

I appreciate the authors' clarification regarding the use of the DLS observations. To clarify my original concern, the use of a single intensive observation site to evaluate a specific chemical mechanism is not, in itself, an issue. My concern is instead related to the interpretation of the feedbacks from the implementation of this mechanism at the regional scale.

As shown in the main text, once the mechanism is incorporated into the regional model, it affects other chemical species and processes, including chlorine species, radicals, aerosol composition, and ozone. It is therefore useful, and is also commonly done in the literature, to compare the regional consequences or impacts of the mechanism using independent observations or comparisons across the model domain, where appropriate.

In fact, the studies cited by the authors themselves provide examples of this. For example, the cited work of Zhang et al. (2016) used observations at a specific site to evaluate the HONO chemistry, and the implications of the revised chemistry were examined on a broader regional scale, including its effects on ozone and comparison with observations at multiple monitoring locations. Similarly, Zhang et al. (2021) used observations to evaluate the HONO chemistry but also examined the outcome of the revised chemistry for OH and aerosol species and their regional implications.

I distinguish between (1) evaluation of the mechanism against the DLS observations, which the work already includes, and (2) assessment of the regional impacts produced by that mechanism. If independent observations of PM_{2.5}, O₃, or other relevant species are available for the regional domain, and the simulated changes are sufficiently large to be meaningfully evaluated against observations, comparison with such observations would provide additional support for the regional-scale results.

Finally, regarding the DLS marker in the spatial plots, its purpose is simply to provide the reader with geographical context and to allow the location of the observational constraint to be viewed relative to the regional patterns shown in the figures.