

Response to Referee number 1

8th December 2020

The authors would like to thank Referee no. 1 very much for his/her expertise and valuable comments to further improve and clarify the MS. We also appreciate his/her quick reaction. We have considered all recommendations and made the appropriate alterations. We also accomplished some other smaller corrections. Our specific responses are as follows, while the textual modifications amended can be traced in the marked-up version of the MS, which is attached.

Minor comments

L29. I am not sure what is meant here. Did you intend to refer to “the possible role of atmospheric vehicle-induced mixing processes”?

1. The sentence in Abstract was shortened by removing its unclear part.

L208: This unit conversion is based on the Magnus-equation.

2. The description of the conversion method was clarified by several, smaller textual modifications. See also Answer no. 3.

L210: The coefficients of this Magnus-equation can only be applied above liquid water. Different coefficients A and B are needed above ice surfaces, i.e. $T < 0$ °C.

3. Equation 1 with identical coefficients is acceptable for sub-cooled liquid water as well. We explicitly indicated in the text now that we utilized this approximation. The lowest 1-h mean T was ca. -5 °C, which confirms that this seems to be a plausible approach since the two saturation vapour pressure curves for liquid water and ice surface follow each other closely in the related temperature range. Moreover, the freezing occurred from January to the beginning of April, and, therefore, the conversion did not affect the restriction phases which were in the focus of the study.

L278: Before, in the methods section you stated that you report absolute humidity and you report values for relative humidity.

4. We performed the conversion of RH to AH in order to facilitate future comparison with other locations or cities in the world mainly for possible virology purposes. This conversion

requires the T data, and, therefore, the reader cannot accomplish it. For the objectives of the present study, however, the RH seems to be more relevant than AH and, therefore, we kept discussing the original property. The sentence explaining the purpose for the conversion was amended accordingly.

Figure 7: Could you please show this plot also for vehicle circulations, which would help to explain the observed differences in air pollutant concentrations.

5. The diurnal variations of vehicle circulation for all pandemic phases were shown Fig. S5 in the Supplement. On the request of the Referee, we extended now Fig. 7 by the panel showing the relevant vehicle circulation curves in the restriction phase, and added some further explanations. In addition, we emphasized better now in a proper place in the text that the corresponding plots can be find in the Supplement.

Figure 8 and 9: Please state that these plots show reanalysis data in the figure caption, so that the figure can be understood by itself.

6. The required extension was added to the figure captions.

L834: Is the expression in brackets really necessary?

7. The expression in brackets was deleted.

L855-L857: It is not clear to me what is meant by this sentence and how this conclusion is supported by the presented results.

8. The sentence indicated was removed from the MS.

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