Review of "Changes of evapotranspiration and water yield in China's terrestrial ecosystems during the period from 2000 to 2010" by Liu et al.

General:
This study addresses an important topic on evapotranspiration (ET) and water yield over China in the past decade. This is a huge undertaking. The authors solved a series of problems in implementing a process-based model, BEPS, including input data generation and preparation for 11 years at high spatial resolutions, and model validation. In addition to analyses on the spatial and temporal variations of ET and water yield, the authors also examined the influences of vegetation and meteorological variables on ET over large landmass in China.

Overall, this study illustrates the authors' in-depth understanding of the topic. The study is meticulously conducted. Their methodology is sound and conclusions are reasonable and inspiring. The topic fits the scope of this journal.

I have the following suggestions for the authors to consider when revising their manuscript.
1. Provide more dissuasion on scientific issues related to ET and water yield in China. For example, some climate models suggest that the global water cycle is projected to be intensified by climate change. How does this study support this argument? How does this argument vary in different regions (basins) in China with different conditions (e.g., soil water, climate, vegetation type)?
2. The authors did a good job in reviewing literature. However, in discussion, the authors emphasized more on similarities with earlier studies. What are the differences? What is new in this study? What are new insights provided?
3. As the input data in land cover, leaf area index, meteorological data are with biases and uncertainties, a sensitivity test on the model's response to the biases and uncertainties will be helpful.

Specific:

Title: Suggestion for a change to: "Evapotranspiration and water yield in China's landmass from 2000 to 2010"

Abstract: delete last sentence "...which is..". What is new in this paper?

P 5401, L1: change to: "ET is one of the most difficult..."

P 5401, L7: change "point" to "site". How large is landscape scale defined there? Give the range.

P 5401, L9: delete "Fortunately".

P 5403, L21: add in the last sentence "in China".

P 5404, L3: delete "used".

P 5404, L4: use "2.1 The BEPS model"

P 5404-5: Indices *r* and *j* in Equations 1-4, and 8 are not explained. It is better to replace *r* with a subscript "plant" so that it is consistent with other subscript. Index *j* can be deleted or explained as an index for sunlit and shaded leaves.

P 5405, Equation 3: explain λ_v. How r_a is calculated? Is it assumed as a constant depending on land cover types? (as wind data are not mentioned for its calculation).

P 5406: remove the left bracket before "Zhang" to after " Wegenhenhel" as (2006).

P 5408: A table summarizing all the input data would be helpful.

P 5409, Land cover data: what is the error assessment for the data?

P 5410, L8: "Shangguan" looks like a first name, not the last name. The same applies in the reference list.

P 5412, Equation 13: this equation may not be necessary as it is very basic. A reference for the equation may be adequate enough. If the equation for calculating *a* is given, equation for *b* should also given.

P 5426, L12: delete "very".

Table 1: What do CBS, QYZ... mean? Explain them in the caption. It is better to give a name to each site, such as using their location as their name.

Table 2: Explain APE, RPE, R, and RMSE.

Figure 2: Delete "typical" in the caption.

Figure 3: Add "(see Table 1 for site information)" in the caption. Explain site abbreviations (CBS...). Add month on the label for x-axis.

Figure 4: The size and fonts are not comparable with other figures (too large, or other figures being with too small fonts and sizes).

Figure 7: Unit for ET should be mm/year. Explain the symbols for the label on the x-axis.

Figure 8: Unit for ET should be mm/year. Explain the symbols for the label on the x-axis.

Figure 9: Explain symbols for each basin.

Figure 11: What is *p*? level of significant? This 11-year trend seems not to be significant. I suggest to remote the line. What is *r*? correlation coefficient? Change caption to: "Interannual variation of TE rate averaged over China's landmass from 2000 to 2010".

Figure 12: Write the unit of the 11-year trend in the caption.

Figure 14: Explain symbols for each basin.

This is a personal preference: please spell out the abbreviations for land cover types, validation sites, and basins throughout the text, figures, and table captions, to increase readability. Only use them in Tables and Figures. This is up to the editor and the journal's discretion.

If *p<0.01* in statistics, just write *p<0.01*. There is no need to write several decimal points for *p*.