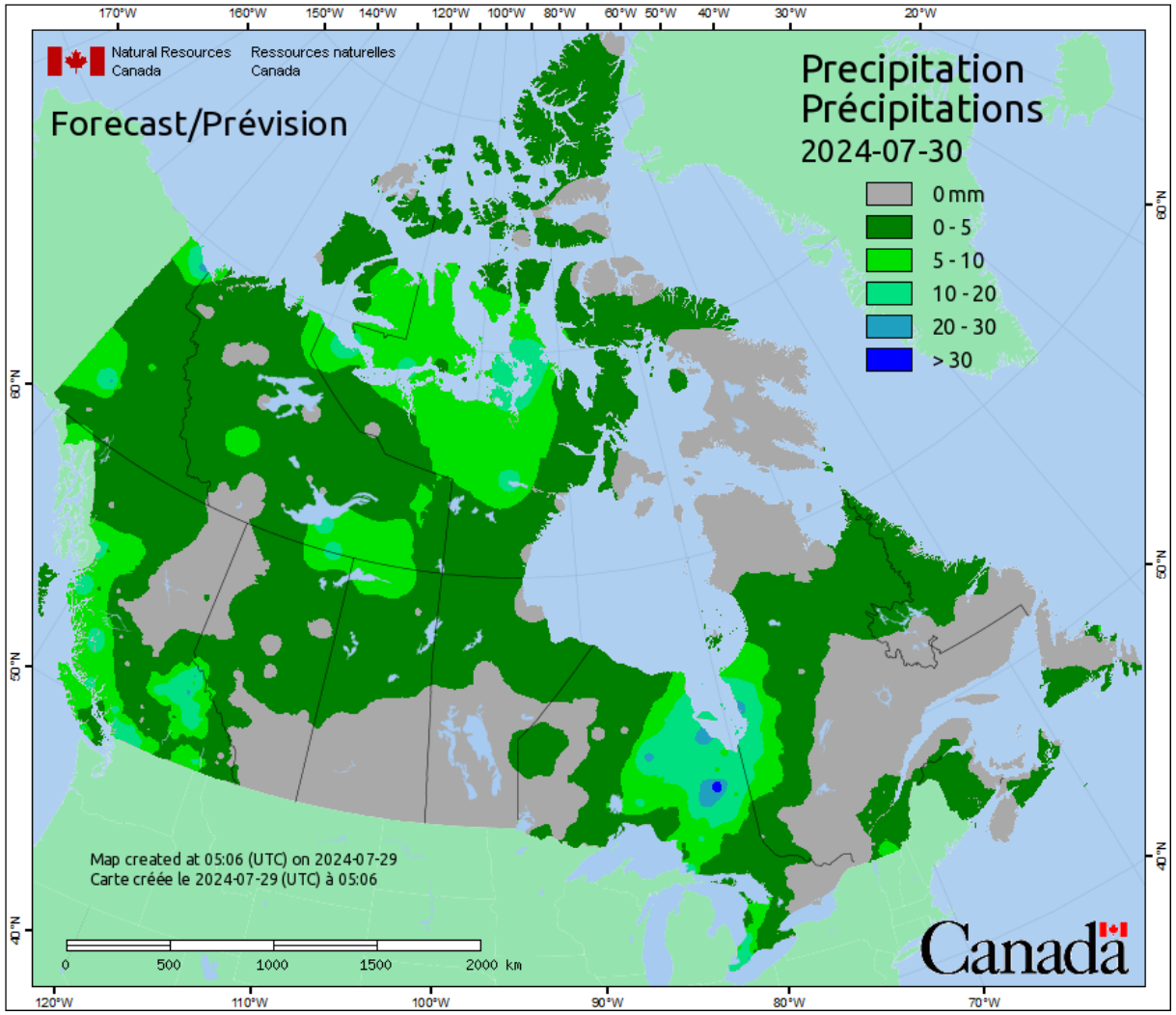
Outlook: Short Range (1–3 days)

Surface Forecast (Tuesday 7/23)

US NWS Forecast

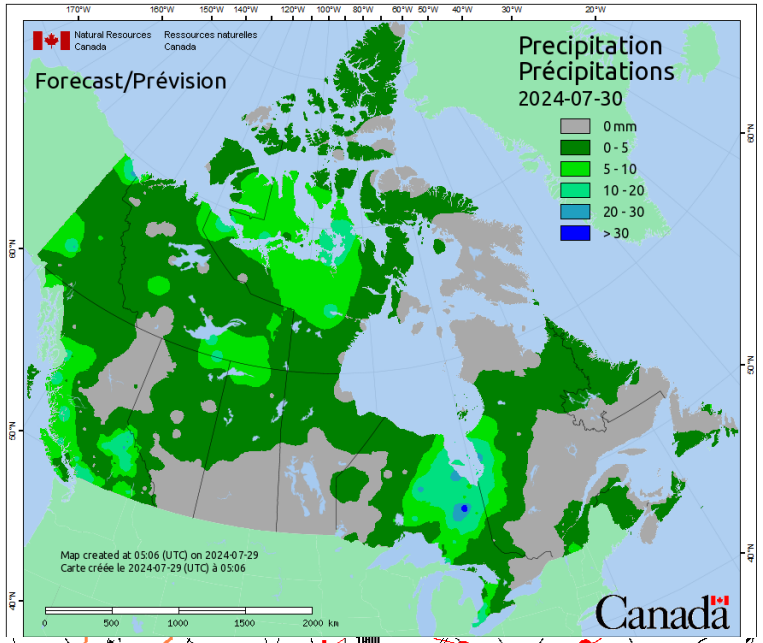


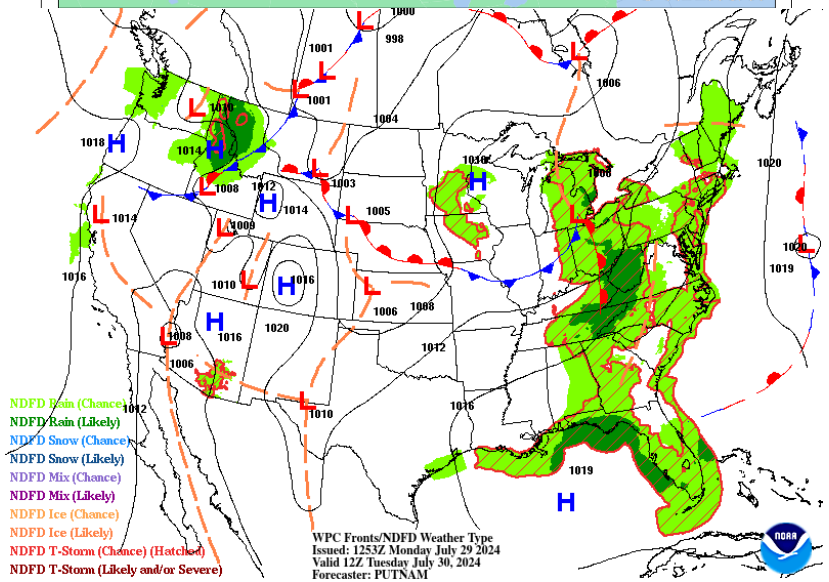
Environment Canada Forecast



Outlook: Short Range (1–3 days)

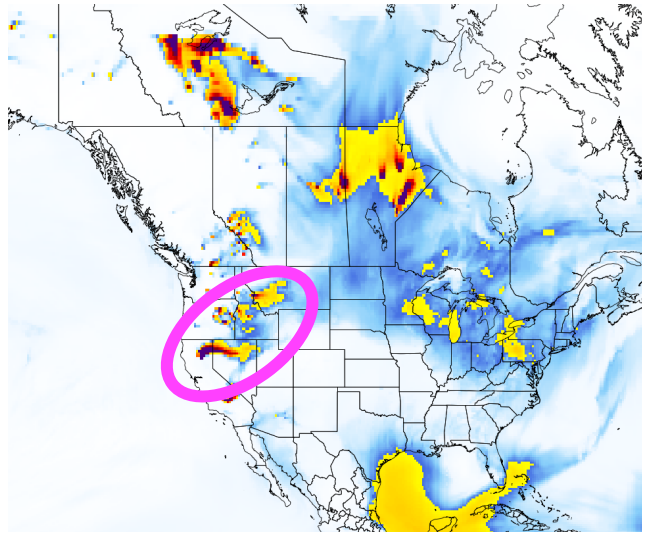
Surface Forecast (Tues 7/30)



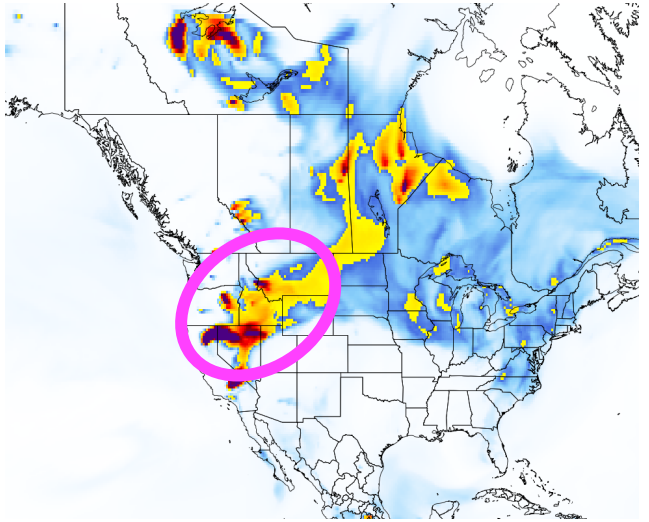


Model Means $PM_{2.5}$ (Tues 7/30)

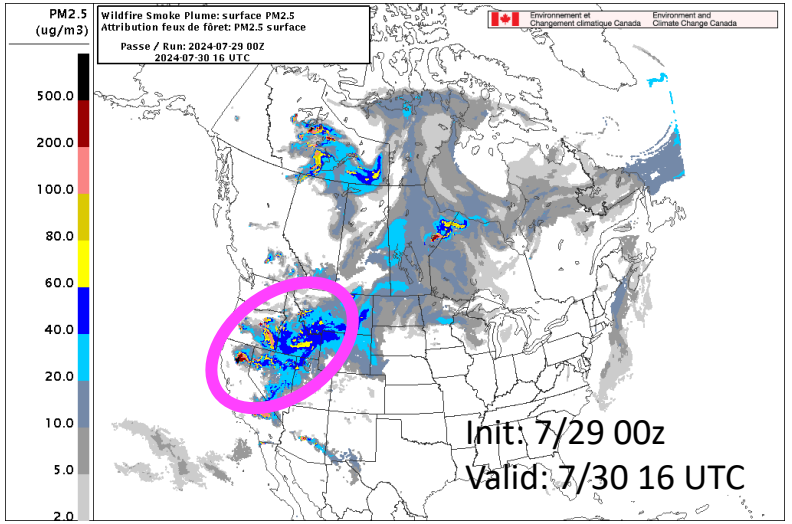
GEOS-FP



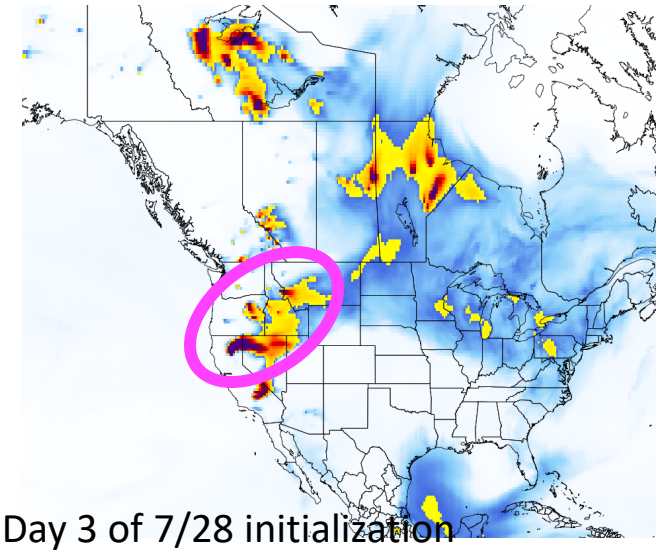
GEOS-CF

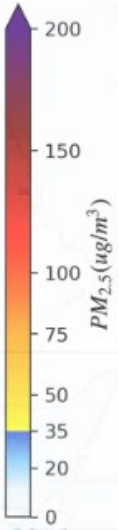


Canada Firework



Ensemble



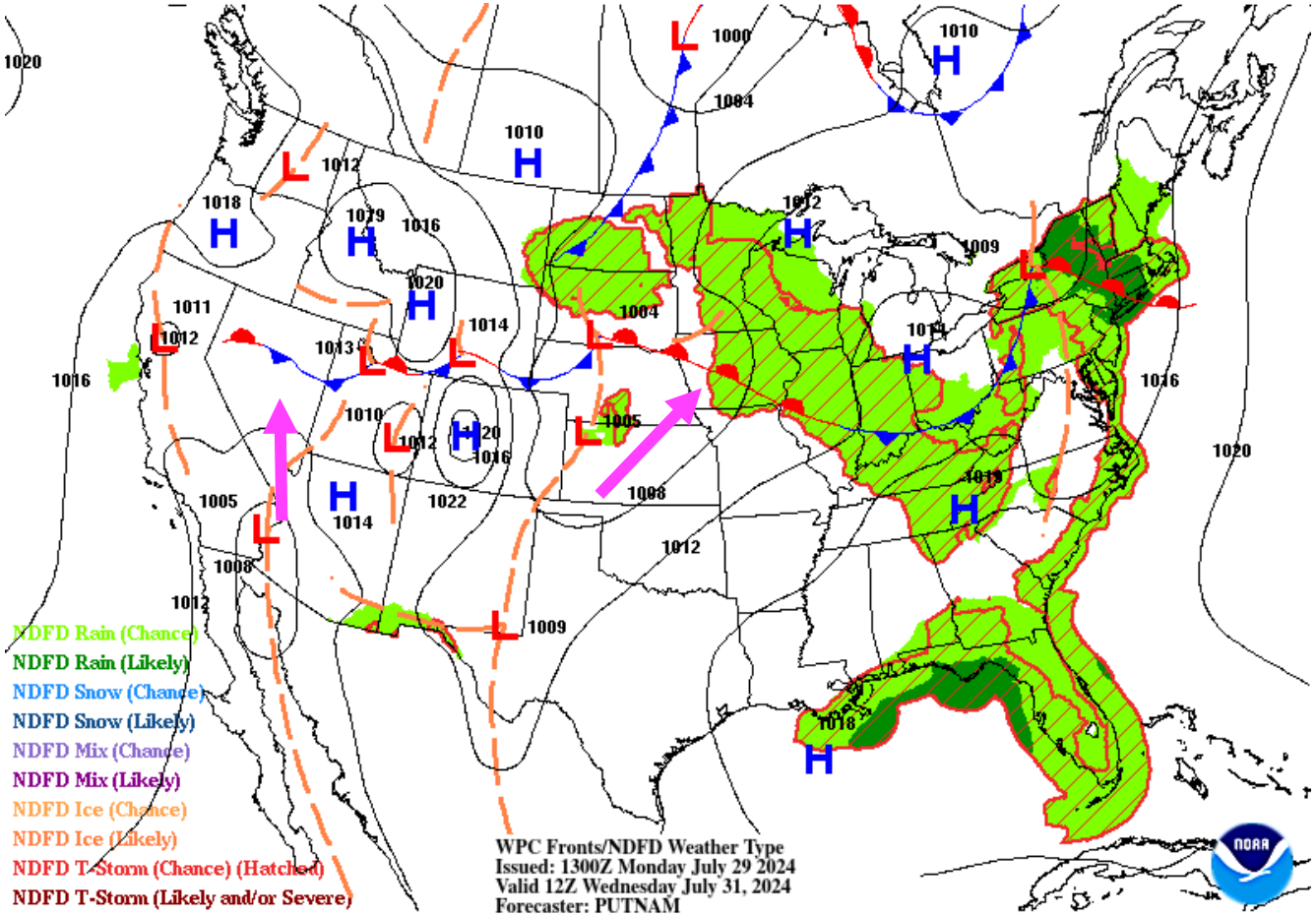


Day 3 of 7/28 initialization

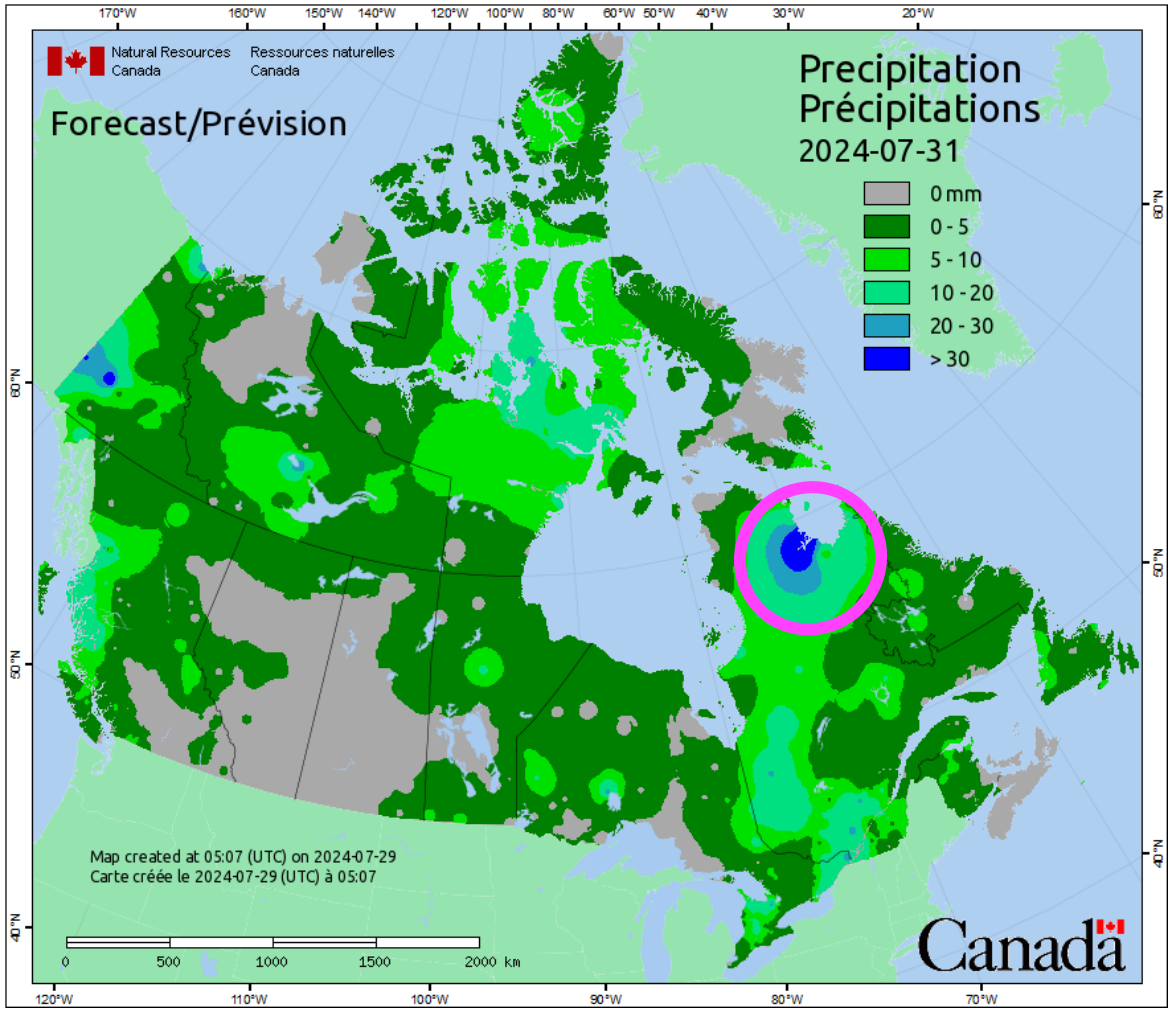
Outlook: Short Range (1–3 days)

Surface Forecast (Wednesday 7/24)

US NWS Forecast

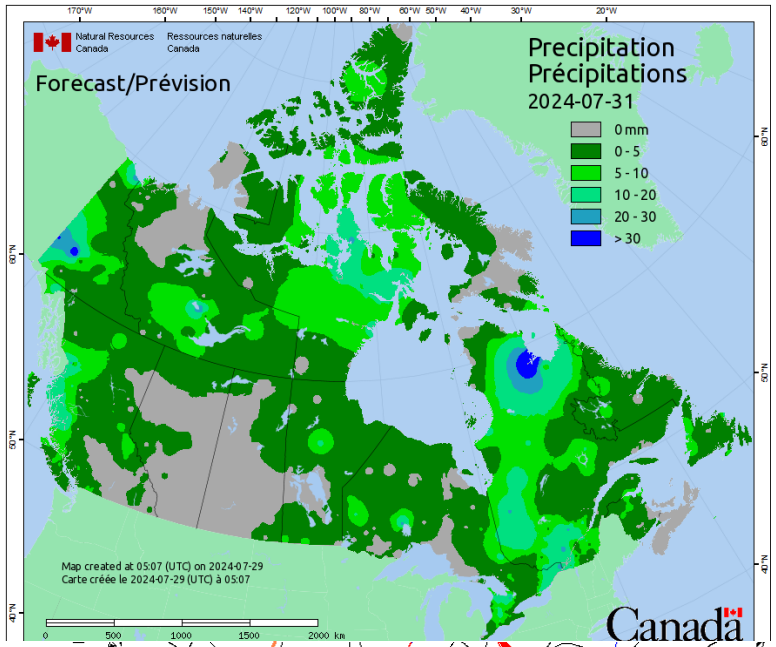


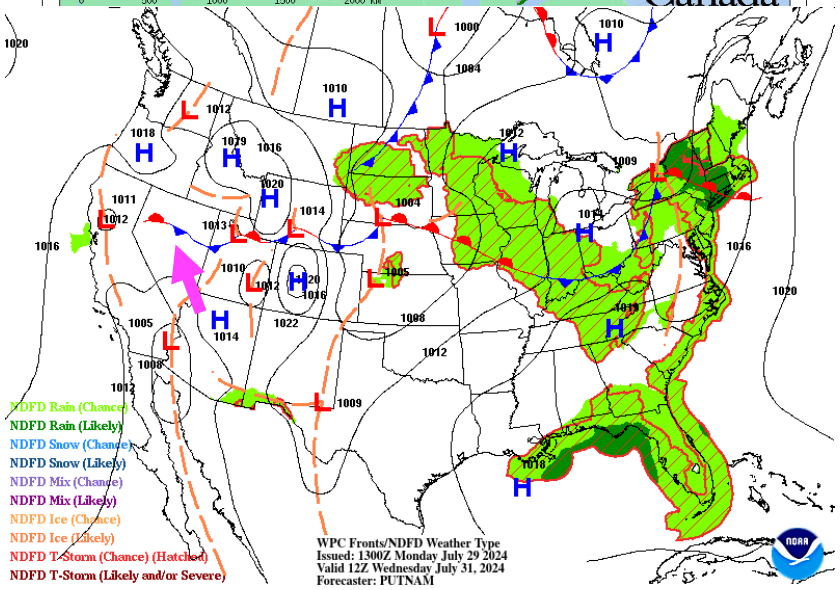
Environment Canada Forecast

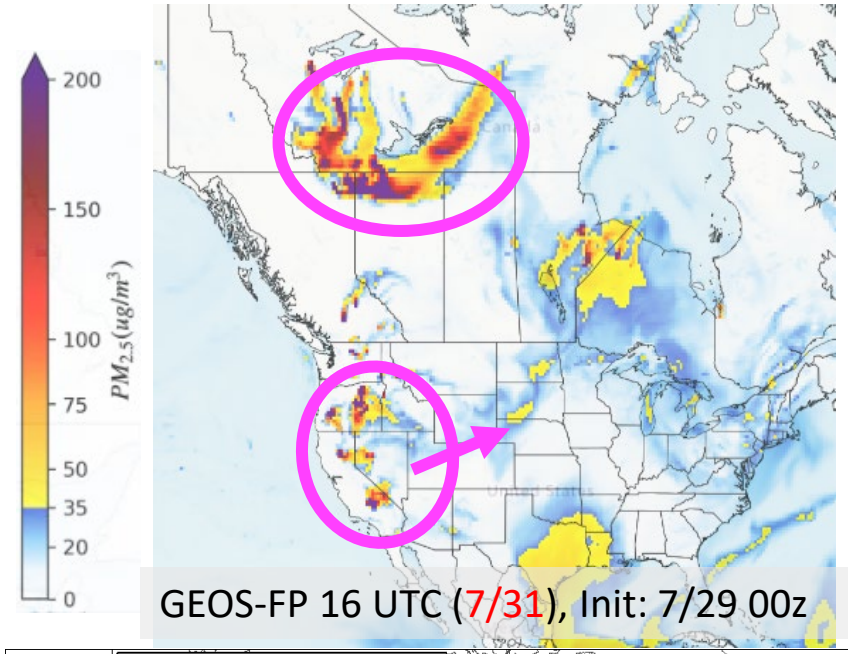


Outlook: Short Range (1–3 days)

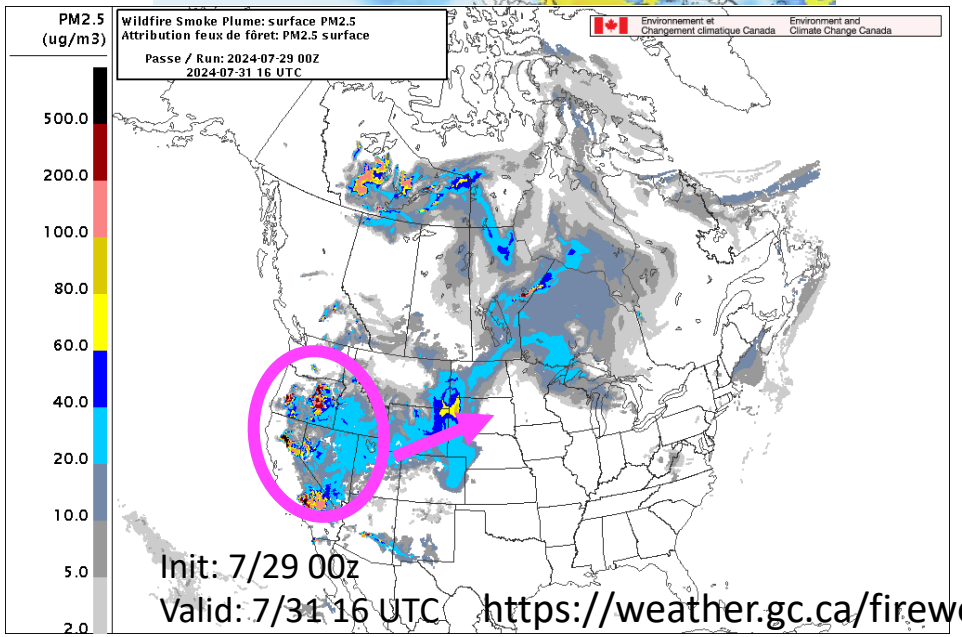
Surface Forecast (Wednesday 7/31)





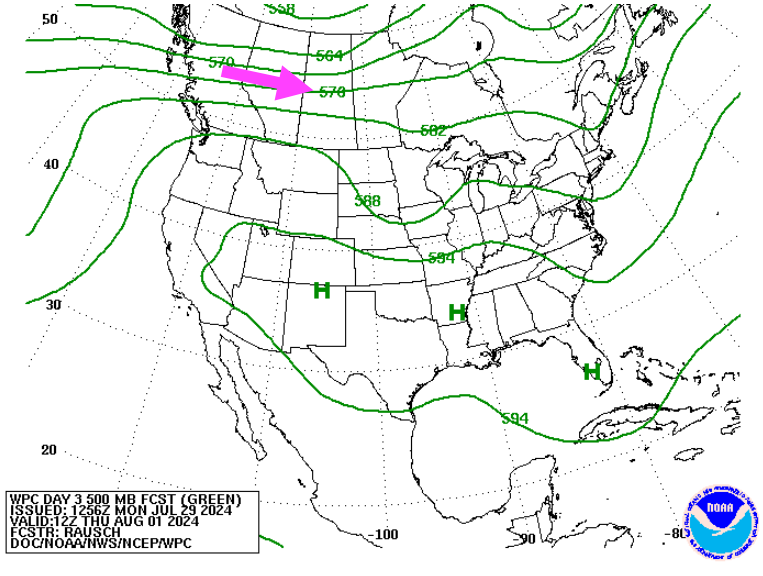
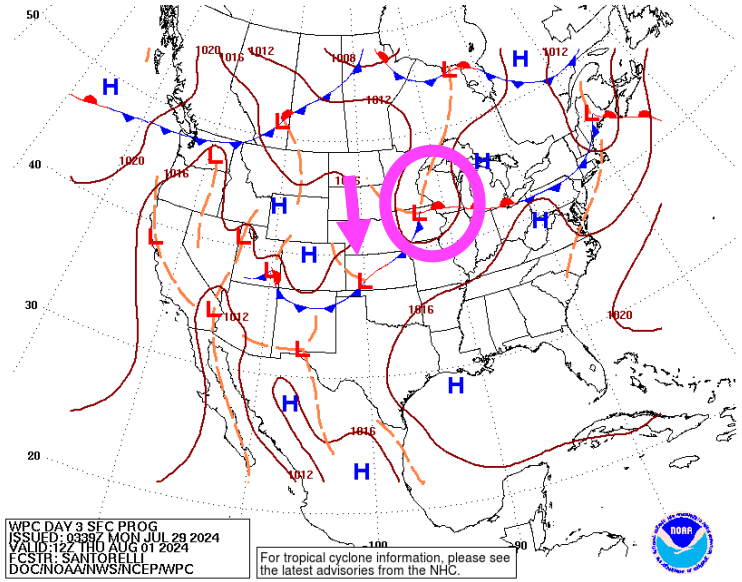
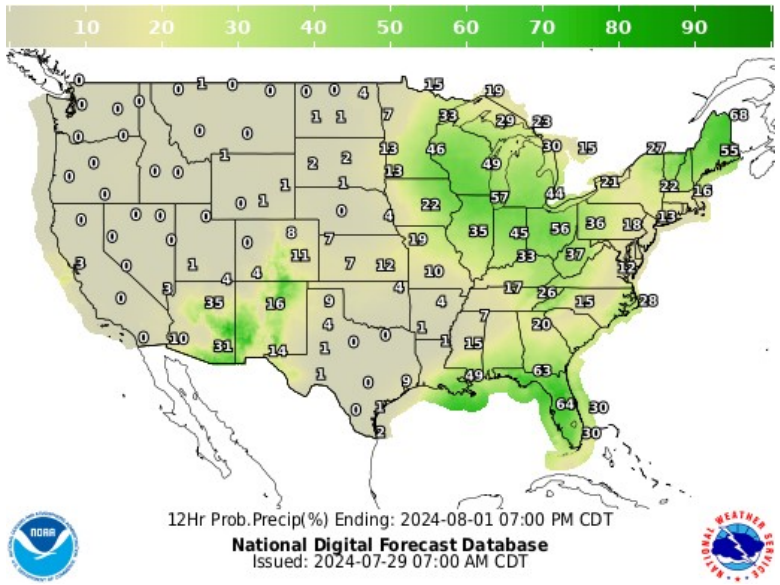
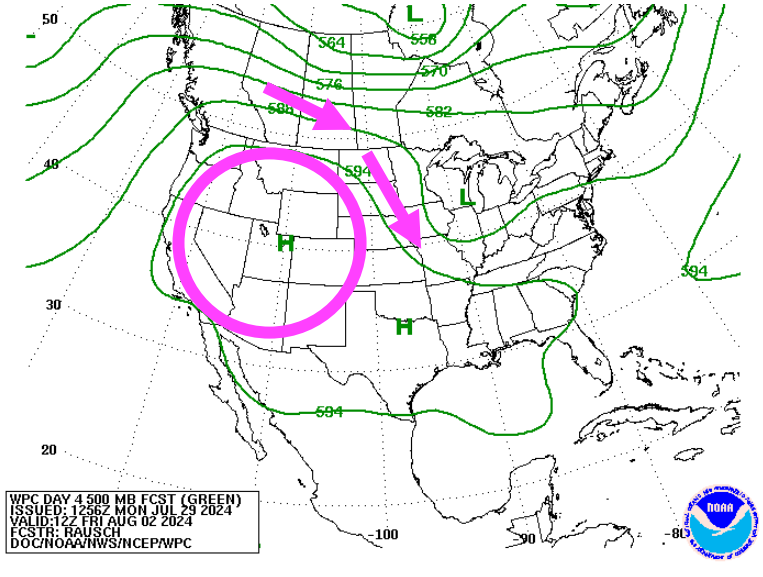
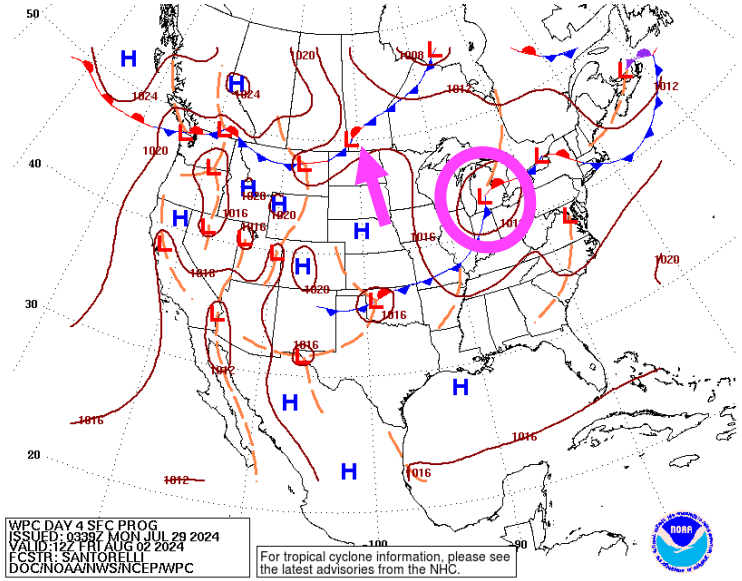
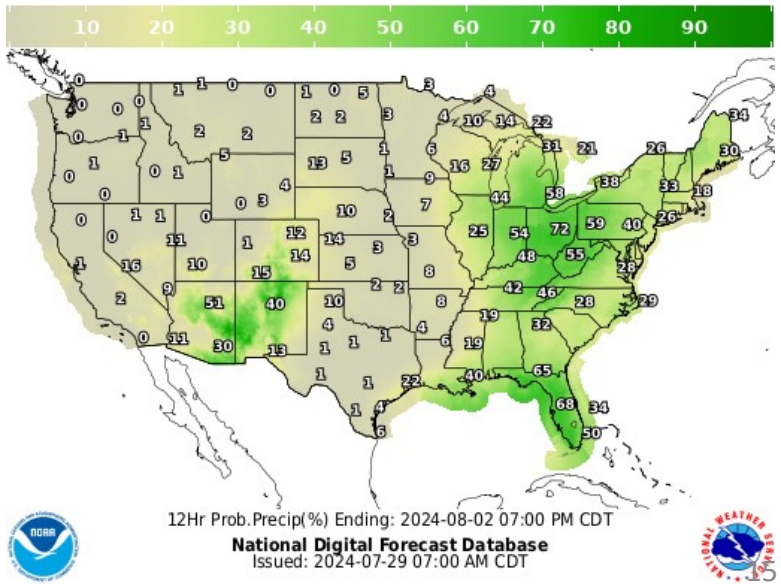


GEOS-FP 16 UTC (7/31), Init: 7/29 00z



Init: 7/29 00z
Valid: 7/31 16 UTC https://weather.gc.ca/firework

Outlook: Medium Range

	500 mb Contours	Sea Level	Precip Prob.
Thurs 8/1			
Friday 8/2			

Summary

Monday : CA and OR wildfires are impacting air quality (mod -> unhealthy) in PNW US. Mod AQI in eastern US is minimal, if any, impact from smoke transport.

T → W : CA and OR wildfire smoke is predicted to be transported east and impact AQ in CO, ID, WY, MT. Canadian wildfires will have minimal impact to AQ in US.

Th → F: High pressure aloft over western/central US could promote smoke transport aloft from CA and OR wildfires as well as continued impact to western US AQ.