

Interactive comment on “Recent advances in land surface climate observations on the Tibetan Plateau” by Y. Ma et al.

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General:

Question (Q): 1. The manuscript is an overview of relevant observations and preliminary observational results over the Tibetan Plateau, which are of major interest. 2. No new ideas are presented, merely a summary of preceding work/research is provided and a description of the observations, which provides the international community with a potentially helpful overview. A: Thank you very much for your comments and encouragement.

Q: 3. However, results are given without proper reference to the work from which they were distilled and statements are made without actual proper foundations. A: Thank

C724

you very much for your comments and suggestions. We have revised the manuscript following your suggestions and each result has been described with more detailed and refer each published paper separately (see the revised manuscript, please).

Q: 4. In addition, more than half of the references provided (which are quite a large number) are in the Chinese language or in Chinese/Japanese journals, making them rather in-accessible to the international scientific community. A: Thank you very much for your comments. As you know, recently the Chinese scientists did much research work in the Tibetan Plateau and their papers were published in Chinese. This manuscript is an overview of the research work over the Tibetan Plateau in recent years. Therefore, many references were in Chinese. I have also checked the reference list, I think no reference is in Japanese. The Japanese journals in the reference list are international journal, and they published the papers in English.

Q: 5. The manuscript lacks proper illustrations; descriptions of (temporal) behavior of several parameters are provided but they are not properly founded (or referenced), nor illustrations are provided showing that behavior. A: Thank you very much for your comments. We have revised the manuscript following your suggestions and each result has been described with more detailed and refer each published paper separately (see the revised manuscript, please). The illustrations were provided showing that behavior in each reference, the readers can find them in the references.

Q: 6. The contribution needs improvement of the English (construction of sentences, and also tenses, past, present, are not consistent). A: Thank you very much for your comments and suggestions. The English has been improved in the revised manuscript.

Q: 7. In general the figures are not very clear and messy; they should be made more uniform. A: Thank you very much for your comments and suggestions. The figures has been improved better in the revised manuscript(see the revised manuscript, please).

Q: Summarizing I recommend major revision and re-submission. A: Thank you very much for your comments and suggestions. The manuscript has been revised following

C725

your suggestions.

Specific points:

Q: Section 1. "Introduction". Page 945, lines 1-2 and 9-10: Are all 8 references relevant? A: Thank you very much for your comments. Yes, all 8 references are relevant.

Q: Section 2. "Tibetan Observation and Research Platform (TORP)". Page 946, lines 1-13: Could be shortened drastically, by referring to table 1. A: Thank you very much for your suggestion. Yes, you are right, it is better to change this paragraph to one table. We have revised this part to Table 1 according to your suggestion (see the revised manuscript, please).

Q: Page 947, line 6: "best data set"; what defines "best"? A: Thank you for your comment. "the best data set" means that the observation terms, data quality and the observation period of the GAME/Tibet and the CAMP/Tibet data set is the best data set over the Tibetan Plateau till now.

Q: Section 3. "In-situ data analysis and results over the Tibetan Plateau area". Page 947, line 21: Use a tab/indent to provide a better layout when summing the different (numbered) results. A: Thank you very much for your suggestion. We have revised this part according to your suggestion (see the revised manuscript, please).

Q: Page 948, line 2: what is meant with "variation" here? A: Variation here means the diurnal variation. We have also pointed it in the revised manuscript.

Q: Page 948, lines 4-6: In the dry period H is larger than LE and during the wet season LE is larger than H; this is not typical only for Tibetan Plateau I guess. A: You are right, this is not typical only for Tibetan Plateau.

Q: Page 948, line 10; Reference is made to fig 3, but it is not clear where this is observed. Is it an observation at one point typical for the entire plateau, is it an average? A: You are right, Fig.3 was observed in the CAMP/Tibet area. It was pointed out in the revised manuscript. The reference is shown only and Fig.3 is deleted in the revised

C726

manuscript.

Q: Page 948, line 11 and line 21; "flat prairie area" and "alpine meadow surface"; maybe a landuse, or landcover map would help, or otherwise an indication of where these areas occur? A: Thank you for your suggestion. We have given an indication of where these areas occur in the revised manuscript.

Q: Page 948, lines 22/23: Beijing Standard Time; at other places in the paper other time references are used. These should be consistent. Probably using utc for the entire area would be better, or use the local time, but in any case there should be consistency throughout the paper. A: Thank you for your suggestion. We have changed the Beijing Standard Time to the local time in the revised manuscript.

Q: Page 947 and 948; section 3.1 seems to be a summary of observations/conclusions drawn from previous work; it would be nice to: (1) have the references of these papers, (2) show these described phenomena in several figures that illustrate typical (average) behavior for typical areas. A: Thank you for your suggestion. We have revised the manuscript following your suggestions and each result has been described with more detailed and refer each published paper separately (see the revised manuscript, please). Surely, it is very nice to show these described phenomena in several figures that illustrate typical (average) behavior for typical areas. But I think the illustrations were provided showing that behavior in each references, the readers can find them in the references. Therefore I did not change the description in the revised manuscript.

Q: Page 949, line 1; are all references mentioned here relevant? There are quite a number of references in the paper, possibly they could be reduced? A: Thank you for your comment. Yes, I think all references mentioned here are relevant.

Q: Page 949, line 2: Use a tab/indent to provide a better layout when summing the different (numbered) results. A: Thank you very much for your suggestion. We have revised this part according to your suggestion (see the revised manuscript, please).

C727

Q: Page 949, line 3; Reference is made to fig 4, but it is not clear where this is observed. Is it an observation at one point typical for the entire plateau, is it an average? A: Thank you for your comment. Data used in Fig.4 (Fig.3 in the revised manuscript) is average values from six typical stations (sites) over the Tibetan Plateau. Therefore, I think it should be the typical value of the entire plateau. It was also pointed it in the revised manuscript.

Q: Page 949, lines 4 – 9: Values for Zom, Zoh and kB-1 are mentioned but nowhere is provided how they were determined (references, methods?). A: Thank you for your comment. In the references showed how the Values for Zom, Zoh and kB-1 were determined. And it is clear that the results summarized here come from which reference in the revised manuscript.

Q:Page 949, line 10: “numerical simulation”; which numerical simulation? A: Thank you for your comment. “numerical simulation” means that any numerical simulation using kB-1.

Q: Page 949, line 11: “parameterization”; which parameterization? A: Thank you for your comment. “parameterization” means that any “parameterization” using kB-1.

Q: Page 949, line 28: Use a tab/indent to provide a better layout when summing the different (numbered) results. A: Thank you very much for your suggestion. We have revised this part according to your suggestion (see the revised manuscript, please).

Q: Page 949, line 28: it says ABL height of almost 3 km, whereas Fig 5 shows a height of 2 km? A: Thank you for your nice comment. ABL height is different over the different area of the Tibetan Plateau. We have already pointed out that ABL height of almost 3 km is in Naqu area of the northern Tibetan Plateau and Fig.5 (Fig.4 in the revised manuscript) is in Mt. Everest area in the revised manuscript.

Q: Page 950, lines 18 – 22; it is not clear what is meant with this sentence (basically point (4)). A: Thank you for your comment. We have revised this part according to your

C728

comments and our research work in the references (Sun et al., 2006; Sun et al., 2007; Sun and Ma, 2007).

Q: Page 950, line 23; Reference is made to fig 5, but it is not clear where this is observed. Is it an observation at one point typical for the entire plateau, is it an average? A: Thank you for your comment. We have pointed out that Fig.5 (Fig.4 in the revised manuscript) is in Mt. Everest area in the revised manuscript.

Q: Page 950, line 24: “Beijing Time”; see remark made above on time references. A: Thank you for your comment. We have changed the Beijing Standard Time to the local time in the revised manuscript.

Q: Page 951, line 5: Use a tab/indent to provide a better layout when summing the different (numbered) results (also for sub-sections a, b, c). A: Thank you very much for your suggestion. We have revised this part according to your suggestion (see the revised manuscript, please).

Q: Page 951, line 7: “normal”; what is a normal site? A: Thank you for your comment. I think it is better to delete “normal” here.

Q: Page 951, line 8: “covariance of the vertical wind”; with what? A:Thank you for your comment. “covariance” should be variance here.

Q: Page 951, line 9 and 10: “normalized”: how are they normalized? A: Thank you for your comment. “The normalized variance of wind speed” means that is normalized by the wind speed.

Q: Page 951, line 10 and 11: “the power law of 1/3” and “:::of -1/3”; which laws? Provide references and/or equations? A: “the power law of 1/3” and “:::of -1/3” is the Monin-Obukhov law. We have already given the reference in the revised manuscript.

Q: Page 951, lines 14 – 17: it is not clear what is meant here. Not point a, nor point b or point c. This needs additional explanation. In fact, the entire section 3.4 needs additional explanation (especially when seen in the light of an overview paper), which

C729

might already be helped a lot by a number of proper illustrations. A: Thank you very much for your comment. We have already given more additional explanations in 3.4 and more clear references have also given in the Section.

Q: Page 952, line 8: “normalized”, how are they normalized? A: Thank you for your comment. “They were normalized by wind speed and temperature.

Q: Page 952, line 9: “literature”, which literature? A: One literature has been given in the revised manuscript.

Q: Page 952, line 9: editorial issues; “neutra1” should be “neutral”, space between “condition relations” A: Thank you very much for your suggestion. We have revised them in the revised manuscript.

Q: Page 952, line 10: “the 1/3 power law”; which? Provide reference and/or equation? A: “the 1/3 power law” is the Monin-Obukhov law. We have already given the reference in the revised manuscript.

Q: Page 952, line 10-11; “the coefficients are different”; no evidence is given for that, nor a proper reference. A: Thank you very much for your comment. One reference has been given in the revised manuscript now.

Q: Section “Concluding remarks”. Page 952, line 23: “the coming researches”; should be changed to “future research”? Page 952, line 27; “All these researches will be done”; should be changed to “will have to be done”? Page 953, line 1: “coming days”, should be changed to “days to come”? A: Thank you very much for your comment and suggestions. You are right. They have been changed following your suggestions in the revised manuscript.

Q: References: See remarks made above. A: This part has been revised according to your comments and suggestions above.

Q: Figures. Figure 1: a. Scale bar and north arrow are missing. A: Thank you for your comments and suggestions, Scale bar and north arrow have already been added in

C730

the revised manuscript.

Q: Figure 2: a. Figure is too small in parts; not possible to read the text in the two boxes below. b. The sub sections of the figure are not aligned; gives jumpy idea. c. Legends are not clear, nor uniform d. Scales of the two boxes are not identical; should be the same A: Thank you for your comments and suggestions. We have revised this figure following your suggestion.

Q: Figure 3: a. Uses LST, whereas figure 5 uses Beijing time; make them consistent. b. Also be more consistent in your layout for the several figures (also figs 4 and 5) c. It is not mentioned from where this data is taken. Figure 4: a. layout fig 3, 4 and 5 should be the same (moreover, other parameters (using the same layout) should be displayed as well; see remark in the text above) b. Y-axis title is missing c. X-axis scales are missing Figure 5. a. Layout should be the same for figs 3, 4, 5; Examples: axis sub-lines are inside figure in fig 3 and 4 partly outside the figure in fig 5; black dots in fig 5, open dots in fig 4, 4 axes in fig 3, 2 axes in fig 4 and 5, sometimes lines are bold, sometimes not::: A: Thank you for your comments and suggestions. We have revised the figures following your suggestion.

Q: Table 1: Should be re-arranged; different columns showing Site, sensor, brand, observation height/depth, etc. A: Thank you very much for your suggestions. I think maybe better to keep the current arrangement. It is clear to show the instruments and parameters measured. How do you think?

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