

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): The presence of the Tibetan Plateau has large consequences for the climate, global air circulation and hydrology of the whole region of East Asia. This paper describes the results of a large number of experiments that are relevant hydrologists, and weather and climate modelers. The size of the data set is impressive. The paper summarizes published (and new?) results. The results are simply listed, but no general conclusion is distilled, no future directions for research are suggested, and a critical comparison of the different results is not presented. Moreover, it is unclear which result is from which paper, because the references are listed at the beginning of each section, but not after each individual result separately. The results for each topic are

C720

all summarized in one paragraph, separated by numbers (1), (2) etc. The legibility would be improved if the results were separated into paragraphs, each containing a reference to the corresponding study, if it is a result from the literature. If it is a new result, then more explanation about the procedures is required. Answer (A): Thank you very much for your very nice 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. At same time, some results are the new results analyzed from the in-situ data observed from the Tibetan Observation and Research Platform (TORP). And therefore the references are not shown after the descriptions of these results, but more explanation about the results are shown (see the revised manuscript, please).

Q: Page 6, middle: ‘diurnal variations:: are obvious’ and ‘Net radiation fluxes are obviously larger than in other areas’ -What is meant by ‘obvious’? -What is meant by ‘other areas’? A: Thank you very much for your comments. ‘obvious’ means that “diurnal variations of are obvious clear. ‘other areas’ means the desert area and oasis area. “net radiation fluxes are obvious larger than that in other areas”, this situation is not always true for the Tibet plateau compared to other region (Such as the case in the Oasis) after we checked the in-situ data. I have deleted “net radiation fluxes are obvious larger than that in other areas” in the revised manuscript.

Q: Page 10: ‘:: turbulence statistics :: show similar results to those reported in the literature from other normal sites’ -Which literature? -Which normal sites? -What is meant by similar? A: Thank you for your comment. One literature has been given in the revised manuscript. I think it is better to delete “normal” here. “similar” here means that turbulence statistics over the flat prairie on the northern Tibetan Plateau show similar results with other site (e.g. Gobi surface).

Q: ‘The normalized covariance of the vertical wind was in better agreement with the law of similarity theory than the horizontal wind’ I do not understand this sentence. There is no covariance between one variable, and what does ‘in agreement with the law of

C721

similarity theory' mean? A: Thank you for your comment. We made a mistake in the original manuscript. "covariance" should be variance. 'in agreement with the law of similarity theory' mean that in better agreement with the law of Monin and Obukhov similarity theory. We have already given the reference in the revised manuscript.

Q: Page 10/11: 'the normalized covariance of 3D wind speed obeys the power law of $1/3$ '. What does this sentence mean? A: Thank you for your comment. "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 11, 'a) height-dependent turbulence statistics..' Which statistics? It is not $w'T$, because the fluxes are constant with height (page 7, top) . A: Thank you for your comment. "statistics" is the statistics of vertical wind velocity. It is revised in the revised manuscript now.

Q: Page 12, top: 'agree with the literature over the Mt. Everest area'. Which literature? A: Thank you for your comment. We have already given the reference(the name of literature) in the revised manuscript.

Q: Figs. 3-5. Tibetan plateau is quite large. For which site were those data? Land cover? Is this an average of half-hourly data over seasons? For which years? A: Thank you for your comment. Fig.3 in the original manuscript is deleted in the revised manuscript. Data used in Fig.4 (Fig.3 in the revised manuscript) is average values from six typical stations (sites) over the Tibetan Plateau, it is also an average of hourly data over seasons. It is also pointed it in the revised manuscript.

Minor comments:

Q: Page 2, bottom: 'Therefore, it has increased:::' -> 'Therefore, the number ::. has increased' Page 3, bottom: towers -> tower Page 6, bottom: During the dry period Page 7: Middle: ' the weak' -> 'a weak' (2x) Middle: 'and it reach the minimum value' -> 'and they reach their minimum values' Bottom: 'a weak net downward CO₂ flux' Page

C722

8: Top: season -> seasons Bottom: in different depths -> at different depths Page 9 Middle: and radiations play -> and radiation plays Page 10: Top: take -> takes Page 12, bottom: gotten -> acquired A: Thank you very much for your suggestion. We have revised the manuscript following your suggestion (see the revised manuscript, please).

Q: Fig. 1. Scale bar and north arrow are missing Thank you for your comments and suggestions, Scale bar and north arrow has already been added in the revised manuscript.

Q: Fig. 2. Caption: some spaces are missing A: Thank you for your comments and suggestions. We have revised this figure following your suggestion.

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C723