

Weather and Air Quality: Reflection and Outlook During Smoke Conditions

Presenter: Megan Christiansen
Date: October 10, 2023

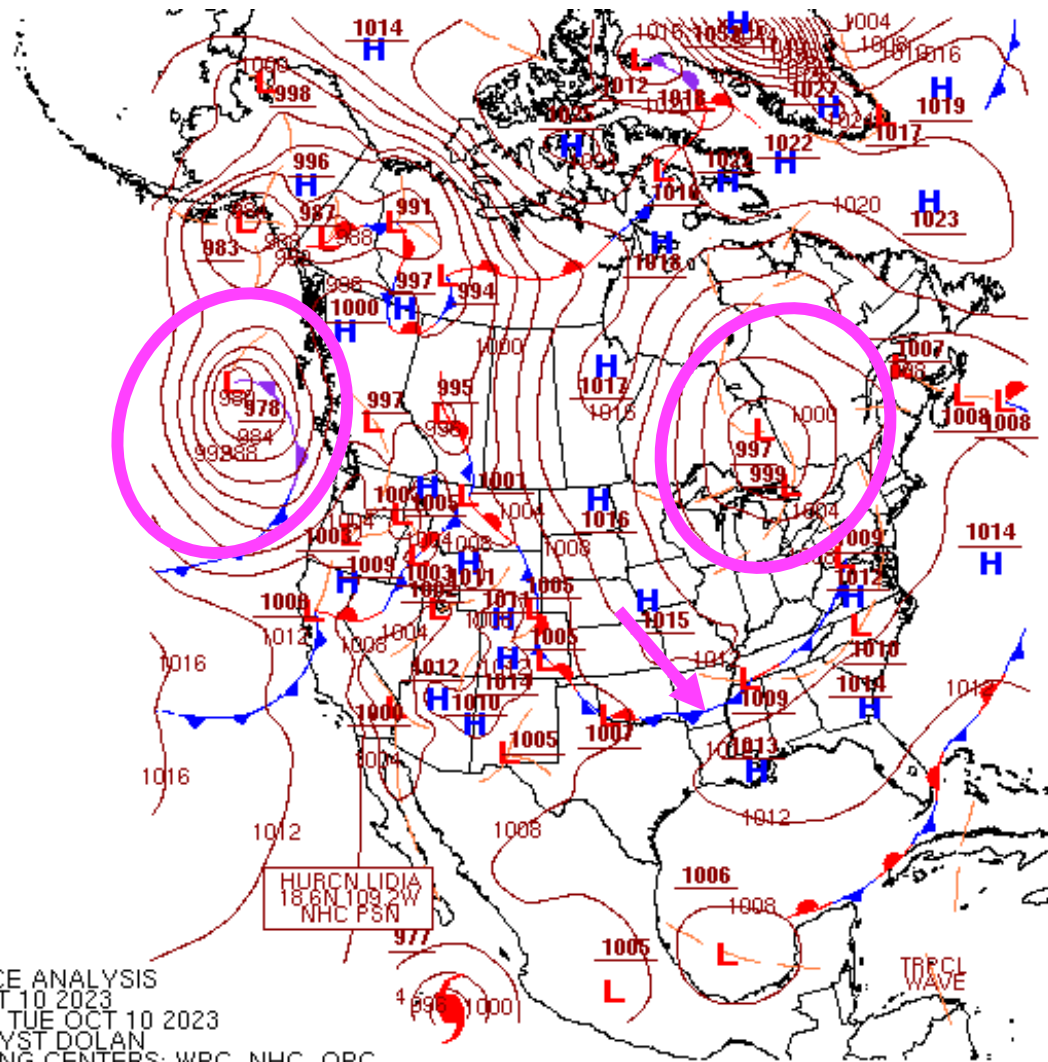


FireAQ is funded by NASA HAQ. We thank NASA GMAO and
NRL for the model data products.

EARTH SCIENCE
APPLIED SCIENCES

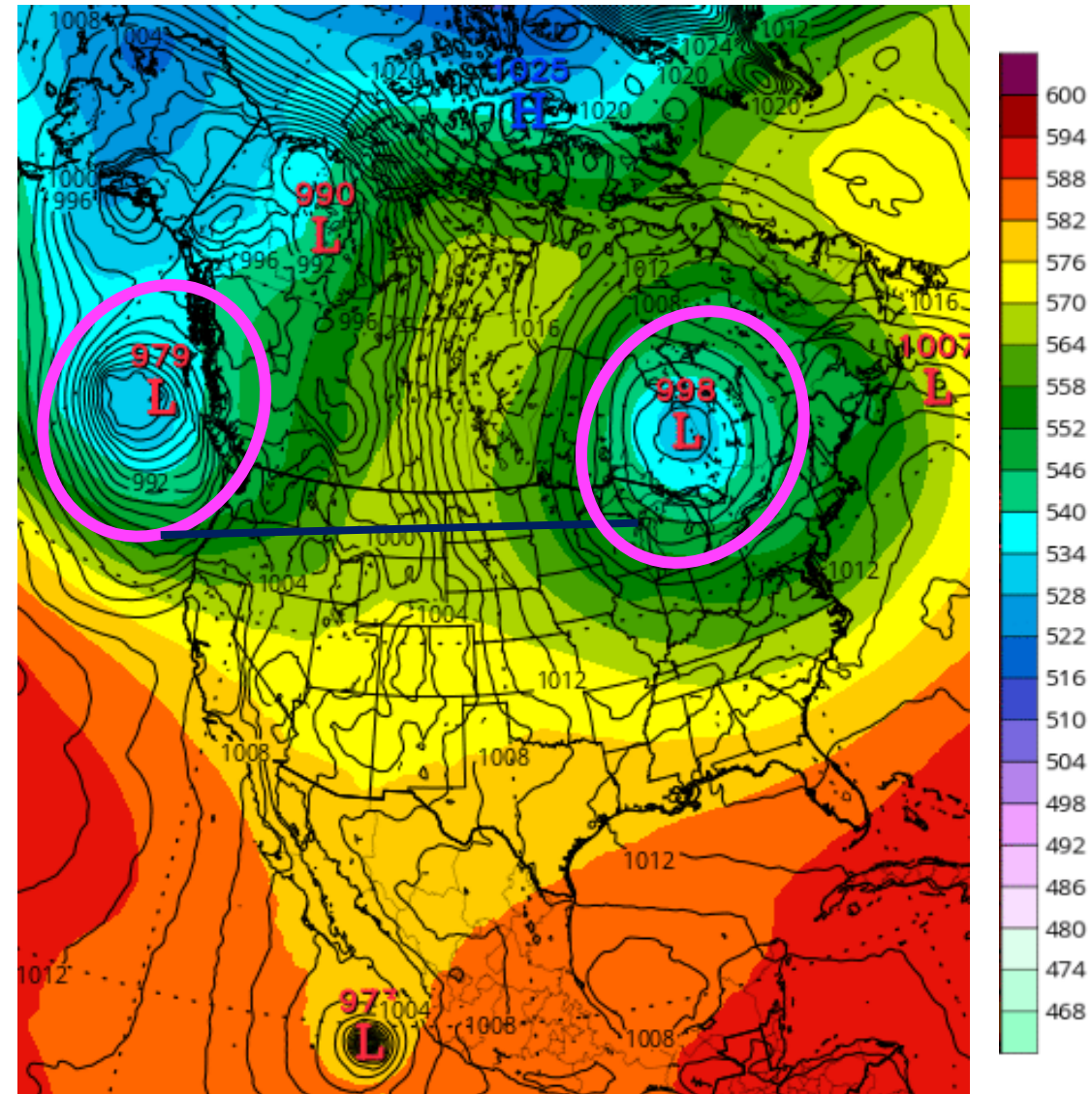
Current Status: October 10, 2023

Surface Analysis



0900Z SURFACE ANALYSIS
DATE: TUE OCT 10 2023
ISSUED: 1021Z TUE OCT 10 2023
BY WPC ANALYST DOLAN
COLLABORATING CENTERS: WPC, NHC, OPC

500 mb Contours

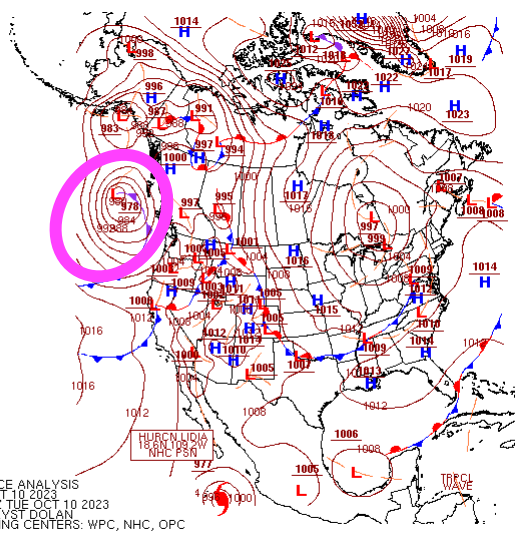


GFS 500mb Geopotential Height (dam) & MSLP (mb)

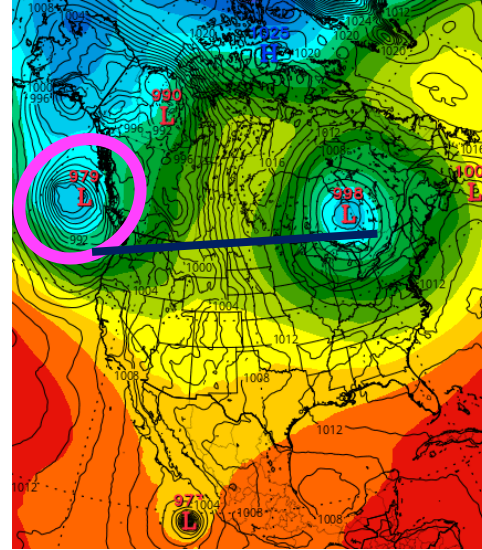
Init: 06z Oct 10 2023 Forecast Hour: [6] valid at 12z Tue, Oct 10 2023

Current Status: October 10, 2023

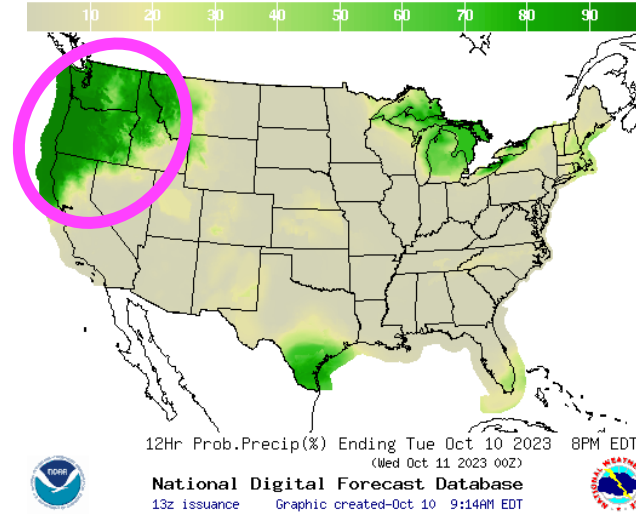
Surface Analysis



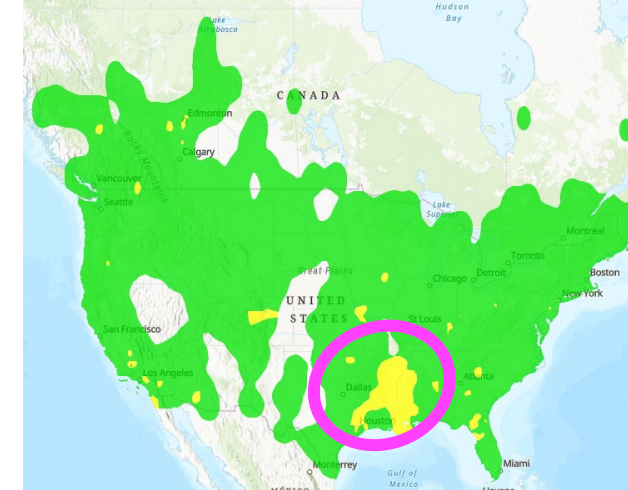
500 mb Contours



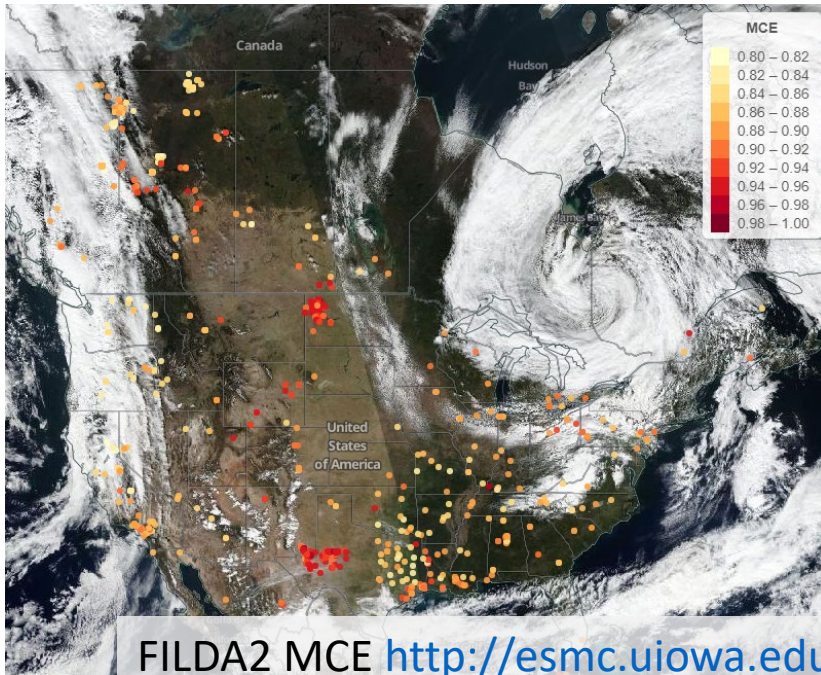
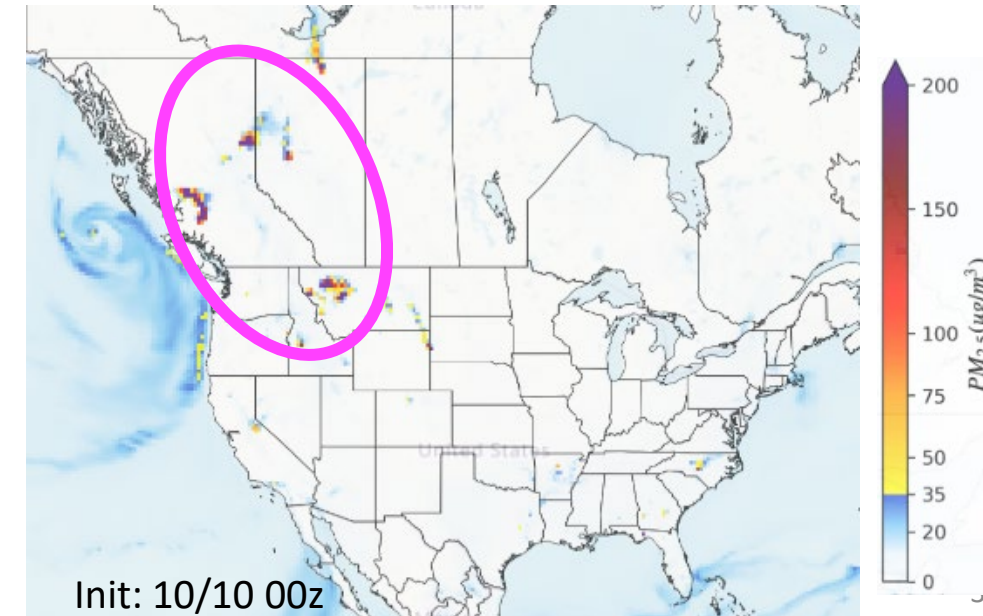
Precip. Prob.



AirNow PM_{2.5} AQI



GEOS-FP 10/10 16 UTC PM_{2.5}

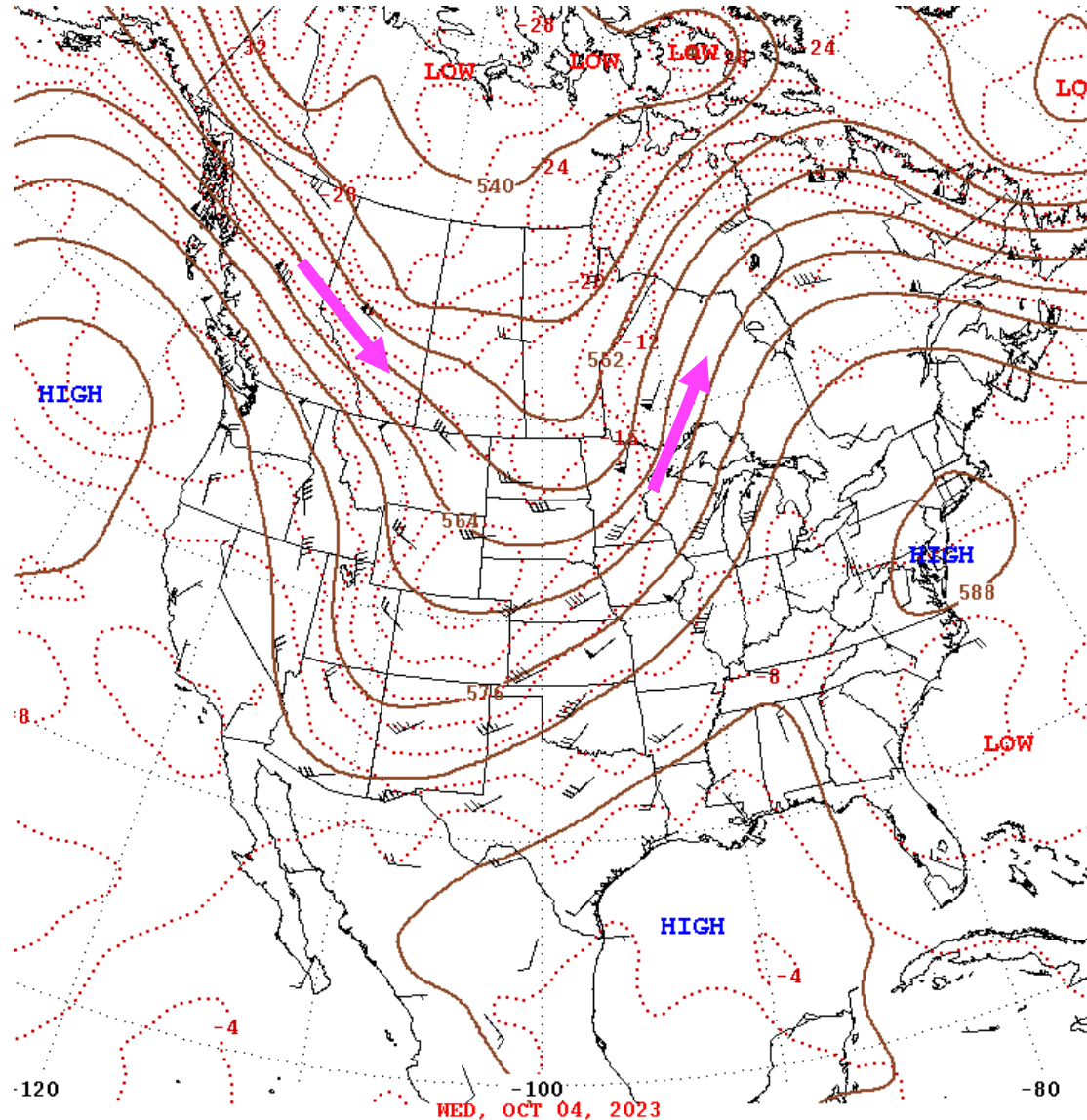


Mon 10/9

FILDA2 MCE http://esmc.uiowa.edu:3838/fires_detection/

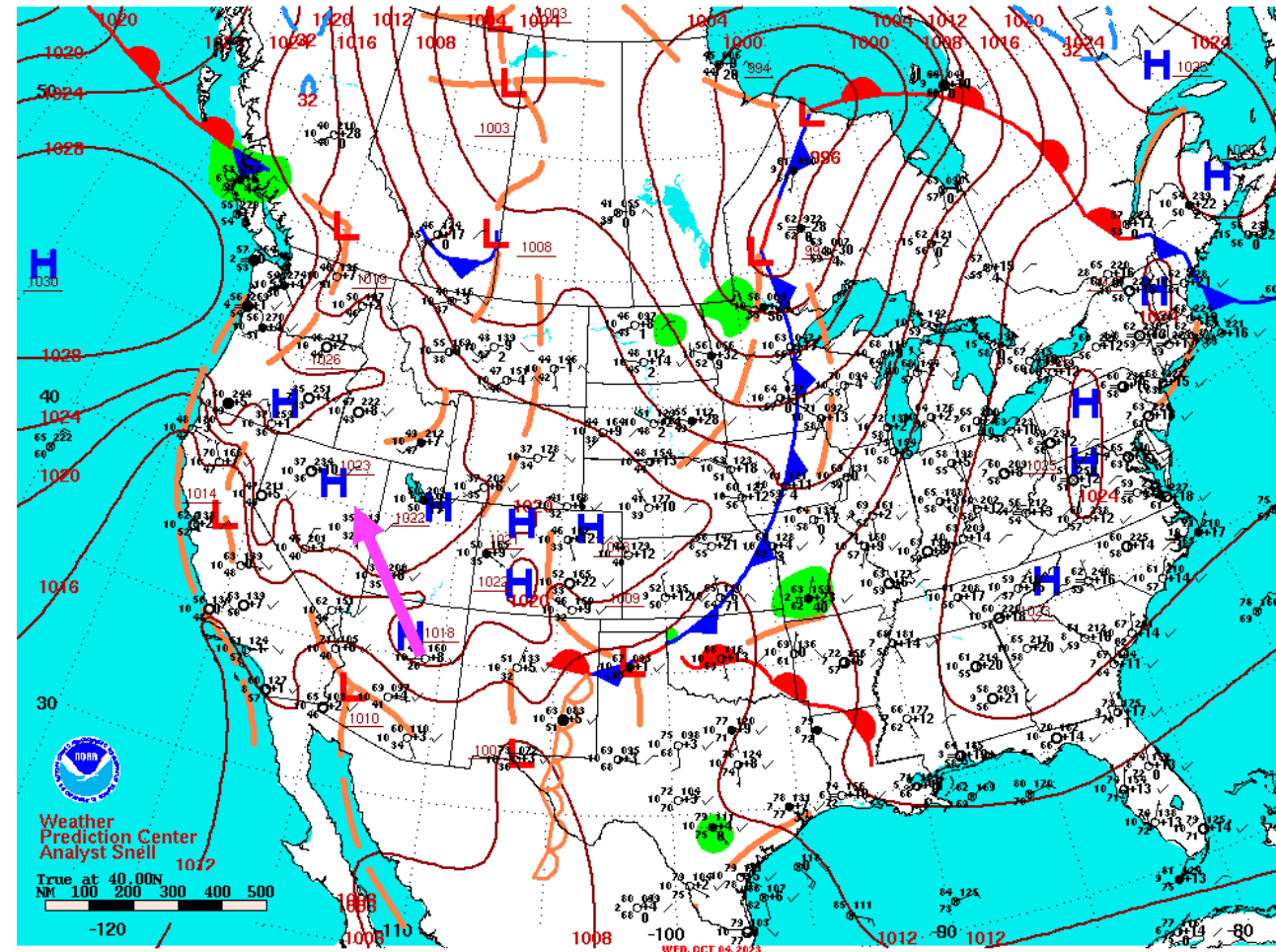
Air Quality Reflection: Wednesday Oct 4, 2023

500 hPa Contours



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

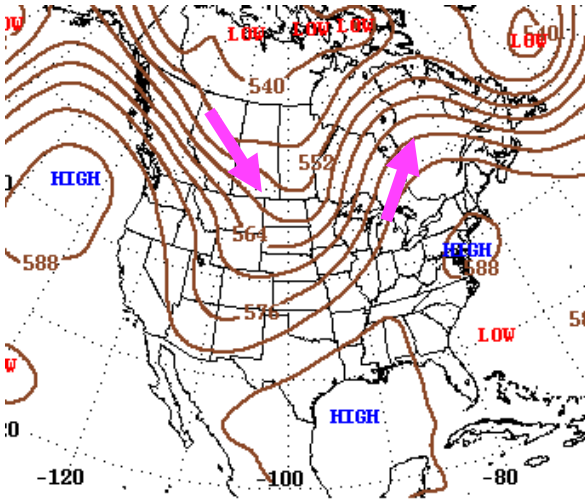
Surface Weather



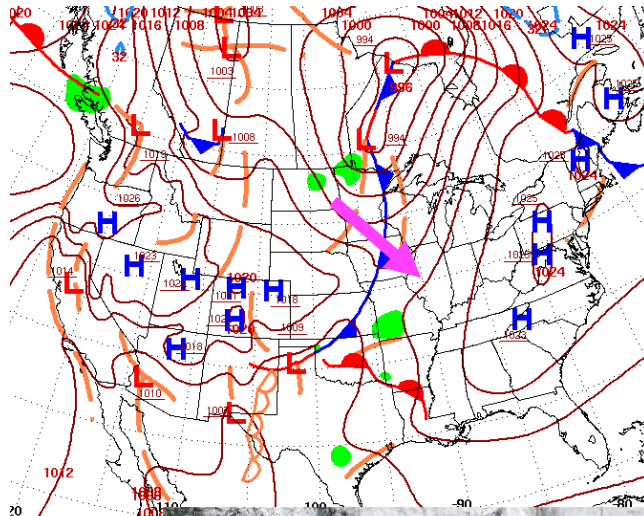
Surface Weather Map and Station Weather at 7:00 A.M. E.S.T.

Air Quality Reflection: Wednesday Oct 4, 2023

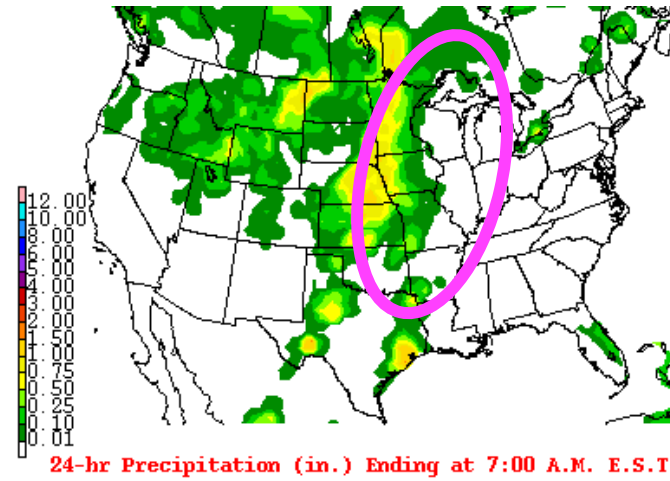
500 hPa Contours



Surface Weather

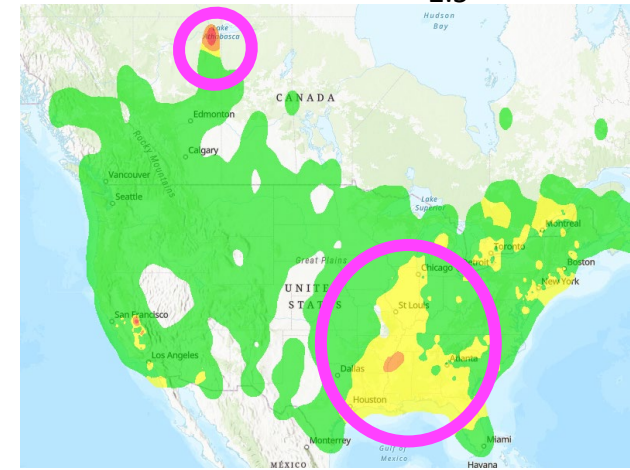


Precipitation

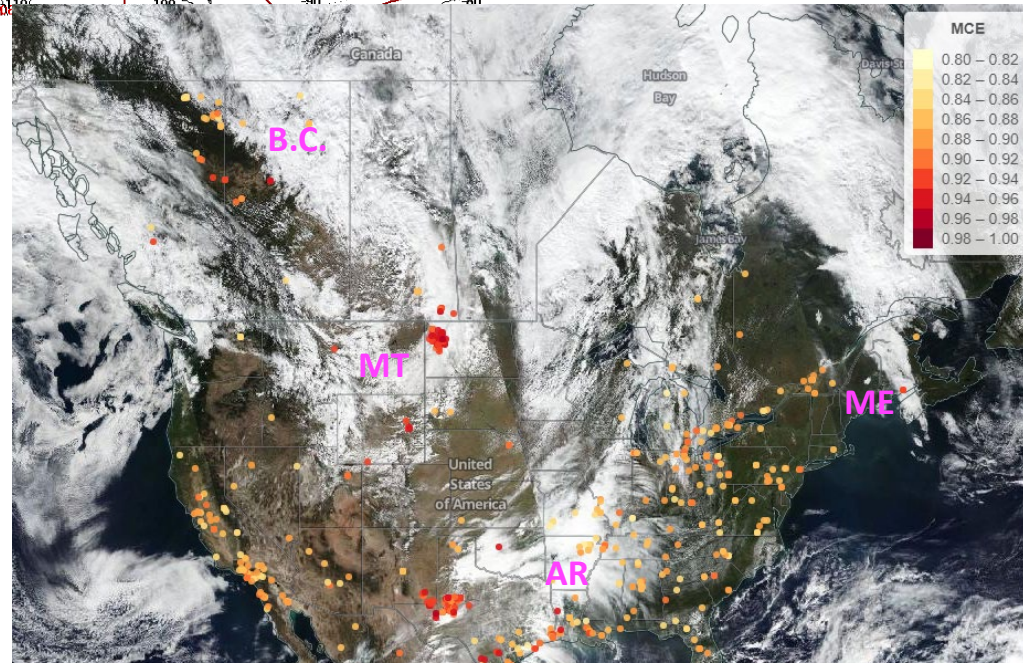


24-hr Precipitation (in.) Ending at 7:00 A.M. E.S.T.

AirNow PM_{2.5} AQI

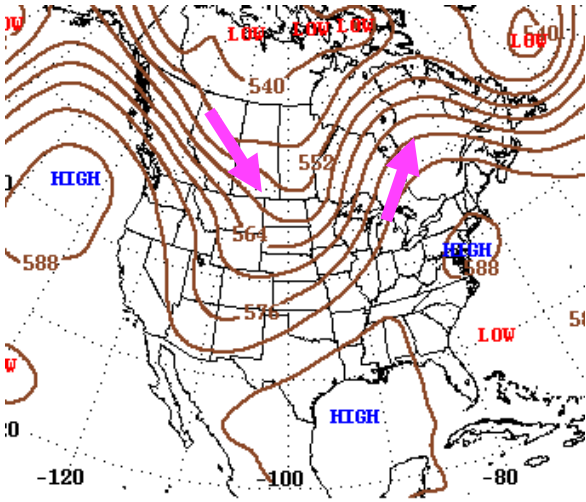


500-Millibar Height Contour at 7:00 A.M. E.S.T.

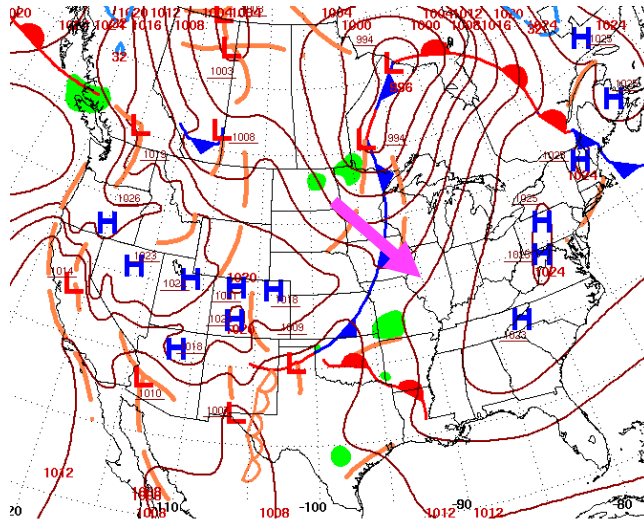


Air Quality Reflection: Wednesday Oct 4, 2023

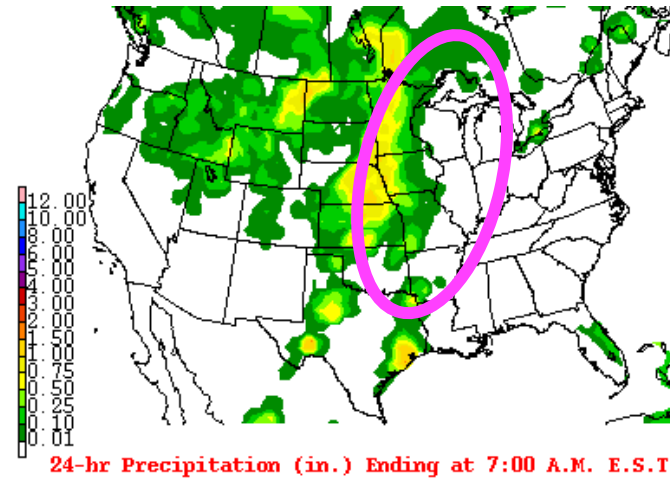
500 hPa Contours



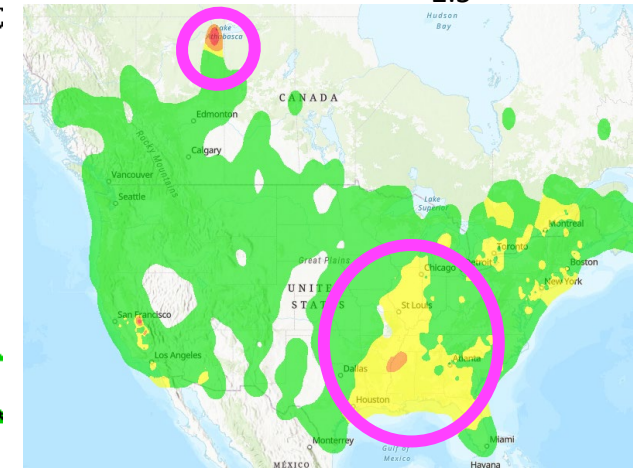
Surface Weather



Precipitation



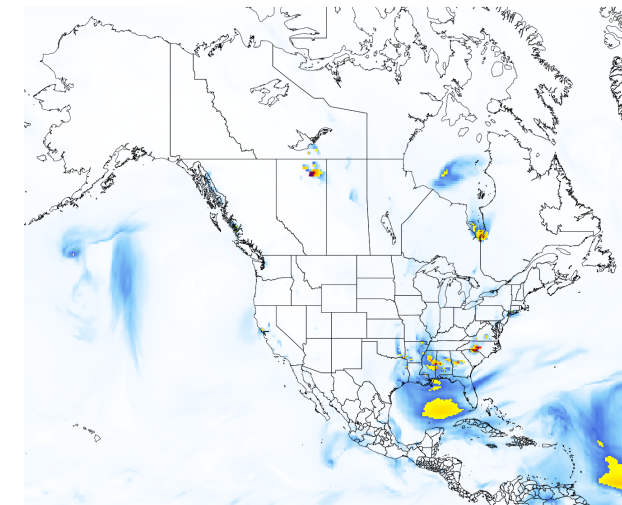
AirNow PM_{2.5} AQI



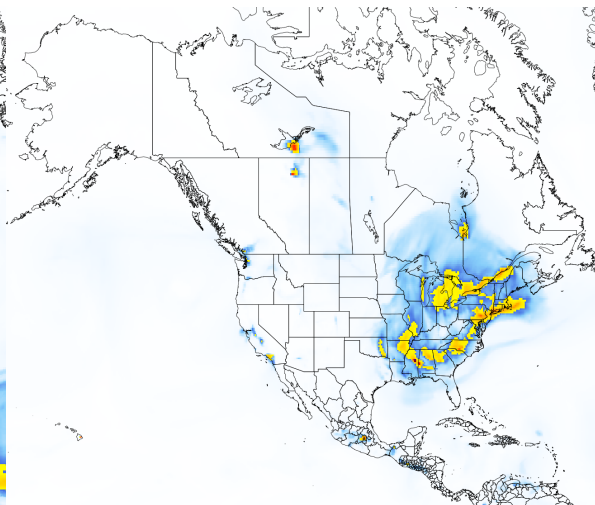
500-Millibar Height Contour at 7:00 A.M. E.S.T.

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

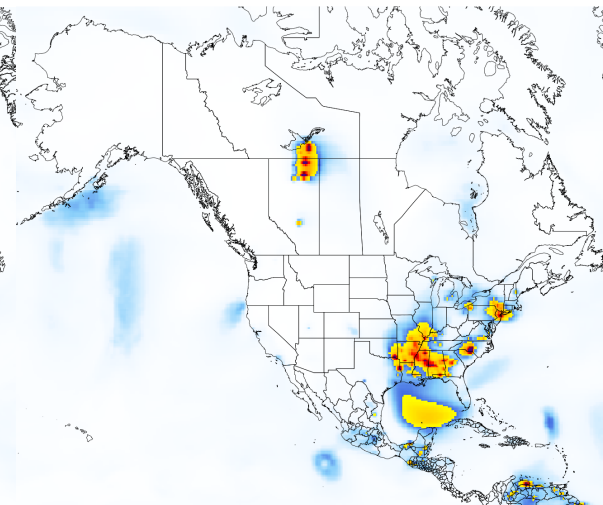
GEOS-FP



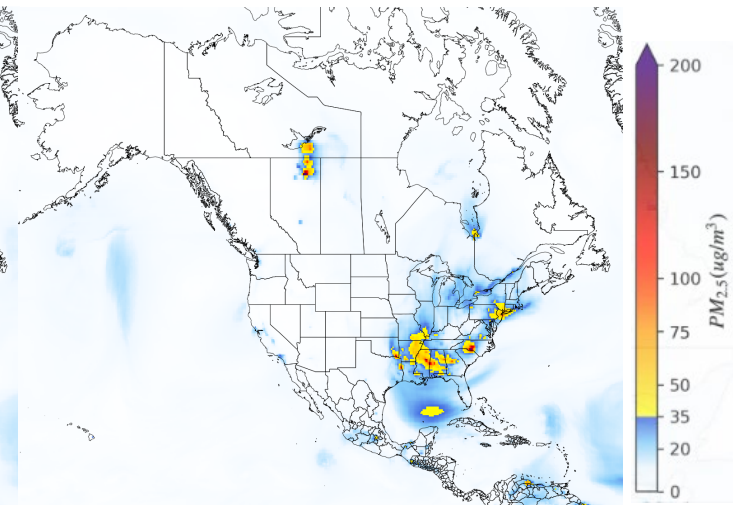
GEOS-CF



NAAPS

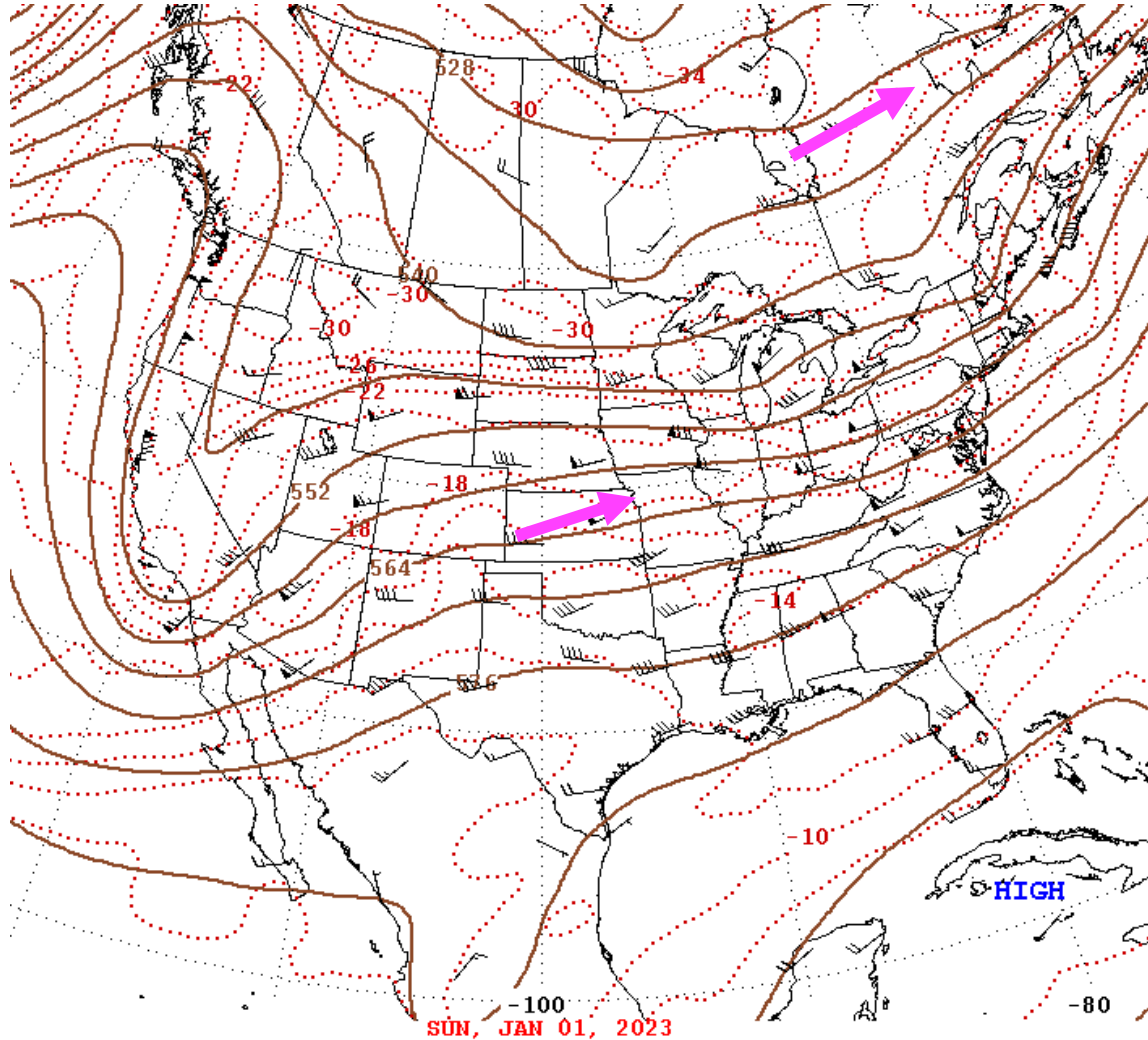


Ensemble



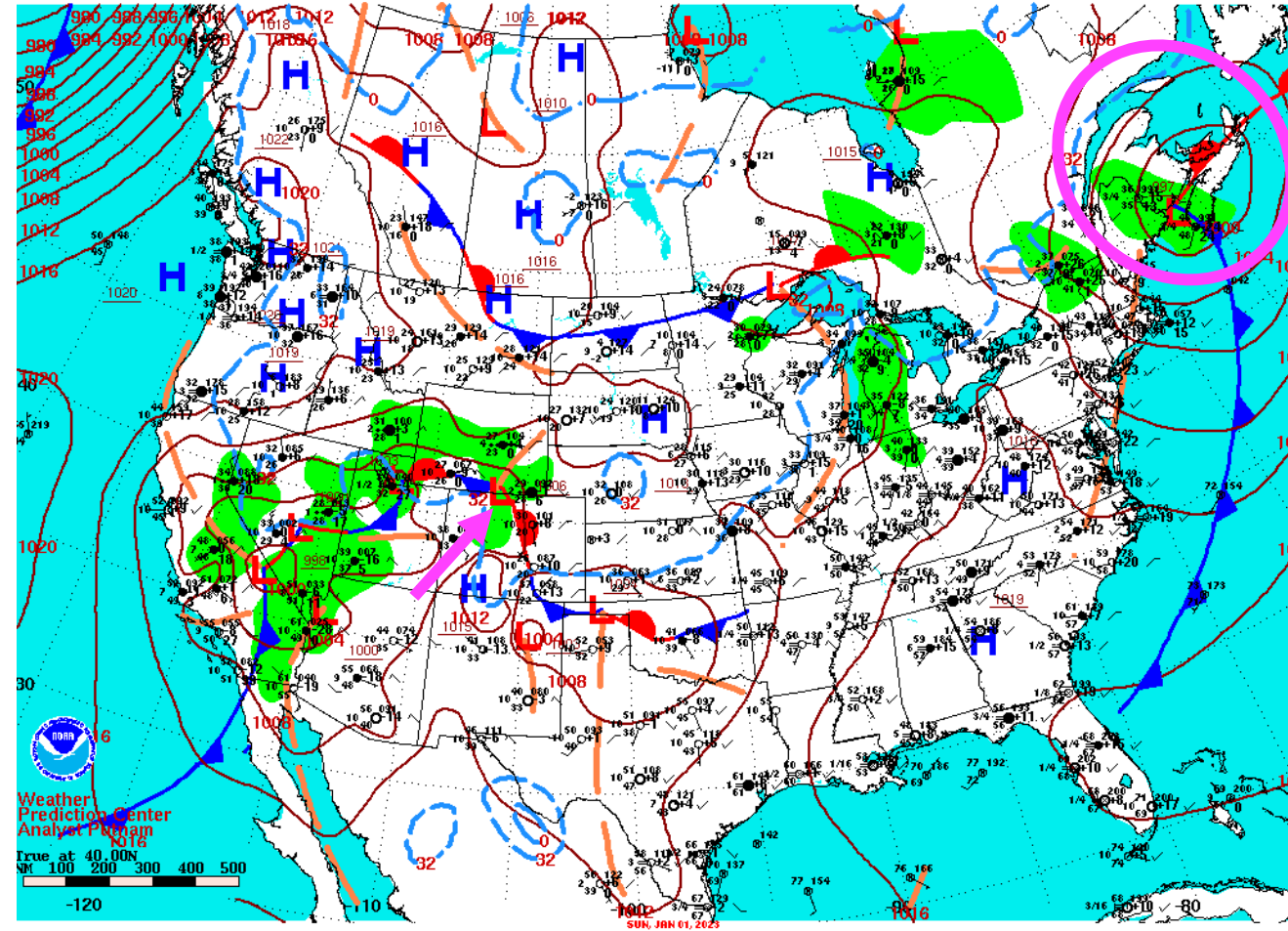
Air Quality Reflection: Friday Oct 6, 2023

500 hPa Contours



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

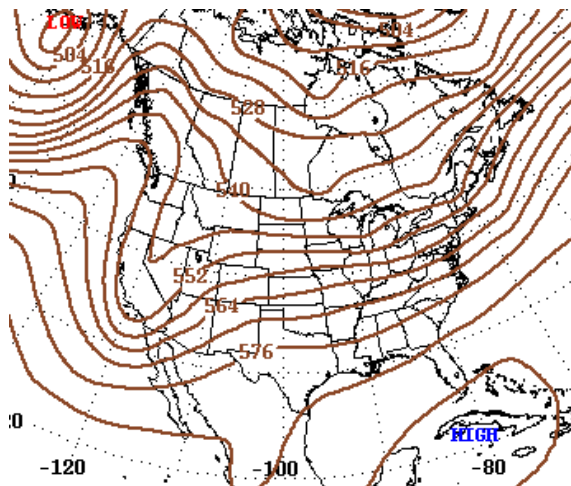
Surface Weather



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

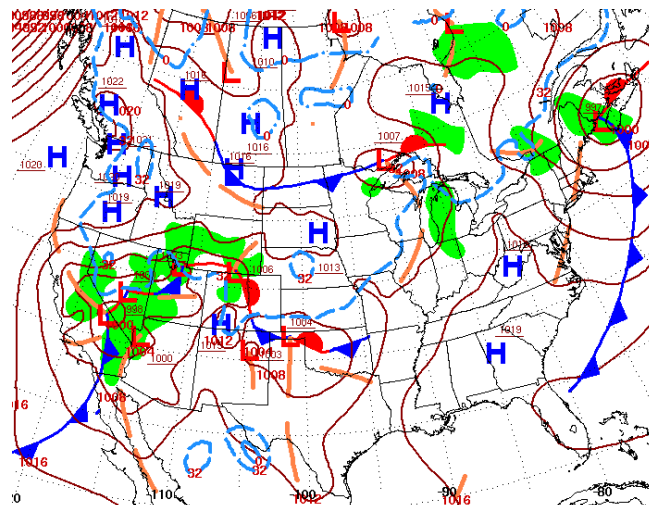
Air Quality Reflection: Friday Oct 6, 2023

500 hPa Contours



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

Surface Weather

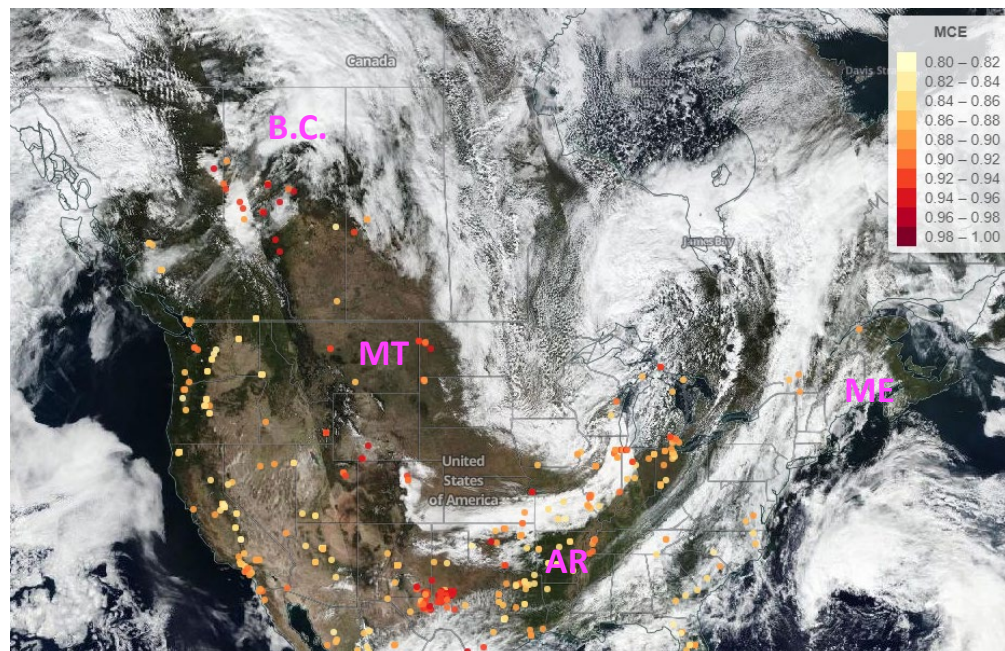
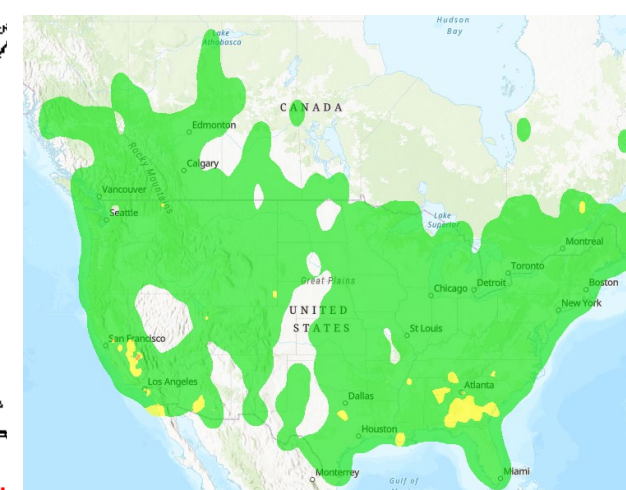


Precipitation



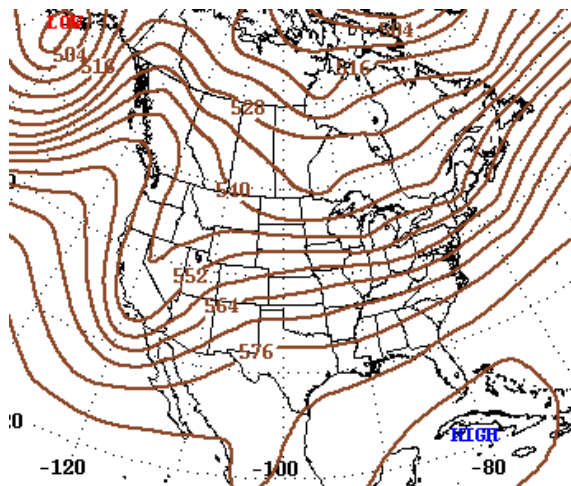
24-hr Precipitation (in.) Ending at 7:00 A.M. E.S.T.

AirNow PM_{2.5} AQI



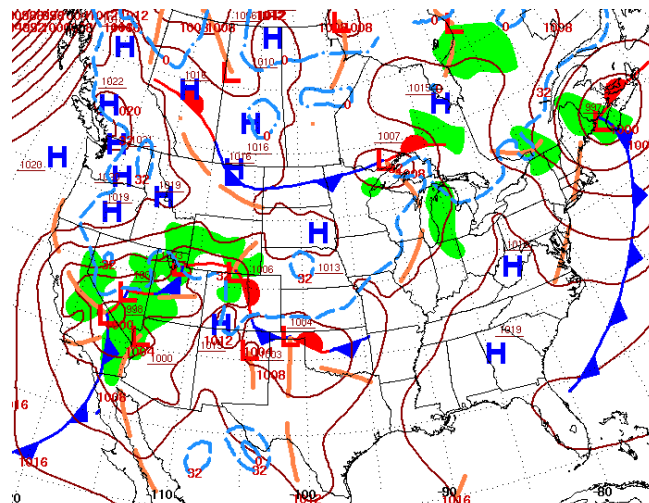
Air Quality Reflection: Friday Oct 6, 2023

500 hPa Contours



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

Surface Weather



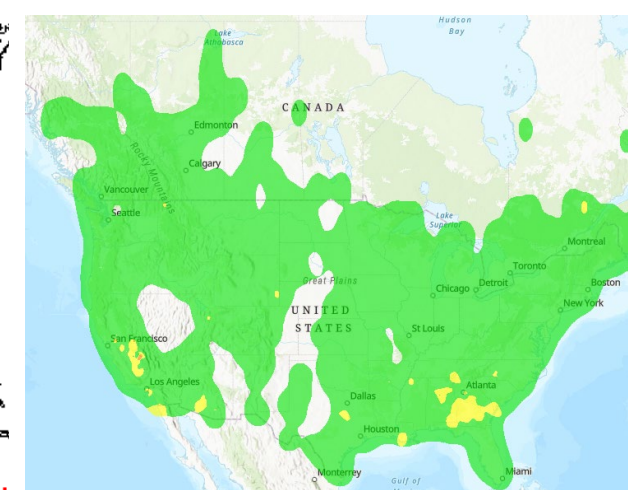
Surface Weather Map at 7:00 A.M. E.S.T.

Precipitation

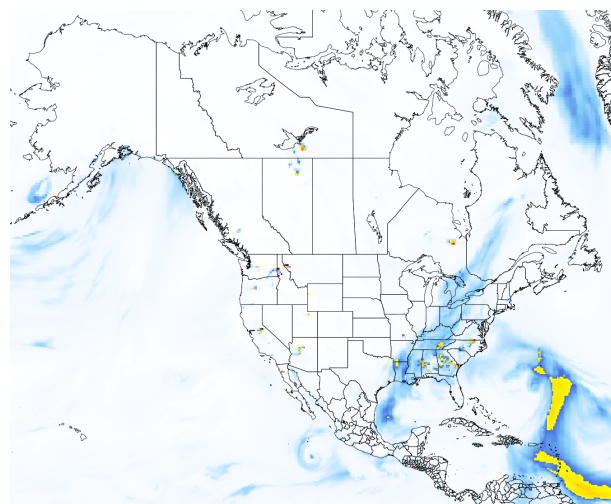


24-hr Precipitation (in.) Ending at 7:00 A.M. E.S.T.

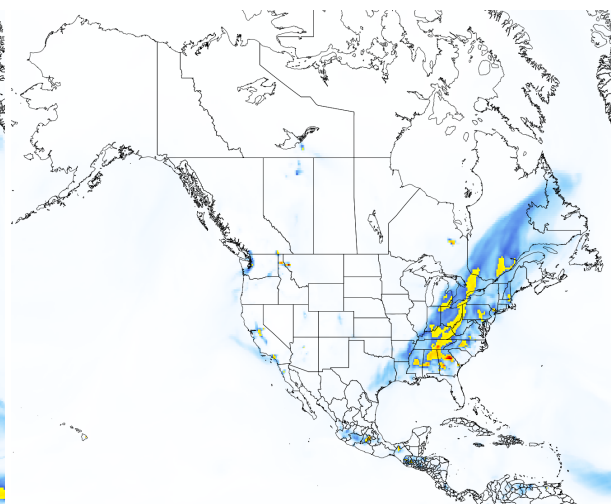
AirNow PM_{2.5} AQI



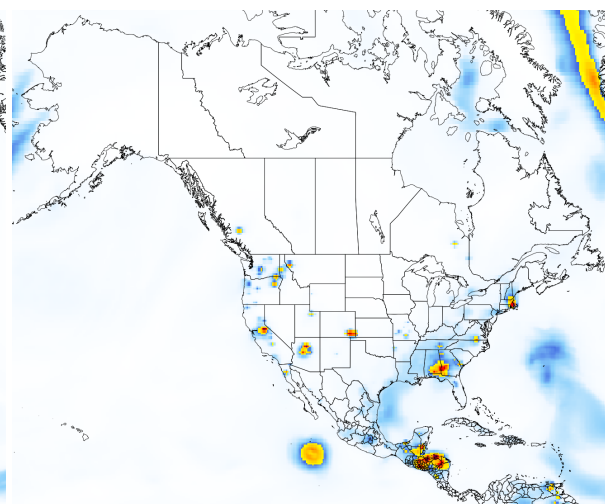
GEOS-FP



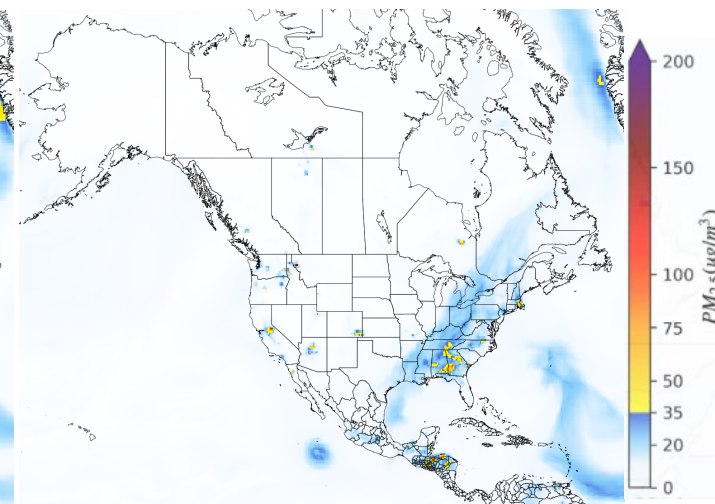
GEOS-CF



NAAPS

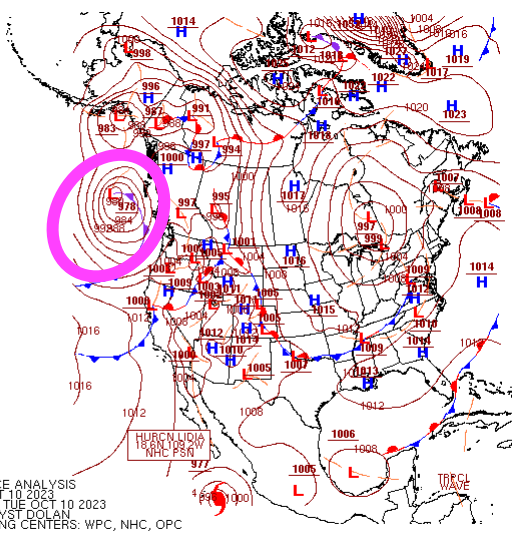


Ensemble

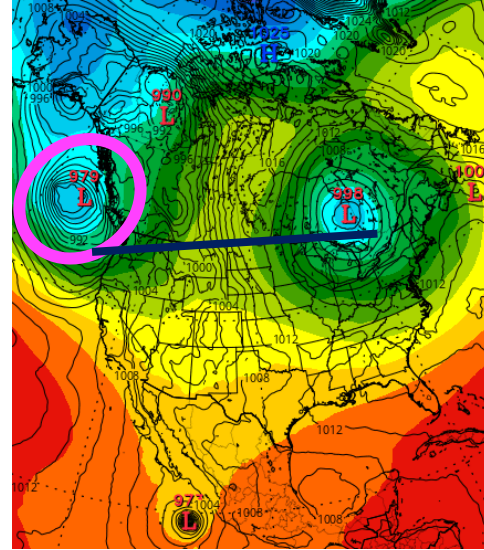


Current Status: October 10, 2023

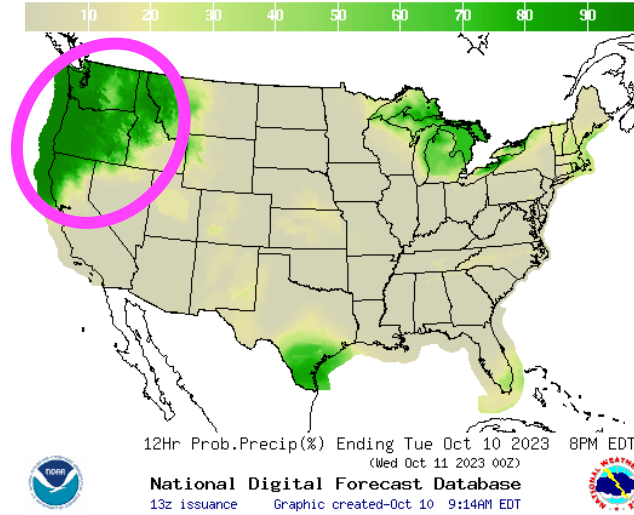
Surface Analysis



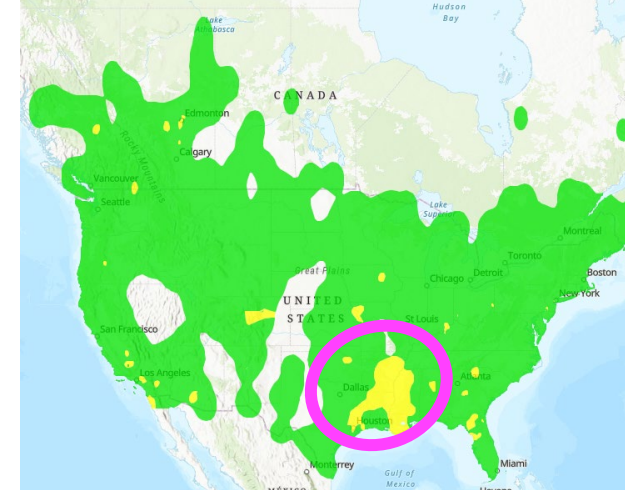
500 mb Contours



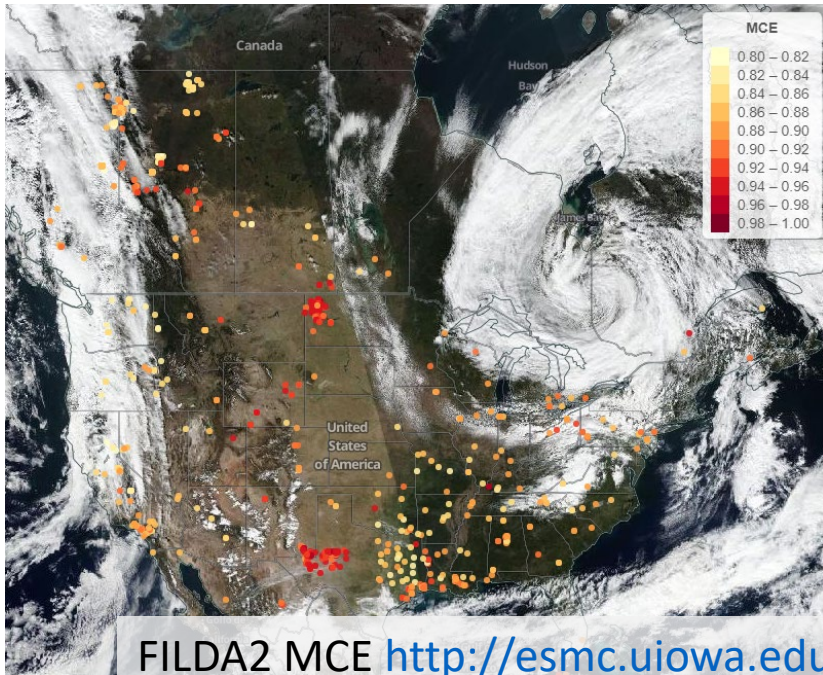
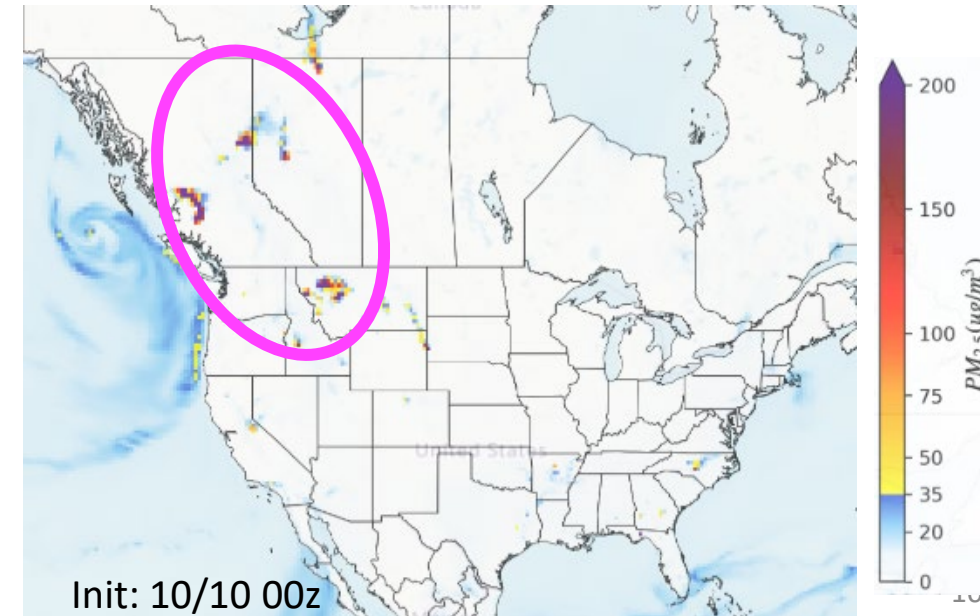
Precip. Prob.



AirNow PM_{2.5} AQI



GEOS-FP 10/10 16 UTC PM_{2.5}

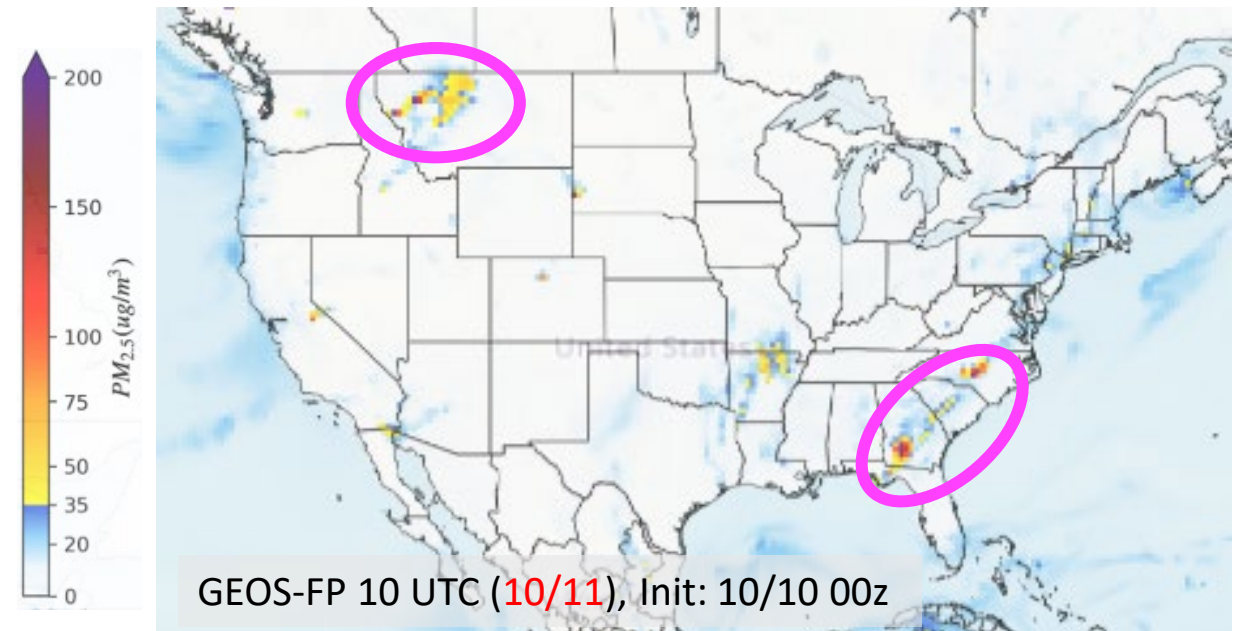
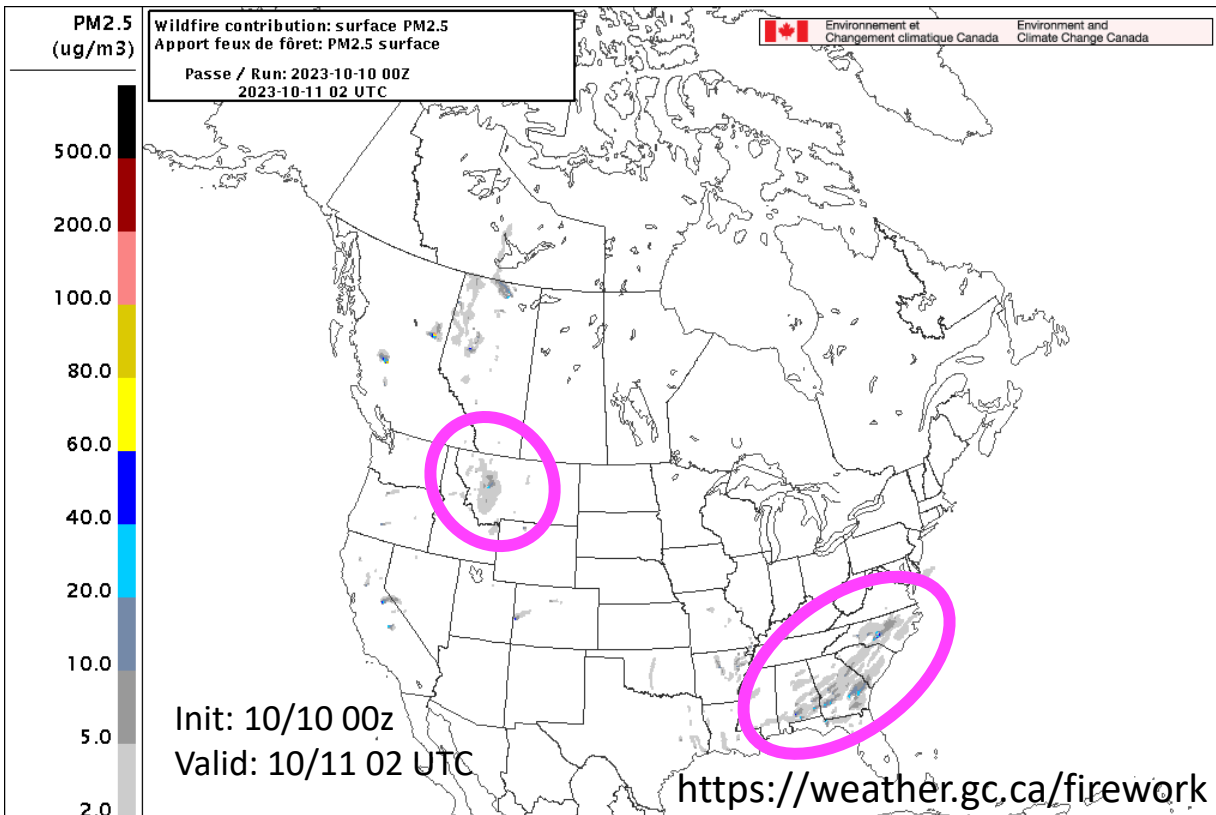


Mon 10/9

FILDA2 MCE http://esmc.uiowa.edu:3838/fires_detection/

Regional Smoke Transport in the US

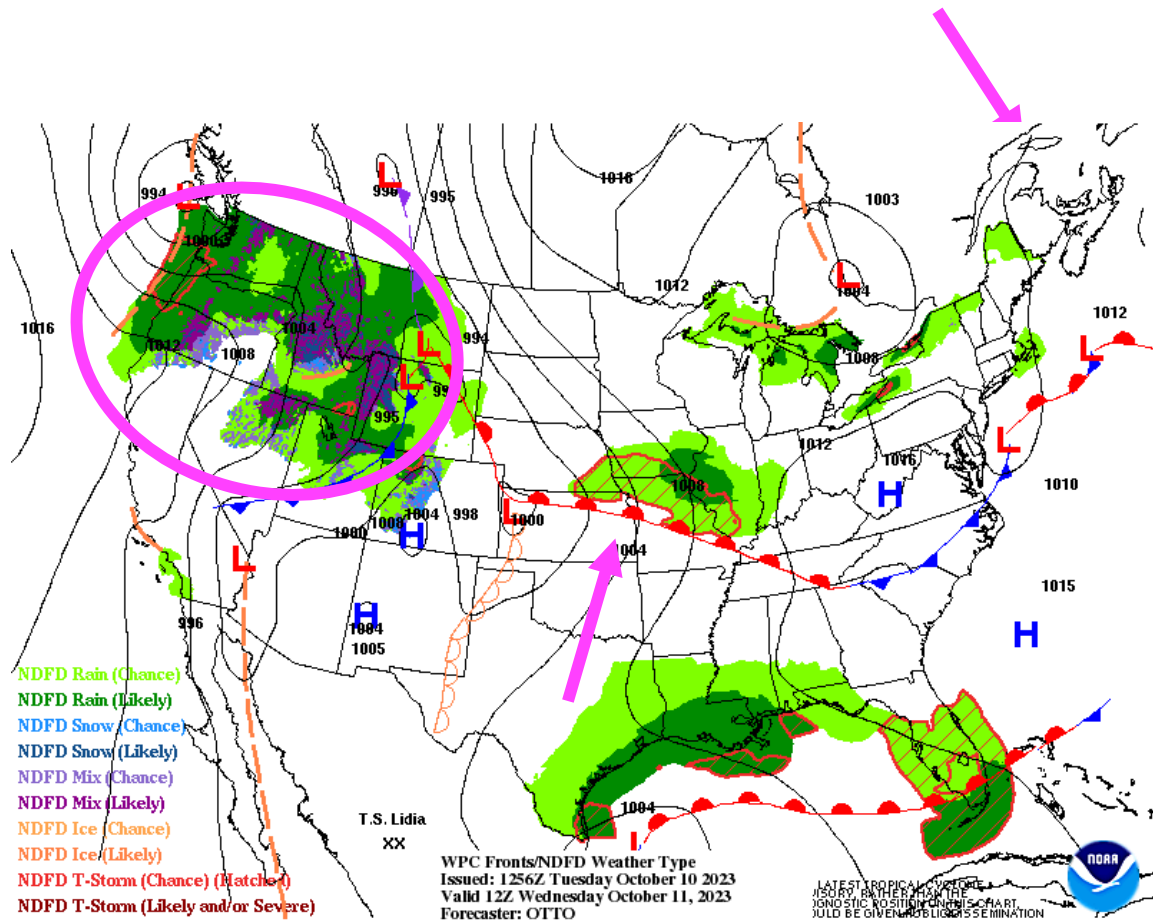
Tuesday (10/10) into Wednesday (10/11)



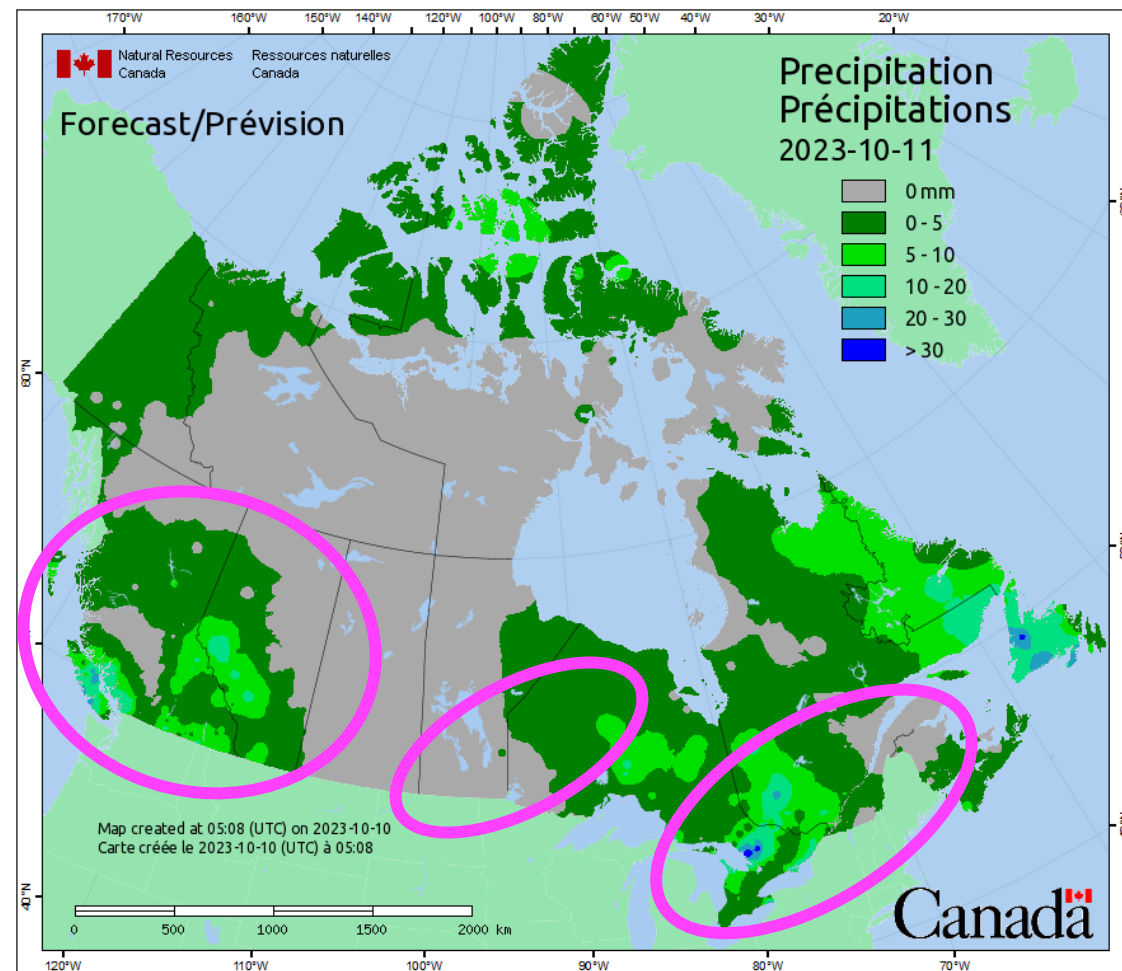
Outlook: Short Range (1–3 days)

Surface Forecast (Wednesday 10/11)

US NWS Forecast

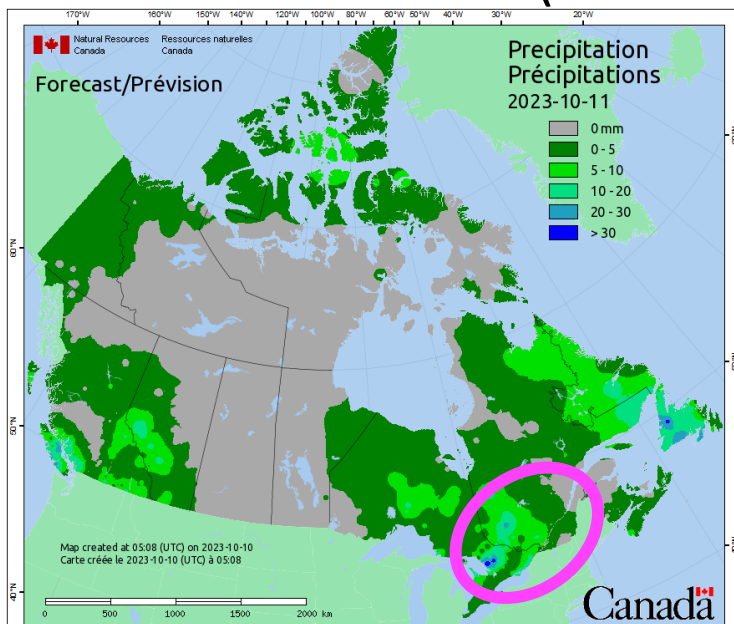


Environment Canada Forecast



Outlook: Short Range (1–3 days)

Surface Forecast (Wed 10/11)

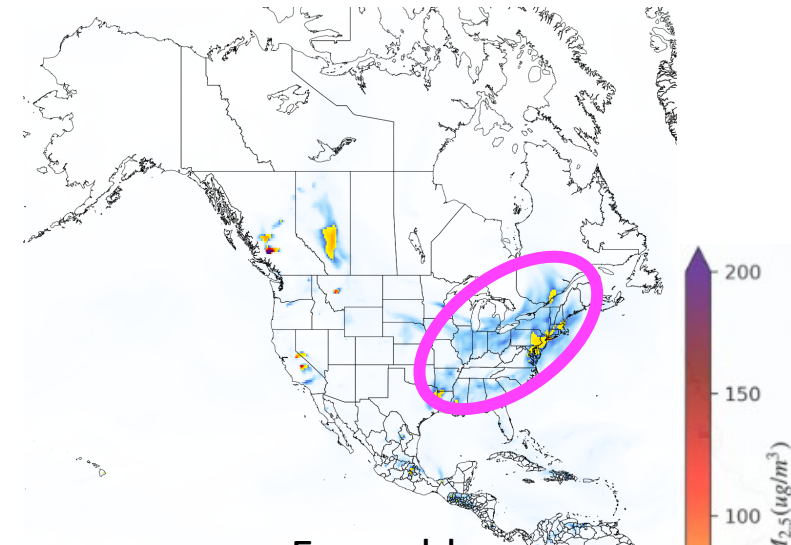


Model Means PM_{2.5} (Wed 10/11)

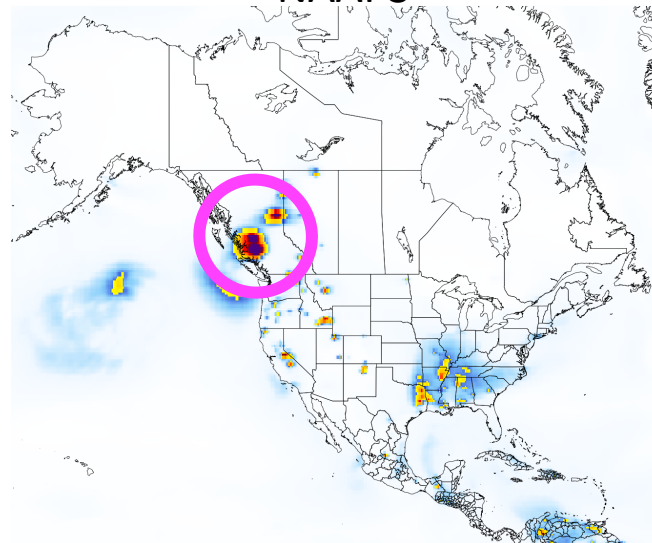
GEOS-FP



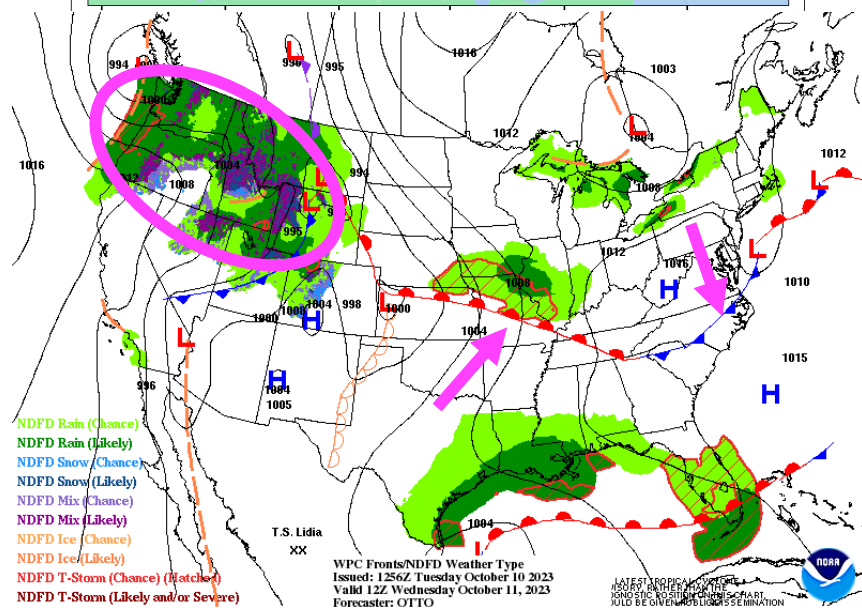
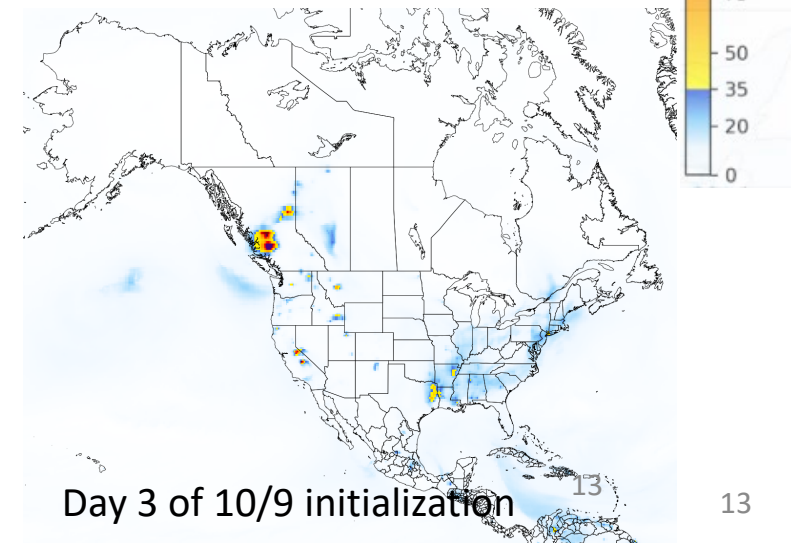
GEOS-CF



NAAPS



Ensemble



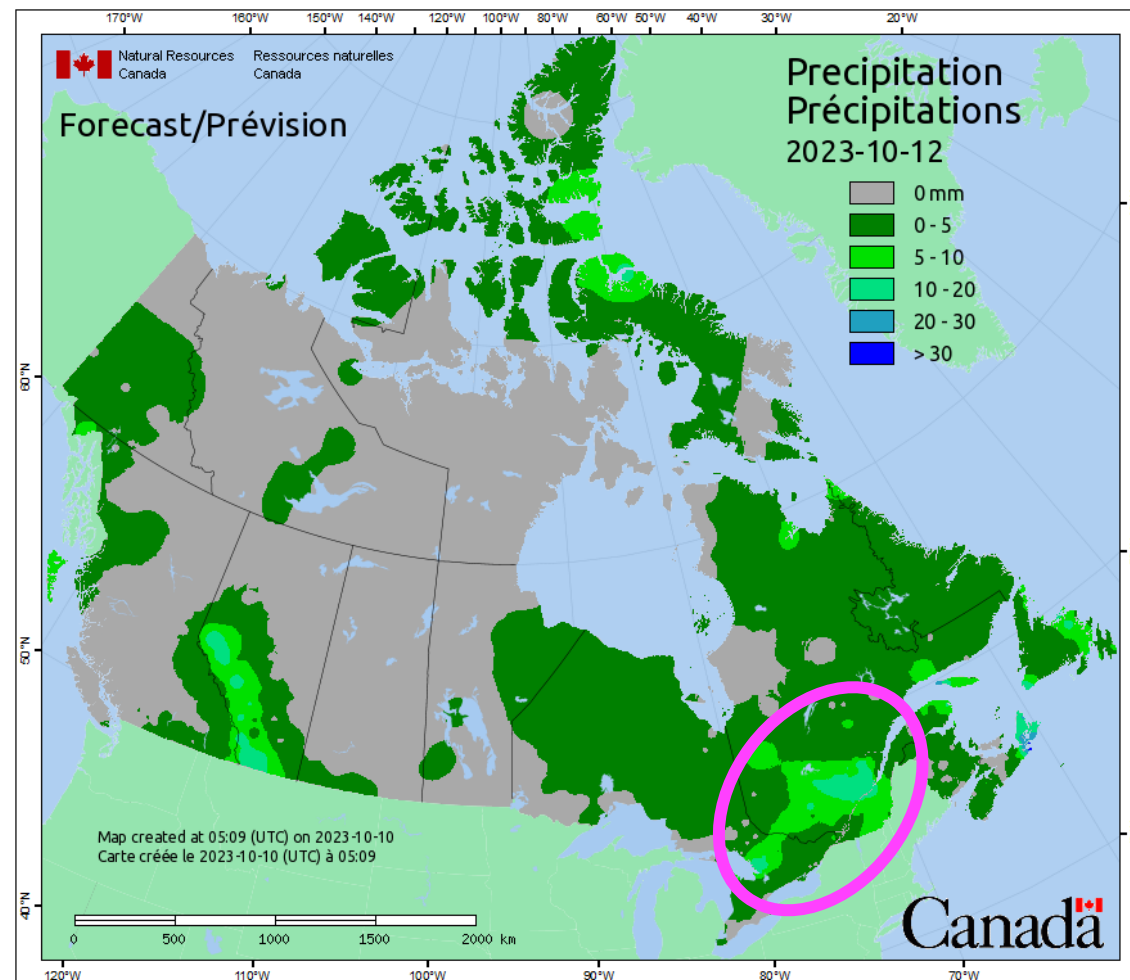
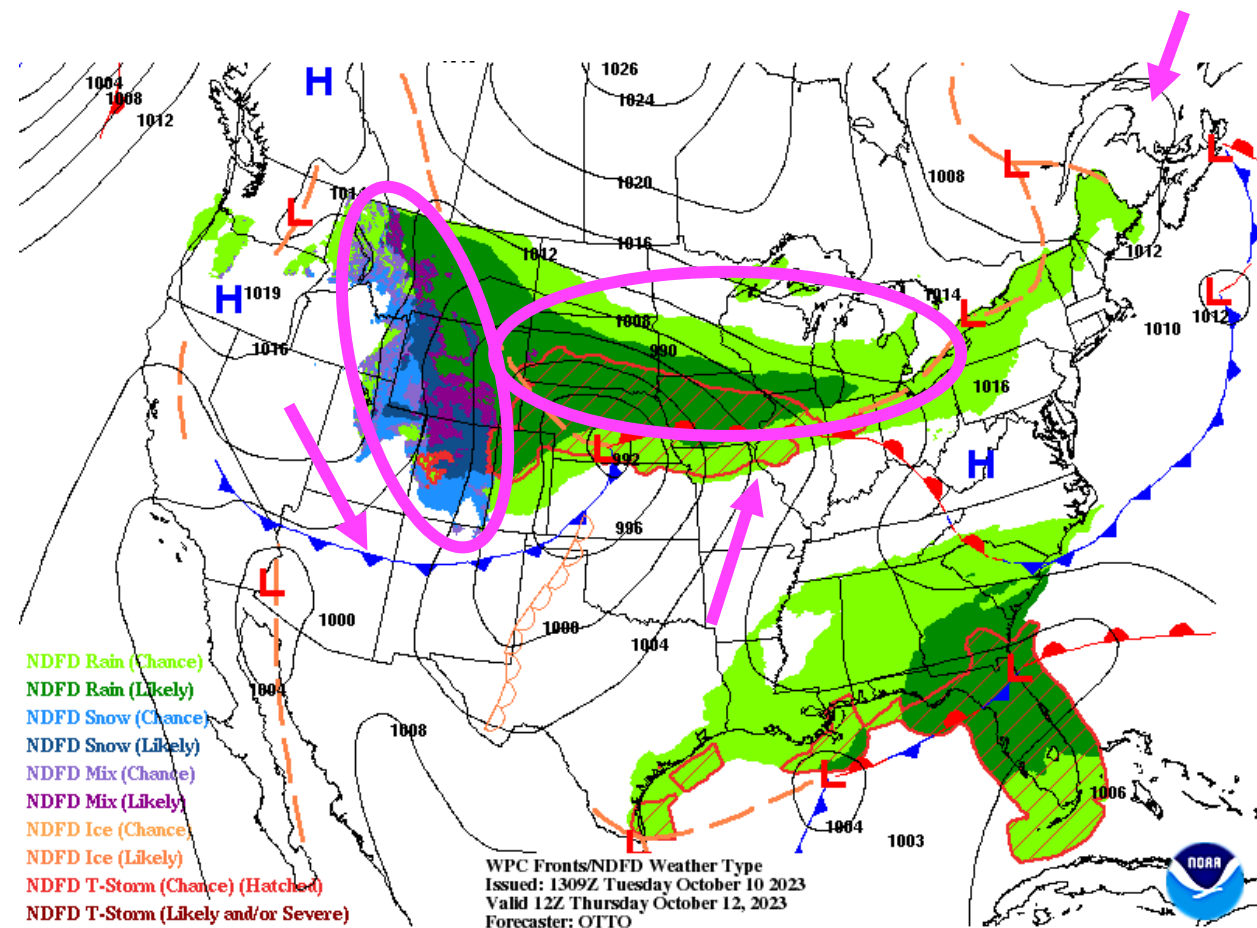
Day 3 of 10/9 initialization

Outlook: Short Range (1-3 days)

Surface Forecast (**Thursday 10/12**)

US NWS Forecast

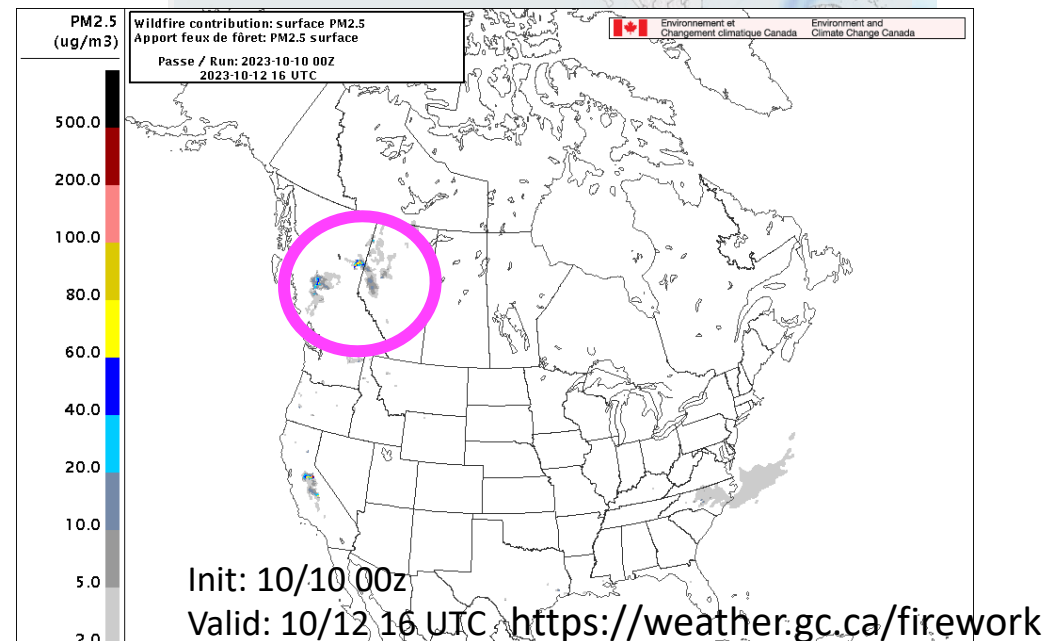
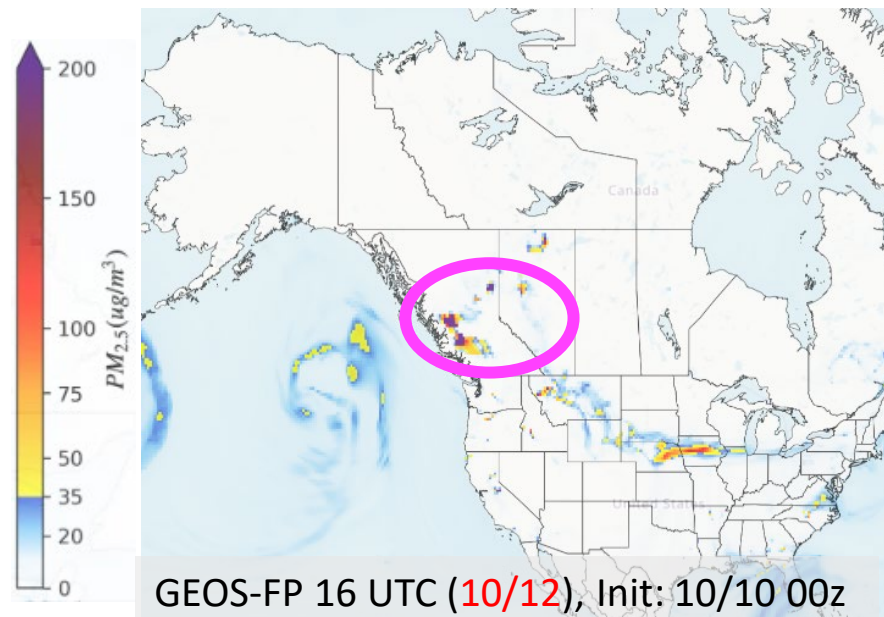
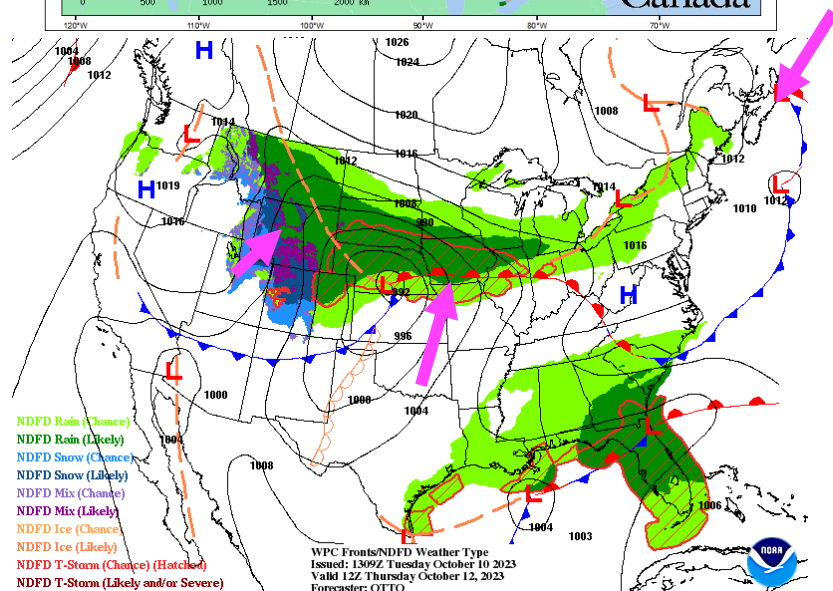
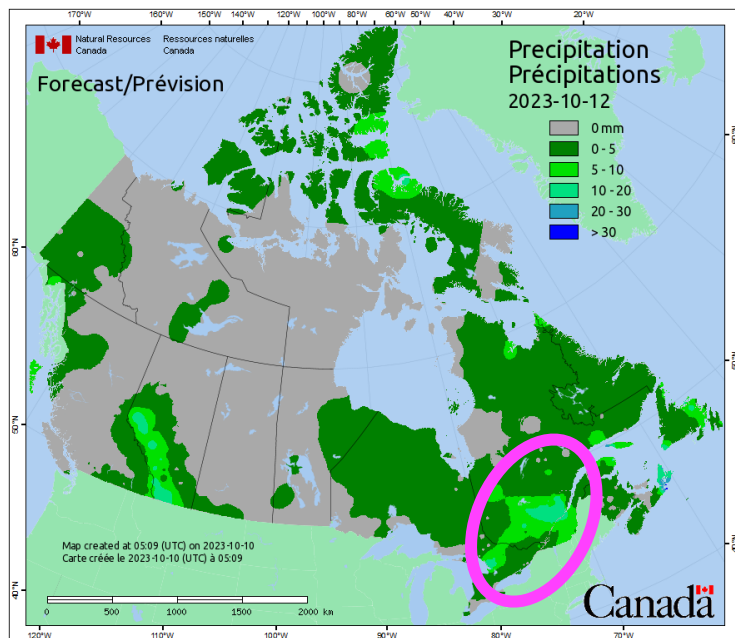
Environment Canada Forecast



Outlook: Short Range (1–3 days)

Surface Forecast

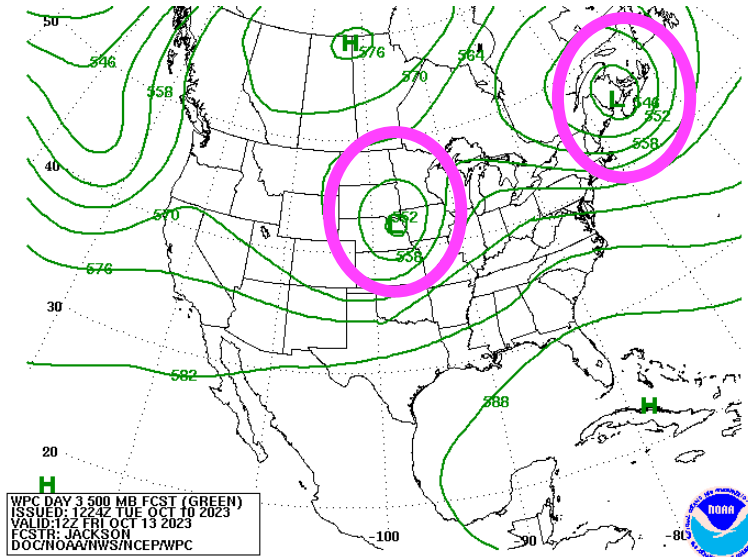
(Thursday 10/12)



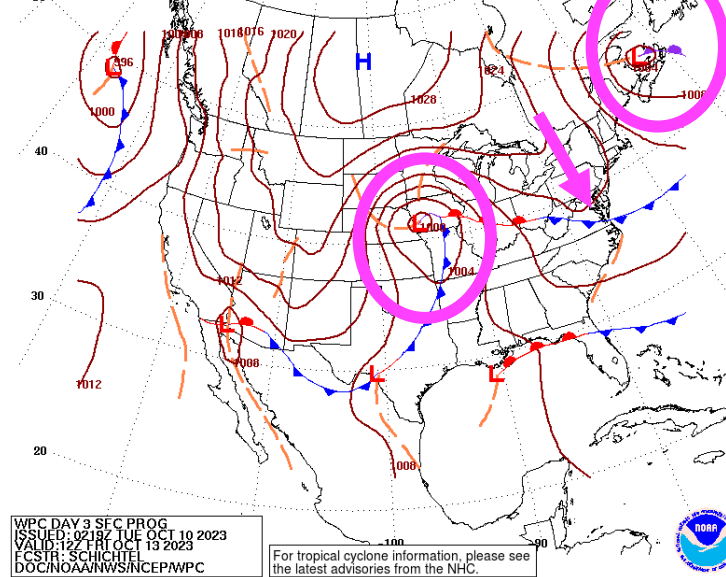
Outlook: Medium Range

Friday
10/13

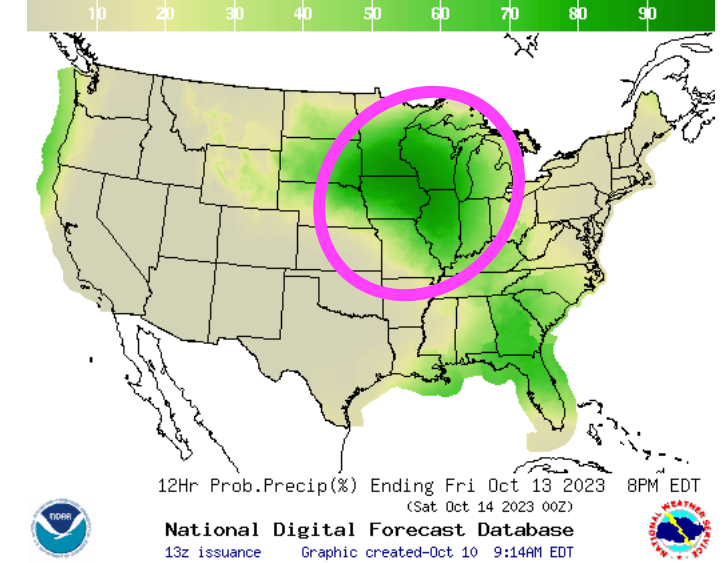
500 hPa Contours



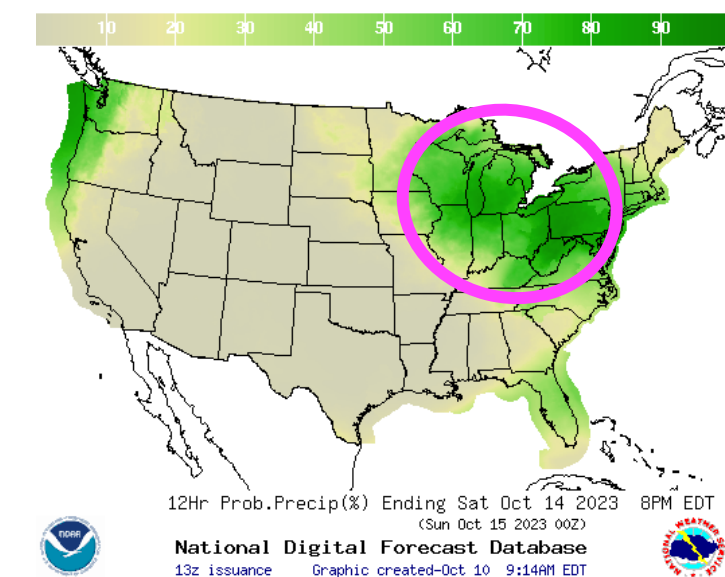
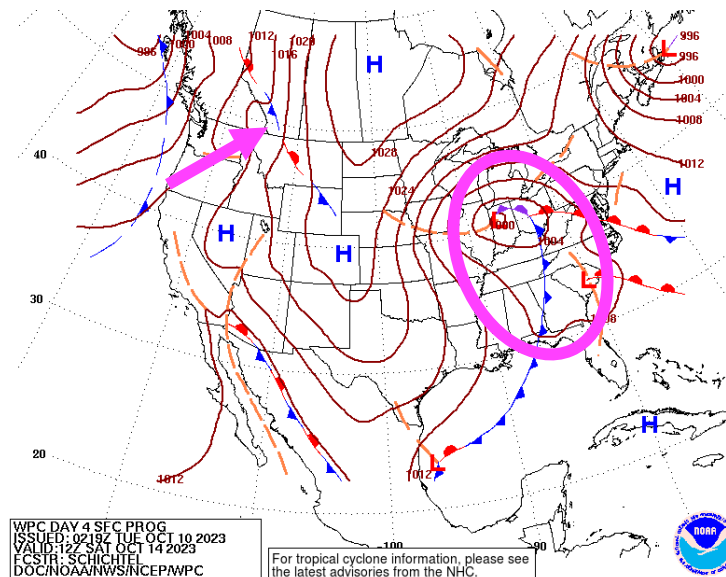
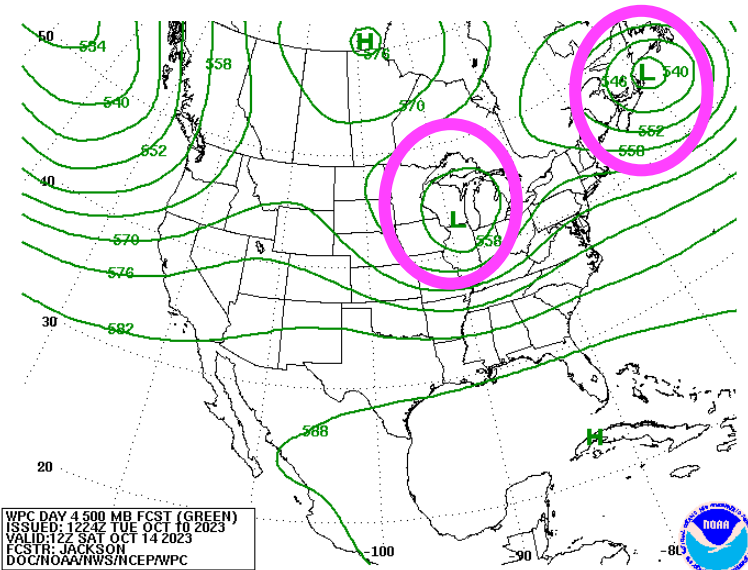
Sea Level



Precip Prob.



Saturday
10/14



Summary

Tuesday : In general, the US air quality is not being impacted by wildfire smoke. A few patches of moderate air quality are present in the Southern US.

Tonight: Smoke transport from Montana and Georgia fires are forecasted to impact AQ to the south east and north east, respectively.

https://weather.gc.ca/firework/firework_anim_e.html?type=em&utc=00

https://fireaq.uiowa.edu/geos_fp/geosFP_3hrs.php

T → Th : Likely chances of rain in the Central US and snow in the Northwestern US. Wildfires in B.C. Canada will not impact local AQ.

F → S: Likely chances of rain ahead of strong low pressure systems and warm fronts in the Central and Northeastern US. Smoke transport from Canadian wildfires is not predicted to impact the US.

