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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Surface sensible and latent heat fluxes over the Tibetan Plateau from ground measurements, reanalysis, and satellite data" *by* Q. Shi and S. Liang

Q. Shi and S. Liang

qshi@umd.edu

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We thank the reviewer for the helpful comments. Since previous studies have suggested that there are uncertainties of the sensible and latent heat fluxes over the Tibetan Plateau from existing datasets (Zhu et al., 2012), it is thus of great importance to integrate ground observations, reanalysis, and remote sensing datasets to characterize the sensible and latent heat fluxes over the Tibetan Plateau (Lines 25-28, Page 303523).

We did not explain the cross-validation method in detail in the manuscript (Page

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30359), which lead to the major comment on the method from the reviewer. We agree that the cross-validation is not a real validation since the ground measurement is used to both derive the regression method and validate the accuracy. Therefore, we applied the leave-one-site-out cross-validation method (Shi and Liang, 2013) instead of the conventional cross validation method to quantify the accuracy of the estimations of sensible and latent heat flux.

We will add the detail description of the leave-one-site-out cross validation method in the manuscript. The leave-one-site-out cross validation was conducted by applying the fusion model after removing a site and validating with the unused site. The root mean square error (RMSE) from cross validation (RMSE_CV) was computed as the average RMSE after applying this process multiple times (omitting one site for validation each time).

Shi, Q., and Liang, S.: Characterizing the surface radiation budget over the Tibetan Plateau with ground-measured, reanalysis, and remote sensing data sets: 1. Methodology, J. Geophys. Res.-Atmos., 118, 9642-9657, 10.1002/jgrd.50720, 2013. Zhu, X., Liu, Y., and Wu, G.: An assessment of summer sensible heat flux on the Tibetan Plateau from eight data sets, Sci. China Ser. D., 55, 779-786, 10.1007/s11430-012-4379-2, 2012.

Interactive comment on Atmos. Chem. Phys. Discuss., 13, 30349, 2013.