

Weather and Air Quality: Reflection and Outlook During Smoke Conditions

Presenter: Megan Christiansen
Date: August 25, 2025

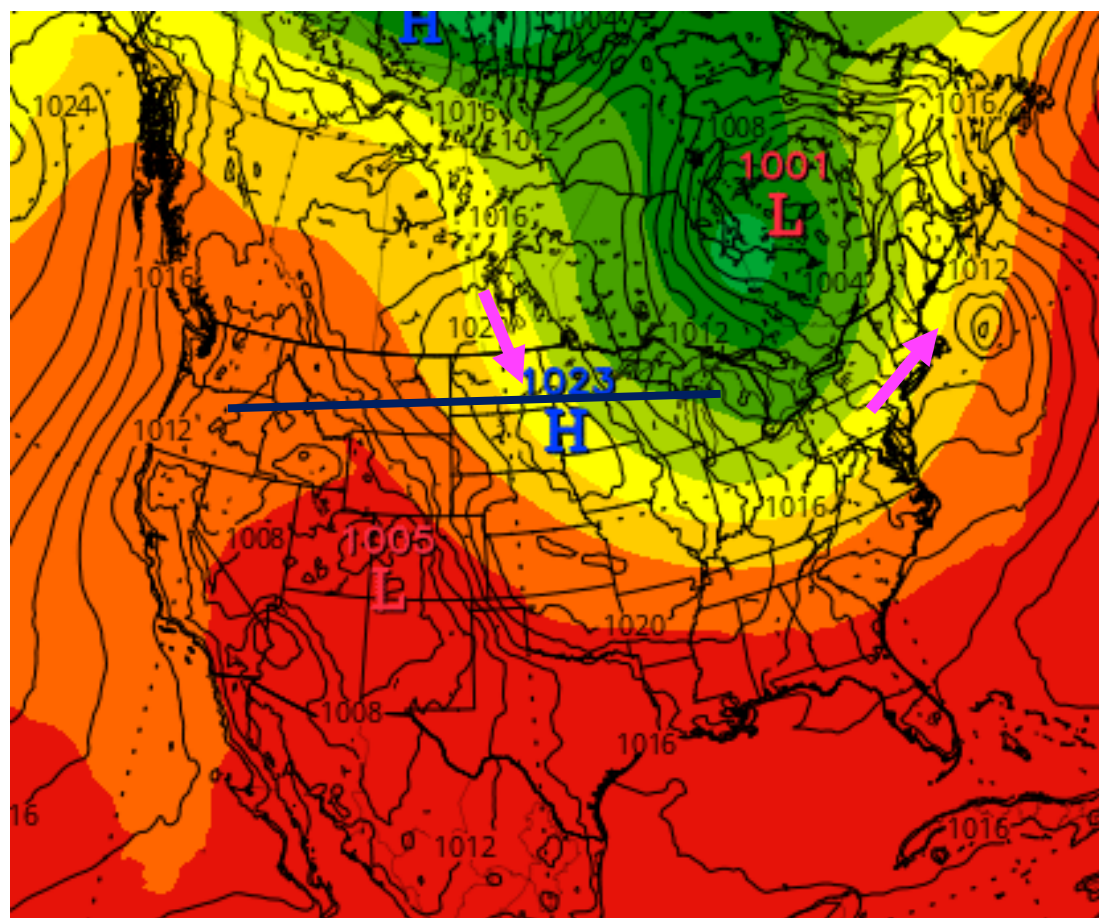


FireAQ is funded by NASA HAQ. We thank NASA GMAO and ECMWF for the model data products.

EARTH SCIENCE
APPLIED SCIENCES

Current Status: August 25, 2025

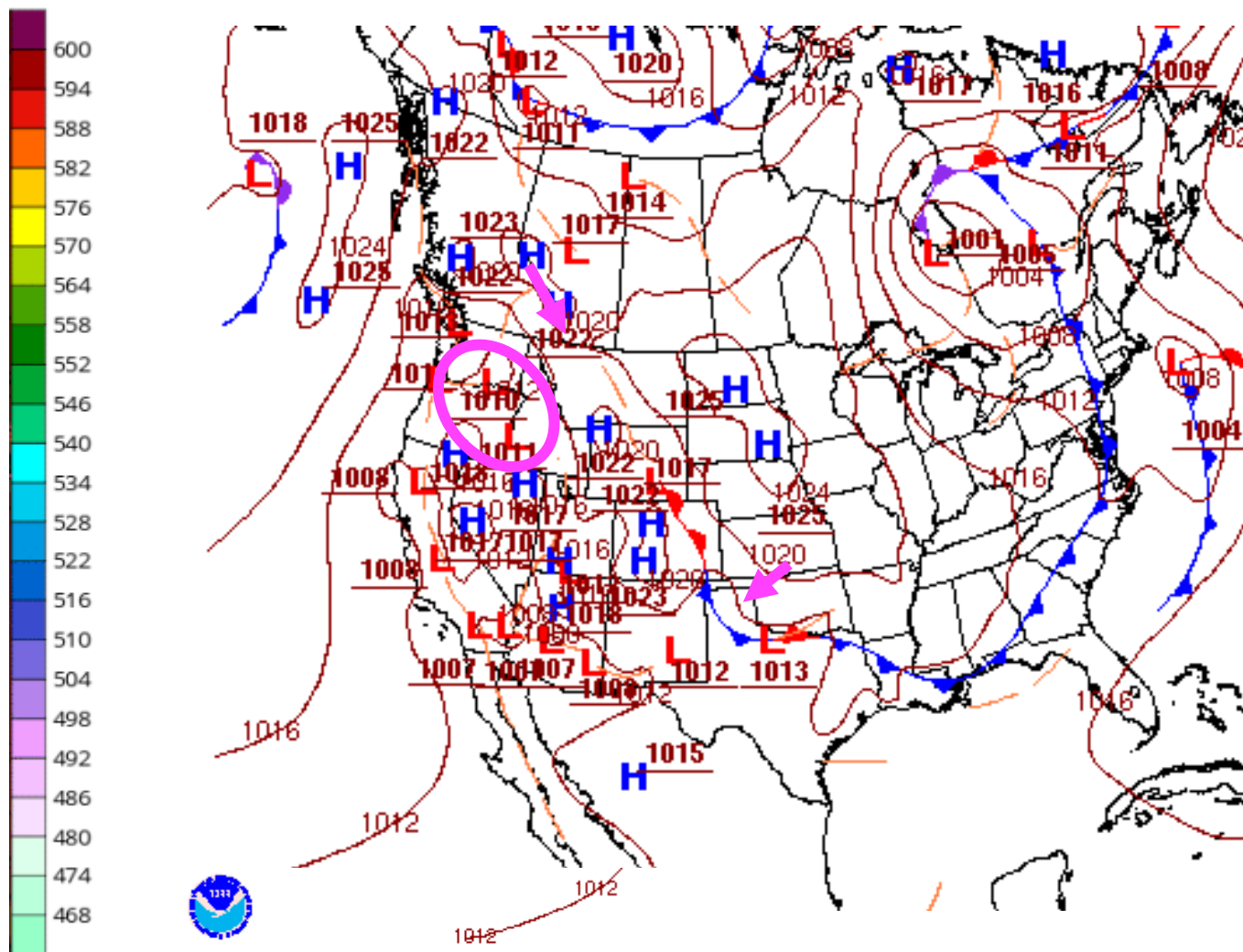
500 mb Contours



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

Init: 06z Aug 25 2025 Forecast Hour: [12] valid at 18z Mon, Aug 25 2025

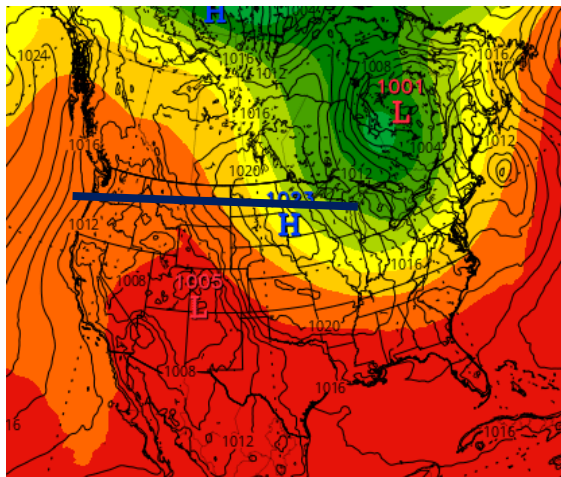
Surface Analysis



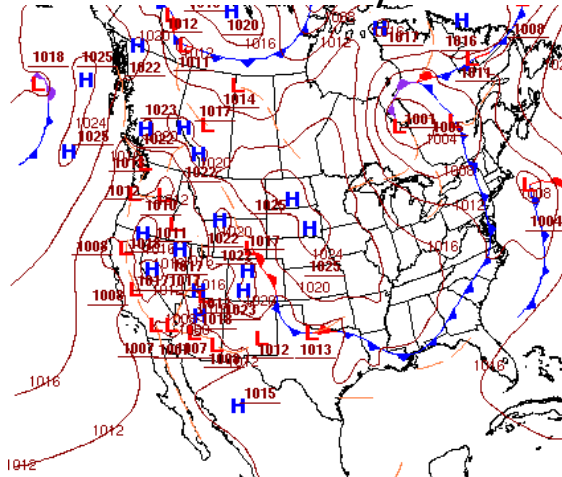
1200Z SURFACE ANALYSIS
DATE: MON AUG 25 2025
ISSUED: 1331Z MON AUG 25 2025
BY WPC ANALYST KONG
COLL & BORATING CENTERS: WPC, NHC, OPC

Current Status: August 25, 2025

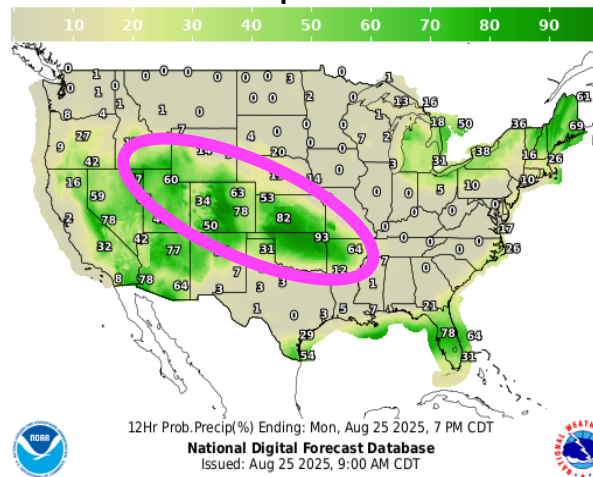
500 mb Contours



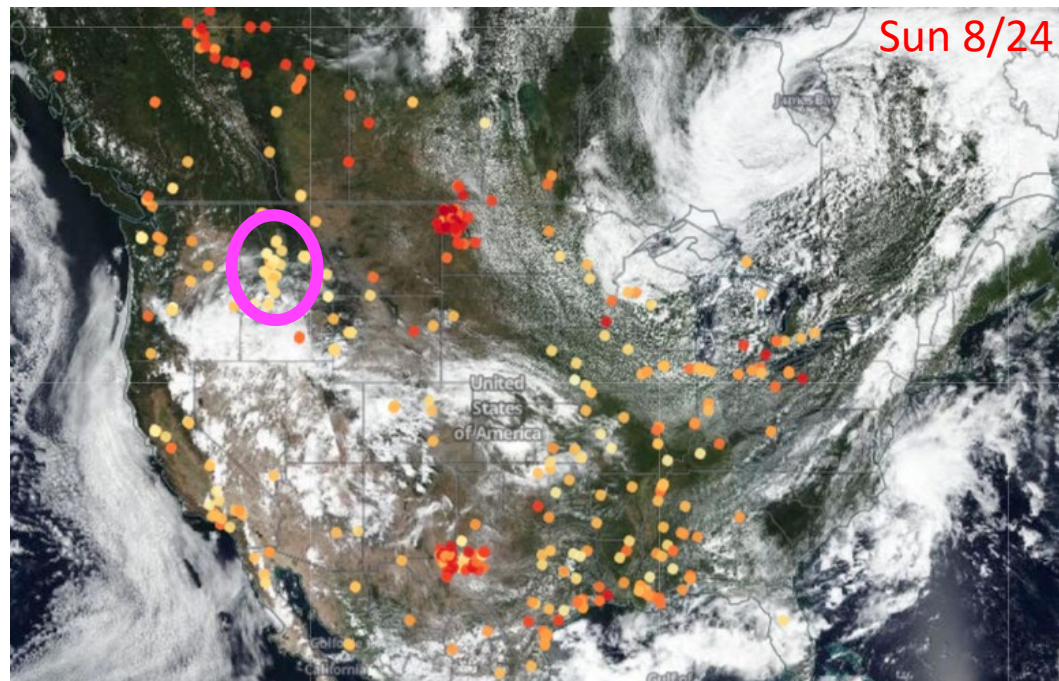
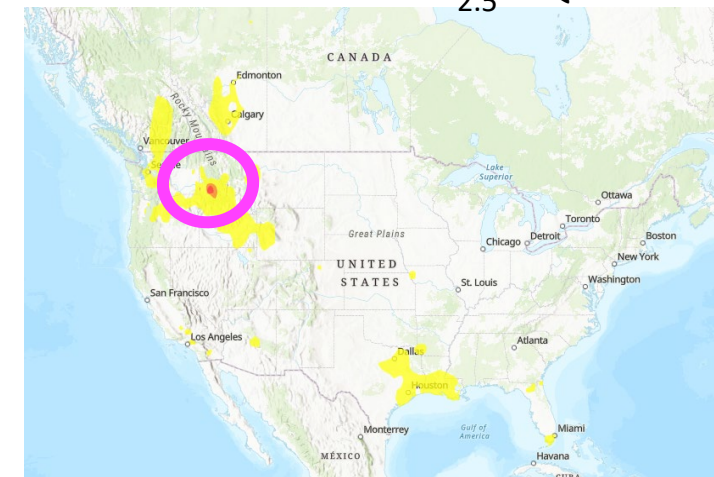
Surface Analysis



Precip. Prob.

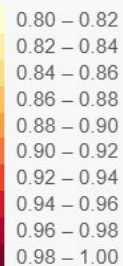


AirNow PM_{2.5} AQI

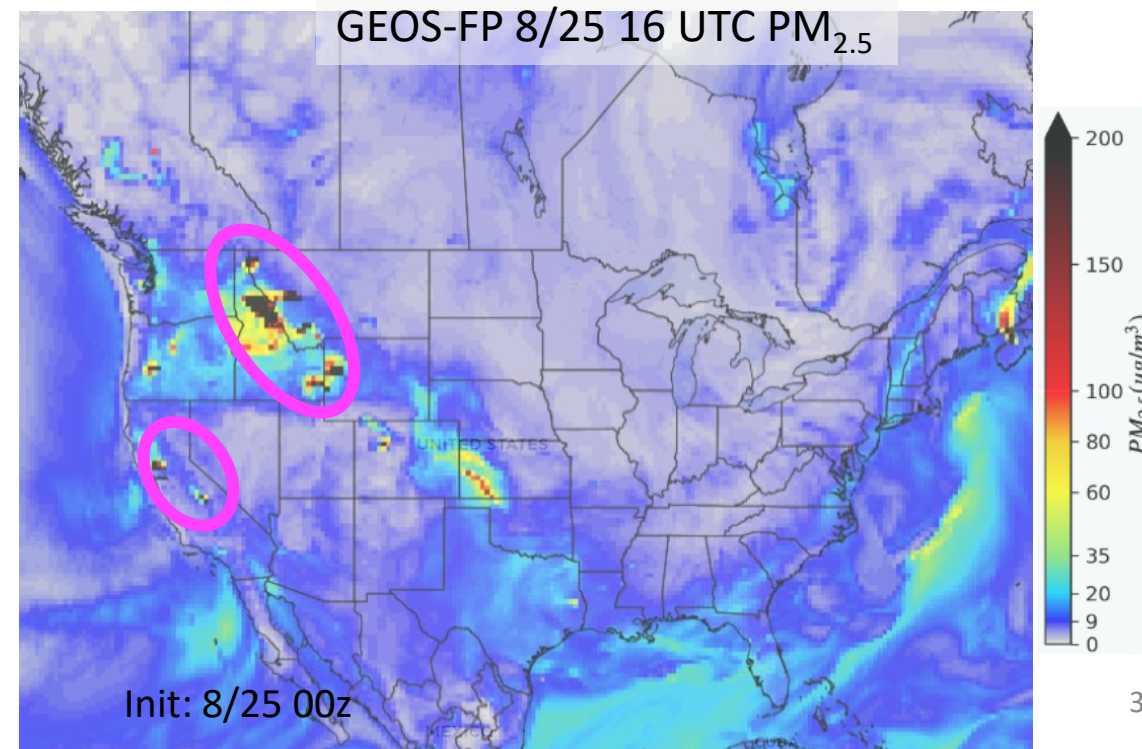


Sun 8/24

MCE



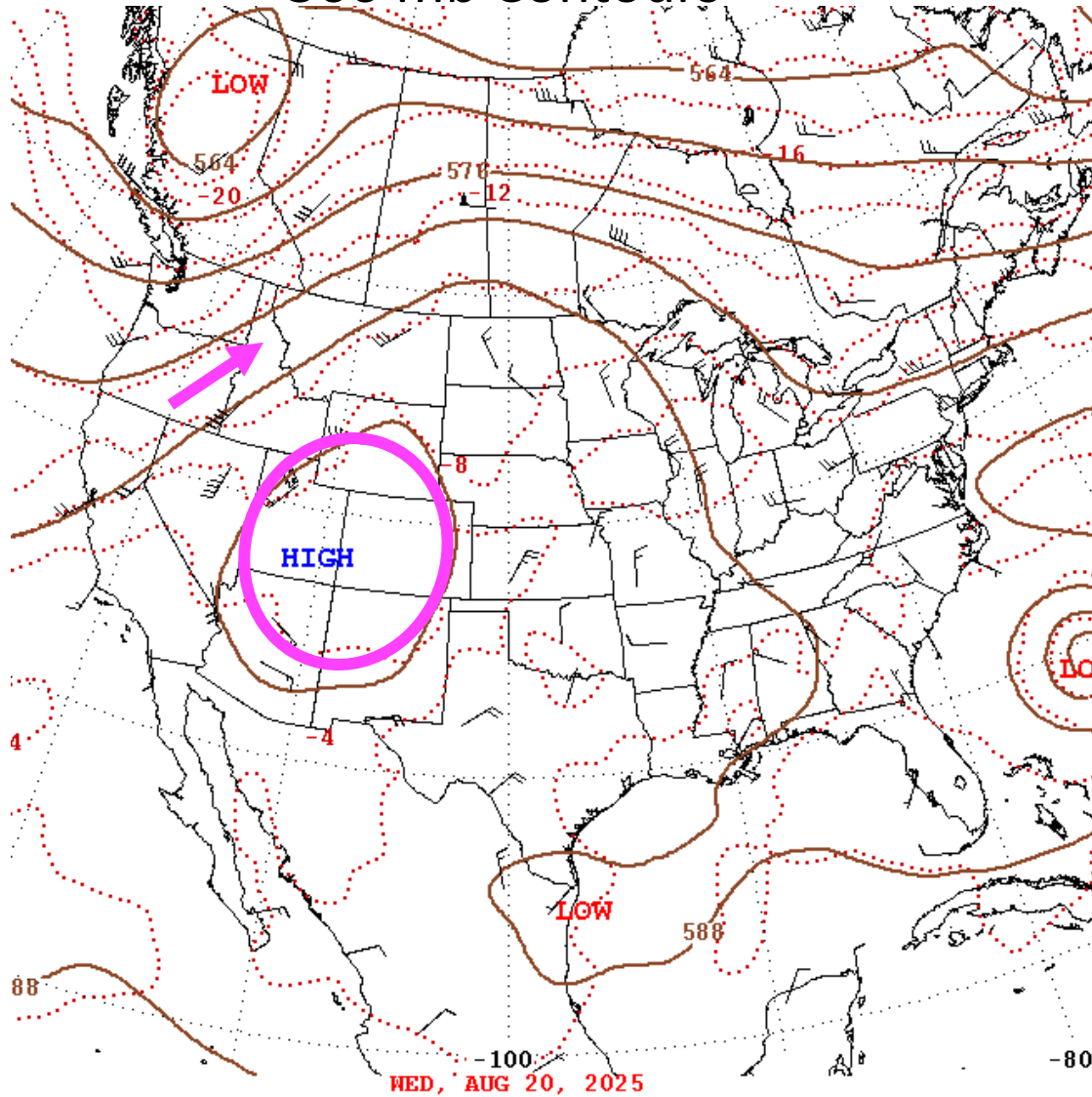
GEOS-FP 8/25 16 UTC PM_{2.5}



Init: 8/25 00z

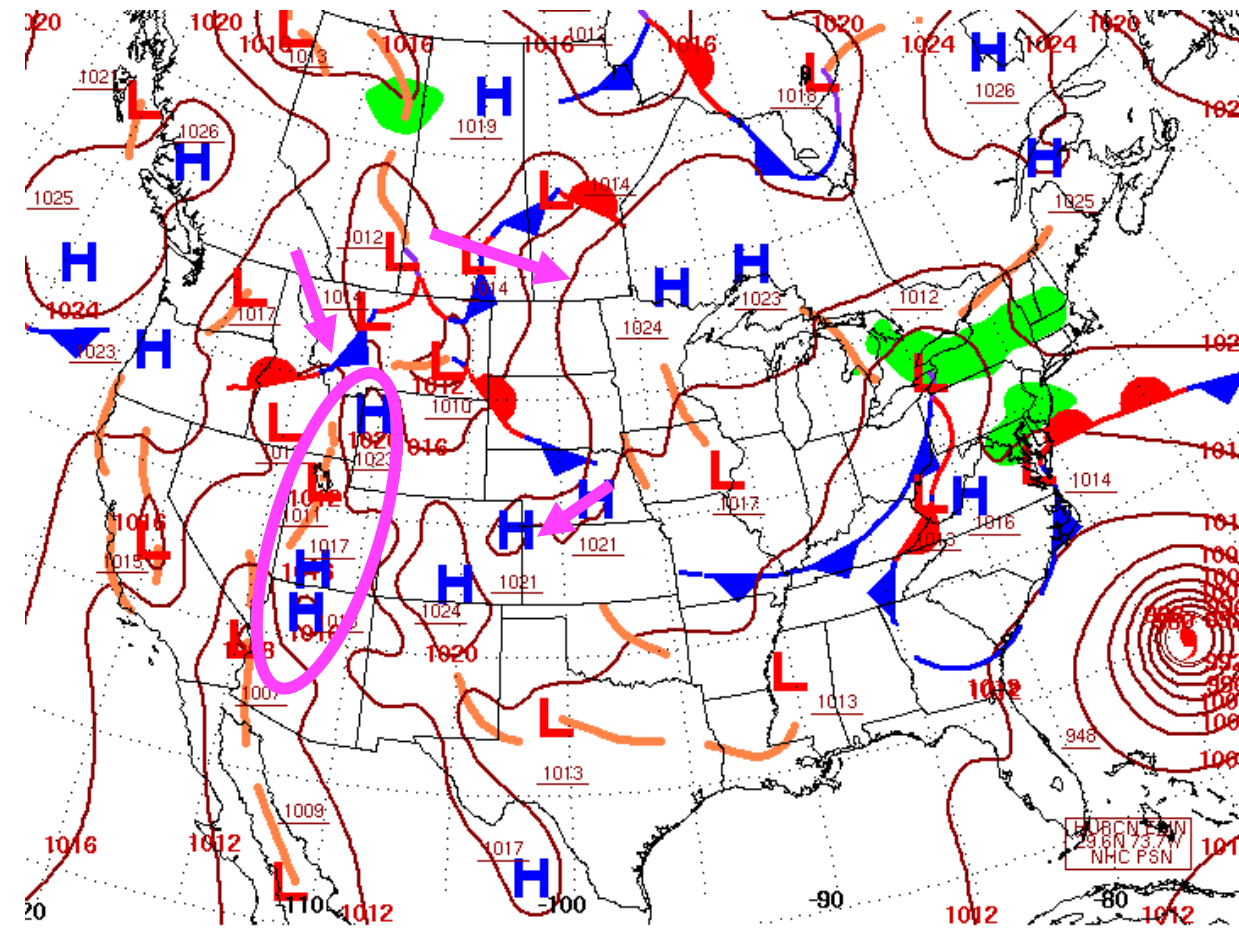
Air Quality Reflection: Thursday August 21, 2025

500 mb Contours



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

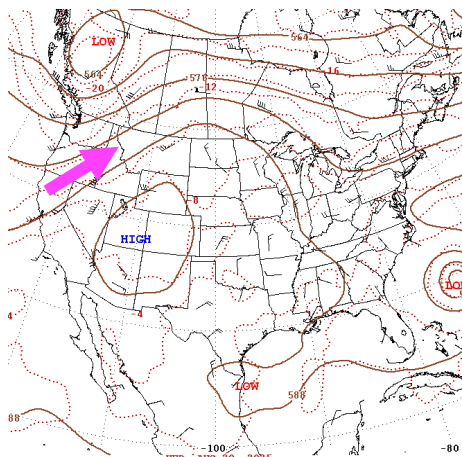
Surface Weather



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

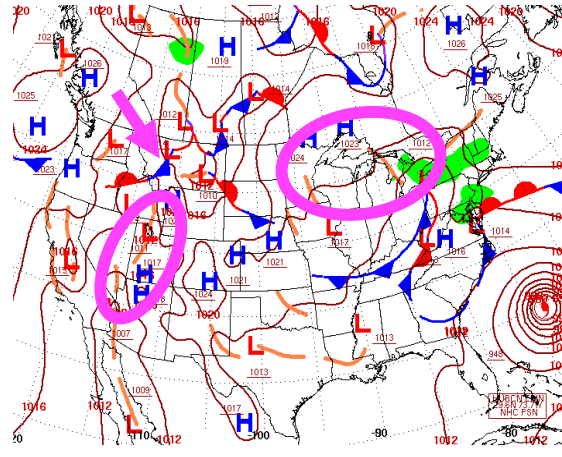
Air Quality Reflection: August 21, 2025

500 mb Contours



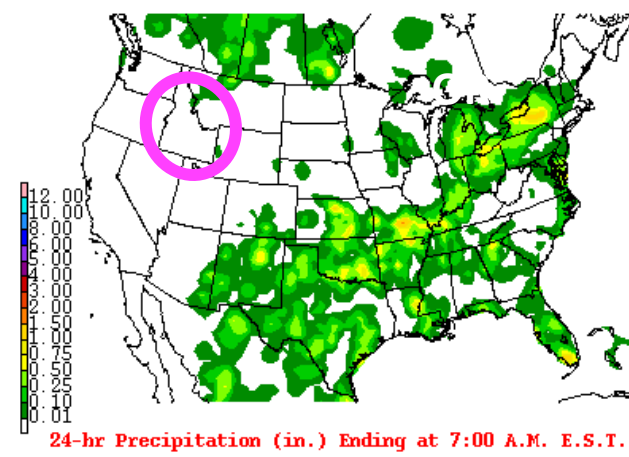
HED, AUG 20, 2025
500-Millibar Height Contours at 7:00 A.M. E.S.T.

Surface Weather



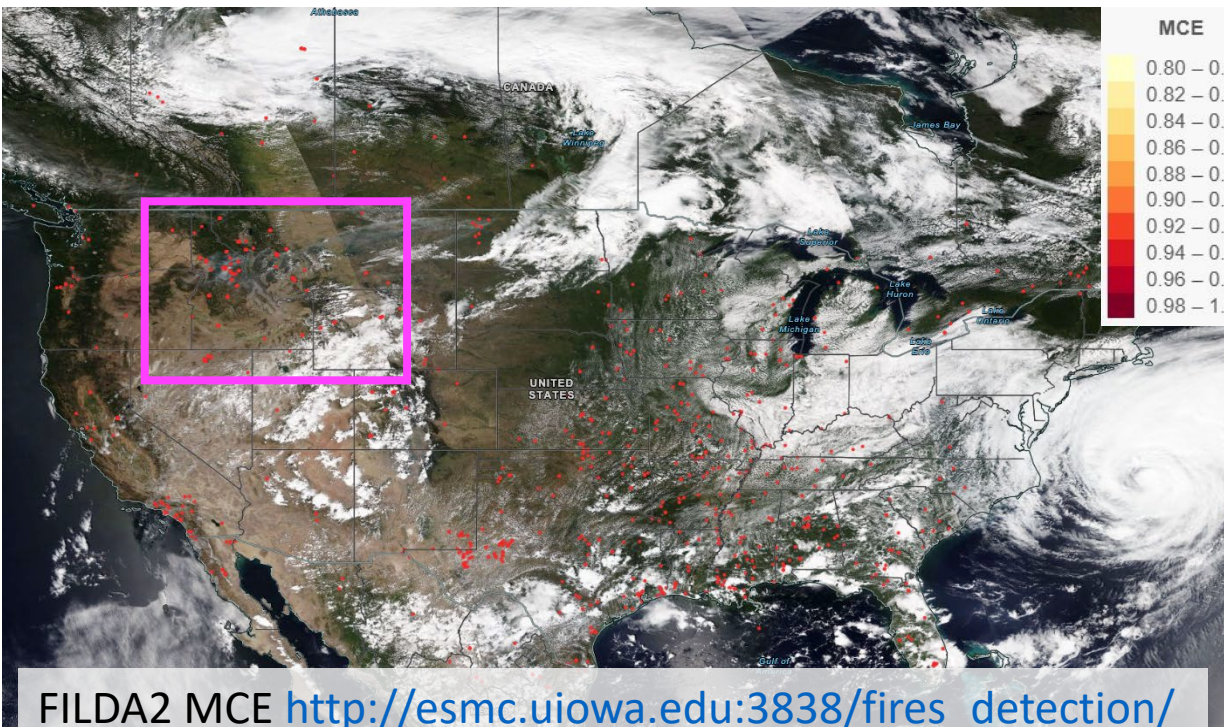
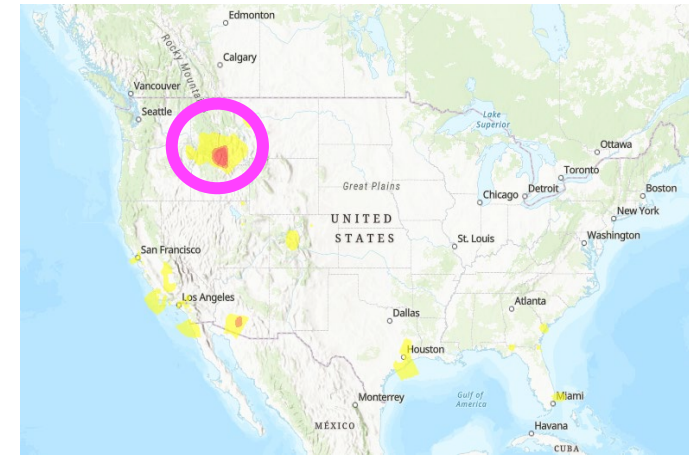
Surface Weather Map at 7:00 A.M. E.S.T.

Precipitation

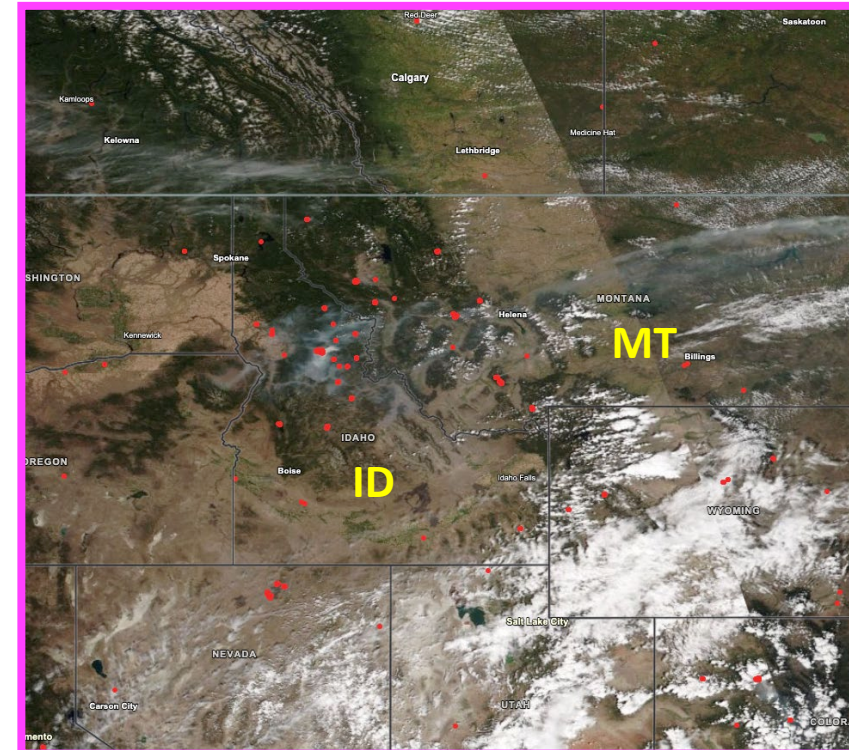


24-hr Precipitation (in.) Ending at 7:00 A.M. E.S.T.

AirNow PM_{2.5} AQI

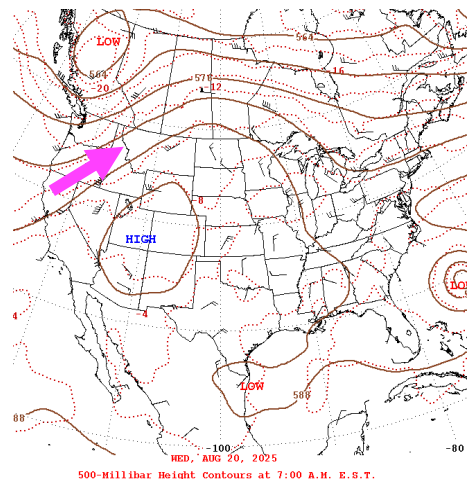


FILDA2 MCE http://esmc.uiowa.edu:3838/fires_detection/

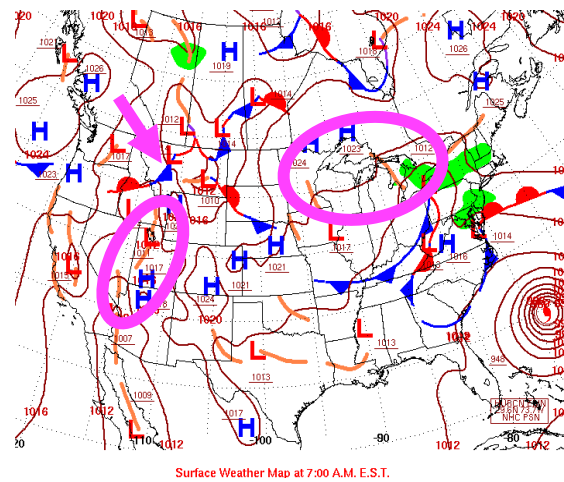


Air Quality Reflection: August 21, 2025

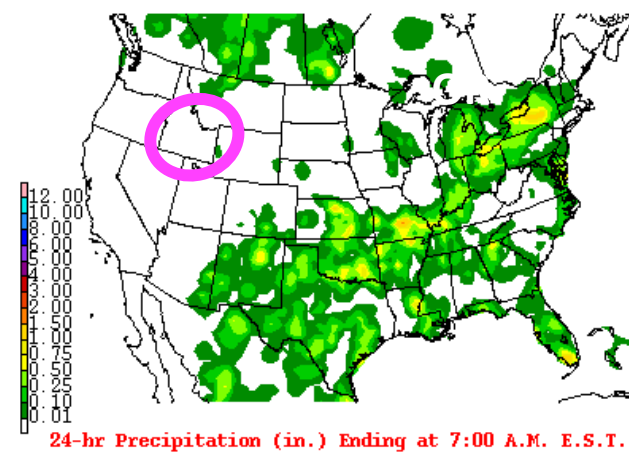
500 mb Contours



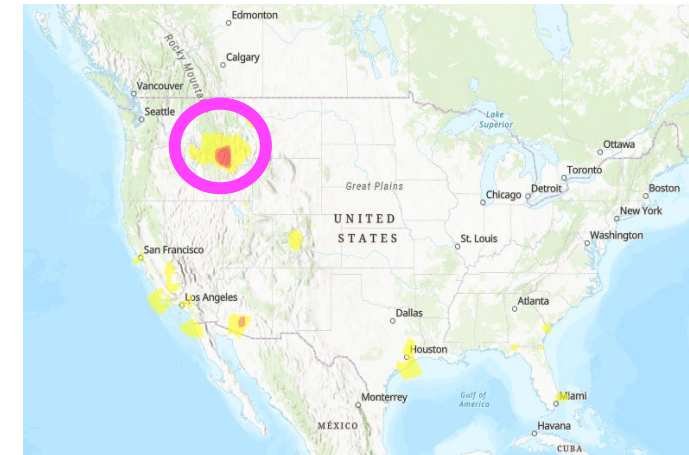
Surface Weather



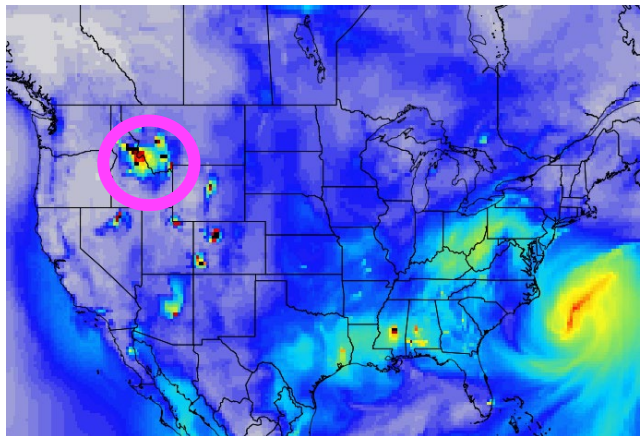
Precipitation



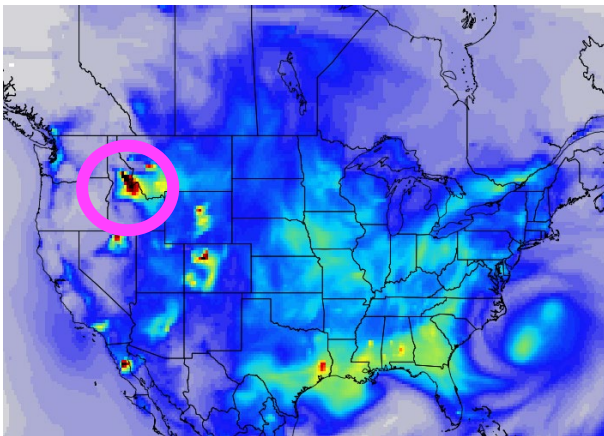
AirNow PM_{2.5} AQI



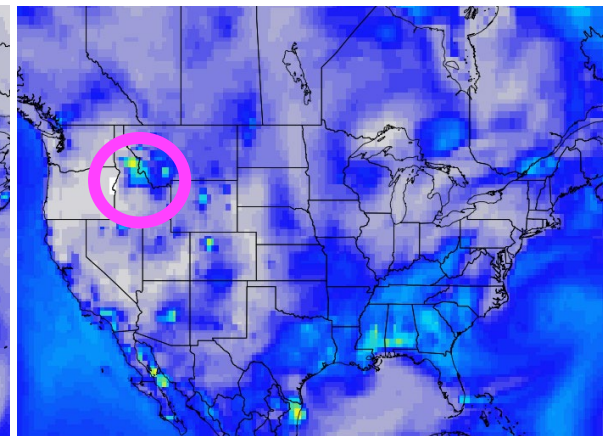
GEOS-FP



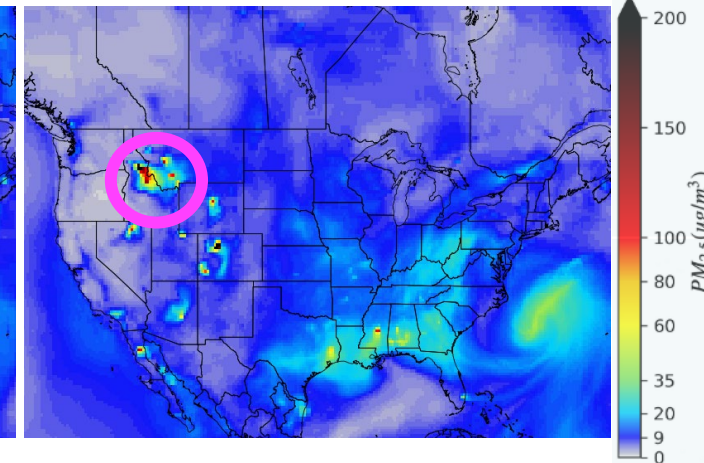
GEOS-CF



CAMS



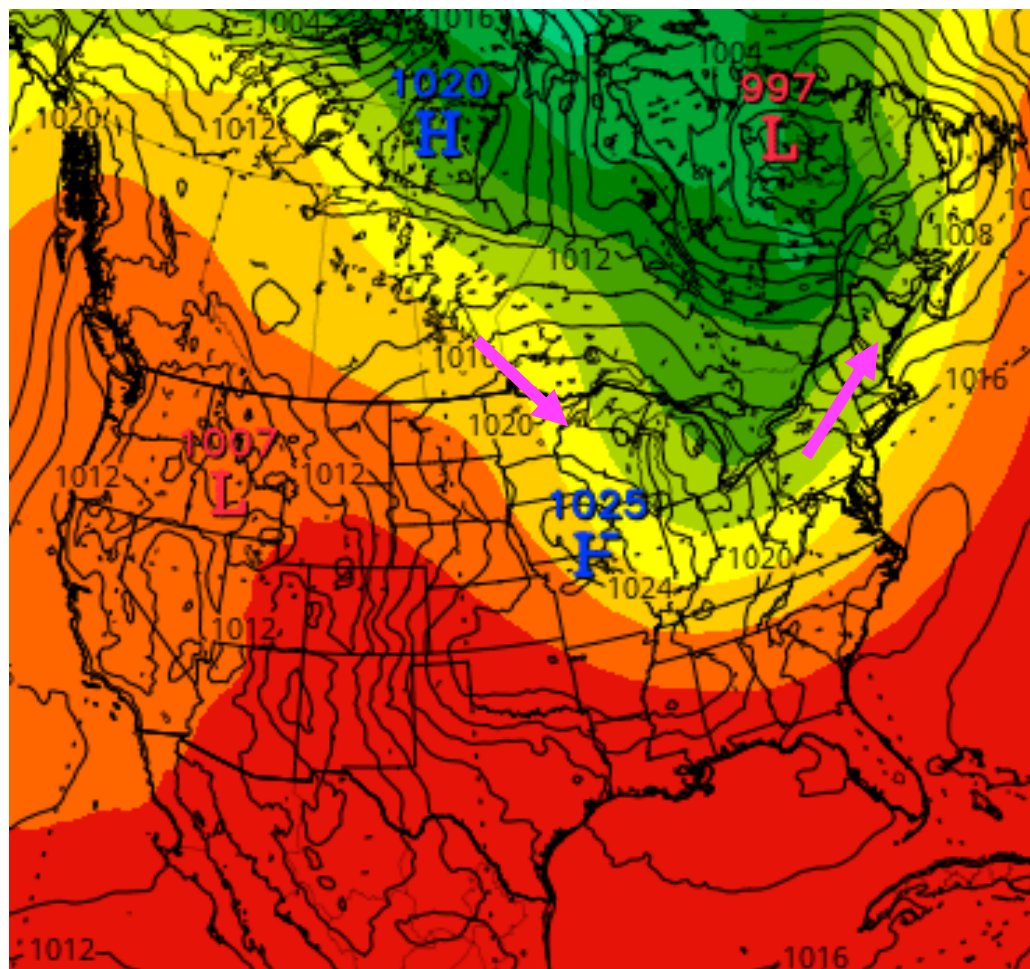
Ensemble



Outlook: Short Range (1–3 days)

(Forecast **Tuesday 8/26**)

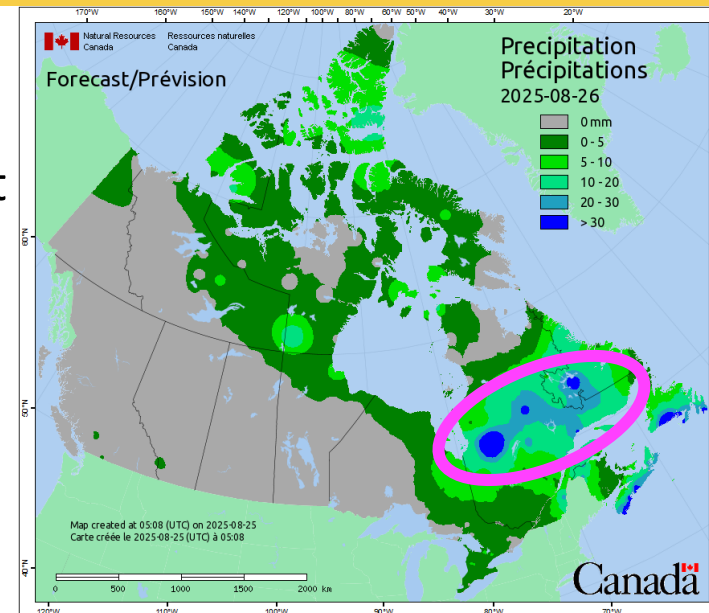
GFS 500 mb



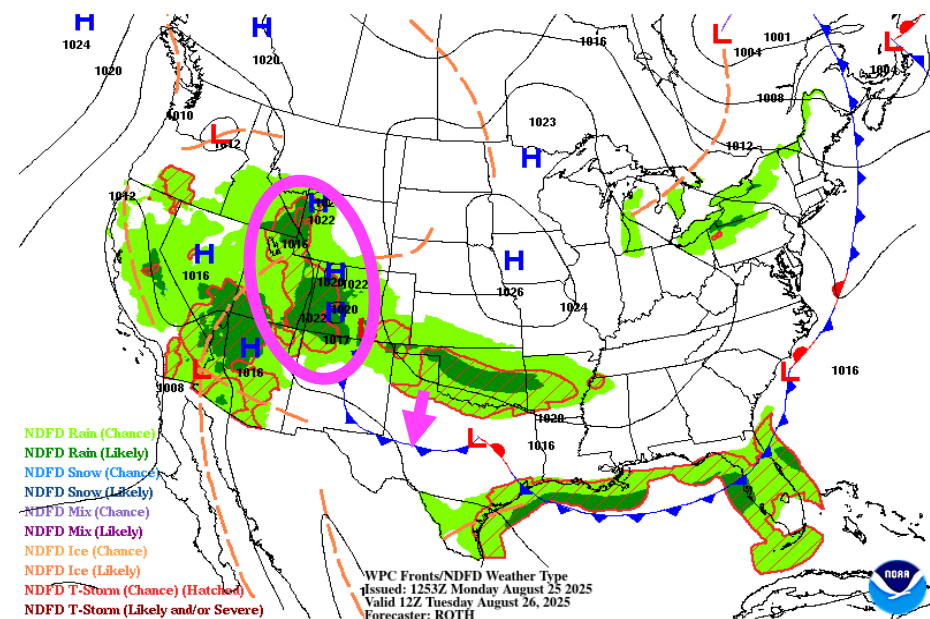
GFS 500mb Geopotential Height (dam) & MSLP (mb)

Init: 06z Aug 25 2025 Forecast Hour: [36] valid at 18z Tue, Aug 26 2025

Environment
Canada
Forecast

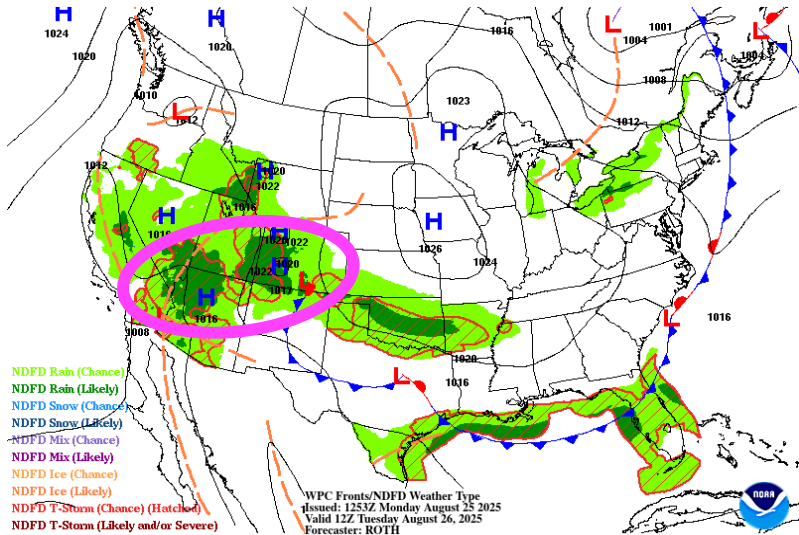


US NWS
Forecast

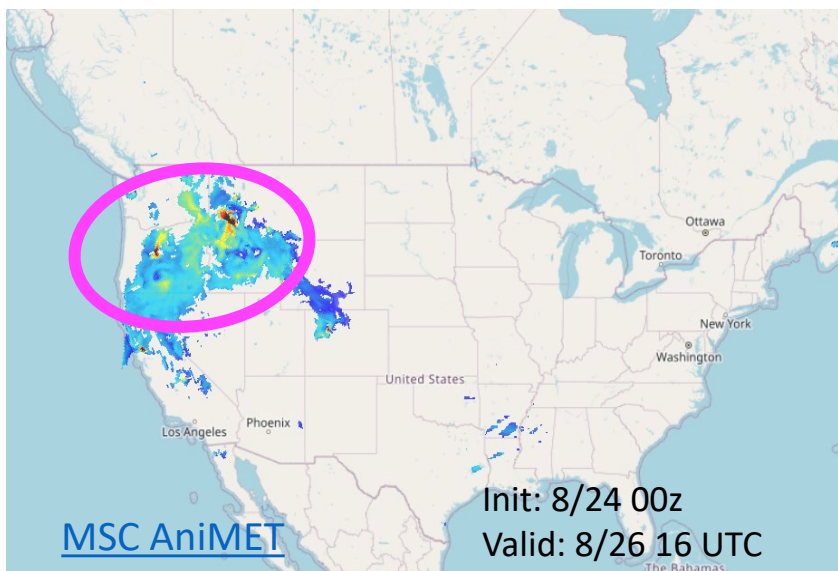


Outlook: Short Range (1–3 days)

Surface Forecast



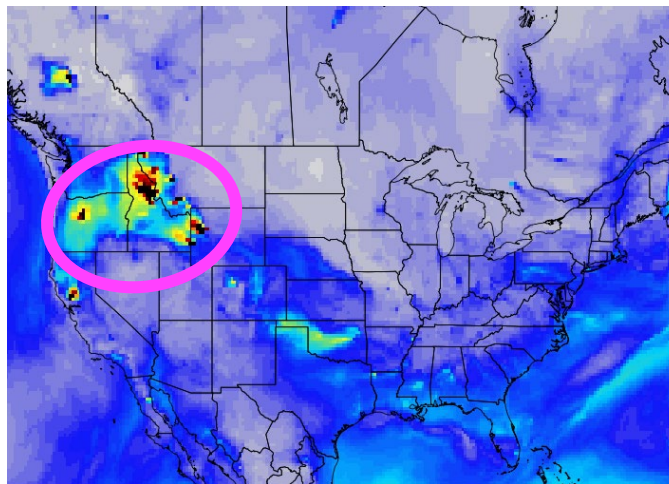
Canada MSC AniMET



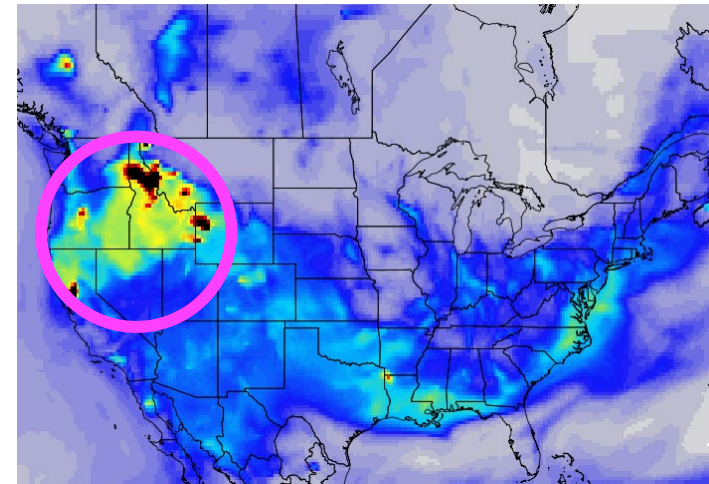
(Tuesday 8/26)

Model Means $\text{PM}_{2.5}$

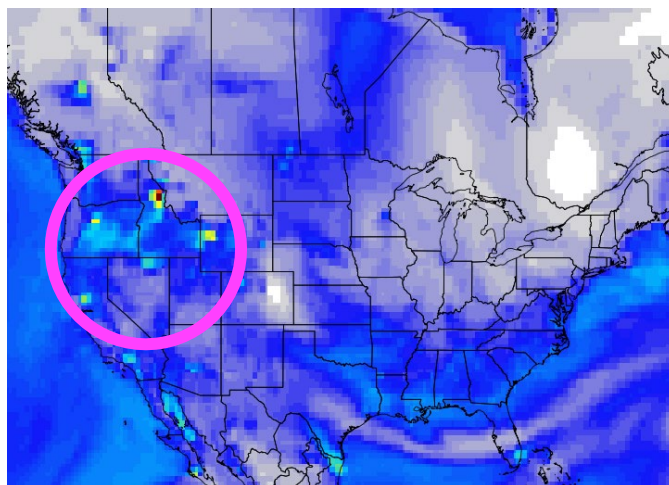
GEOS-FP



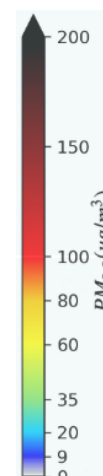
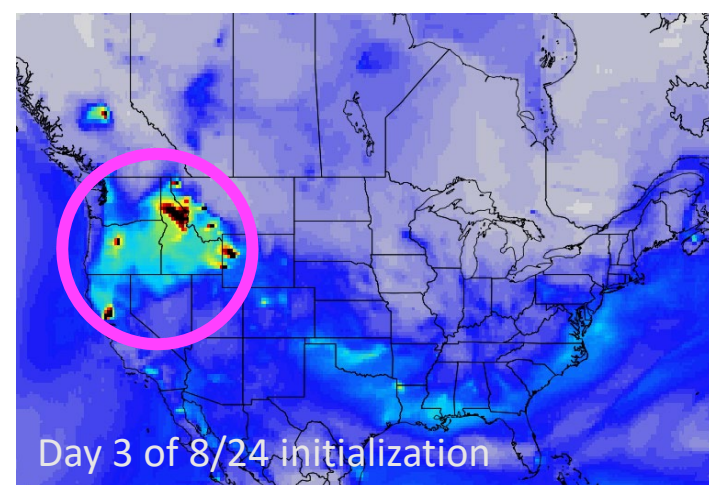
GEOS-CF



CAMS



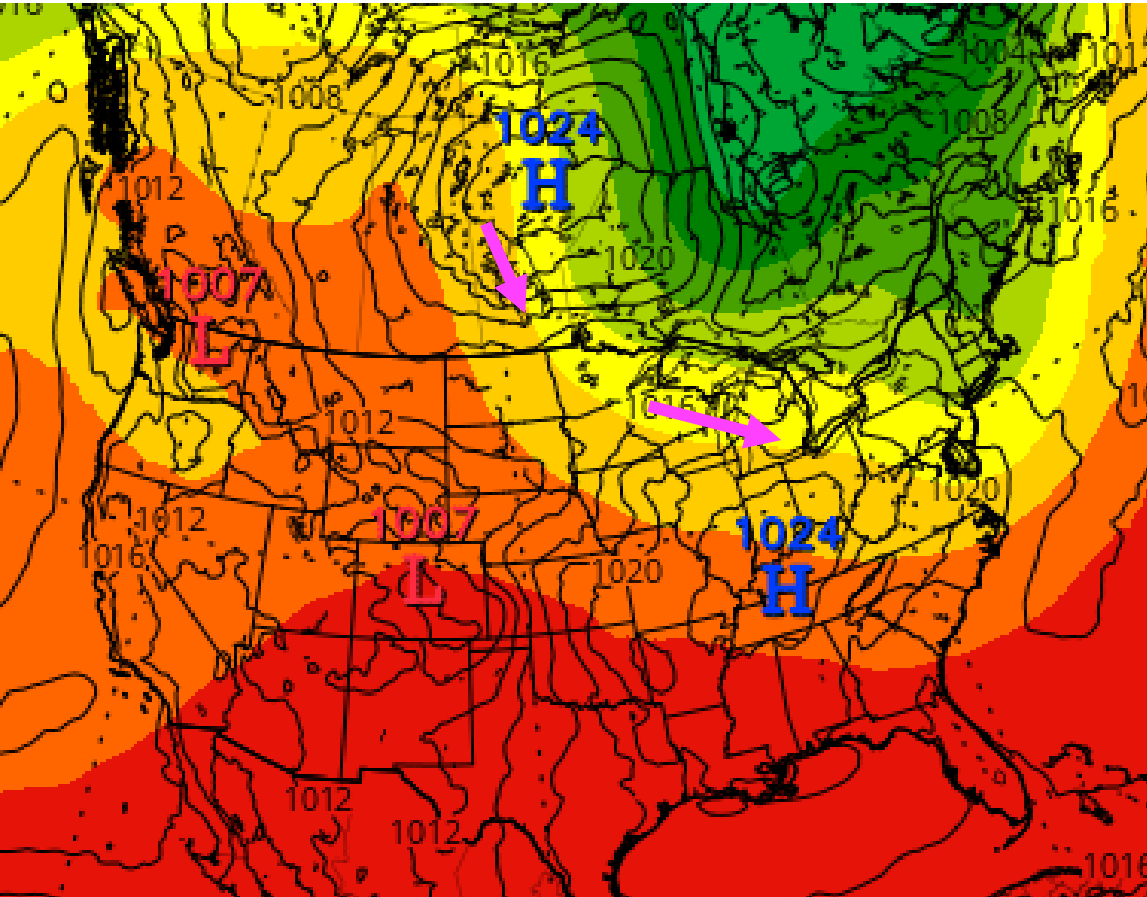
Ensemble



Outlook: Short Range (1–3 days)

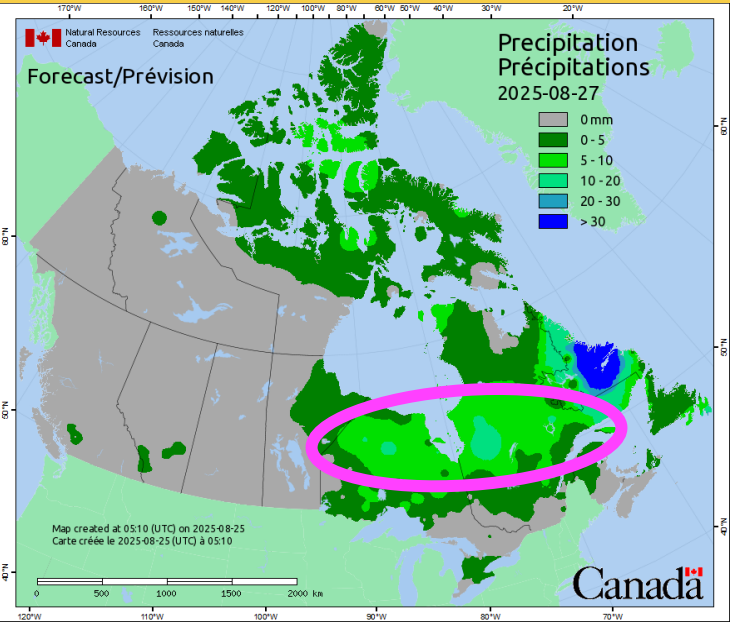
(Forecast **Wednesday 8/27**)

GFS 500 mb

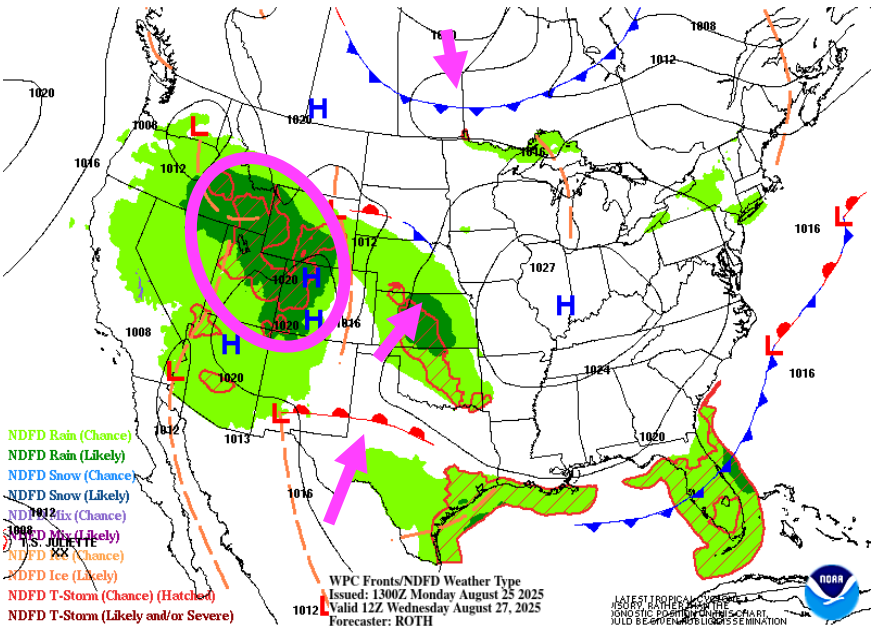


GFS 500mb Geopotential Height (dam) & MSLP (mb)
Init: 06z Aug 25 2025 Forecast Hour: [60] valid at 18z Wed, Aug 27 2025

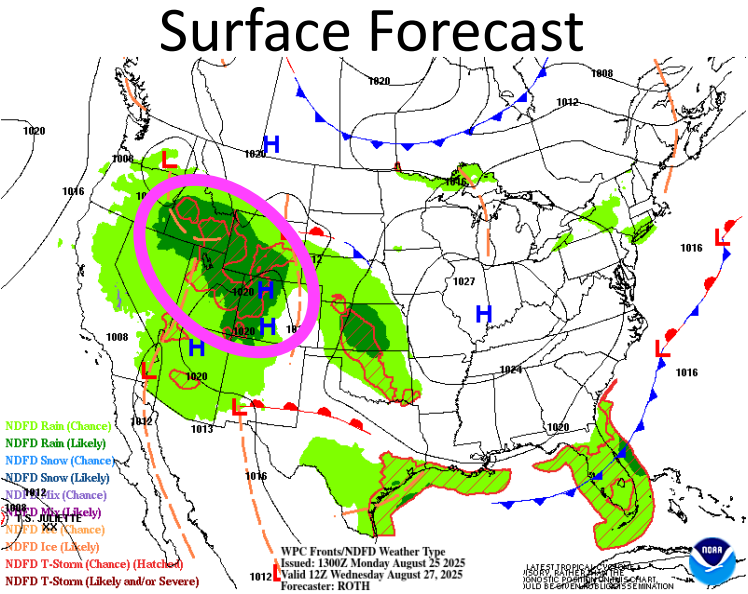
Environment
Canada
Forecast



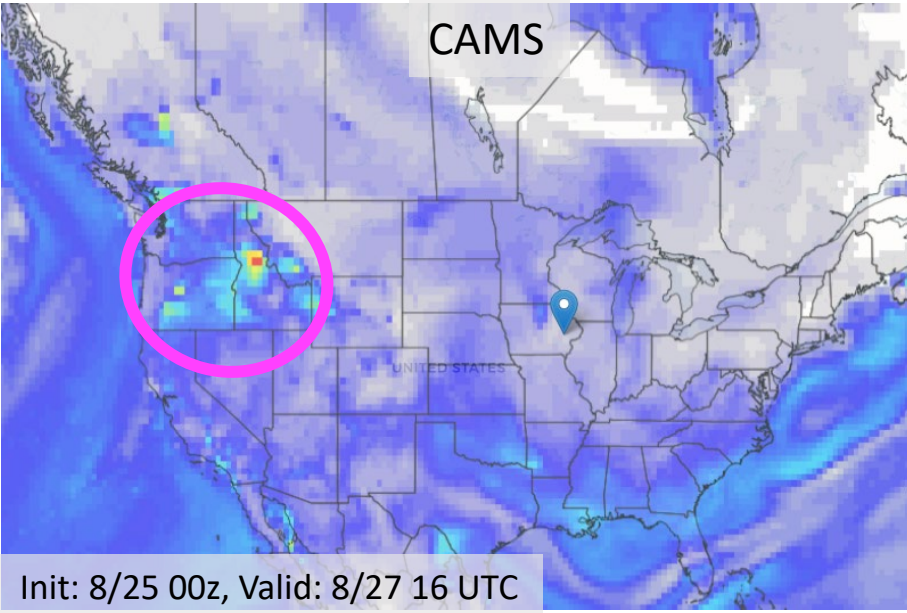
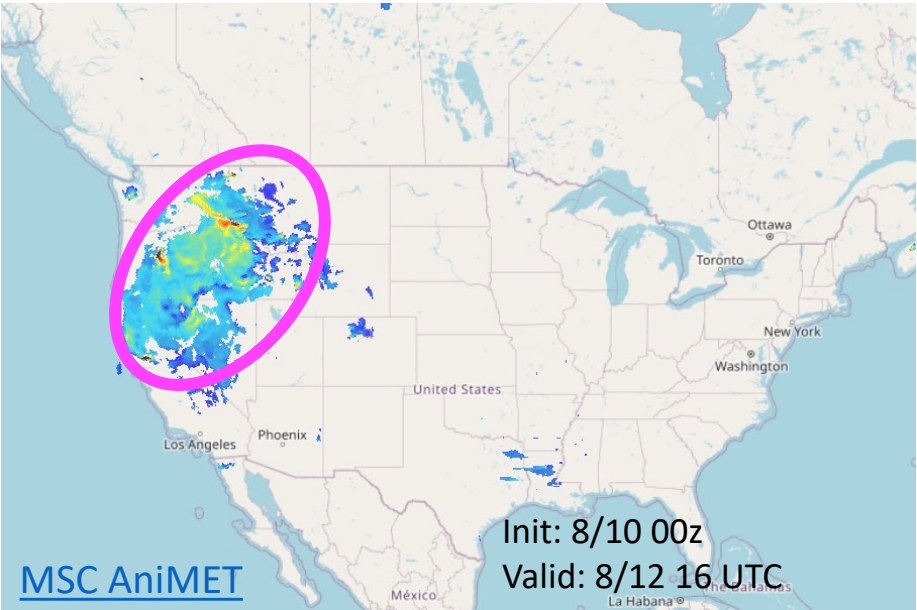
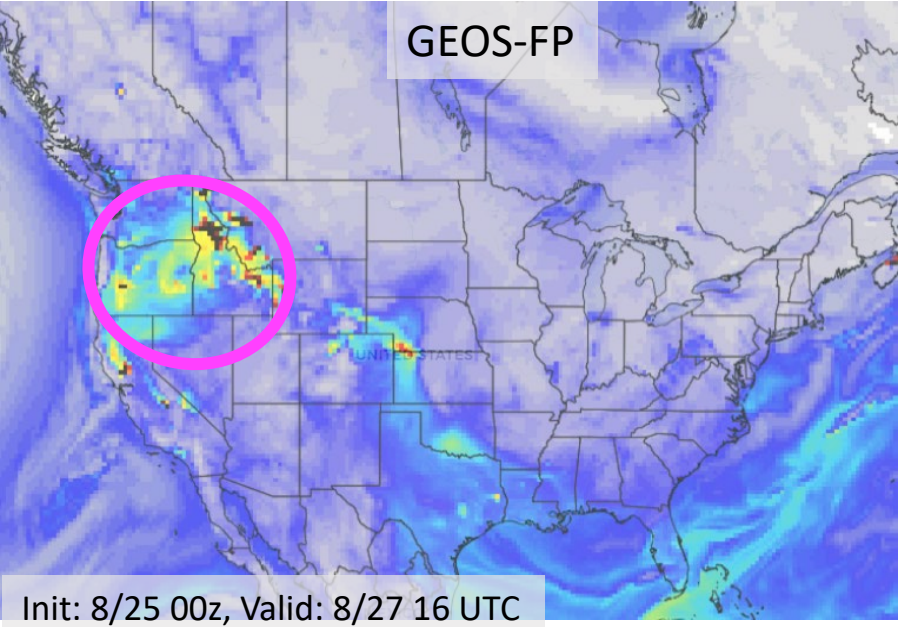
US NWS
Forecast



Outlook: Short Range (1–3 days)

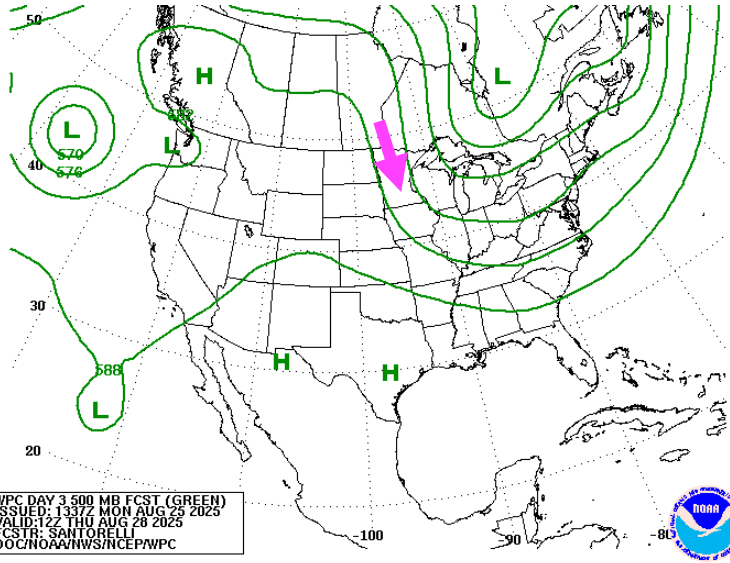


(Wednesday 8/27)

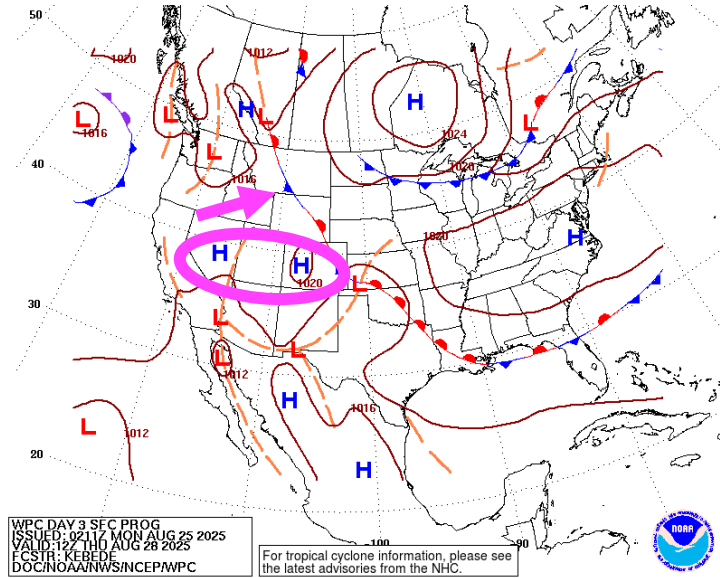


Outlook: Medium Range

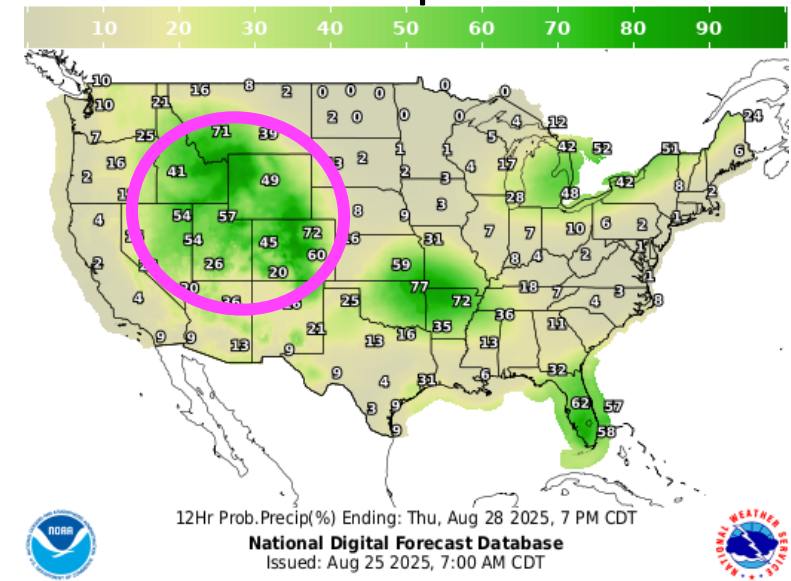
500 mb Contours



Sea Level

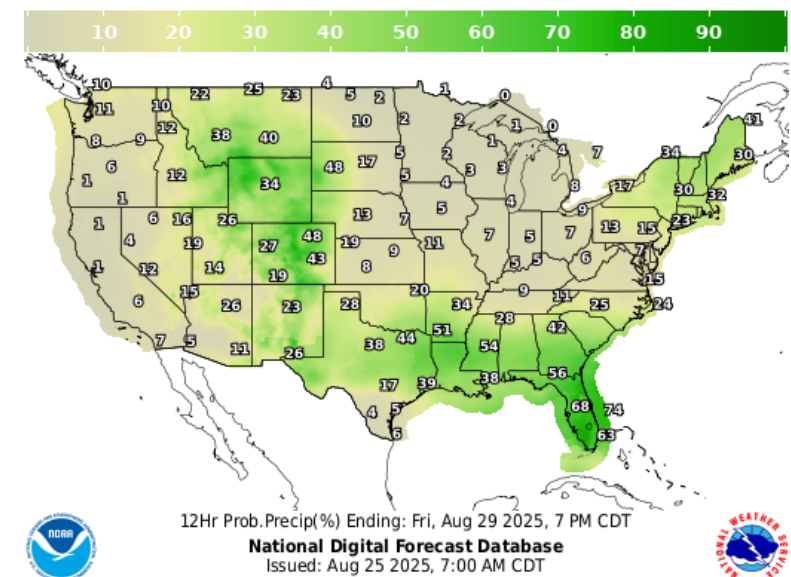
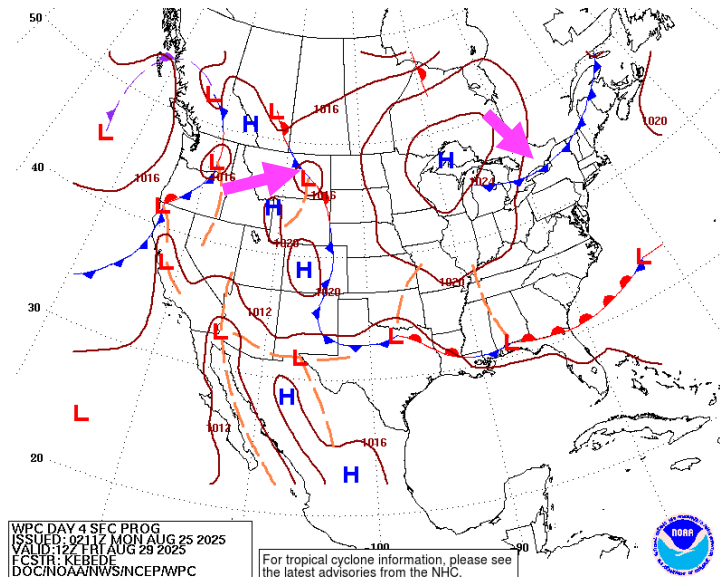
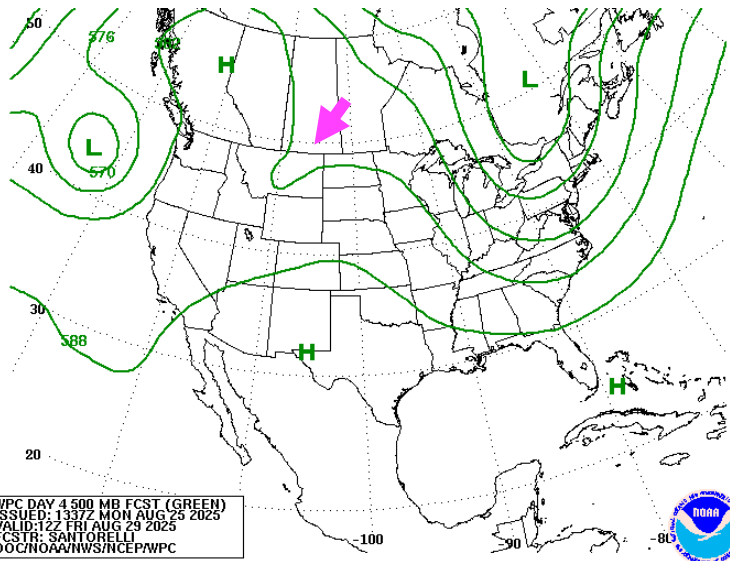


Precip Prob.



Thurs
8/28

Friday
8/29



Summary

Monday : Active wildfires in ID are impacting local (USG) and regional (moderate) PM AQI.

T → W : Smoke from ID wildfires continue to impact local/region AQI where weather fronts and upper atmosphere high do not promote widespread transport.

Th → F: Smoke in the PNW/western US persists. IF fires were to appear in central/eastern Canadian provinces the upper atmosphere trough would promote potential smoke transport, but surface cold front would limit the southerly extent.