

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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Received and published: 1 August 2013

I should congratulate the authors of this paper. It is a smart idea to use hydrological model to test the influence of human activities and climate variability on green and blue water, and separate them apart. The conclusions could be useful for decision-makers and guide the watershed management. It must be a well-cited paper.

There is one point I cannot fully understand. Firstly, I totally agree with the conclusion that “The total water flows have increased in the past 20 yr in the Heihe river basin, mainly as a result of increasing precipitation”. However, from Table1, I found that the impact of land use change on the variability of blue water flow is even larger than the

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impact of climate variability (Table 1). The authors explained the increase of blue water by urbanization (page 9487, line 18), which reduced the infiltration and increased the surface runoff. From Table 2, I noticed that the urban area is even less than 1% of the total Heihe River Basin, which is hard to have such great influence. On the other hand, the industrial and domestic water usage could consume more water than other land uses, which has a negative impact on the increase of blue water. Could you please further explain this result? And does the implement of water redistribution policy in the midstream of Heihe also have an impact on increase of the blue water?

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

HESD

10, C3708–C3709, 2013

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