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Interactive comment on "The impact of ice uptake of nitric acid on atmospheric chemistry" *by* R. von Kuhlmann and M. G. Lawrence

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We would like to thank the referee for his constructive comments on the manuscript. We added a comparison (including a new figure) of the fractional coverages found by Popp et al. (2004) during the CRYSTAL-FACE campaign (see their Figure 13) to the predictions by our model. To keep the comparison simple we now show their mean quintile values along with the theoretical prediction as used in the CTM for typical conditions. We also discuss the relation between the IWC and SAD as found by Popp et al. (2004) and compare it to the relation used in our runs (based on Heymsfield and McFarquhar, 1996). While the first comparison suggests an overestimate of HNO3 uptake in our standard simulation, the latter comparison showed that our IWC-SAD relation yielded much lower surface area densities, thus possibly underestimating the overall

HNO3 removal in the simulations. Overall, this led us to add additional statements to recognize the remaining uncertainties in modelling the global ice phase and HNO3-ice interactions.

The minor comments were considered and led to some clarification of the manuscript.

References

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