

Weather and Air Quality: Reflection and Outlook During Smoke Conditions

Presenter: Megan Christiansen
Date: August 21, 2023

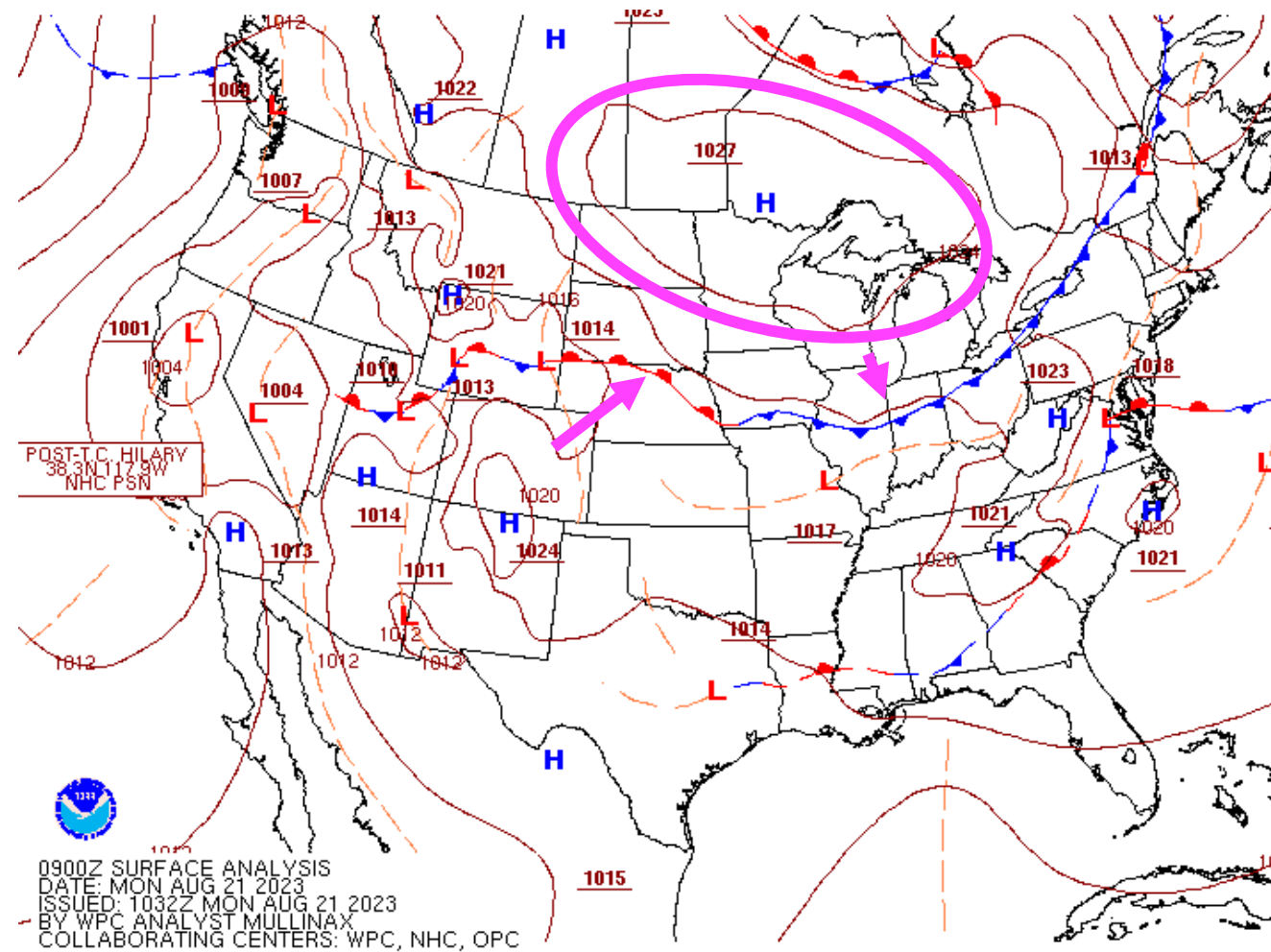


FireAQ is funded by NASA HAQ. We thank NASA GMAO and
NRL for the model data products.

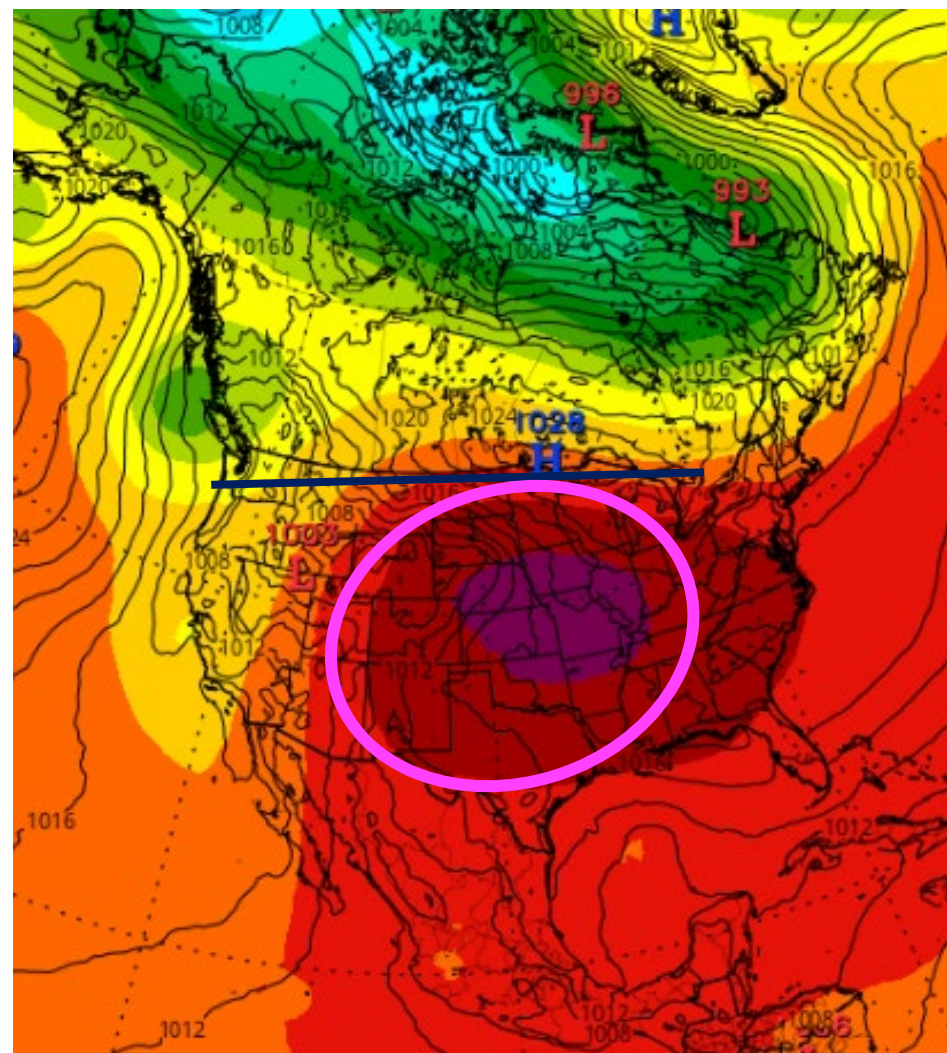
EARTH SCIENCE
APPLIED SCIENCES

Current Status: August 21, 2023

Surface Analysis

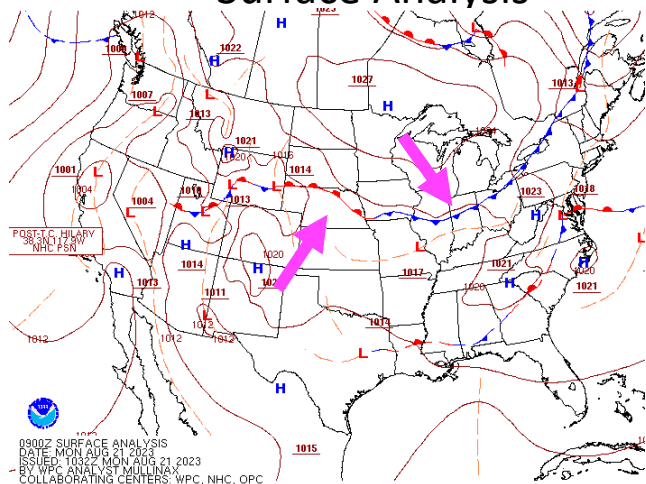


500 mb Contours

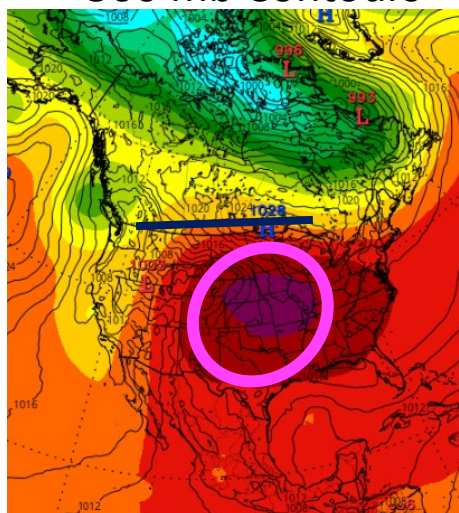


Current Status: August 21, 2023

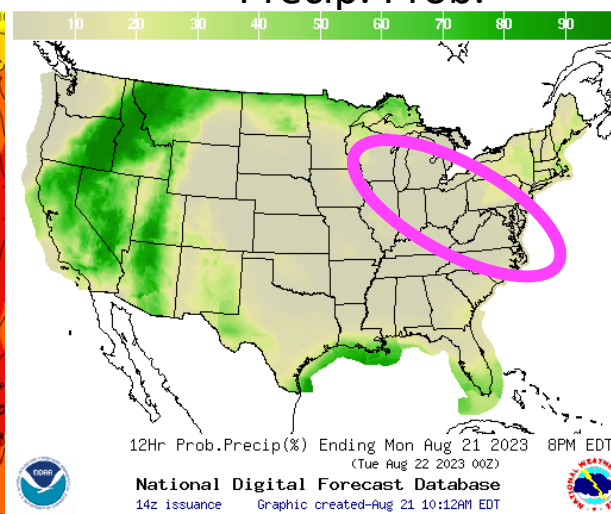
Surface Analysis



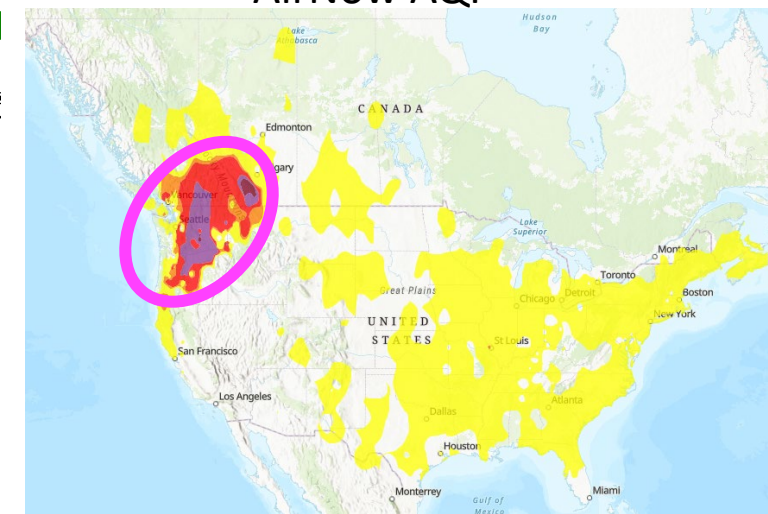
500 mb Contours



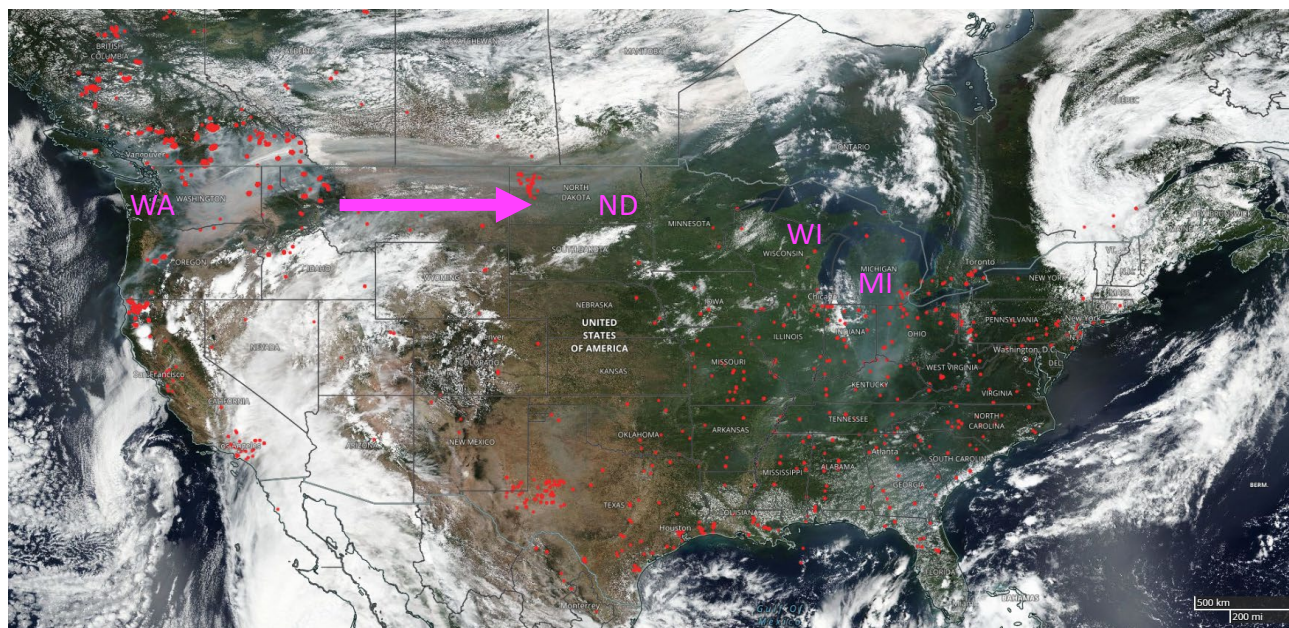
Precip. Prob.



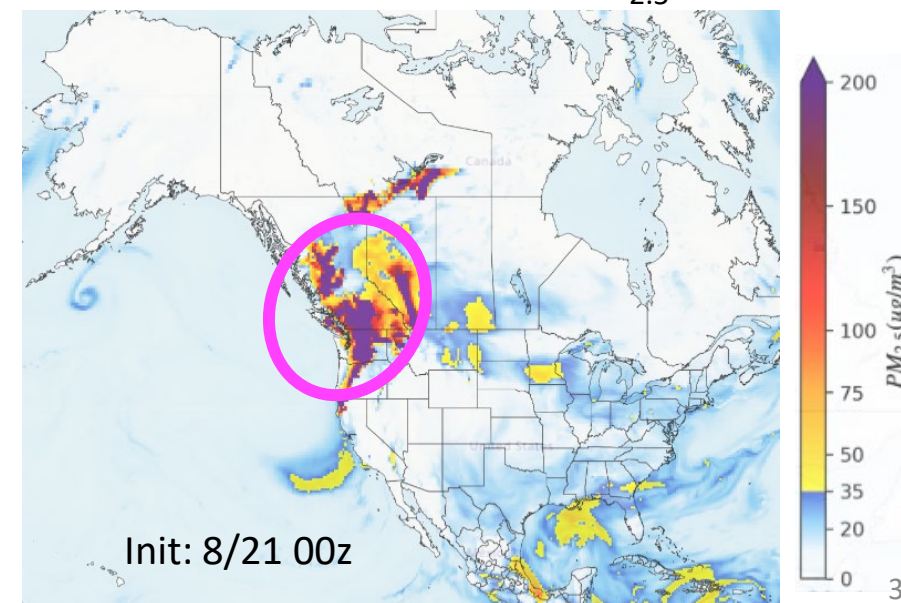
AirNow AQI



NASA Suomi Fire Anomalies (Sat 8/19)

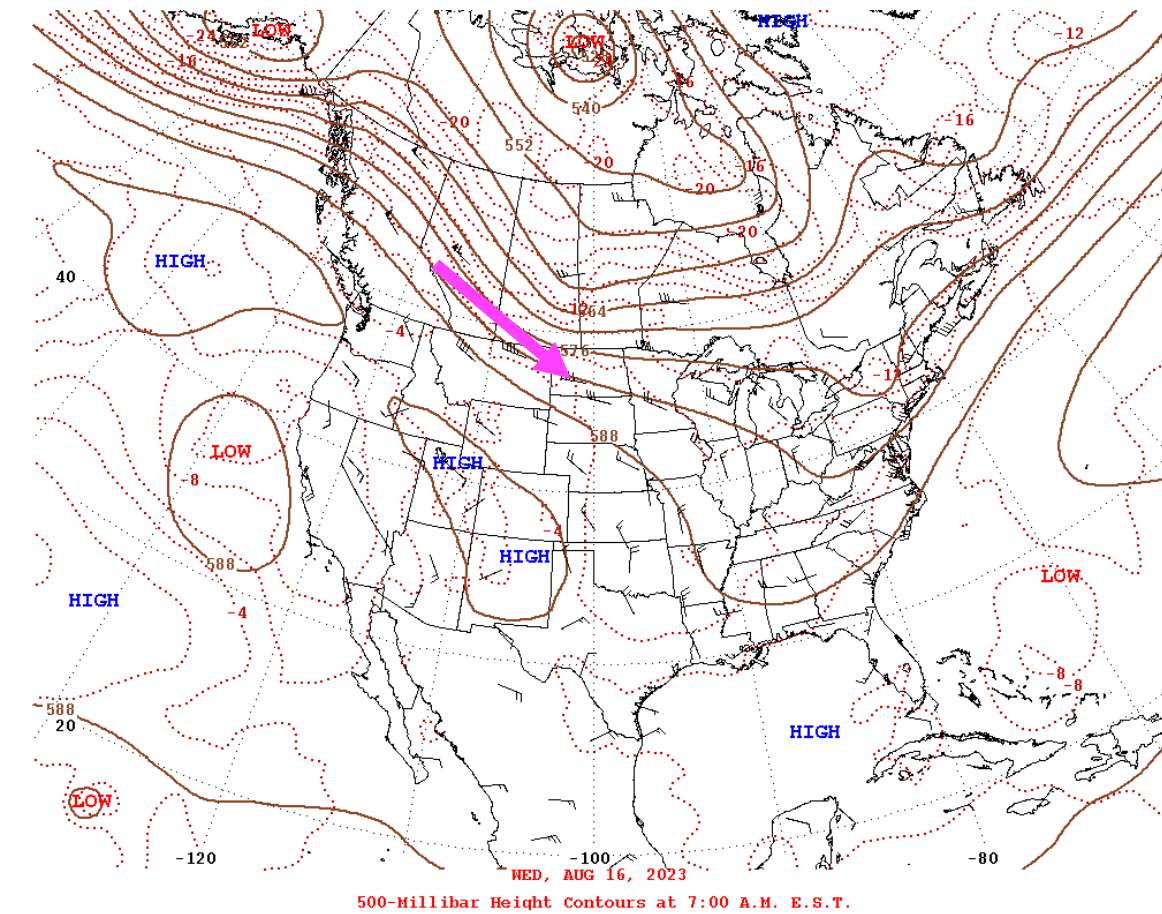


GEOS-FP 8/14 16 UTC PM_{2.5}

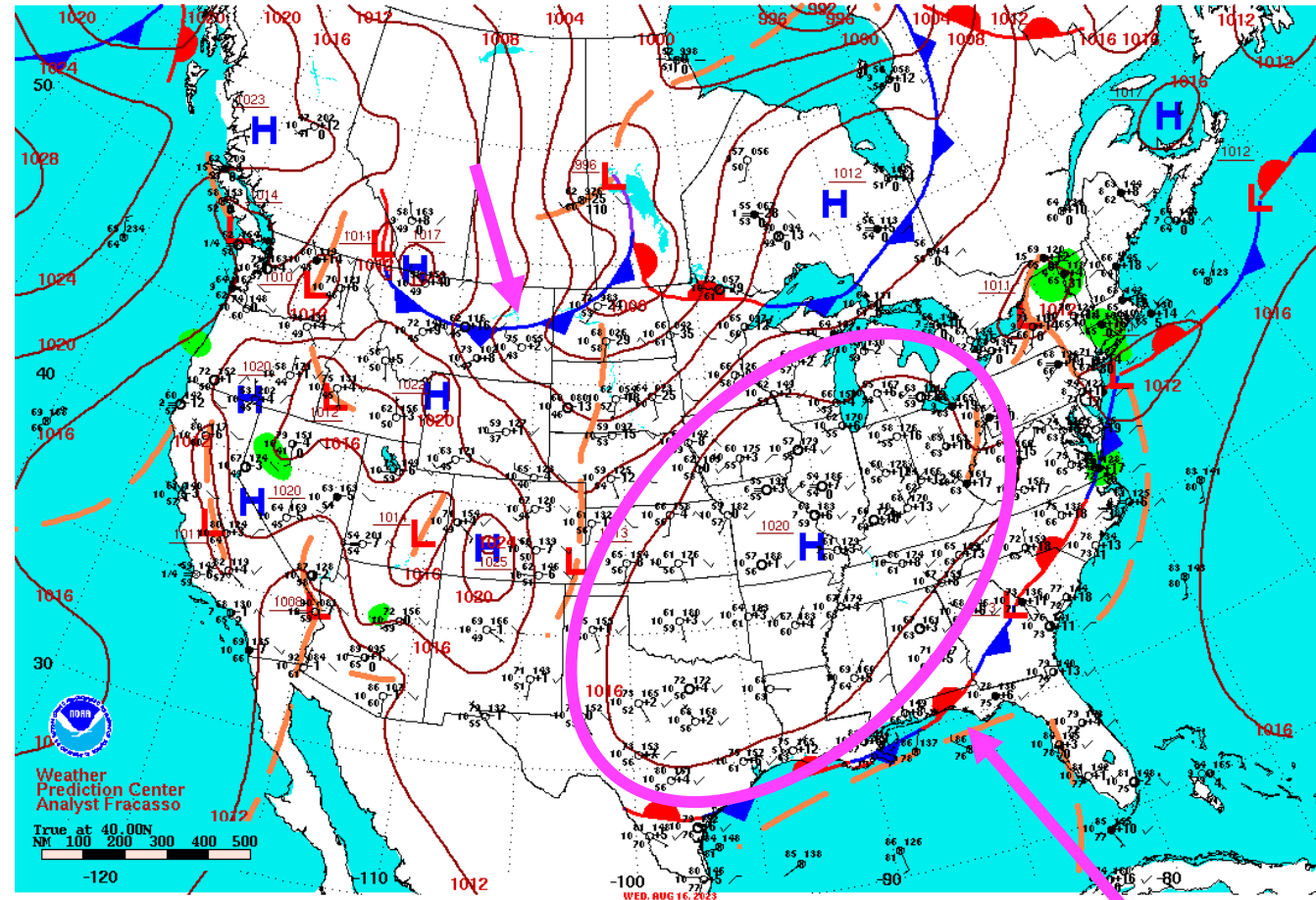


Air Quality Reflection: Wednesday August 16, 2023

500 hPa Contours



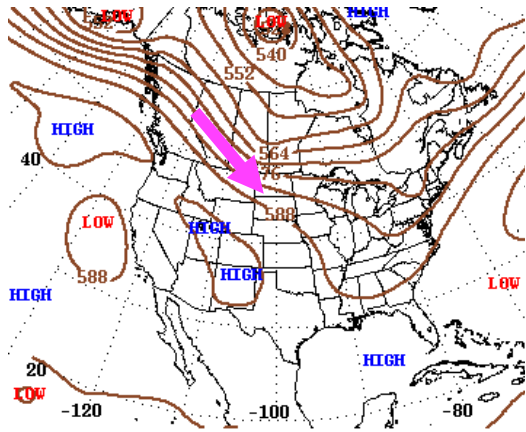
Surface Weather



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

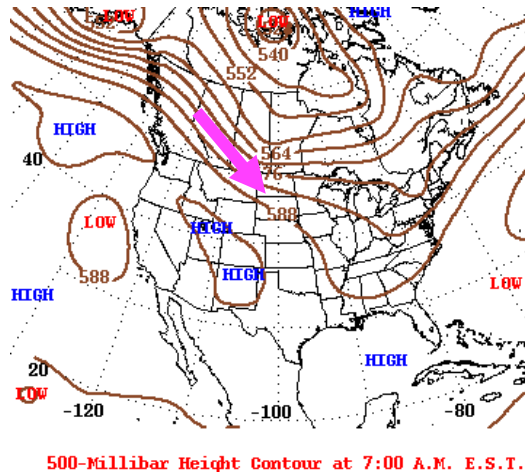
Air Quality Reflection: Wednesday August 16, 2023

500 hPa Contours

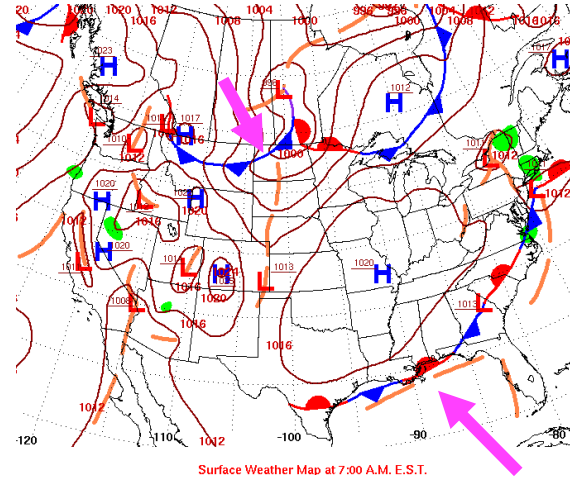


Air Quality Reflection: Wednesday August 16, 2023

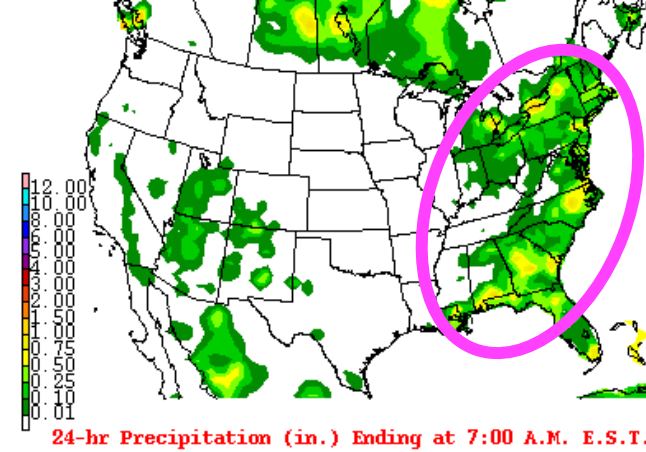
500 hPa Contours



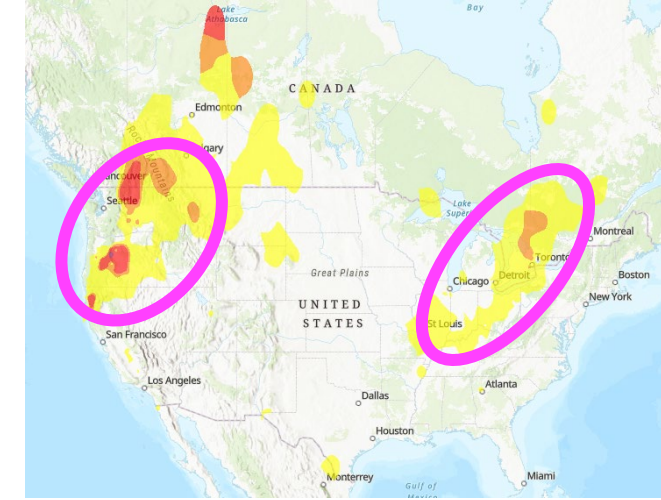
Surface Weather



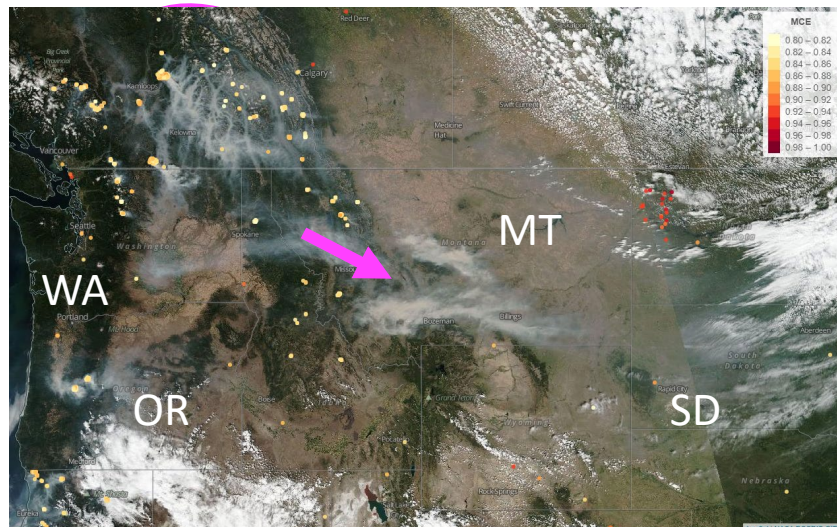
Precipitation



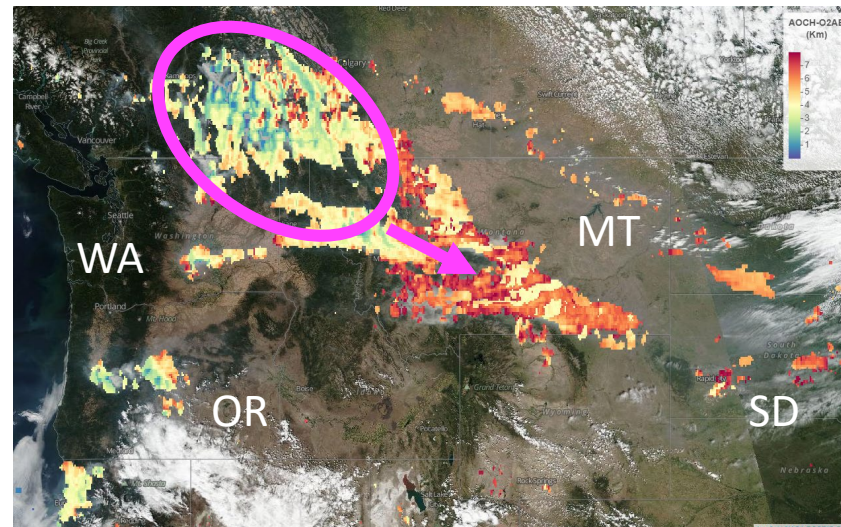
AirNow AQI



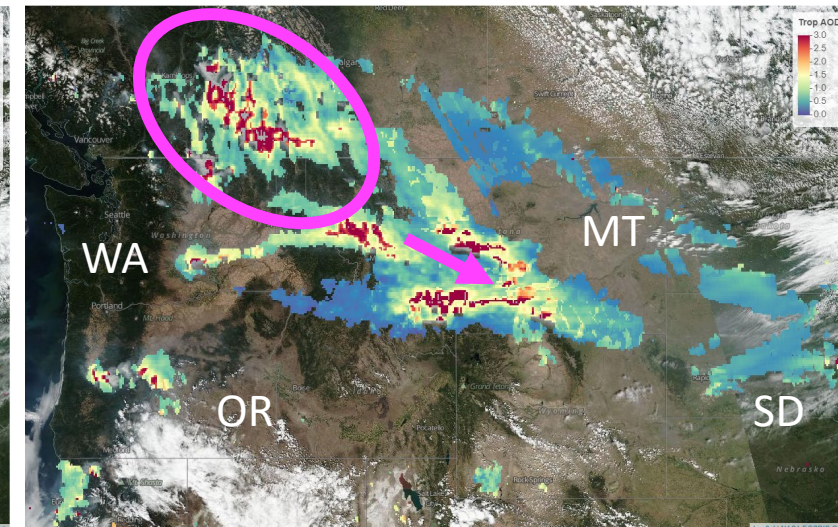
FILDA2 MCE



Tropomi AOC

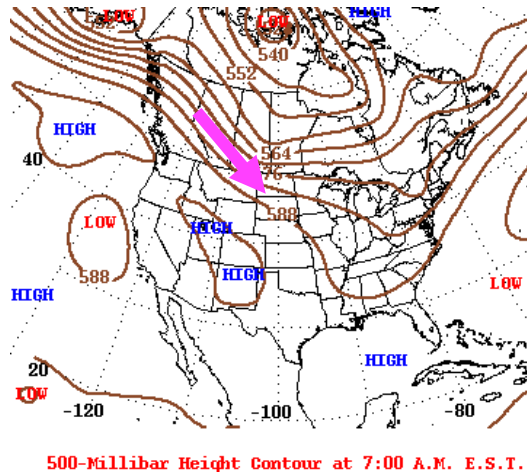


Tropomi AOD

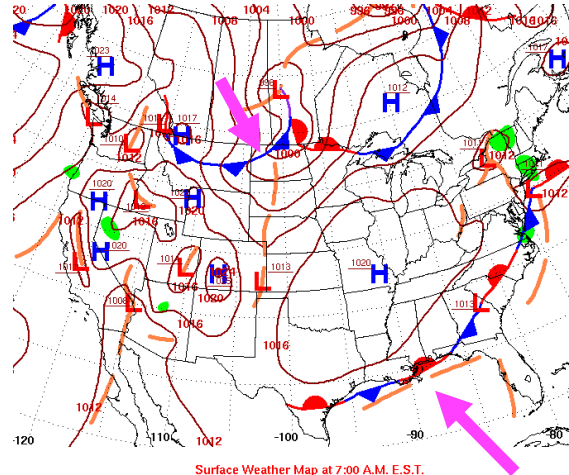


Air Quality Reflection: Wednesday August 16, 2023

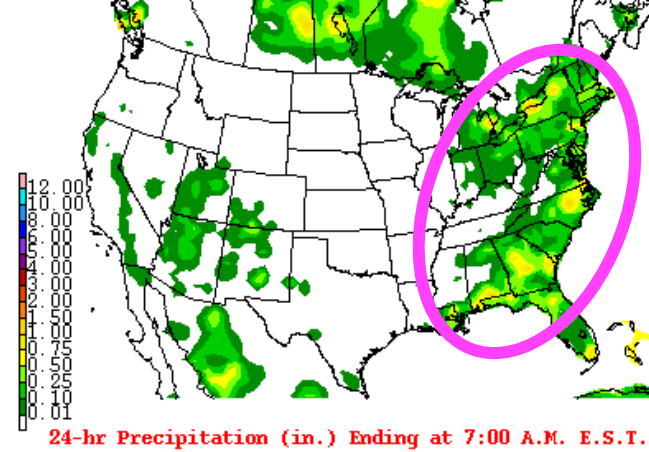
500 hPa Contours



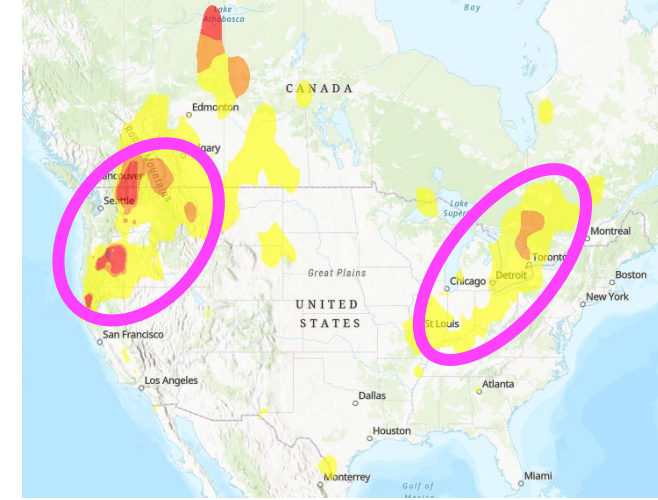
Surface Weather



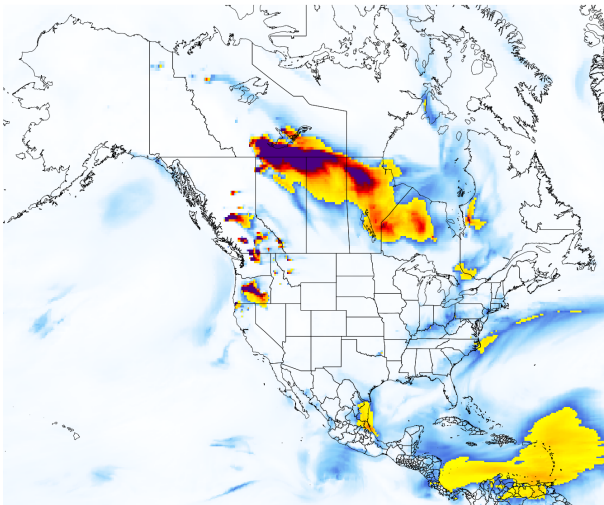
Precipitation



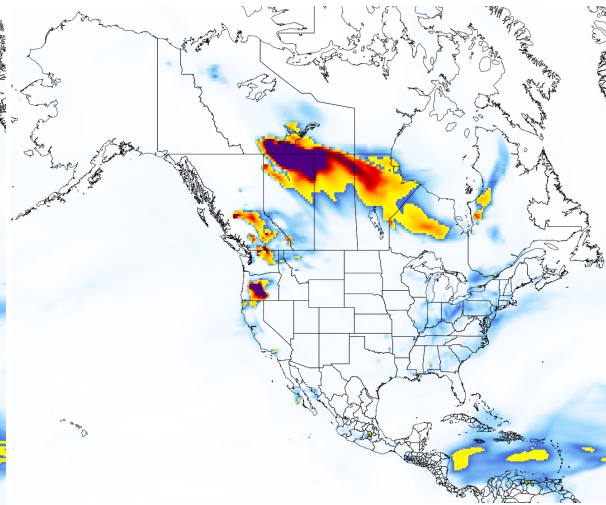
AirNow AQI



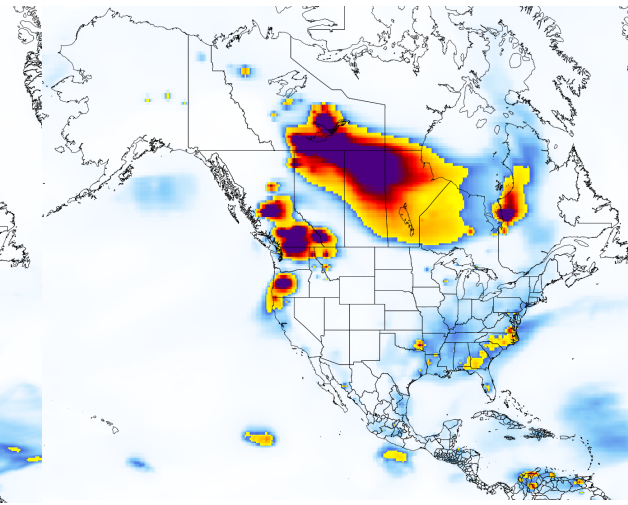
GEOS-FP



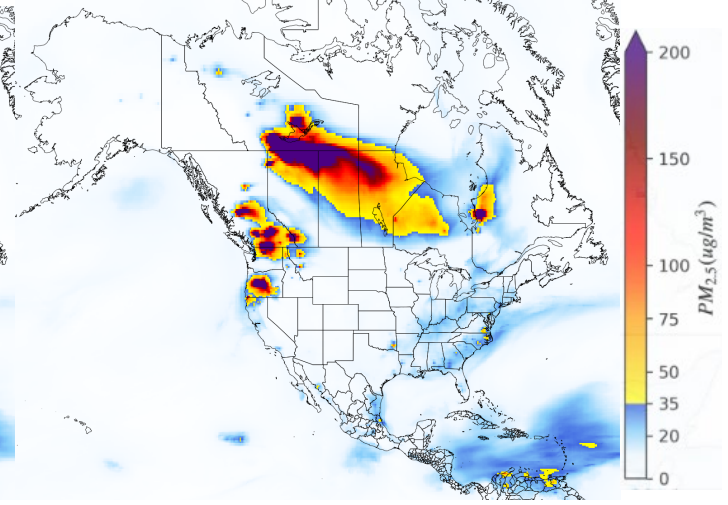
GEOS-CF



NAAPS

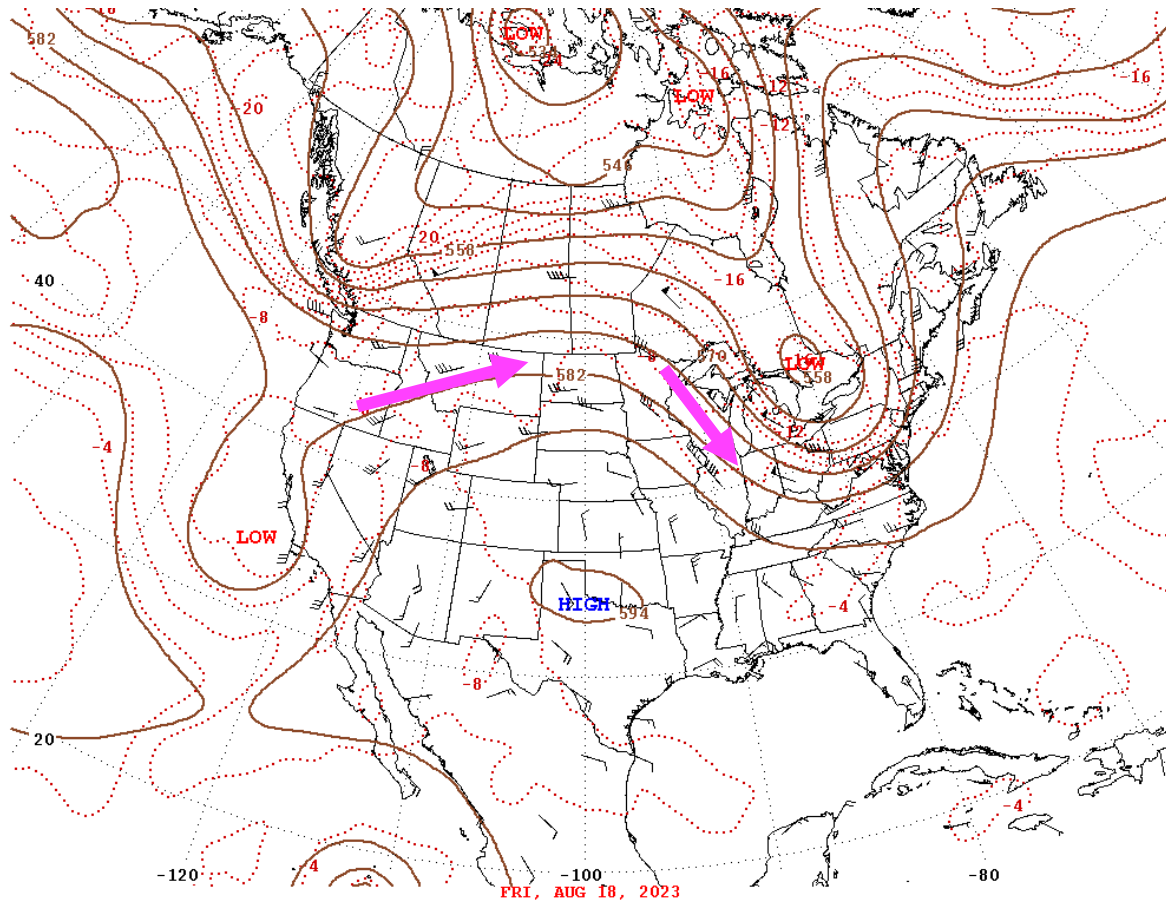


Ensemble



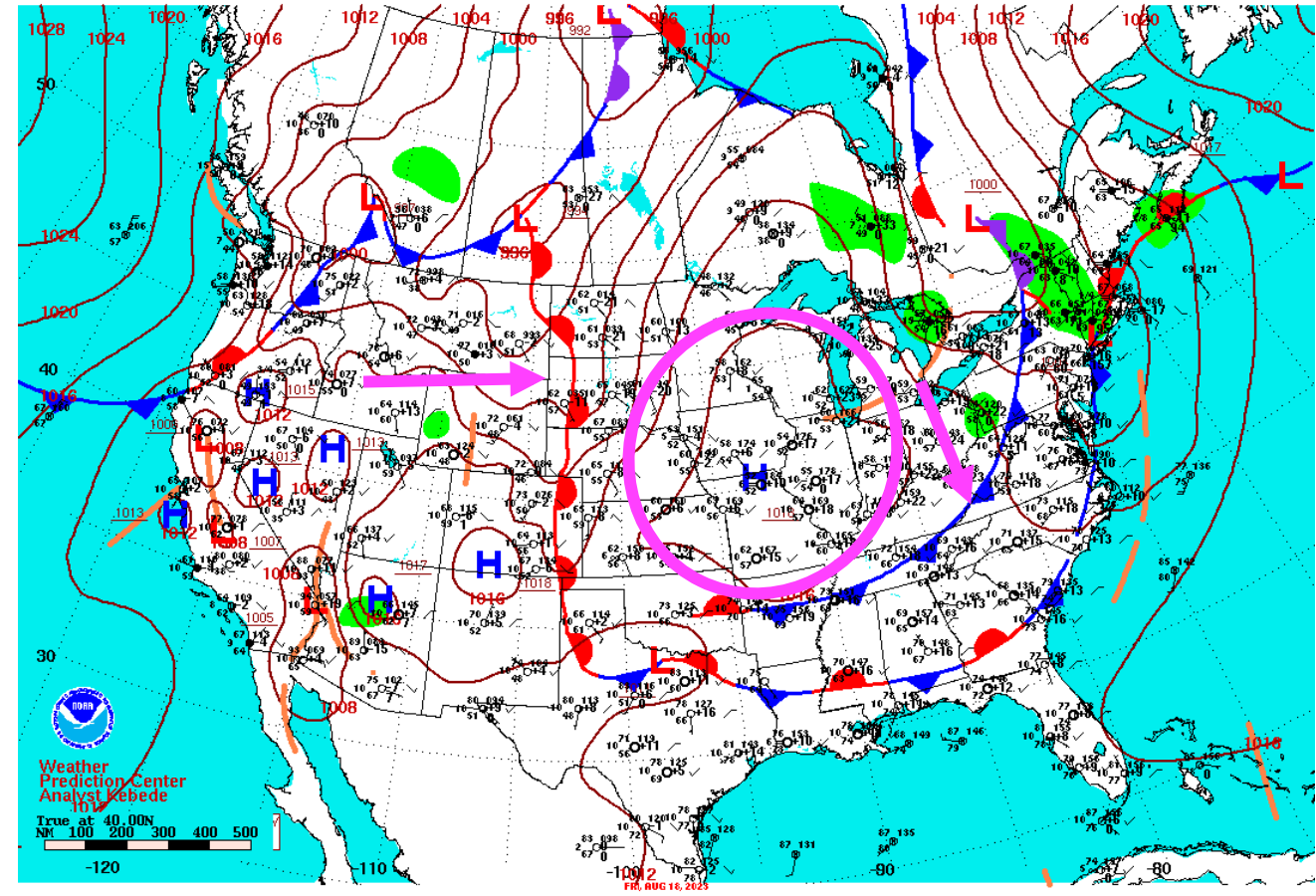
Air Quality Reflection: Friday August 18, 2023

500 hPa Contours



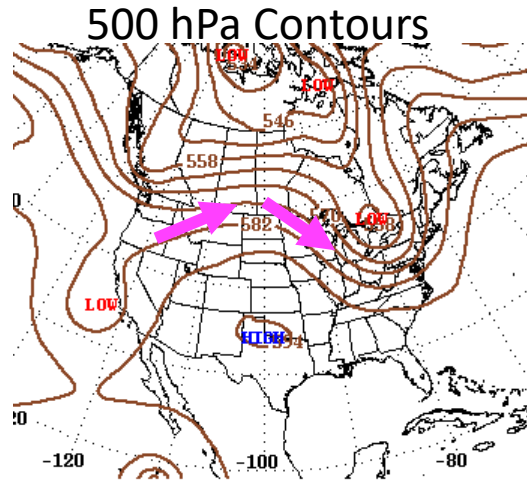
500-Millibar Height Contours at 7:00 A.M. E.S.T.

Surface Weather

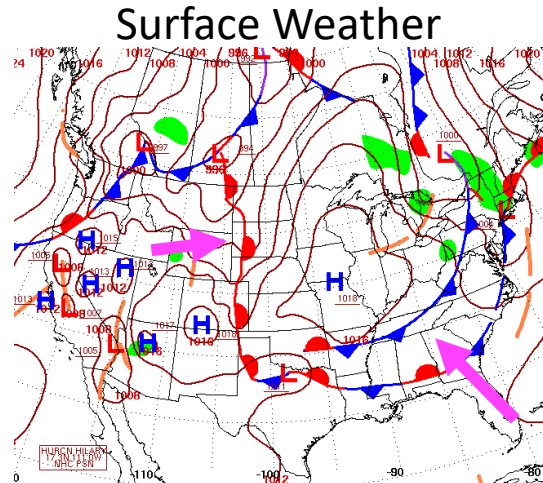


Surface Weather Map and Station Weather at 7:00 A.M. E.S.T.

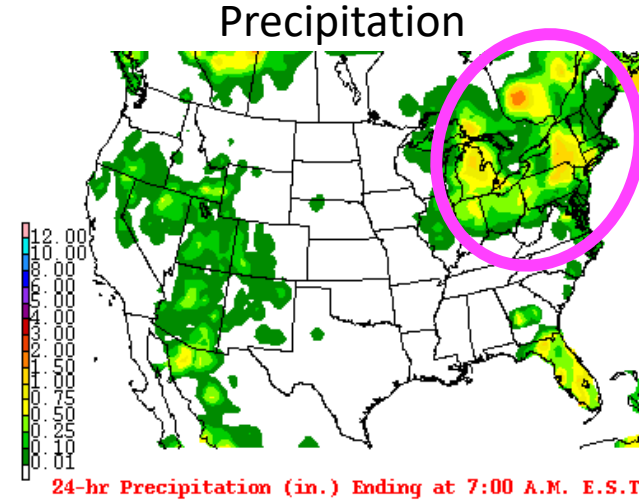
Air Quality Reflection: Friday August 18, 2023



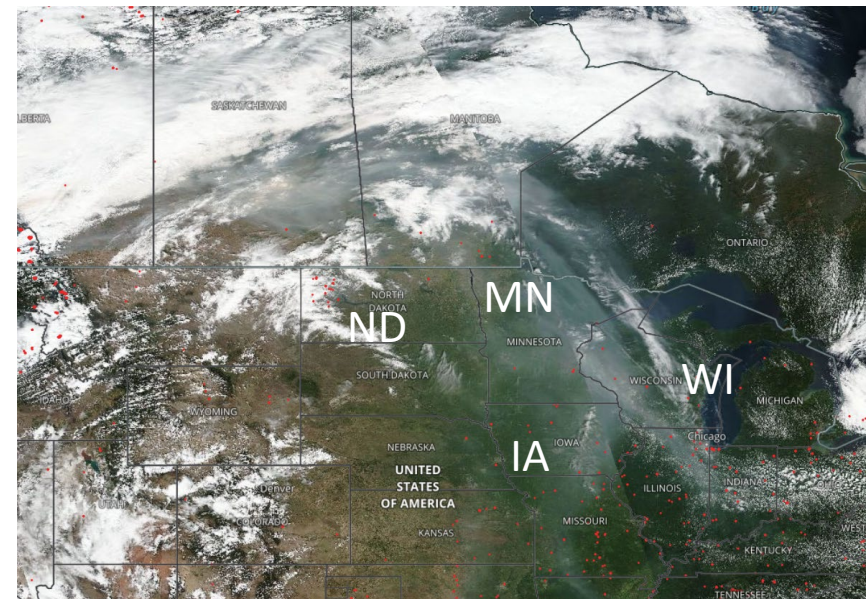
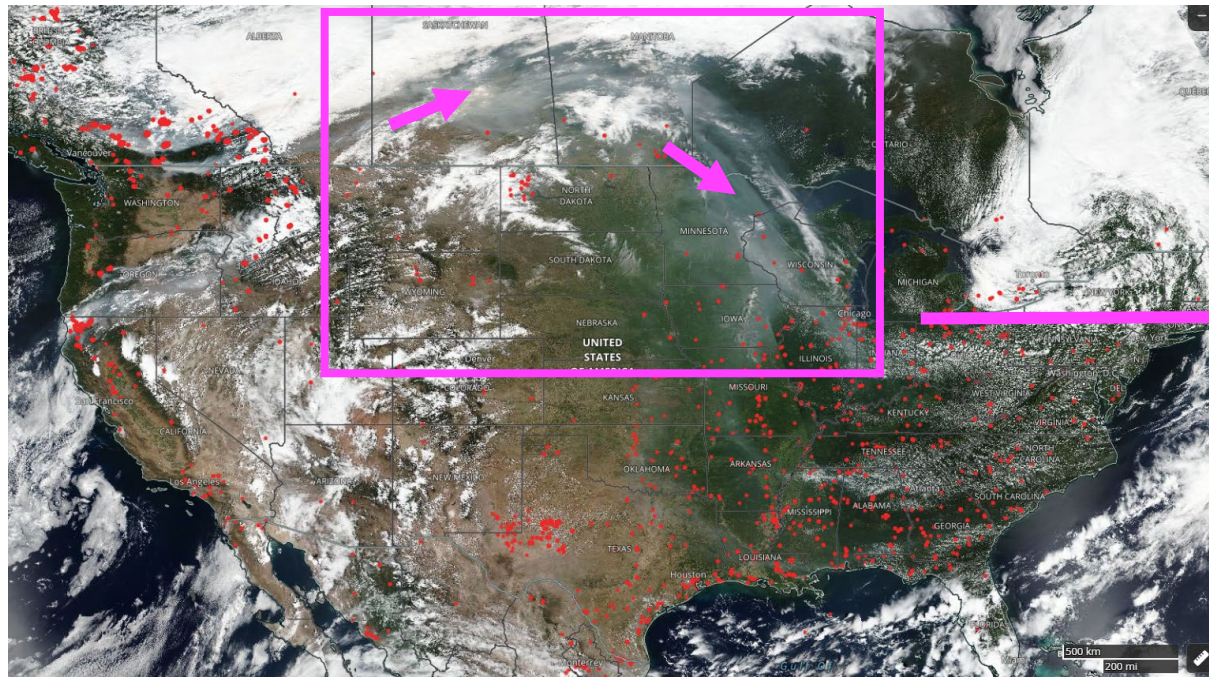
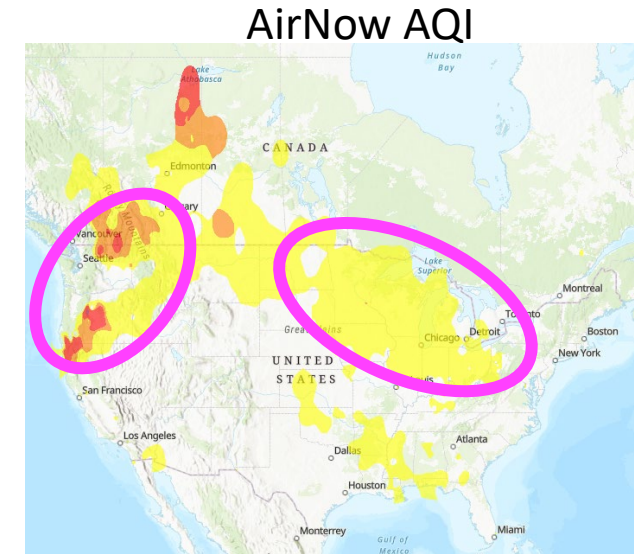
500-Millibar Height Contour at 7:00 A.M. E.S.T.



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

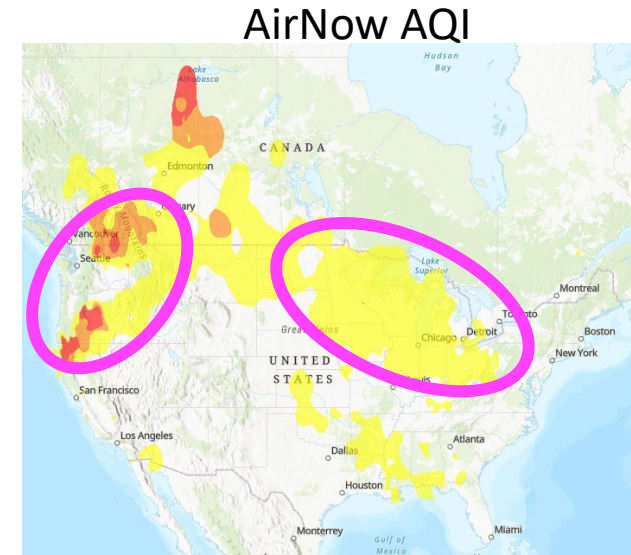
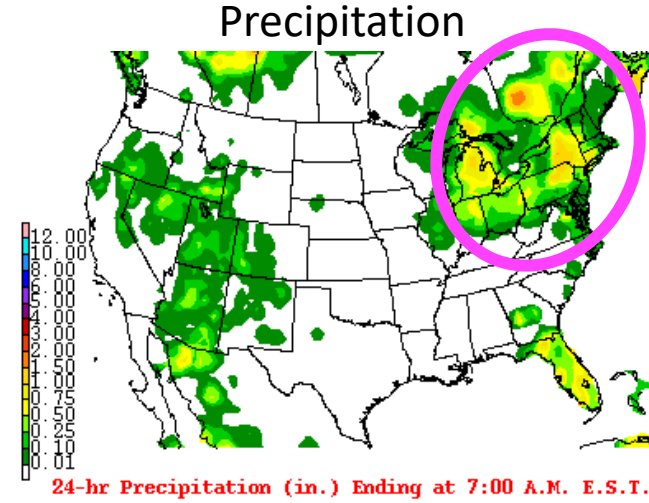
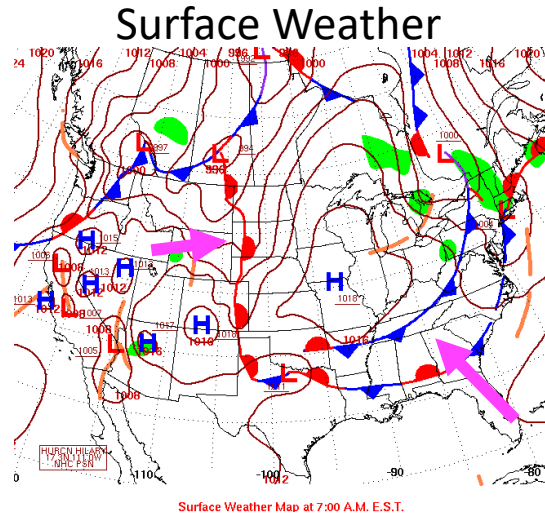
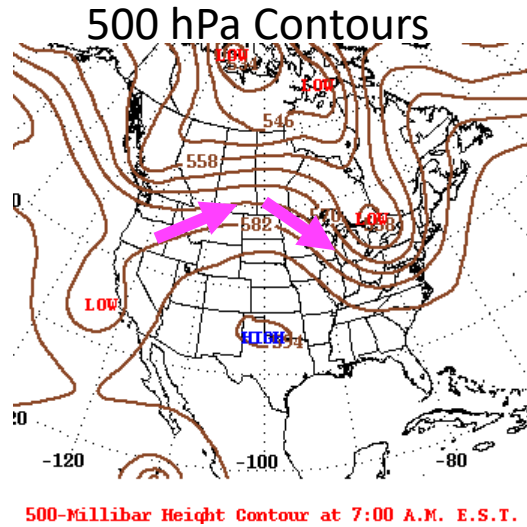


24-hr Precipitation (in.) Ending at 7:00 A.M. E.S.T.

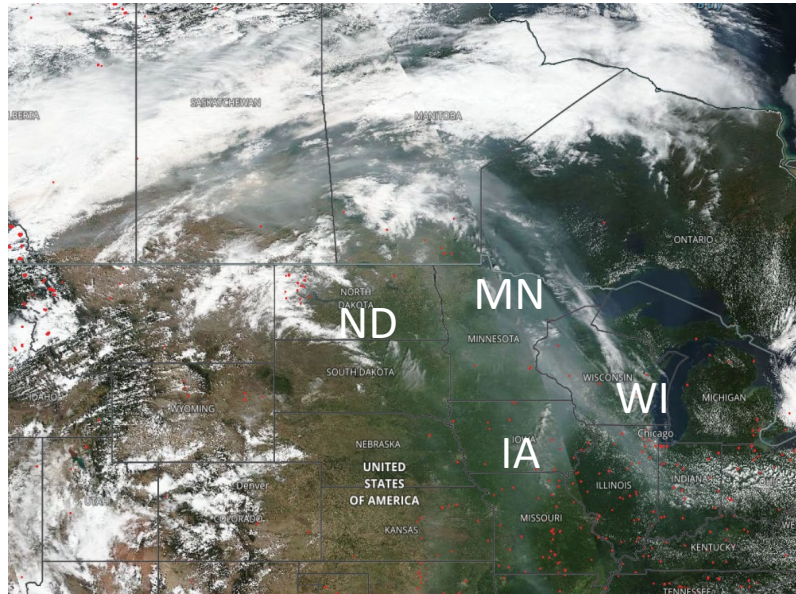


NASA Suomi Fire Anomalies

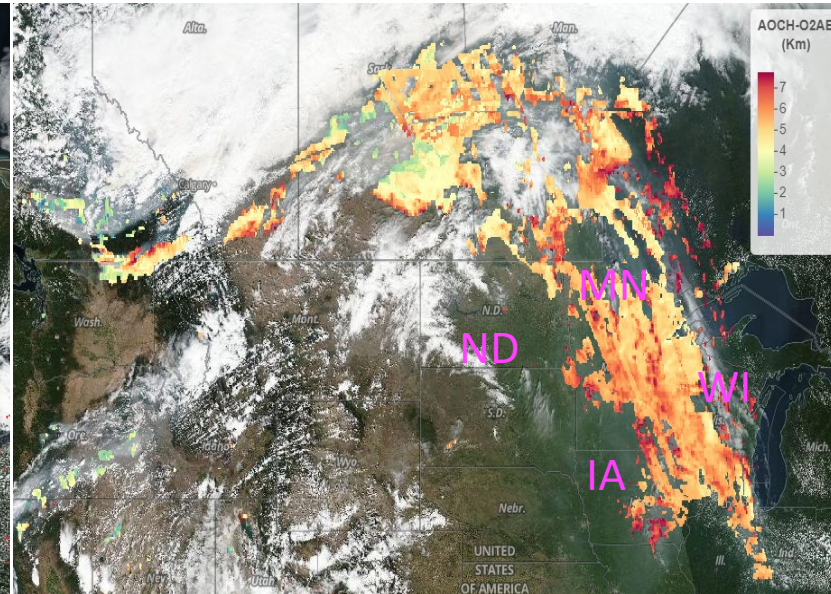
Air Quality Reflection: Friday August 18, 2023



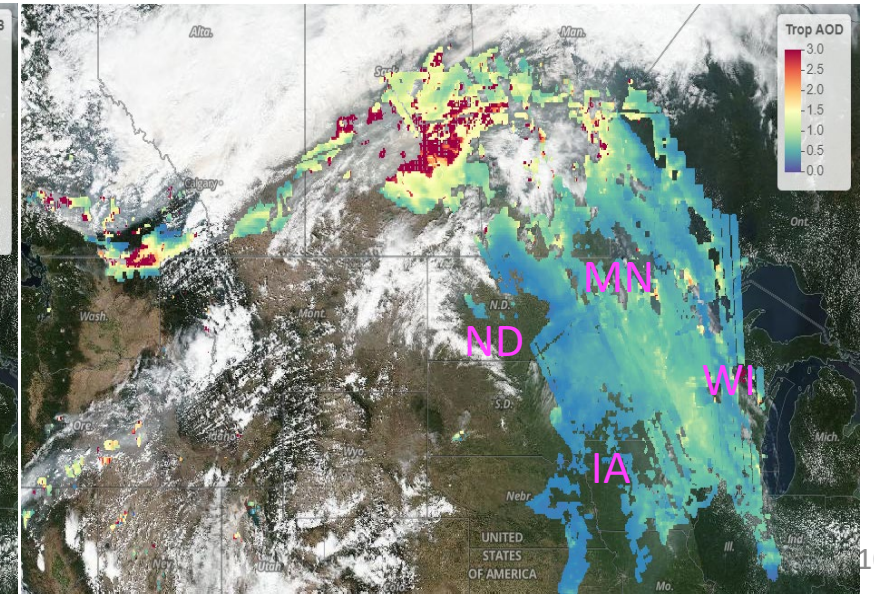
FILDA2 fire anomalies (displaying MCE)



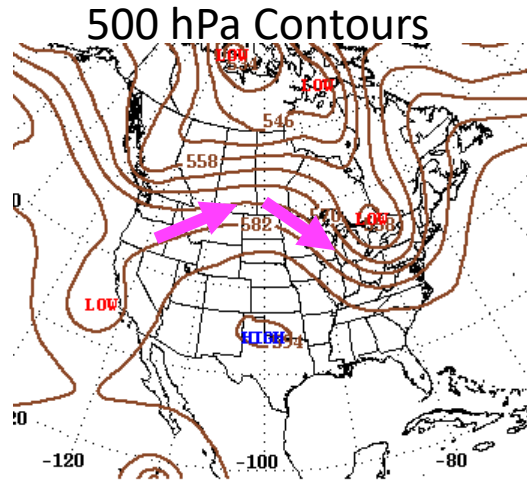
Tropomi AOC



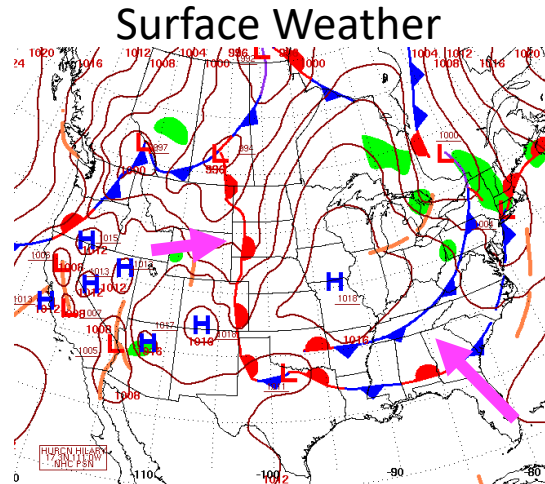
Tropomi AOD



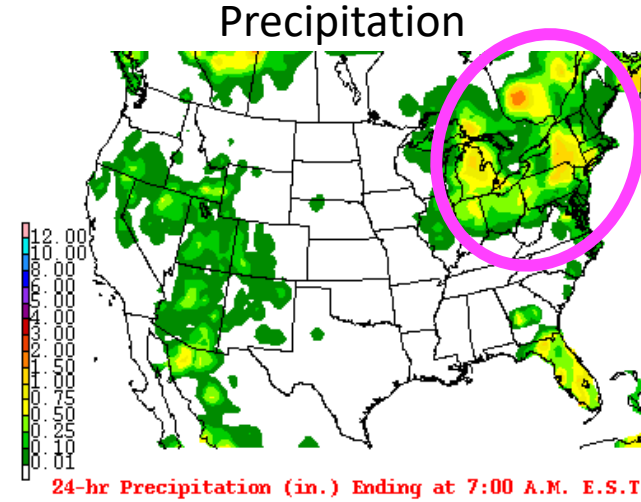
Air Quality Reflection: Friday August 18, 2023



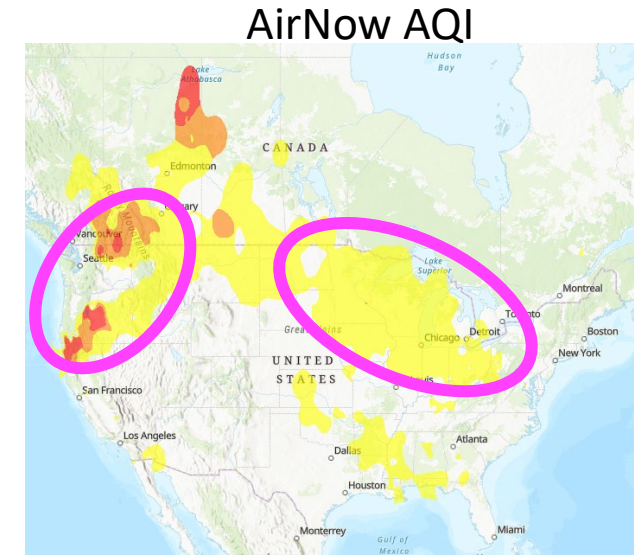
500-Millibar Height Contour at 7:00 A.M. E.S.T.



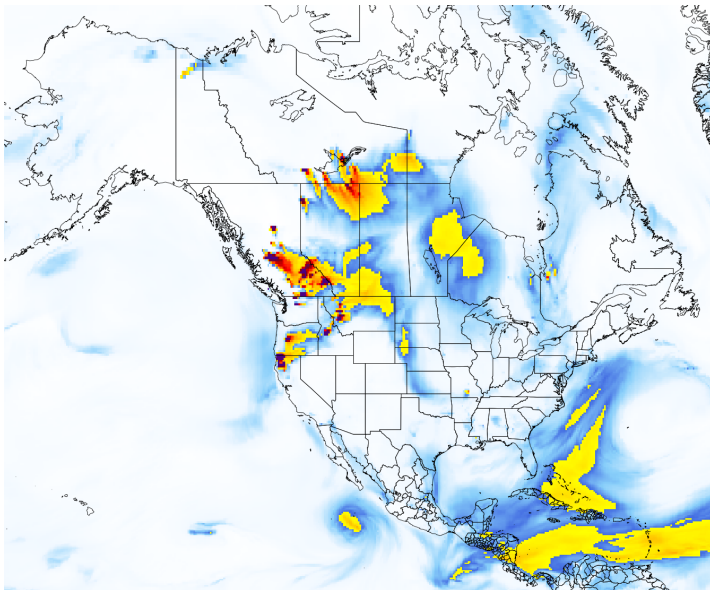
Surface Weather Map at 7:00 A.M. E.S.T.



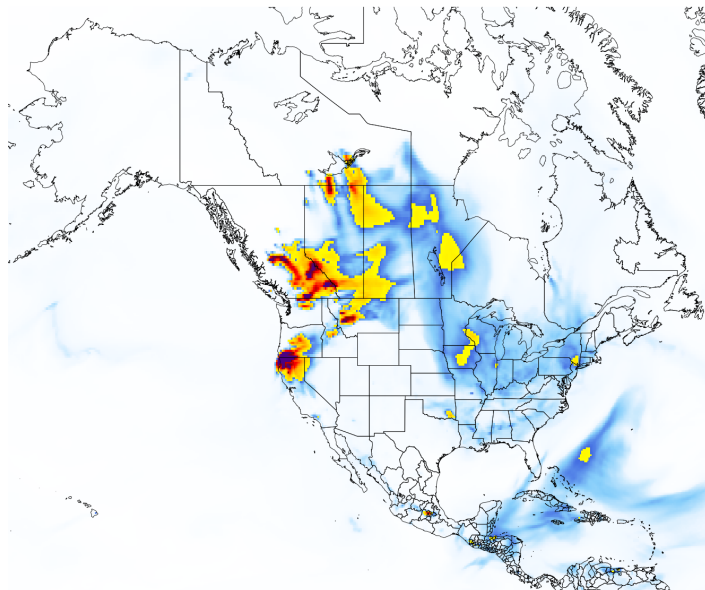
24-hr Precipitation (in.) Ending at 7:00 A.M. E.S.T.



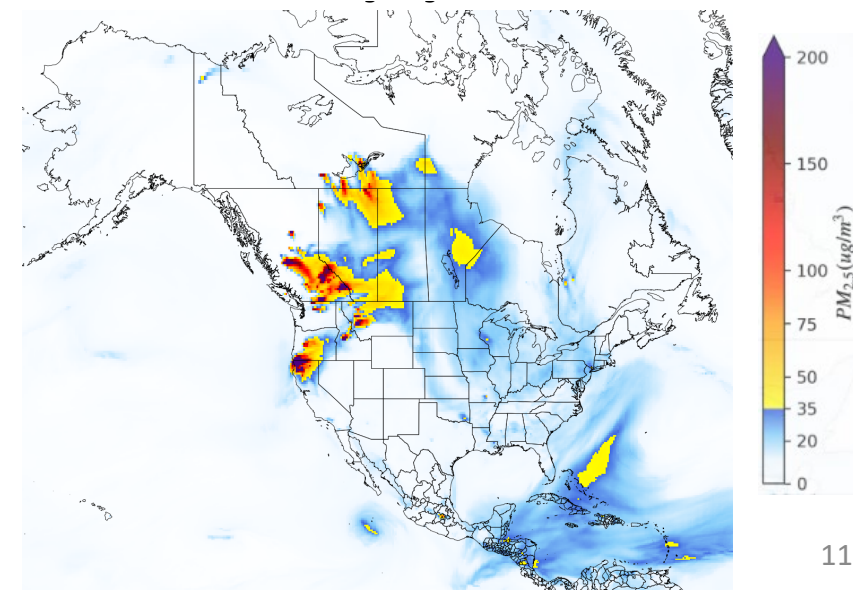
GEOS-FP



GEOS-CF

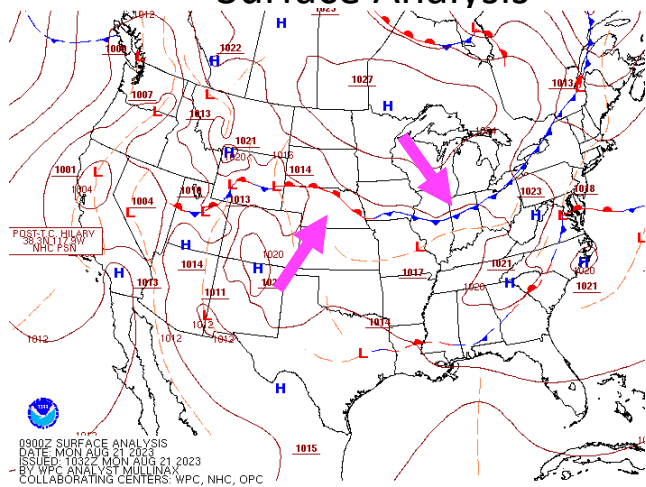


Ensemble (GEOS)

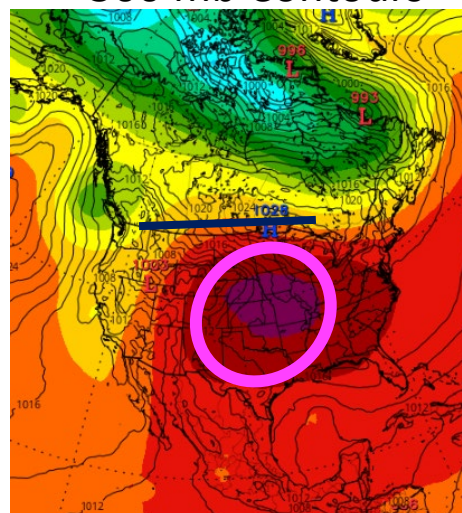


Current Status: August 21, 2023

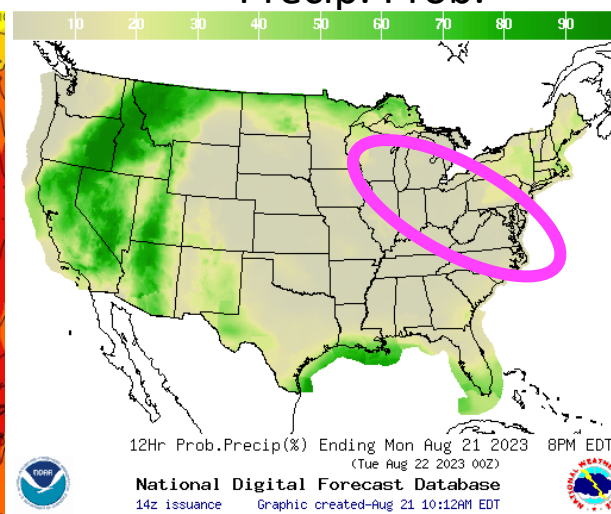
Surface Analysis



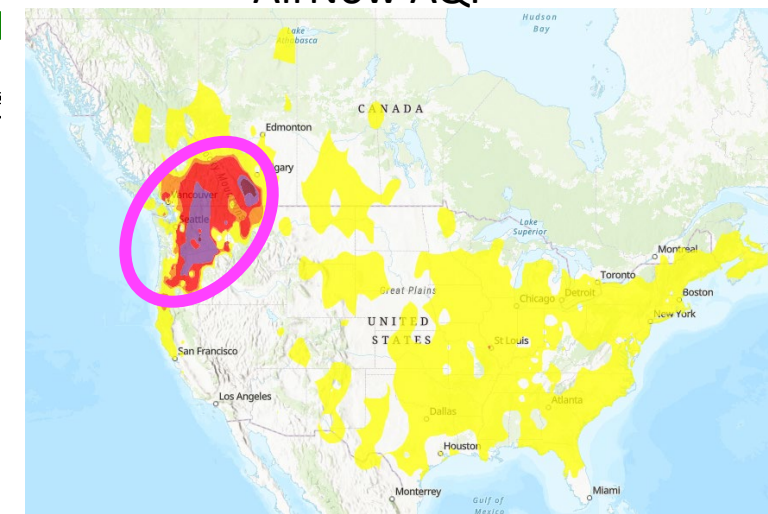
500 mb Contours



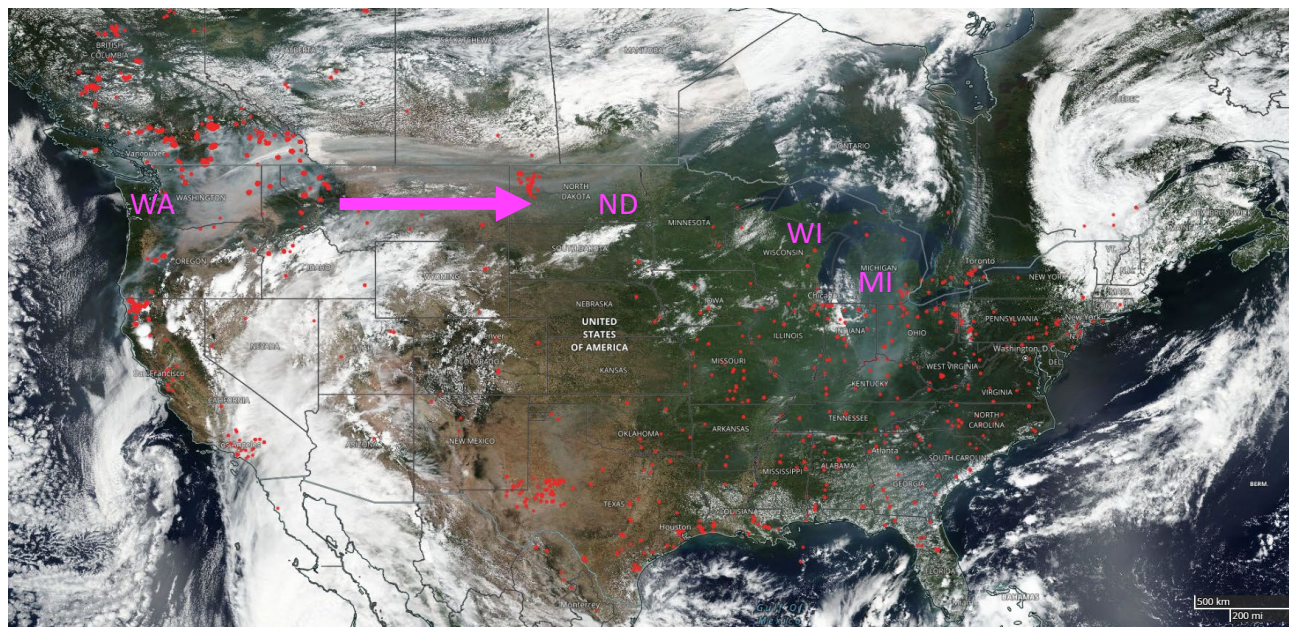
Precip. Prob.



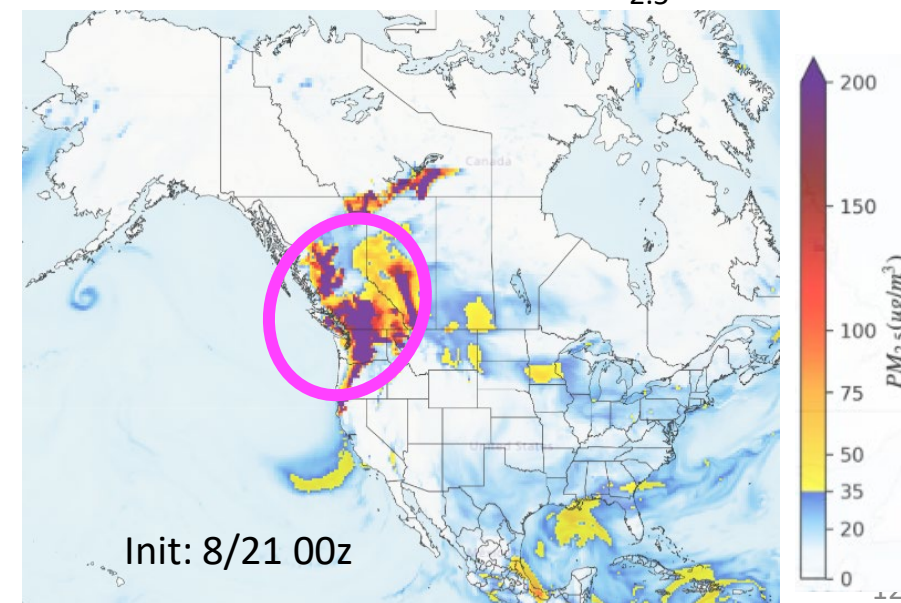
AirNow AQI



NASA Suomi Fire Anomalies (Sat 8/19)



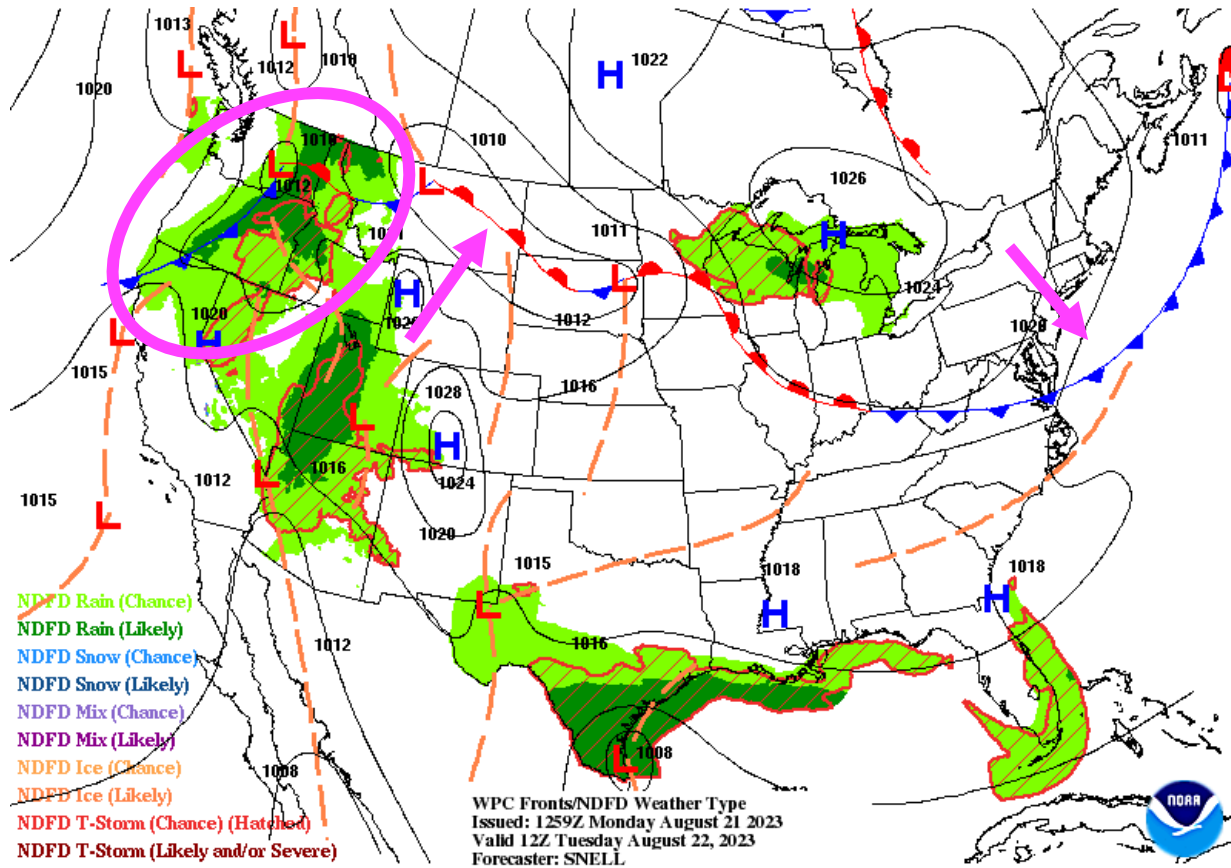
GEOS-FP 8/14 16 UTC PM_{2.5}



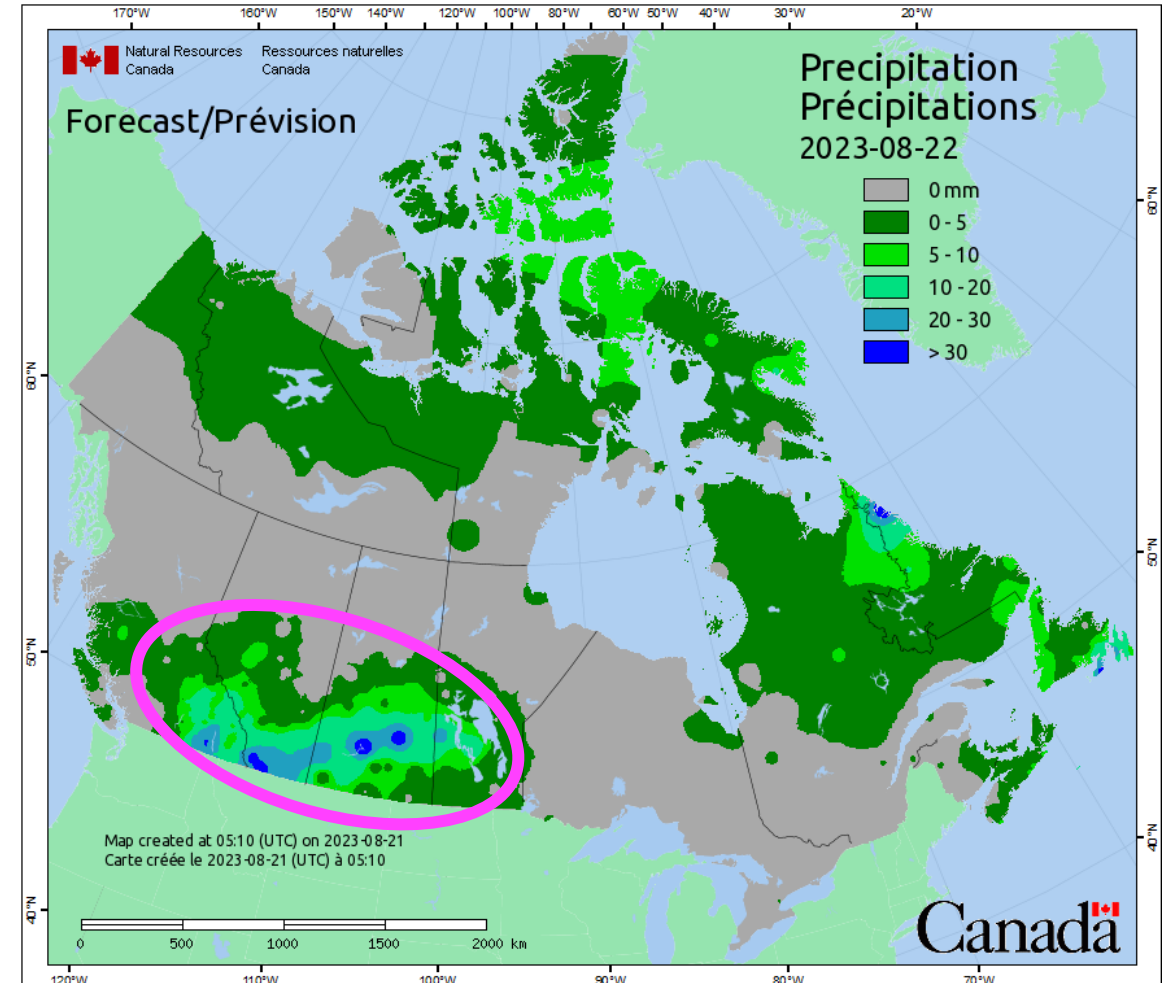
Outlook: Short Range (1–3 days)

Surface Forecast (Tuesday 8/21)

US NWS Forecast

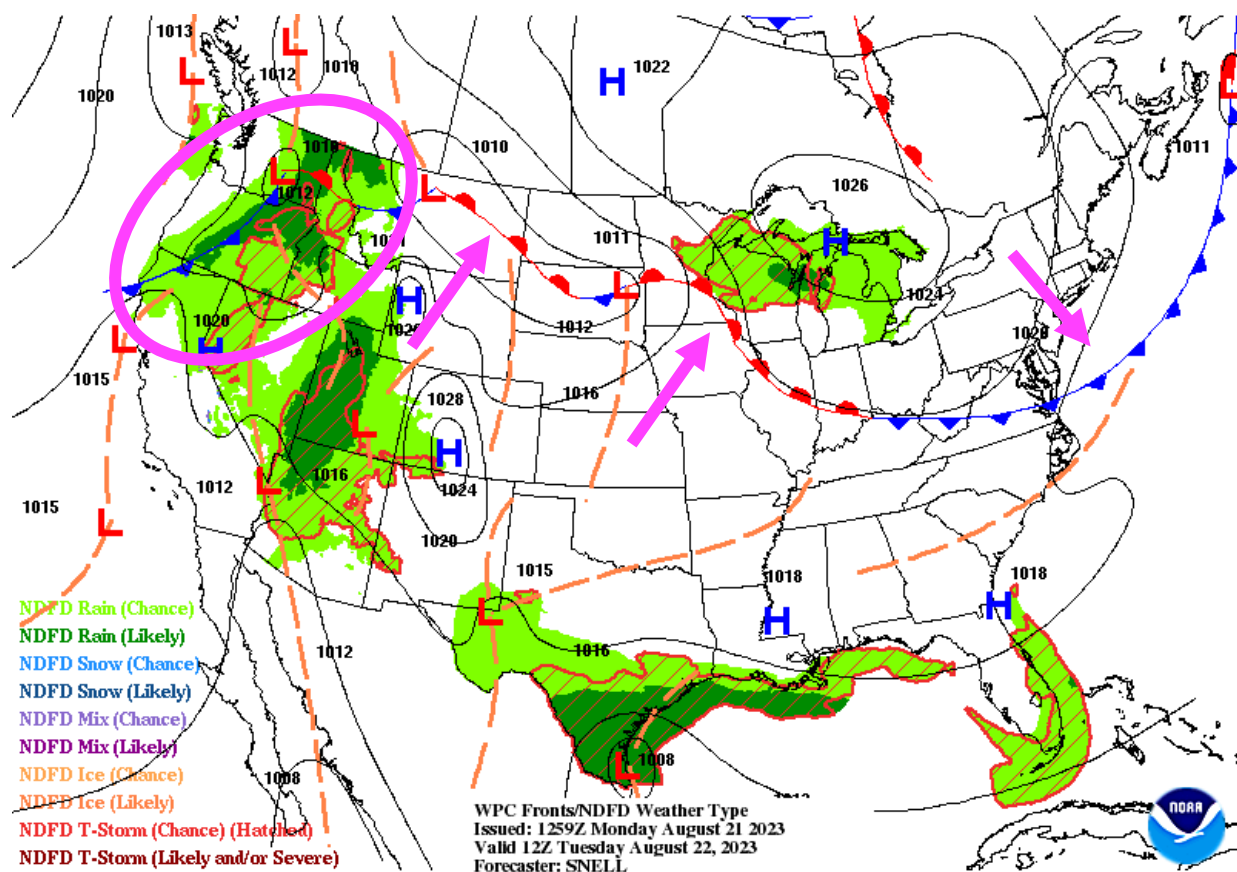


Environment Canada Forecast

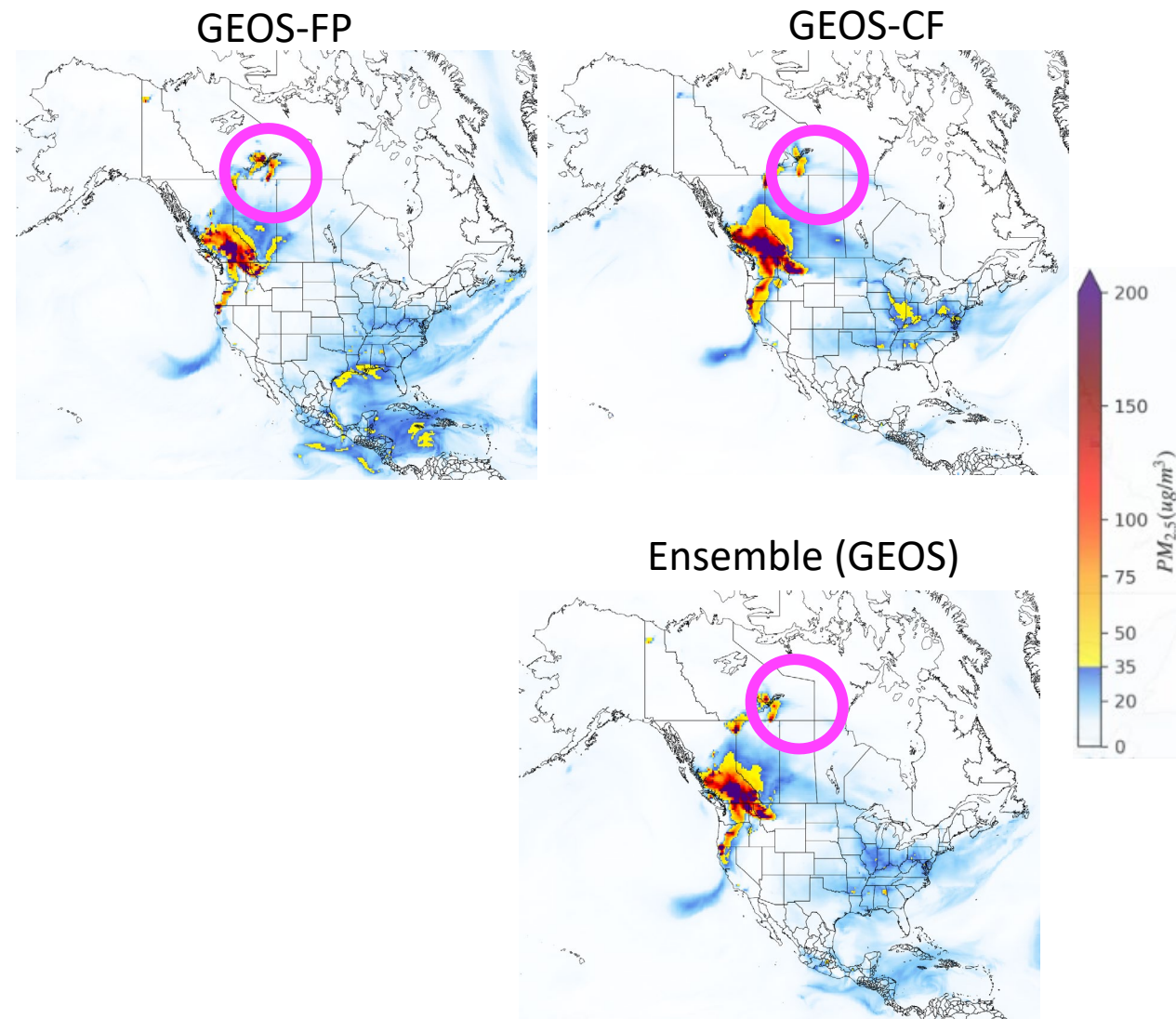


Outlook: Short Range (1–3 days)

Surface Forecast (Tuesday 8/22)



Model Means $PM_{2.5}$ (Tues 8/22)



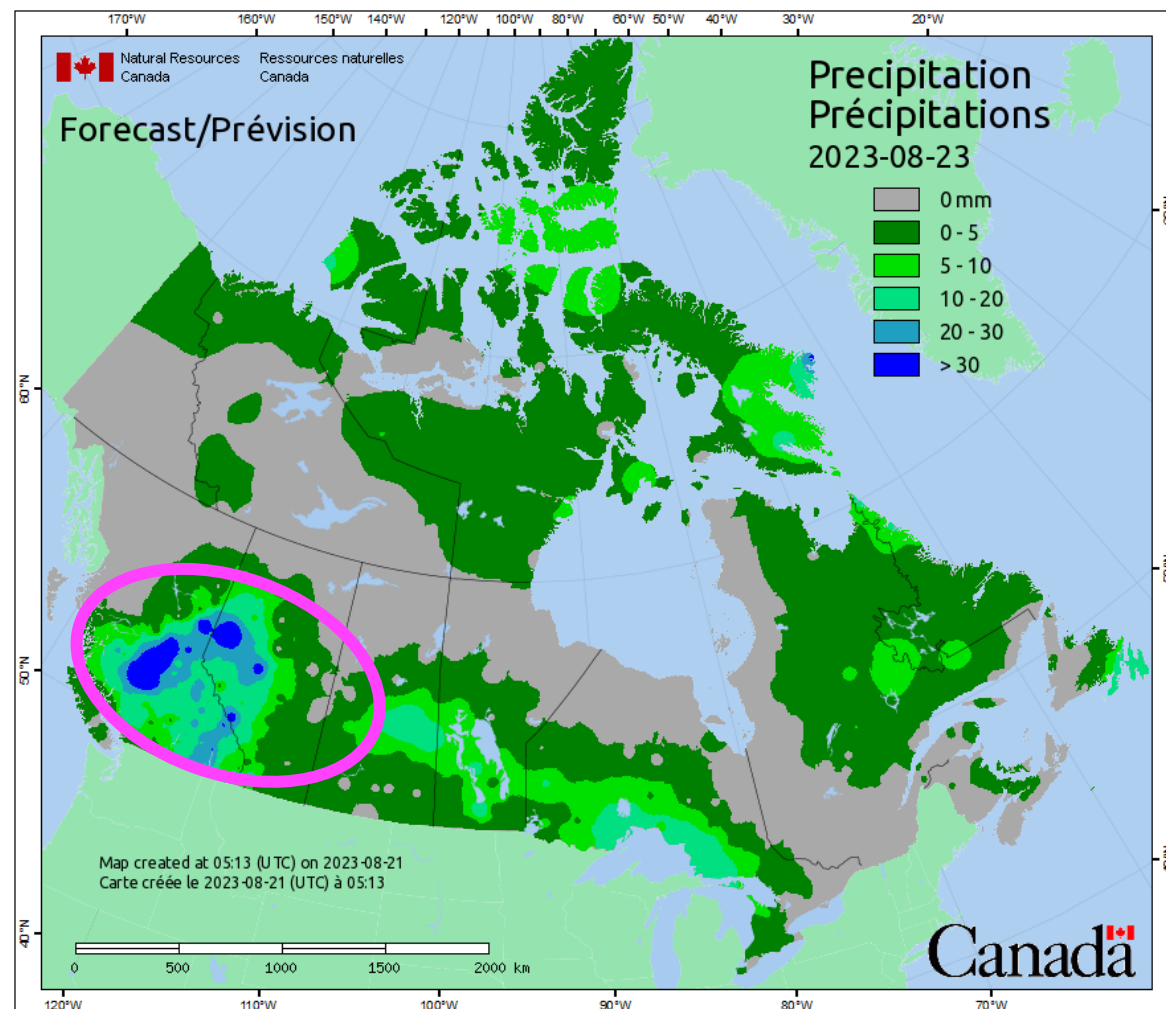
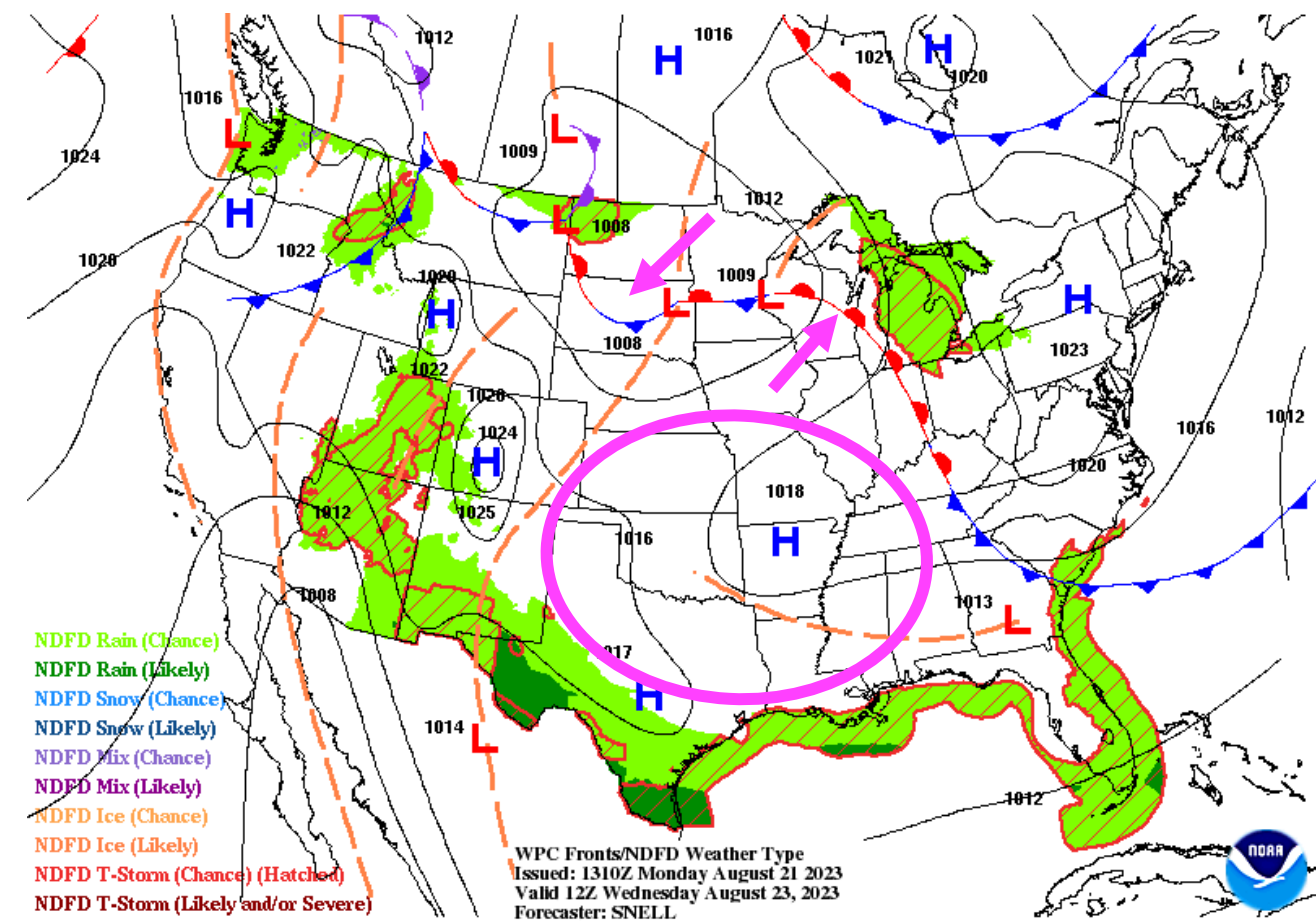
Day 3 of 8/20 initialization

Outlook: Short Range (1-3 days)

Surface Forecast (**Wednesday 8/16**)

US NWS Forecast

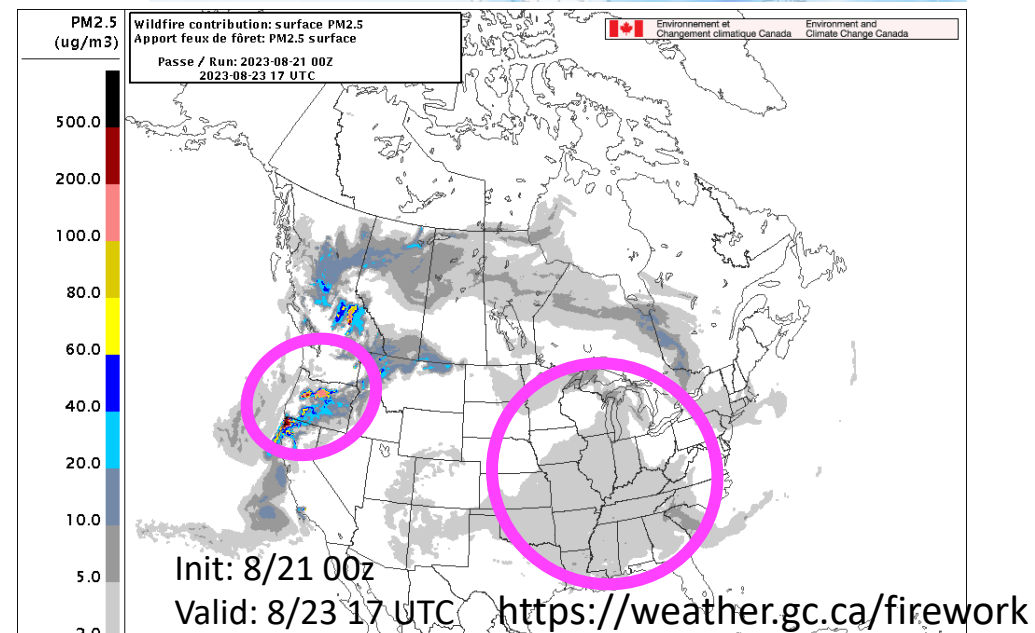
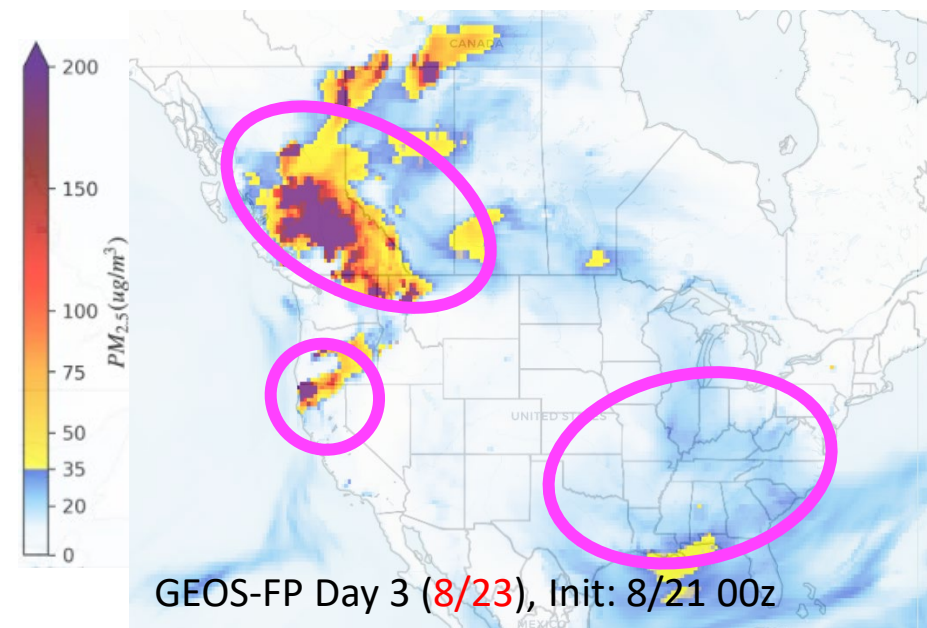
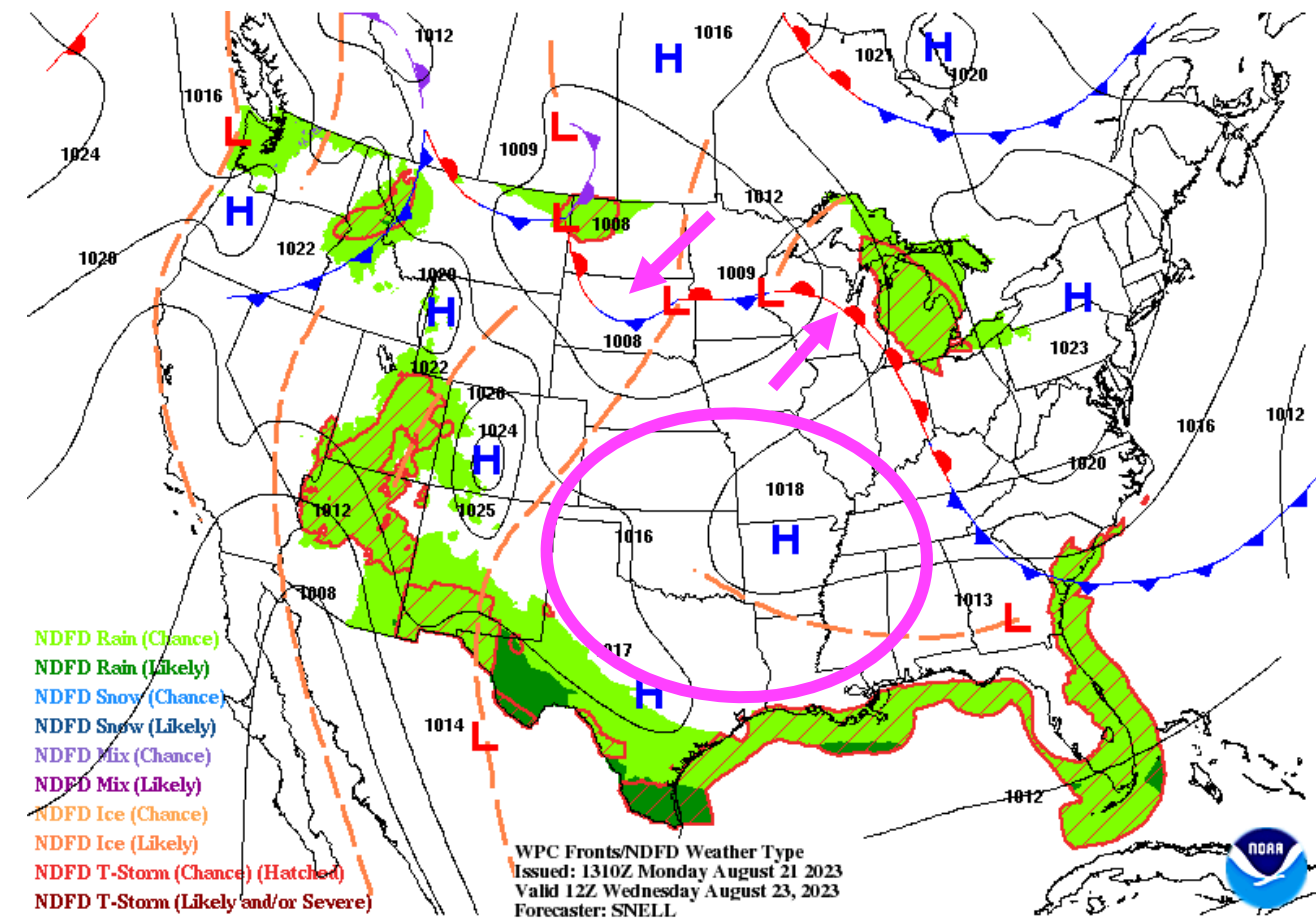
Environment Canada Forecast



Outlook: Short Range (1–3 days)

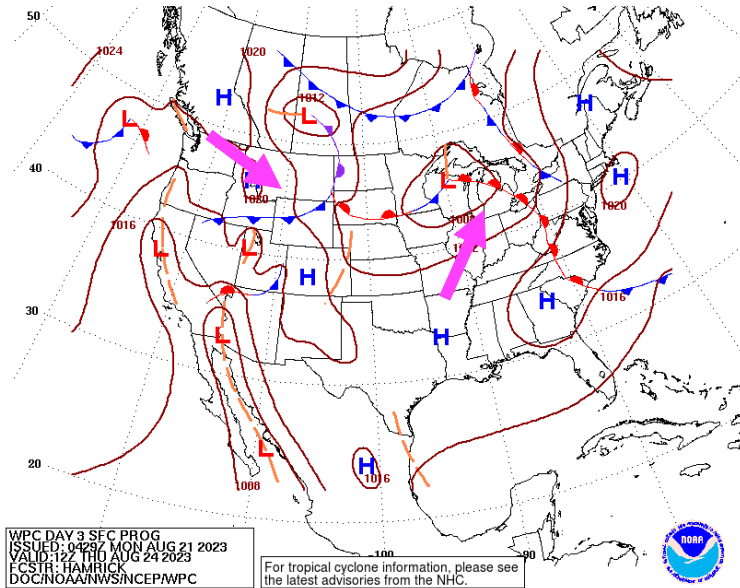
Surface Forecast

(Wednesday 8/22)

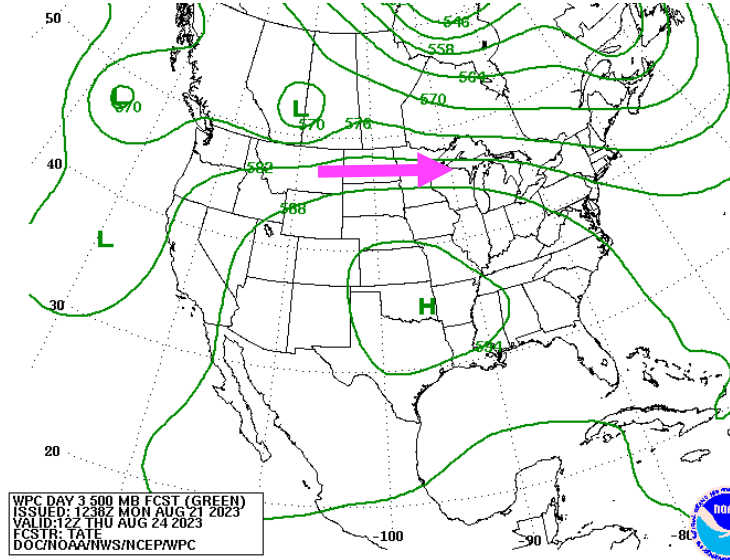


Outlook: Medium Range

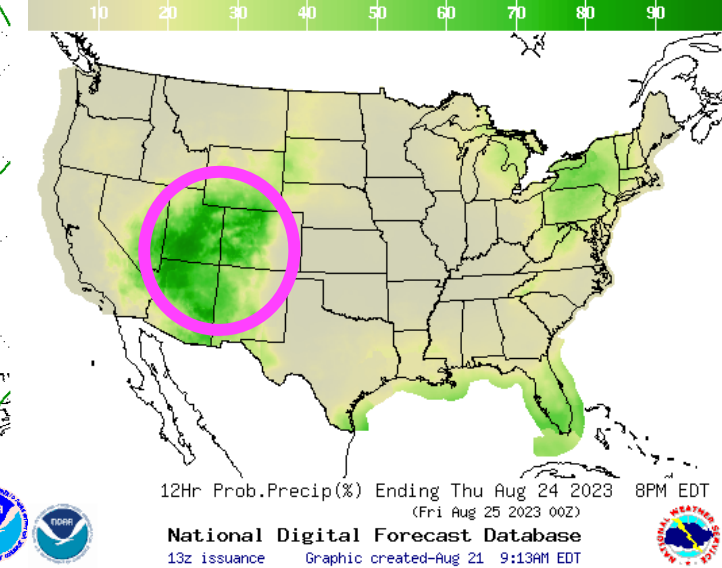
500 hPa Contours



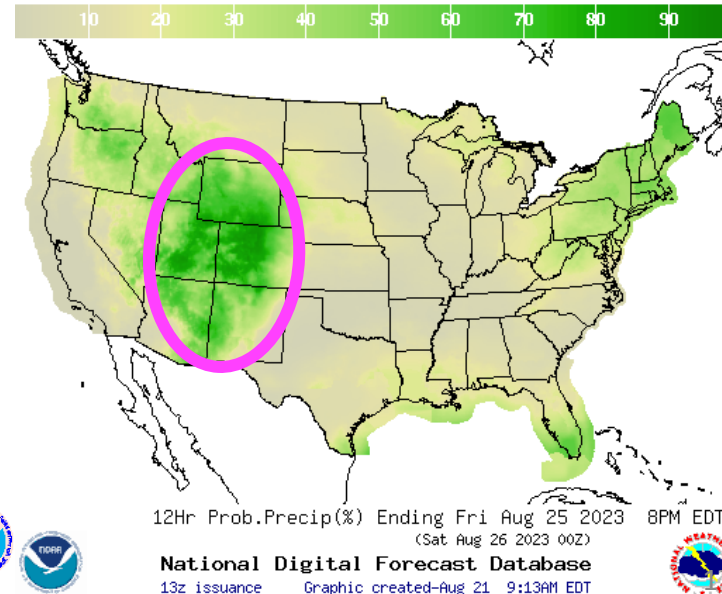
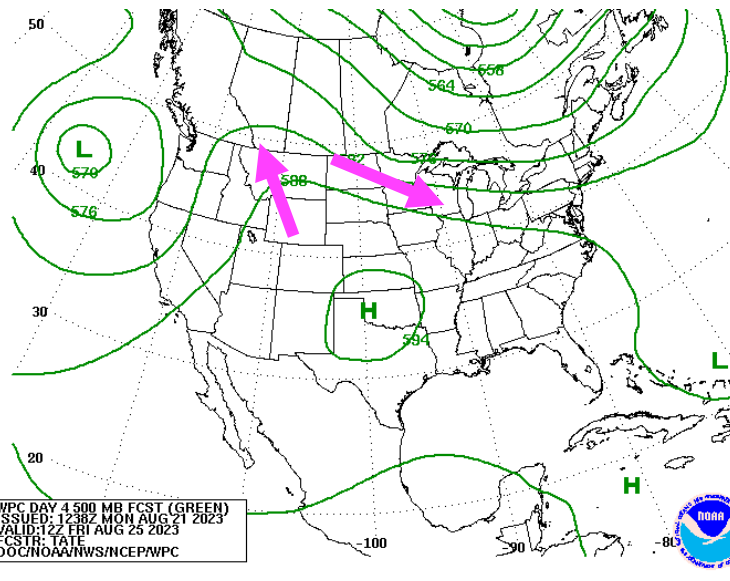
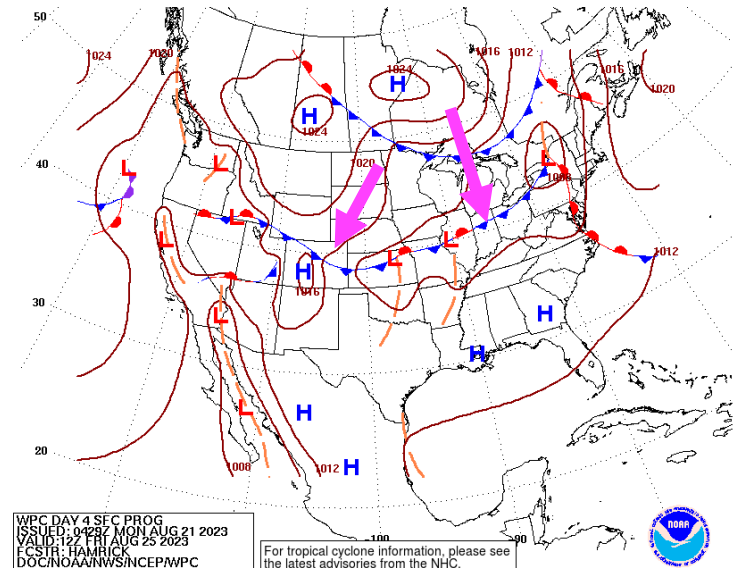
Sea Level



Precip Prob.



Friday
8/25



Summary

Monday : Active fires in B.C. Canada, and WA US continue to cause poor air quality in the region. A combination of persistent smoke transport and stagnate weather are impacting the air quality in the Central and Eastern US.

M → W : Likely chances of rain are predicted over the PNW along a cold front through Tuesday. A high pressure system over the central and southern US through Wednesday and impacts to air quality from smoke will persist in the region.

Th → F : A stationary front forecasted along the central US along with a low pressure system could help to clear out lingering smoke aloft in the region. Need to keep an eye on potential fires in southern Canada.

AirNow AQI

