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Hydrology and Earth System Sciences Discussions

Interactive comment on "Groundwater-surface water interactions, vegetation dependencies and implications for water resources management in the semi-arid Hailiutu River catchment, China – A synthesis" *by* Y. Zhou et al.

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Comments from referee No.1 Anonymous Referee No.1 Received and published: 23 March 2013

I have remarks on three main topics: (1) Description of methods and instruments: The authors should carefully check their manuscript to make sure that all measurements can be clearly connected with the respective analysis and results. In some parts of the

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article I have the impression that the different described analysis stand a bit isolated from each other, rather than they are supporting each other. (2) Thermal methods: What is shown in the manuscript is not a quantitative analysis and therefore does not justify stating that temperature methods are used to quantify groundwater-surface water interaction! However in my opinion with the presented data a very easy quantitative analysis of groundwater-surface water interaction using temperature data could and should be performed. (3) Figures: I think most figures need substantial improvement. What and how results are presented is often contradictory, unclear or simply incomparable with other results.

Reply to comments by referee No.1: We appreciate the critical review and constructive comments which will help us to improve the manuscripts.

(1) Description of methods and instruments Response: we described various methods and instruments which were used for identifying and quantifying groundwater-surface water interactions, and vegetation dependency on groundwater depth. Groundwater is the link between surface water and vegetation. We will rewrite the Section 2 Materials and methods. A general paragraph will be added to explain which methods and related instruments were used for studying groundwater-surface water interactions, and for studying vegetation dependency on groundwater, respectively. Only methods and instruments will be described, results will be moved to the sections followed thereafter.

(2) Thermal method Response: we took the recommendation and have done quantitative analysis. The methods and the results of the quantitative analysis of temperature measurements are presented in the supplement.

(3) Figures Response: we followed the specific comments on figures and made the following revisions: (a) All grid lines in figures 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13 and 14 have been removed. (b) The figures 2 and 3, figures 8, 9, 10 and 11, as well as figures 12, 13 and 14 have been combined in order to safe space. (c) The suggested specific changes of figure 1 and 3 have been considered and figures were

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revised accordingly. (d) Regarding the suggested combination of figure 4 and 5 we disagree with the comment that a combined figure would be beneficial. The fact that the temperature data stops earlier is negatively affecting the informative value of a combined graph. (e) The suggested specific changes of figure 7, 8, 9, and 10 have been taken into consideration and figures were revised accordingly. (f) The horizontal axes of figure 12 has been modified, but we would like to keep a detailed date format (MM-DD hh:mm) to differentiate the four seasons. An explanation of the dates in the figure caption would be too confusing for the reader. (g) All mistakes in the figures were corrected.

The revised new figures are presented in the supplement.

(4) Specific comments in the supplement we will revise the text accordingly following all specific comments provided in the supplement.

Please also note the supplement to this comment:
http://www.hydrol-earth-syst-sci-discuss.net/9/C7182/2013/hessd-9-C7182-2013-supplement.pdf

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Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 9, 13251, 2012.