Reply on CC1

Andrew Geiss et al.

Author comment on "Downscaling atmospheric chemistry simulations with physically consistent deep learning" by Andrew Geiss et al., Geosci. Model Dev. Discuss., https://doi.org/10.5194/gmd-2022-76-AC3, 2022

Thank you for your feedback. I was not previously familiar with these two papers, but they are definitely relevant, and I plan to add references to both in the final revision of the manuscript. I am glad to see more work on integrating physical constraints directly into ML architectures. Like you say, the method developed in these two papers, our super-resolution method, and the method from Beucler et al. 2021, are unique in the exact approach used, but are closely related in that they all implicitly enforce physical constraints within the neural network architecture.

-AG