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Interactive Comment

Interactive comment on "New insight into the spatiotemporal variability and source apportionments of C_1–C_4 alkyl nitrates in Hong Kong" *by* Z. H. Ling et al.

Anonymous Referee #1

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Alkyl nitrates and its formation processes are very important for the understanding of atmospheric photochemistry. However, so far there are limit number of studies investigating this issue. This study presents valuable measurement data of alkyl nitrates concurrently obtained from a mountain site and an urban site on the foot of the mountain in Hong Kong. Overall, the manuscript is well-written and is worth to be published in ACP. Before that, some minor points should be appropriately addressed.

1)The information for the sampling at Tai O should be added in the map in Figure 1 and the introduction of data, because the results at the station were used to compare with alkyl nitrates at the two stations.

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2)The authors described meteorological conditions for separated periods in Table 2. These introductions were partly repeated in the main text, but there is a lack of weather charts to support these descriptions. I would like to suggest giving figures to show representative weather chart for each period but give the Table 2 in supplementary if the authors think the table is important.

3)In the first paragraph of section 3.2.1, the authors used the method of Bertman et al.(1995), which follows three assumptions. It should be discussed whether the both stations met the assumption. For example, if TMS is a NOx-rich environment? Otherwise, the uncertainty should be discussed.

4) Page 22608, at the end of first paragraph of section "Diurnal variation", ". . .relatively higher levels of MeONO2 and EtONO2 were observed from midnight to early morning, which could be associated with marine air masses originating from the South China Sea as the southerly winds prevailed". Here the southerly winds are generally associated with the delayed sea-breezes, which could bring the daytime photochemically-aged pollution from land and re-circulated to the coastal region at night (Ding et al., 2004). So this pollution is only contain marine source but also aged plumes.

5)Figure 4, it will be better to show the diurnal variation of other species, such as O3, NOy and the parent hydrocarbons, together with RONO2.

6)For the alkyl nitrates measurements, Wang et al. (2003) presented results at Hok Tsui site measured during Trace-P period. Please also make some comparisons in the Figure 2 and the text.

Reference:

Ding et al., Simulation of sea-land breezes and a discussion of their implications on the transport of air pollution during a multi-day ozone episode in the Pearl River Delta of China, Atmos. Environ., 38, 39, 6737-6750, 2004.

Wang et al., Chemical characterization of boundary layer outflow of air pollution to

ACPD

15, C8567–C8569, 2015

Hong Kong during February-April 2001, J. Geophys. Res, 108, D20, 8787, 2003.

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15, C8567–C8569, 2015