

Weather and Air Quality: Reflection and Outlook During Smoke Conditions

Presenter: Megan Christiansen
Date: September 16, 2024

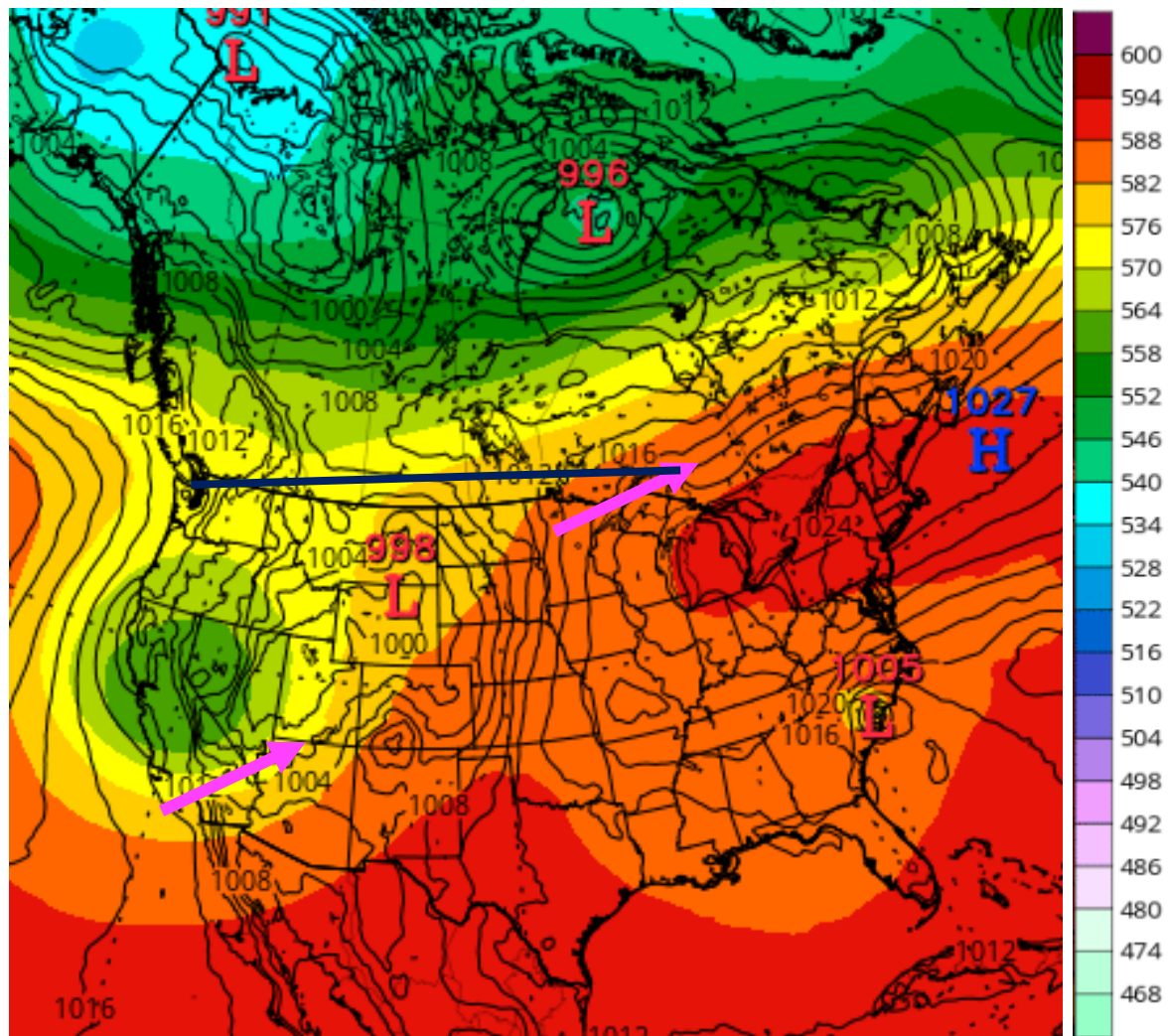


FireAQ is funded by NASA HAQ. We thank NASA GMAO and
NRL for the model data products.

EARTH SCIENCE
APPLIED SCIENCES

Current Status: September 16, 2024

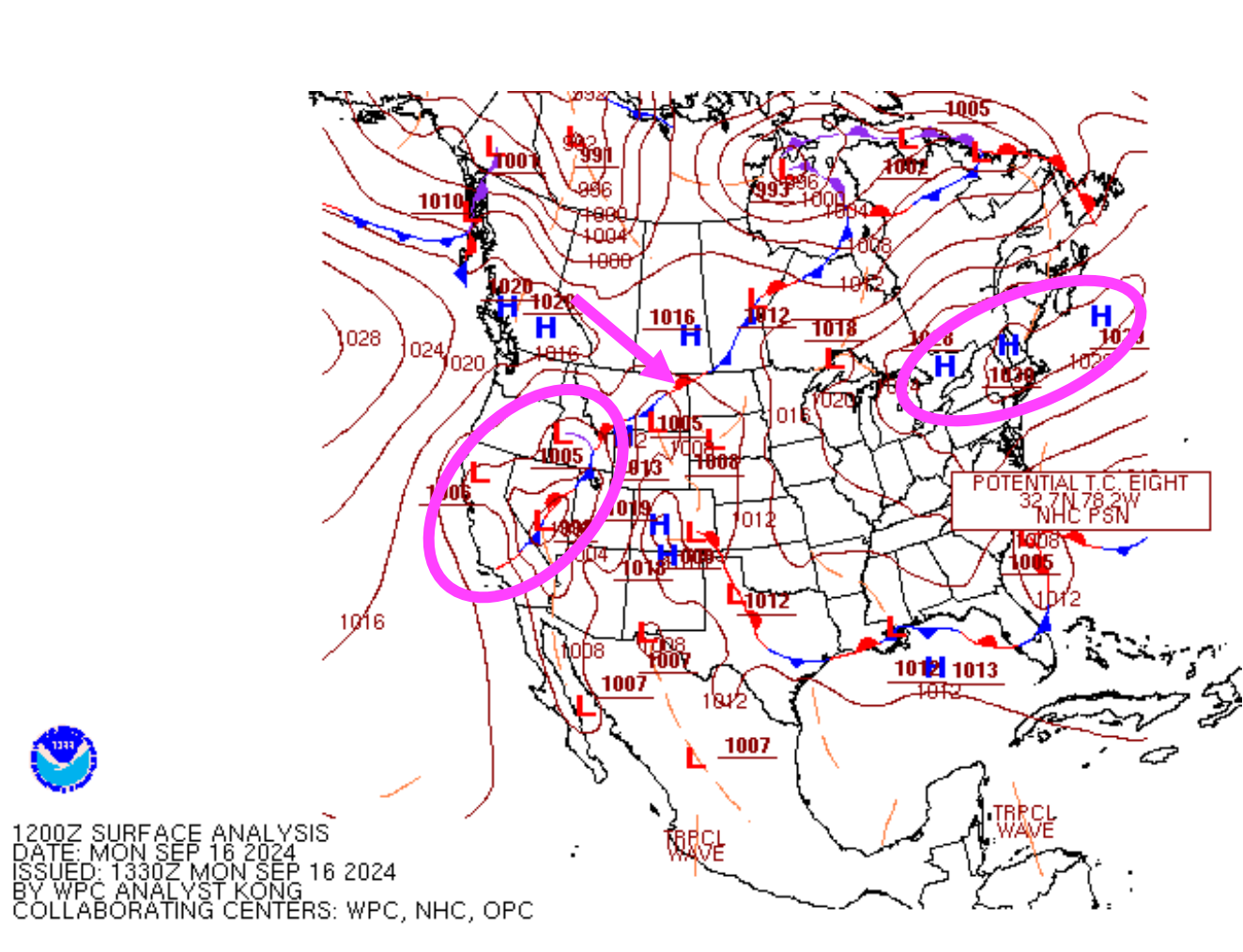
500 mb Contours



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

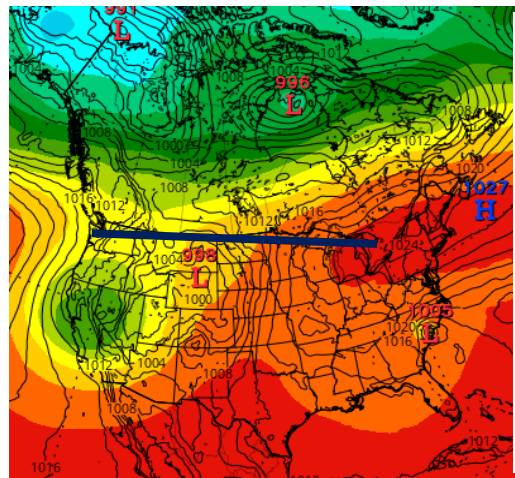
Init: 06z Sep 16 2024 Forecast Hour: [12] valid at 18z Mon, Sep 16 2024

Surface Analysis

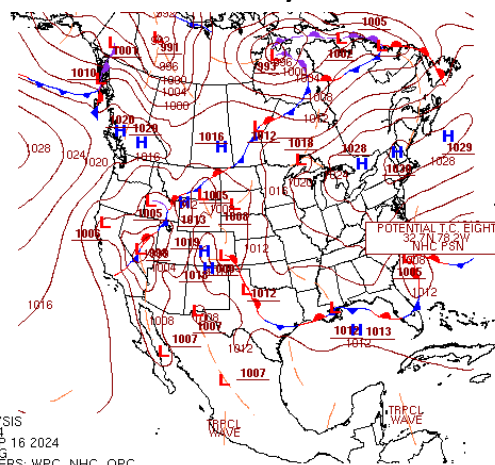


Current Status: September 16, 2024

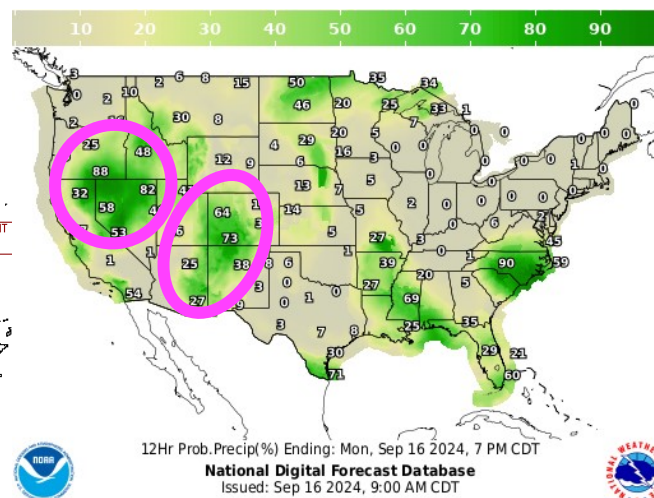
500 mb Contours



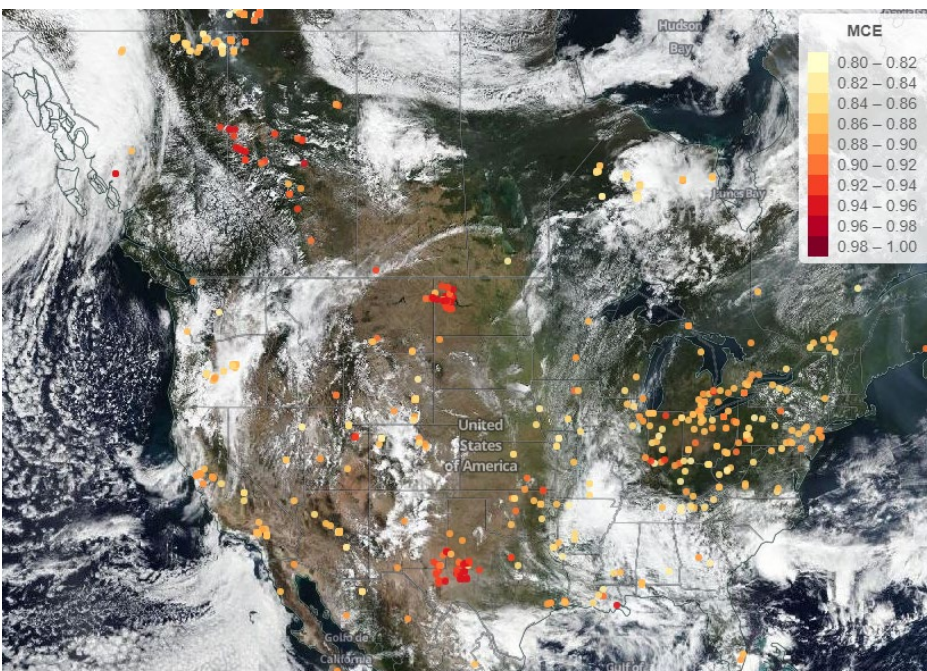
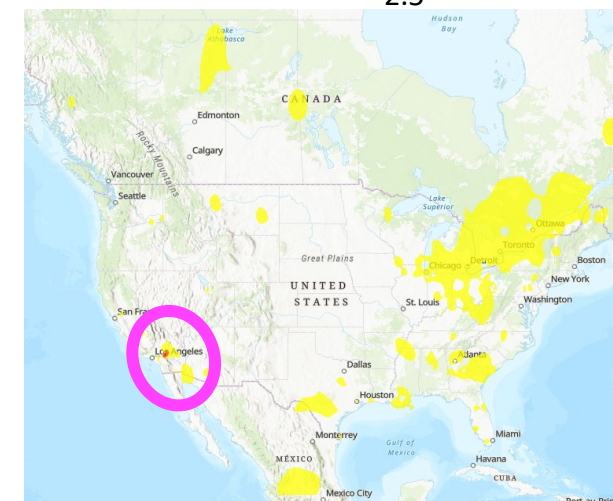
Surface Analysis



Precip. Prob.

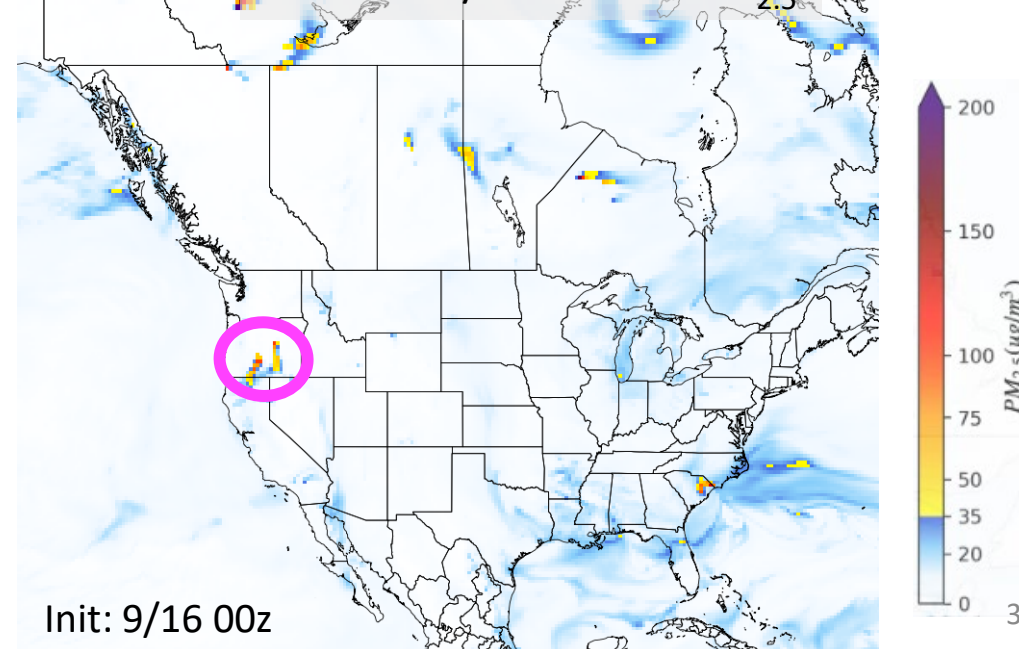


AirNow PM_{2.5} AQI



Sun 9/15

GEOS-FP 9/16 16 UTC PM_{2.5}

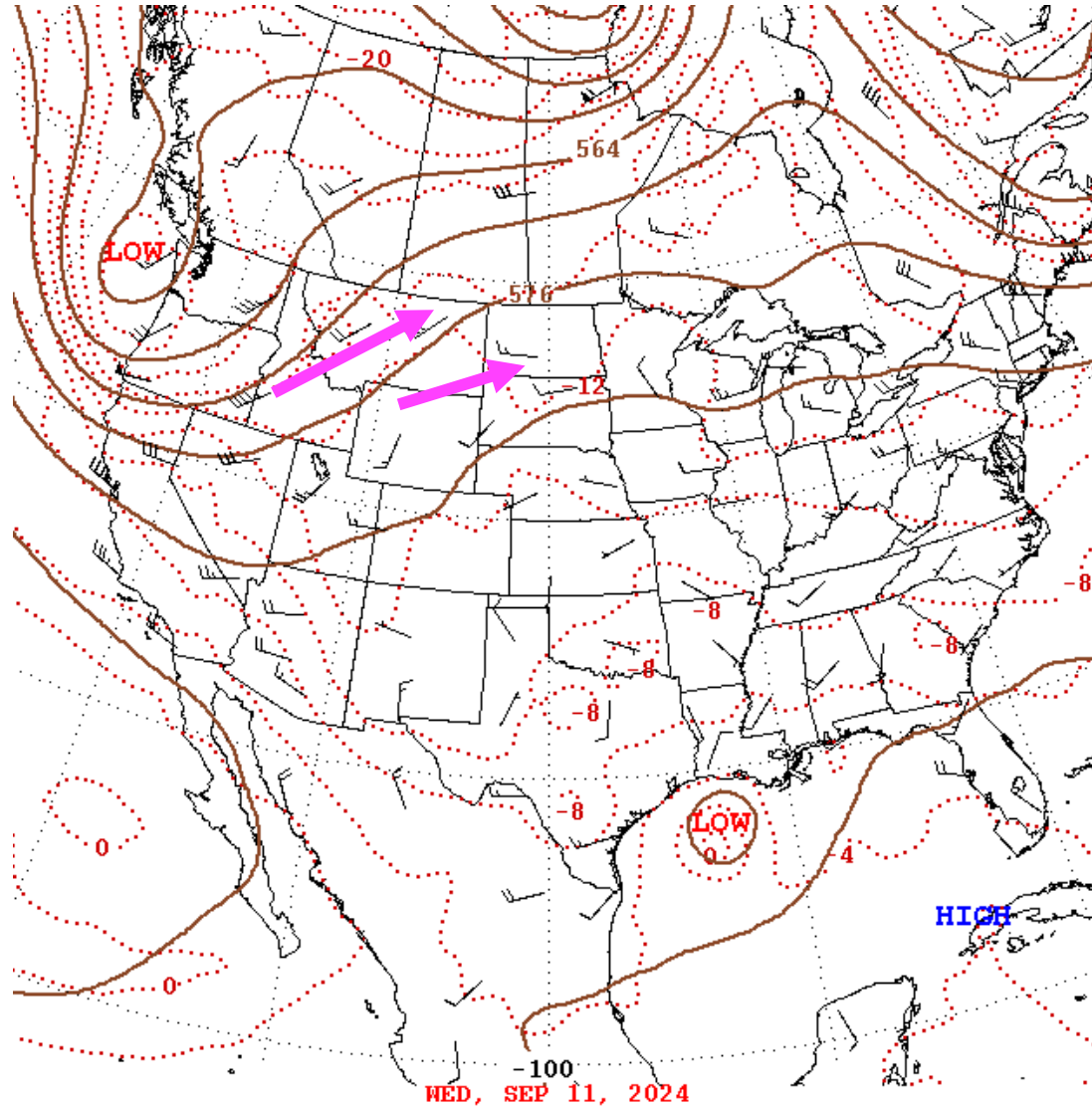


Init: 9/16 00z

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

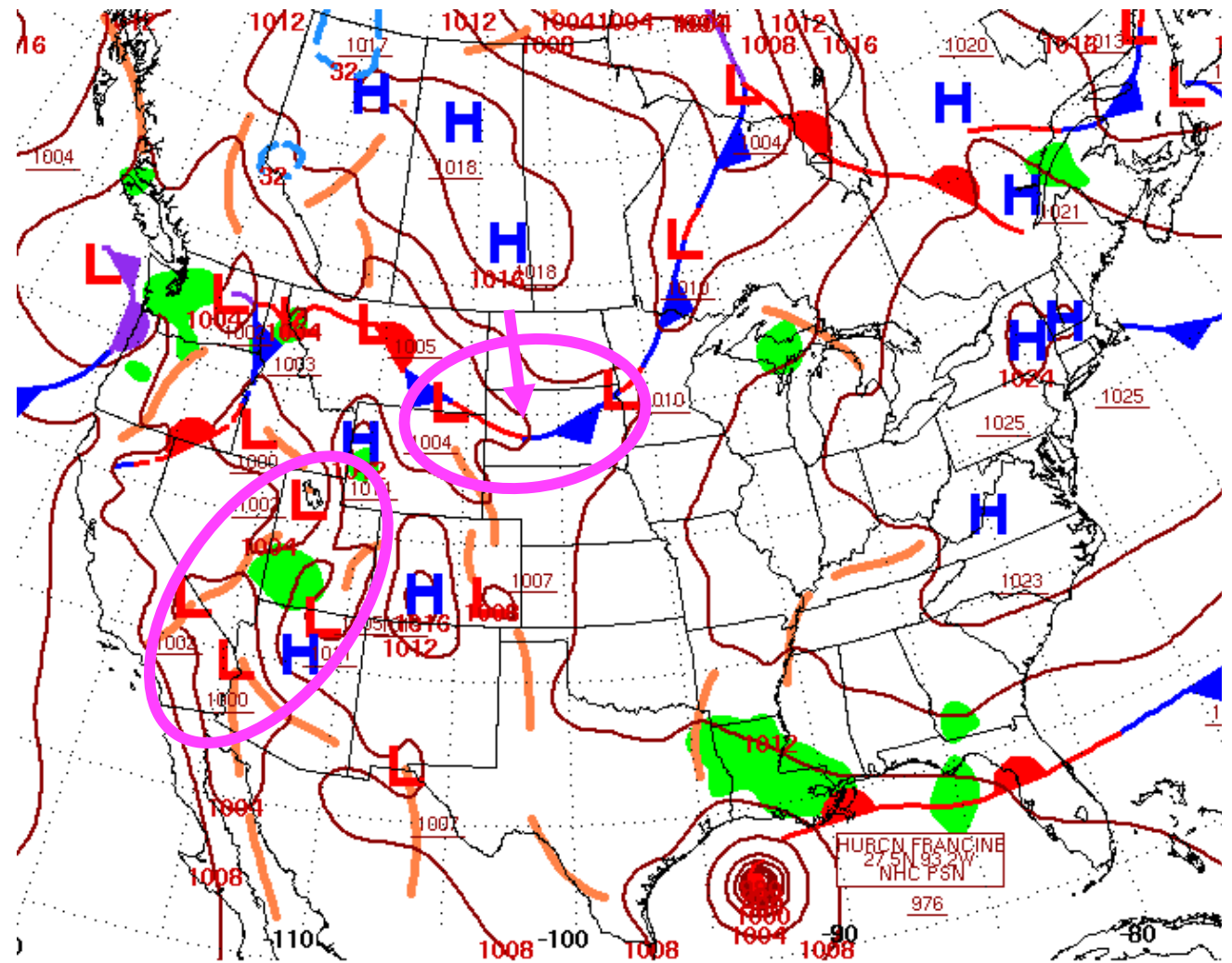
Air Quality Reflection: Wednesday Sept 11, 2024

500 mb Contours



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

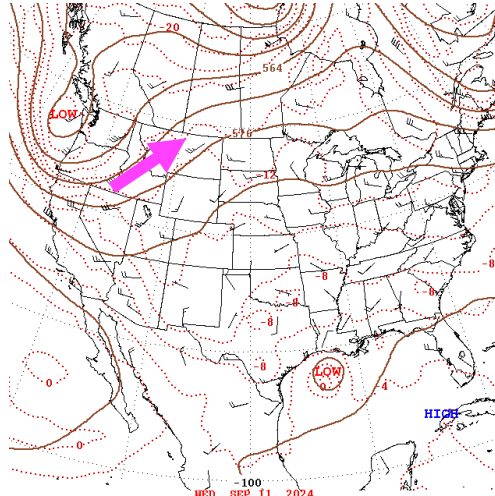
Surface Weather



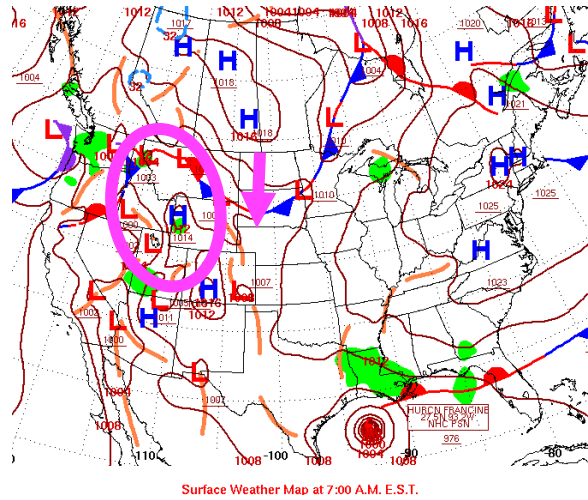
Surface Weather Map at 7:00 A.M. E.S.T.

Air Quality Reflection: Wednesday Sept 11, 2024

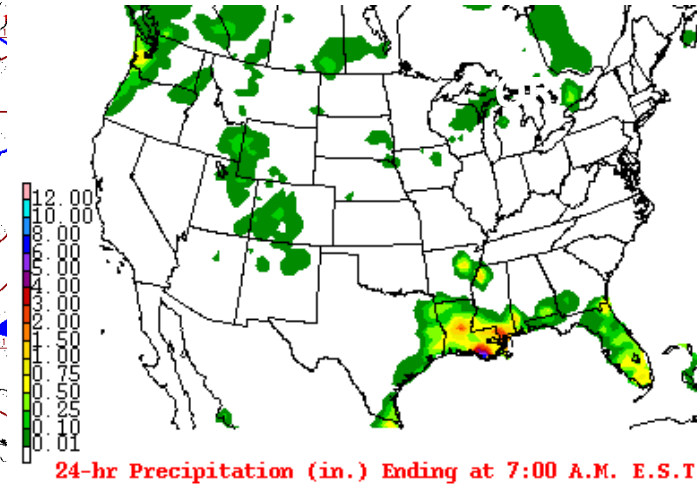
500 mb Contours



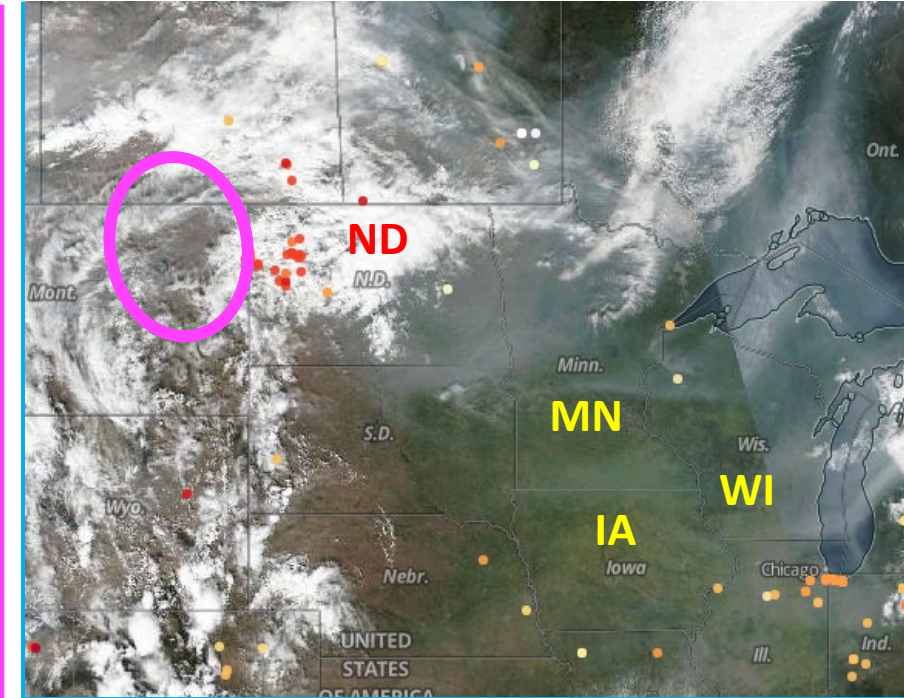
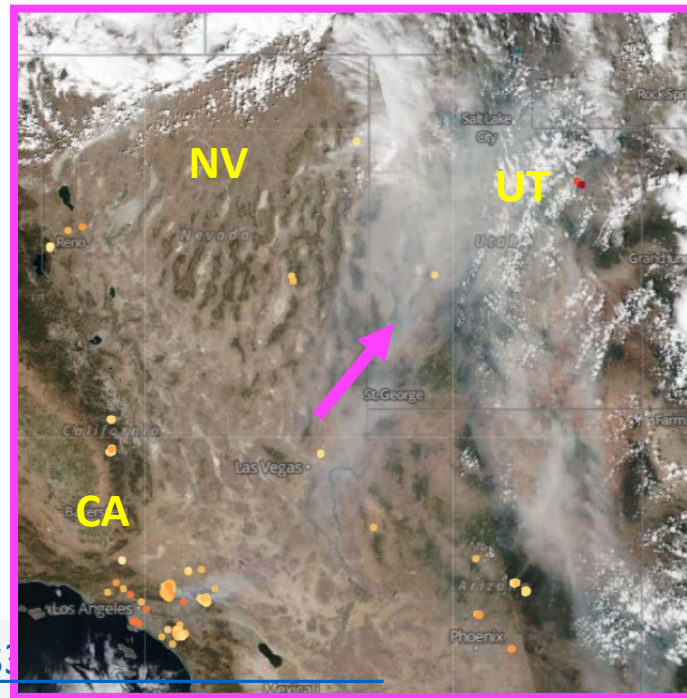
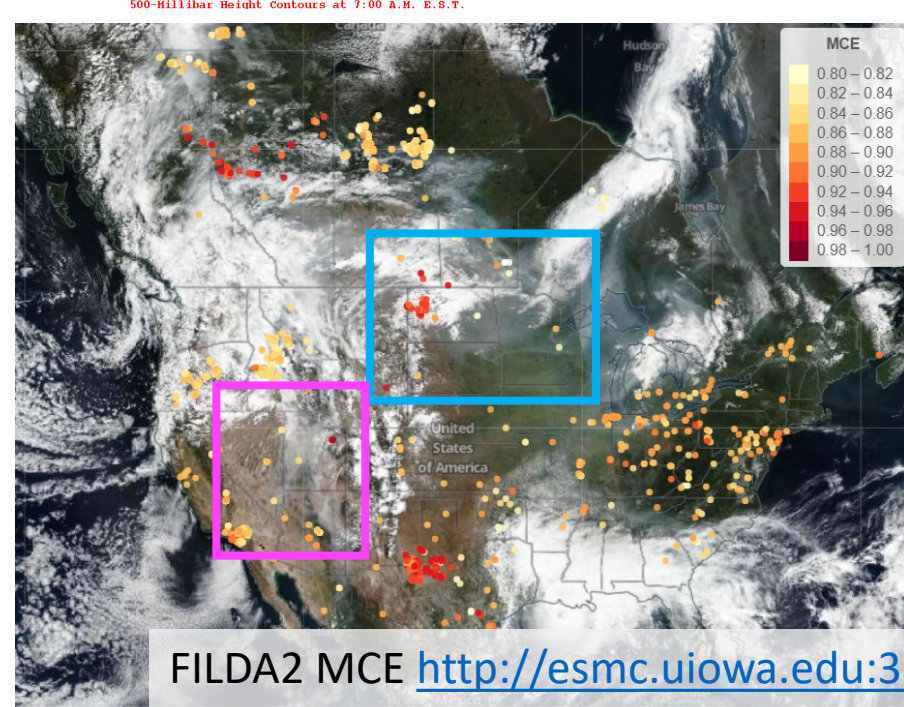
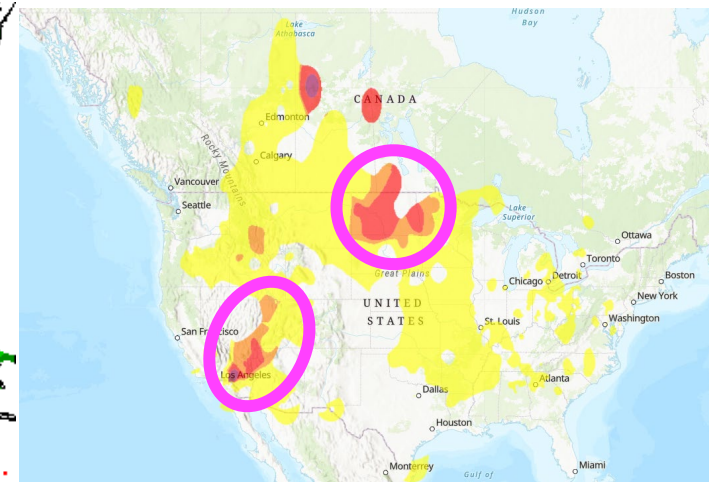
Surface Weather



Precipitation

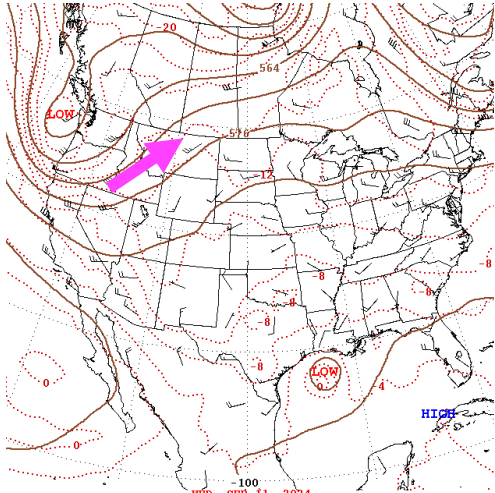


AirNow PM_{2.5} AQI



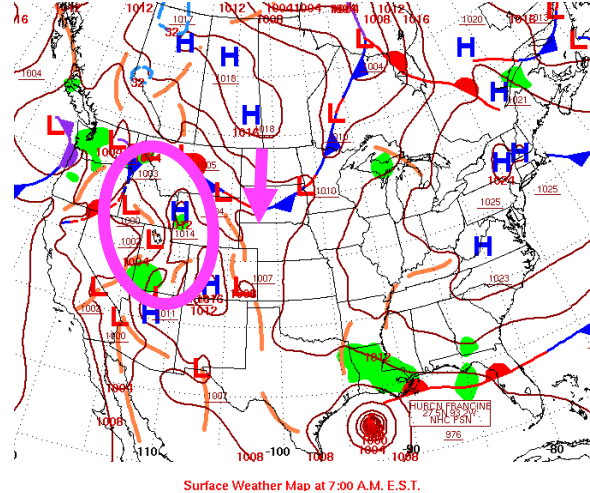
Air Quality Reflection: Wednesday Sept 11, 2024

500 mb Contours



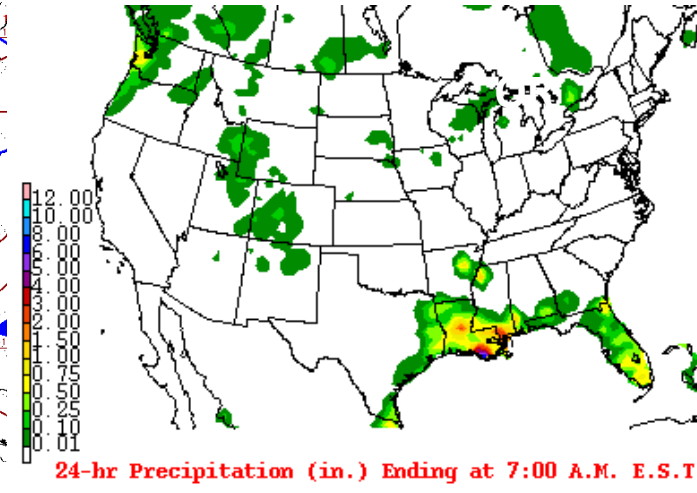
500-millibar Height Contours at 7:00 A.M. E.S.T.

Surface Weather



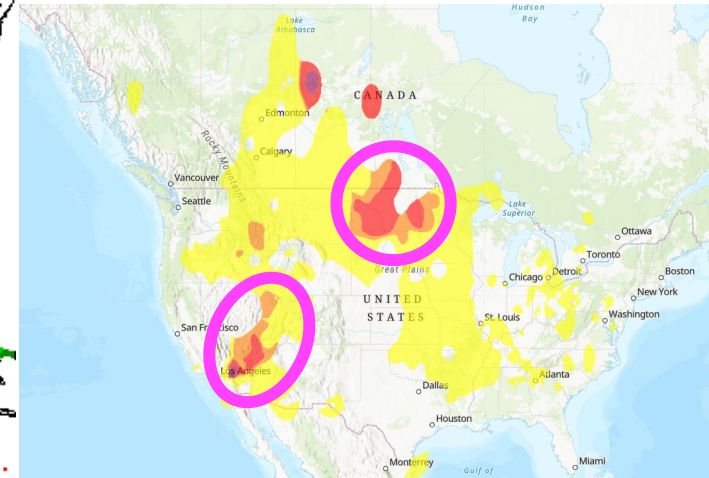
Surface Weather Map at 7:00 A.M. E.S.T.

Precipitation

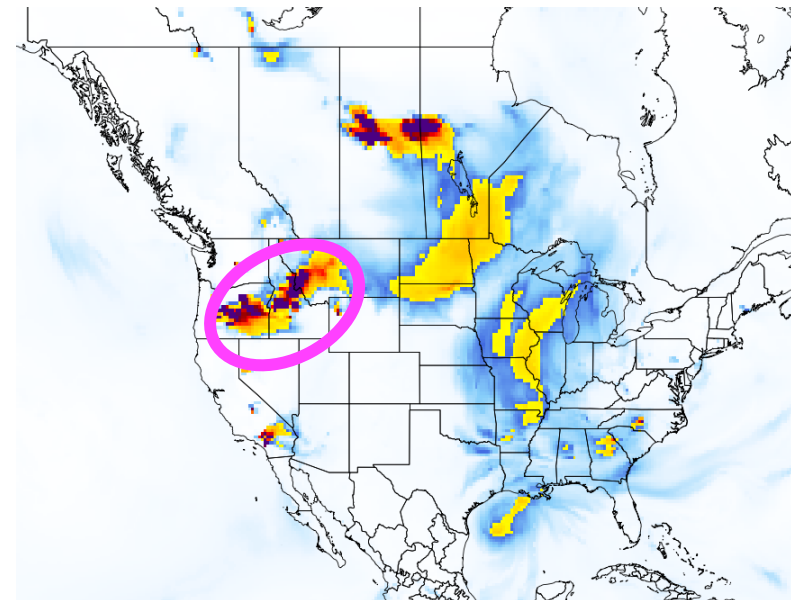


24-hr Precipitation (in.) Ending at 7:00 A.M. E.S.T.

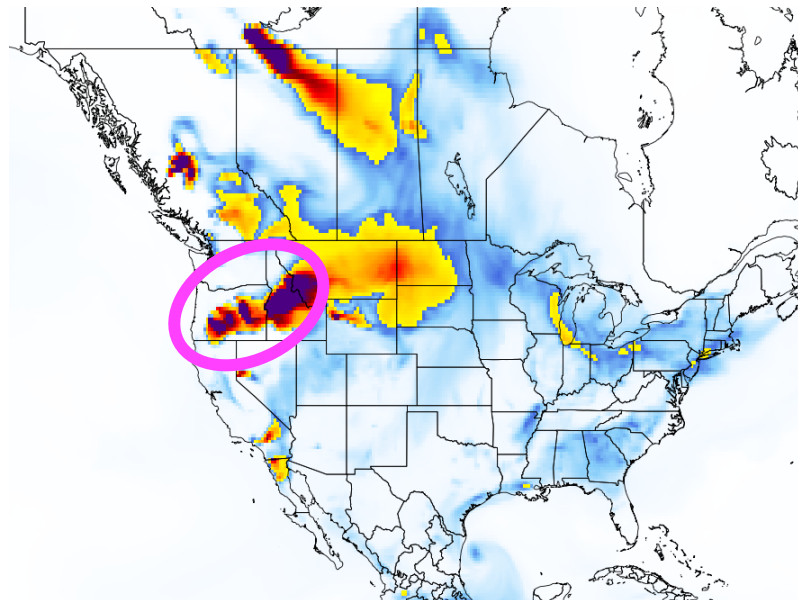
AirNow PM_{2.5} AQI



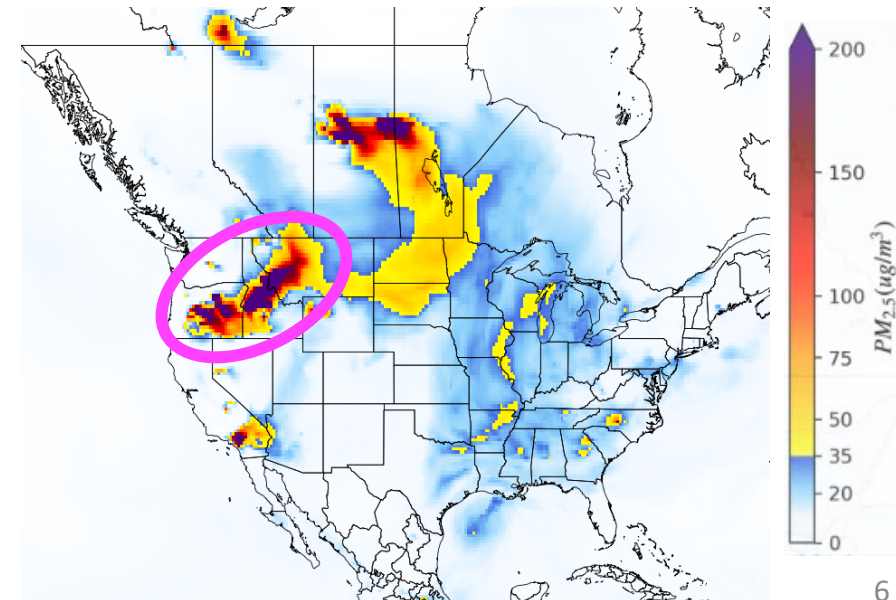
GEOS-FP



GEOS-CF

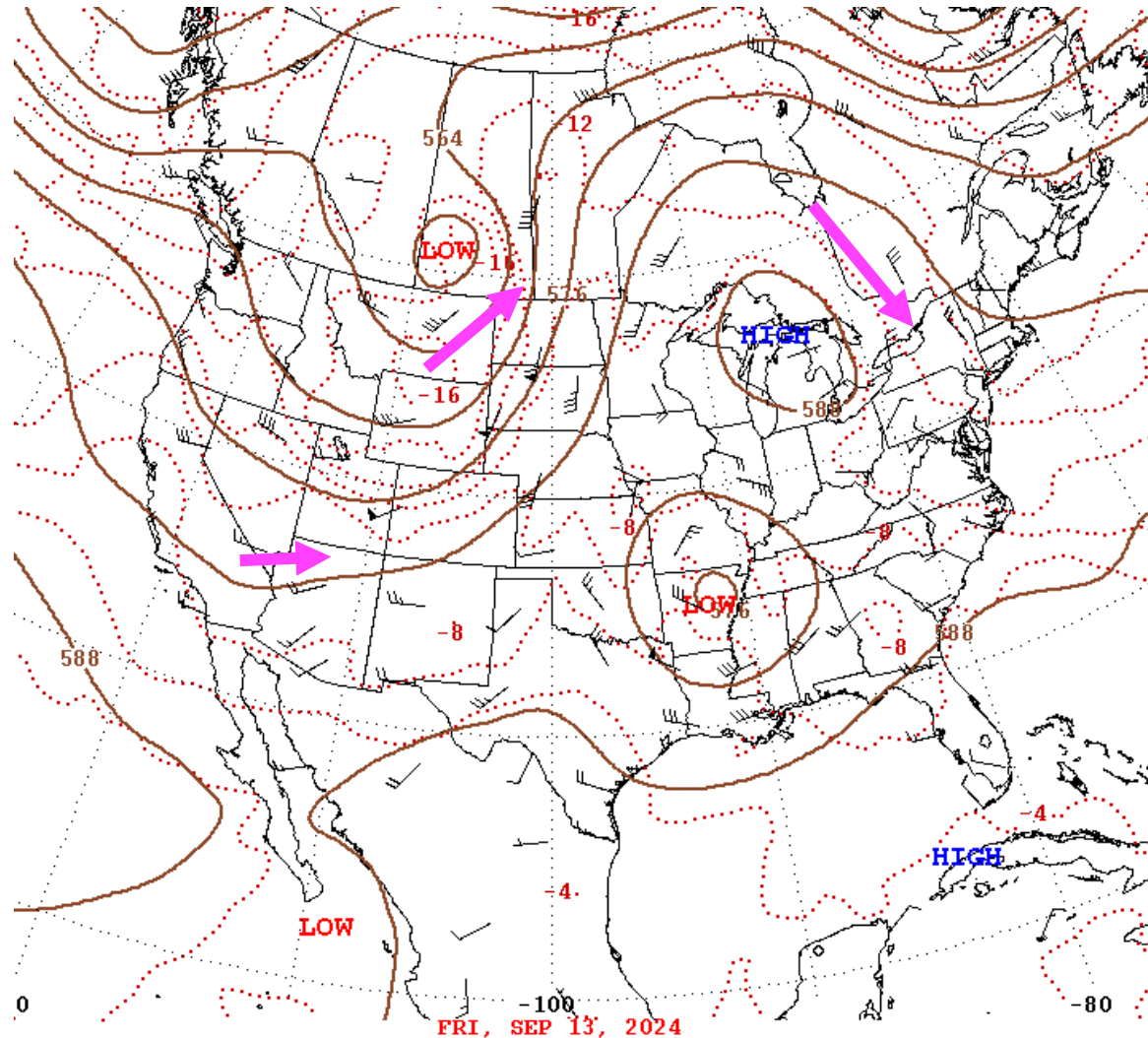


Ensemble



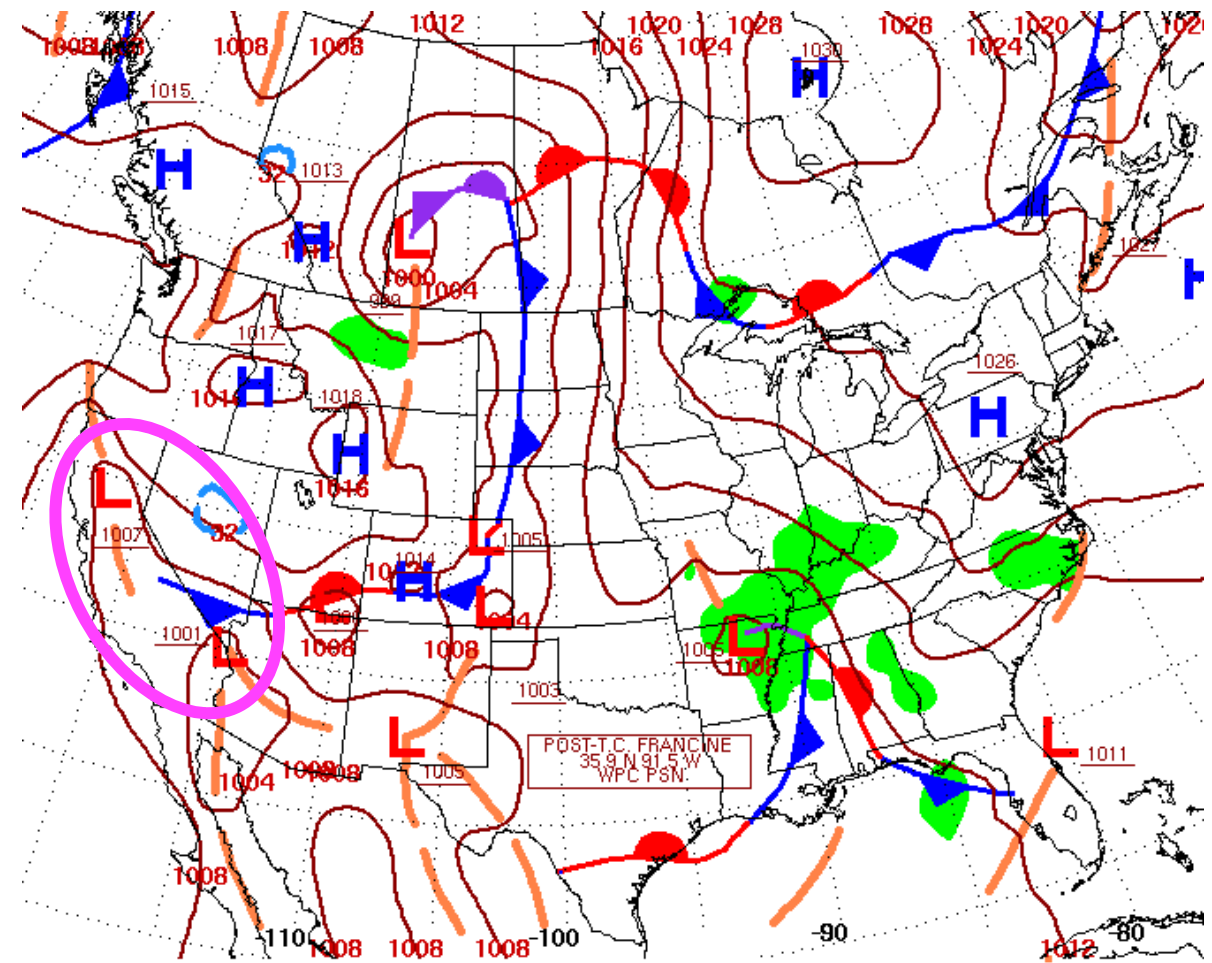
Air Quality Reflection: Friday Sept 13, 2024

500 mb Contours



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

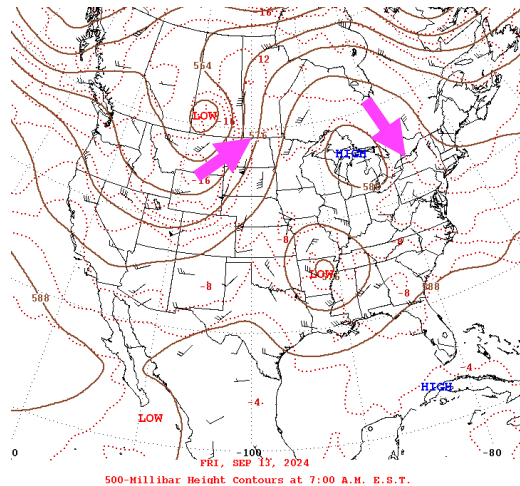
Surface Weather



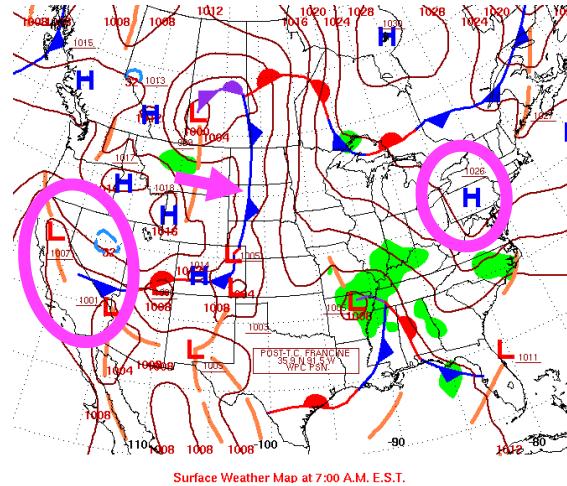
Surface Weather Map at 7:00 A.M. E.S.T.

Air Quality Reflection: Friday Sept 13, 2024

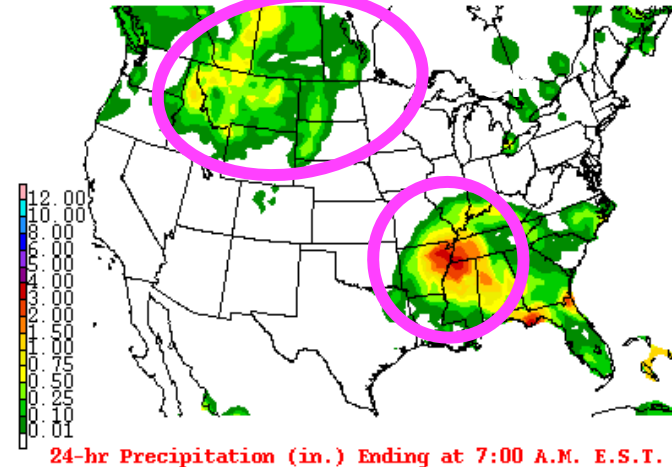
500 mb Contours



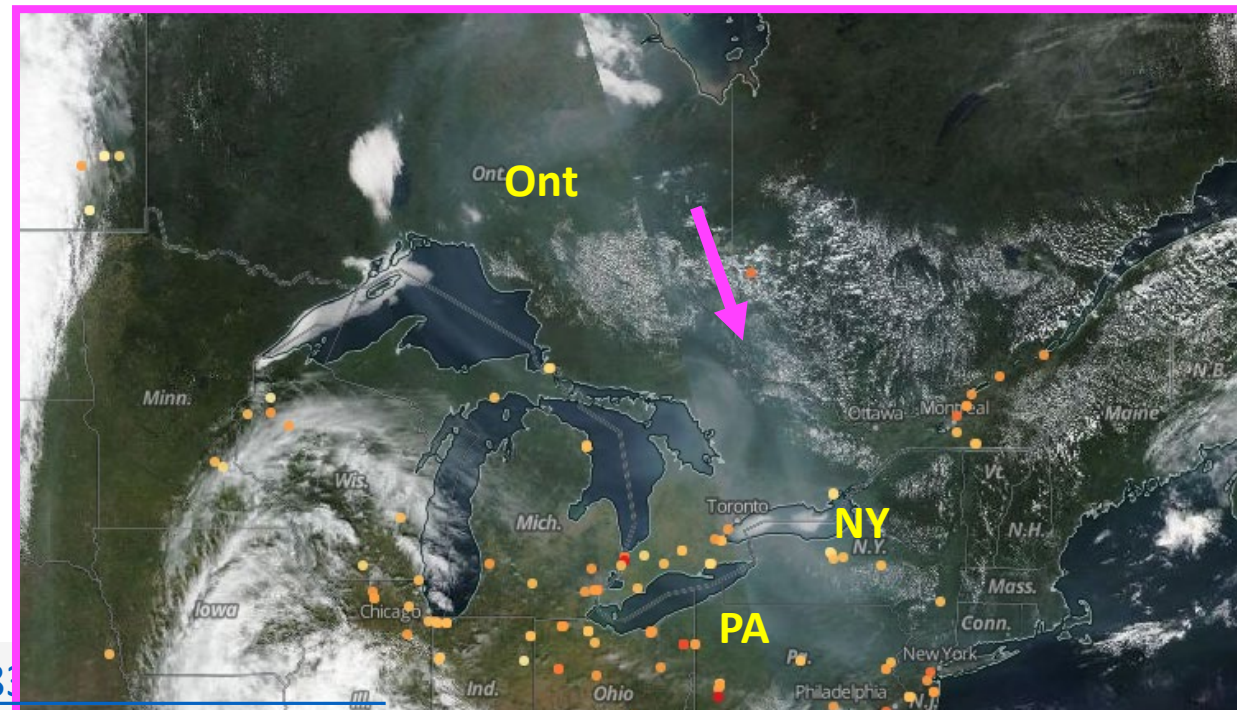
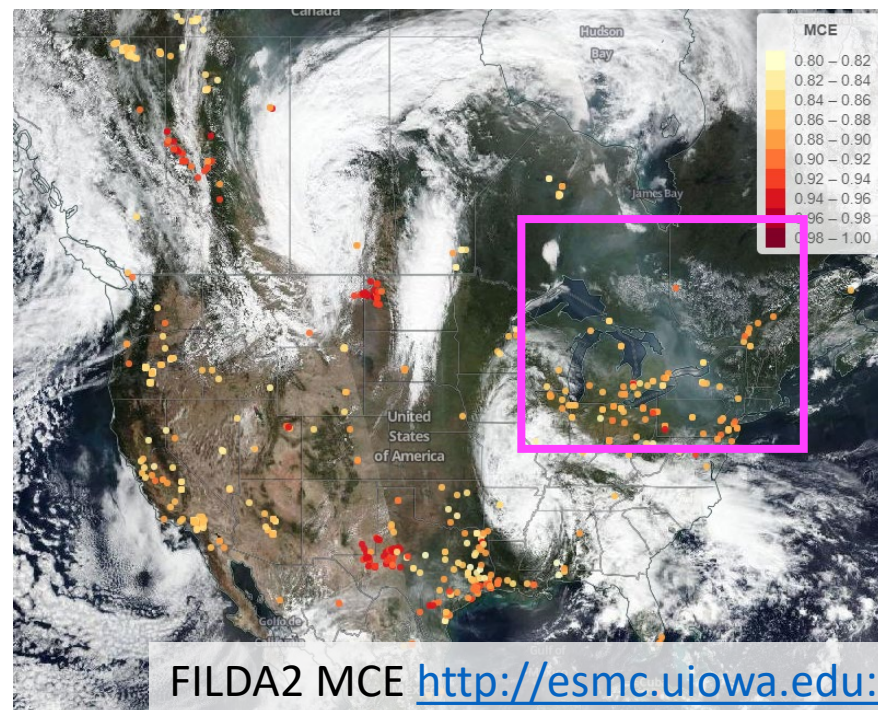
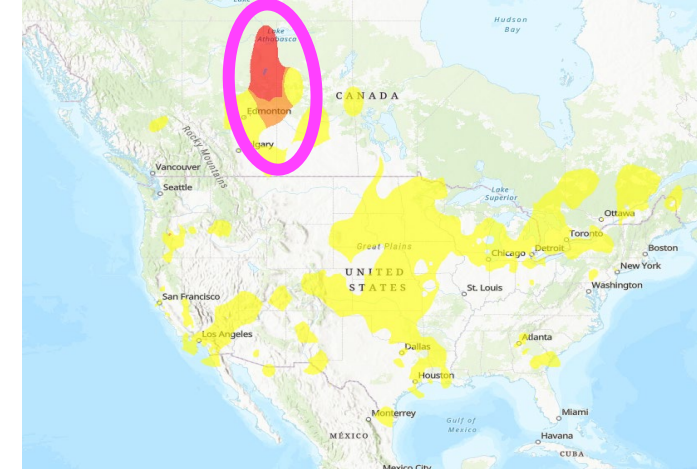
Surface Weather



Precipitation

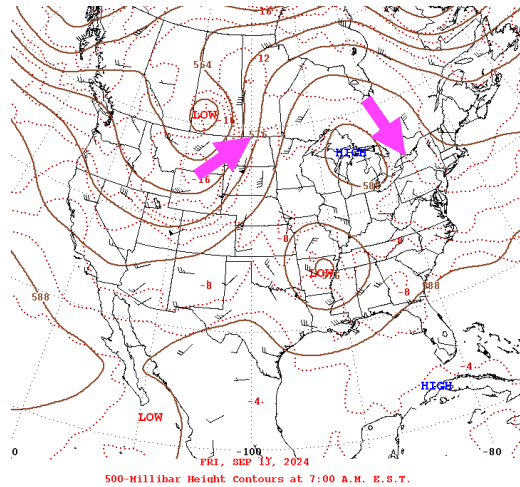


AirNow PM_{2.5} AQI

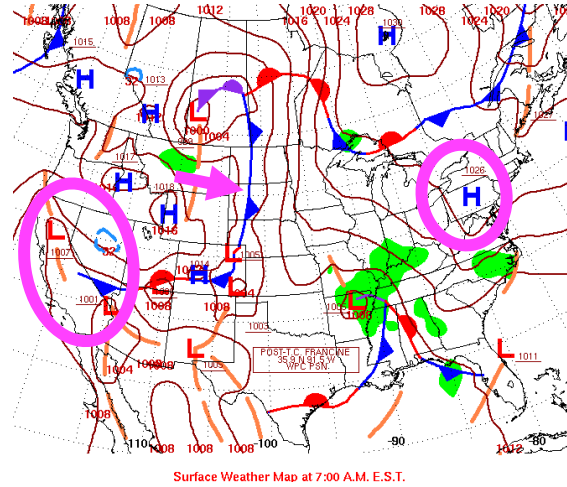


Air Quality Reflection: Friday Sept 13, 2024

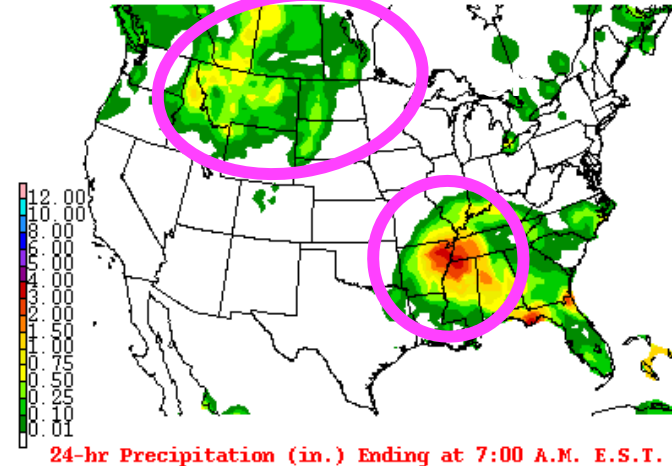
500 mb Contours



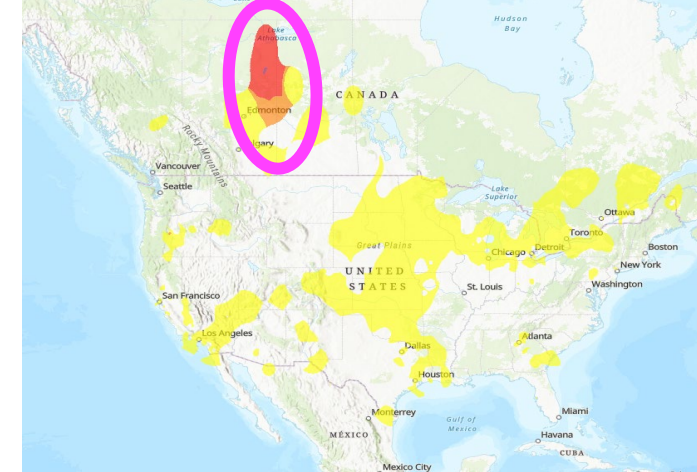
Surface Weather



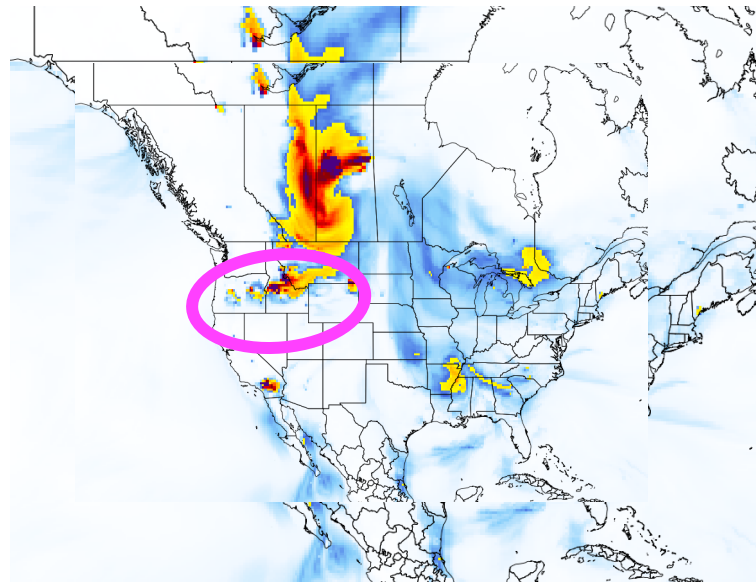
Precipitation



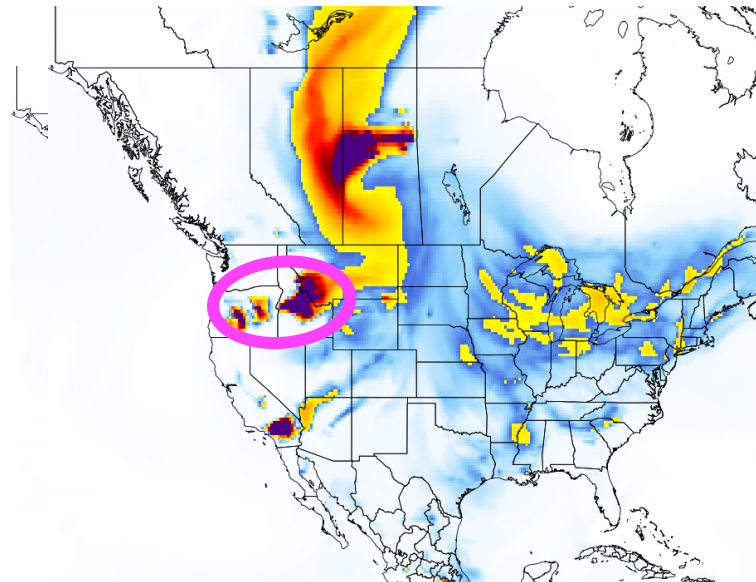
AirNow PM_{2.5} AQI



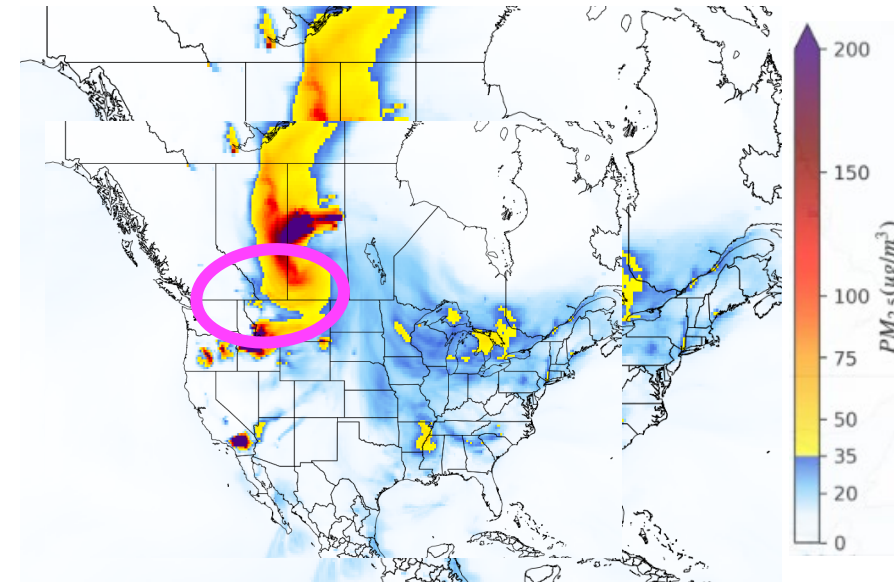
GEOS-FP



GEOS-CF

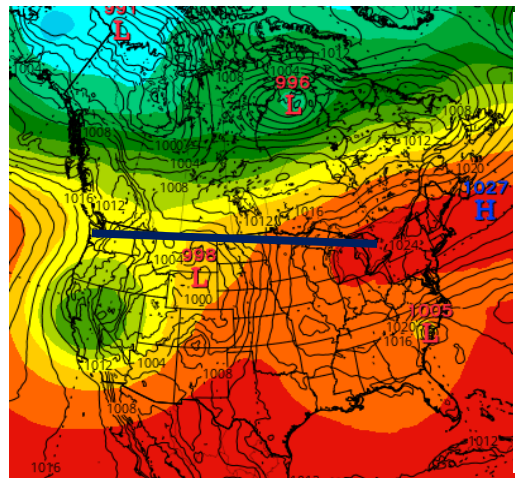


Ensemble

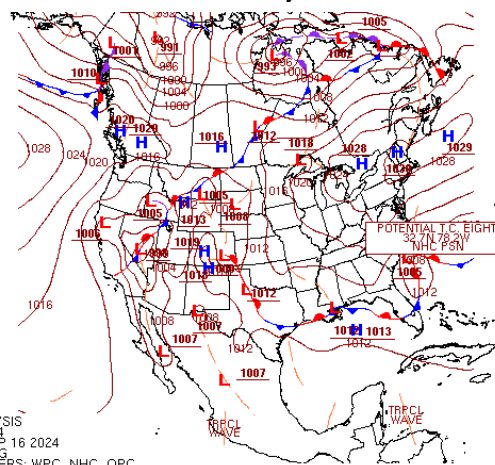


Current Status: September 16, 2024

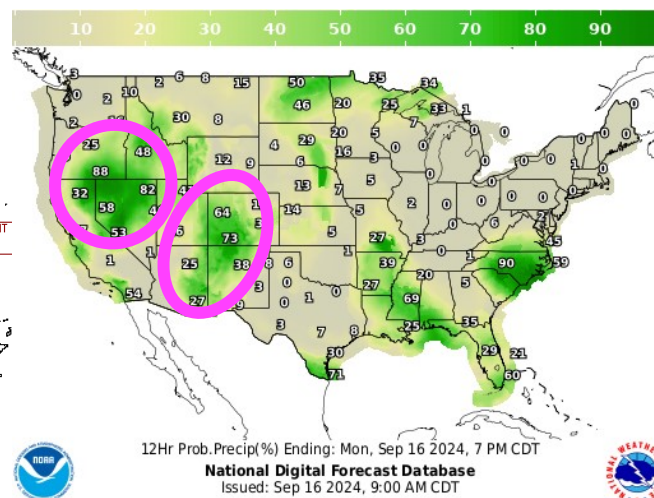
500 mb Contours



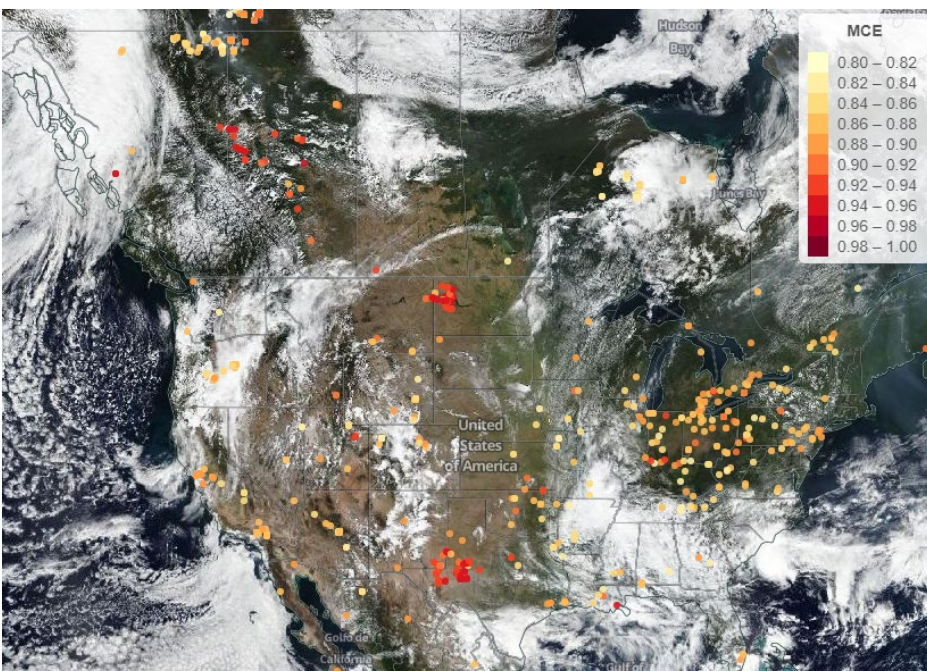
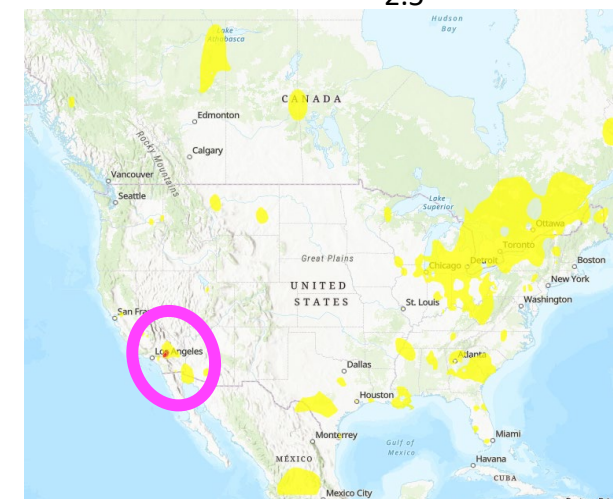
Surface Analysis



Precip. Prob.

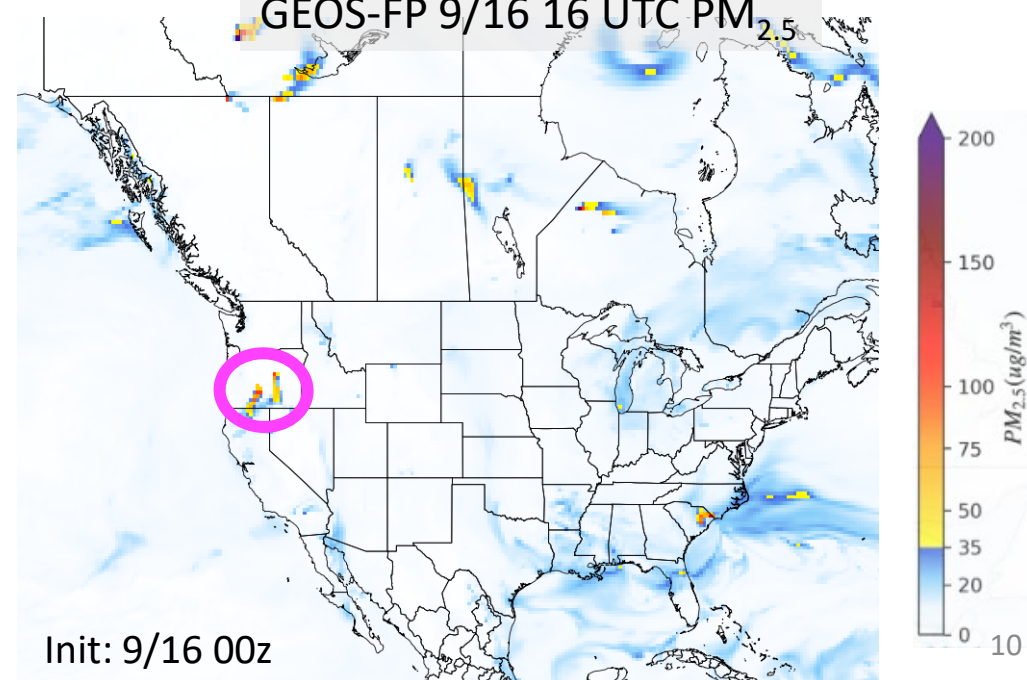


AirNow PM_{2.5} AQI



Sun 9/15

GEOS-FP 9/16 16 UTC PM_{2.5}

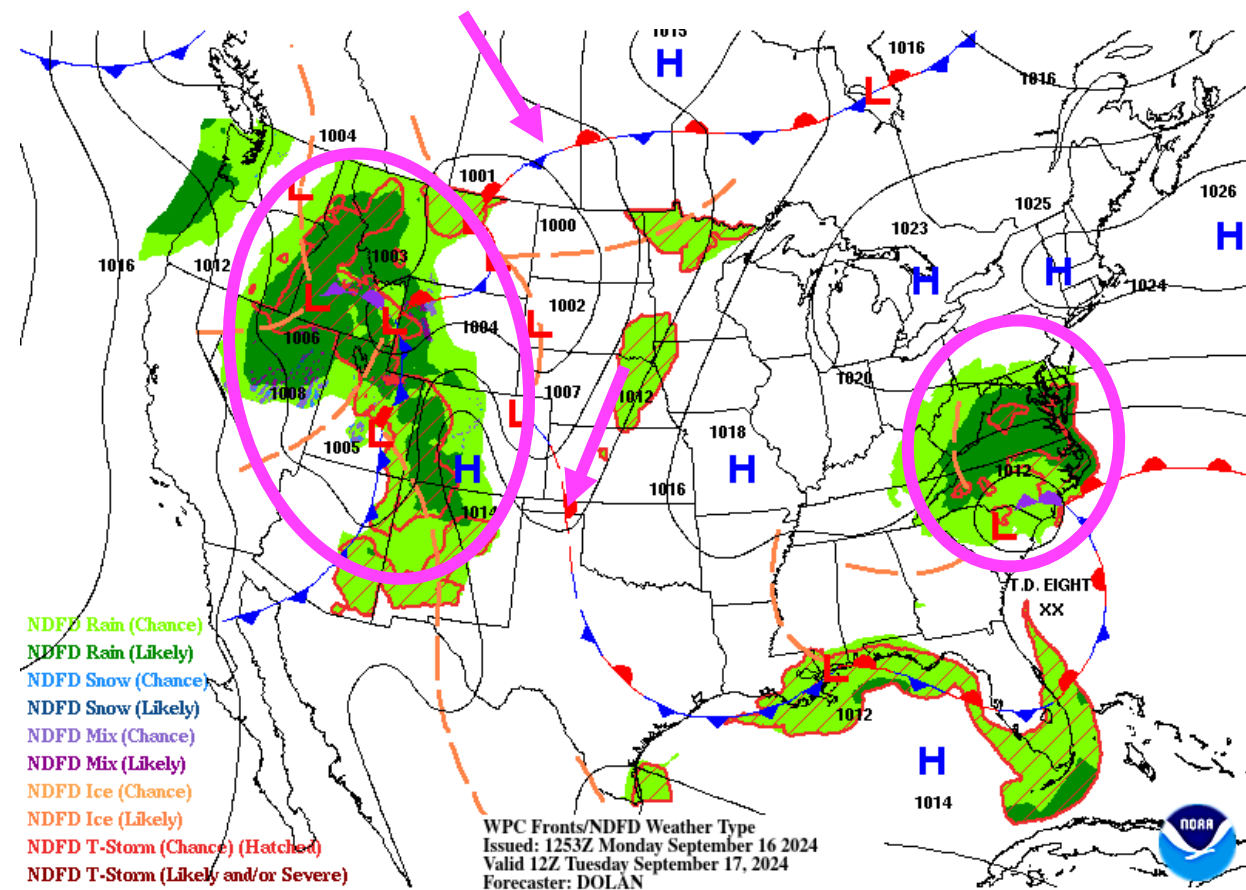


FILDA2 MCE http://esmc.uiowa.edu:3838/fires_detection/

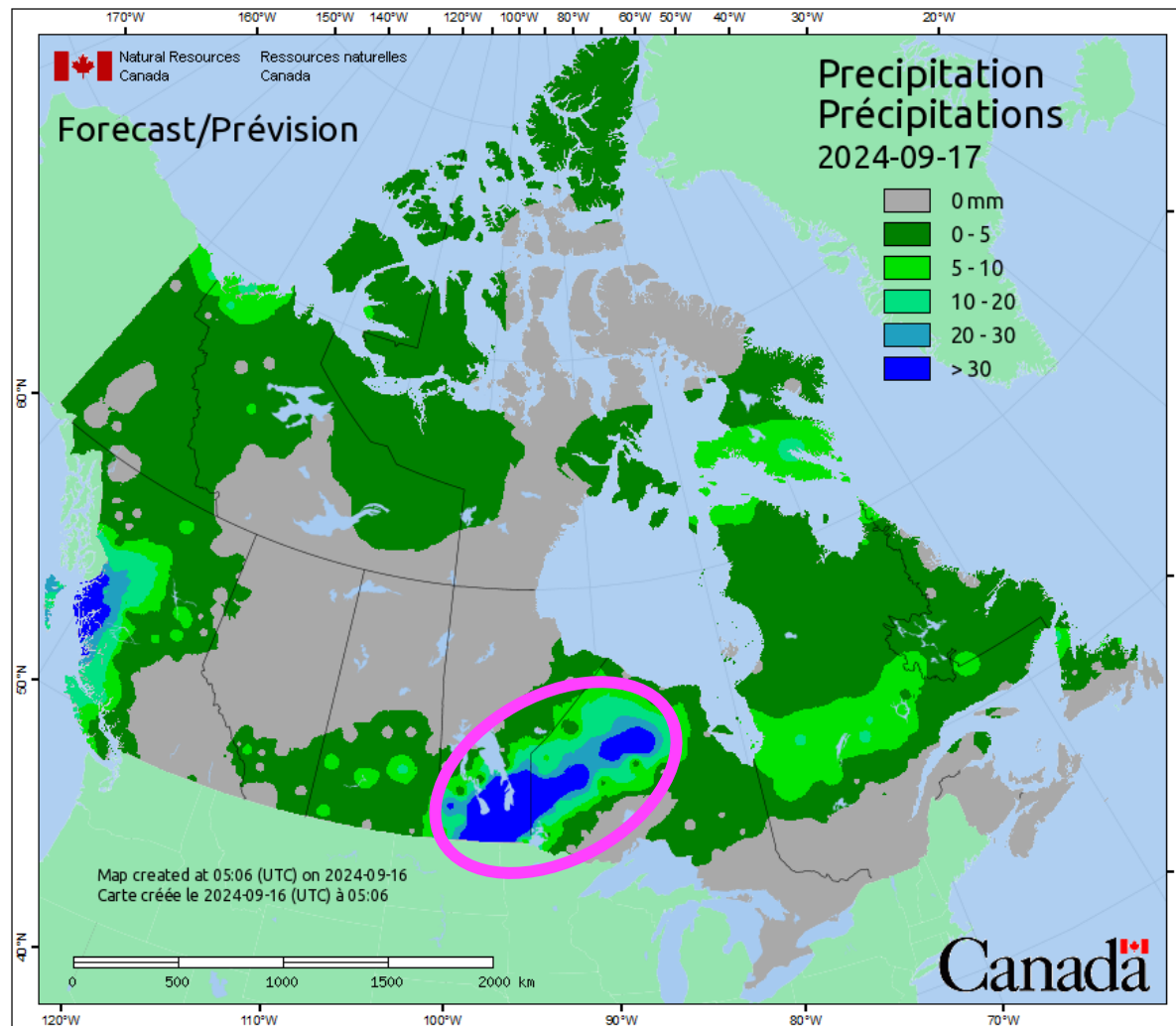
Outlook: Short Range (1–3 days)

Surface Forecast (**Tuesday 9/17**)

US NWS Forecast

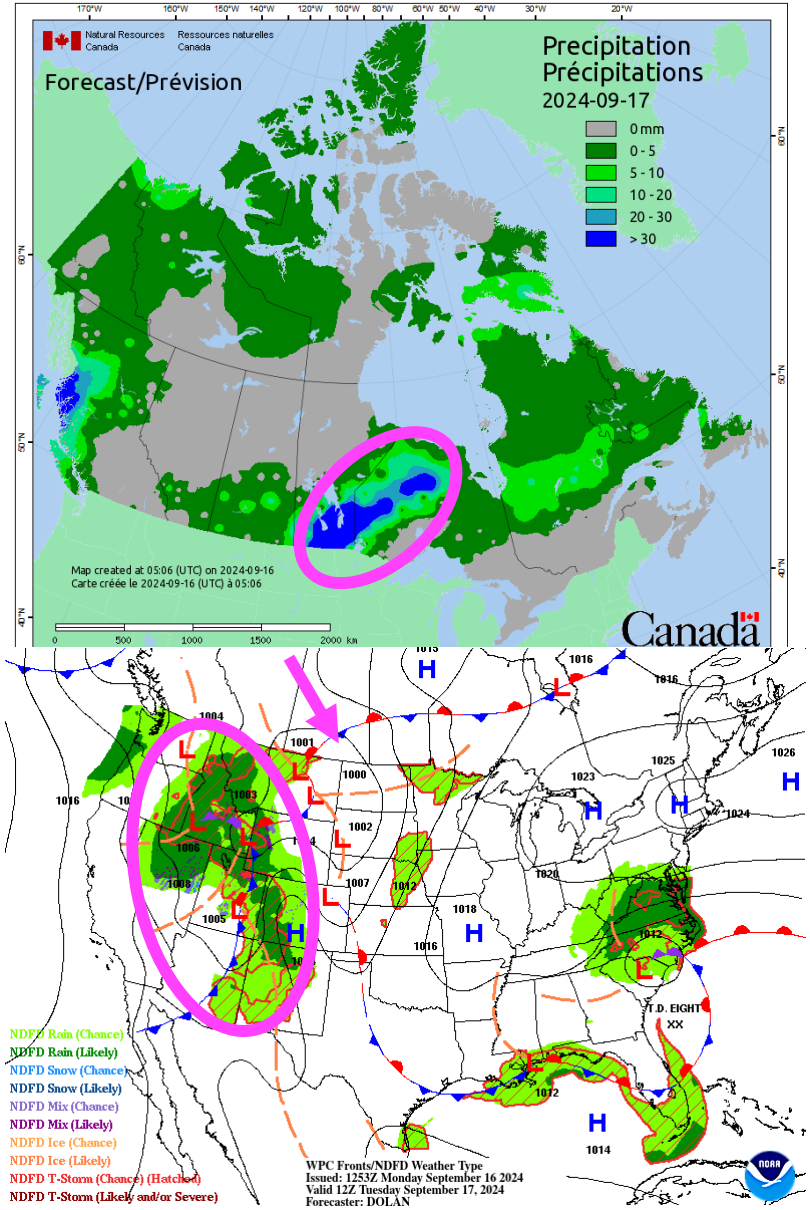


Environment Canada Forecast



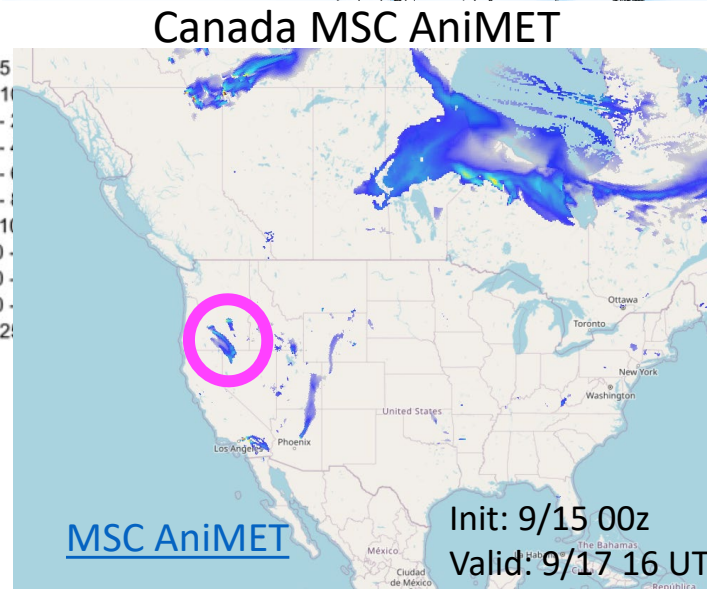
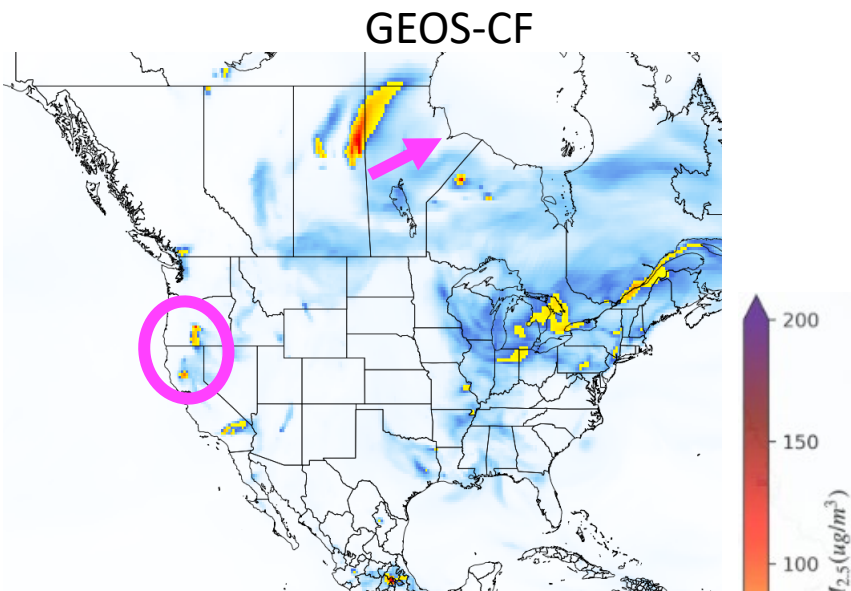
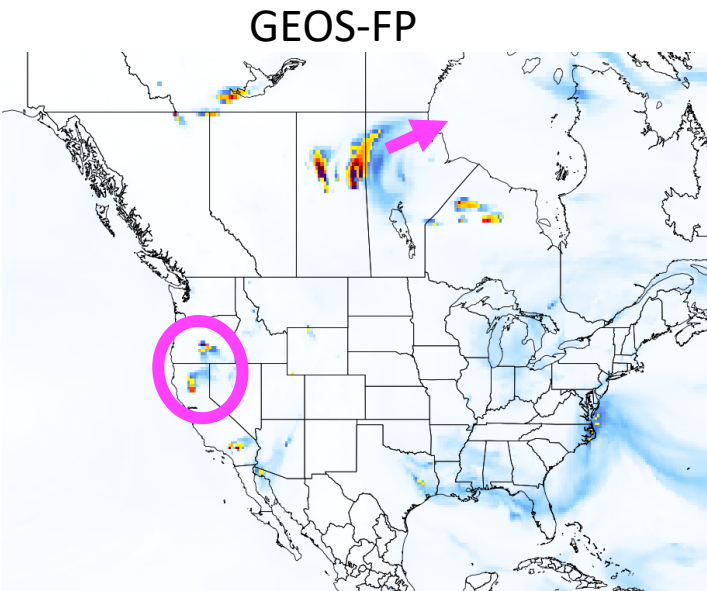
Outlook: Short Range (1–3 days)

Surface Forecast



(Tuesday 9/17)

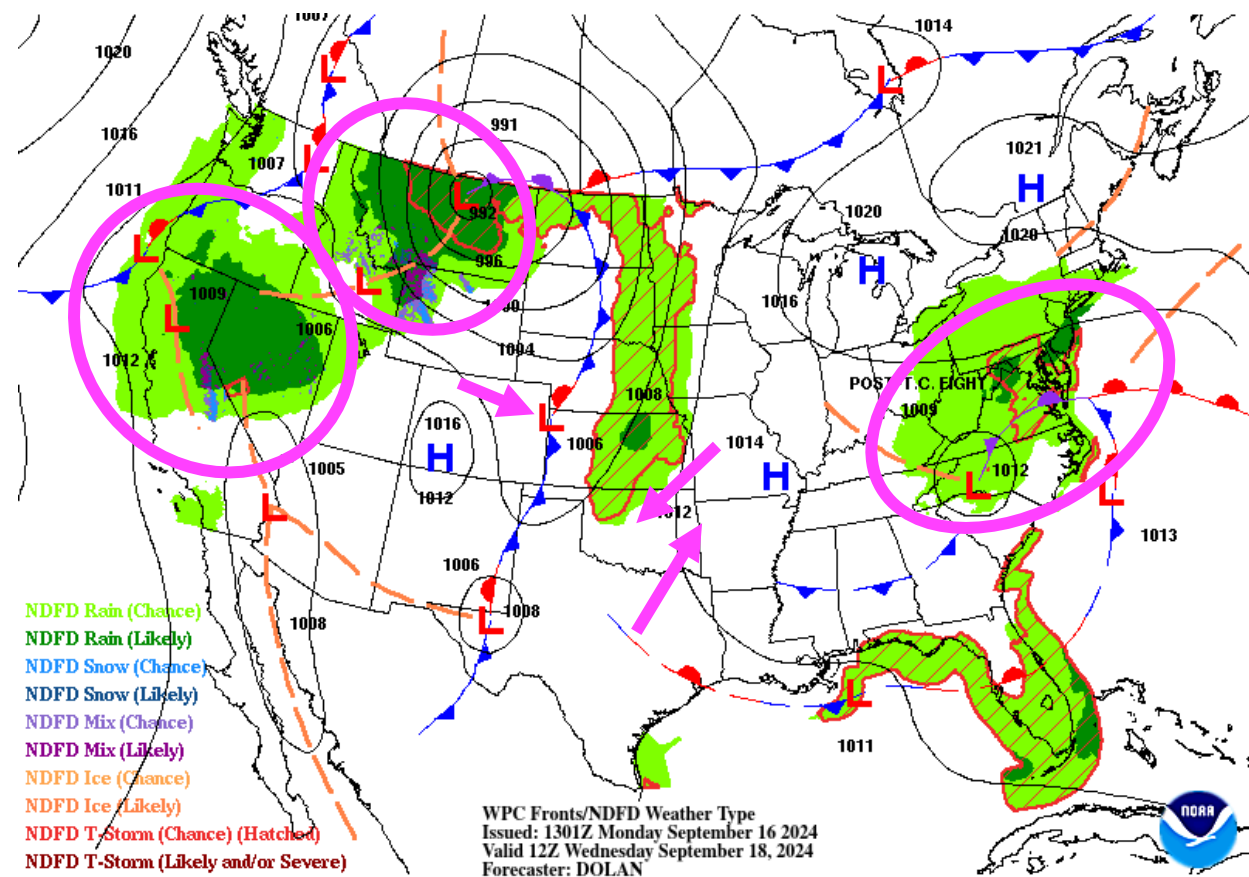
Model Means PM_{2.5}



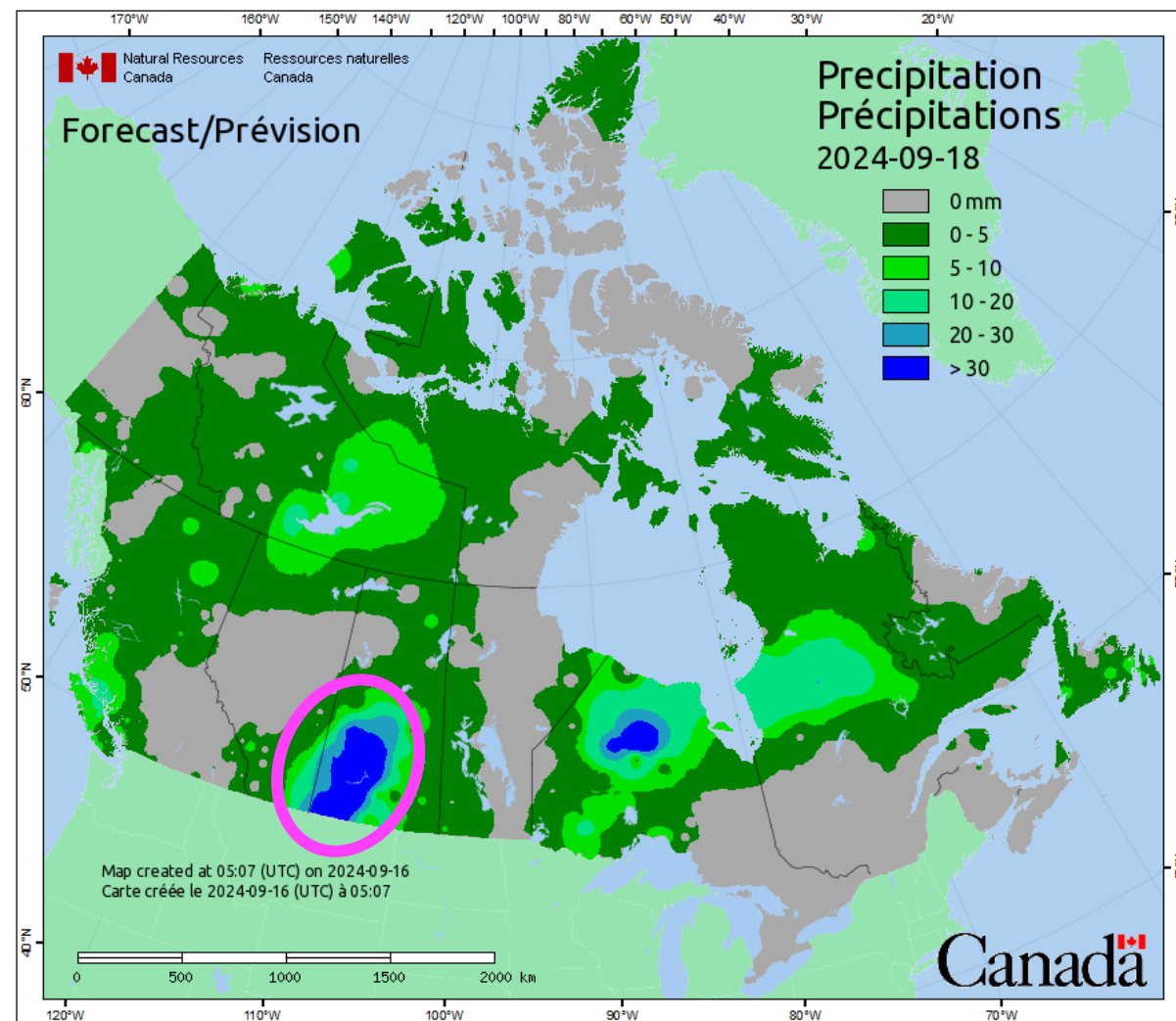
Outlook: Short Range (1-3 days)

Surface Forecast (**Wednesday 9/18**)

US NWS Forecast



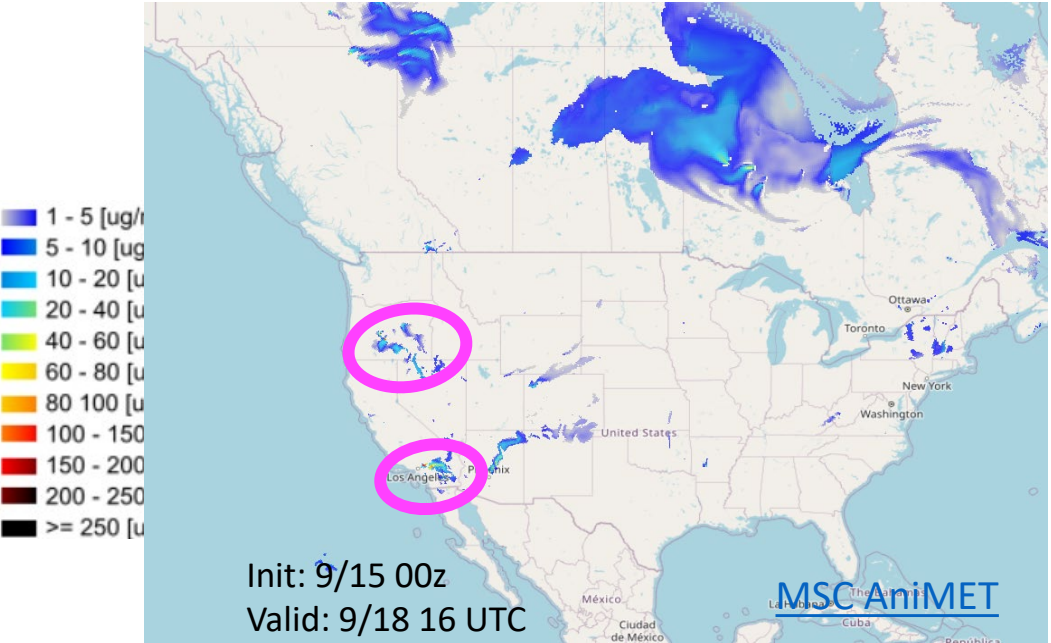
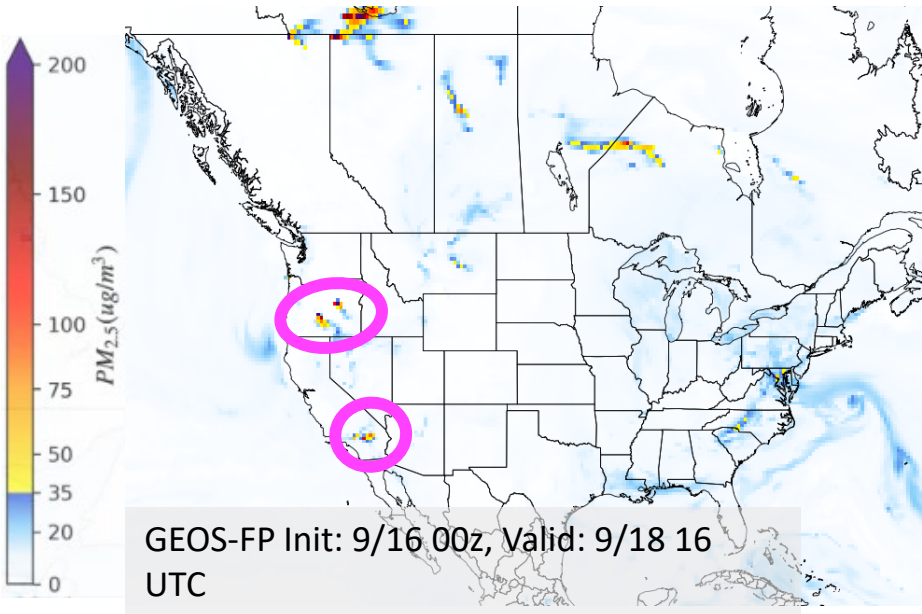
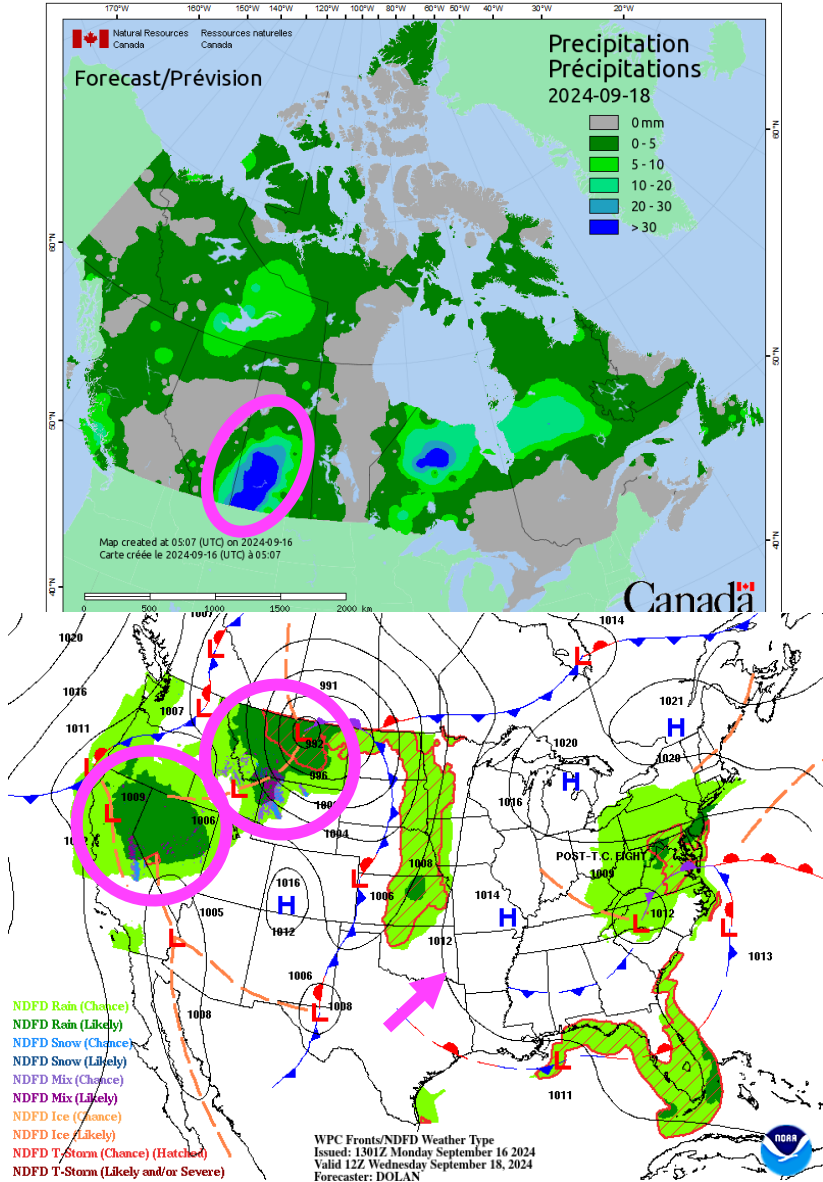
Environment Canada Forecast



Outlook: Short Range (1–3 days)

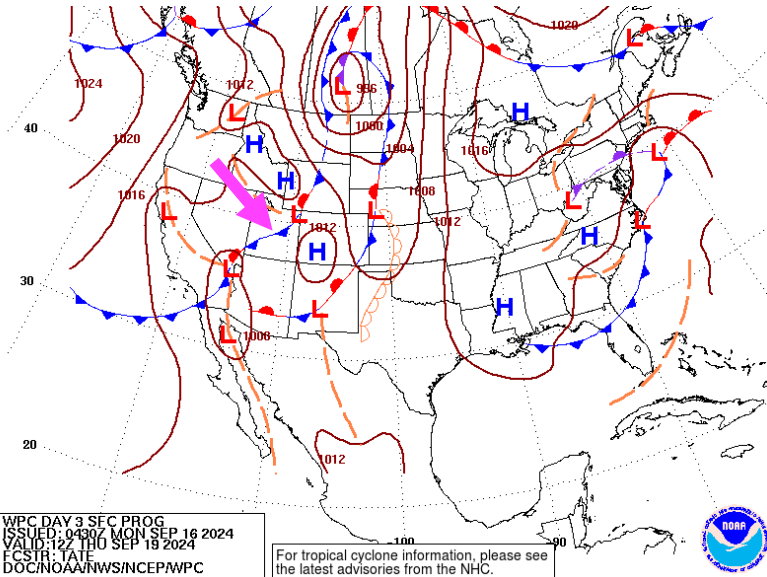
Surface Forecast

(Wednesday 9/18)



Outlook: Medium Range

500 mb Contours



Summary

Monday : So. CA fires continue to impact the local $\text{PM}_{2.5}$ AQI. Aged smoke aloft over northeastern US can be contributing to regional moderate $\text{PM}_{2.5}$ AQI.

T → W : CA and OR wildfire smoke are predicted to impact local $\text{PM}_{2.5}$ AQI and surface low pressure systems would promote smoke transport aloft. Northern Canadian wildfire smoke are not likely to impact the US AQI, but keep an eye on aged smoke transport later in the week.

Th → F: Should OR and CA fires continue, or grow, 500 mb winds would support any smoke aloft to be transported easterly/northeasterly respectively. Also if any southern Sask. or Alb. wildfires develop smoke could be transported into northern US.

