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ACPD

10, C8148–C8149, 2010

Interactive Comment

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

J. J. B. Wentzell et al.

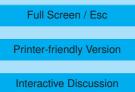
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Received and published: 30 September 2010

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  $k_2[NO][OH]$  and dark heterogeneous processes, The photostationary of HONO is calculated using  $k_2[NO][OH]$  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.

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