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Hydrology and Earth System Sciences
Discussions

Interactive comment on "Impacts of human activities and climate variability on green and blue water flows in the Heihe River Basin in Northwest China" *by* C. Zang et al.

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General comments: The impacts of climate variability and human activities on hydrological process are heavily studied recently. In this article, such impacts on green water and blue water are assessed separately, which is claimed as the novel contribution for the community. However, according to the famous mean annual water balance equation (P=E+R, where E is green water and R is blue water), the methodology for the evaluation on both E and R is not necessarily different from that for streamflow (R) only, since the green water E is just a residual term (E=P-R). Further, the methodology used in this article is definitely similar to other streamflow attribution studies (i.e., fixing-changing method as called by Li et al., 2012). There exist a lot of other methods

which could generally be classified into elasticity method and decomposition method. Also, the topic of socio-hydrological research focuses on the interaction of social and hydrological processes. The aim of the article does not fit well with the special issue. Specific comments: It is better for the readers to understand if the unit of green water and blue water change could be converted from water amount to the water depth (i.e., mm) averaging over the corresponding land area.

Reference: 1.Li, H., Zhang, Y., Vaze, J., Wang, B., 2012. Separating effects of vegetation change and climate variability using hydrological modelling and sensitivity-based approaches. Journal of Hydrology, 420-421: 403-418.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 10, 9477, 2013.