

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 #2

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General comments: Integrated observations of land-atmosphere interactions on the Tibetan Plateau are critical to understanding key land surface processes, and the research community has been waiting a long time for the release of the long-term dataset, which is somehow later than expected. This dataset contains the hourly meteorological, surface radiation, EC and soil hydrothermal observations from six sites on Tibetan Plateau, with variables clearly organized. In the manuscript, the data quality control for EC data is introduced in detail, and the manuscript also presents the variations of each variable (except carbon dioxide flux) at diurnal, daily and monthly scales, to some extent, indicating that the data accuracy is reasonable.

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Overall, this dataset is valuable, and it represents a major step forward in data sharing on the Tibetan Plateau. These data can support the understanding of land processes such as energy distribution, surface heating, and boundary layer processes. These data are particularly valuable for the development of land models and remote sensing algorithms. However, the following issues should be addressed for user convenience.

Specific comments: 1. An introduction to data quality control for meteorological variables is needed, such as how to handle fill-in gaps and outliers, although procedures for fluxes are given. 2. Provide a table to illustrate data availability, as long-term continuous data are usually not available. This information is important for users to select data for their own purposes. 3. data consistency check need to be presented. For long term data sets, sensor calibration is important, especially for radiation measurements. The current MS only shows the diurnal, daily, and seasonal variations of each variable, but lacks information on how the sensors are calibrated and whether the quality of the data is consistent throughout the observation period. 4 The description of the time used is unclear in the data file. Is it local time or UTC? 5. If measurements are available, it is desirable to provide detailed in situ soil texture information, such as the content of sand, clay and soil organic matter. If measurements are not available, it is useful to provide a more qualitative description than in Table 1. 6 Similarly, it is useful to provide vegetation information (LAI, vegetation cover, vegetation type). If not, some local knowledge or data from remotely sensed products would also be useful. The authors can extract information from remote sensing products better than a user because they are aware of the heterogeneity of surface conditions. 7 Terrain complexity is typical of the Tibetan Plateau and is mentioned several times in MS. Likewise, it is desirable to present detailed terrain (e.g., DEM) around the site, so that users can avoid misuse of the data. 8 As mentioned in the manuscript, self-heating of the instrument can cause signal distortion in the CO₂ flux data, but the manuscript does not give references on how to process and obtain ecosystem (i.e., GPP, NPP) carbon fluxes based on the flux data provided. A reference is helpful to the user.

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Technical correction: Change “hourly time resolution” to “hourly resolution”

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