

Weather and Air Quality: Reflection and Outlook During Smoke Conditions

Presenter: Megan Christiansen
Date: September 11, 2023

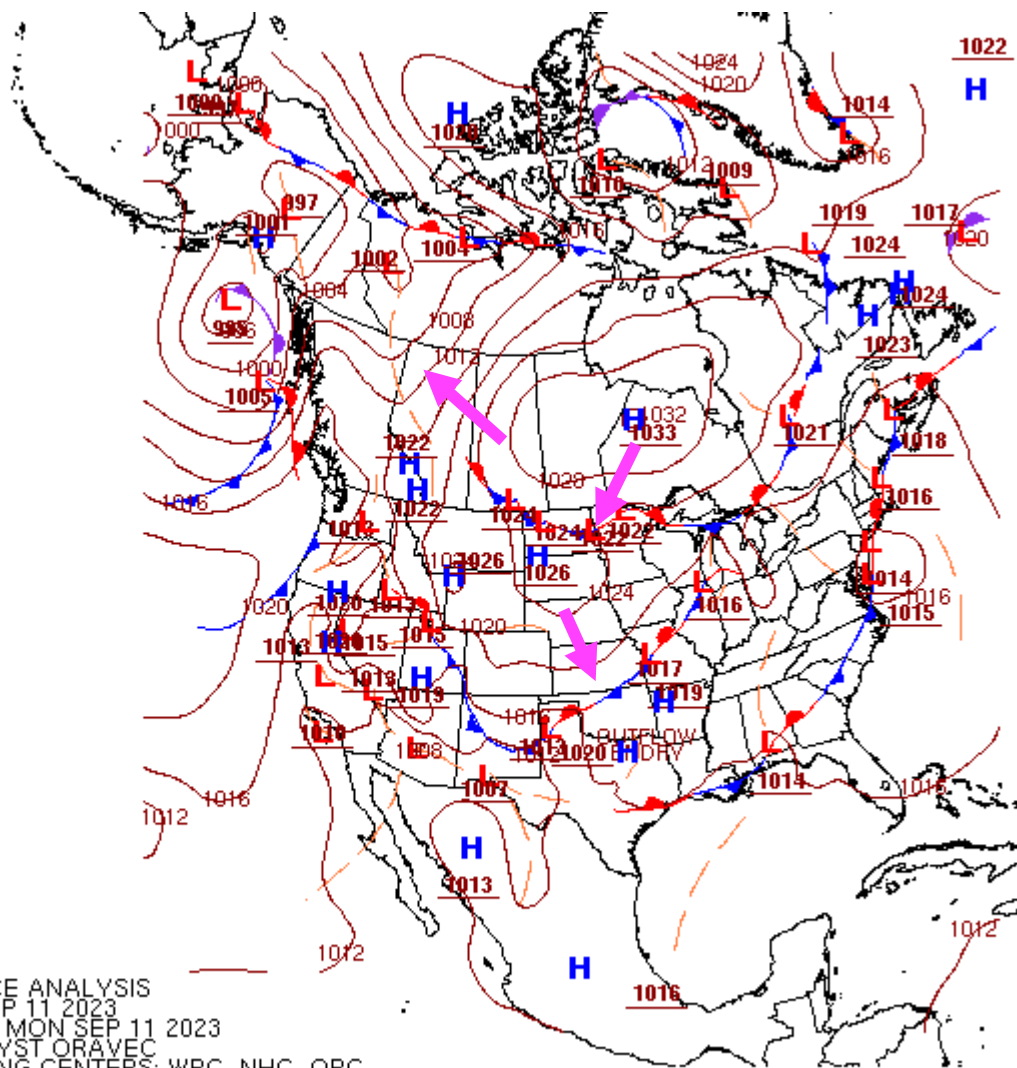


FireAQ is funded by NASA HAQ. We thank NASA GMAO and
NRL for the model data products.

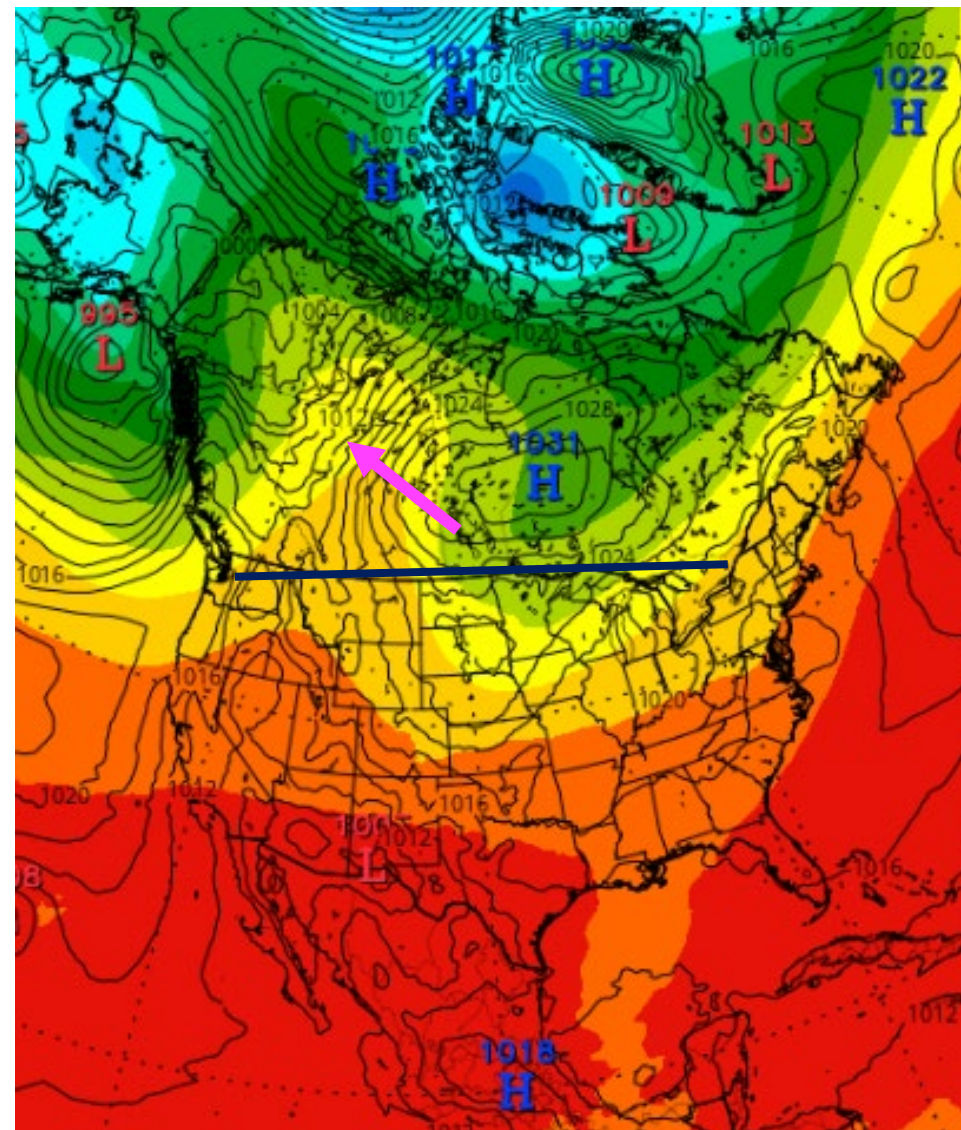
EARTH SCIENCE
APPLIED SCIENCES

Current Status: September 11, 2023

Surface Analysis



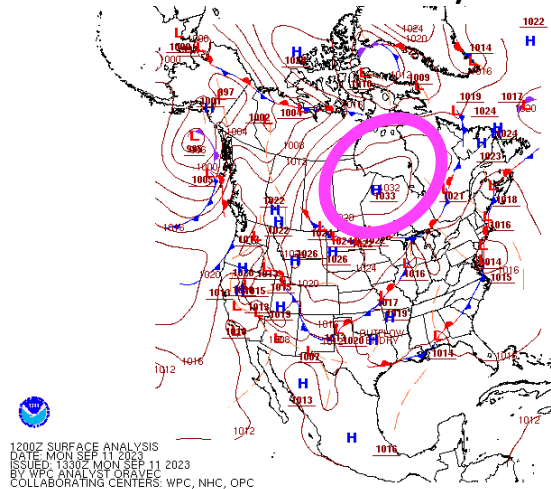
500 mb Contours



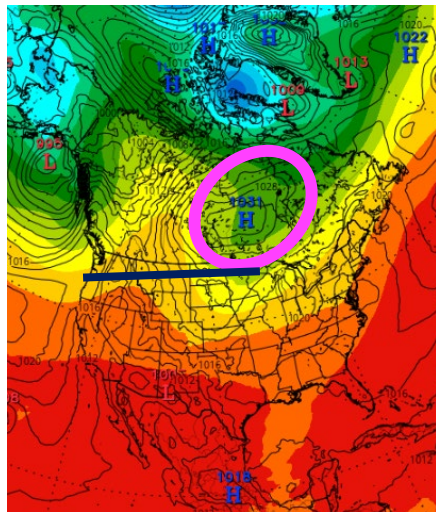
1200Z SURFACE ANALYSIS
DATE: MON SEP 11 2023
ISSUED: 1330Z MON SEP 11 2023
BY WPC ANALYST ORAVEC
COLLABORATING CENTERS: WPC, NHC, OPC

Current Status: September 11, 2023

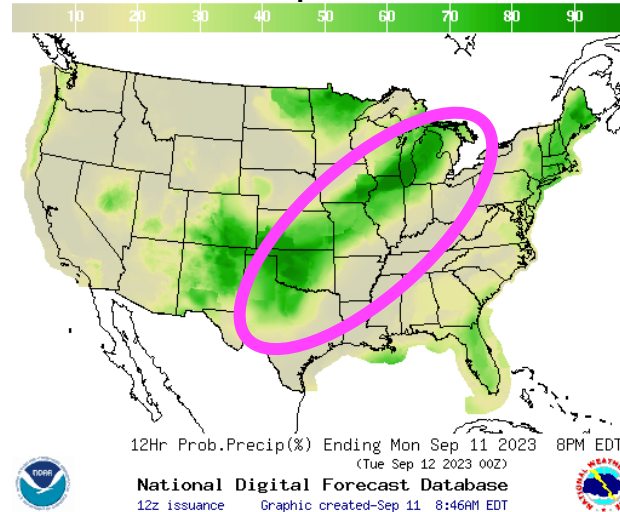
Surface Analysis



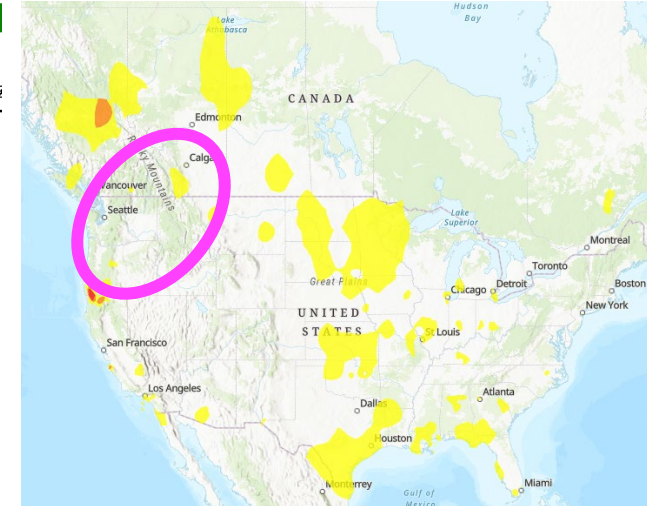
500 mb Contours



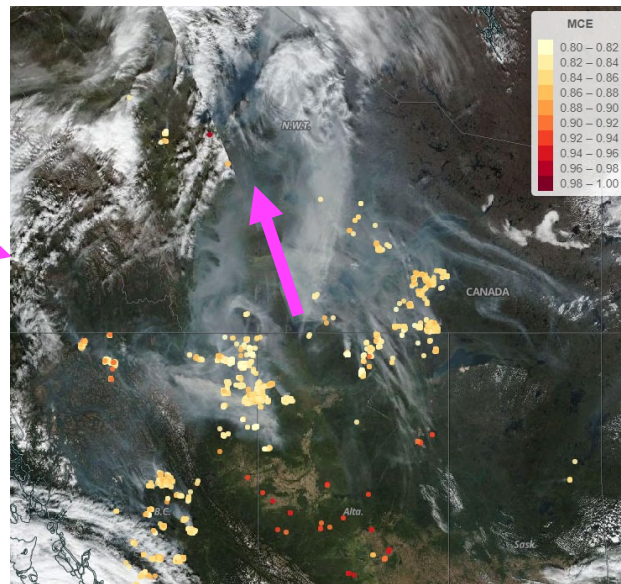
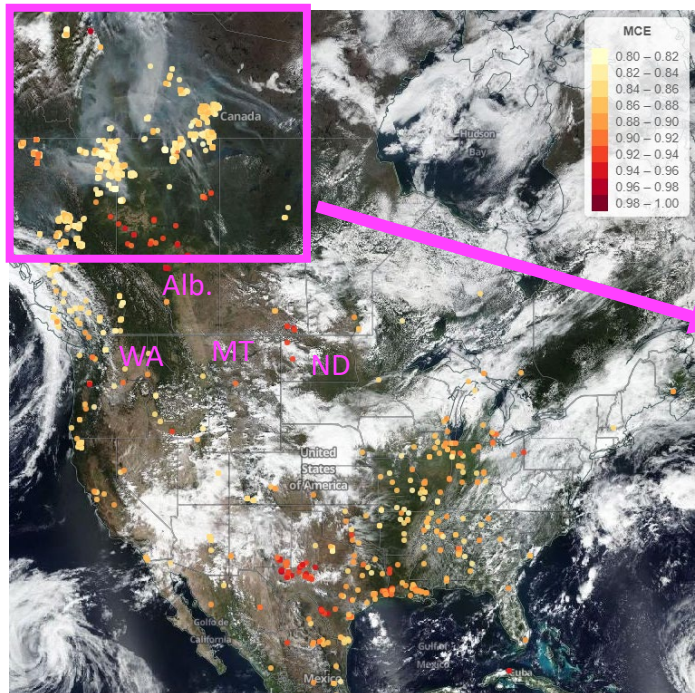
Precip. Prob.



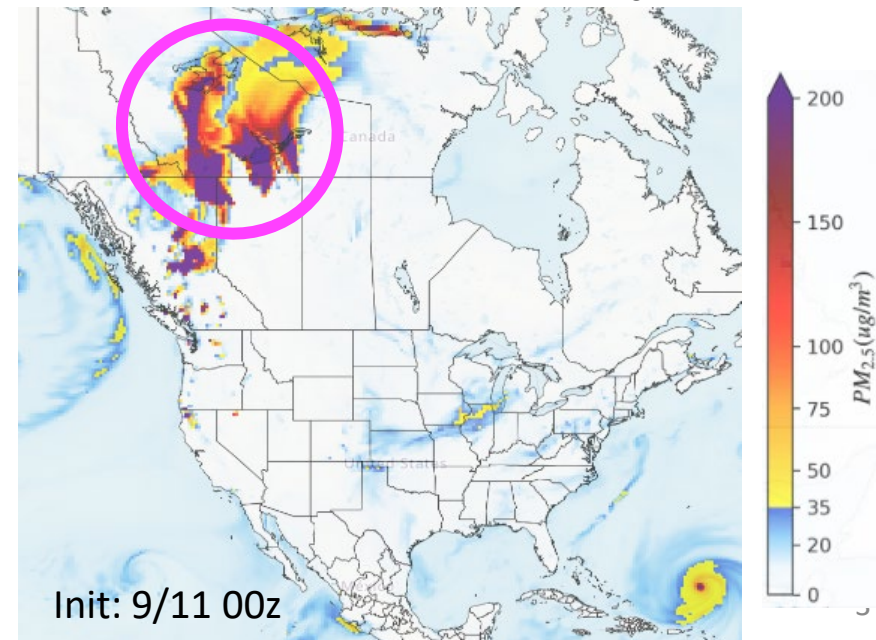
AirNow AQI



FILDA2 MCE (Sun 9/10)

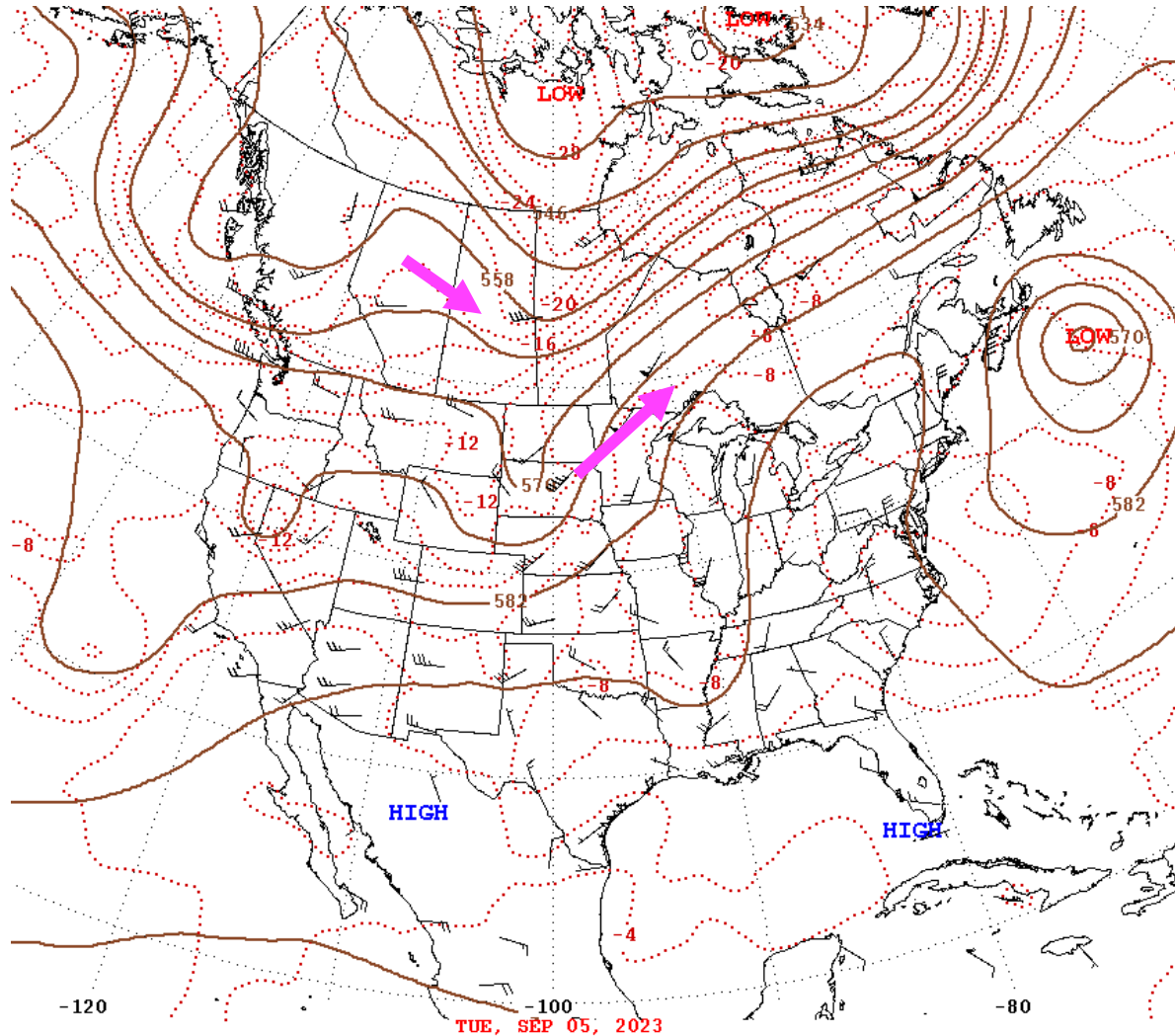


GEOS-FP 9/11 18 UTC PM_{2.5}



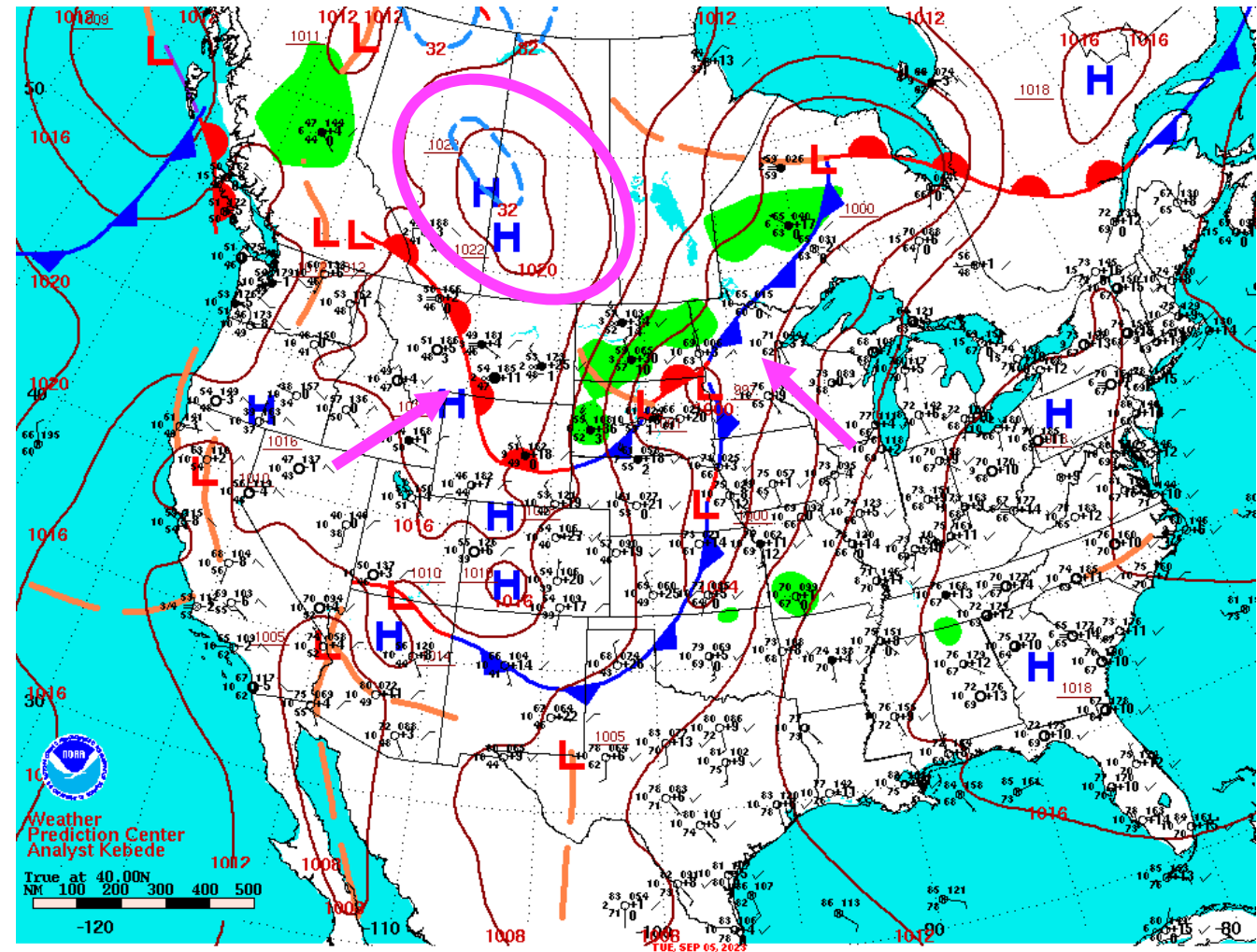
Air Quality Reflection: Tuesday Sept. 5, 2023

500 hPa Contours



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

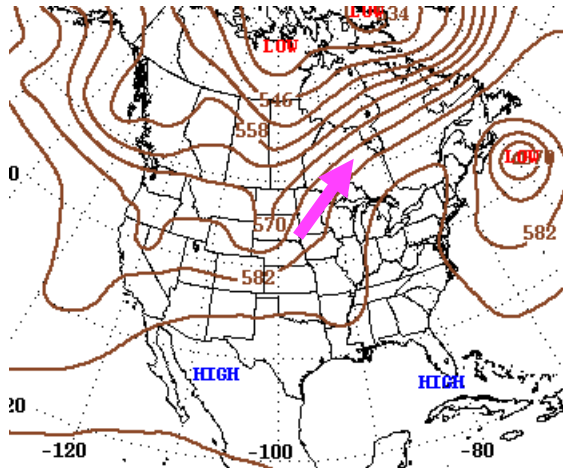
Surface Weather



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

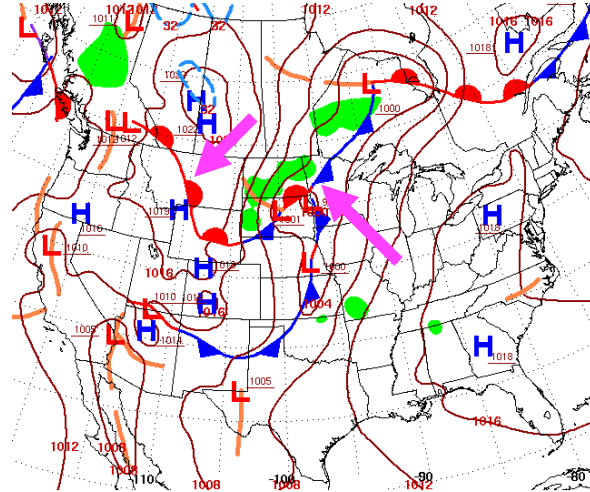
Air Quality Reflection: Tuesday Sept. 5, 2023

500 hPa Contours



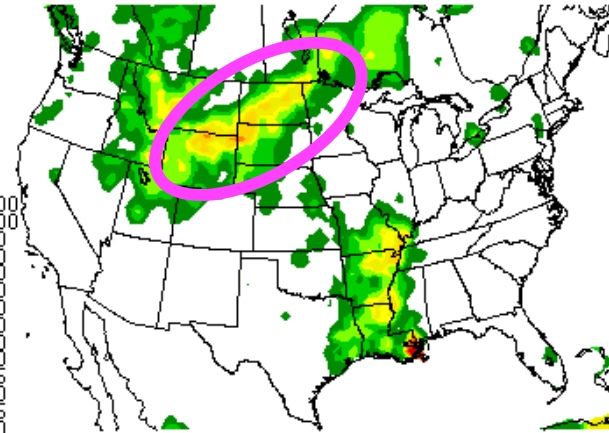
500-Millibar Height Contour at 7:00 A.M. E.S.T.

Surface Weather



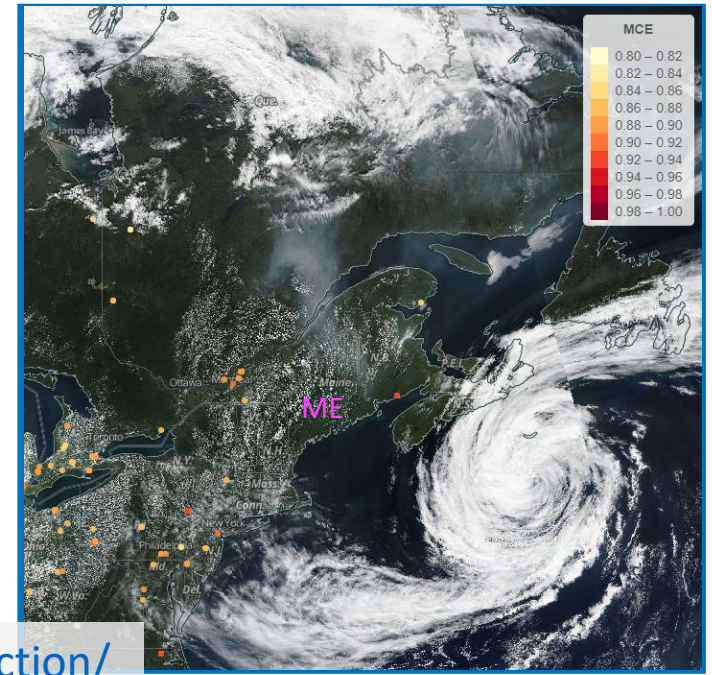
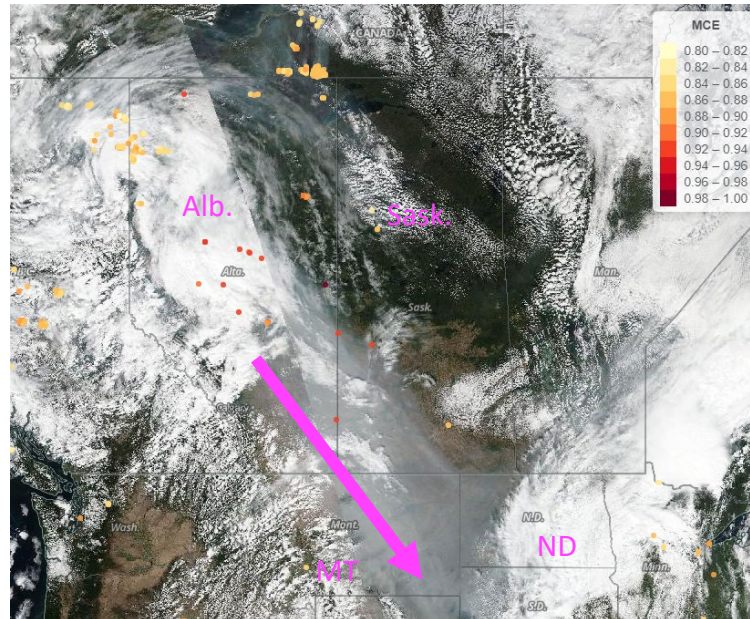
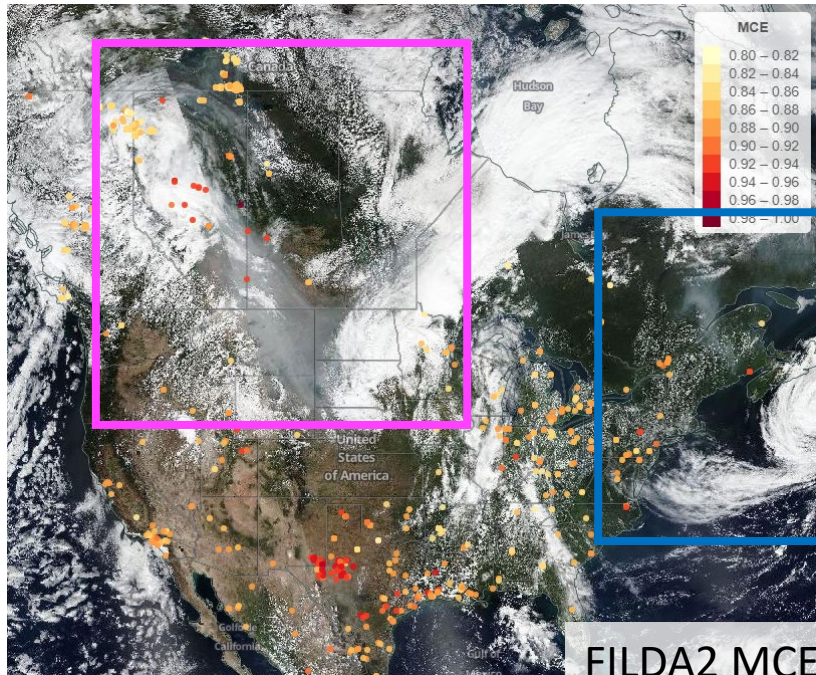
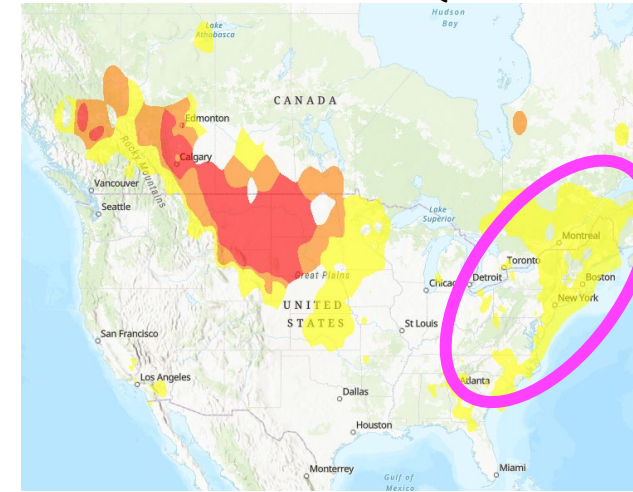
Surface Weather Map at 7:00 A.M. E.S.T.

Precipitation



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

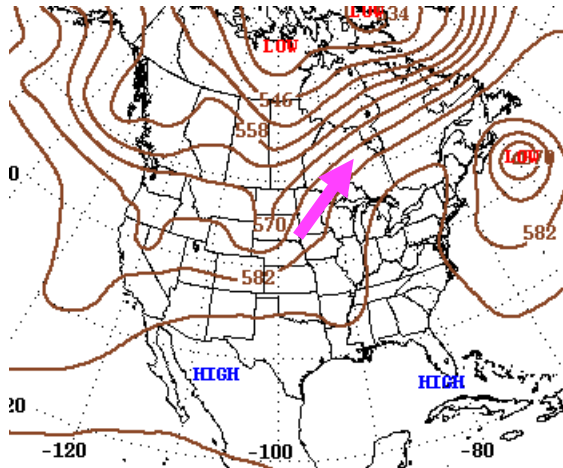
AirNow AQI



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

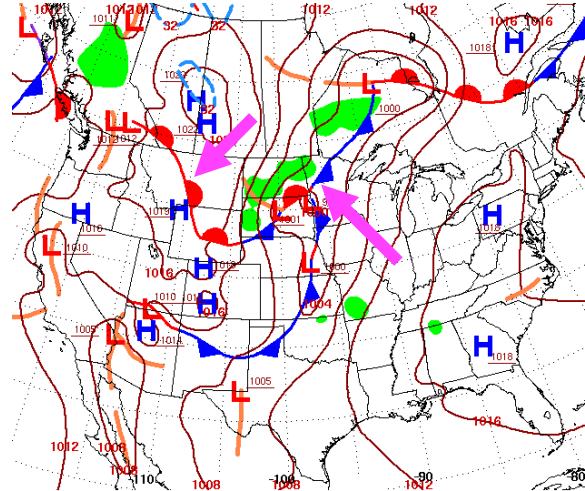
Air Quality Reflection: Tuesday Sept. 5, 2023

500 hPa Contours



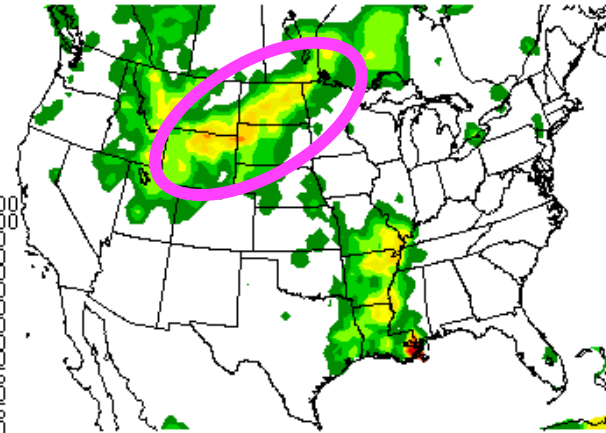
500-Millibar Height Contour at 7:00 A.M. E.S.T.

Surface Weather



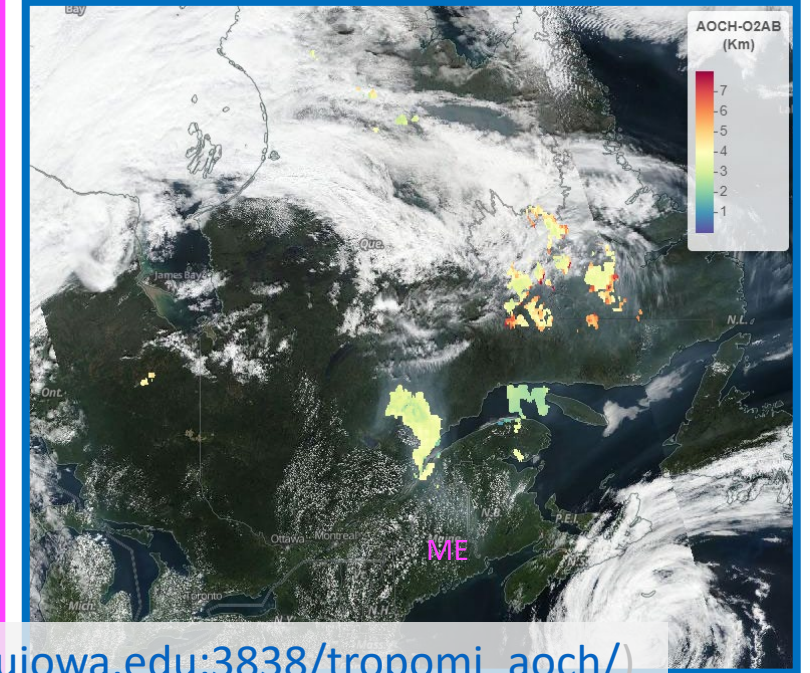
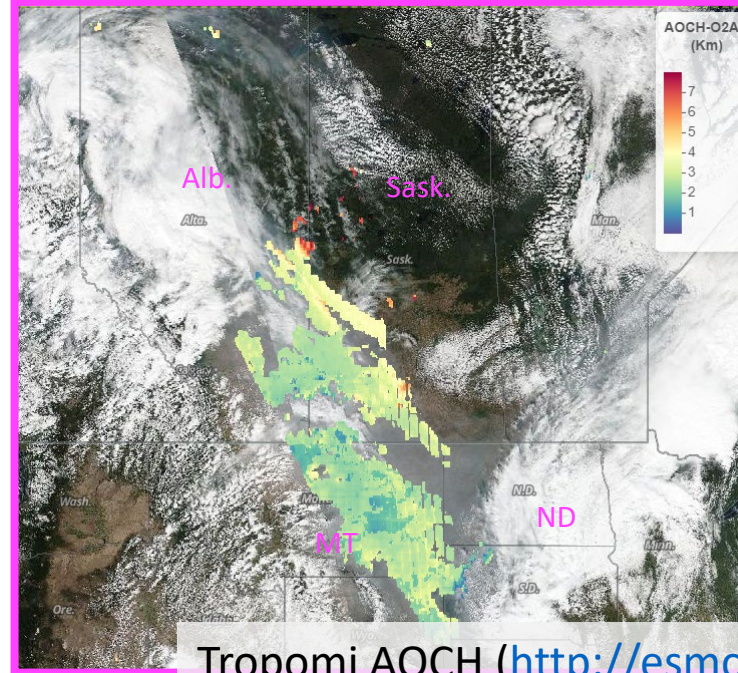
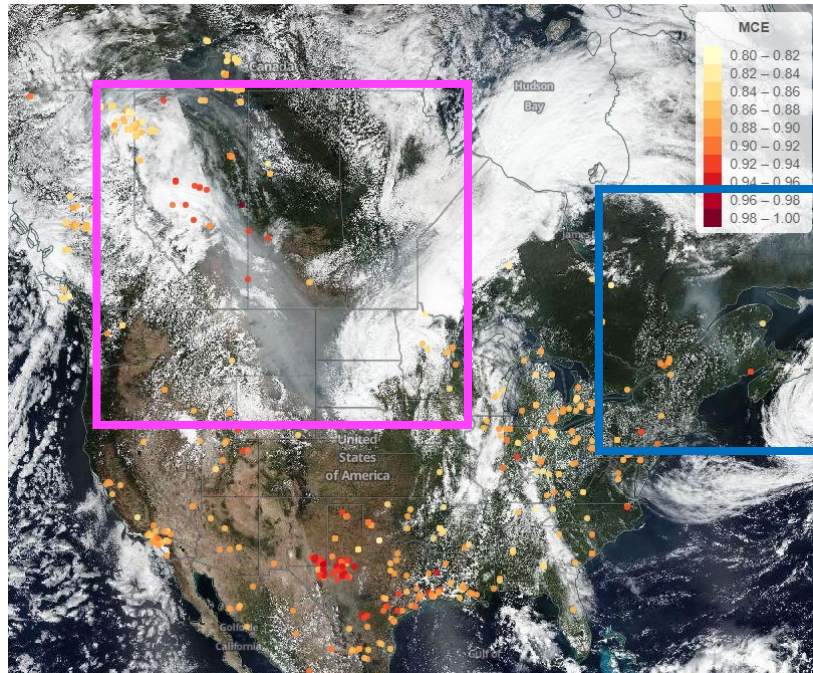
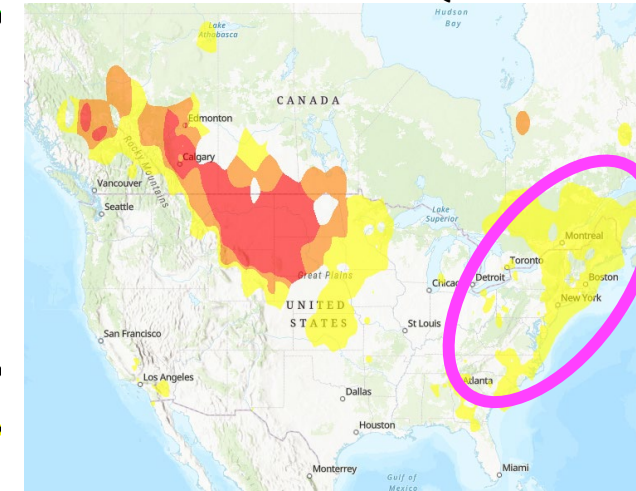
Surface Weather Map at 7:00 A.M. E.S.T.

Precipitation



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

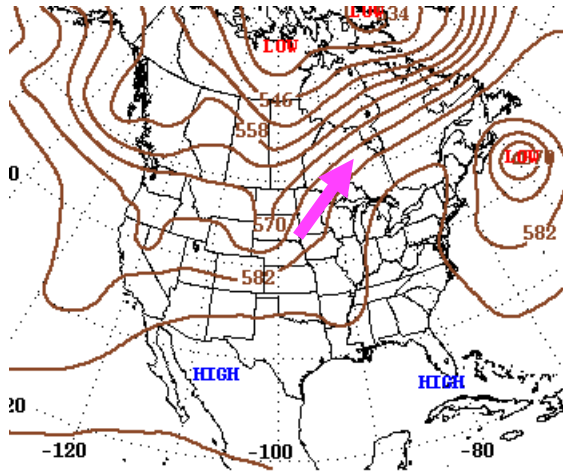
AirNow AQI



Tropomi Aoch (http://esmc.uiowa.edu:3838/tropomi_aoch/)

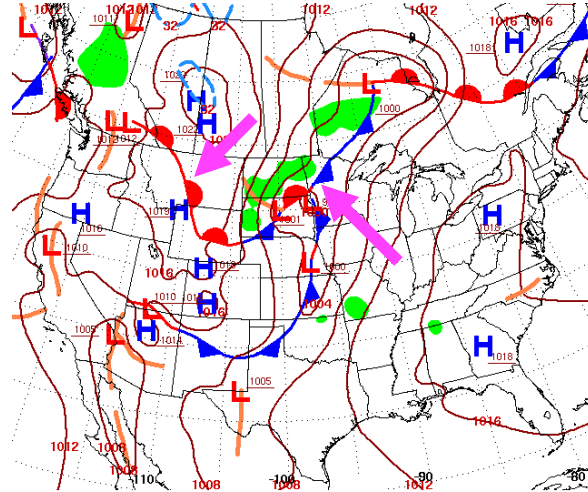
Air Quality Reflection: Tuesday Sept. 5, 2023

500 hPa Contours



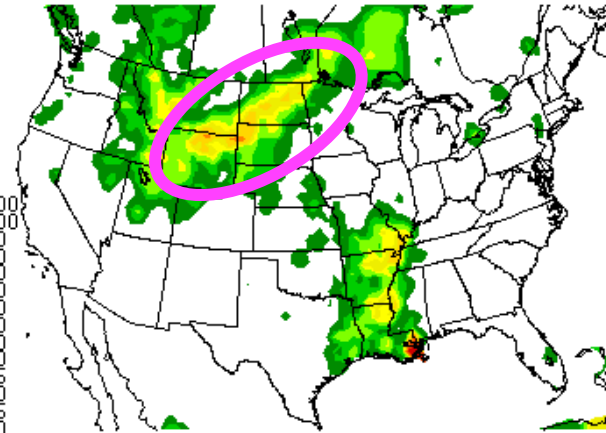
500-Millibar Height Contour at 7:00 A.M. E.S.T.

Surface Weather



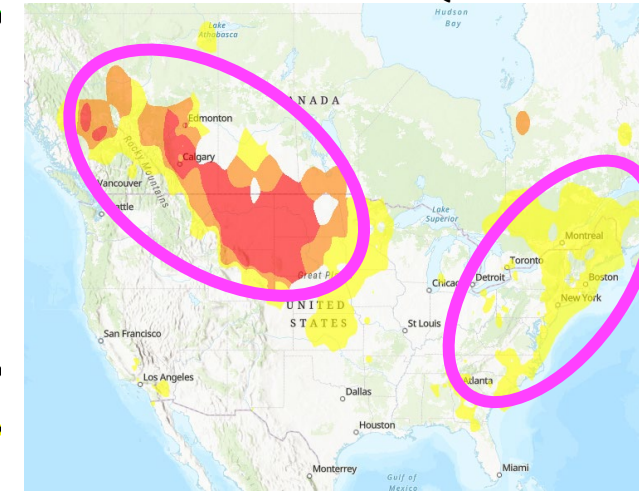
Surface Weather Map at 7:00 A.M. E.S.T.

Precipitation

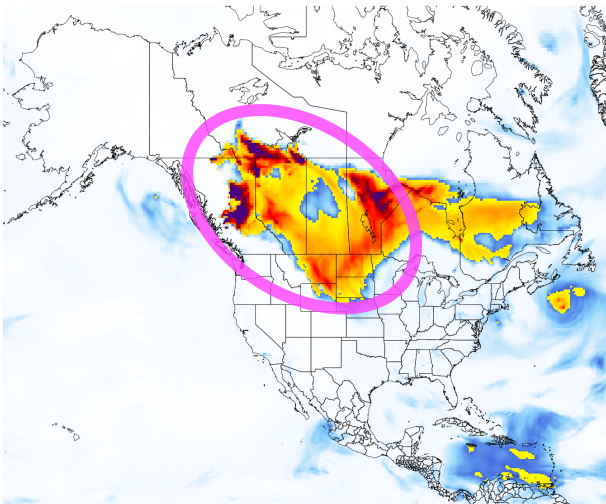


24-hr Precipitation (in.) Ending at 7:00 A.M. E.S.T.

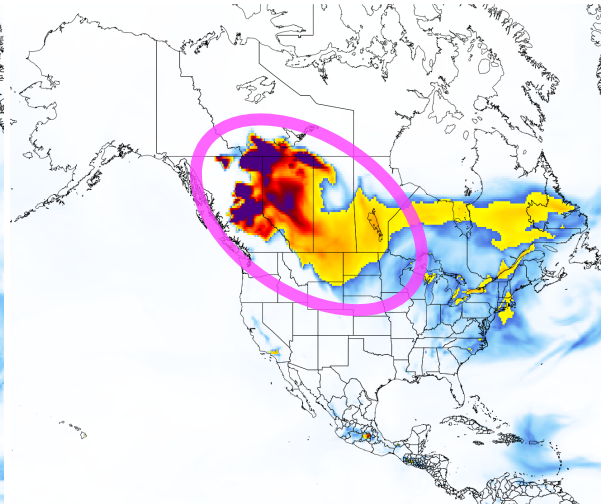
AirNow AQI



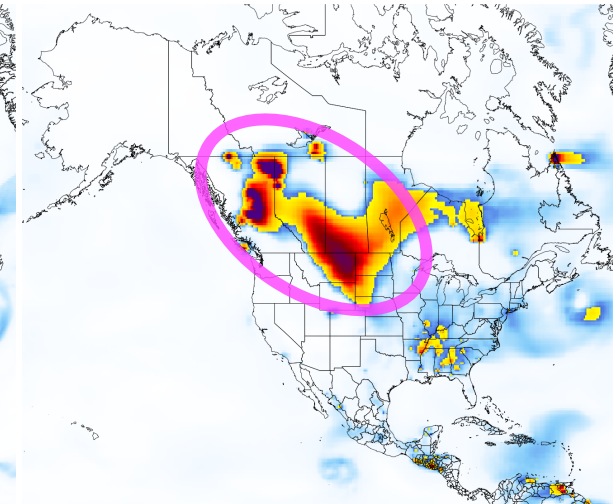
GEOS-FP



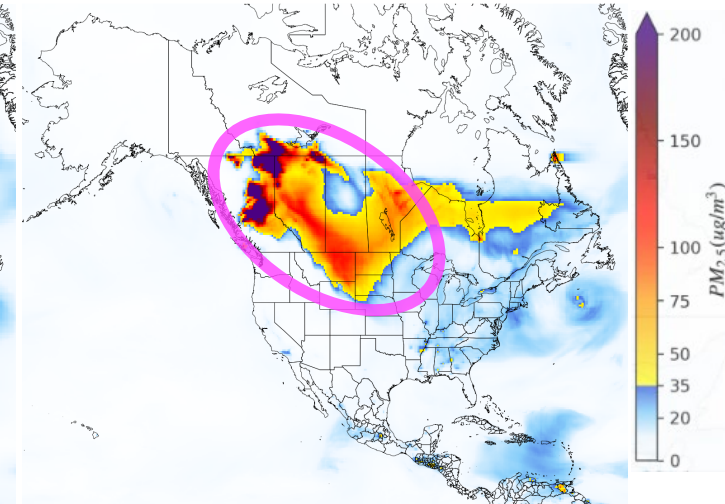
GEOS-CF



NAAPS

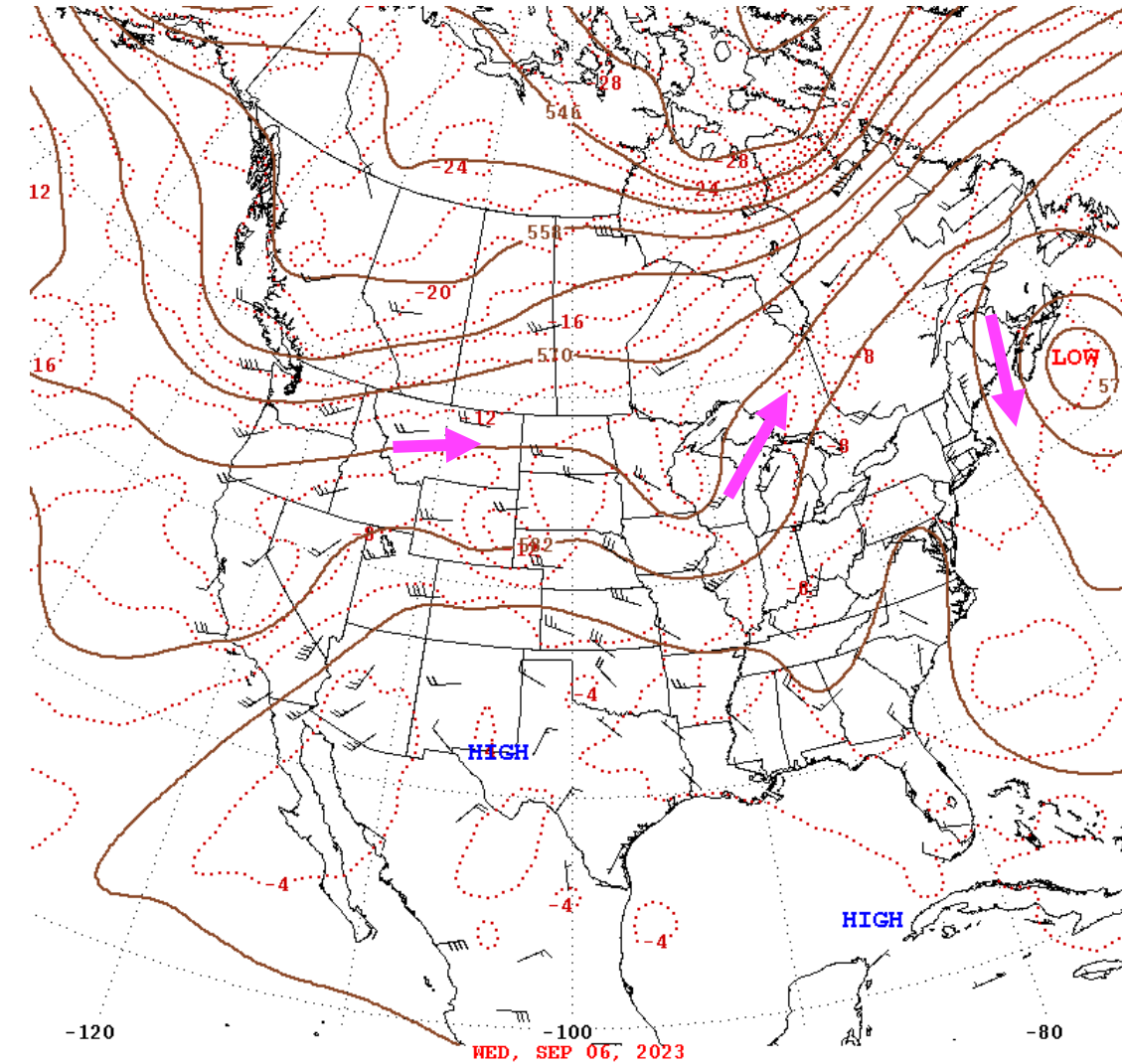


Ensemble



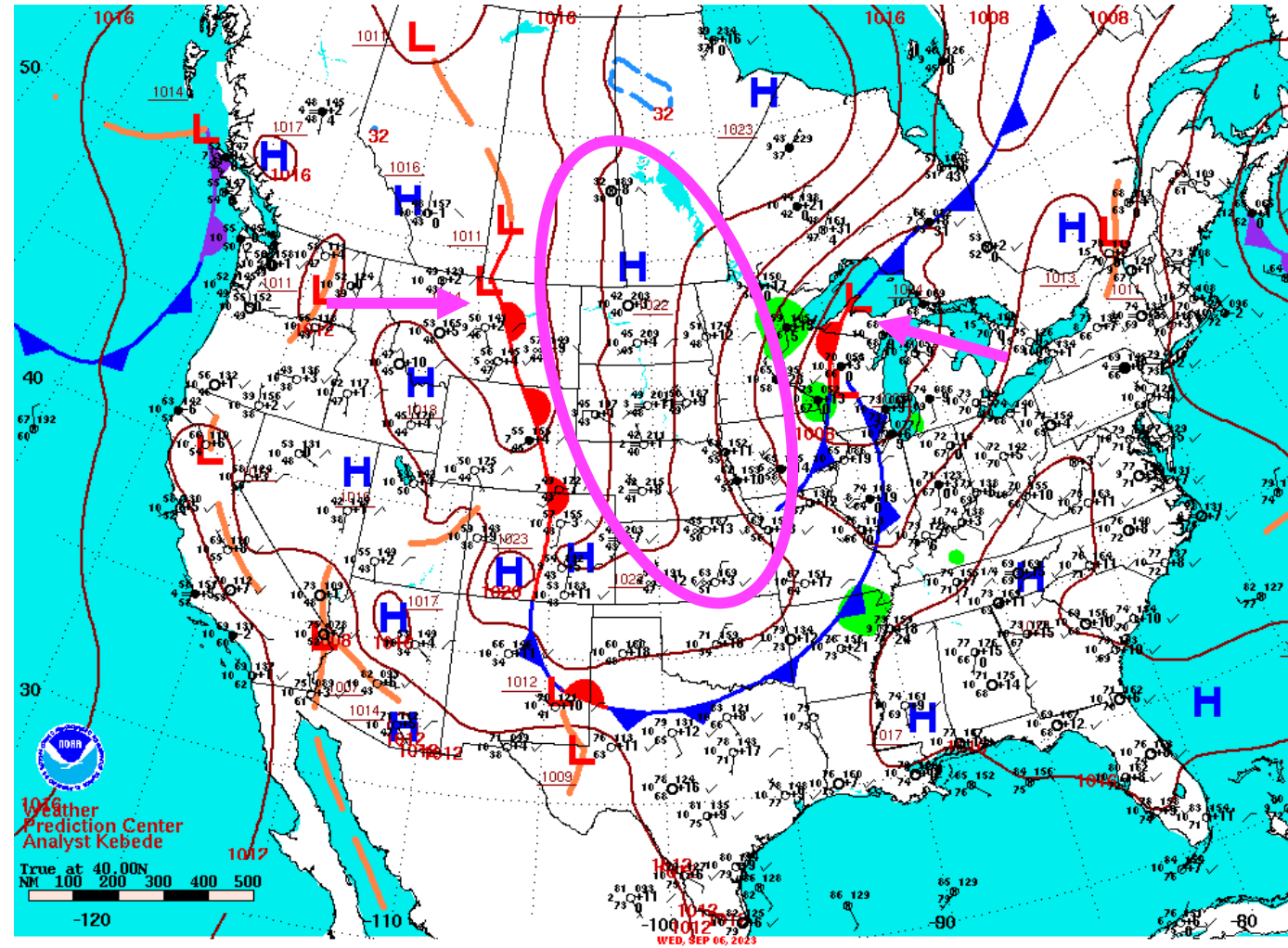
Air Quality Reflection: Wednesday Sept. 6, 2023

500 hPa Contours



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

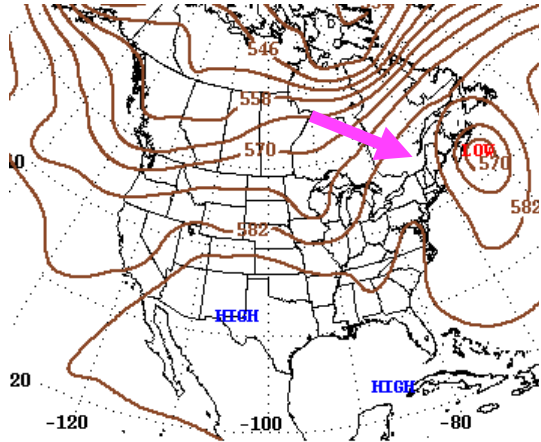
Surface Weather



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

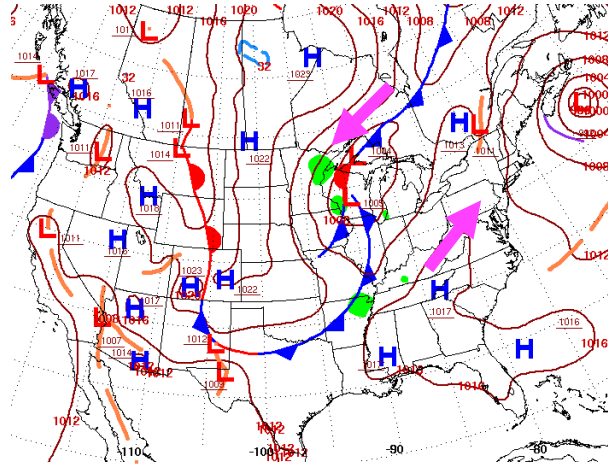
Air Quality Reflection: Wednesday Sept. 6, 2023

500 hPa Contours



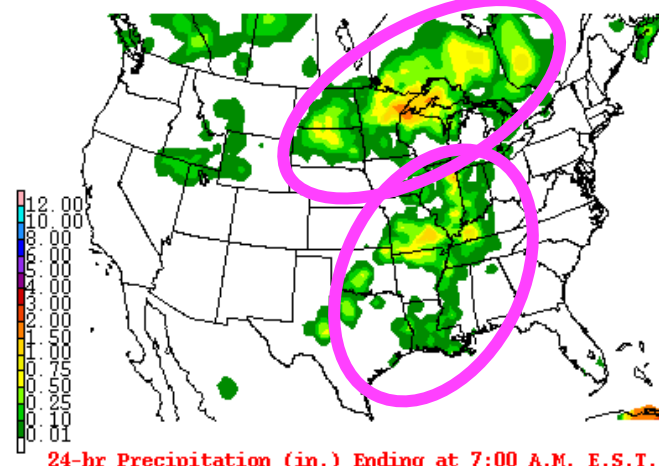
500-Millibar Height Contour at 7:00 A.M. E.S.T.

Surface Weather



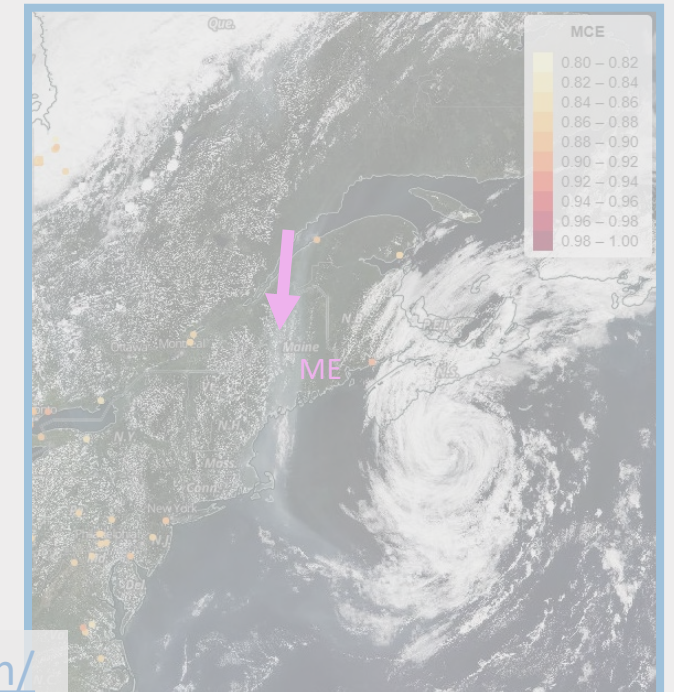
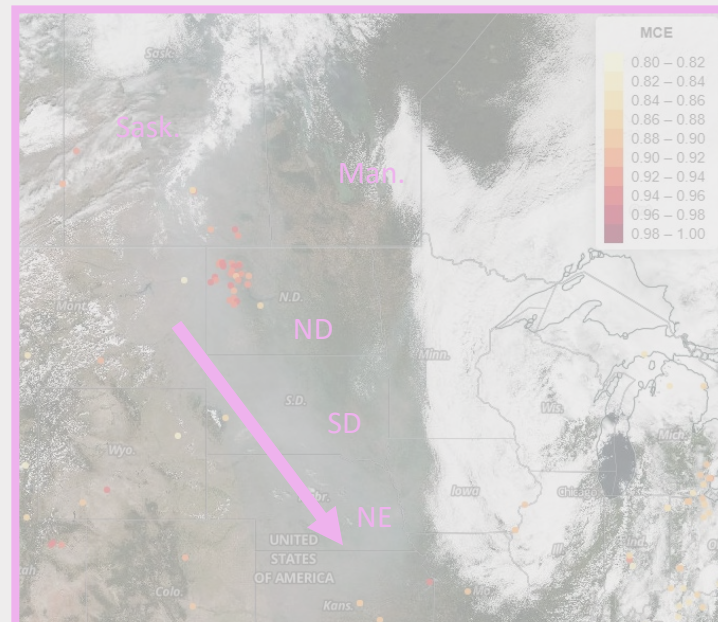
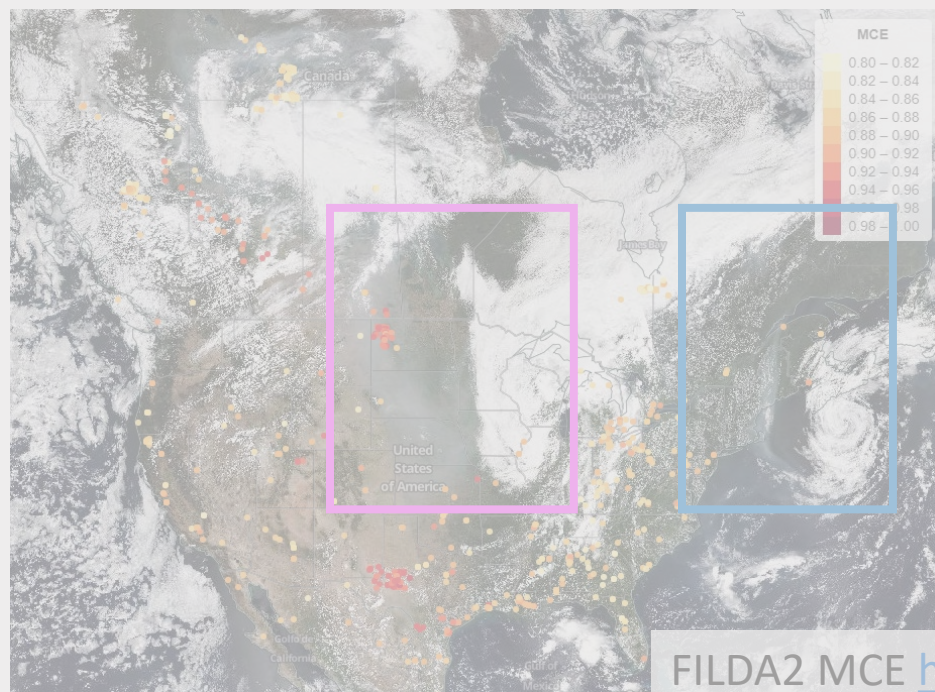
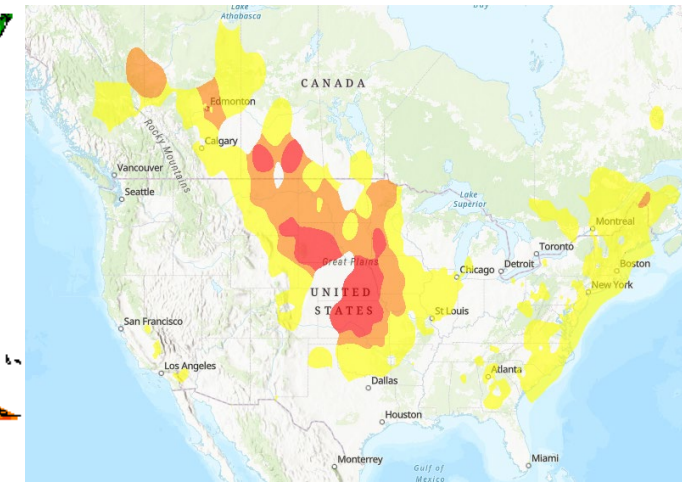
Surface Weather Map at 7:00 A.M. E.S.T.

Precipitation



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

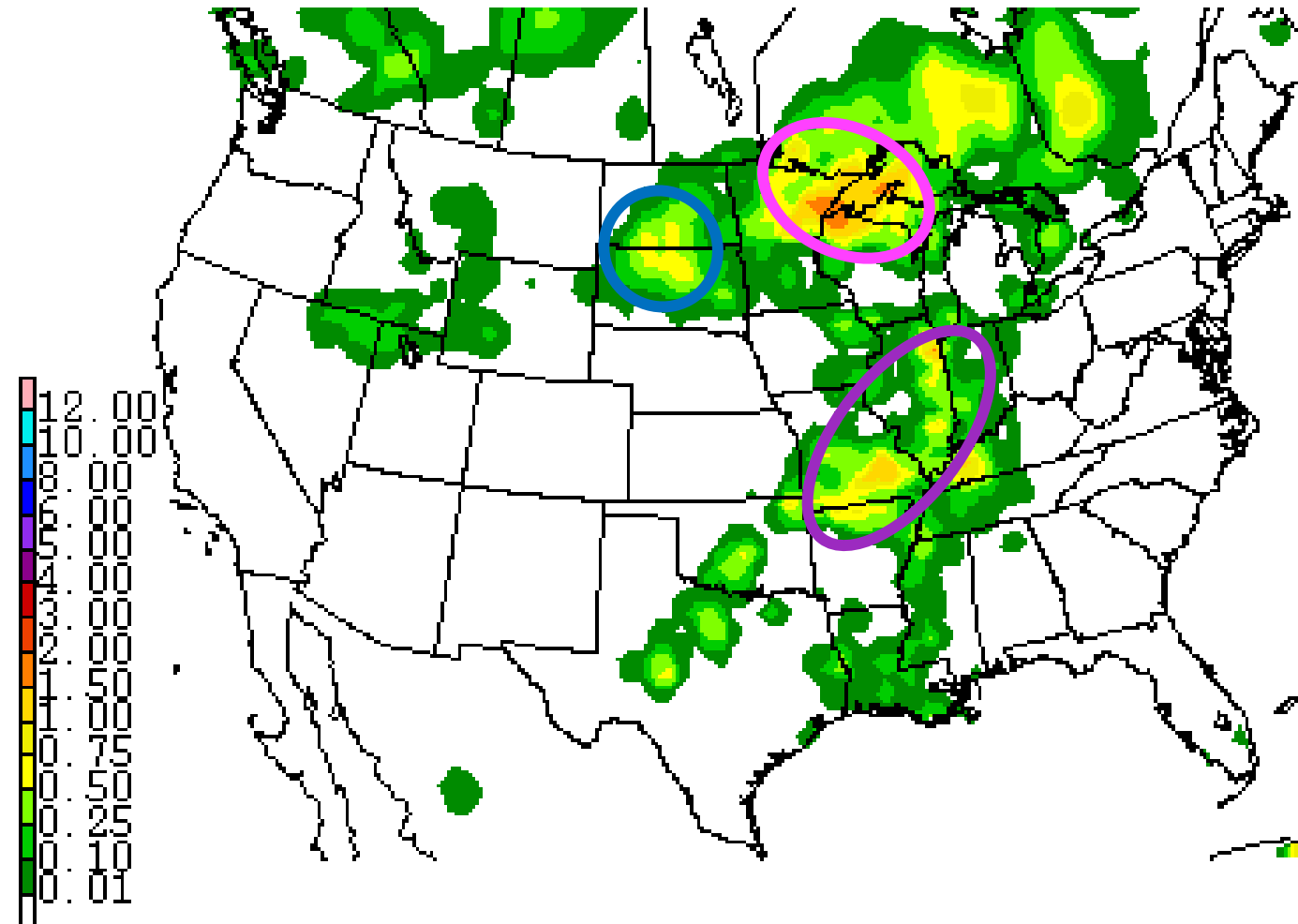
AirNow AQI



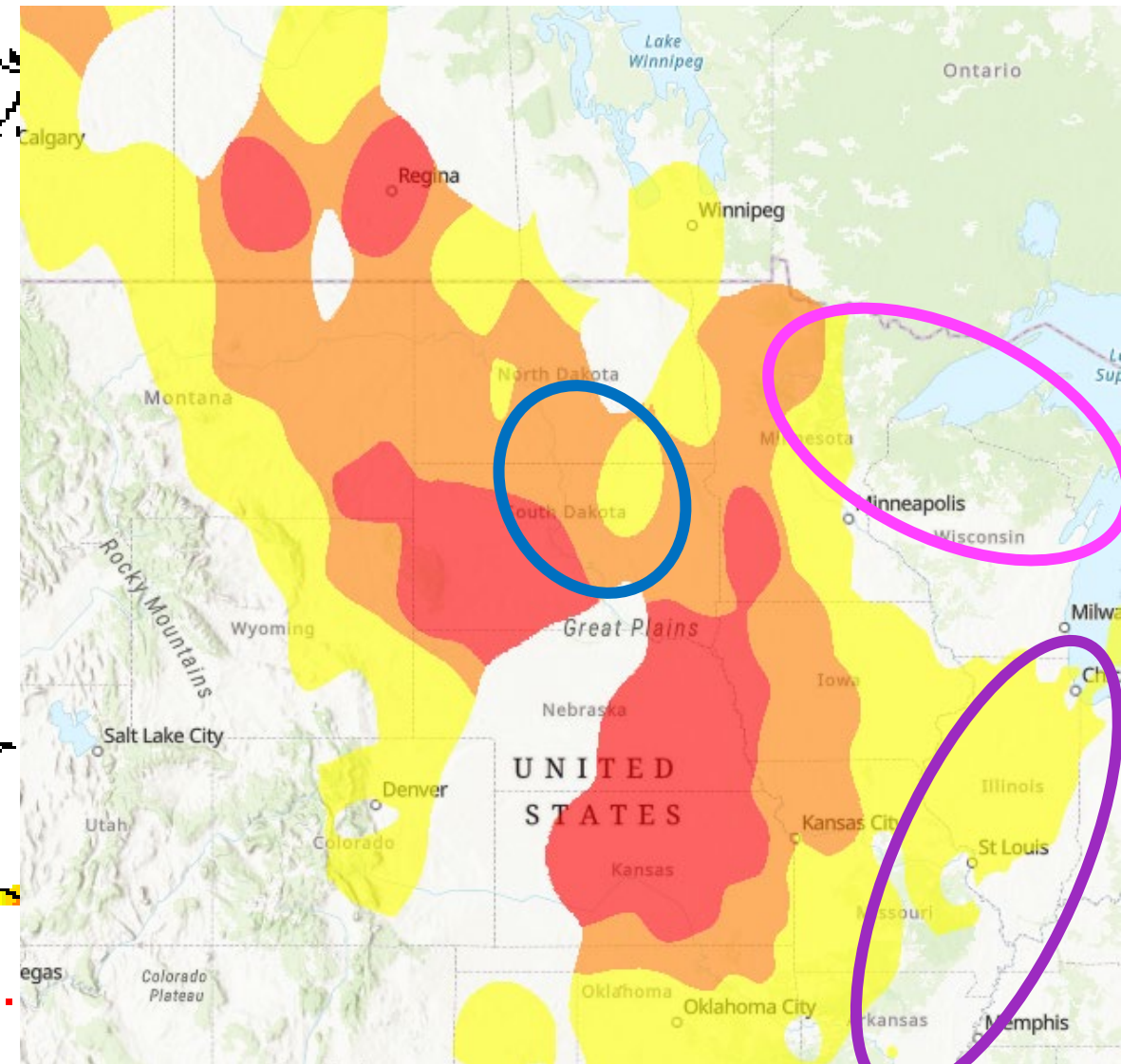
FILDA2 MCE http://esmc.uiowa.edu:3838/fires_detection/

Air Quality Reflection: Wednesday Sept. 6, 2023

Precipitation

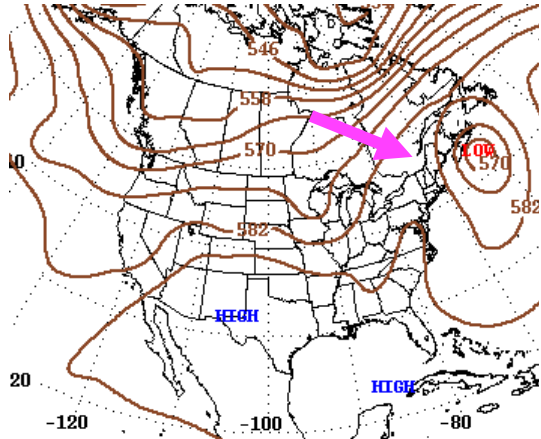


AirNow AQI



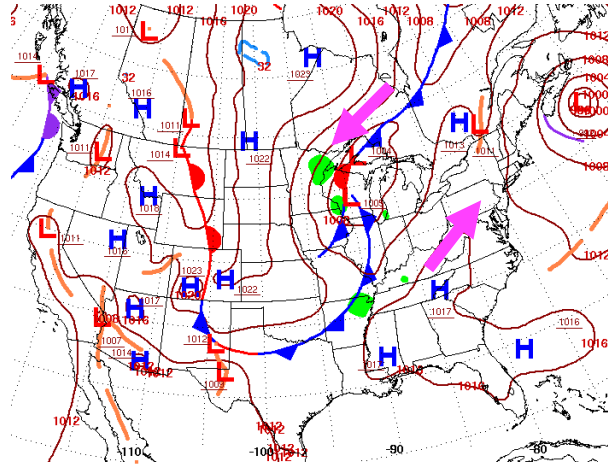
Air Quality Reflection: Wednesday Sept. 6, 2023

500 hPa Contours



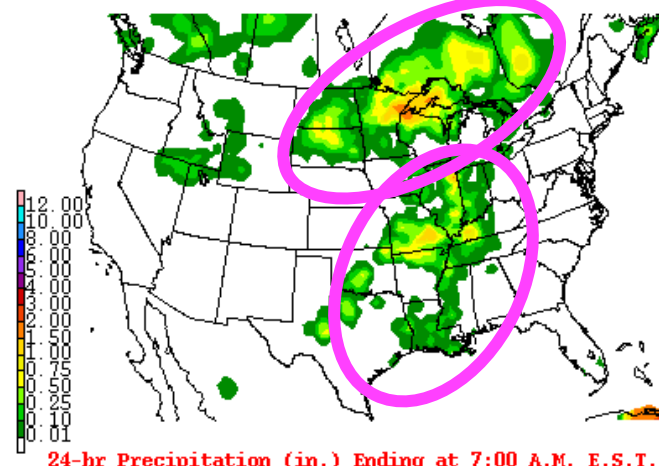
500-Millibar Height Contour at 7:00 A.M. E.S.T.

Surface Weather



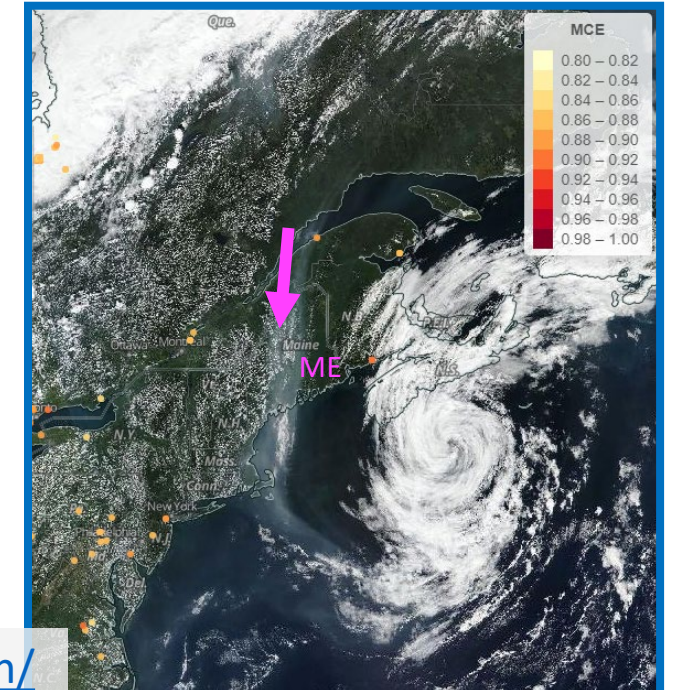
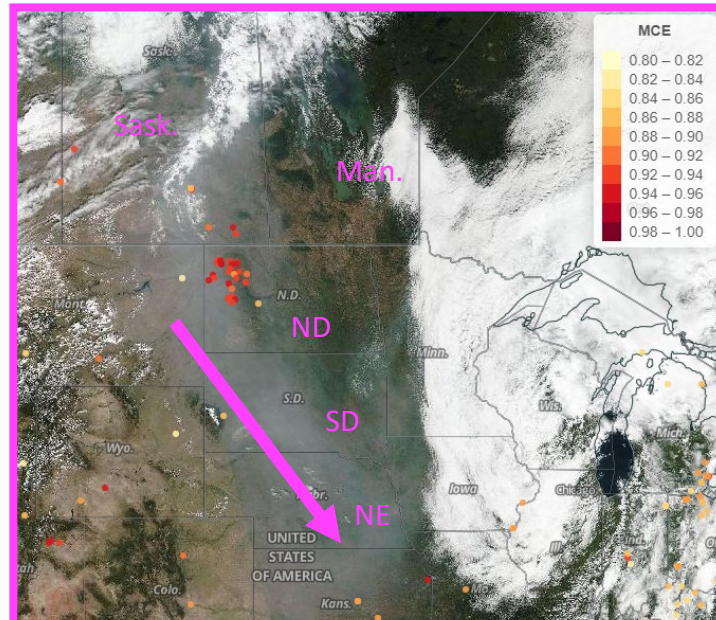
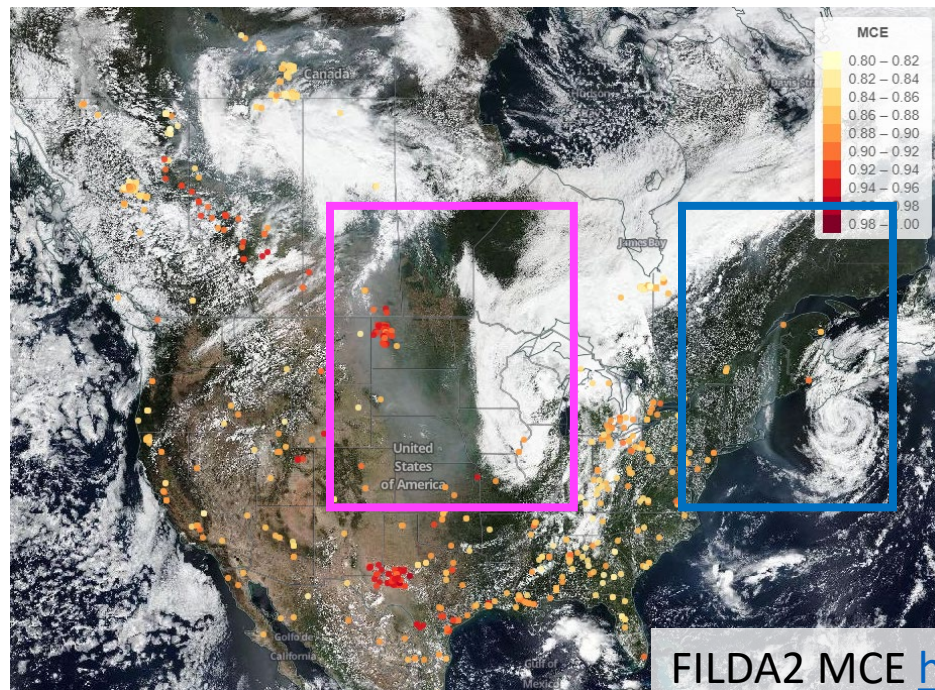
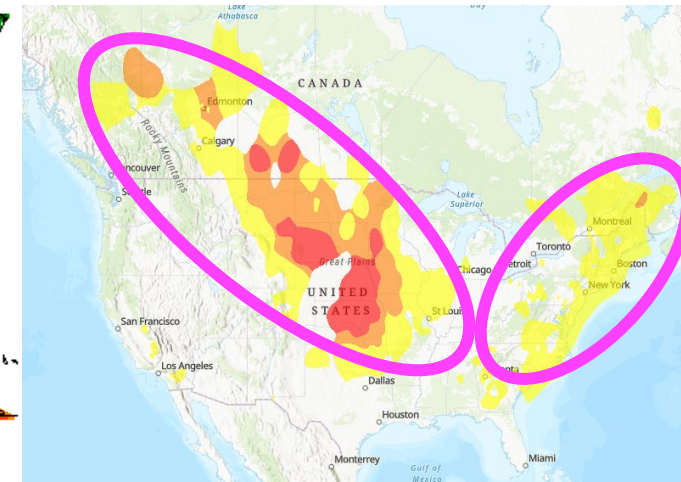
Surface Weather Map at 7:00 A.M. E.S.T.

Precipitation



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

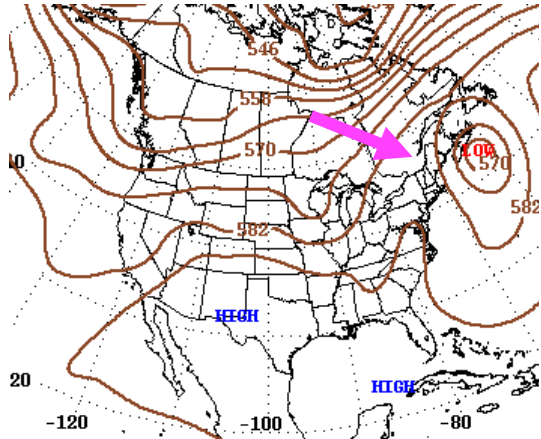
AirNow AQI



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

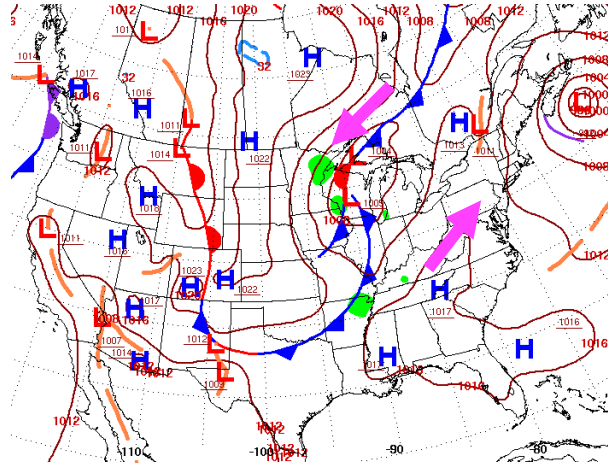
Air Quality Reflection: Wednesday Sept. 6, 2023

500 hPa Contours



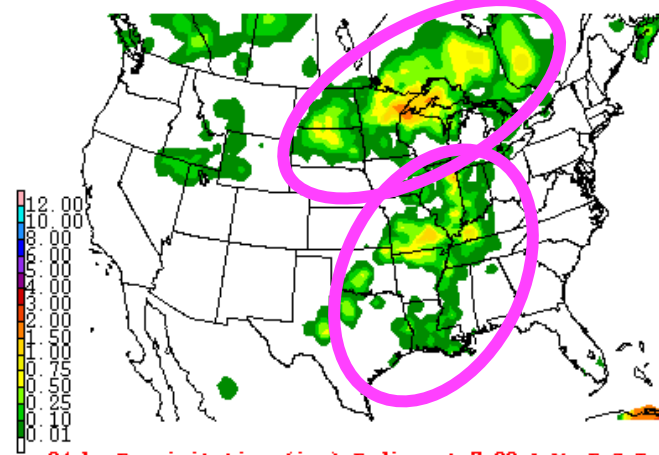
500-Millibar Height Contour at 7:00 A.M. E.S.T.

Surface Weather



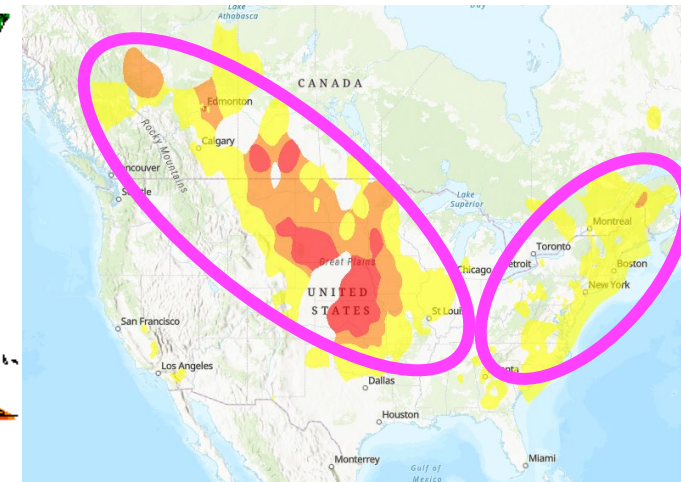
Surface Weather Map at 7:00 A.M. E.S.T.

Precipitation

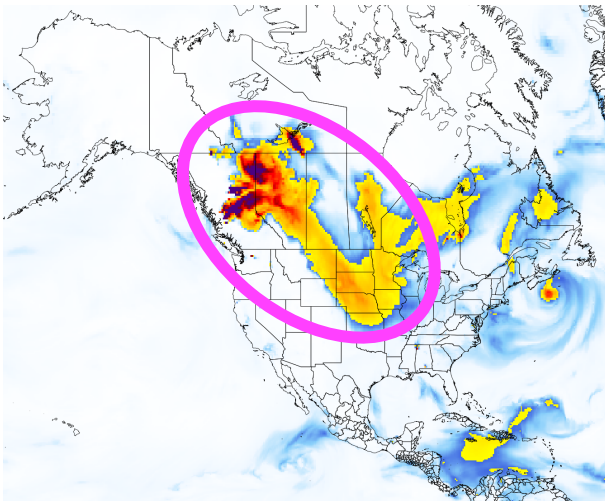


24-hr Precipitation (in.) Ending at 7:00 A.M. E.S.T.

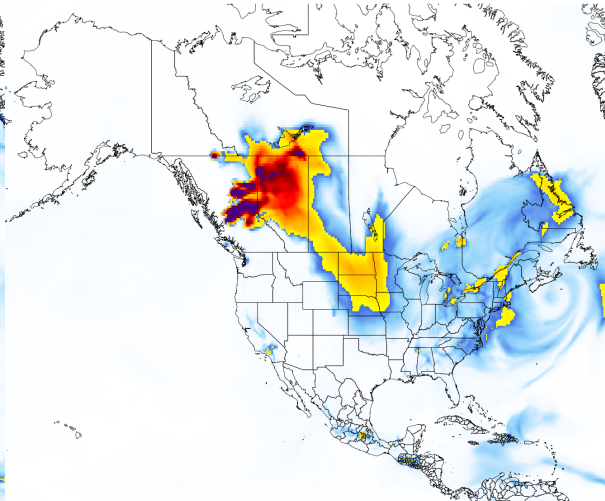
AirNow AQI



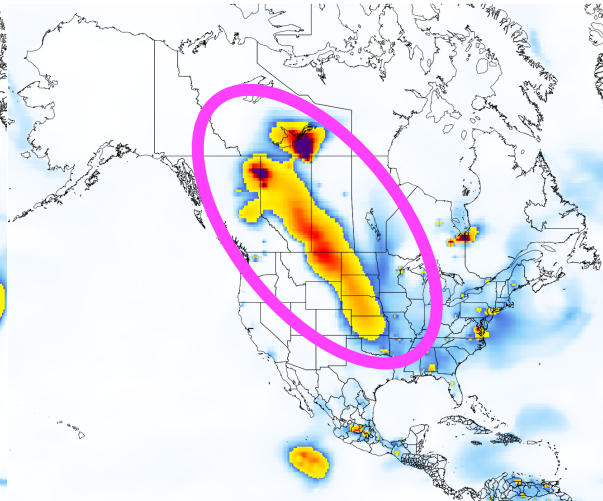
GEOS-FP



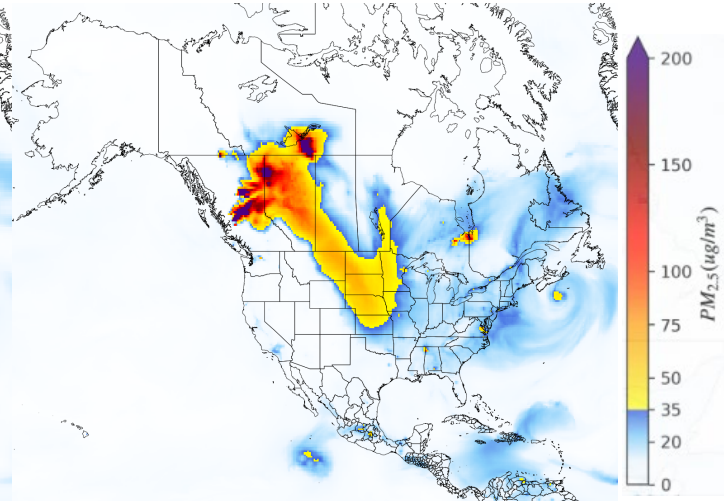
GEOS-CF



NAAPS

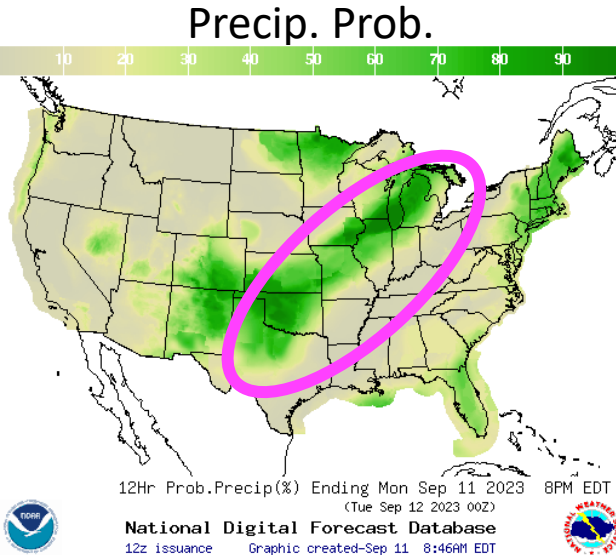
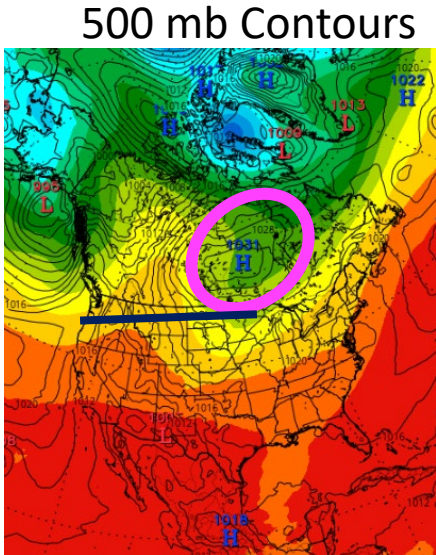
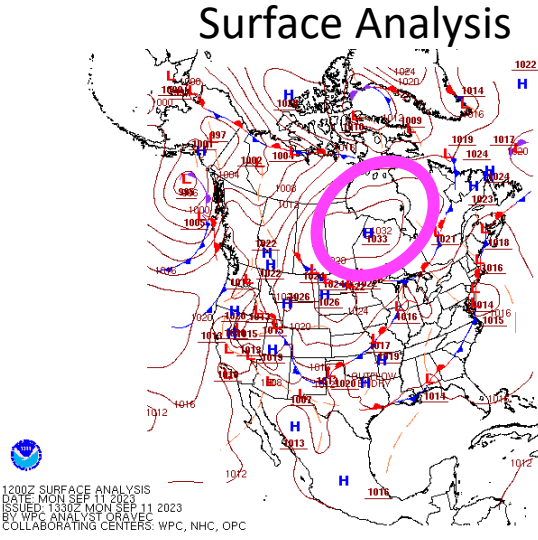


Ensemble

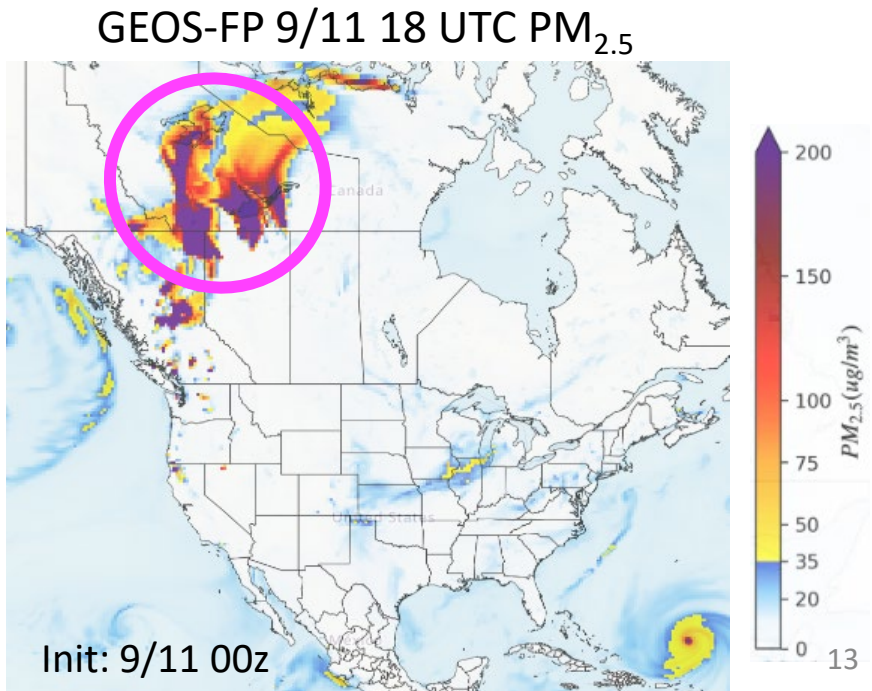
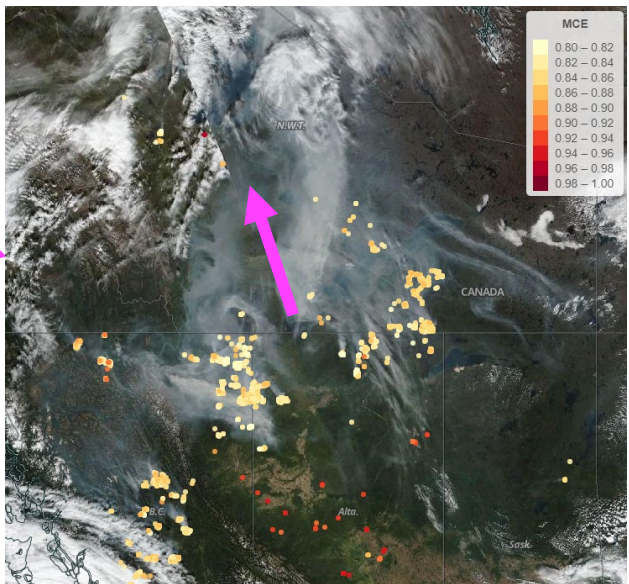
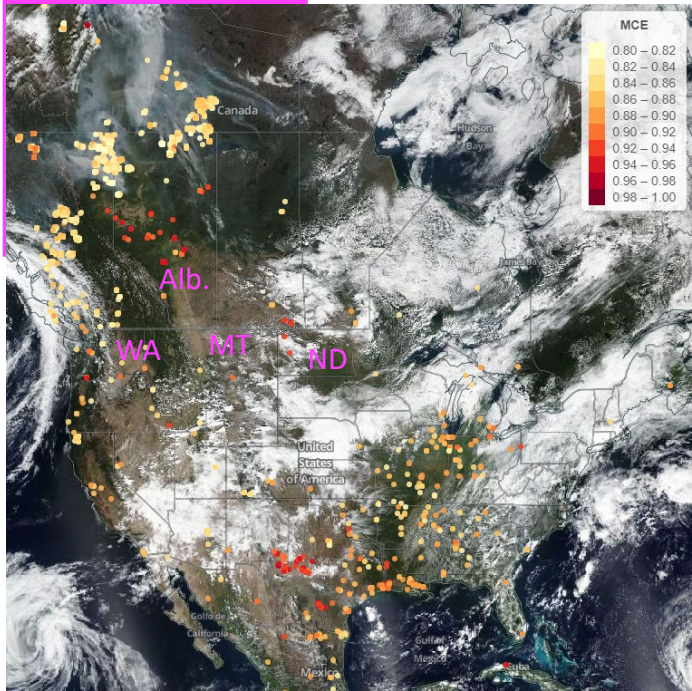


Website: <http://fireaq.uiowa.edu>

Current Status: September 11, 2023



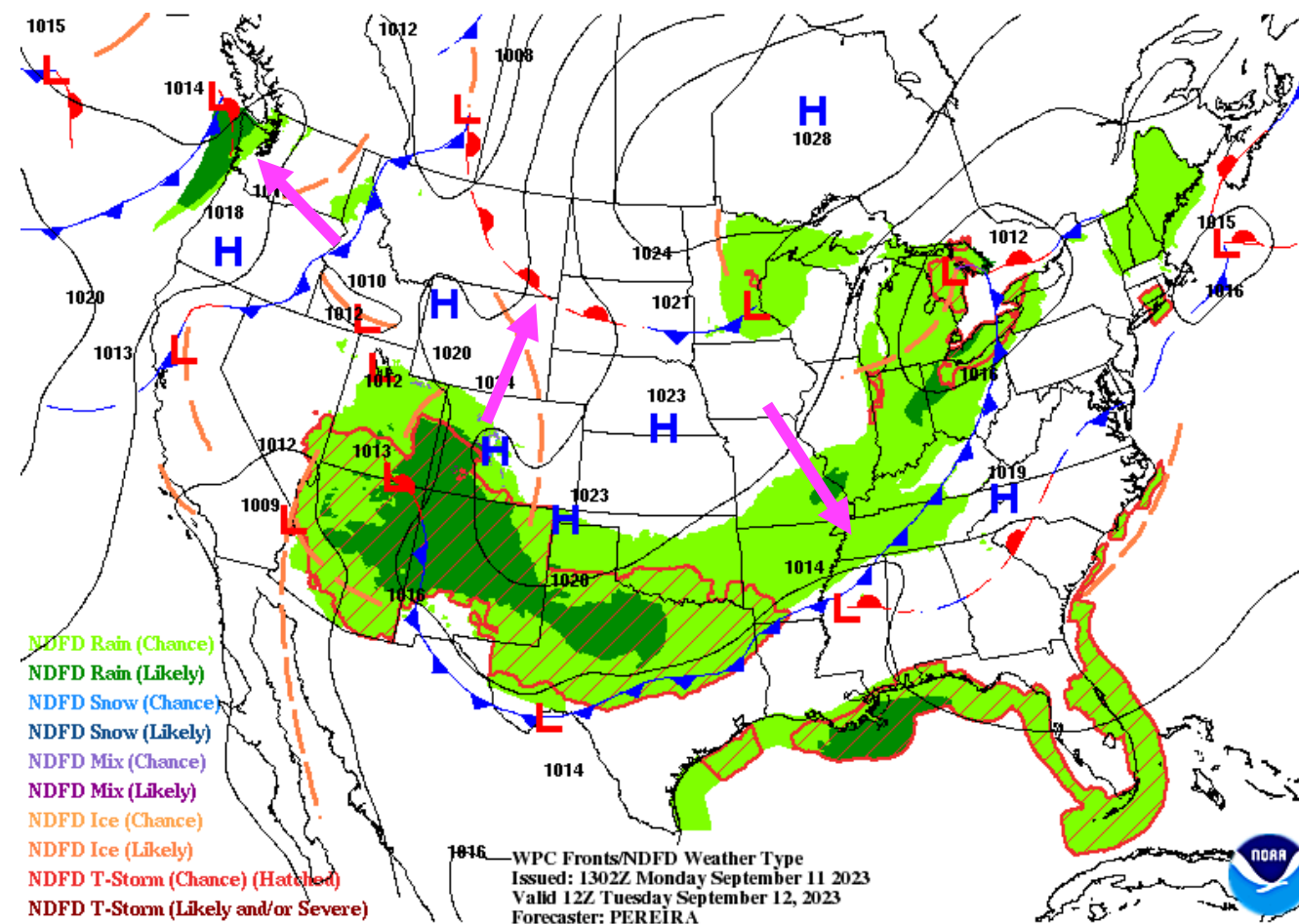
FILDA2 MCE
(Sun 9/10)



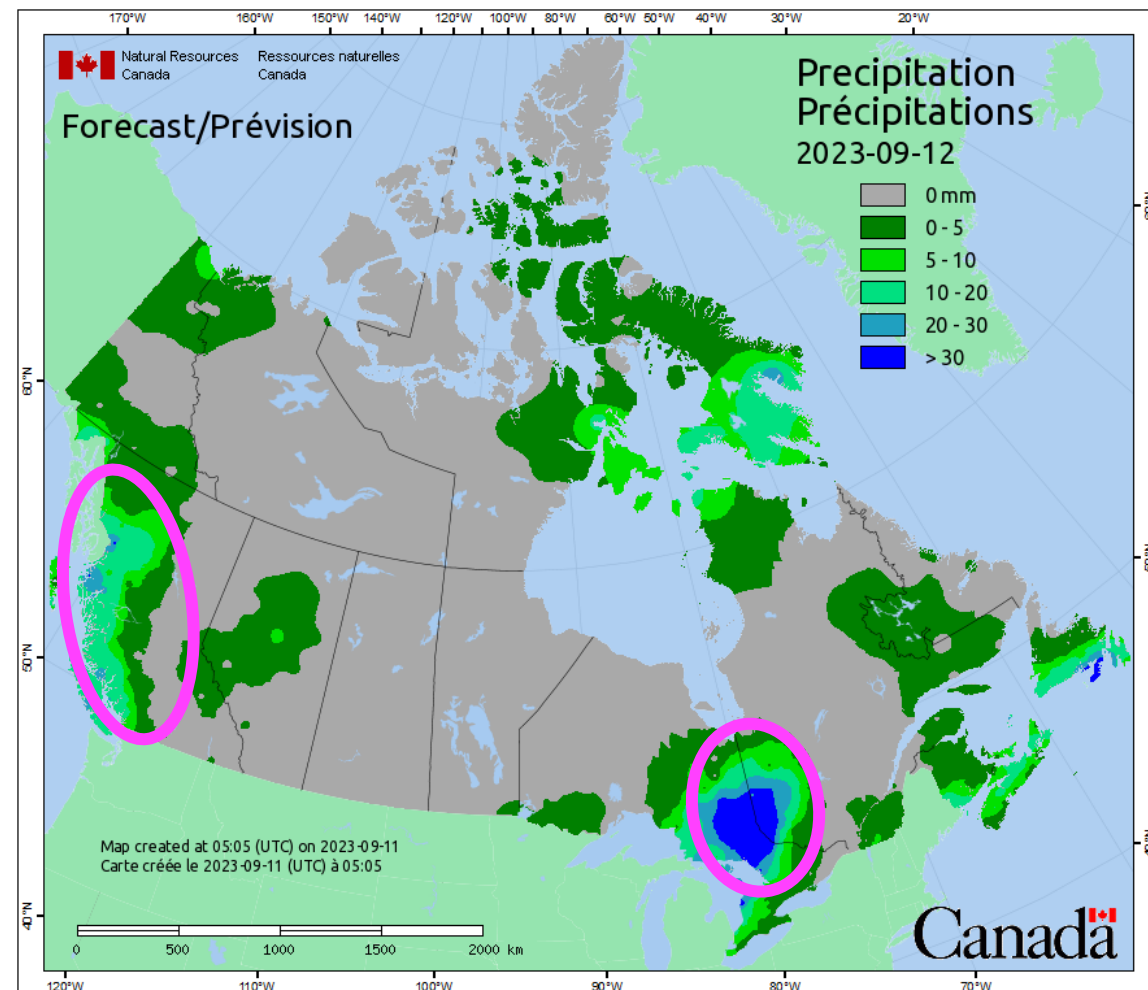
Outlook: Short Range (1–3 days)

Surface Forecast (**Tuesday 9/12**)

US NWS Forecast

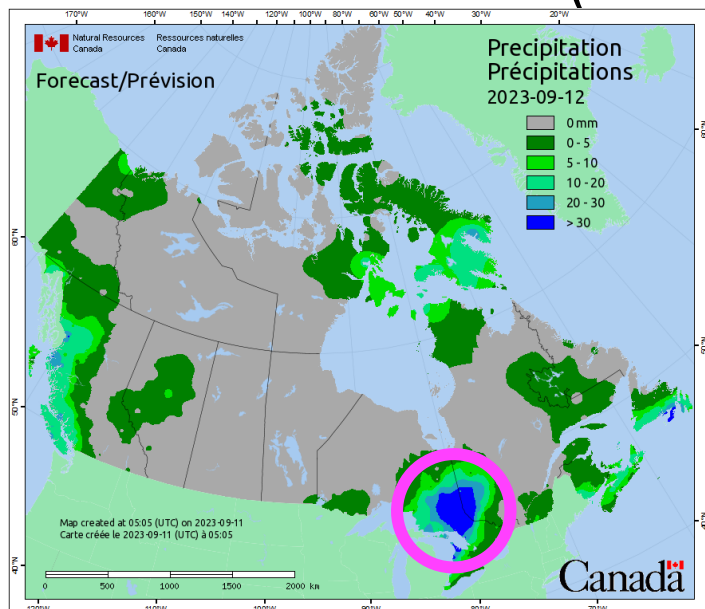


Environment Canada Forecast



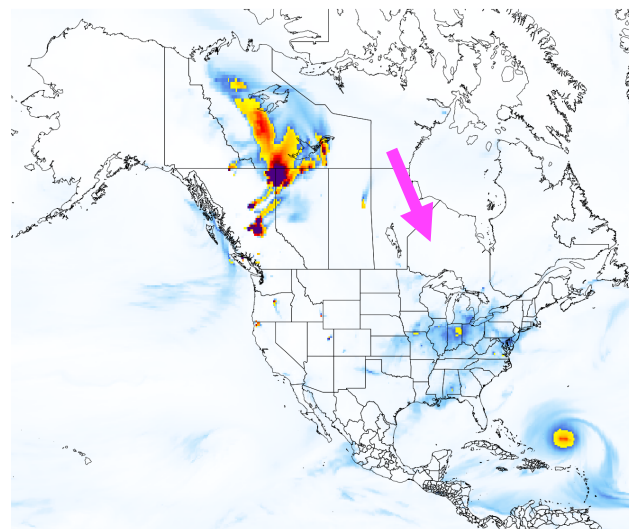
Outlook: Short Range (1–3 days)

Surface Forecast (Tuesday 9/12)

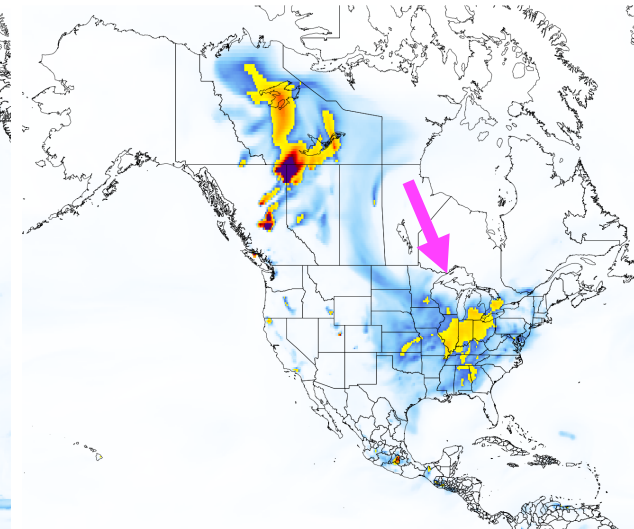


Model Means $PM_{2.5}$ (Tues 9/12)

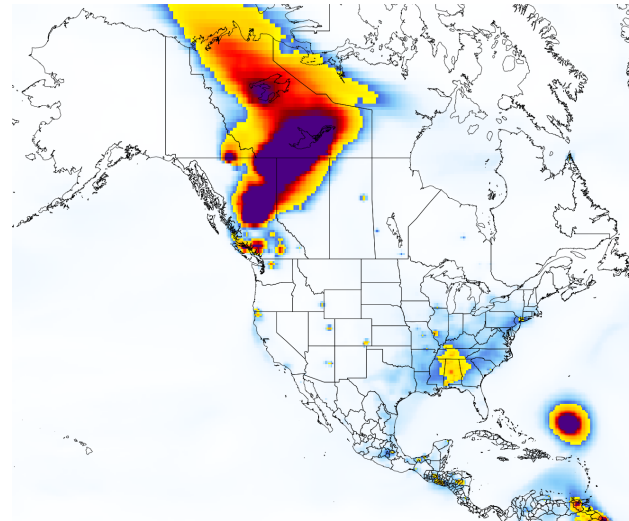
GEOS-FP



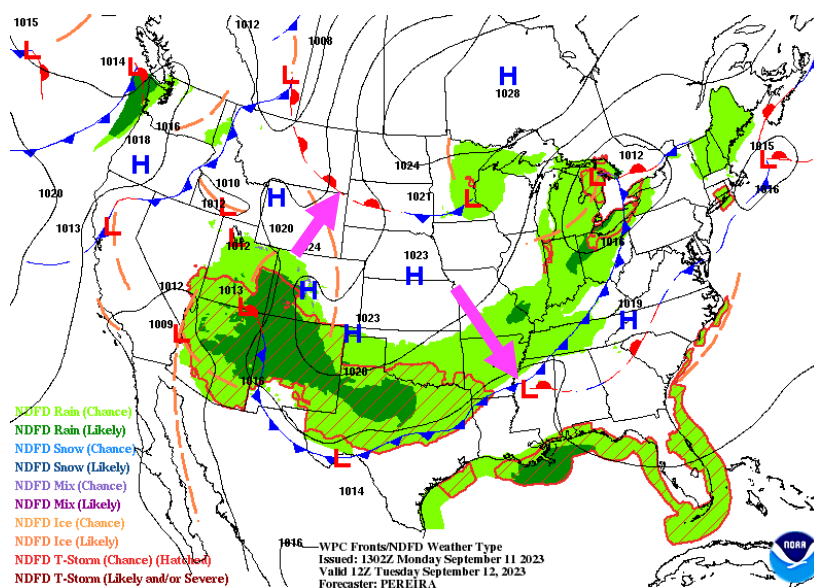
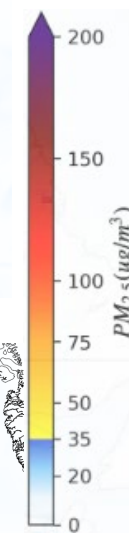
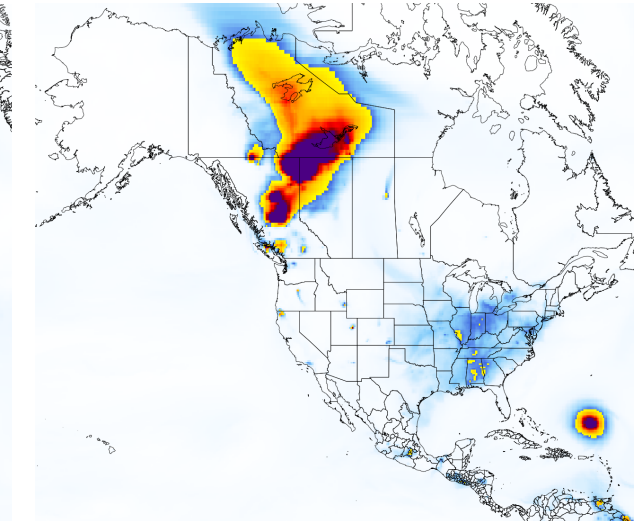
GEOS-CF



NAAPS



Ensemble

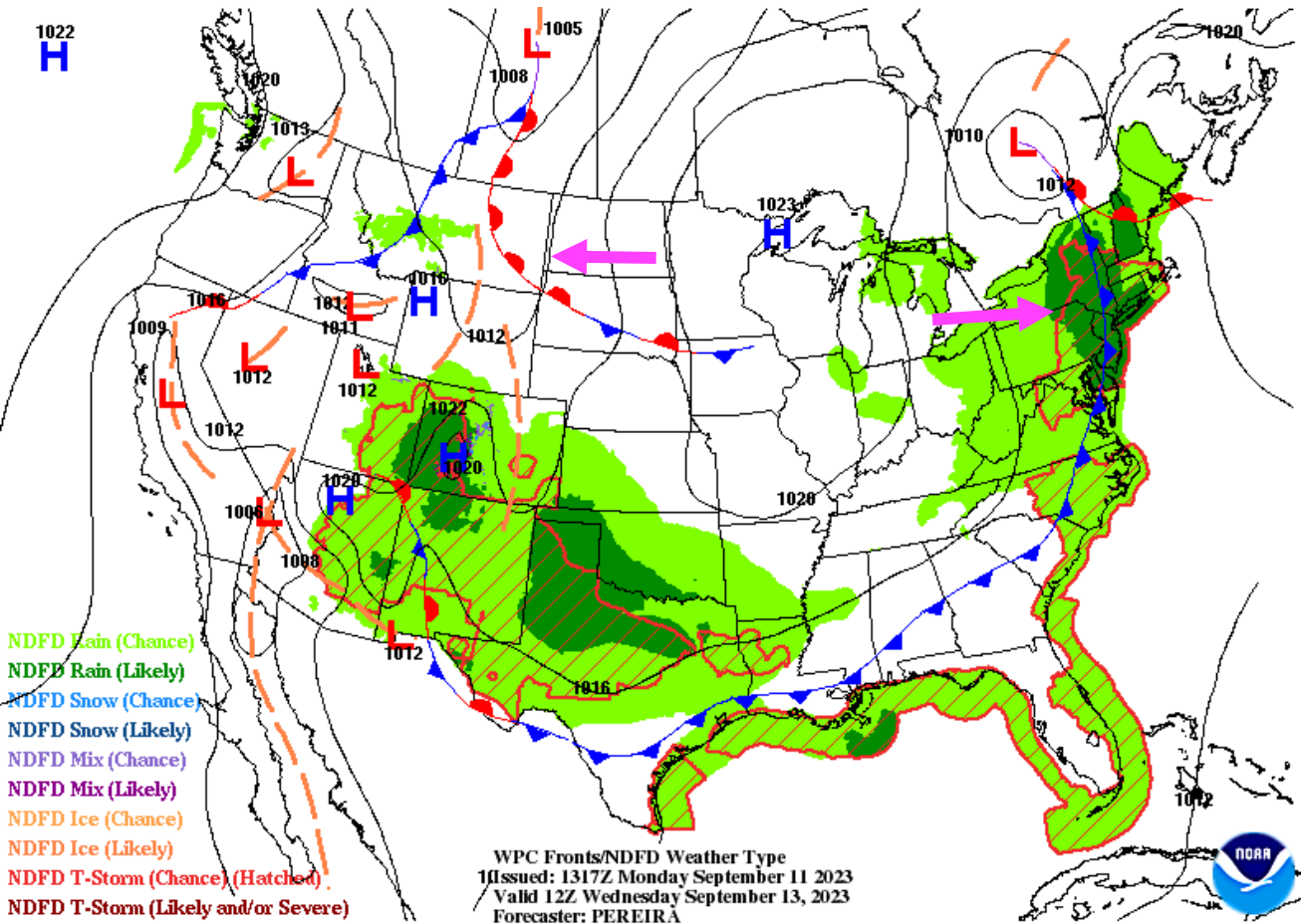


Day 3 of 9/10 initialization

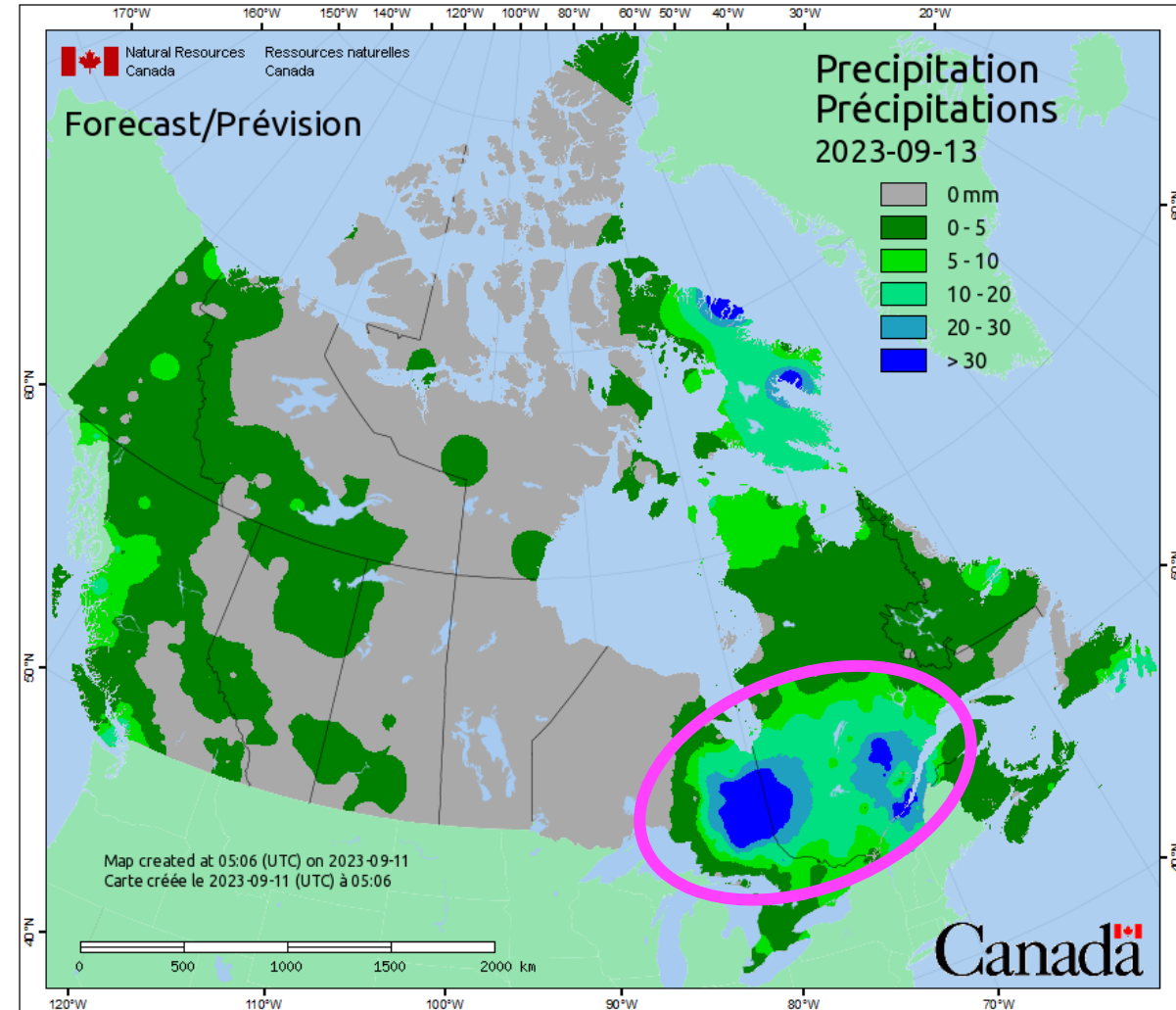
Outlook: Short Range (1–3 days)

Surface Forecast (Wednesday 9/13)

US NWS Forecast

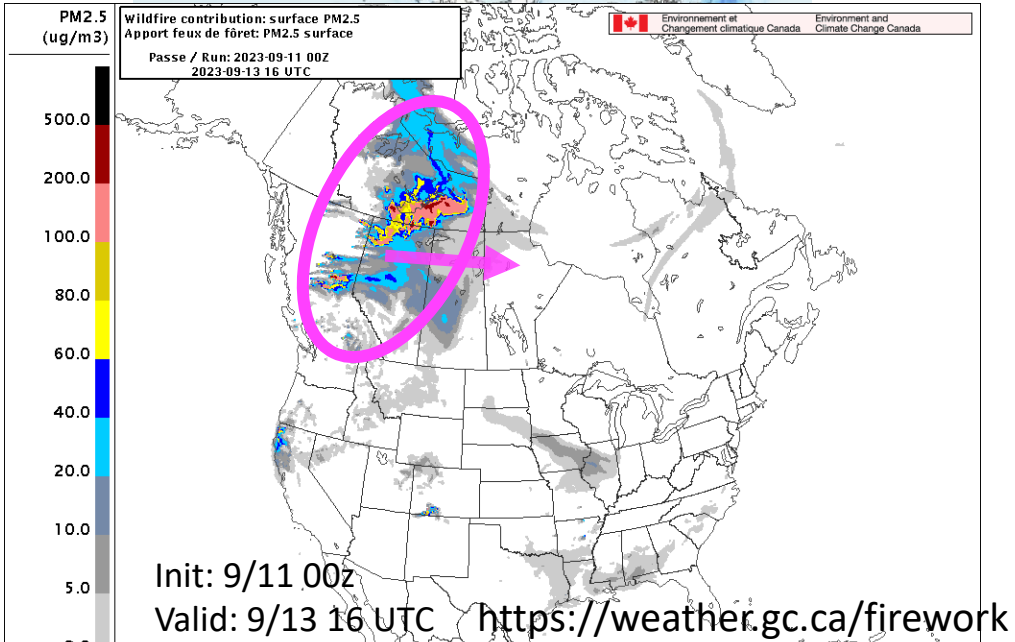
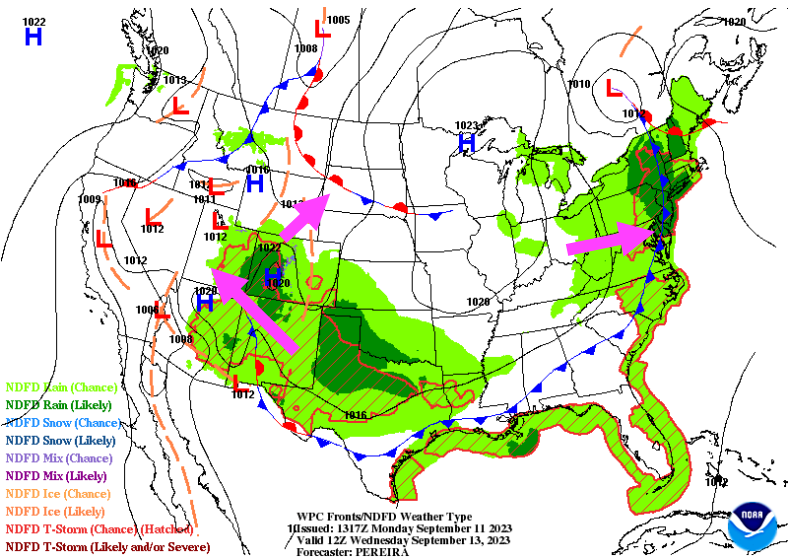
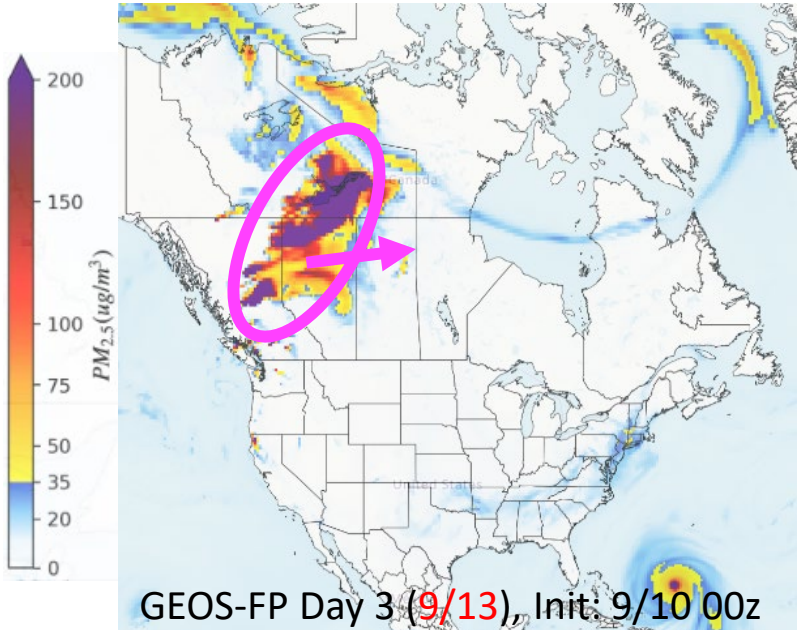
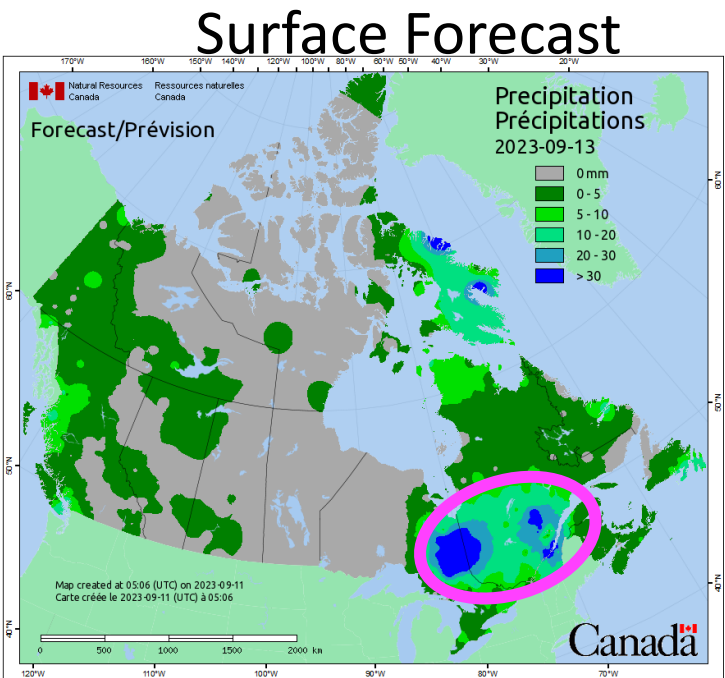


Environment Canada Forecast



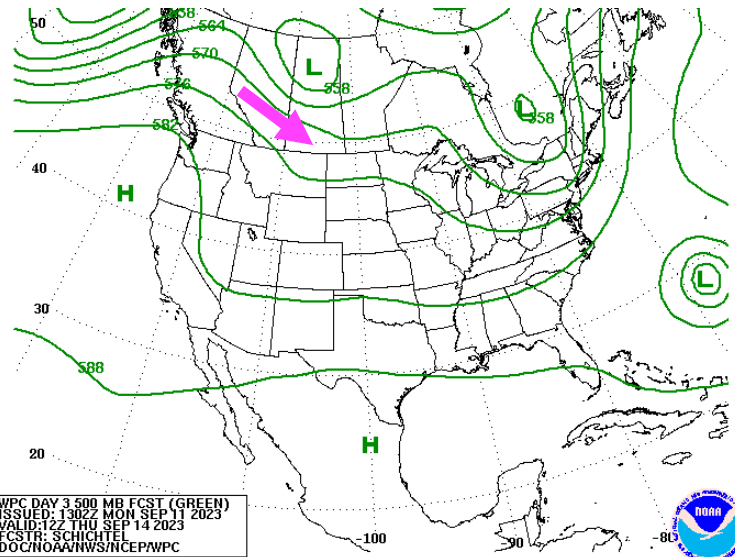
Outlook: Short Range (1-3 days)

(Wednesday 9/12)



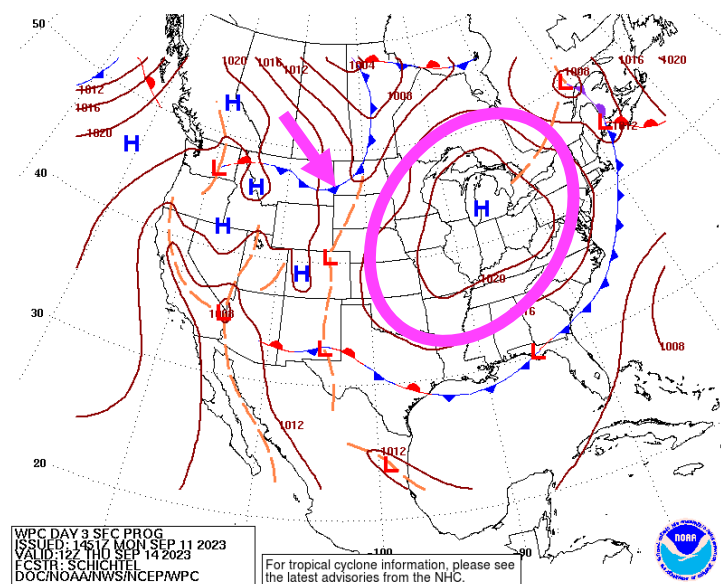
Outlook: Medium Range

500 hPa Contours

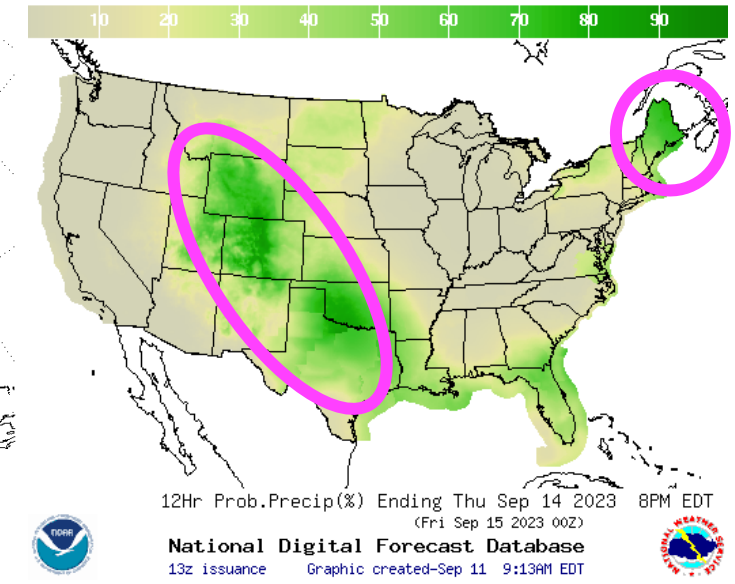


Thursday
9/14

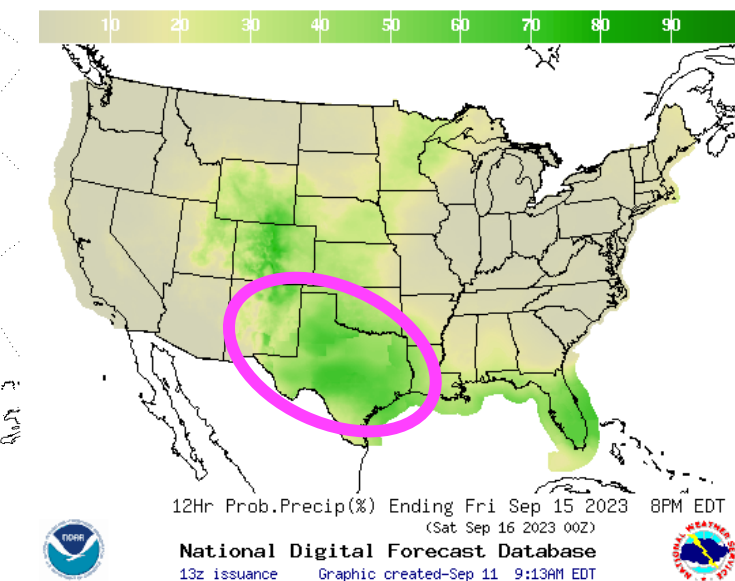
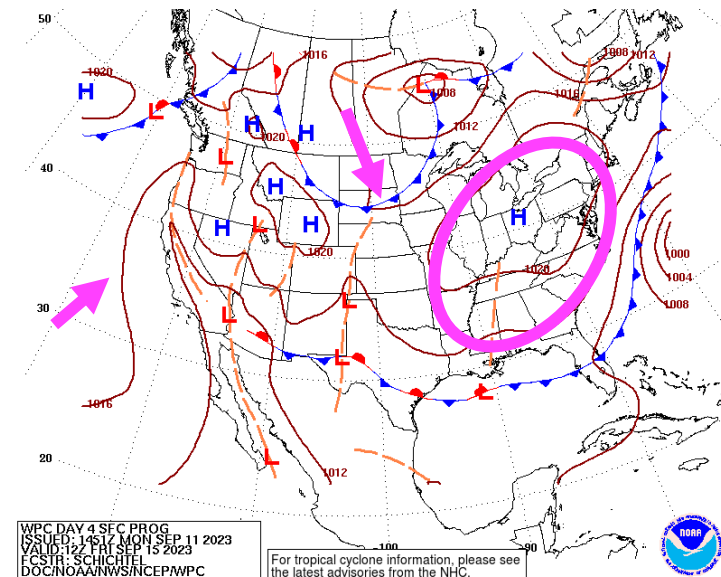
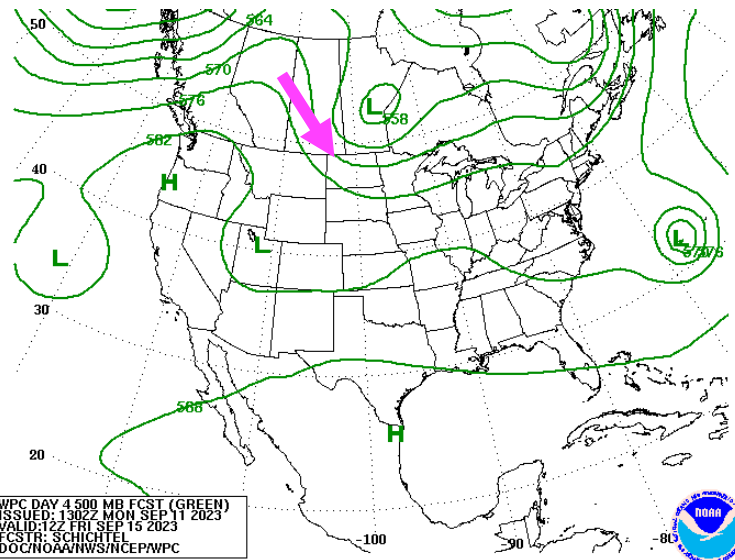
Sea Level



Precip Prob.



Friday
9/15



Summary

Monday : Smoke from Canadian wildfires is being transported north and is not impacting air quality in the US; however, northern CA fires are impacting the local region.

M → W : Cooler temperatures and likely chances of rain around cold fronts from the southern to northeastern US through Wednesday. Smoke transport from Canada (B.C. and Alberta) is not predicted to impact the US air quality.

Th → F : A low pressure system aloft over Canada is forecasted to extend into the northern US and could shift smoke transport further south. At the surface a stable high pressure system in the region could promote smoke transport to the surface and impact the air quality in the northern to central US.

