

Answer to reviewer:

Dear authors, thanks for considering the additional reviewer suggestions. Prior to publication, please more thoroughly discuss the implications of your results for modeling and forecasting approaches in the summary. In the current manuscript, it remains vague how your results enhance forecasting approaches.

Thank for pointing out that the implication section was tackled vaguely. We included the following paragraph in the summary:

*“Improved understanding of these processes have the potential to enhance forecast skills as they alter air-mass properties and exchanges across fronts. Frontal and precipitation systems modify aerosol burdens and O<sub>3</sub> concentrations (a key driver of oxidative stress), thereby changing the atmospheric pollution load. Furthermore, they reshape atmospheric stability, cold pools, and inversion layers, which influence subsequent air-mass exchange, convective initiation, and turbulence. Accounting for these effects can improve both weather predictions and air-quality forecasts.”*