

## ***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.***

**M. Sivapalan (Editor)**

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Received and published: 24 November 2013

I apologize for the delay in my editor comment (due to technical problems in the system).

The paper has had a substantial discussion (i.e., 6 reviewers), and both the authors and I (as editor) have received advice and valuable insights from the reviewers, including from several who have had first-hand experience with conditions in this part of China.

I know that the work presented refers to the hydrologic change in an important, vulnerable part of China, and therefore I do like the light that this paper shines on the

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problems in the Heihe Basin.

However, the reviewers have raised several concerns, some of them serious, which I concur with on the basis of my own reading. The authors have tried to address these concerns, but in some cases unconvincingly. Even after repeated reading of the manuscript and the authors' responses to the reviewers, the novelty of the paper is still not clear to me. I am not even 100% clear on what the main storyline is.

Therefore, before the paper can be published in HESS, the manuscript must undergo major revision (I emphasize major), addressing the serious concerns raised by the reviewers, benefiting from their suggestions, and making a serious effort to raise the level of the paper. The paper will definitely go back for a second round of reviews (this time I will use a subset of the former reviewers – and use their help to focus the paper some more on what is important and novel).

In their revisions the authors might want to target the revisions on the following issues picked up by the reviewers:

(1)The papers make several conclusions about the changes that have happened between 1980 and 2006, with no effort at validation. I am also concerned that while the changes referred to is a historical period, the only results presented are for several scenarios.

(2)Several reviewers pick up on the claim that urbanization has substantially increased the blue water flows, and this does not agree with the fact area under urbanization is barely 1% of the total area. I remain unconvinced by the arguments by the authors in this regard in their responses to the reviewers.

(3)Table 1 claims that climate variability has led to substantial change in green and blue water flows. First of all I remain troubled by the wording, am not convinced that “variability” can cause such a large change: I like to see something more specific (like a substantial increase of precipitation). Secondly, I like to see more evidence for this,

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and a process based explanation.

(4) Several reviewers have complained the language around blue water and green water as “dressing up in new clothes” – again, I find the authors’ responses not very convincing. I have no trouble if they want to use these terms which previously (including in SWAT) were called by other names (green water is mostly ET), but to claim that this is novel is a stretch. The novelty must be something else.

I repeat that these are not my points – I have derived these from the reviewer comments. I am only highlighting them here because focusing the revisions on these points will help convince the reviewers during the second round of reviews, and I am sure it will help improve the paper.

I look forward to seeing a revised version.

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

**HESSD**

10, C6436–C6438, 2013

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