

## Response

The authors sincerely thank the Editor for the positive evaluation of the manuscript and the valuable suggestions, which remarkably improves our paper.

In the following, we address the issues raised by the Editor:

**Q1.1:** However, as it is not clear where all the measurement sites are located, would it be possible to get these marked in the smallest nest in Figure 1. The description of the sites and used measurements are now still missing from section 2.1. The stations and measurements should be described there and not in the results section.

**A1.1:** Thanks a lot for the suggestion. According to this comment, we marked the locations of the IAP station and the four automatic weather stations in Fig.1 (b) and (c) in the revised manuscript and in this rebuttal. We also added the related description of the sites and used measurements in Section 2.1. Please see [lines 125-127, 136-140](#) in the revised manuscript.

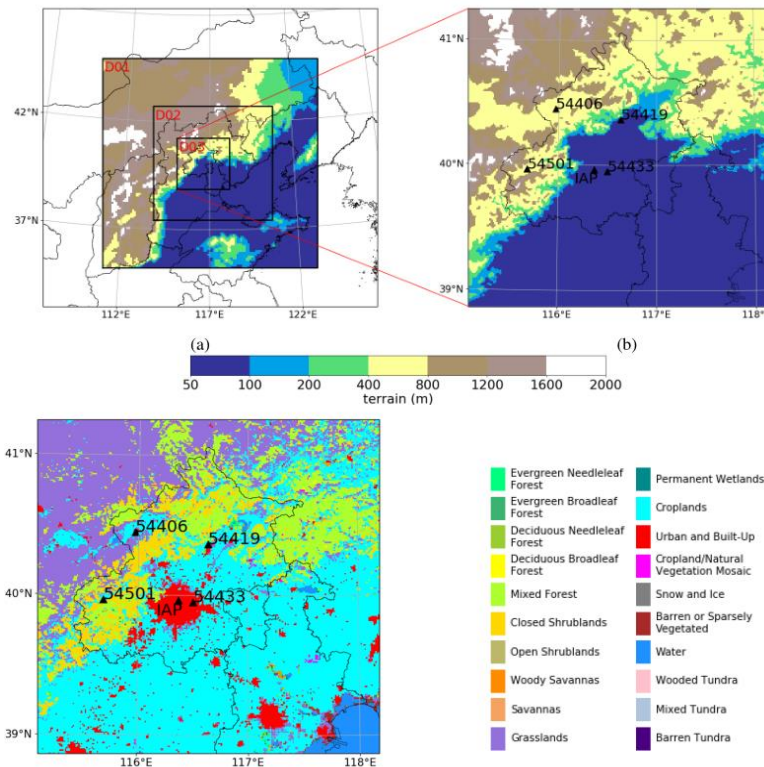


Figure 1. Description of (a) the locations of three nested domains, (b) an enlarged drawing of the terrain belonging to the innermost domain (i.e. D03), and (c) the spatial distribution of the land-use categories within D03. Locations of the IAP station and the four automatic weather stations (No. 54433, 54406, 54419, 54501) are also marked in (b) and (c).

**Q1.2:** The new sensitivity simulations AC\_night\_0.01 and AC\_urban\_1 should also be listed in Table 2 and explained in section 2.2.2 rather than in the results section at L329-332 and L389-391, respectively.

**A1.2:** Thanks for the suggestion. We included the new sensitivity tests (i.e. AC\_night\_0.01 and AC\_urban\_1) in **Table 2** in the revised manuscript. The related explanations about these two sensitivity tests were also added in Section 2.2.2. Please see **lines 204-210** in the revised manuscript.

**Table 2.** Scenarios simulated in the present study, with different setup of Kzmin in the ACM2 scheme.

Type	Kzmin (m <sup>2</sup> s <sup>-1</sup> )	Name
Constant	0.01	ACM2_0.01
	0.2	ACM2_0.2
	0.5	ACM2_0.5
	0.8	ACM2_0.8
	1.0	ACM2_1.0
Function	0.01~1.0	ACM2_CMAQ
Sensitivity test	1.0 (daytime), 0.01 (nighttime)	AC_night_0.01
	1.0 (urban), 0.01 (non-urban)	AC_urban_1.0

**Q1.3:** I would advise that the language of the manuscript is reviewed by a native speaker. There are multiple points with issues and here just to indicate a few of them:

L110: “we described” should be in present mode

L114-115: “...we first evaluated the performance of the PBL scheme (ACM2) with different Kzmin values in simulating meteorological parameters such as the temperature, by comparing with the observational data, and...” sentence is not well written. Should be simply “...we first evaluated the performance of the PBL scheme (ACM2) with different Kzmin values in simulating observed meteorological parameters, and...”

L122: Should be “are as follows”

L334-335: “..due to the same values of the nighttime Kzmin used in these two scenarios..” would be more fluent as “...due to the same night-time Kzmin values used in both scenarios...”

L335: “In contrast to that...” can simply be “In contrast...”

L366: “figure out” -> “see”

**A1.3:** Thanks for the advice. We asked Dr. Holger Grosshans from Physikalisch-Technische Bundesanstalt (PTB) to completely revise the manuscript for us. Many expressions were modified, and the corrections were marked in red throughout the revised manuscript. Furthermore, we will order the English language copy-editing service provided by Copernicus Publications, if the manuscript gets accepted.

**Q1.4:** What comes to the code and data availability, it is not recommended just to have link to the model code as in addition appropriate reference to the data should be added (see [https://www2.mmm.ucar.edu/wrf/users/citing\\_wrf.html](https://www2.mmm.ucar.edu/wrf/users/citing_wrf.html))

**A1.4:** We added the corresponding reference after the link, please see **line 530**.

Thanks.