Review of Pound et al.

Pound et al. present research implementing an updated oceanic ozone deposition scheme into a chemical transport model. The deposition of ozone and other compounds to both land and water is an important uncertainty in global models of atmospheric chemistry. The manuscript addresses a key uncertainty in modern models, is well written, and likely suitable for publication in ACP once the following comments are addressed.

Major Comments

Resolution Dependence

The simulations in this work are completed at 2˚x2.5˚ globally. Dry deposition is highly dependent on environmental conditions that vary in their distribution at higher spatial resolutions. It's not immediately clear from the text that the performance assessment in this work would be consistent at higher model resolutions. Do the authors expect their implementation to be a similar improvement at all relevant spatial resolutions, or are these results unique to 2˚x2.5˚?

Computational Expense

A major advantage of the simplified fixed surface resistance is the associated light computational burden in calculating deposition velocities. It would be useful if the authors could comment on the additional computational expense (if any) of their improved simulated deposition velocities.

Additional Species

The parameterization presented here is likely to be relevant and useful to the simulation of species other than just ozone. It would be valuable to the broader community if the authors could comment on what would be necessary to extend this analysis to other chemical species, and potentially what the impact on those species would be.

Minor Comments

Eq 1: In the atmospheric science literature, dry deposition velocities are typically written with respect to the atmosphere (e.g. $F = -V_d * C$). The sign in this equation is unclear with respect to the reference frame of the deposition.

P6 L26: The labels k and α are inconsistent between the text and Figure 5, which uses full name descriptions. This adds confusion for the reader.

Figure 5: Why are all panels a function of temperature except for "Water side friction velocity"? Is the Water side friction velocity also binned by temperature?

Figure 6 & Figure 9: What do the shaded regions in the figure represent?

Technical Edits

P2 L21: “Gases that are highly soluble giving them a small r_c”. This sentence is confusing as written.

P3 L10: “(the product of …” the parenthesis in this section appear to be off.

P6 L17: “*Dand*α” authors likely meant “*D* and α”