

General

The authors have made large efforts to address the reviewer's concerns – and have revised the manuscript quite substantially. However, some of the revisions have not been executed carefully enough with a number of inaccuracies resulting (some of them, I admit, were already present in the original version – but I overlooked them (e.g., l. 117)).

So, I recommend publication after taking care of the minor comments I have listed below.

Thank you very much for a second look at the manuscript and the thorough comments. We revised them all and provide our responses below (in blue color).

Minor comments

l.21 the citation in the text should read '(Chen and Ma, 2025)' and in the list of references: Chen X, Ma Y:

Revised as suggested.

l. 83 starting the simulation at 0900 with 2 hrs spin-up is of course extremely late (for a CBL simulation) and quite critically short (for spin-up). Maybe the authors can support their choice by giving an approximate time of sunrise for their 'early March' case (l. 100) they use as a reference.

Revised: now we provide the information about sunrise, and timing of the simulation start (l.82-83)

l.117 '...Gerze station (32.178°N, 84.038°E)'. Figure 1 shows the Gerze station as 'white triangle' (says the caption) – but its longitudinal extent is only going to 84°E – so it should not be visible on the figure. The white triangle is also 'south of 32.15°N' on the figure, which is too far south for 32.178°N). I didn't notice all this in my first review – but the figure should be updated (I checked the coordinates of Gerze station, these seem to be ok). The caption says, furthermore 'centered on the Gerze station' but the white triangle is not really in the center...

Figure 1: revised as suggested. Now the figure has the station at the correct coordinates and the coordinates were slightly modified to match the ones used in Chen et al. 2016.

l.126 '...represented in REAL': this simulation has not yet been introduced (in the original submission, the simulations were introduced on l. 70ff – but this part has been deleted....).

The paragraph has been revised to introduce the experiments correctly and understandably (l.128-135).

l.128 '...two additional experiments....' Additional to what? (no experiment has been introduced so far).

Same as previous response.

Table A1 (caption): ‘..but with ABL heights...’: even if there is a reference to Table 2 (where it is explained that height differences are shown) this seems to suggest that we see heights here. I propose to write ‘...but based on ABL heights...’ instead. Also, it would make sense to repeat here that the numbers given refer to height differences in m APL.

[Revised as suggested.](#)

I.184 ‘NEW:’ ??? should this mean that the preceding lines (169-183) are obsolete? (they are not identical to the text in the first submission....).

[The two paragraphs were removed.](#)

Fig. 2 (caption): the line identification (colors) is only given for FLATu10 (green colors). The caption must explain how the colors are defined (‘accordingly’) for the other experiments.

[Revised as suggested.](#)

I.214 ‘...the realU10 and FLATu10 profiles are highly comparable’. This is indeed true when looking at Fig. 2. However, looking at Fig. 2 also reveals an inconsistency in the description of the experiments. Both, REALu10 and FLATu10 start at 0 m/s near the ground. In Tab. 1, however, the ‘u10 experiments’ are described through ‘as REAL but with $u=10$ m/s ...[higher up]’. But the REAL experiments have $u=1$ m/s near the ground (i.e., everywhere). This must be made consistent in Tab. 1

[Table 1 has been revised to provide accurate information.](#)

I.256 Fig. 6e-h

[Revised as suggested.](#)

I.267 ‘... and promotes vertical...’

[Revised as suggested.](#)

Fig. 7 the horizontal axis now lacks a labeling (x [km])

[Added horizontal labeling to fig. 7.](#)

Fig. 9 (caption) ‘.....as a function of underlying terrain elevation ‘: I propose to specify ‘terrain elevation [m APL]’ (what I suspect it is). Also, in b) the heights (in km MSL) are not consistent with those of Fig. 8. Somehow Fig. 8 suggests ABL heights around 8 km (MSL) at 15 UTC and >9 km (MSL) at 19 UTC, while in Fig. 9b they are around 4 km (MSL) and > 5 km (MSL), respectively.

[Fig. 9: the caption and the y-ticks have been revised.](#)