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Interactive comment on "A long-term (2005–2016) dataset of integrated land–atmosphere interaction observations on the Tibetan Plateau" *by* Yaoming Ma et al.

Anonymous Referee #1

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The Tibetan Plateau is a key region to understanding the complex interactions between different earth spheres with heterogeneous land surface conditions. Carrying on long-term field observations are particularly challenging in the Tibetan Plateau, owing to its vast geographic area with steep terrain, varied landforms, complex and diverse climates, harsh environmental conditions. The dataset described in this manuscript is precious and hard-earned. As the dataset with the highest temporal resolution and the most complete measurements, this dataset can be widely used in the analysis of the characteristics of meteorological elements on the Tibetan Plateau, the evaluation of remote sensing products and development of the remote sensing retrieval algorithms, and the evaluation and development of numerical models. While I commend

the authors for the significant efforts in integrating this long-term field observations, the paper needs some revisions before being published. 1. As the temporal resolution of this dataset is the highest and the observational elements of this dataset provided is the most complete among the land-atmosphere interactions observations in Tibetan Plateau which open for sharing to date, to clearly show the high resolution of this observation dataset, the word "hourly" should be added to the original title as follows, "A long-term (2005-2016) dataset of hourly integrated land-atmosphere interaction observations on the Tibetan Plateau". 2. In line 44-45, the sentence is better to modified as follows, "The Tibetan Plateau (TP) is the world's highest and largest plateau with highly complex terrain and is referred as the "Third Pole of the World" (Qiu, 2008). " 3. In line 34, "hourly time resolution" should be "hourly temporal resolution". 4. In line 52, delete the "both", and change the sentence "amplifies environmental changes on a global scale" to "it amplifies the local environmental changes to global scale as well". 5. In line 54, "pattern and evolution of hemispheric atmospheric circulation and climate" should be "hemispheric atmospheric circulation pattern and climate evolution". 6. In line 56, change the "projection accuracy" to "forecast accuracy". 7. In line 60, "and sparse and biased spatial distribution of observation stations relative to the high degree of landscape heterogeneity" should change to "The sparse and biased spatial distribution of observation stations is hard to match the high degree of landscape heterogeneity". 8. In line 61, change the "In addition, there are high uncertainties in the satellite-retrieved land and atmospheric environmental variables of the TP, impairing the establishment of continuous, long-term regional-scale observations in remote areas. " to "In addition, high uncertainties in the satellite-retrieved land and atmospheric environmental variables of the TP impair the establishment of continuous, long-term regional-scale observations in remote areas of the TP." 9. In line 63, change the "These problems have limited" to "The lack of sufficient observational data limits". 10. In line 82-83, change "playing a crucial role in many disciplines: these include land-atmosphere interactions" to "playing a crucial role in many disciplines, these include: land-atmosphere interactions". 11. In line 102, change the "long-term hourly

dataset of the integrated" to "long-term dataset of hourly integrated". 12. As soil heat flux was also provided in some stations, so the "soil temperature and soil moisture" in line 129 should change to "soil hydrothermal conditions". 13. In line 137, change "the equipment used" to "the instruments". 14. In line 157, change "wind sensors" to "wind speed". 15. In line 174, delete the word "one" and change the "1.5m" to "1.5 m", change the "wind sensor" to "wind sensors". 16. In line 180, replace the "was" with "were". 17. In line 199 and 201, replace the word "is" with "was". 18. In line 203 and 207, replace the "are" with "were". 19. From line 212 to 214, replace the word "is" to "was". 20. In line 215, change the "affect accuracy" to "affect the measurement accuracy". 21. Change the sentence in line 189 to "stricter data quality control procedure will be applied to allow problematic data to be identified and quality flags will be provided for each observational element". 22. In line 222, change the "radiation observations" to "Surface radiations". 23. Change the word "are" in line 226 to "were". 24. In line 245, change the word "steps" to "procedures". 25. Change the word "rejected" in line 252 to "discarded". 26. Figure 1, the data used to plot the plant functional types map in the Tibetan Plateau should be provided in the manuscript. 27. In Table 2, in BJ site, different sensor models were used or sensors were installed at different heights for air temperature, wind speed and direction, humidity, radiations, precipitation, soil temperature, soil moisture and soil heat flux, it is better to use a transverse line to separate these two periods.

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