

## ***Interactive comment on “An improved parameterisation of ozone dry deposition to the ocean and its impact in a global climate-chemistry model” by Ashok K. Luhar et al.***

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This paper describes an improved parameterization for oceanic deposition of ozone. It is based on a 2-layer molecular/turbulence model where the reactive component on the Oceanside is restricted in depth. The concentration of the reactive component (iodide) is represented as a function of ocean temperature. The new parameterization is compared to a set of direct observations from shipboard measurements. It gives a much better fit to the data compared to the 1-layer approach. The parameterization is incorporated into a global chemistry model and the results with different parameterizations are compared. The basic approach is sound and the new parameterization fits the data very well.

C1

In my view the paper is acceptable for publication in its present form. One essential point is the restriction of the reaction to within 2 microns of the surface. This seems artificial and, as discussed by the authors on page 13, may be a surrogate for the decrease of turbulence near the surface because of dissipation. Perhaps this issue could be solved with a better representation of turbulent mixing, near the interface, but for now their method is successful as a parameterization that seems to work. The authors may wish to reiterate this point in their conclusions.

Here are a few other comments: \*Figure 5b is confusing in that it appears that an increase in a can lead to a decrease in  $V_{dw}$ . I finally figured out that reactivity is not an independent variable but correlated with temperature. \*Figure 7. It would be amusing to see the 1-layer no turbulence solution on this graph.

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C2