

Interactive comment on “Measurements of HONO during BAQS-Met” by J. J. B. Wentzell et al.

J. J. B. Wentzell et al.

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Comment #1: The authors understand that simply stating a range of rate constants could result in confusion and have added a sentence explaining that this implies the reaction could not simply be in the gas phase to the abstract.

Comment#2: The so-called daytime “unknown” HONO source does not include $k_2[\text{NO}][\text{OH}]$ and dark heterogeneous processes, The photostationary of HONO is calculated using $k_2[\text{NO}][\text{OH}]$ and dark heterogeneous but they are not included in the calculation of the production of “excess HONO” observed during the daytime; this point has been clarified in the manuscript.

Comment#3: The HONO/NO₂ ratio used was only from the first part of the night, before it appeared that deposition balanced out production.

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Comment#4: The HONO/NO₂ ratio is used to calculate the dark production of HONO from NO₂. This reaction should still occur during the daytime hours; however the reviewer is quite right that it alone would not sustain the observed HONO concentrations. That is why a photolytically enhanced reaction is being discussed.

Response to Editorial Changes:

- Sunrise and sunset were defined by the ability to measure an actinic flux
- The callout on P15300/L21 has been changed to Figure 2
- 15301, L6 “Boundary” has been changed to “boundary layer”
- “Both Cases” refers to both day and night, and has been changed to reflect that
- P15303/L2-4 Has been changed to ratios >5% were not often observed
- P15303/L18-25: The introduction of the heterogeneous conversion of NO₂ to HONO has been moved and is introduced prior to the reaction HONO+OH...
- P15304/L6: HONO PSS's could not be calculated when NO concentrations dropped below 1 ppbv, this was not often a problem.
- P15319 The caption has been changed to reflect a left and right panel. In the initial submission of the manuscript (prior to typesetting) the panels were stacked
- P15320-15323, The Y-axis is correct. The reference to the X-axis should read the product of NO₂* and water vapour.

Interactive comment on Atmos. Chem. Phys. Discuss., 10, 15295, 2010.

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