Overview

This work uses formaldehyde-to-NO2 ratios (FNRs) from the Geostationary Environmental Monitoring Spectrometer (GEMS) to classify ozone formation regimes over eastern China during the warm season (April-September) from 2021-2023.

This version of the manuscript is much improved from previous versions. Specific concerns that were addressed in the new version included:

1. Clearer definitions of:
    a. Temporal extent of the study.
    b. O3 sensitivity regimes based on FNR values.
    c. How the point data was compared to the gridded satellite/meteorology data.
2. Additional literature support for:
    a. Seasonal trends in O3 formation.
    b. Satellite retrieval algorithms for GEMS and TROPOMI.
    c. Consistency between surface O3 and GEMS tropospheric O3 VCDs.
3. A quantitative comparison between TROPOMI and GEMS for the NO2 VCDs, HCHO VCDs, and FNRs.
4. Additional statistical support for relationships between the satellite observations and meteorology. There is still room for improvement here (see the Specific Comment section below).

The changes made to this newest version of the manuscript has addressed almost all of the concerns from the previous round of revisions. I suggest that this paper be published with consideration of the following comment and suggested technical corrections.

Specific Comment

Line 431: I think the statistical relationships between pollutants and meteorology were much improved in Section 3.1 but are not present in Section 3.4. From my interpretation, the statistical analysis between pollutants and meteorology in Section 3.1 (i.e., Table S1) is based on all data in the study region. Are there differences in the statistical relationship among the four cities/regions of interest? In Section 3.4, the differences in NO2, HCHO, and meteorology between the cities are already qualitatively described, so including statistical information for each city would help to strengthen the discussion even more, just like it did in Section 3.1.

Suggested Technical Corrections

Line 72: capitalize the author's name in the reference.

Line 247: there is some sort of error with the text here.

Line 315: same error as above.