

Weather and Air Quality: Reflection and Outlook During Smoke Conditions

Presenter: Megan Christiansen
Date: July 22, 2024

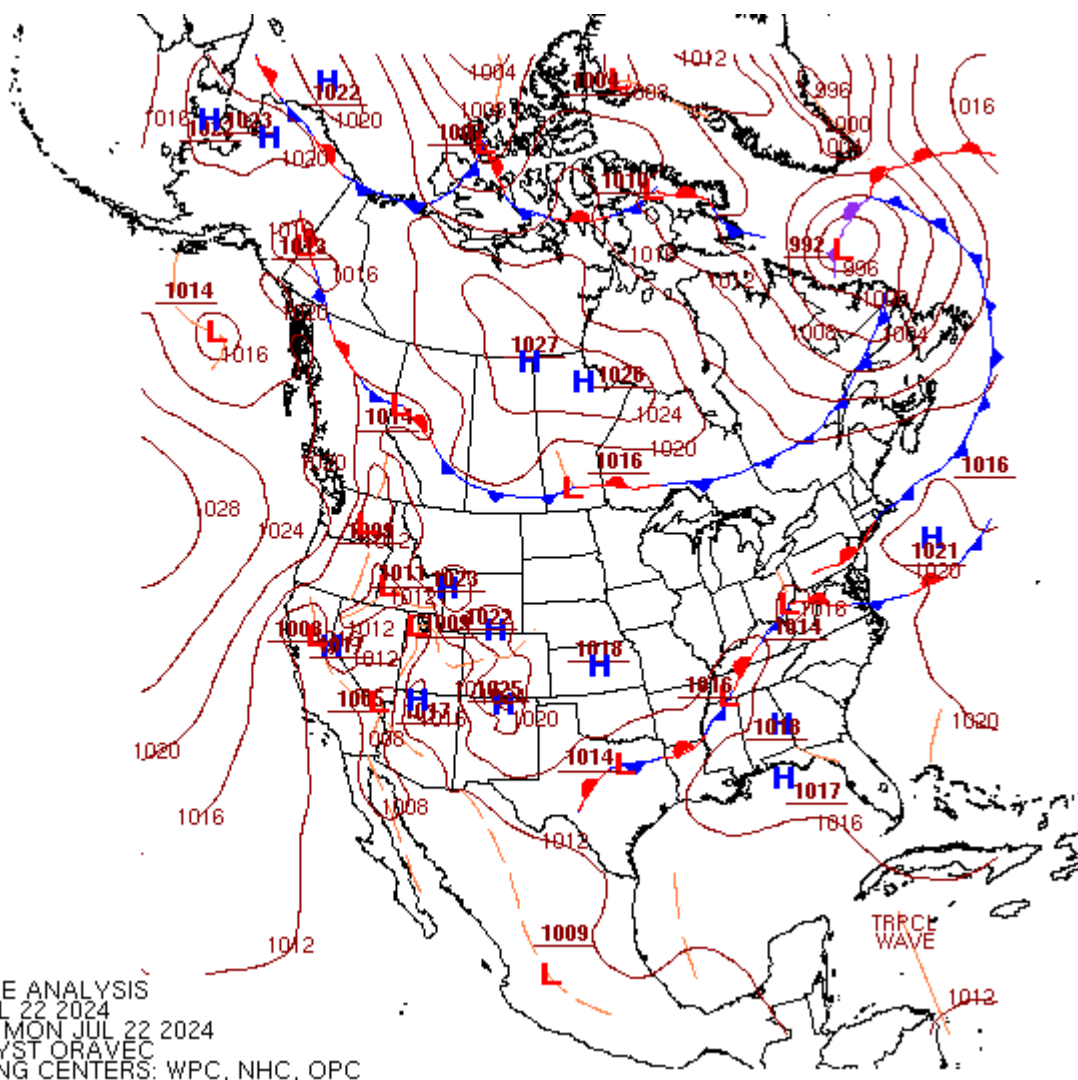


FireAQ is funded by NASA HAQ. We thank NASA GMAO and
NRL for the model data products.

EARTH SCIENCE
APPLIED SCIENCES

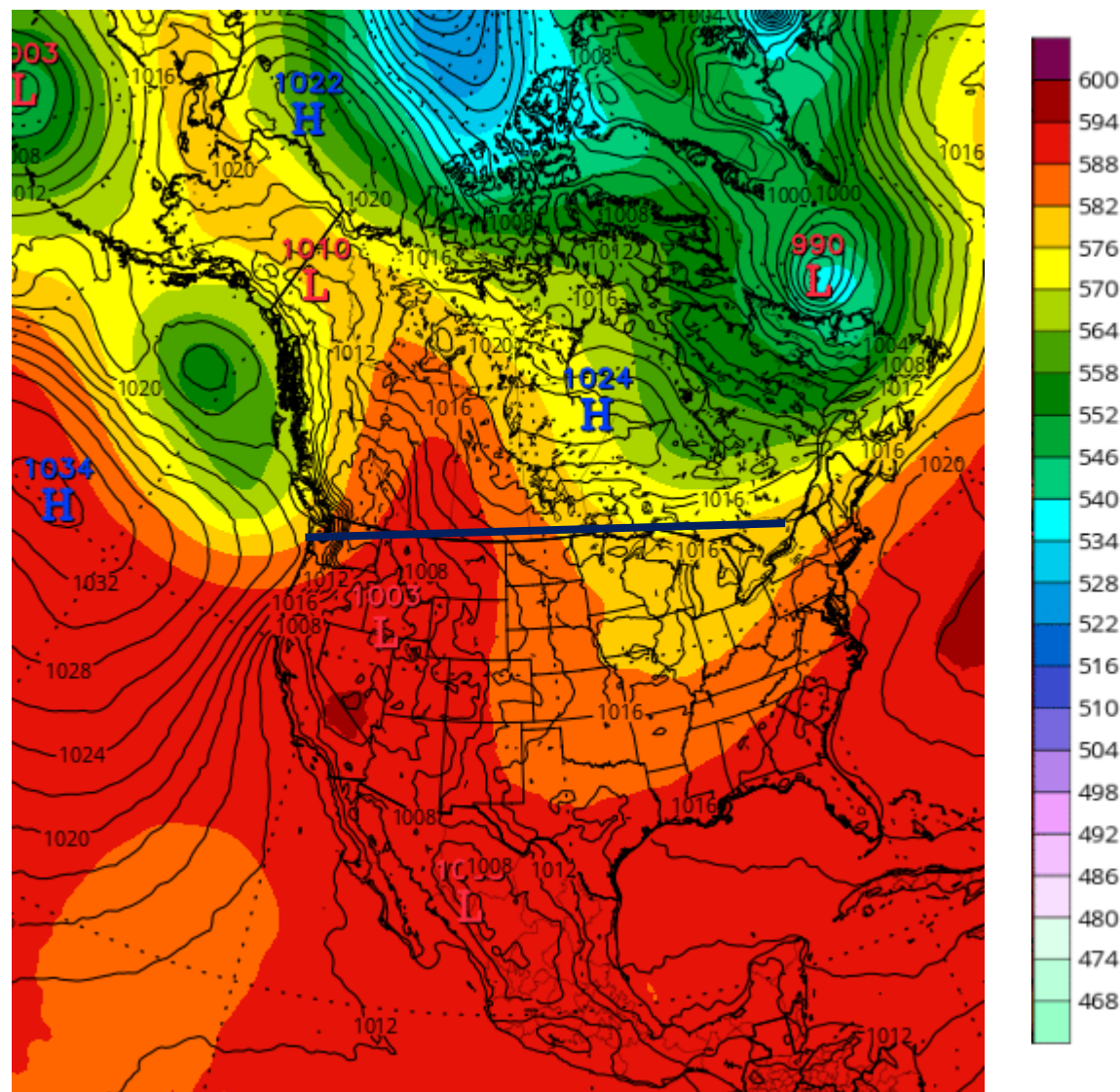
Current Status: July 22, 2024

Surface Analysis



1200Z SURFACE ANALYSIS
DATE: MON JUL 22 2024
ISSUED: 1328Z MON JUL 22 2024
BY WPC ANALYST ORAVEC
COLLABORATING CENTERS: WPC, NHC, OPC

500 mb Contours

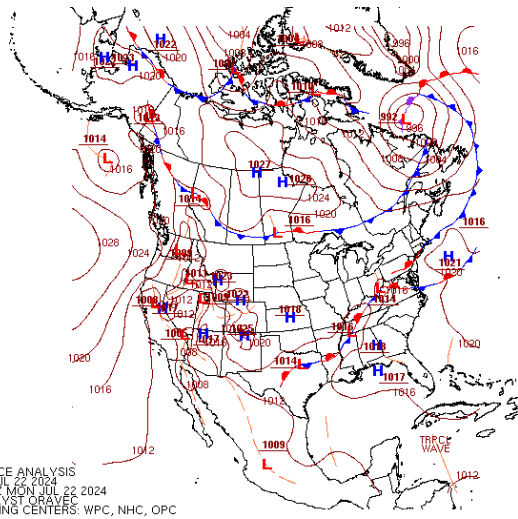


GFS 500mb Geopotential Height (dam) & MSLP (mb)

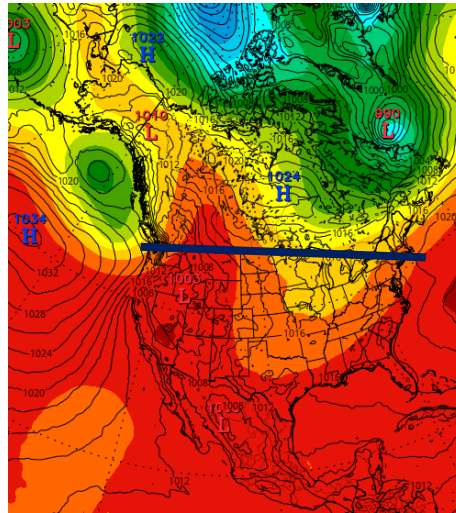
Init: 06z Jul 22 2024 Forecast Hour: [12] valid at 18z Mon, Jul 22 2024

Current Status: July 22, 2024

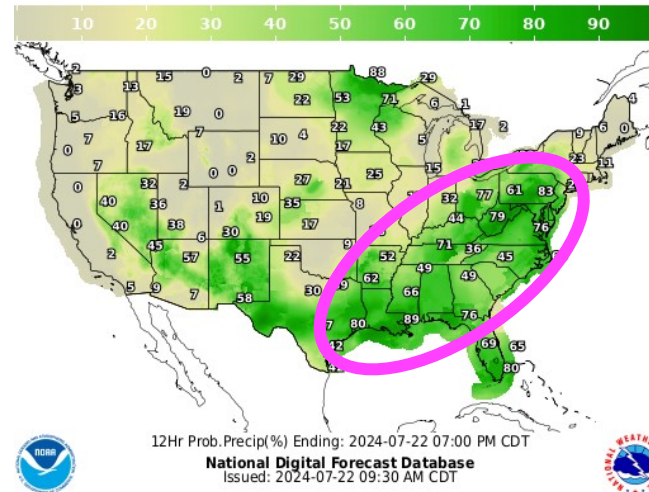
Surface Analysis



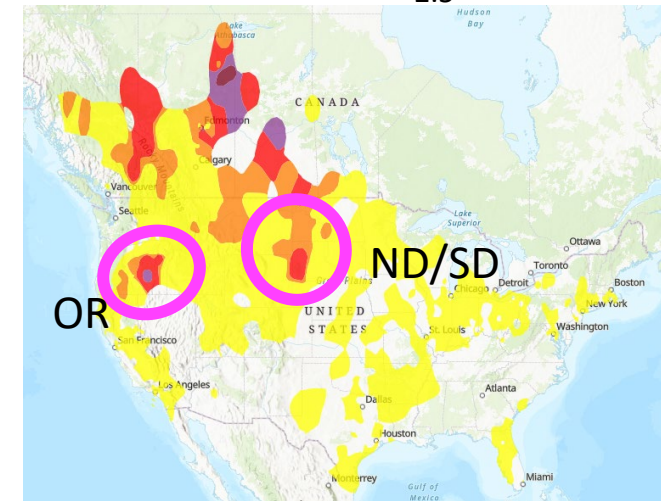
500 mb Contours



Precip. Prob.

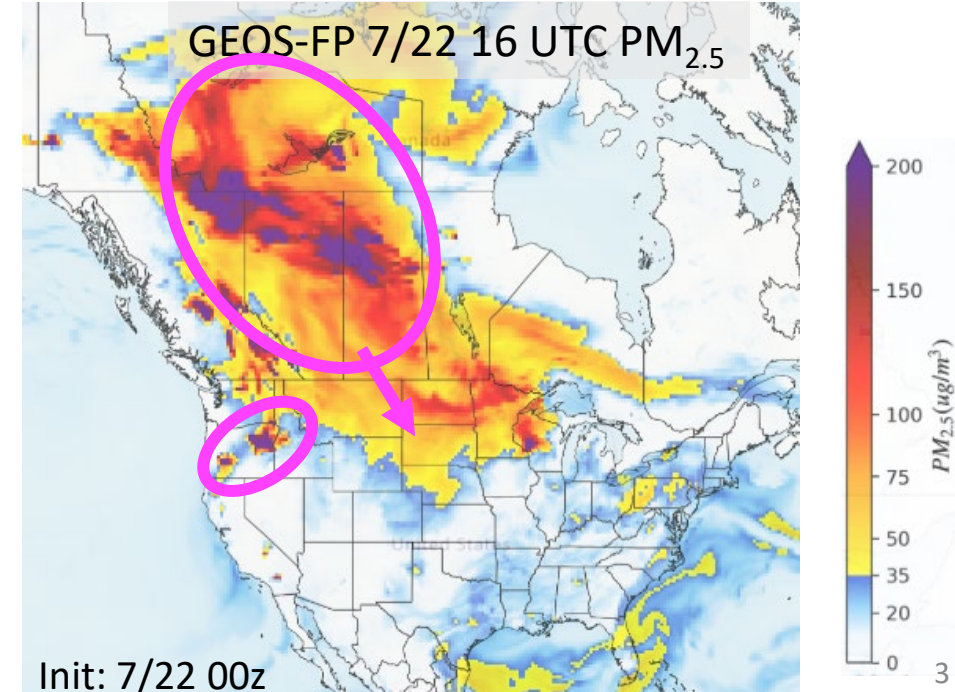


AirNow PM_{2.5} AQI

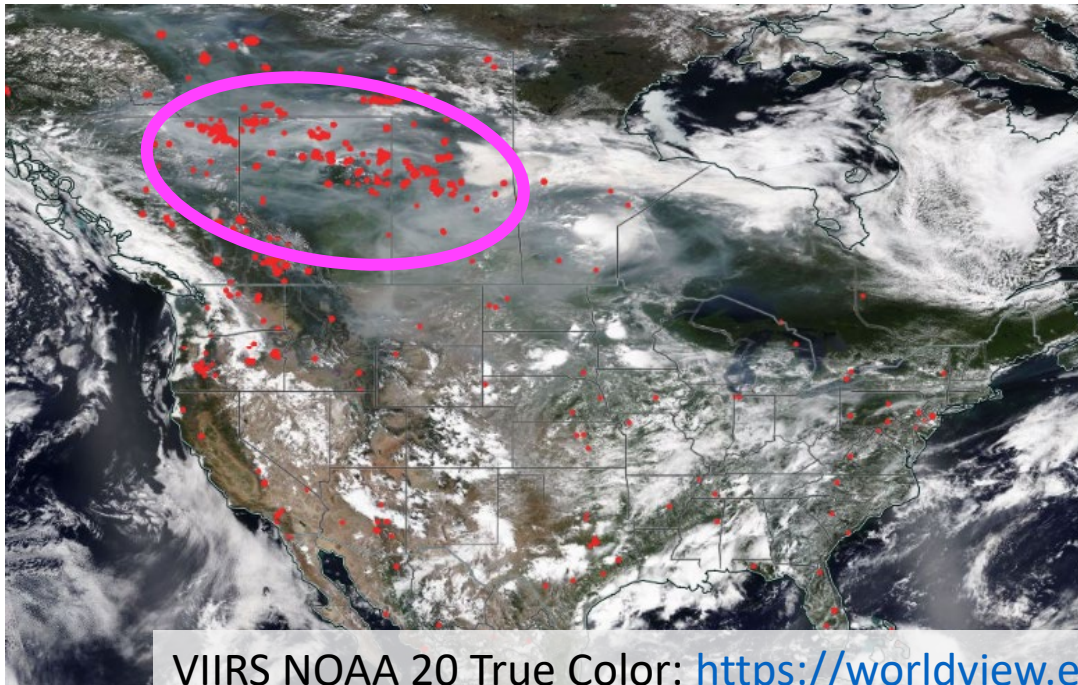


Sun 7/21

GEOS-FP 7/22 16 UTC PM_{2.5}

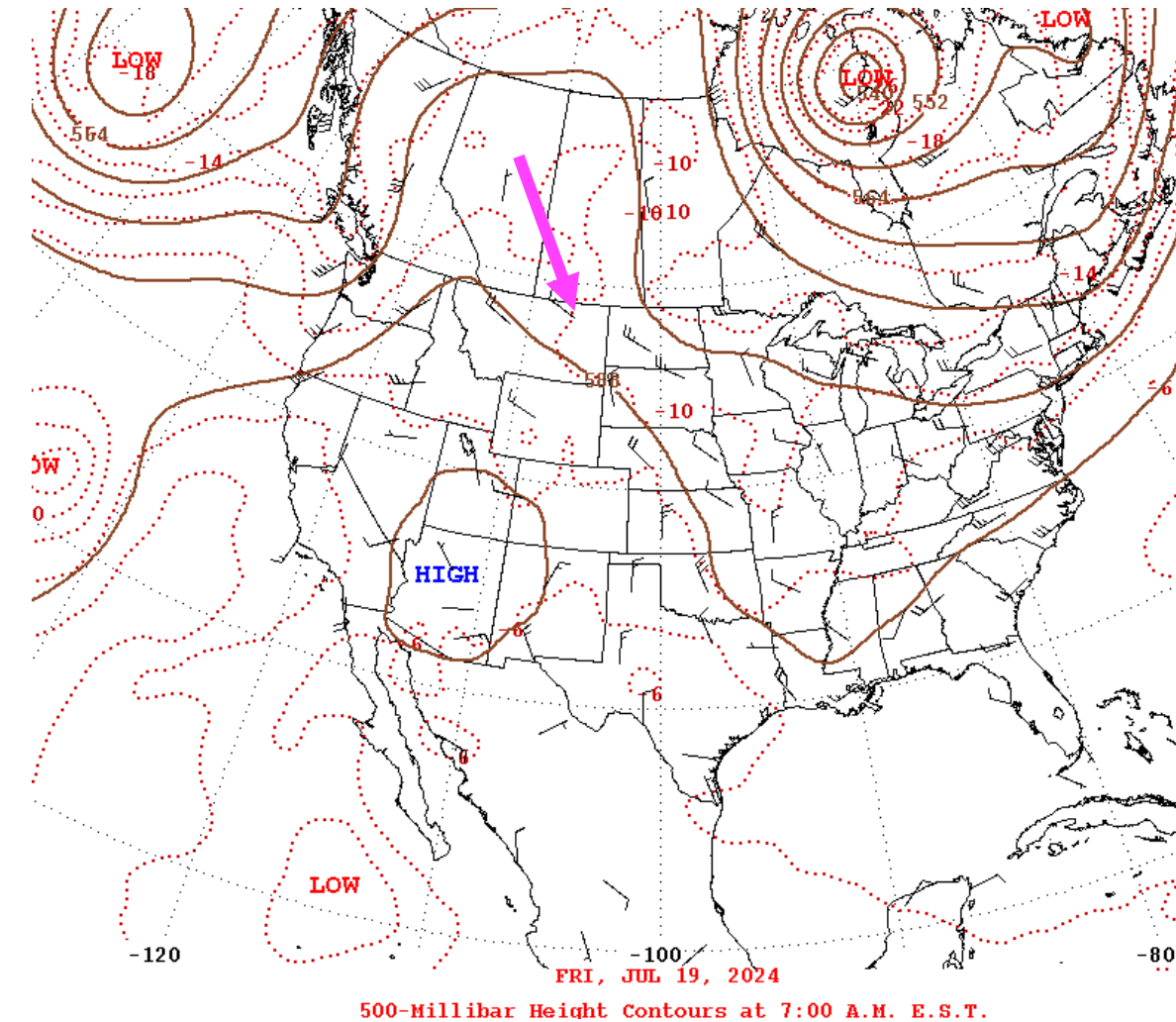


VIIRS NOAA 20 True Color: <https://worldview.earthdata.nasa.gov>

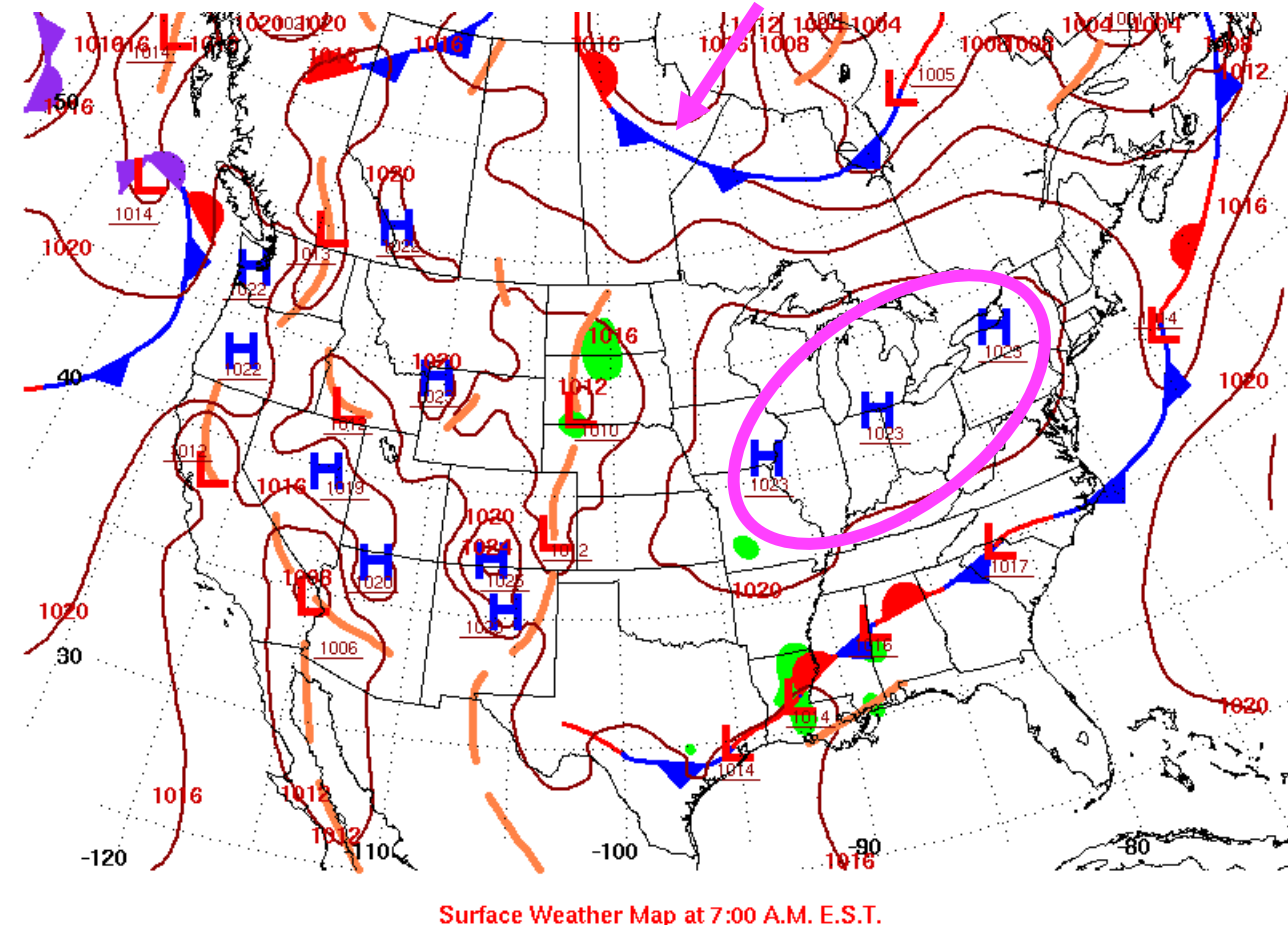


Air Quality Reflection: Friday July 19, 2024

500 hPa Contours

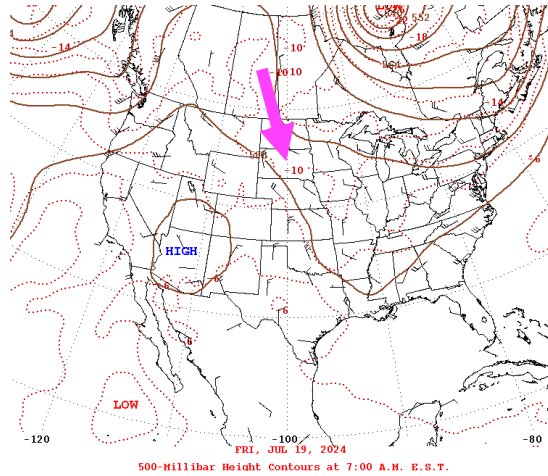


Surface Weather

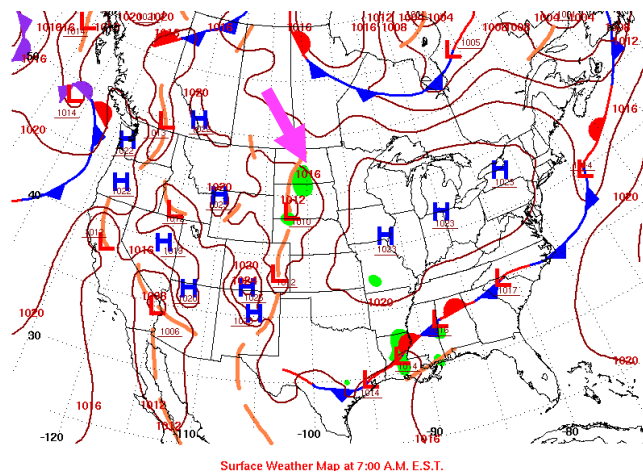


Air Quality Reflection: Friday July 19, 2024

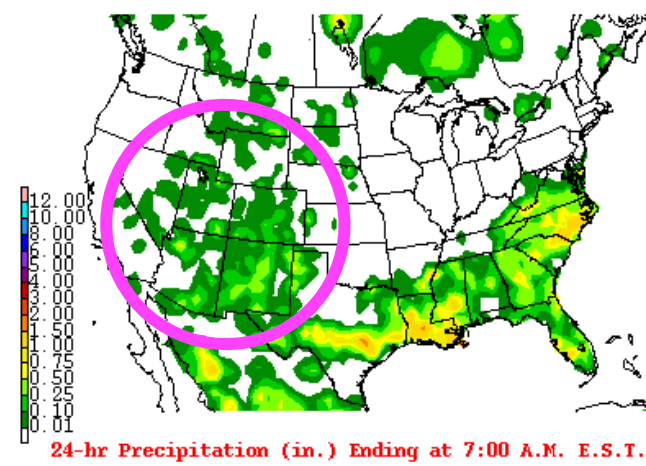
500 hPa Contours



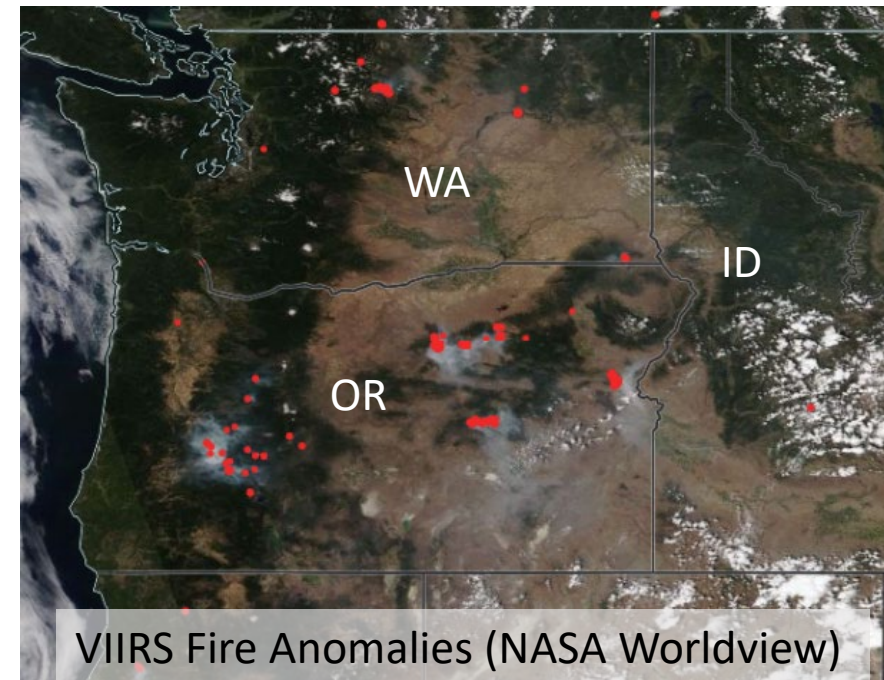
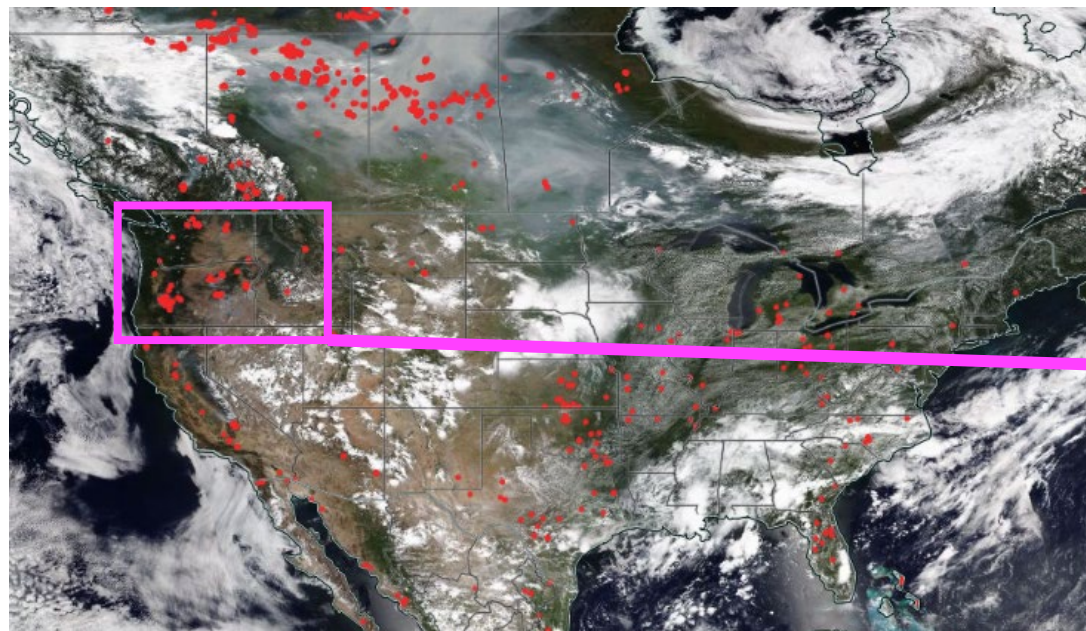
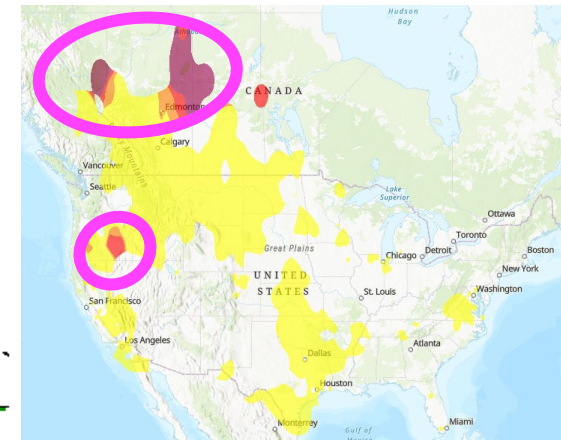
Surface Weather



Precipitation

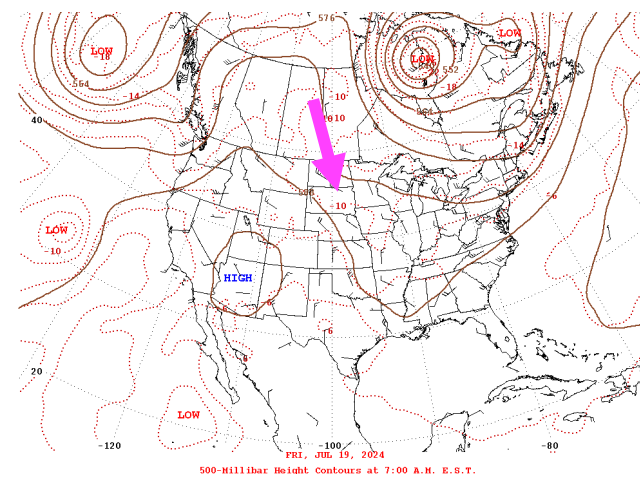


AirNow AQI

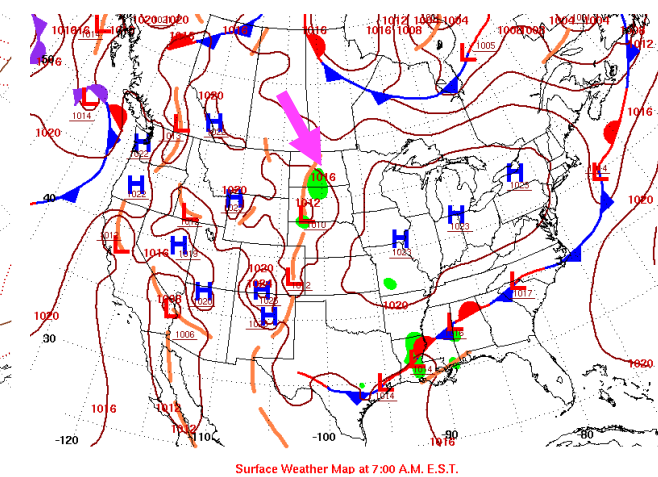


Air Quality Reflection: Friday July 19, 2024

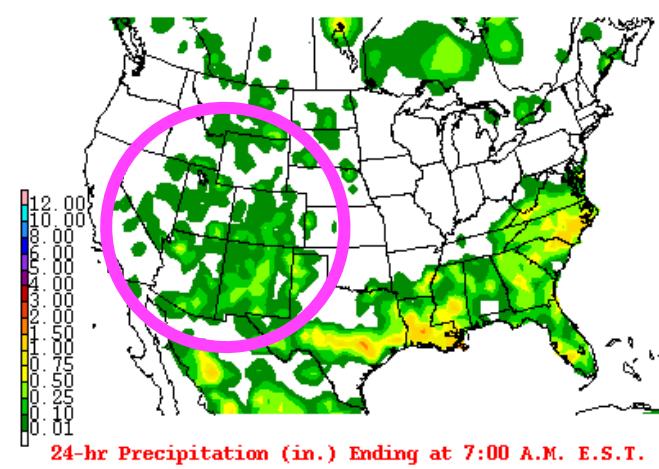
500 hPa Contours



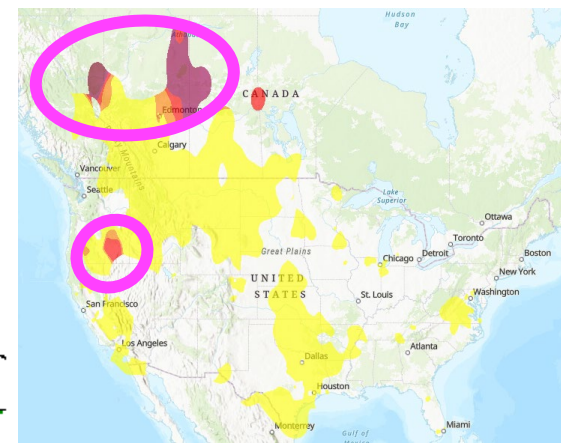
Surface Weather



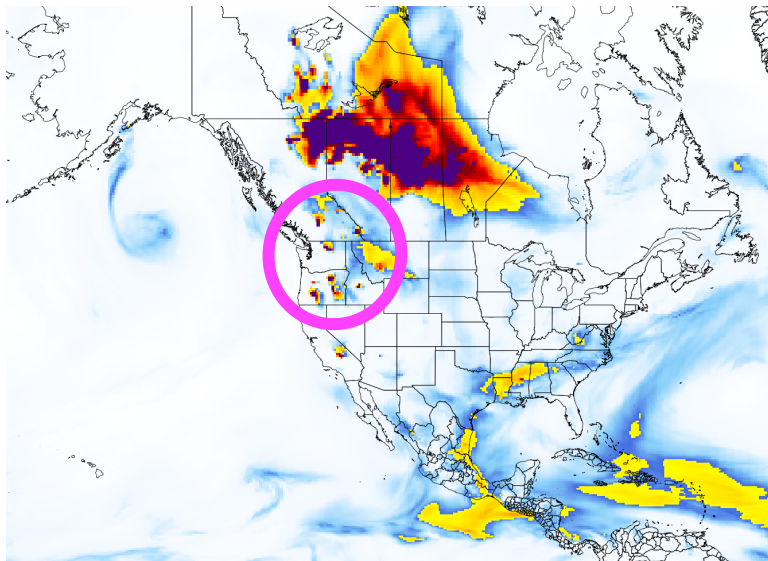
Precipitation



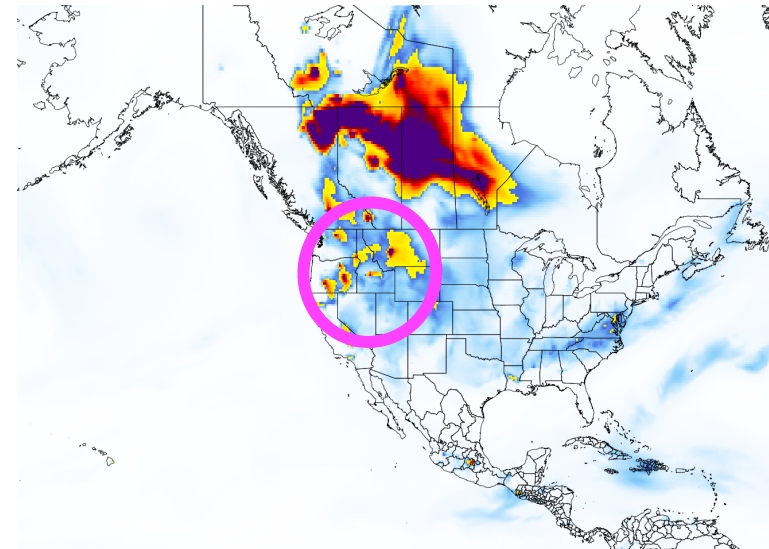
AirNow AQI



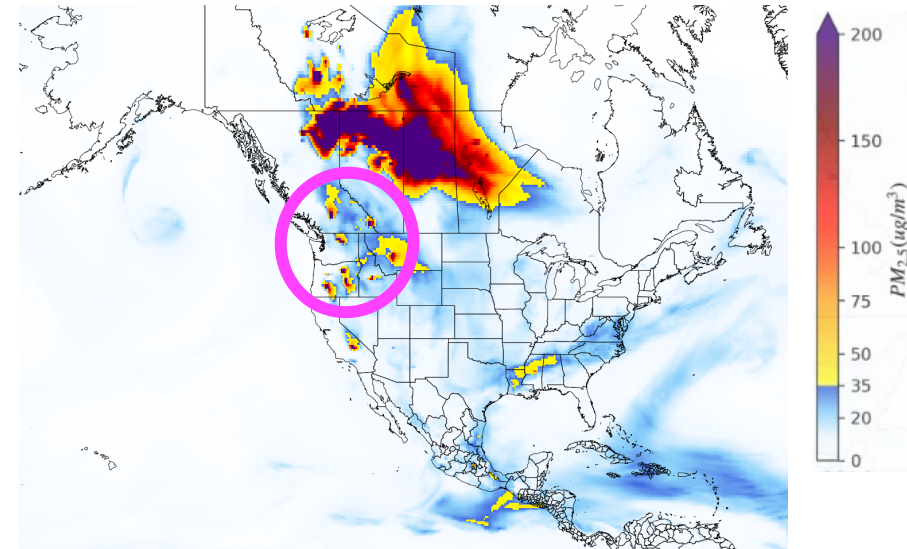
GEOS-FP



GEOS-CF

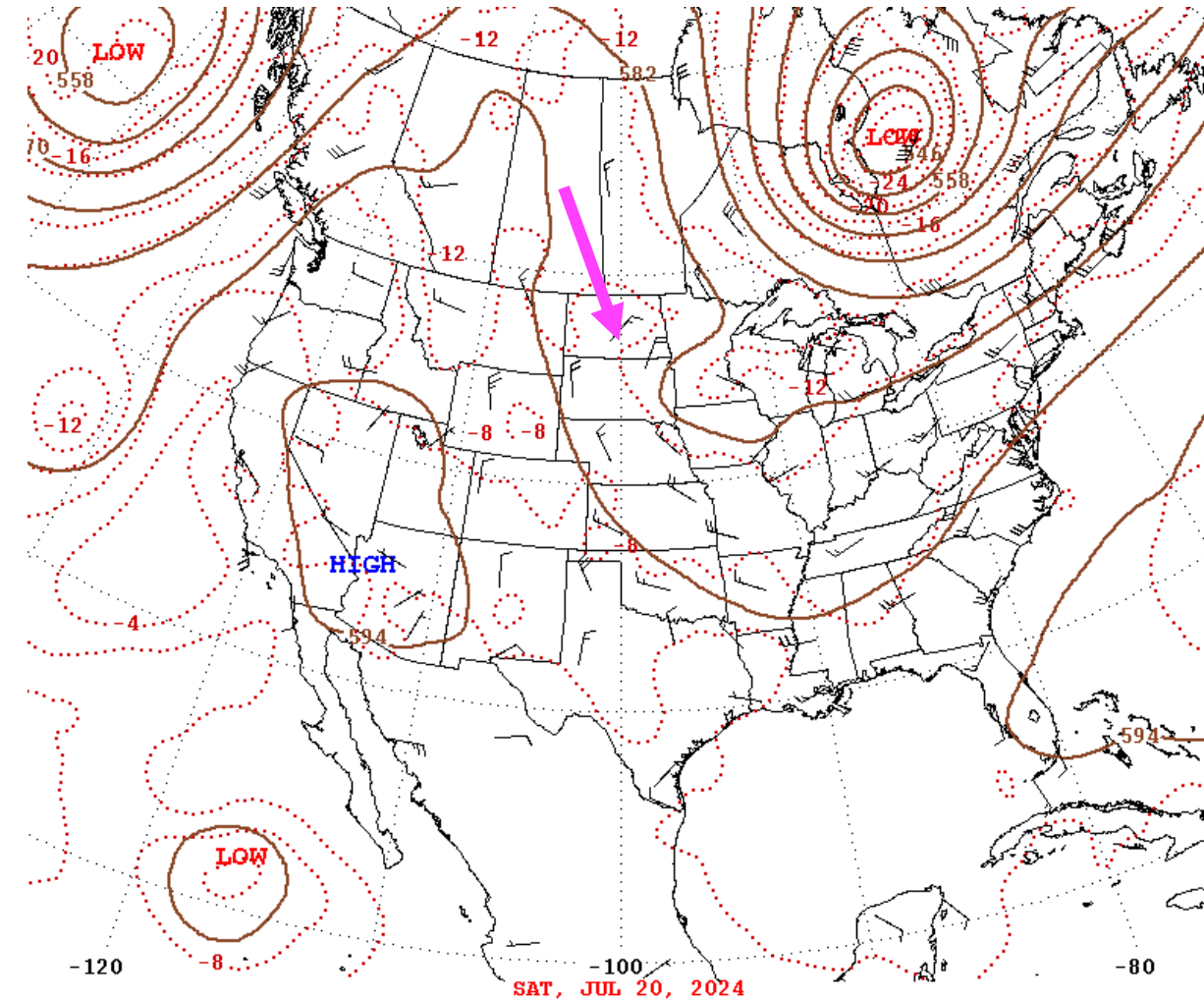


Ensemble



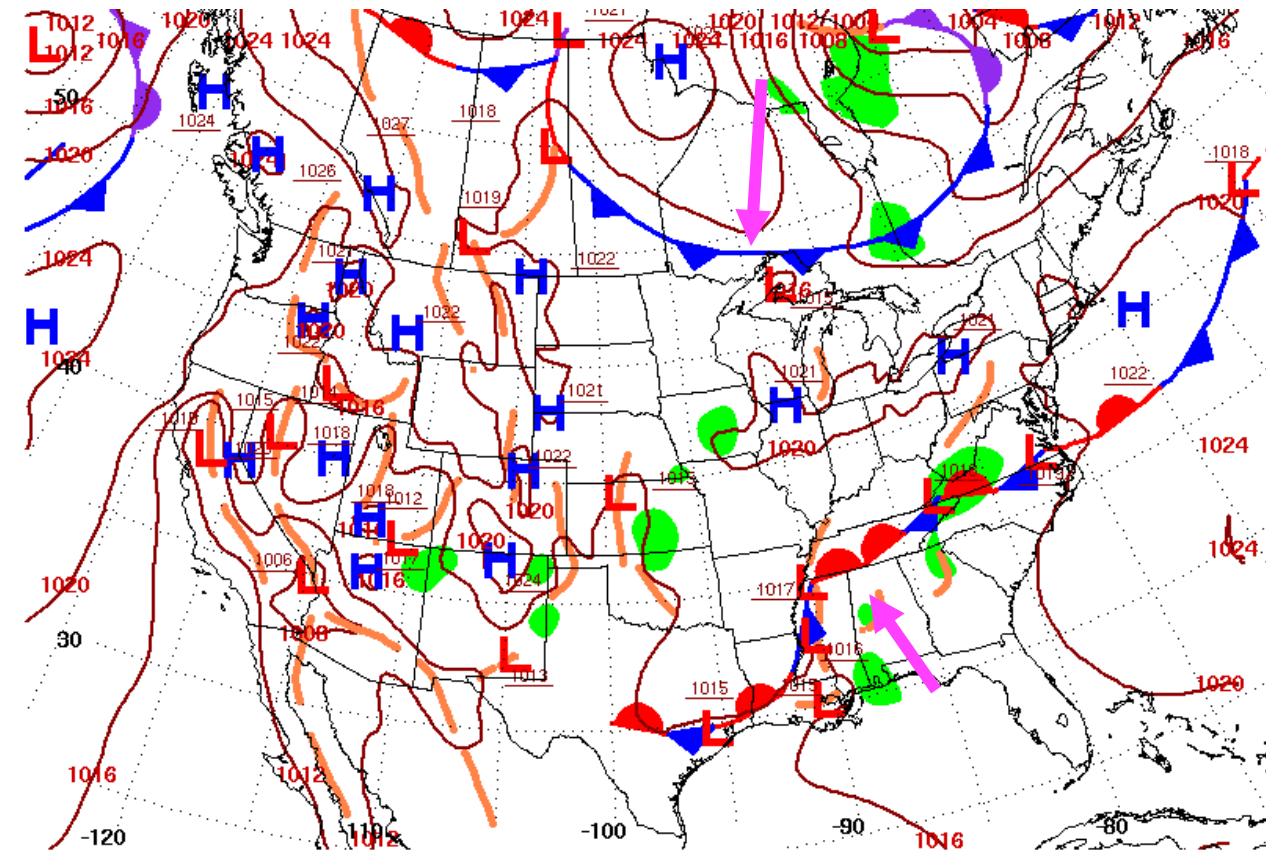
Air Quality Reflection: Saturday July 20, 2024

500 hPa Contours



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

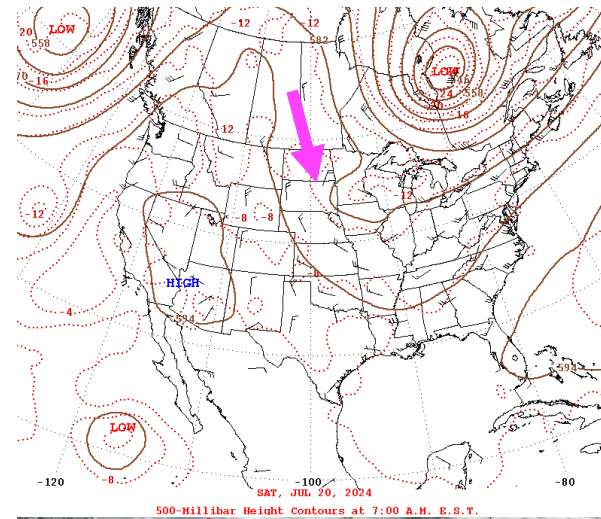
Surface Weather



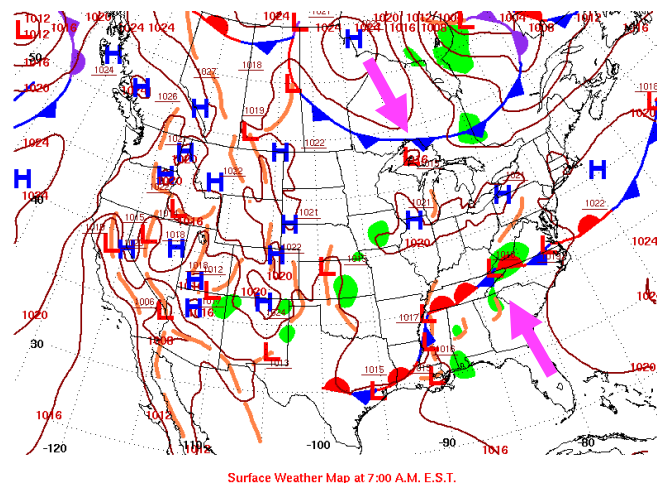
Surface Weather Map at 7:00 A.M. E.S.T.

Air Quality Reflection: Saturday July 20, 2024

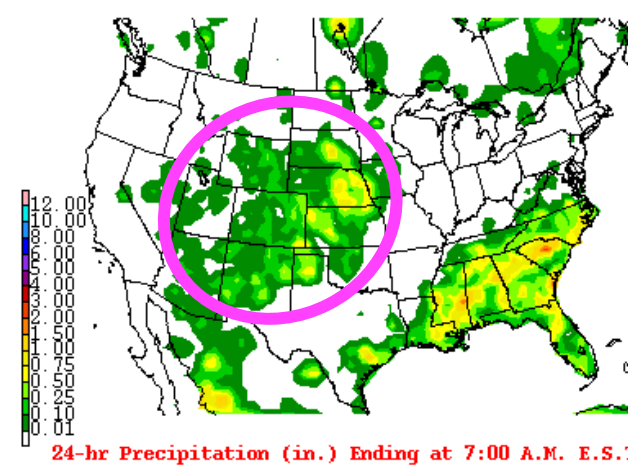
500 hPa Contours



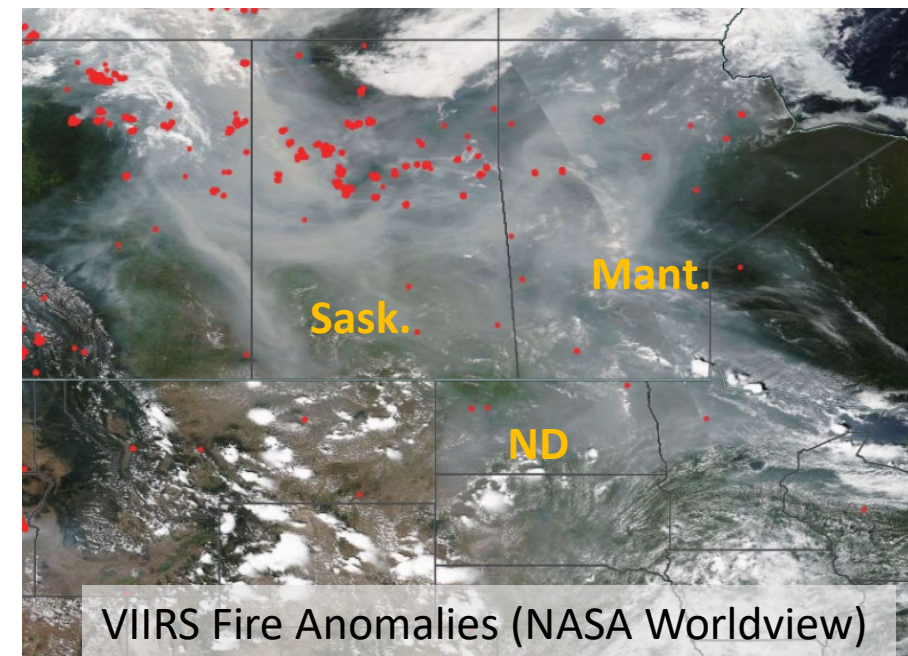
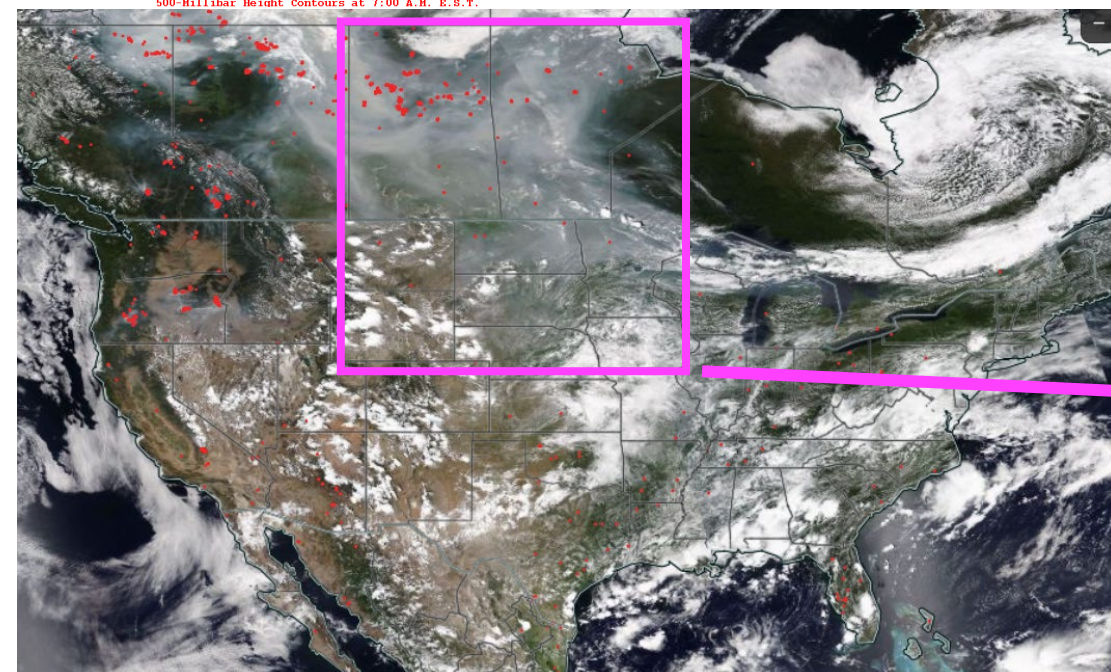
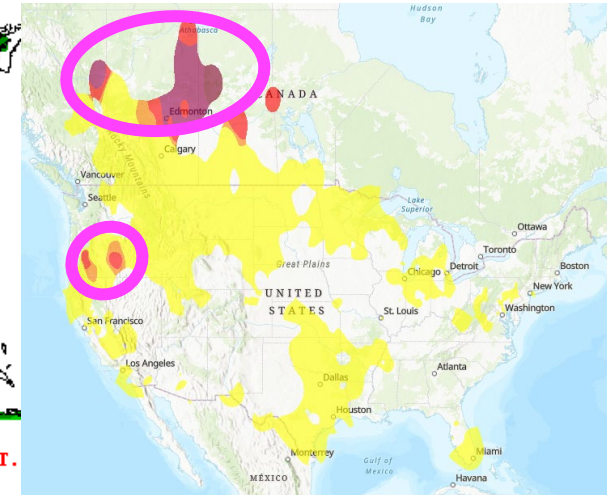
Surface Weather



Precipitation

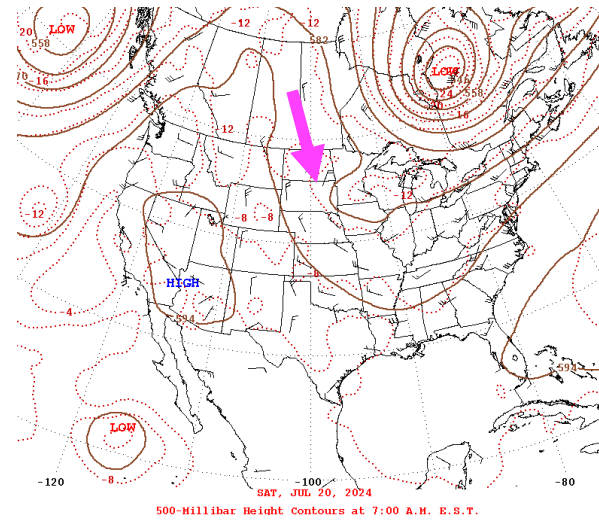


AirNow AQI

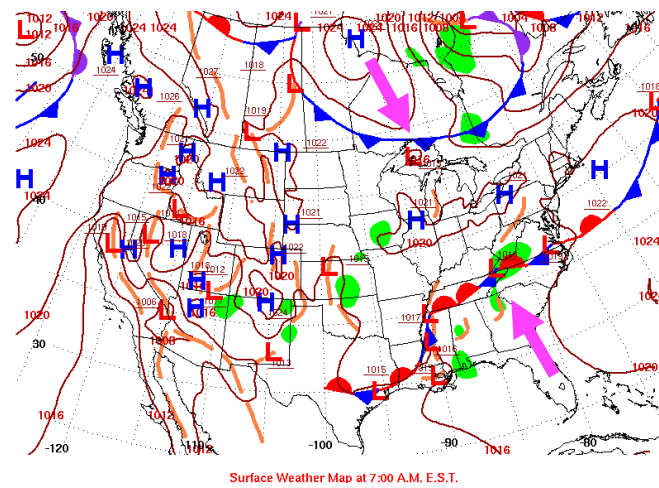


Air Quality Reflection: Saturday July 20, 2024

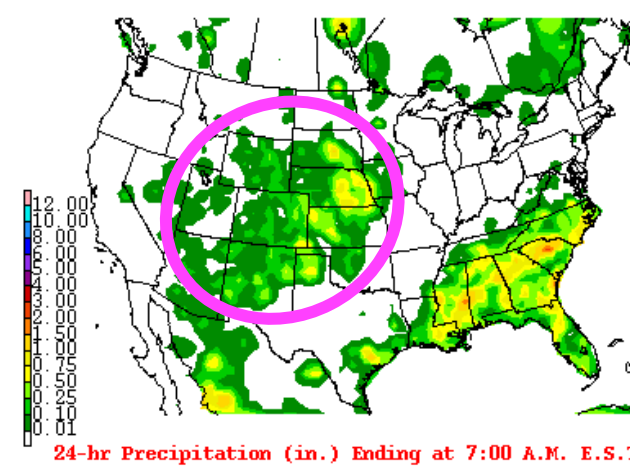
500 hPa Contours



Surface Weather



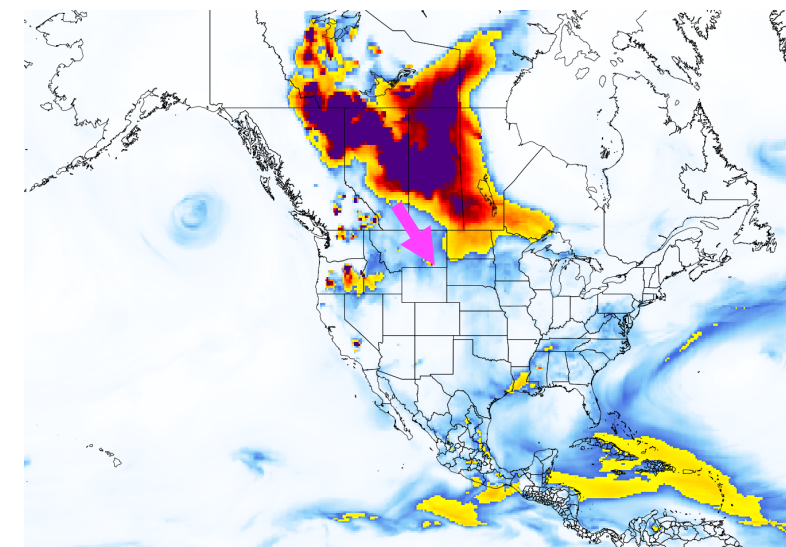
Precipitation



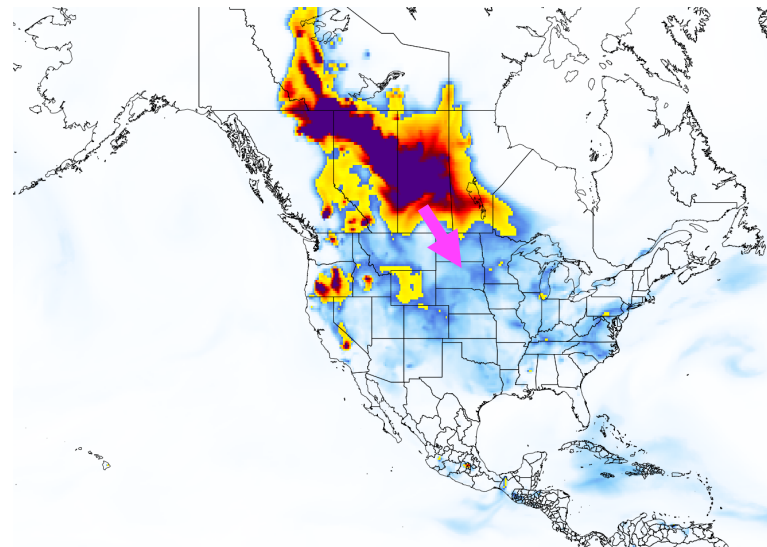
AirNow AQI



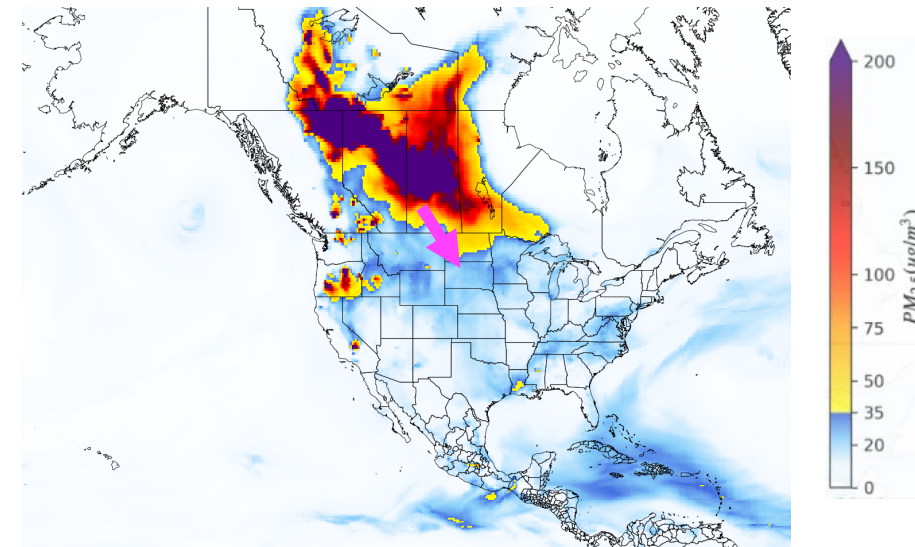
GEOS-FP



GEOS-CF

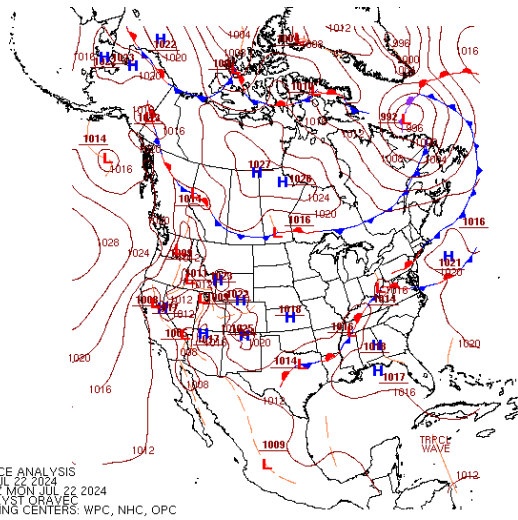


Ensemble

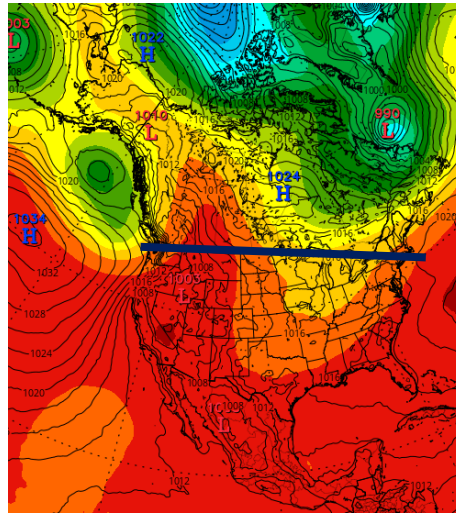


Current Status: July 22, 2024

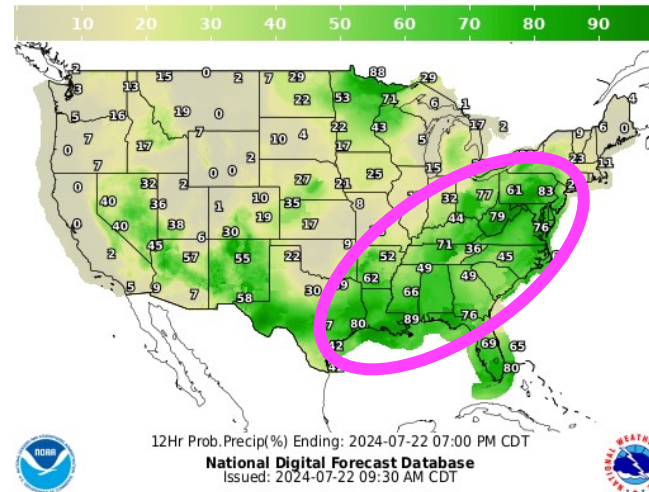
Surface Analysis



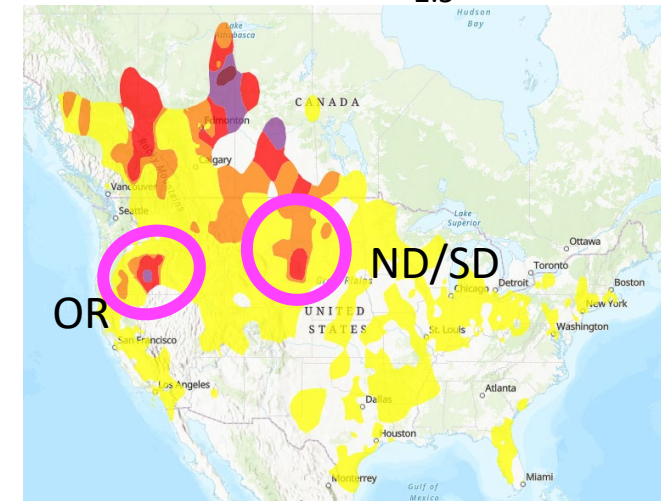
500 mb Contours



Precip. Prob.

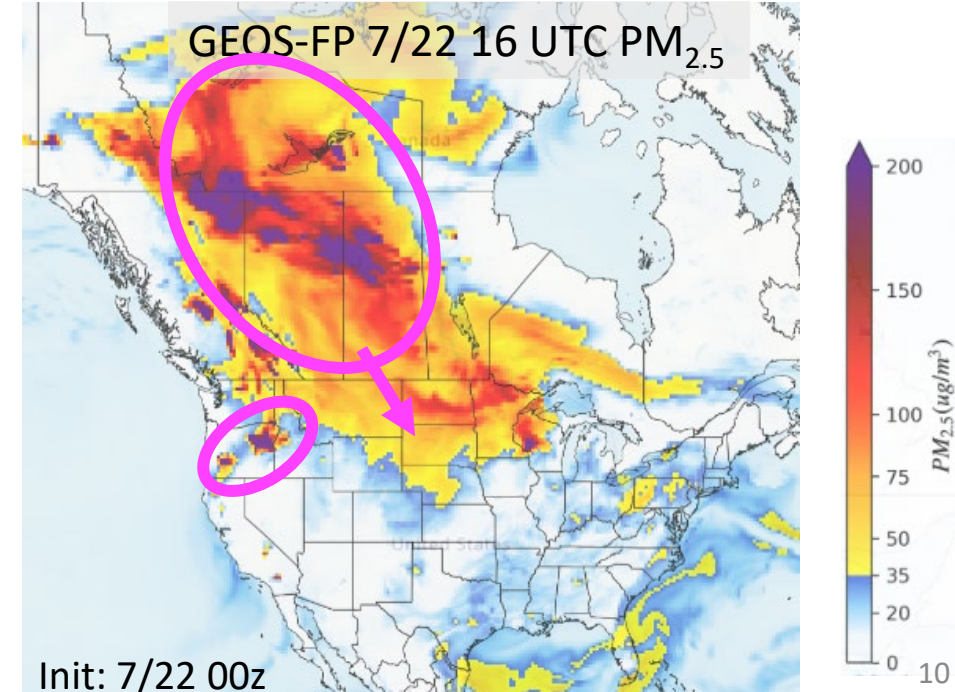


AirNow PM_{2.5} AQI

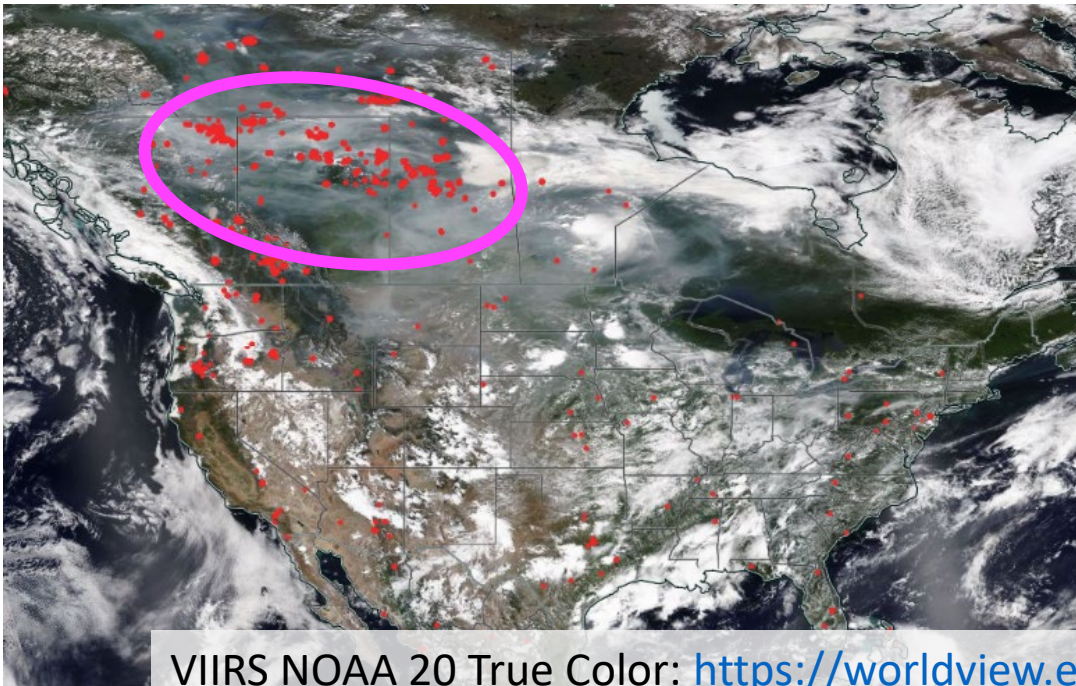


Sun 7/21

GEOS-FP 7/22 16 UTC PM_{2.5}



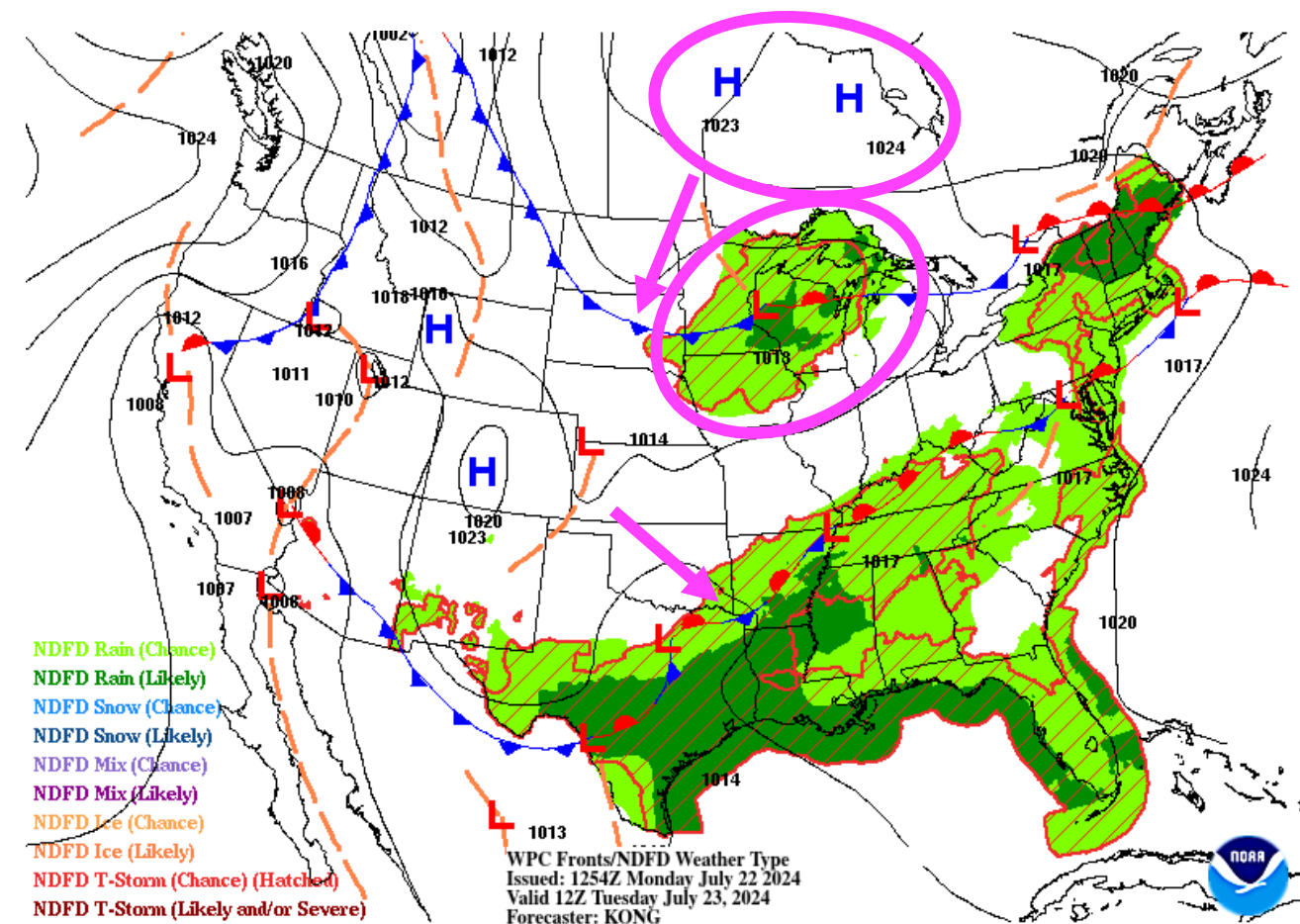
VIIRS NOAA 20 True Color: <https://worldview.earthdata.nasa.gov>



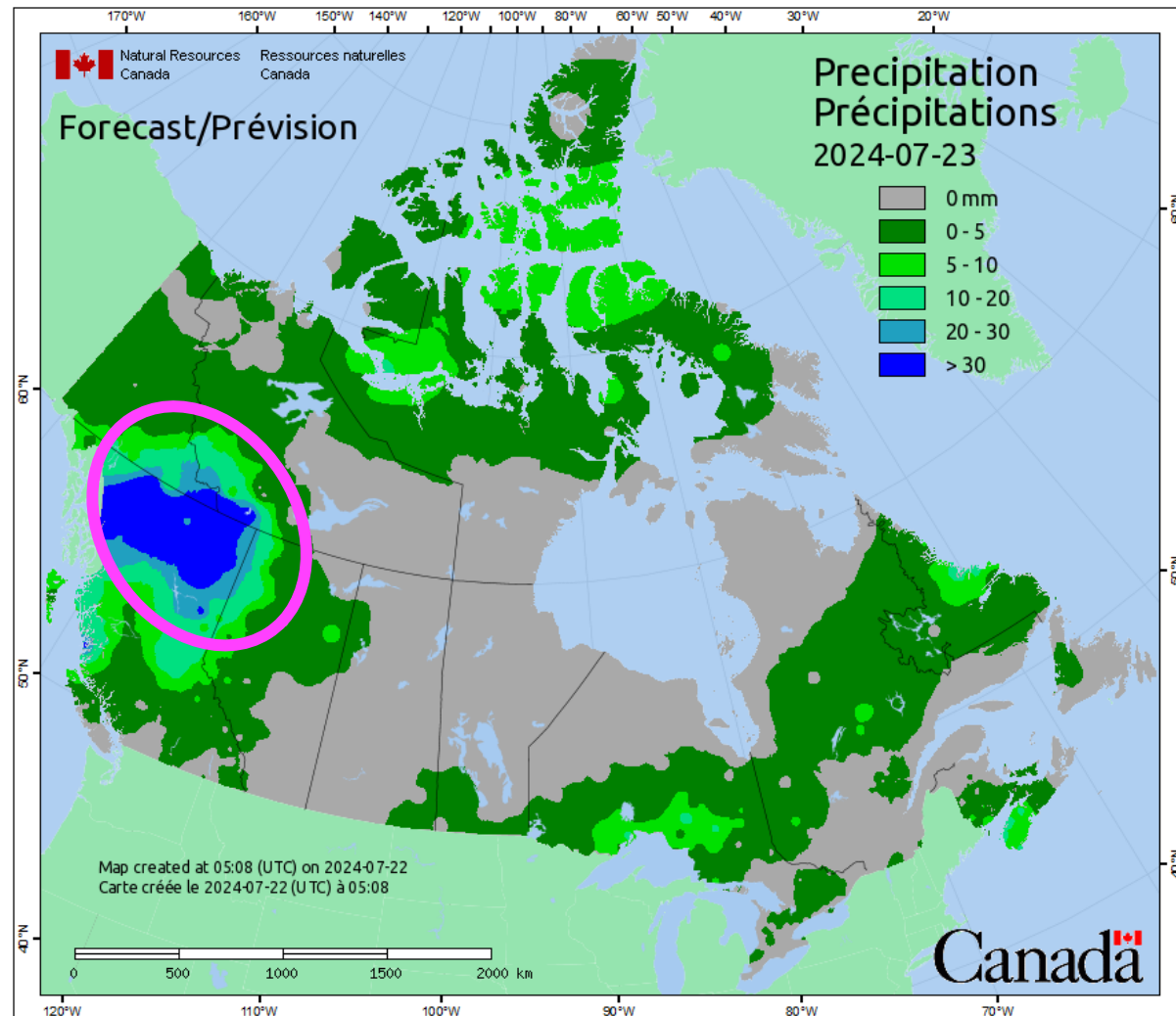
Outlook: Short Range (1-3 days)

Surface Forecast (**Tuesday 7/23**)

US NWS Forecast

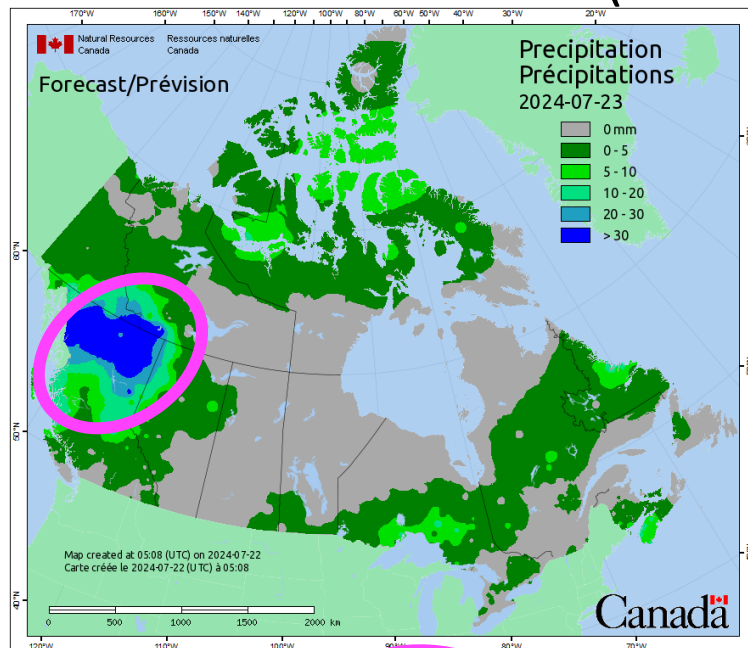


Environment Canada Forecast



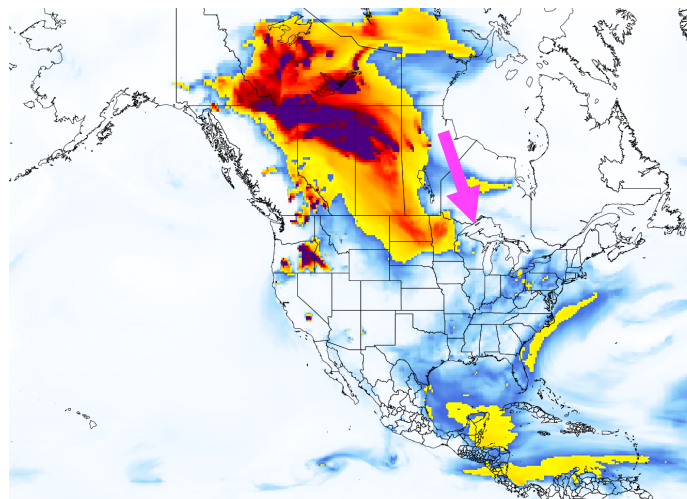
Outlook: Short Range (1–3 days)

Surface Forecast (Tues 7/23)

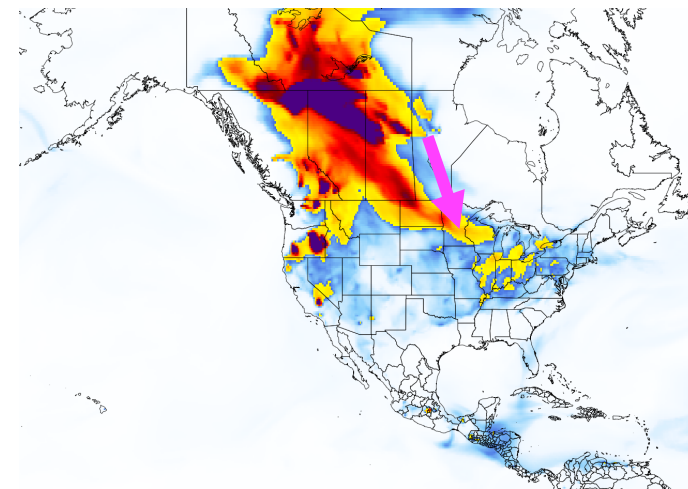


Model Means PM_{2.5} (Tues 7/23)

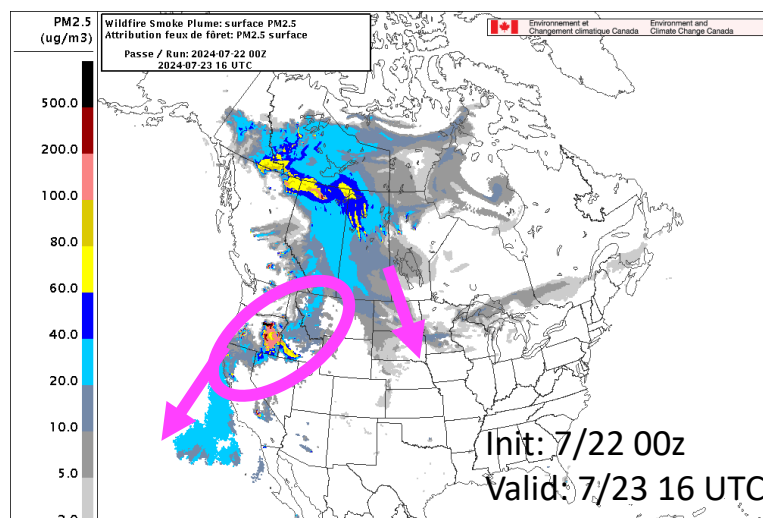
GEOS-FP



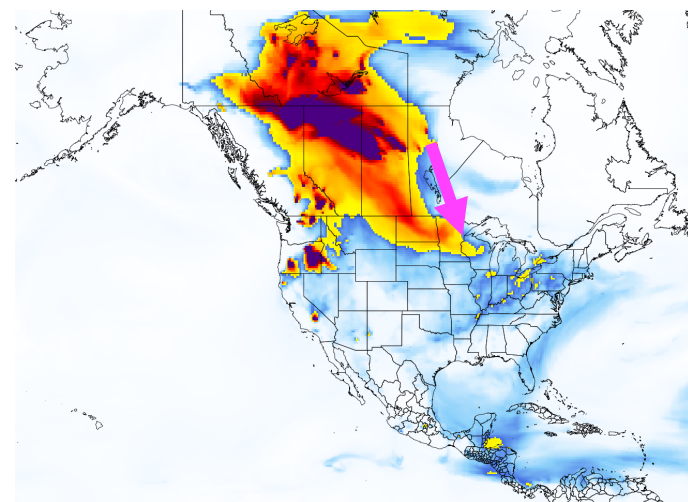
GEOS-CF



Canada Firework



Ensemble

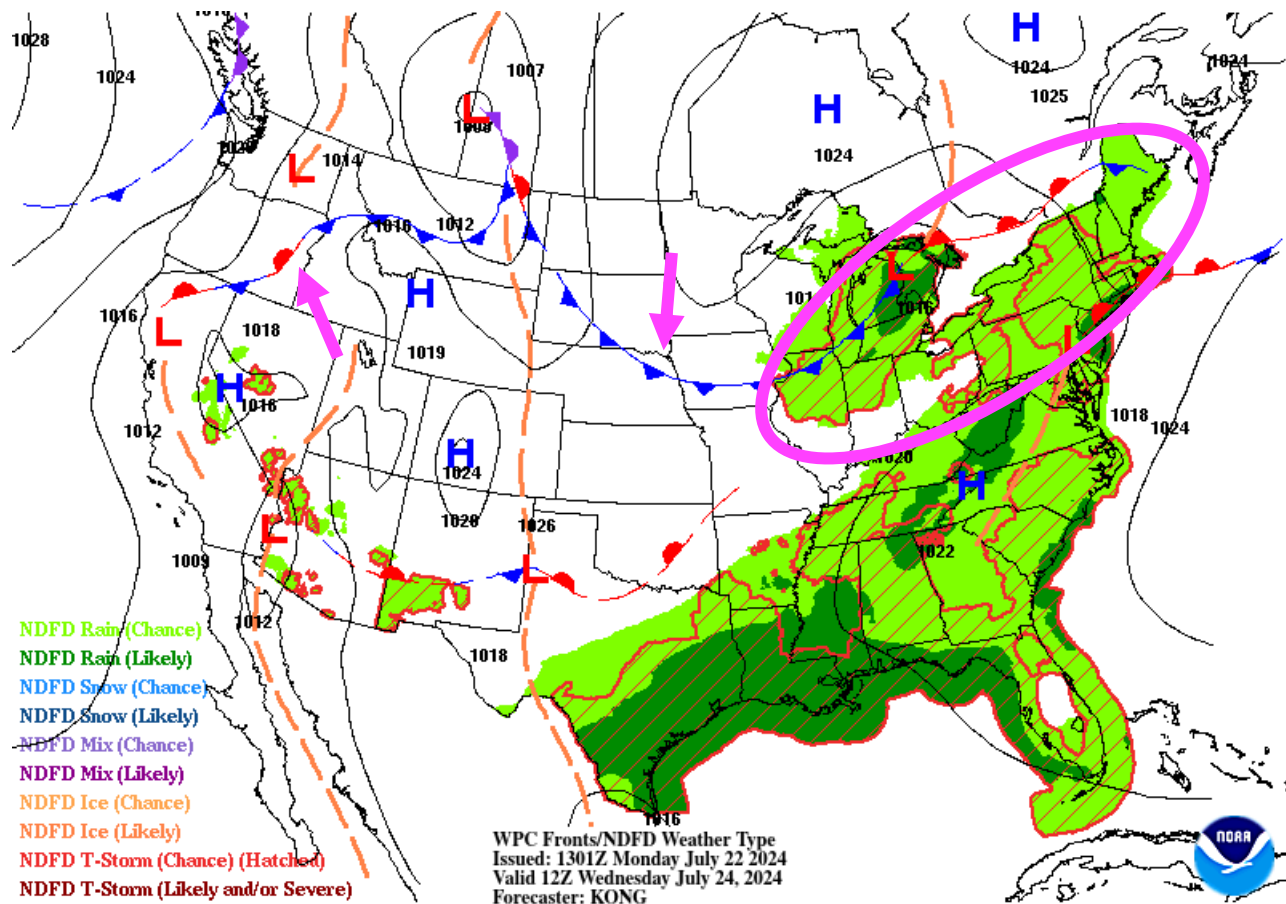


Day 3 of 7/21 initialization

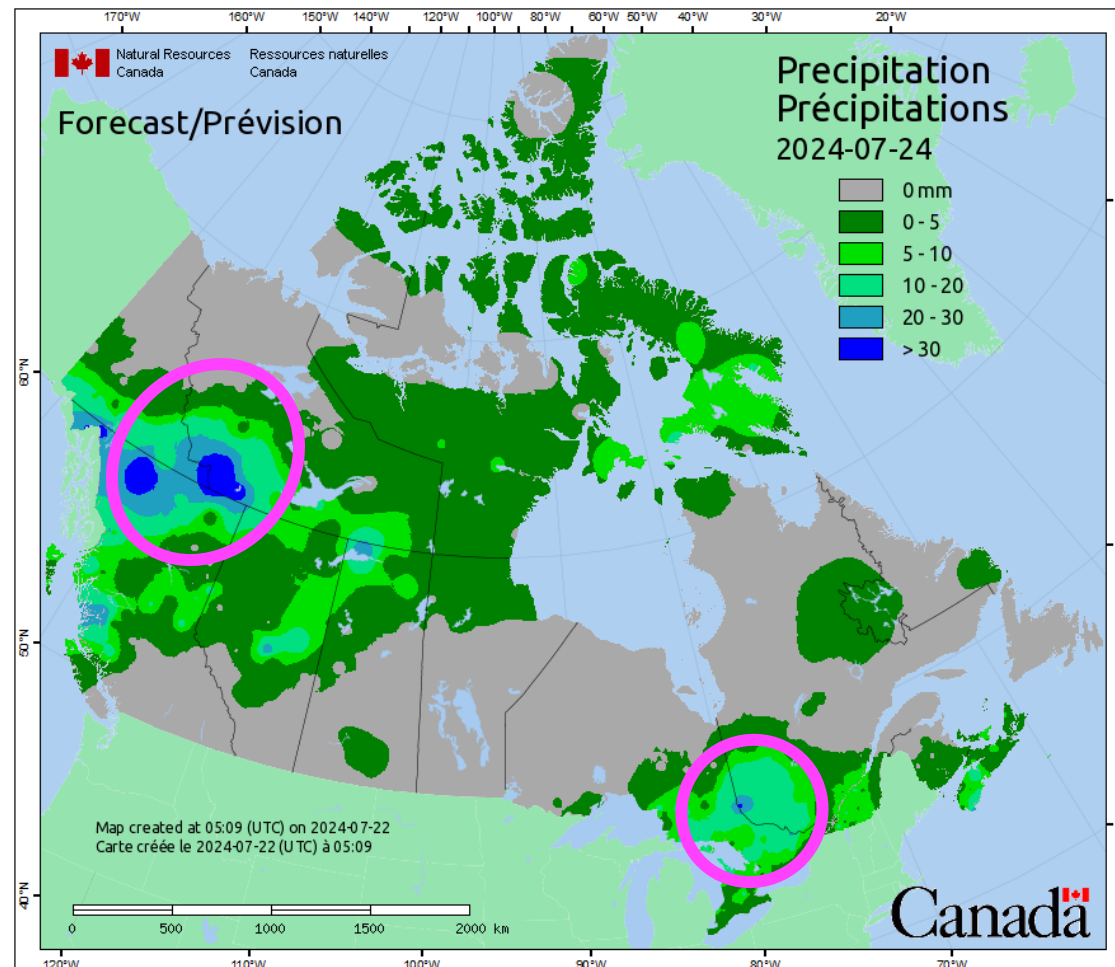
Outlook: Short Range (1-3 days)

Surface Forecast (**Wednesday 7/24**)

US NWS Forecast



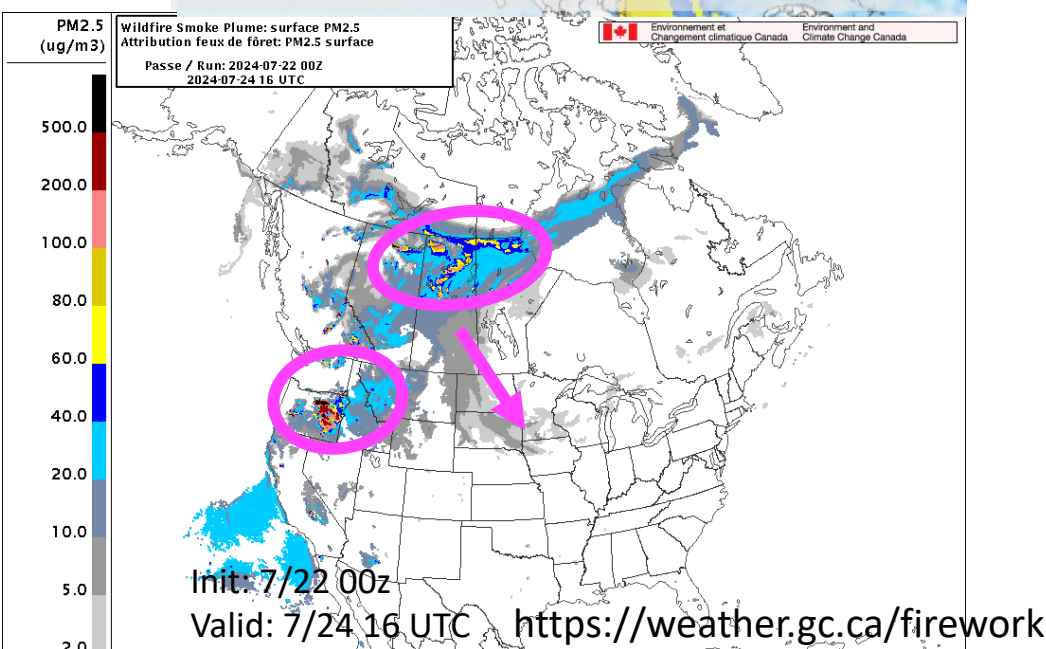
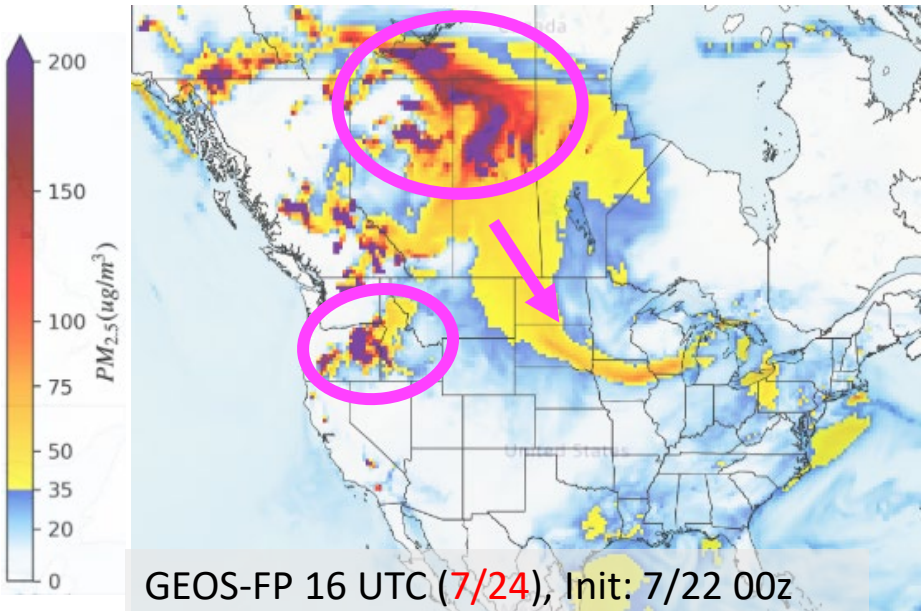
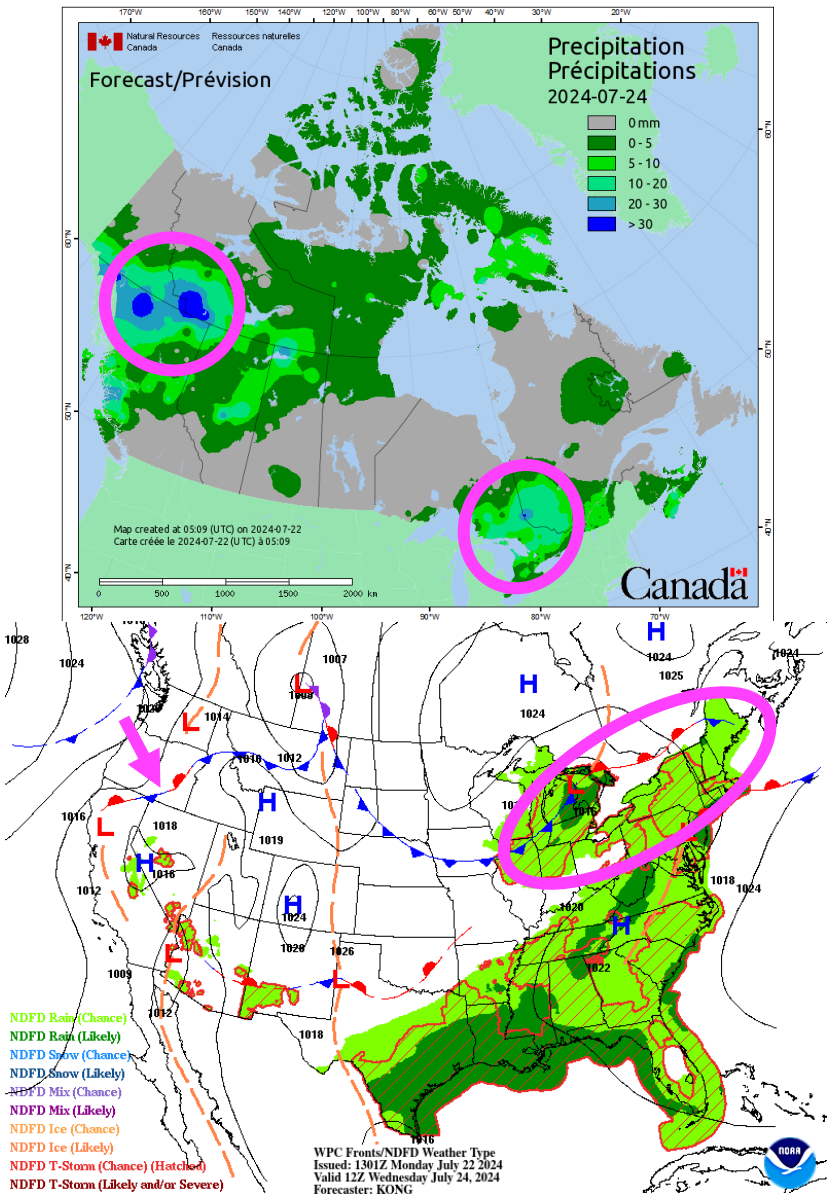
Environment Canada Forecast



Outlook: Short Range (1–3 days)

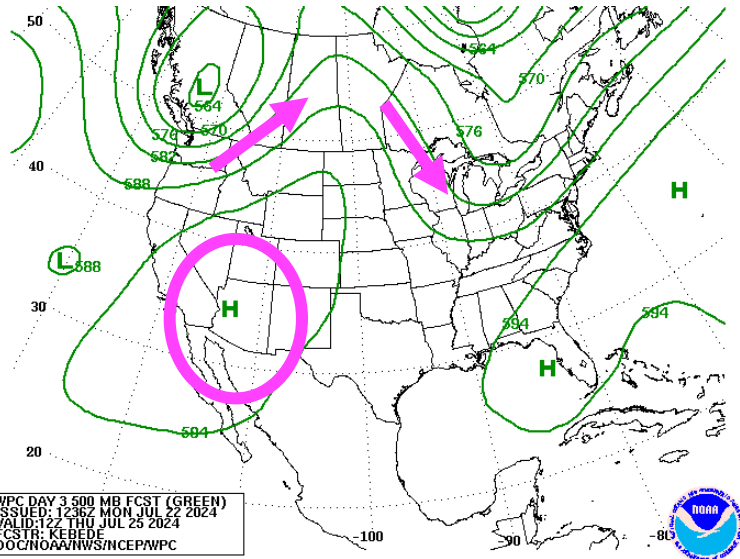
Surface Forecast

(Wednesday 7/24)

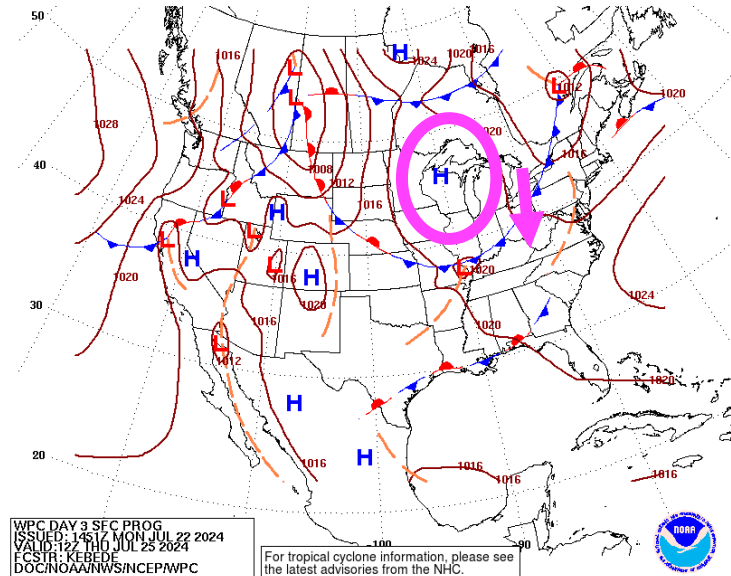


Outlook: Medium Range

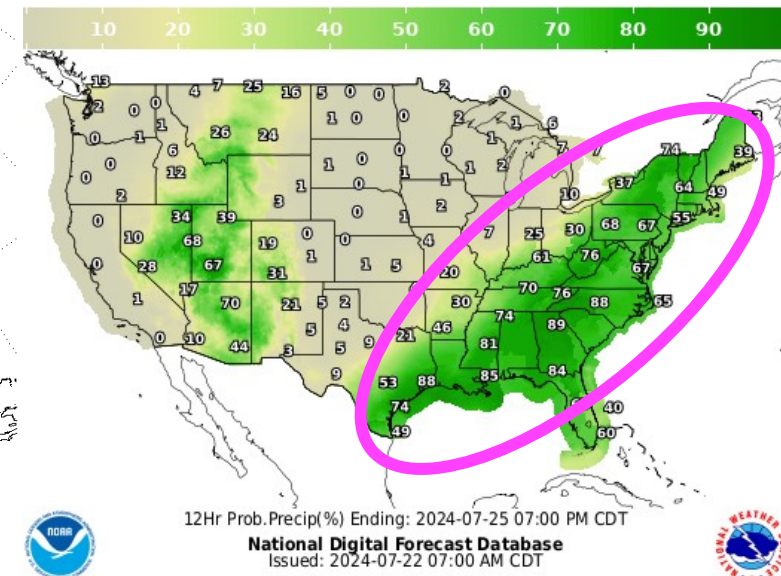
500 hPa Contours



Sea Level

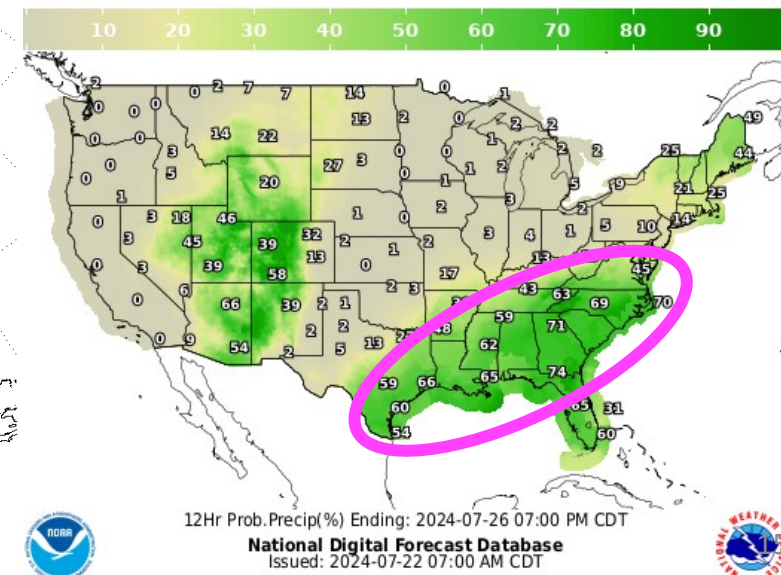
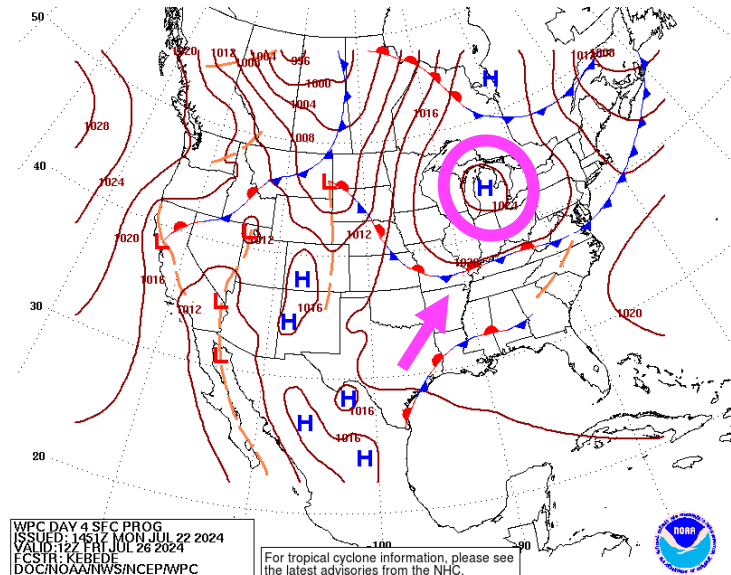
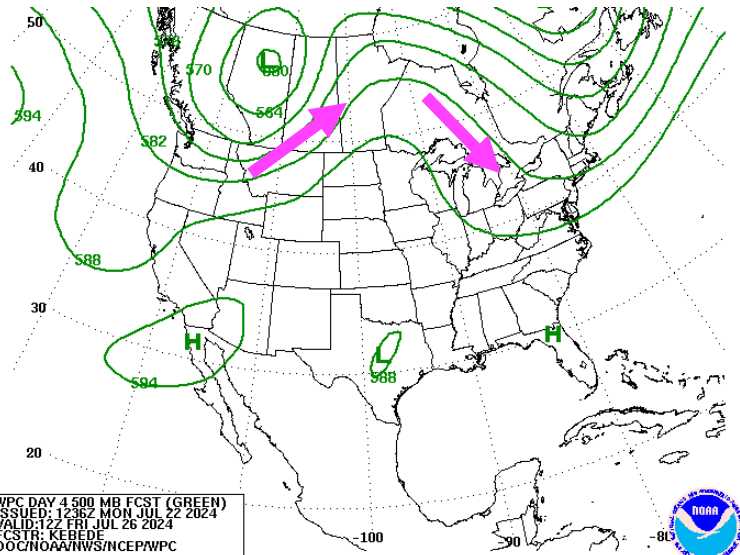


Precip Prob.



Thurs
7/25

Friday
7/26



Summary

Monday : Oregon wildfires are impacting air quality in OR. Canadian wildfire smoke is impacting $PM_{2.5}$ AQI in upper Midwest US.

T → W : Canadian wildfire smoke is forecasted to continue to impact the upper Midwest US AQ. OR and CA wildfires will also continue to impact regional AQ with low pressure system suppressing long range transport.

Th → F: Strong low pressure aloft over Canada will likely to promote smoke transport north/northeast with potential impacts in northeast US AQ. OR and CA wildfire smoke could impact coastal AQ later this week.

