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Hydrology and Earth System Sciences
Discussions

Interactive comment on "Simulation Analysis of Local Land Atmosphere Coupling in Rainy Season over a Typical Underlying Surface in the Tibetan Plateau" *by* Genhou Sun et al.

Anonymous Referee #2

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The author analyzed the local land-atmosphere interaction in the Tibetan Plateau by the aid of regional climate model (WRF) and different land surface parameterizations. It is well-known that it is important to study the planetary boundary processes for the Tibetan Plateau, but the understanding of local land-atmosphere interaction are not enough limited by observations and model's defects in the Tibetan Plateau. The author chose model and parameterizations with good performance validated from in-situ data to further analyze the interactions. The author organized the manuscript well and can be accepted after revisions.

Major comments: 1. The processes happened in planetary boundary are very impor-

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Discussion paper

tant, especially for the high altitude regions. Its importance for the Tibetan Plateau has not been well documented in the introduction. Please add some descriptions on this. 2. Previous studies focused on the comparisons of land surface processes from the Noah and CLM. Did you compare them with your results? The authors are suggested to add more discussions by comparing with previous studies. 3. In section 2.2.2, you mentioned several options for PBL schemes in WRF, but you only choose YSU, MYNN, and BouLac parameterizations. Please explain the reason. 4. Figure 6 gives the comparisons among different land surface models and parameterizations. Only from the figure, it is hard to distinguish their different performance. The author can draw conclusions with the help of some quantitative criteria.

Some minor comments: 1. Evapotranspiration, is usually abbreviated as ET, and the author wrote as EF. 2. Lines 37-39, the same to words in lines 11-12 from ABSTRACT, and mentioned again in Lines 42-43. 3. Figure 6, the display of colored label is confused. Different colors represent different schemes, and different marks represent different variables. 4. When mentioned the correlation coefficients, the author should give the significance level, for example for Figure 14.

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