

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.

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We thank reviewer #3 for the detailed review and helpful suggestions to improve the manuscript. Below we provide a detailed response to the remarks of the reviewer.

- **But some modifications of the paper are required before it may be published. In agreement with the other two reviewers, the method used has to be described more thoroughly, especially the argumentation and definition that climate changes are perpendicular to the original aridity index and the apparent symmetry mentioned on p. 8542 –line 14.** We thoroughly revised the method section and would like to refer to our author comment www.hydrol-earth-syst-sci-discuss.net/10/C4053/2013/.
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- **p. 8539 - line 19 ... adaptation ...** Thanks.
- **p. 8541 - line 6-12 Please provide section numbers when referring to the different sections of the paper.** Done.
- **p. 8545 - line 8 and other places (e.g. line 8549 – line 20 ... “Erzgebirge; Fig. 2). Don’t use the uncommon “..., cp. Fig. X”. Just write in brackets ... (Fig. X).** Done
- **p. 8545 - line 25 ... state’s area ...** Done
- **p. 8547 - line 17 ... have been produced, ...** Done
- **p. 8549 - line 7-8 Sentence is doubled. Please remove!** Done
- **p. 8549 - line 16 ...) and increasing ...** Done
- **p. 8549 - line 17 As visible from Fig. 3c ...** Done
- **p. 8552 - line 10 ... forest and agricultural ...** Done
- **p. 8560 - line 14 It is written: ... coherence of this signal ... Which signal? The sentence before is about uncertainty, which is not a signal. Please clarify.** The “signal” we refer to in the manuscript is “that the land-surface related anomalies are significantly below zero also in basins where no forest-damage has been detected.” which is obvious from Fig. 8c. As we have no further data (other than the forest damage data) to explain these deviations we argue that this deviation can be regarded as the magnitude of uncertainty of the method. However, as these deviations are consistently below zero they might be induced by a yet unknown process. We rephrased this in the manuscript.

- **p. 8572 – Fig. 2** The Saxony border is difficult to see. Please use different color. The cake diagrams for each station partially comprise three colors, but a legend is only provided for two (Agriculture, Forest). Thanks for these graphical advises.
- **p. 8573 – Fig. 3** The axis tick mark values are strange and a unit is not provided. I suggest using longitude/latitude in degree. The basin boundaries are not visible in panel a) and b). Done.
- **p. 8575 – Fig. 5** I don't see any grey lines as described in the caption. I don't see any dotted green lines as given in the figure legend. Please improve figure. The dotted thin lines have been replaced by continuous lines. The caption has been adopted accordingly.
- **p. 8579 – Fig. 7** The blue dots in the inlay map are not described in the caption. Why there are also dots outside of Saxony? Are they also used in the study? If not please remove them. These blue dots refer to pixels of the CORINE landcover class 324 which indicates forest damages. As this data is available across country borders its is also shown here. Note, that quite a few basins have parts of their headwaters outside Saxony. We added this information to the figure caption.

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