

## ***Interactive comment on “Reactive uptake coefficients for heterogeneous reaction of N<sub>2</sub>O<sub>5</sub> with submicron aerosols of NaCl and natural sea salt” by D. J. Stewart and R. A. Cox***

**D. J. Stewart and R. A. Cox**

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The suggestions from this referee to are interesting and helpful; we will take them forward as far as possible, in particular the size dependence of the uptake coefficient, in a reanalysis and produce a revised version of the paper.

we will also try and explain as clearly as possible what we have done to correct for the size dependence.

However the comments in the second paragraph of 'specific comments' are unclear. There is no quantity 'ell' either on page 10 or in Table 2 so the points don't make sense. Perhaps the referee could clarify the character 'ell'. In the last sentence  $\langle r \rangle$  is the particle radius obtained from the ratio  $V(\text{total})/A(\text{total})$ ; it should be pointed out that  $r(\text{peak})$  in the volume distribution is 140 nm (Fig 1 shows diameter,  $D$ , not radius)

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Also in the third paragraph reference is made to  $\text{HNO}_3$ , but as we have pointed out in the paper, for the  $\text{NaCl}$  molarities present in the deliquesced aerosols here  $\text{N}_2\text{O}_5$  is not hydrolysed but reacts with  $\text{Cl}^-$  to form  $\text{NaNO}_3$  plus  $\text{ClNO}_2$ ;  $\text{HNO}_3$  is not formed in the droplets and they will not become acidified as a result of the reaction. The formation of nitrate will affect the reaction, as we have discussed in the paper.

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Interactive comment on Atmos. Chem. Phys. Discuss., 4, 569, 2004.

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