

Interactive comment on “Separating the effects of changes in land cover and climate: a hydro-meteorological analysis of the past 60 yr in Saxony, Germany” by M. Renner et al.

M. Renner et al.

mrenner@bgc-jena.mpg.de

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The comments of reviewer #1 have been very useful to improve our manuscript. In the interactive author comment www.hydrol-earth-syst-sci-discuss.net/10/C4053/2013/ we discussed the critical points of reviewer #1 (www.hydrol-earth-syst-sci-discuss.net/10/C3162/2013/) with respect to the method.

Here we reply to the minor remarks of his comments.

1. **Line 27 on page 8542: E0/P=1?** This part has been rephrased in the revised manuscript.

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Interactive Discussion

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2. **Caption of Fig 1: change “P0=1400 mm” to “P1=1400 mm”?** DONE
3. **Line 25 on page 8543: absolute value in numerator?** We rephrased the line above to clarify that: “The angle between both vectors can be described by the scalar product divided by the vector magnitudes to give:”
4. **Line 16 on page 8544: “observations are outside physical limits,. . .” not clear** . We were referring to observations which violate the energy limit $P - Q = E_T > E_0$, or the water limit $P - Q > P$. Both cases can happen when lateral processes are not accounted for. This has been rephrased.
5. **Lines 17-18 on page 8544: “Also note that the methods uncertainty with respect to climatic changes increases with hydro-climatic states close to the water or energy limits.” Why? Is it due to the larger estimated climate related changed ET?** When there is a strong water or energy limitation the role of catchment properties increase (Renner et al., 2012). As we do not regard this effect the uncertainty of the proposed methods increases.
6. **Lines 21-22 on page 8544: “. . .outside the limits.” Do you mean E>E0 or E>P? Theoretically E>E0 won’t happen (it can happen due to uncertainty of the data of E and E0). If E>P happens, precipitation is not the only water supply (i.e., the water supply is not accurately quantified).** Same as point 4.
7. **7. Delete lines 7-8 on pages 8549.** Done
8. **Line 7 on page 8556: delete “approximately”?** Done

Renner, M., Seppelt, R., and Bernhofer, C.: Evaluation of water-energy balance frameworks to predict the sensitivity of streamflow to climate change, *Hydrology and Earth System Sciences*, 16, 1419–1433, doi:10.5194/hess-16-1419-2012, 2012.