Reply by the authors to L. J. Carpenter's comment on
"Revising global ozone dry deposition estimates based on a new mechanistic parameterisation for air-sea exchange and the multi-year MACC composition reanalysis" (#acp-2017-768)

Comment: *I enjoyed reading this paper which carefully lays out improvements to the authors' previous oceanic O3 dry deposition formulation by including chemical reactivity below the reaction-diffusion sublayer. I have a question which I don't think any of the reviewers raise, on the reaction-diffusion sublayer thickness: how were the values of the constant c0 chosen?*

Response and changes in manuscript: We thank Prof. Lucy Carpenter for her views on our work. In the reaction-diffusion sublayer, $l_m = (D/a)^{1/2}$ is an appropriate length scale. Thus, using scaling argument, it is reasonable to assume that the thickness of the reaction-diffusion sublayer (δ_m) is proportional to l_m with the coefficient of proportionality (c_0) being a constant of the order unity. In Figures 1a and 1b of our paper, we plot $1/r_c$ curves for three values of c_0, viz. 0.2, 0.4 and 0.7, which fall within the two asymptotic limits (equivalent to $c_0 \to 0$ and $c_0 \to \infty$). The value c_0 = 0.4 was selected for further sensitivity analysis reported in Figure 3 because it leads to a $1/r_c$ variation that roughly lies in the middle of the two asymptotic limits as shown in Figures 1a and 1b. As mentioned on Page 12 Line 13, in all our subsequent deposition calculations we used Option 4 with δ_m = 3 microns (see the 1st para on Page 13) which obviously does not need a specification of c_0.

We include the above clarification in the revised version of the paper.