

Weather and Air Quality: Reflection and Outlook During Smoke Conditions

Presenter: Megan Christiansen
Date: July 20, 2026

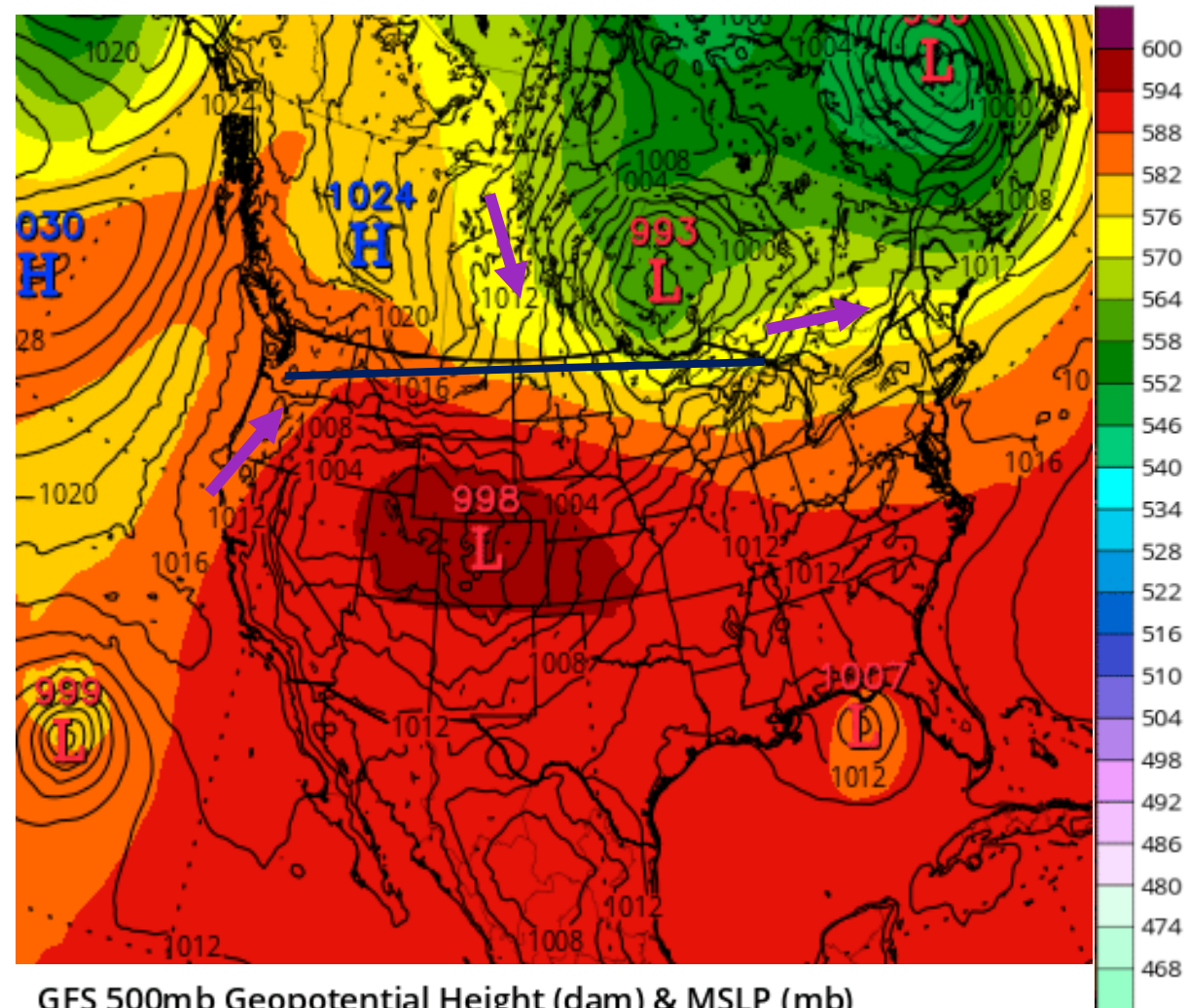


FireAQ is funded by NASA HAQ. We thank NASA GMAO and ECMWF for the model data products.

EARTH SCIENCE
APPLIED SCIENCES

Current Status: July 20, 2026

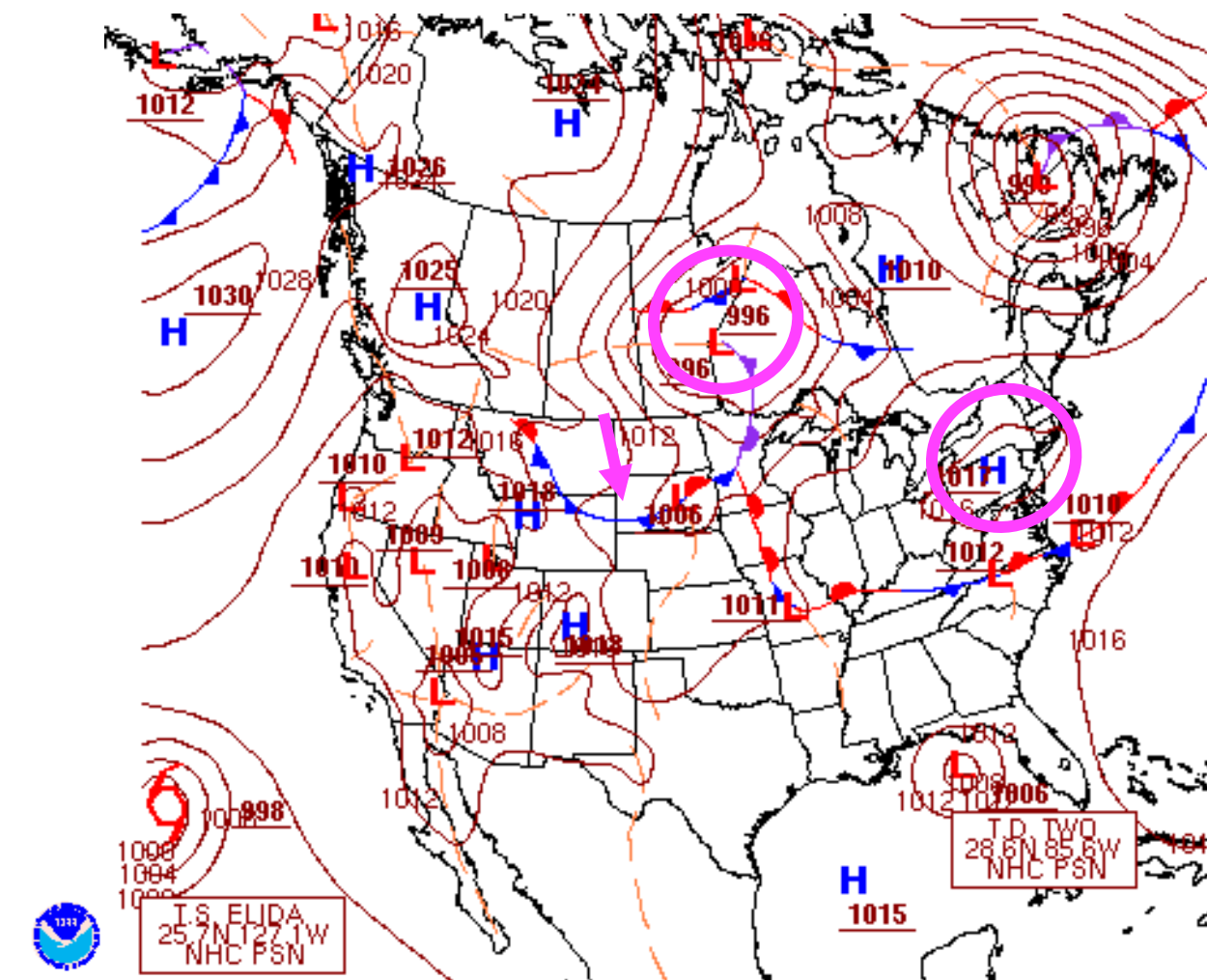
500 mb Contours



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

Init: 06z Jul 20 2026 Forecast Hour: [12] valid at 18z Mon, Jul 20 2026

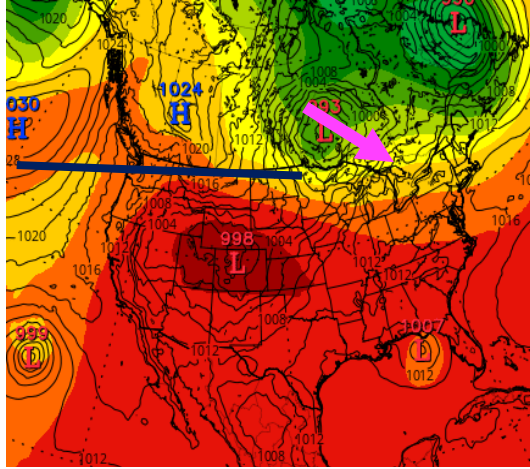
Surface Analysis



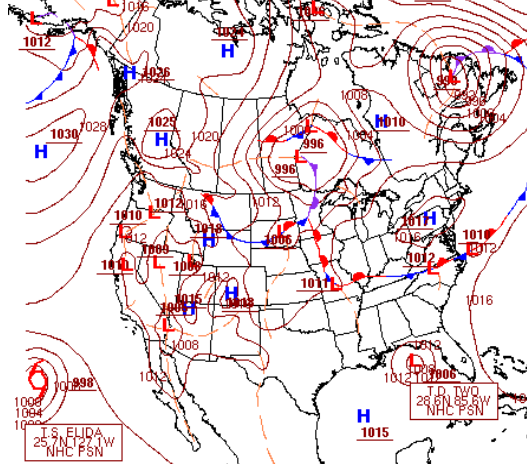
1200Z SURFACE ANALYSIS
DATE: MON JUL 20 2026
ISSUED: 1322Z MON JUL 20 2026
BY WPC ANALYST OUDIT
COLLABORATING CENTERS: WPC, NHC, OPC

Current Status: July 20, 2026

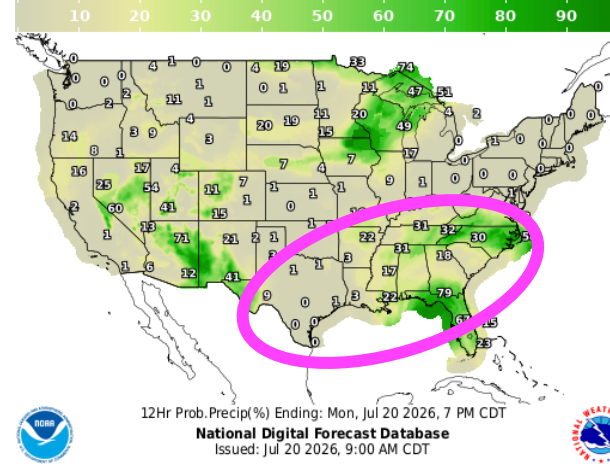
500 mb Contours



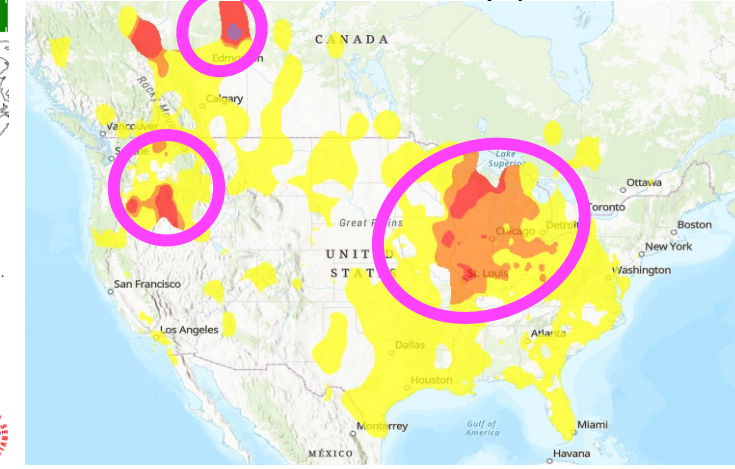
Surface Analysis



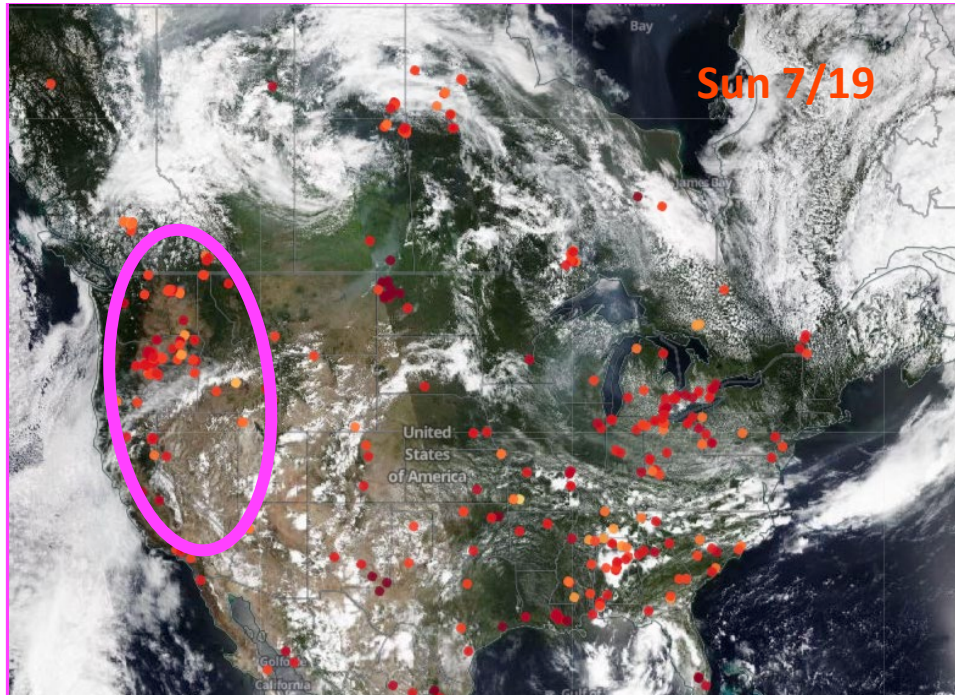
Precip. Prob.



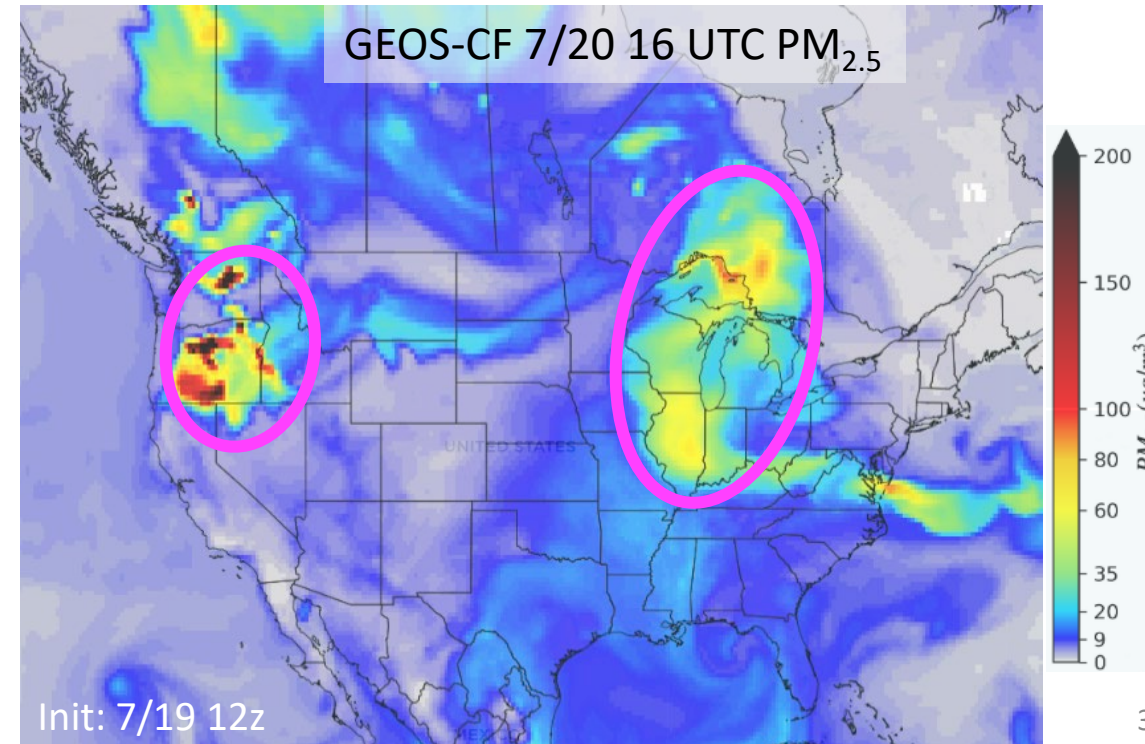
AirNow PM_{2.5} AQI



Sun 7/19



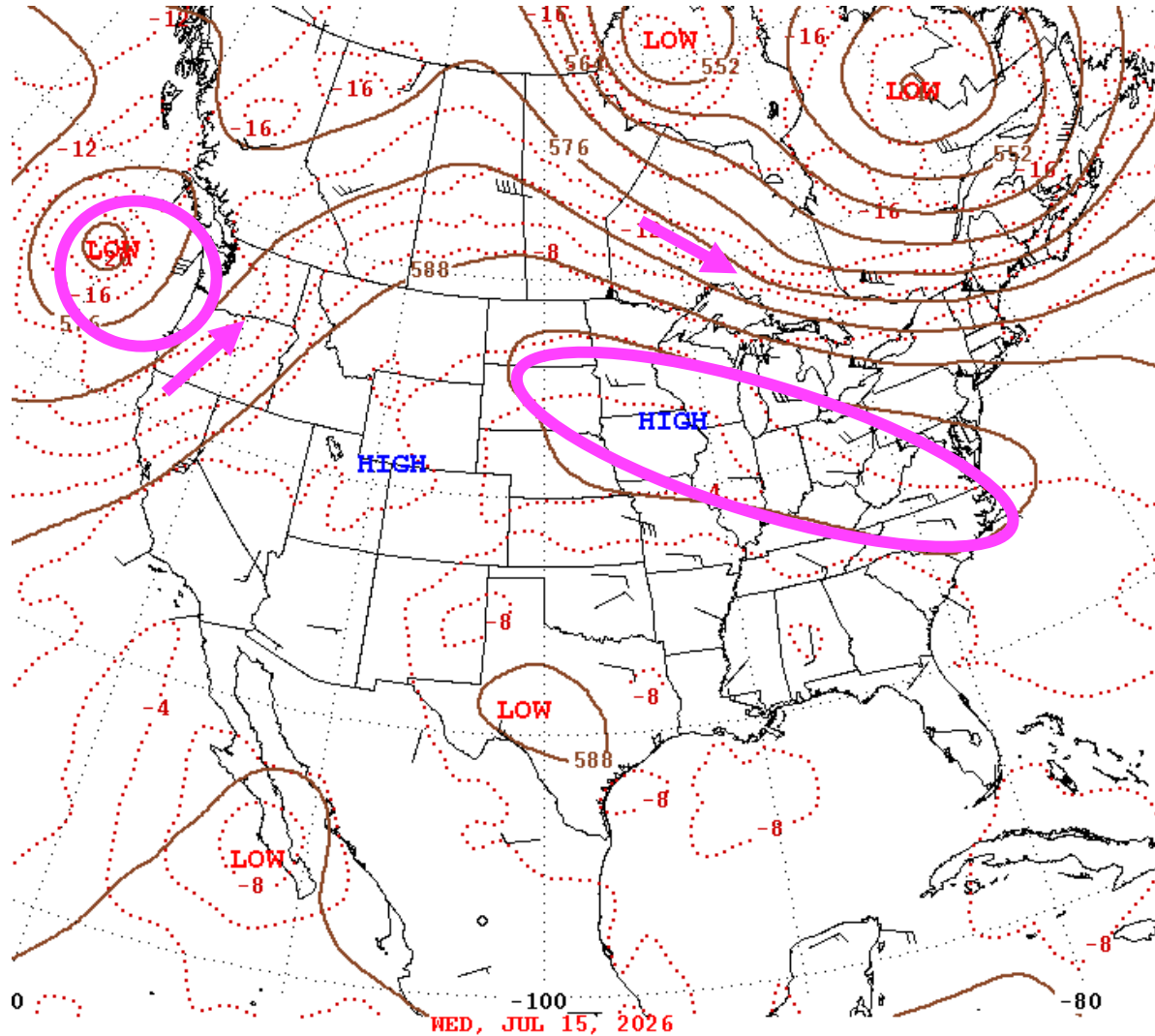
GEOS-CF 7/20 16 UTC PM_{2.5}



Init: 7/19 12z

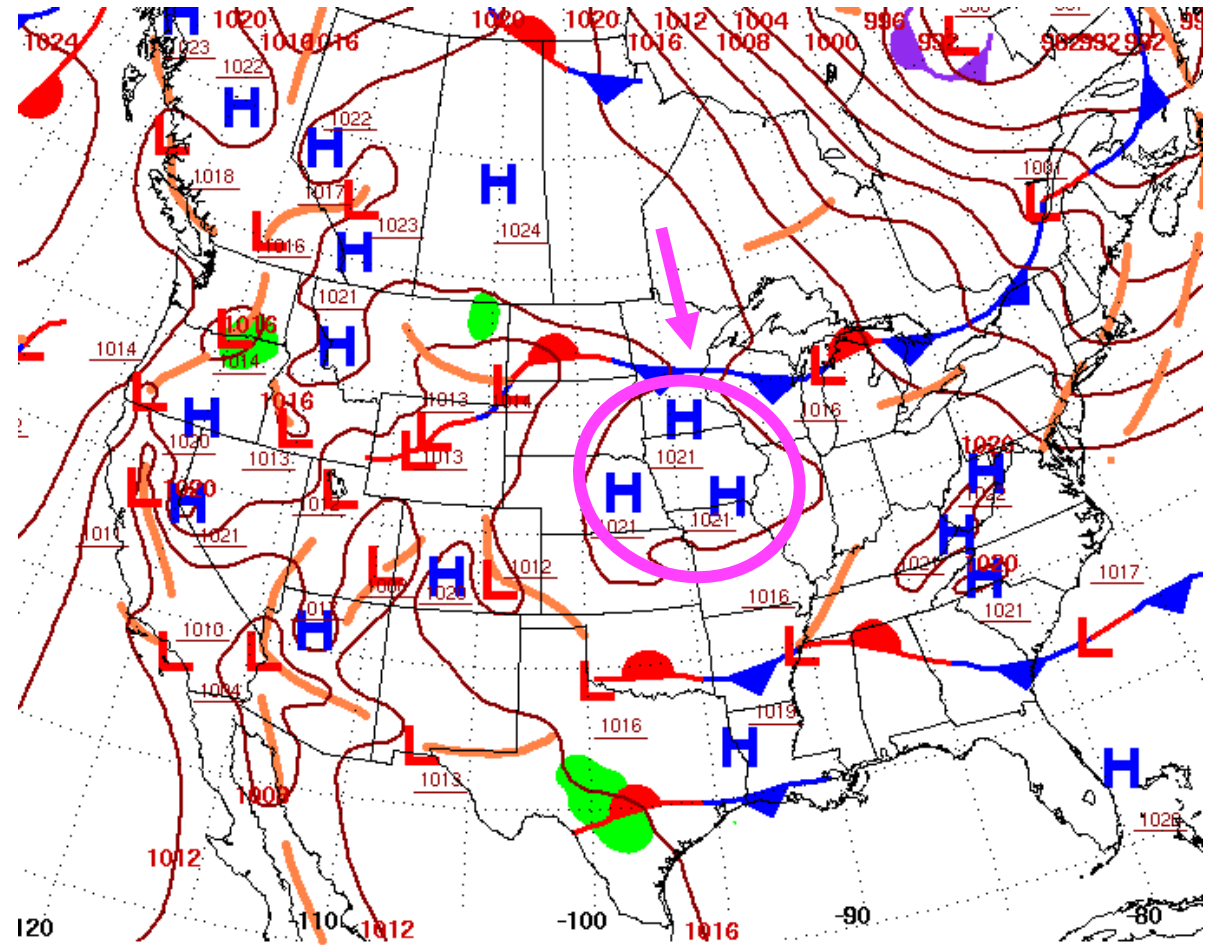
Air Quality Reflection: Wed July 15, 2026

500 mb Contours



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

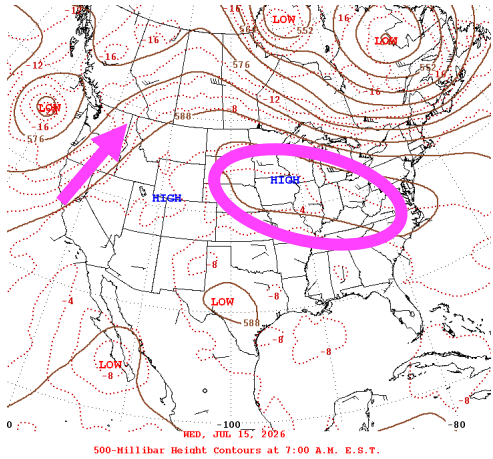
Surface Weather



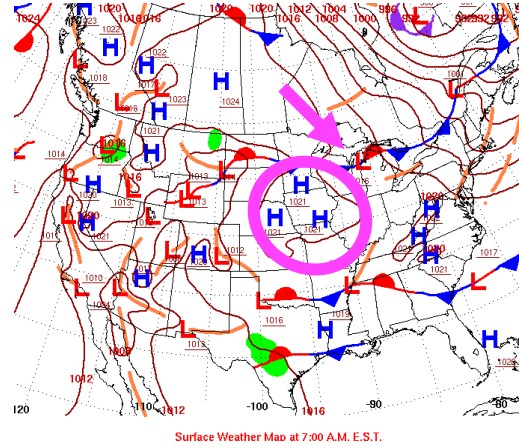
Surface Weather Map at 7:00 A.M. E.S.T.

Air Quality Reflection: Wed July 15, 2026

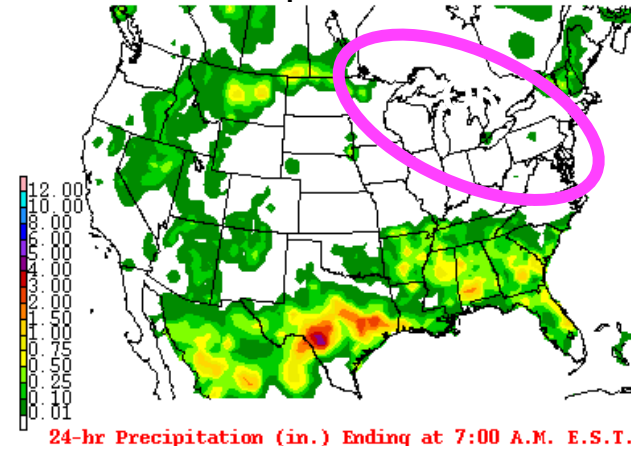
500 mb Contours



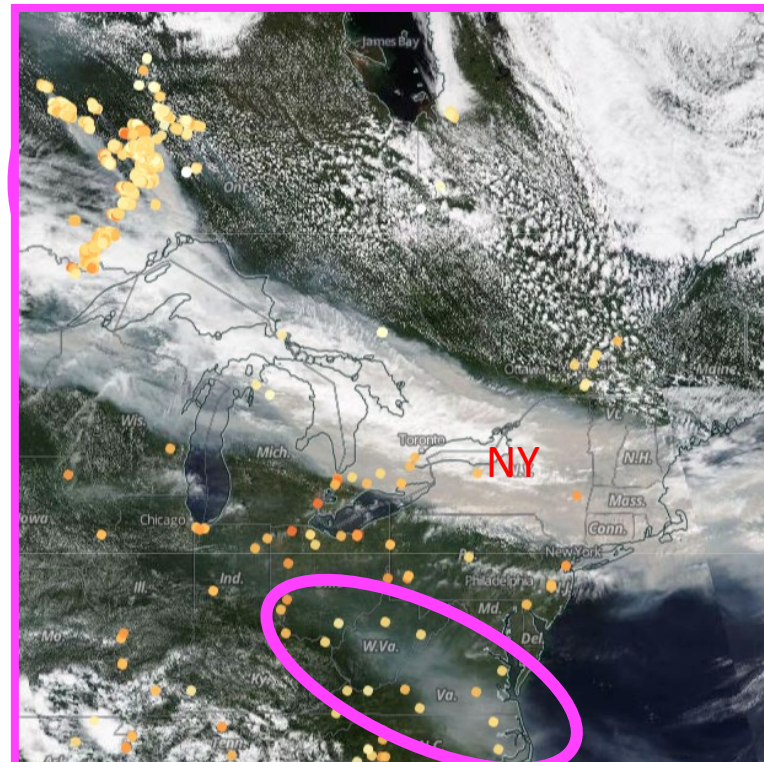
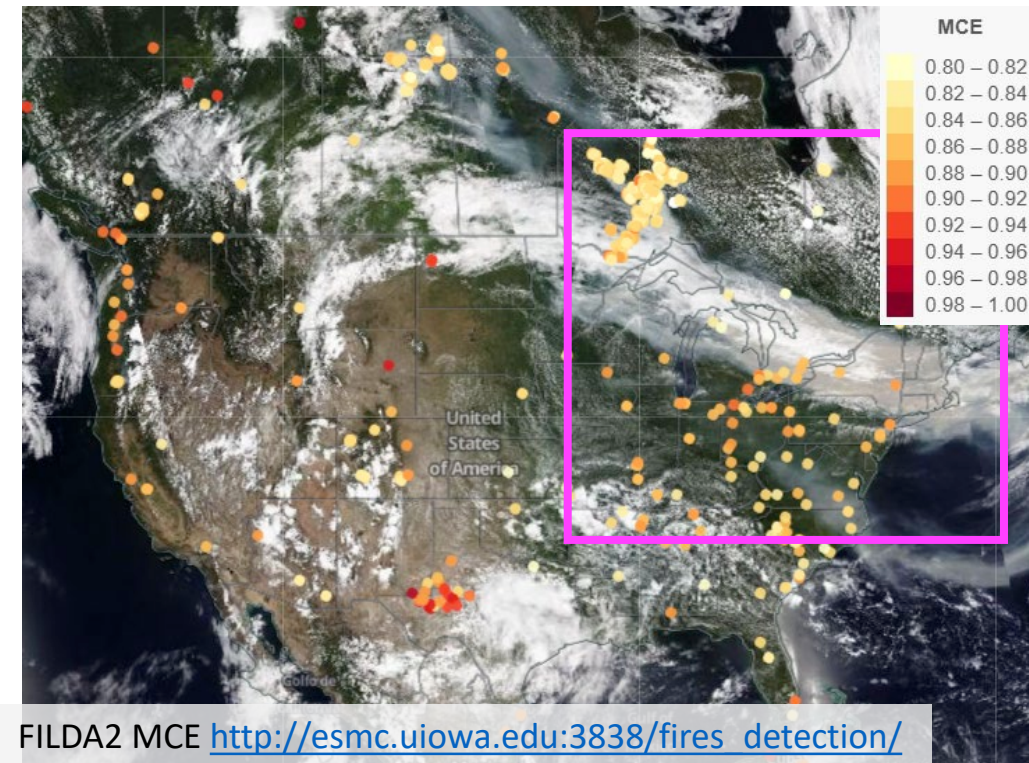
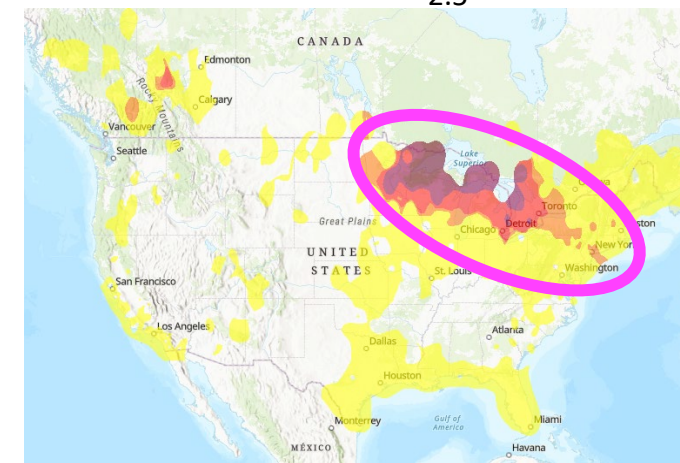
Surface Weather



Precipitation

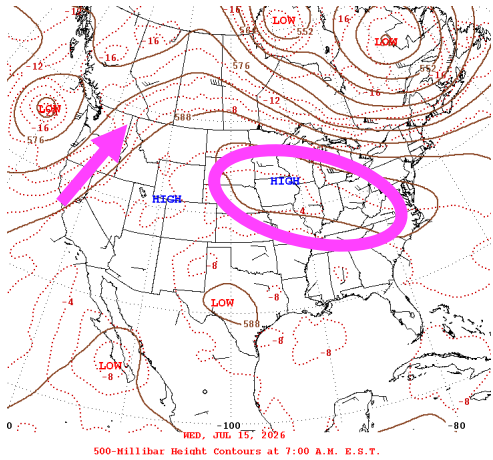


AirNow PM_{2.5} AQI



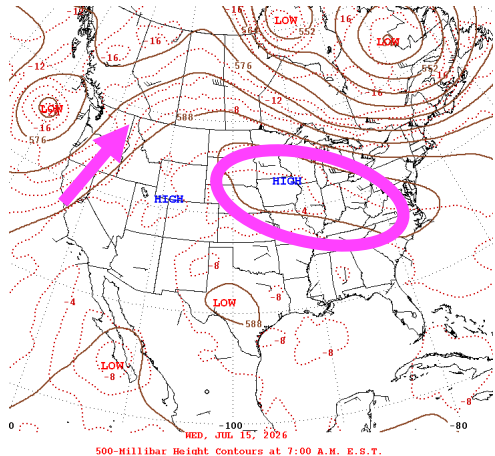
Air Quality Reflection: Wed July 15, 2026

500 mb Contours



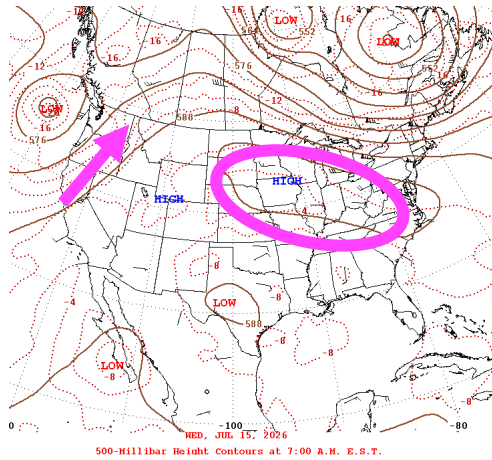
Air Quality Reflection: Wed July 15, 2026

500 mb Contours

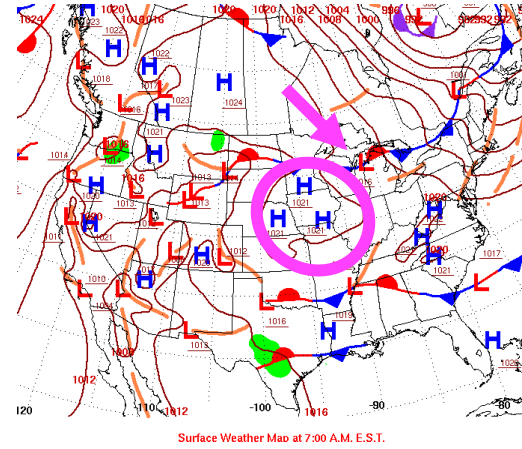


Air Quality Reflection: Wed July 15, 2026

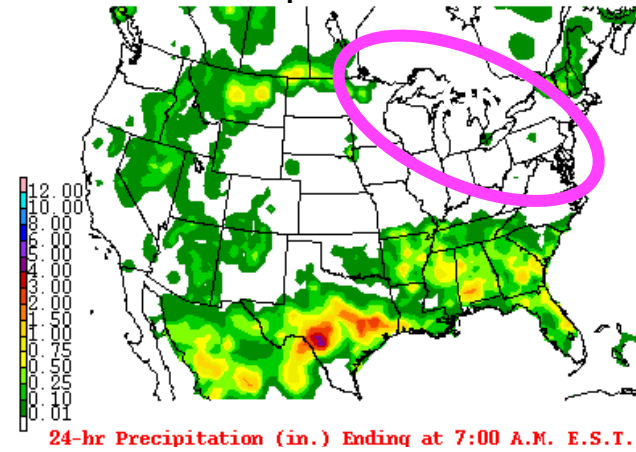
500 mb Contours



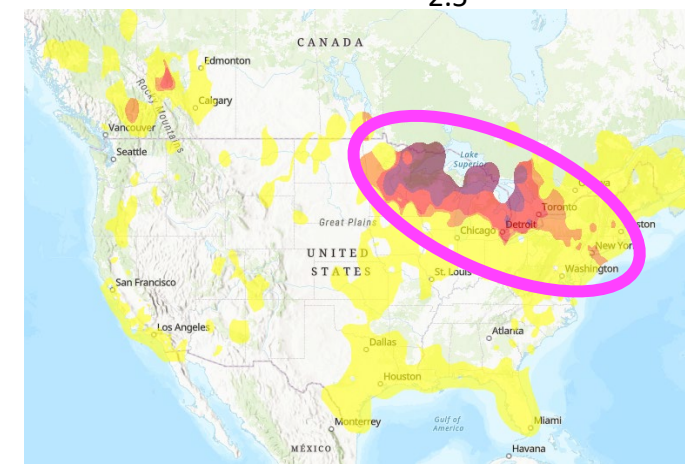
Surface Weather



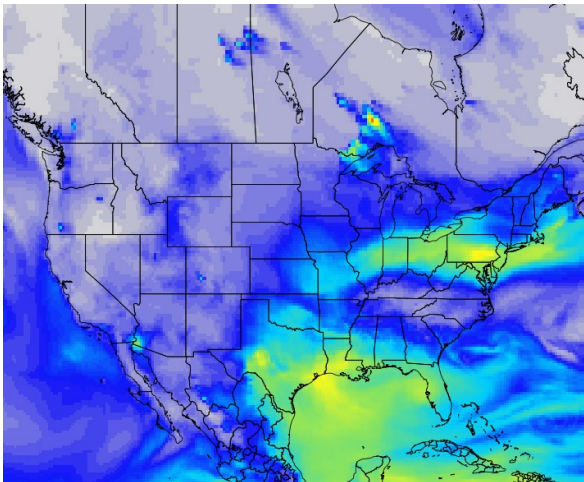
Precipitation



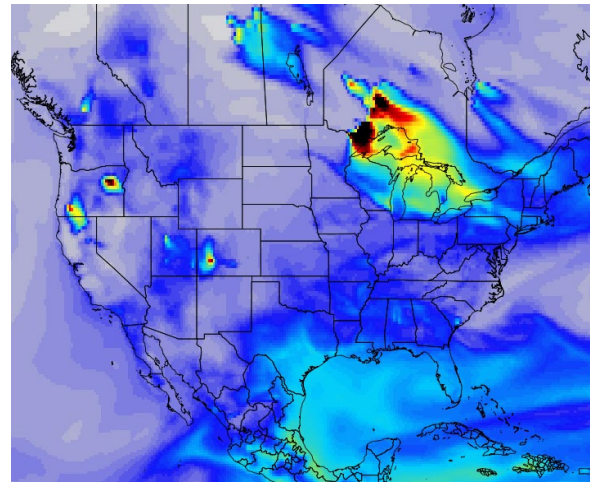
AirNow PM_{2.5} AQI



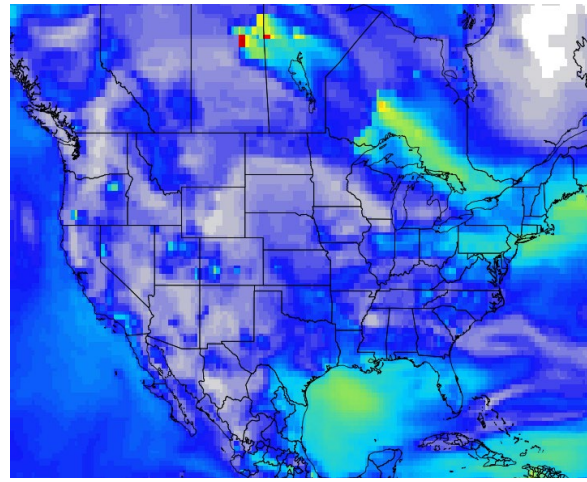
GEOS-FP



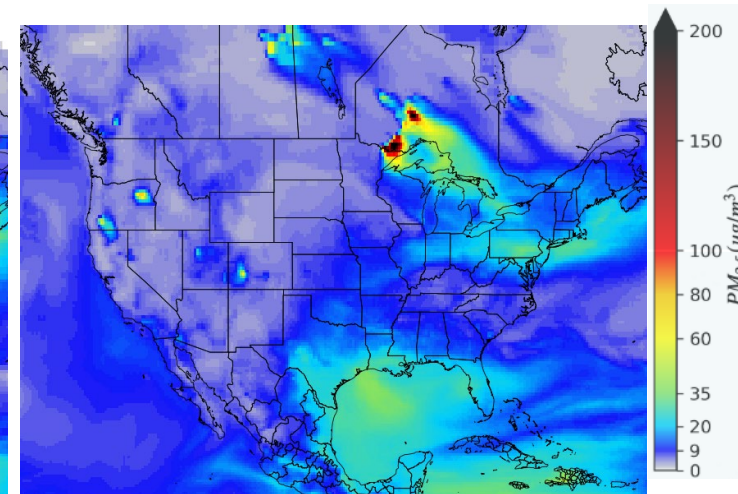
GEOS-CF



CAMS

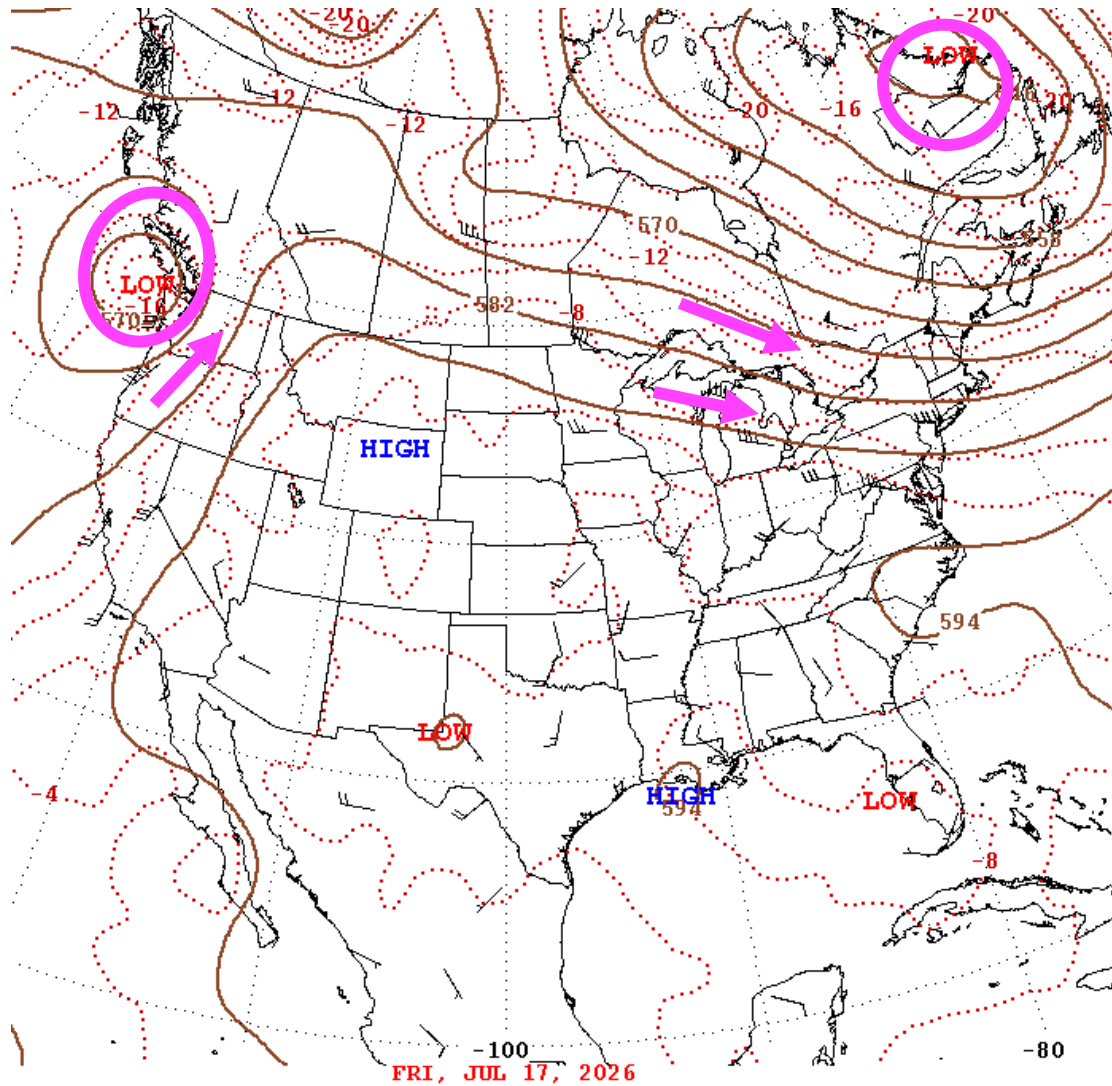


Ensemble



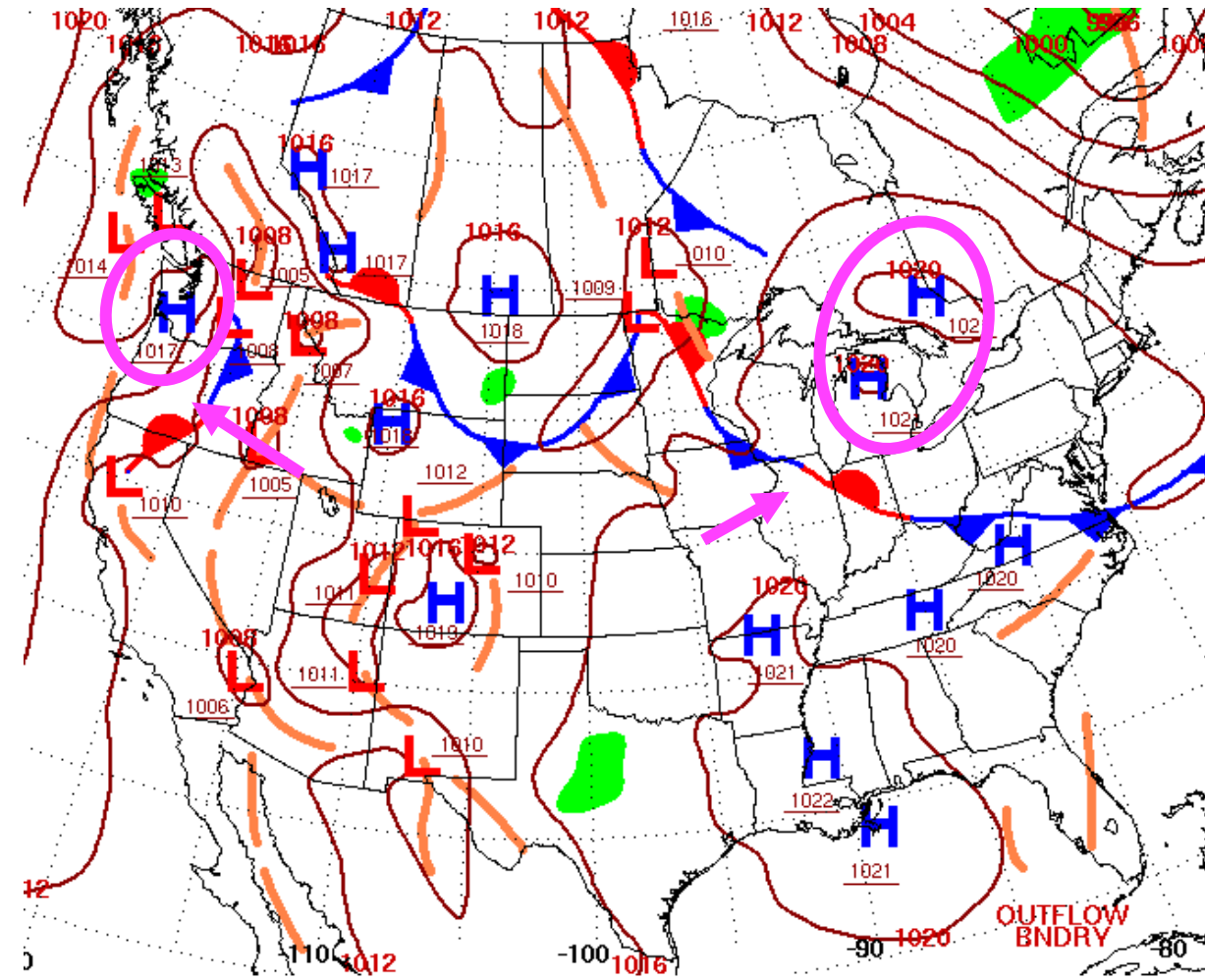
Air Quality Reflection: Friday July 17, 2026

500 mb Contours



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

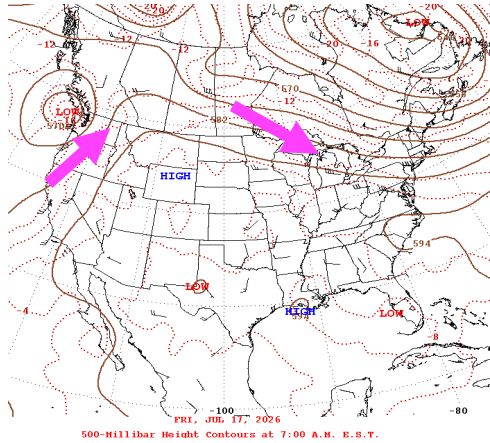
Surface Weather



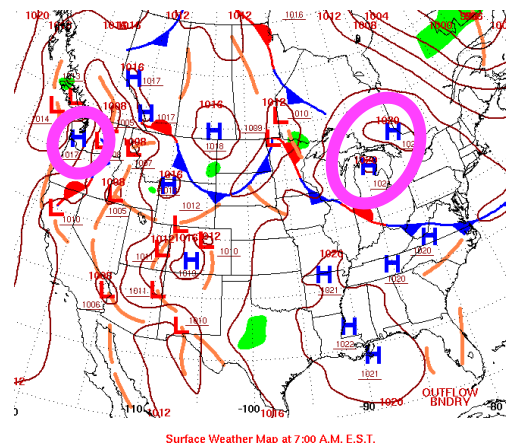
Surface Weather Map at 7:00 A.M. E.S.T.

Air Quality Reflection: Friday Sept 19, 2025

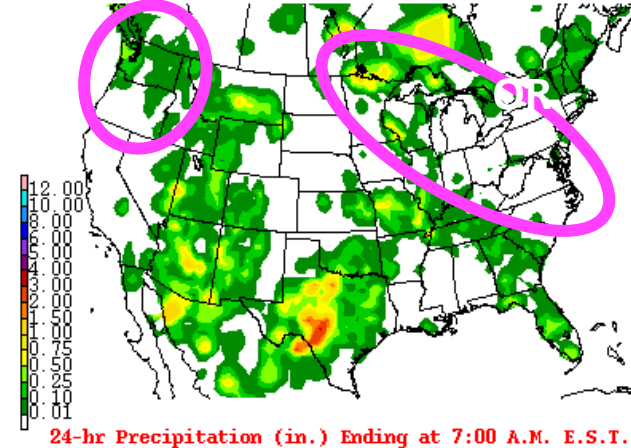
500 mb Contours



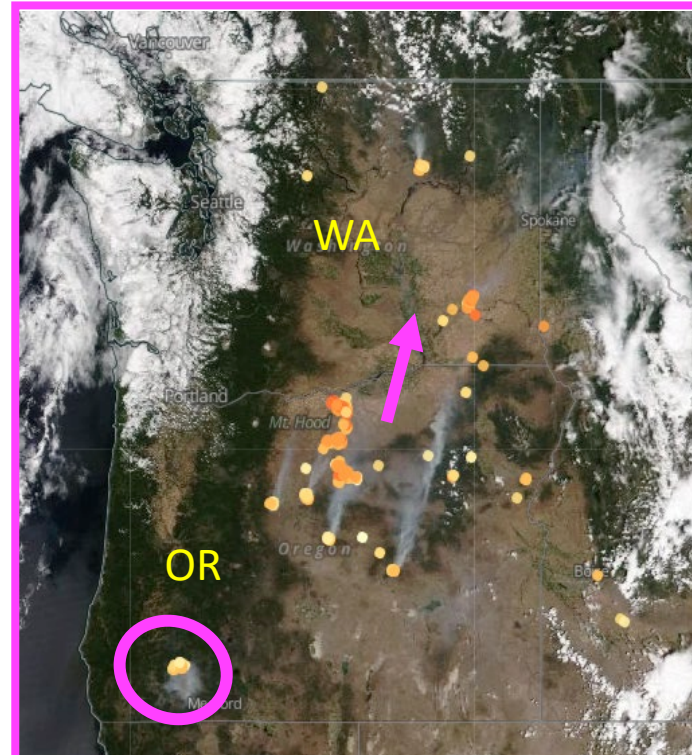
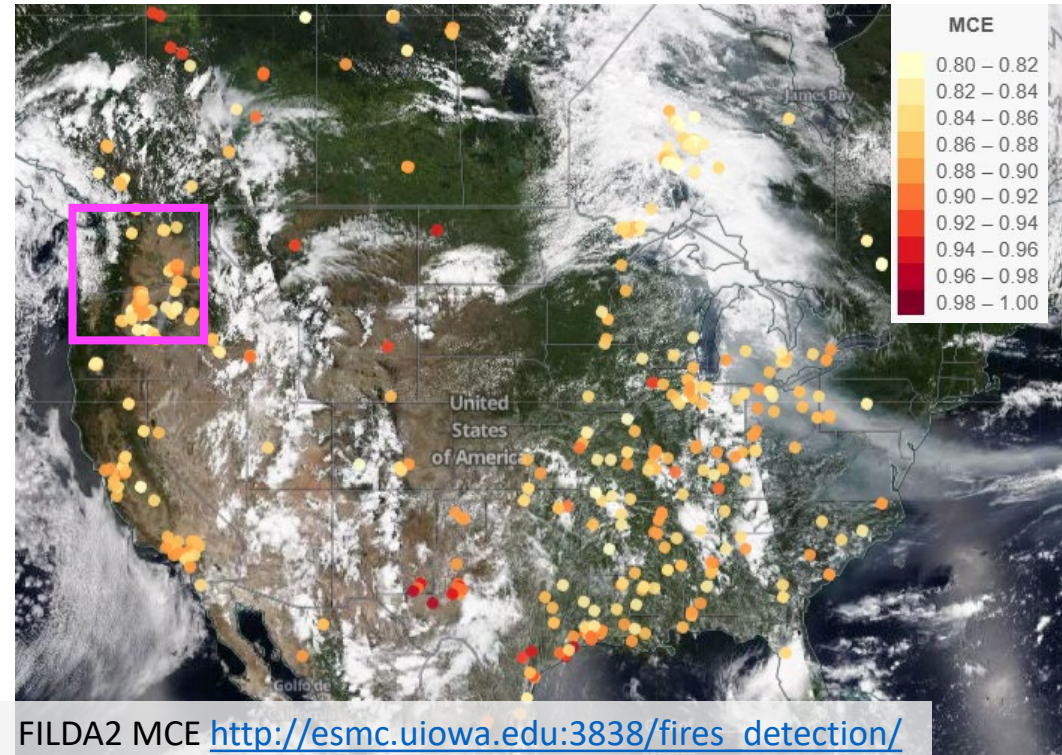
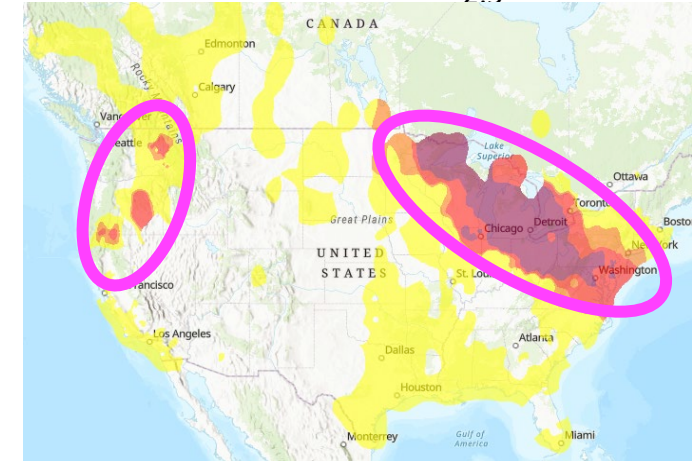
Surface Weather



Precipitation

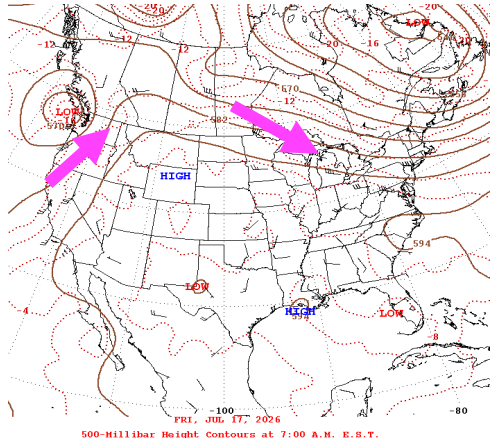


AirNow PM_{2.5} AQI

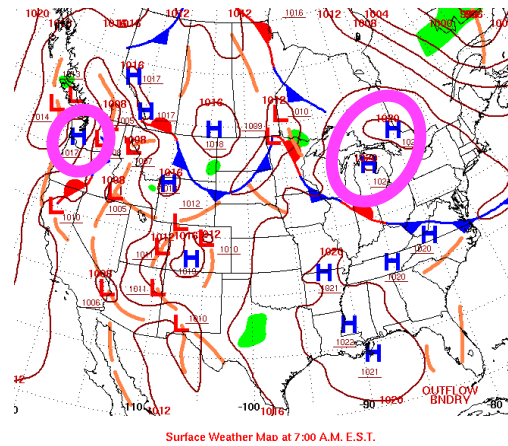


Air Quality Reflection: Friday Sept 19, 2025

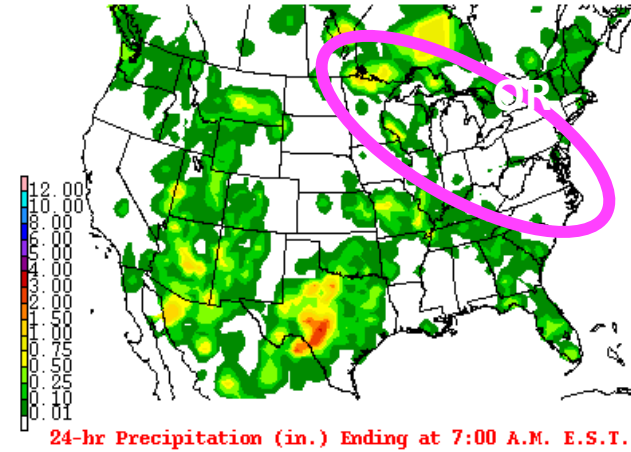
500 mb Contours



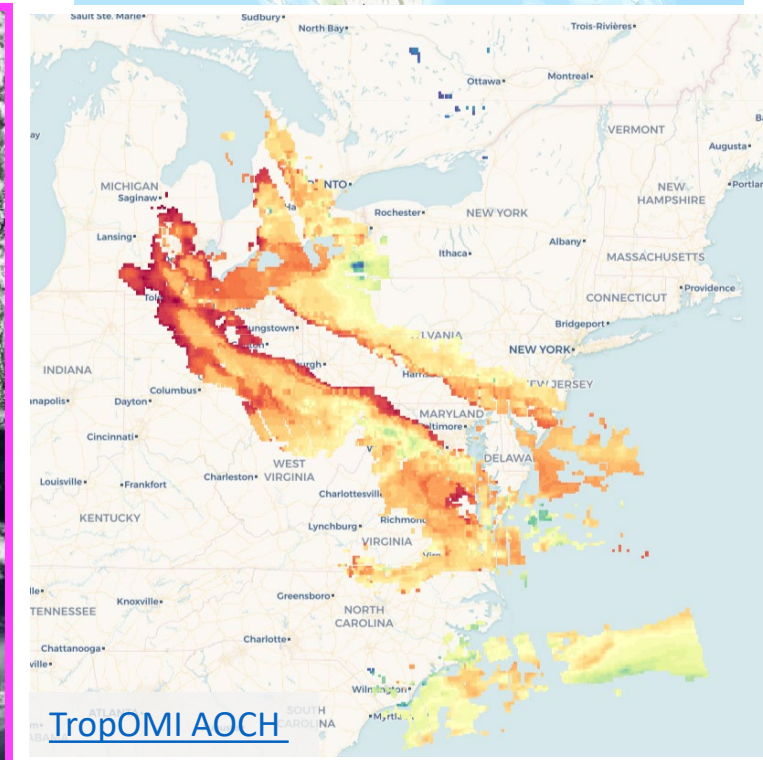
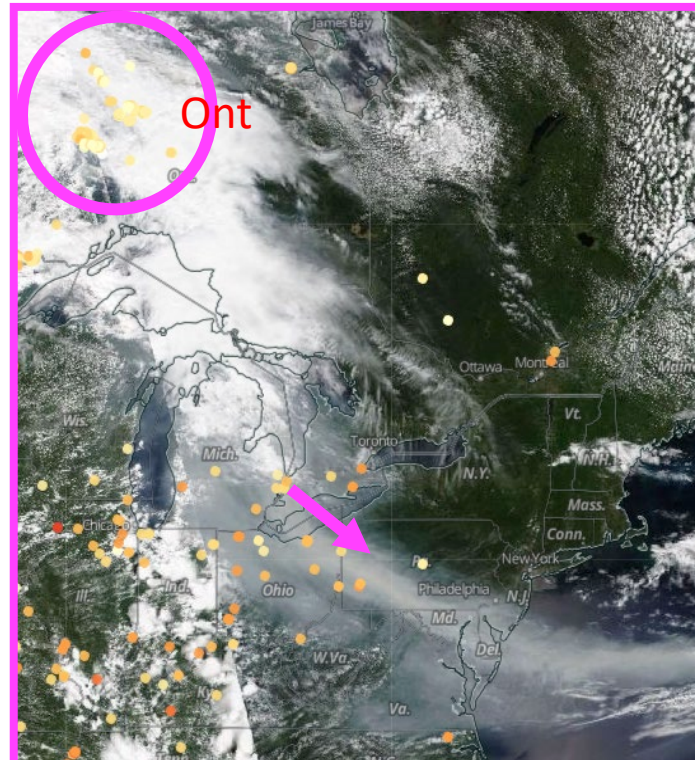
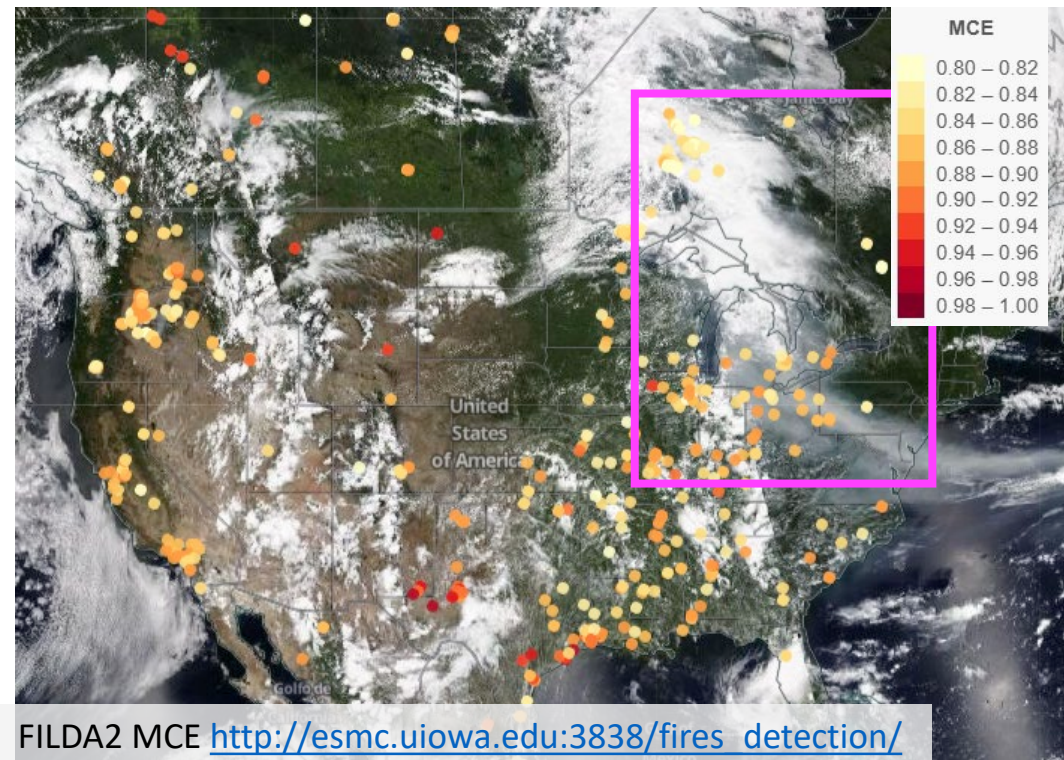
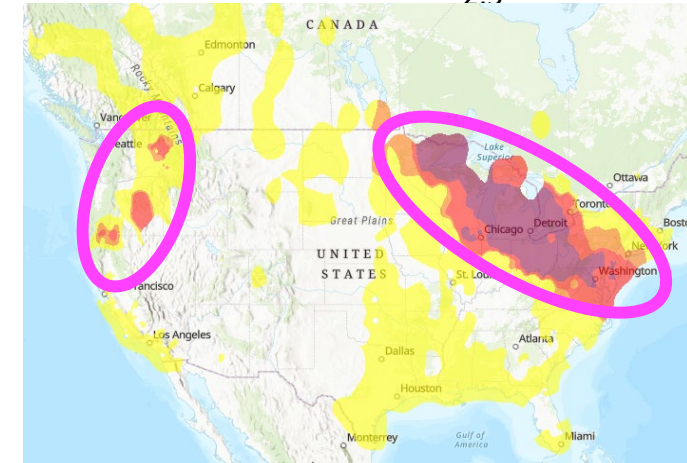
Surface Weather



Precipitation

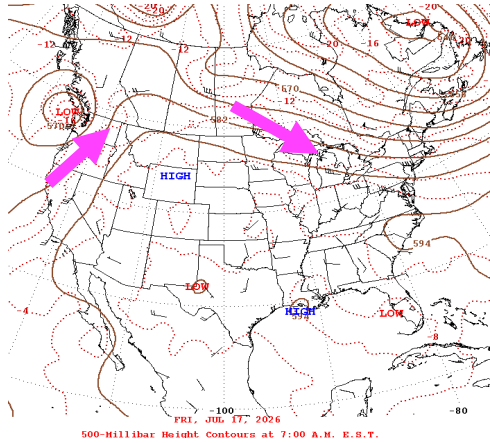


AirNow PM_{2.5} AQI

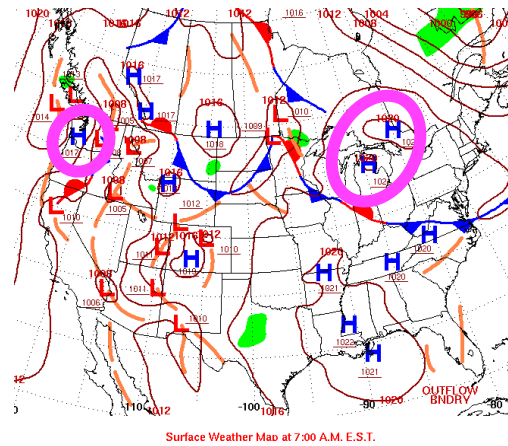


Air Quality Reflection: Friday Sept 19, 2025

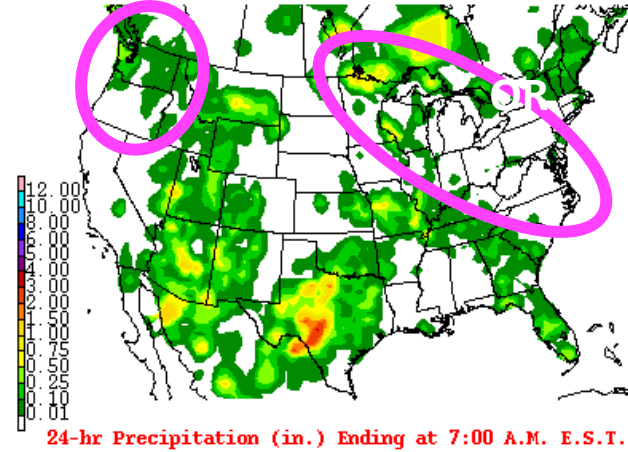
500 mb Contours



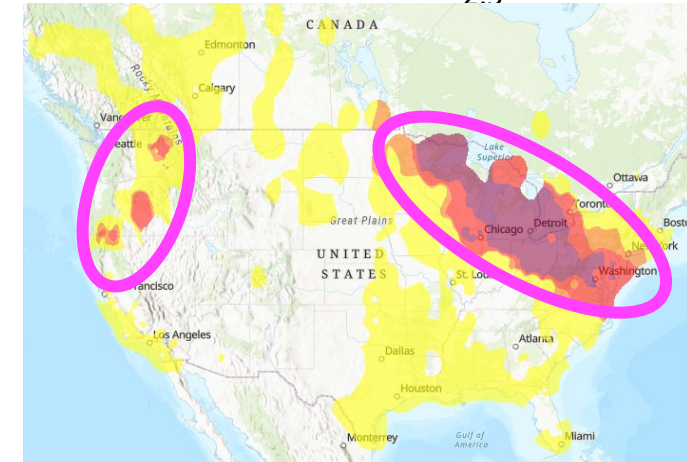
Surface Weather



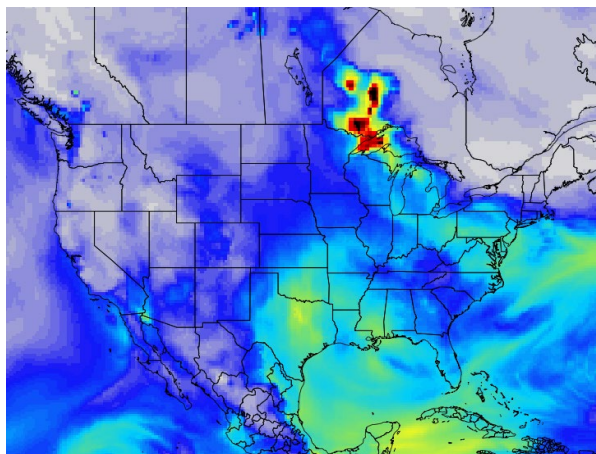
Precipitation



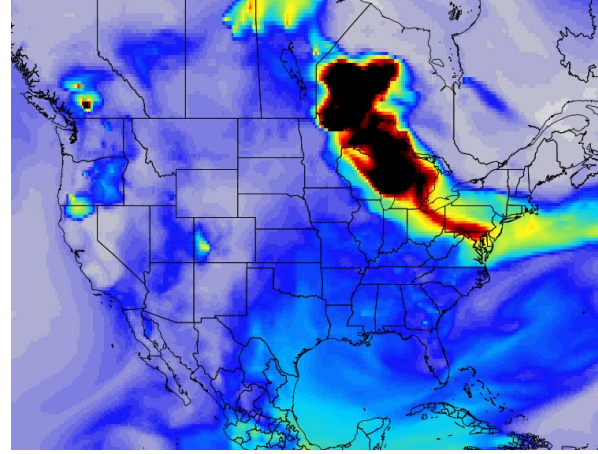
AirNow PM_{2.5} AQI



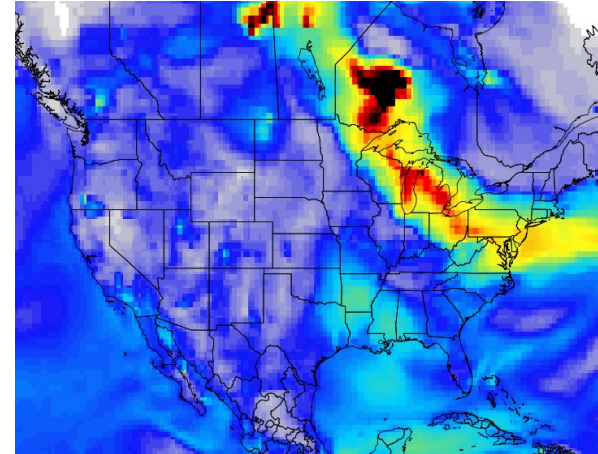
GEOS-FP



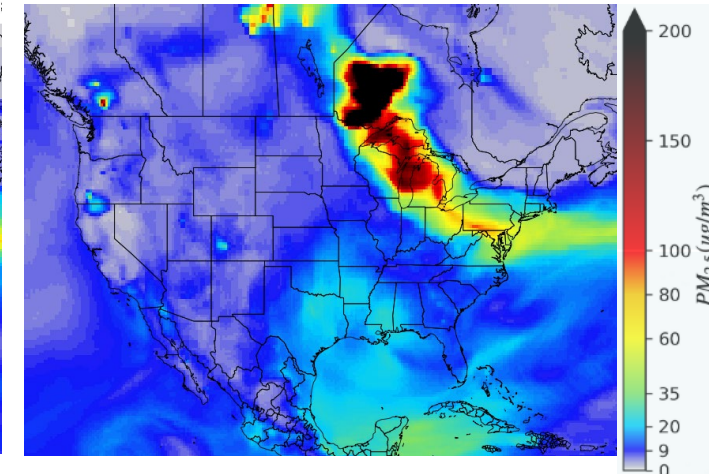
GEOS-CF



CAMS



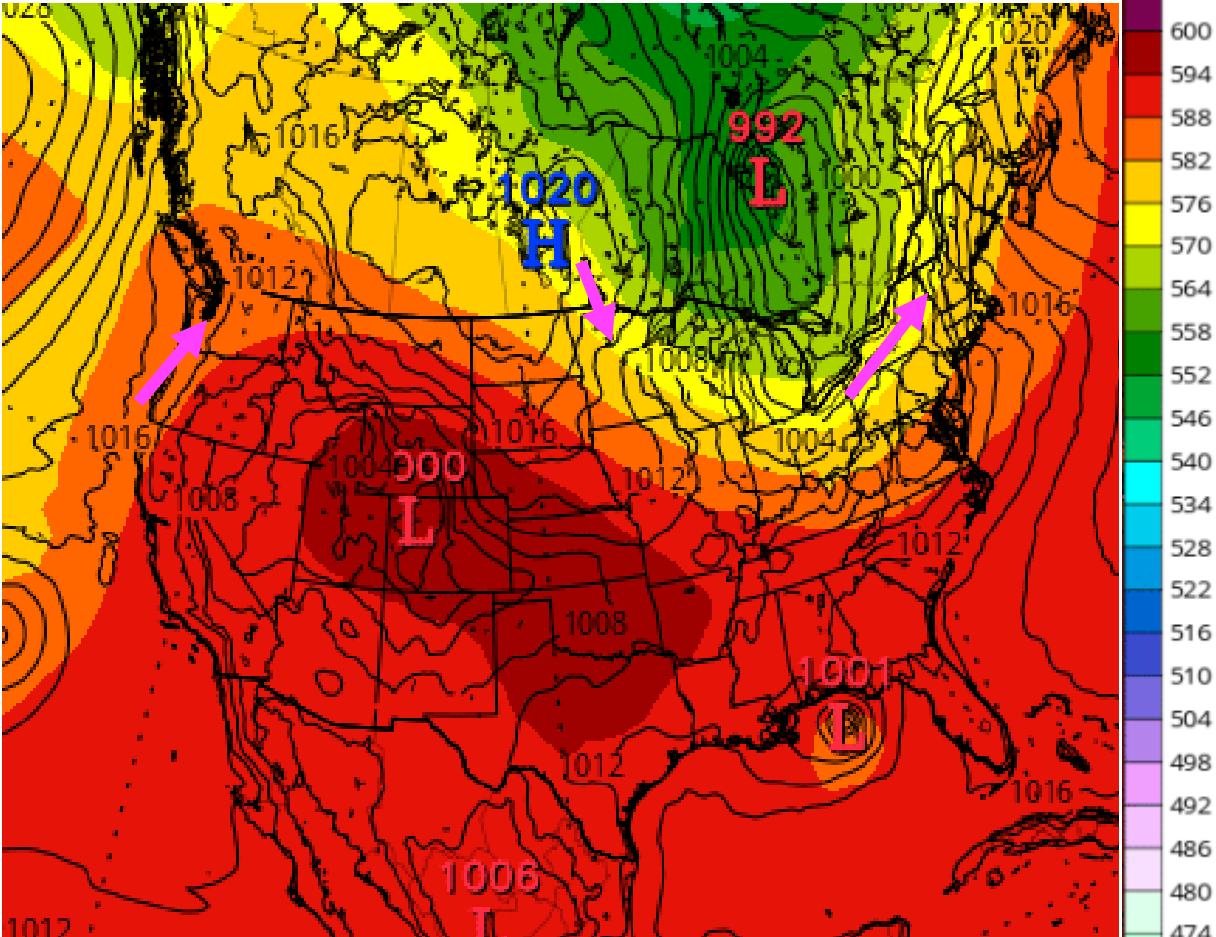
Ensemble



Outlook: Short Range (1–3 days)

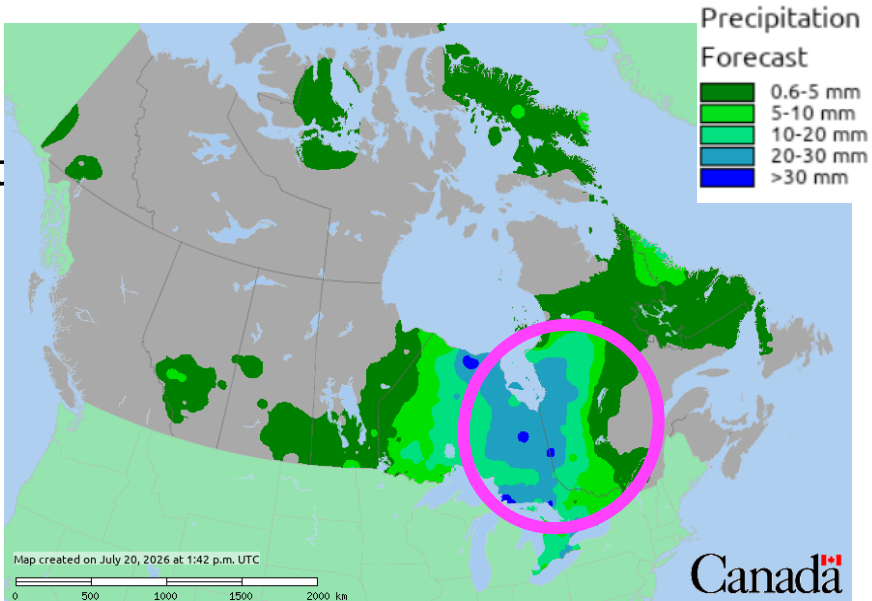
(Forecast **Tuesday 7/21**)

GFS 500 mb

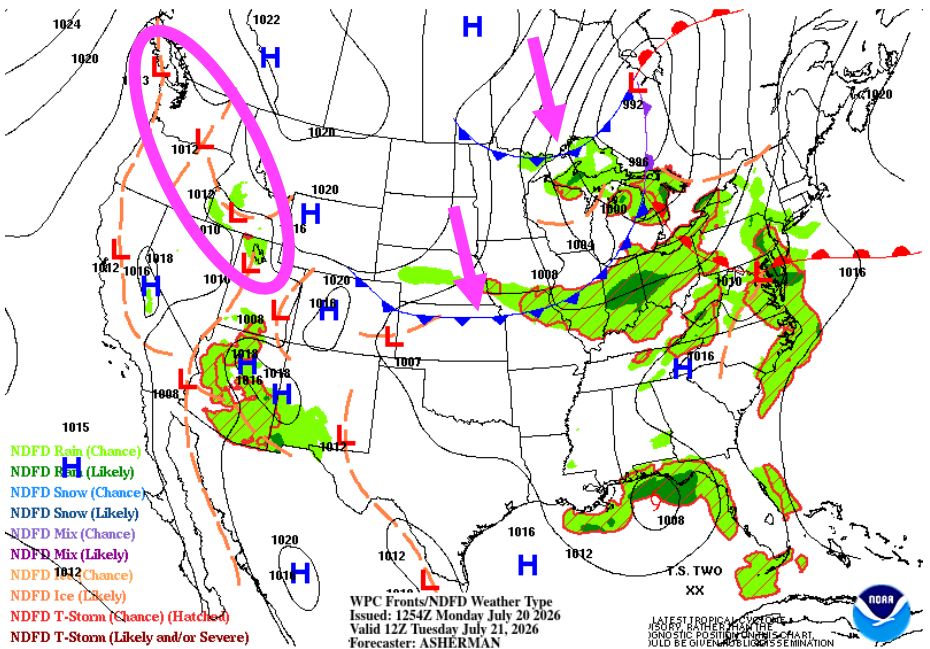


GFS 500mb Geopotential Height (dam) & MSLP (mb)
Init: 06z Jul 20 2026 Forecast Hour: f361 valid at 18z Tue. Jul 21 2026

Environment
Canada
Forecast

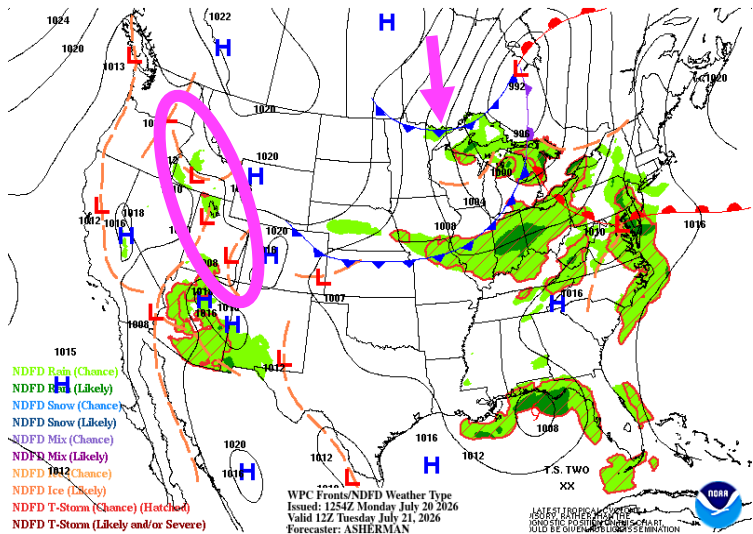


US NWS
Forecast

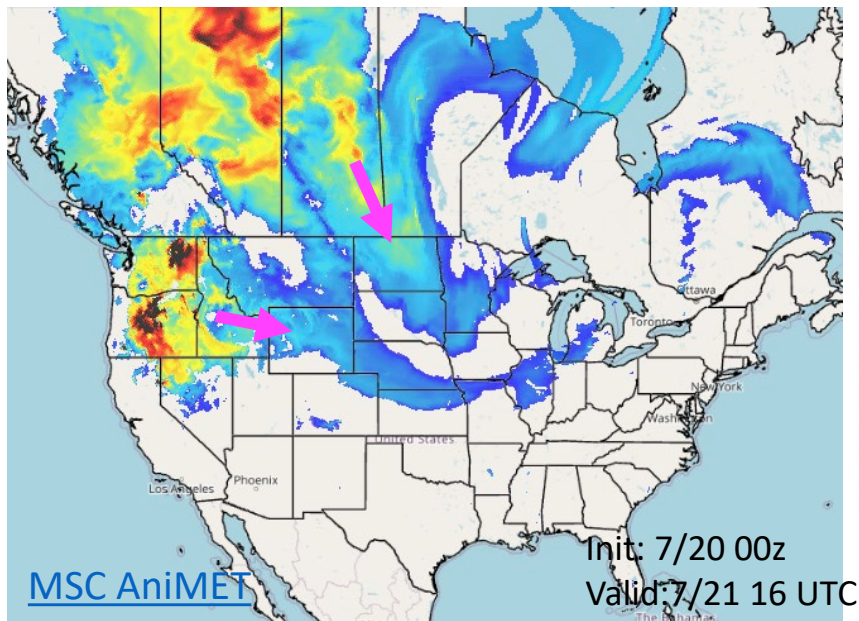


Outlook: Short Range (1–3 days)

Surface Forecast



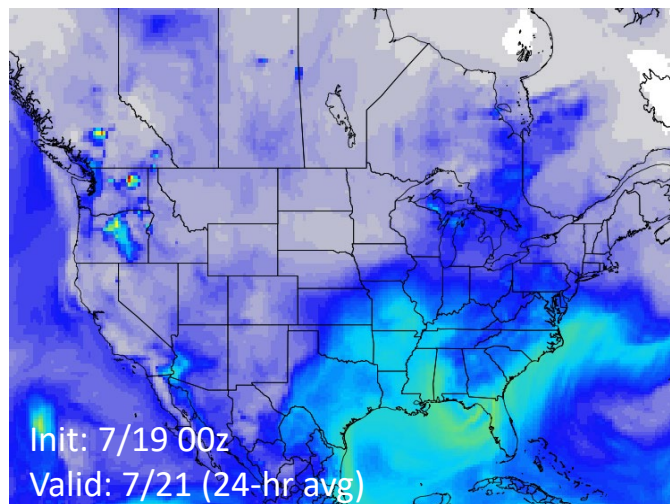
Canada MSC AniMET



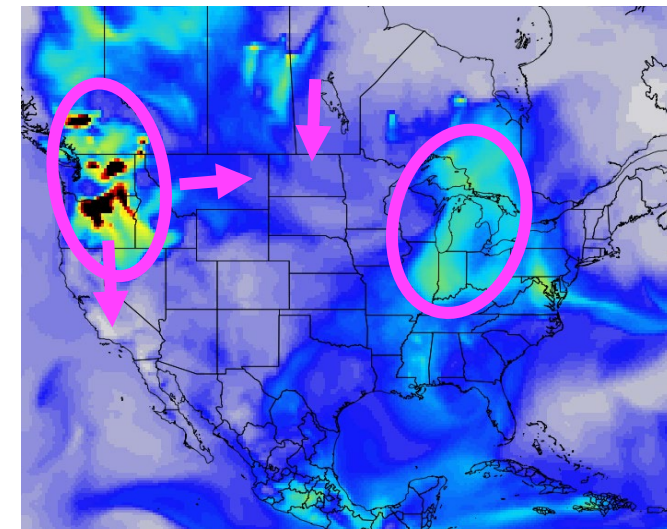
(Tuesday 7/21)

Model Means PM_{2.5}

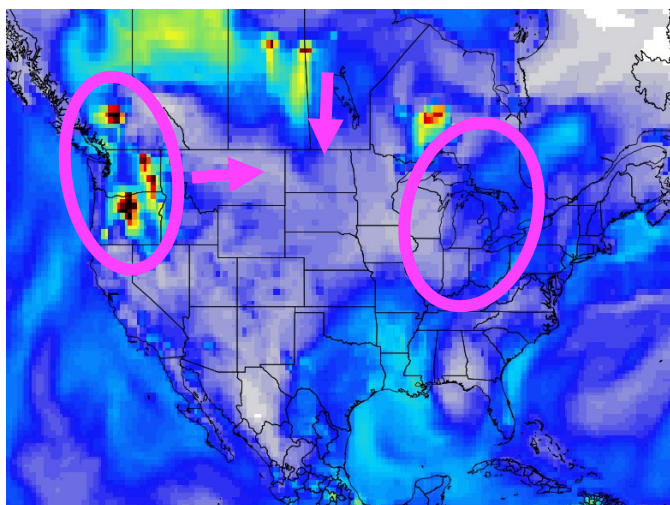
GEOS-FP



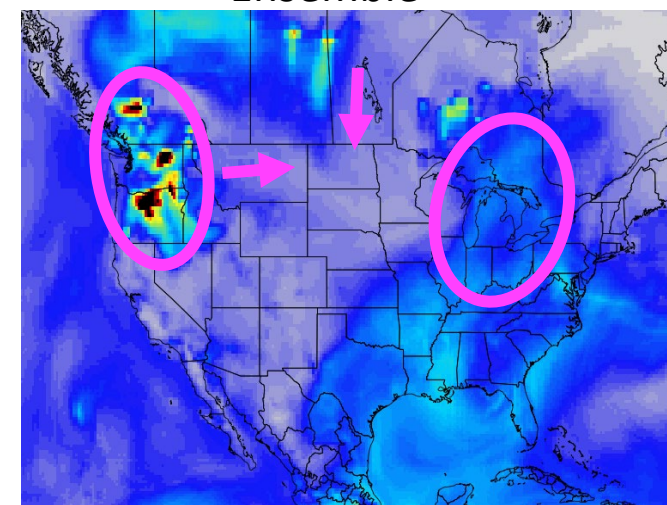
GEOS-CF



CAMS



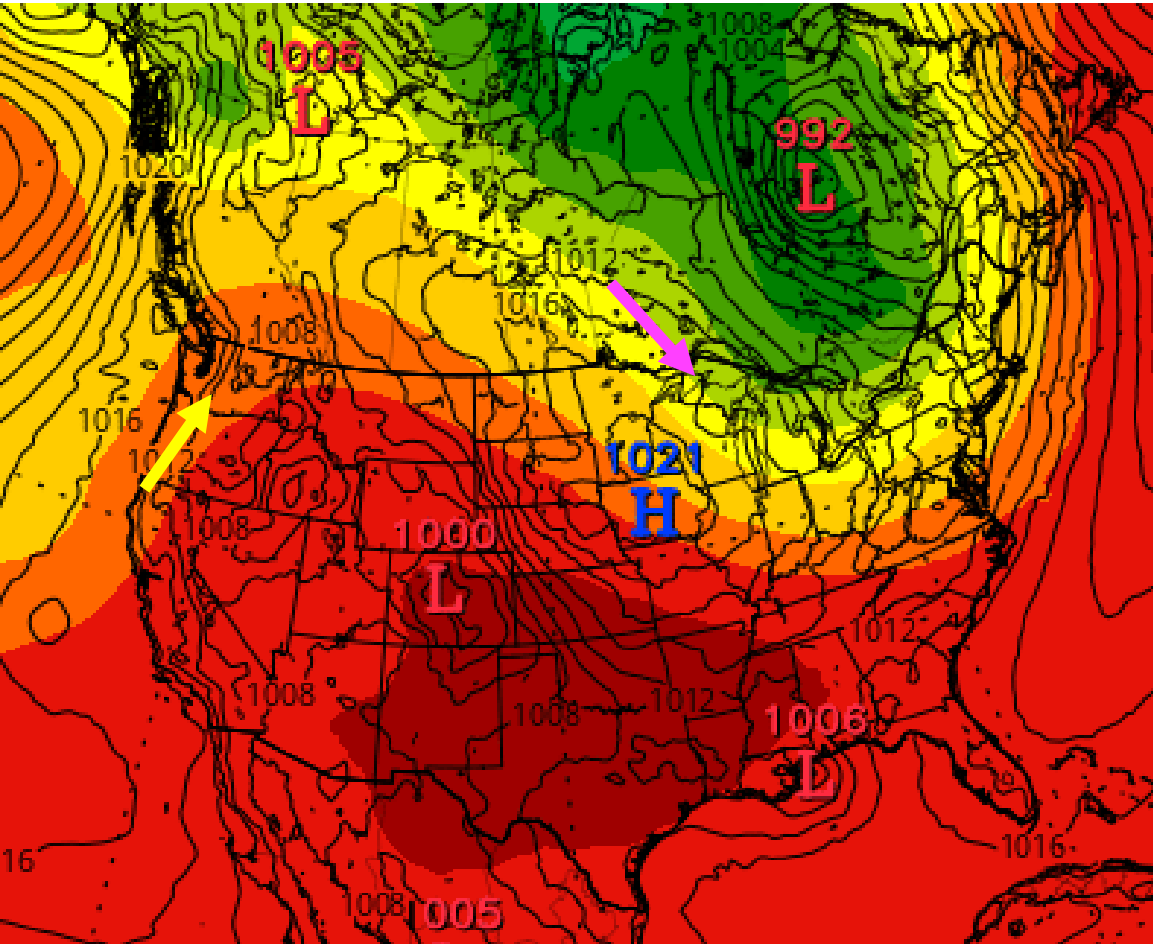
Ensemble



Outlook: Short Range (1-3 days)

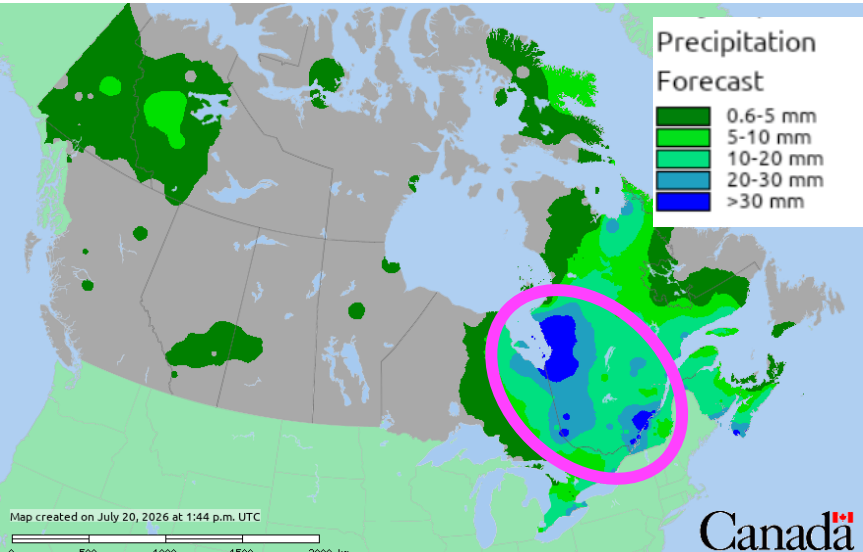
(Forecast **Wednesday 7/22**)

GFS 500 mb

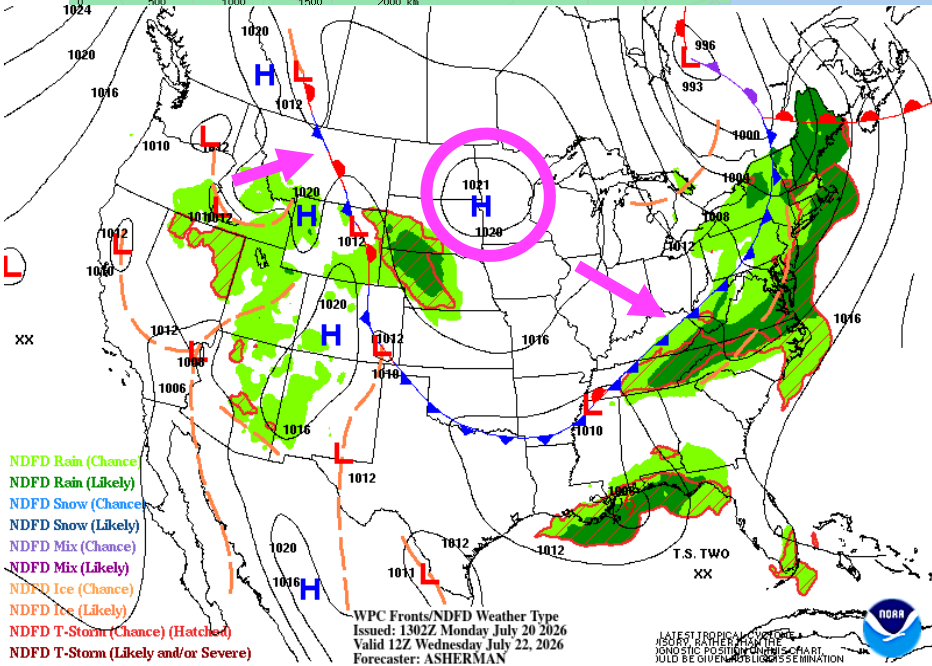


GFS 500mb Geopotential Height (dam) & MSLP (mb)
Init: 06z Jul 20 2026 Forecast Hour: [60] valid at 18z Wed, Jul 22 2026

Environment
Canada
Forecast



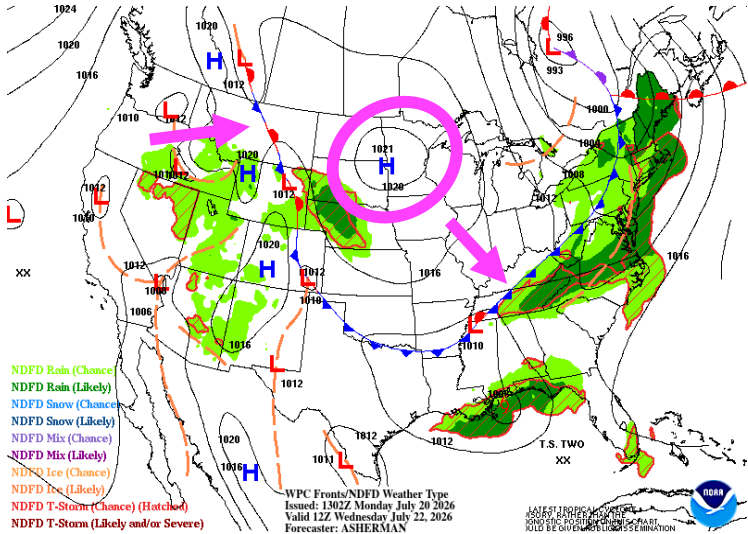
US NWS
Forecast



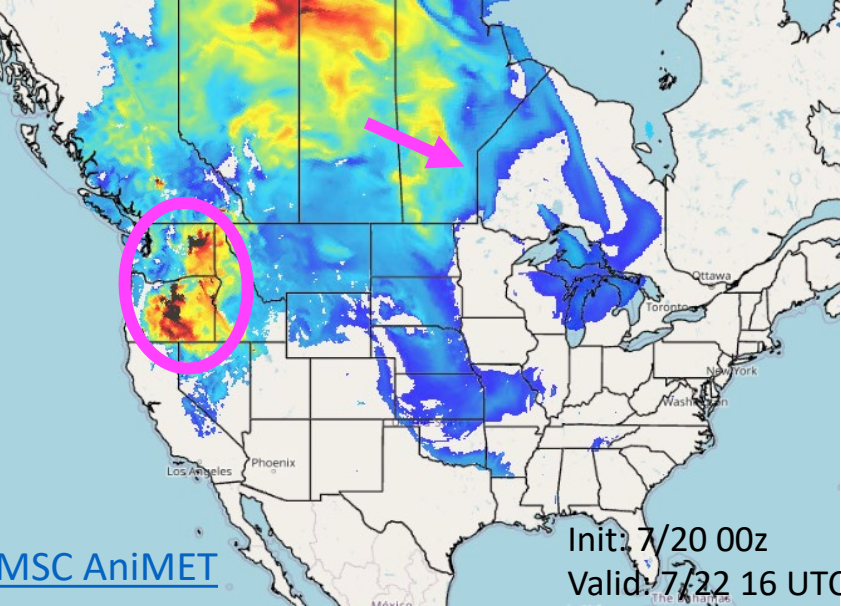
Outlook: Short Range (1–3 days)

(Wednesday 7/22)

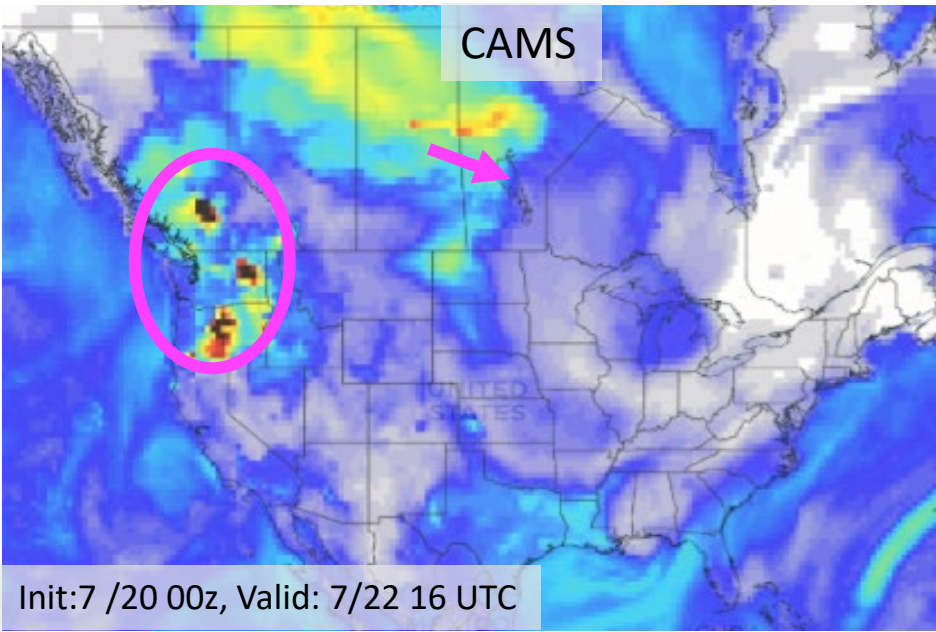
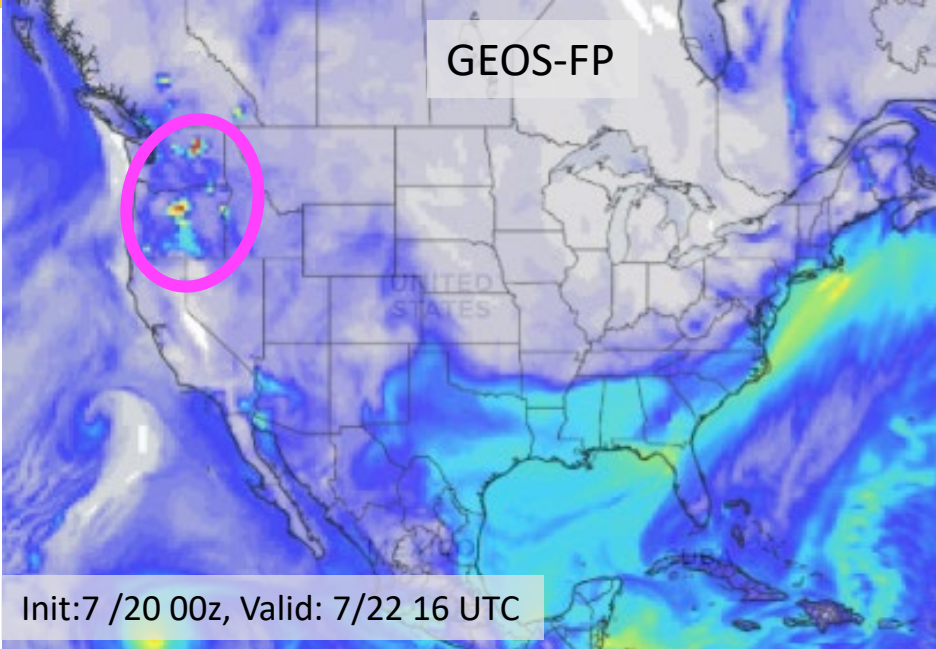
Surface Forecast



Canada MSC AniMET

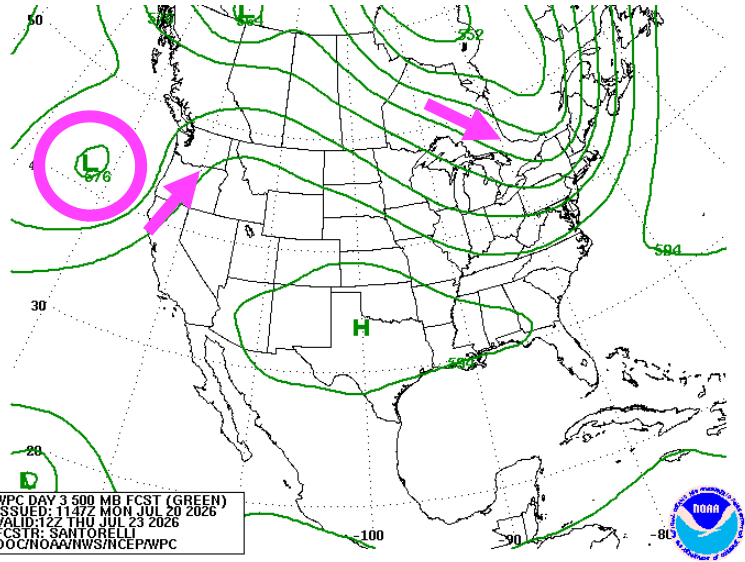


MSC AniMET

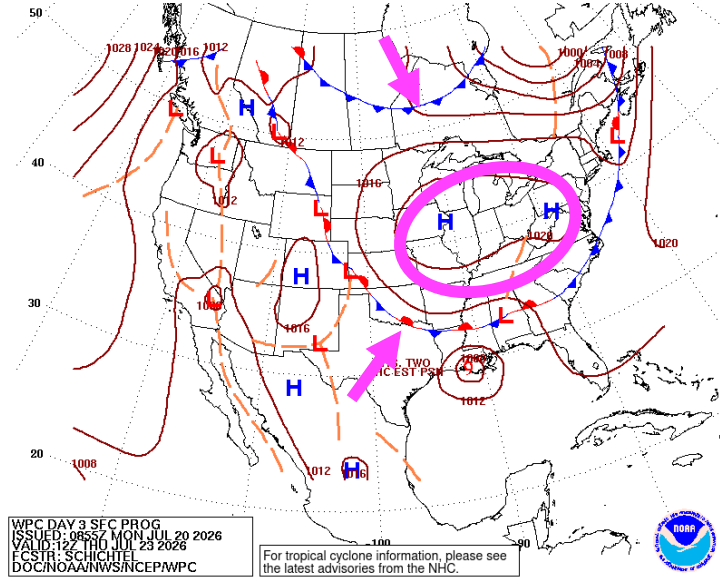


Outlook: Medium Range

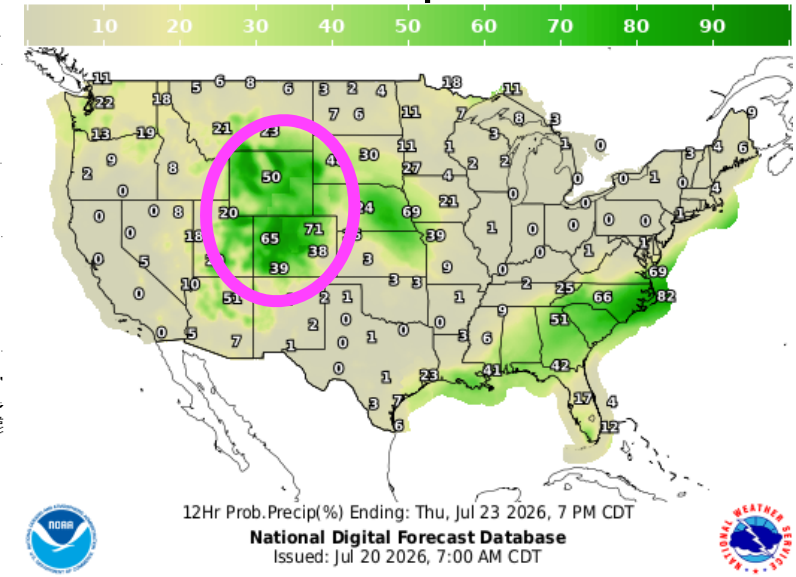
500 mb Contours



Sea Level

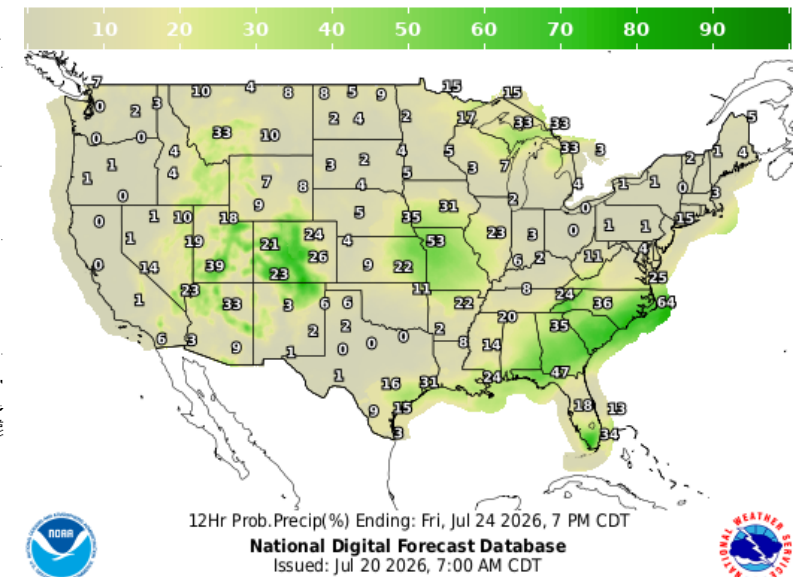
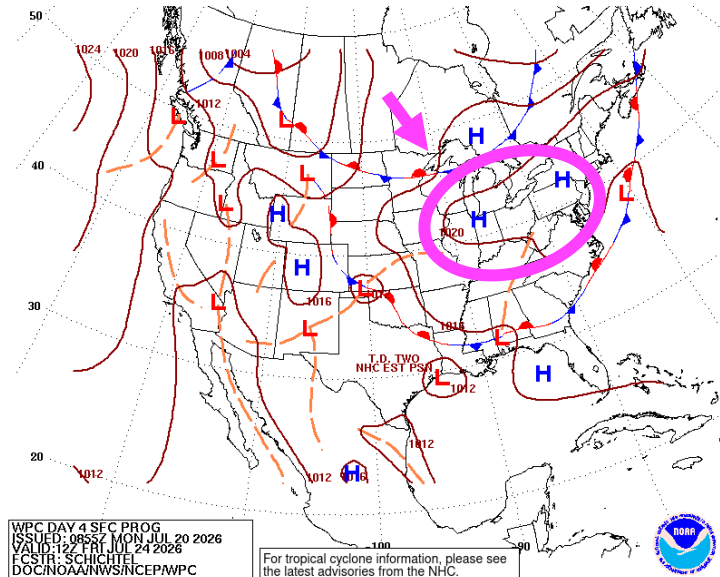
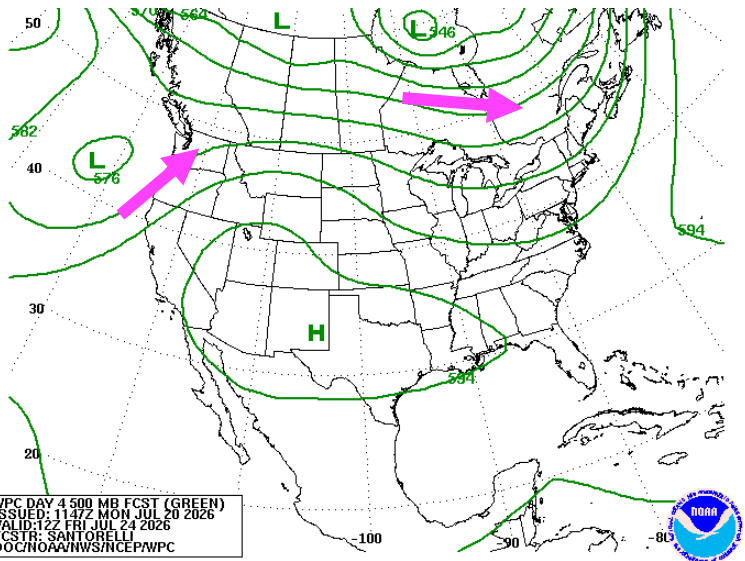


Precip Prob.



Thurs
7/23

Friday
7/24



Summary

Monday : Midwest US and pocket of Northeast US continue to experience unhealthy AQ levels from Ont Canada wildfire smoke. OR and WA wildfires are contributing to PNW USG to unhealthy AQI.

T → W: A cold front sets into Midwest US and promotes existing smoke transport easterly. PNW fire smoke transport diverges both southerly and easterly to a smaller extent. In the PNW, no forecasted weather fronts suggest persistence of wildfire smoke impact to the region. Keep a watch on NT Canada wildfires with potential to impact the Midwest US

Th → F: Continue watch on NT Canada fires, 500mb contours promote a easterly transport of smoke in the upper atmosphere. A cold front at the surface could bring smoke into the Midwest US.

