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Discussions

Interactive comment on "Linking baseflow separation and groundwater storage dynamics in an alpine basin (Dammagletscher, Switzerland)" *by* F. Kobierska et al.

Anonymous Referee #2

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The strong point of the study is the intensive data sets on which authors have formed their model. However, how the idea has been implemented is very questionable. Many parts of the manuscript need to be revised as they are either difficult to understand or they have been poorly explained. To my view point, the paper requires major revision. The parameters which are calibrated in this study are not defined clearly. Also, the value for some of these parameters such as residual water storage are not known. It is suggested that authors come up with a table in which all the calibrated parameters and their values are explained. It is assumed that exfiltration occurs from the side of the river due to gradient. Line 7 page 12199 states that infiltration is happening

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from stream to the aquifer. This is not clear if this infiltration is assumed to be vertical from the bottom of the river to aquifer or it can happen laterally as well. If it is also lateral, then assuming a constant width is not a correct assumption and this issue may explain the large contrast between the modeled width (5 to 14 meter) and the one the one reported by another research (24 meter). Page 12195 line 9: The word previous should change to next. Page 12195 line 9: It has been written that equations (1) and (2) yield equation (3). This statement does not seem to be true. Is it assumed that the discharge due to glacier melt is ignored. If this is so, this section should addressed why glacier discharge was excluded. Line 24-25 page 12205: why is it difficult? This statement needs a justifiable reason. It is highly recommended to avoid repetitions. Page 12197 section 3.2.3 should be revised as two sentences are saying the same thing. Equation (9) assumes that gradient is one. However, there is no explanation why this assumption holds. I disagree with lines 18:20 on page 12201. The model underestimates most of the time and I suggest that the explained reasons in section 5.4 to be presented in section 4.2 to describe this inadequacy. The position of the river in figure 6 should be known. It is not obvious in that picture.

Please also note the supplement to this comment:
http://www.hydrol-earth-syst-sci-discuss.net/11/C5742/2014/hessd-11-C5742-2014-supplement.pdf

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Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 11, 12187, 2014.