

# Referee Comment on Revised Manuscript

I appreciate the author careful attention to all the comments. The revised manuscript has improved clarity on the potential bias from the use of the VIIRS aerosol classification product through the inclusion of the IMPROVE station data, providing more robust confidence in the results.

The author addressed all major and minor concerns; the revised manuscript now provides a clearer explanation on the 21 identified patterns and validated their reliance on the VIIRS product to reduce uncertainties from satellite-only bias. The inclusion of spatial discrepancies between the VIIRS aerosol classification product and IMPROVE observational data, especially in the southern plains of Oklahoma and Kansas, is also helpful for the readers.

The revised manuscript has improved clarity and now provides a more robust and well-validated assessment of how different identified weather patterns drive dust across the North American Great Plains. I believe that the revised manuscript has addressed the main concerns and that the manuscript is notably stronger for it.

I recommend acceptance, contingent on any final minor editorial checks.