

## ***Interactive comment on “Modelling global water stress of the recent past: on the relative importance of trends in water demand and climate variability” by Y. Wada et al.***

### **Anonymous Referee #4**

Received and published: 26 September 2011

This is an innovation nice paper on using a newly developed monthly dynamic global water stress index to investigate the relative importance of water demand and climate variability. After review, I found this paper is very interesting, and most of the contents were written clearly. I suggest it can be published in current form with the following editorial revisions –

On p.7400, line 1 (and also line 15): change “use more than double” to “use has more than doubled” On p.7400, line 10: change “is” to “are” On p.7400, line 21: change “onsets for extreme” to “of the onset of extreme events” On p.7405, line 1: change “for

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the both simulations” to “for both simulations” On p.7405, line 4: change “is” to “are” On p.7407, line 7: change “H08” to “H07” On p.7407, line 12: change “due to the various..” to “due to various..” On p.7407, line 15: change “distinguish” to “distinguished” On p.7410, line 3: change “study” to “studies” On p.7412, line 21: change “was” to “were” On p.7413, line 4: change “while reservoir data is obtained...” to “while the reservoir data were obtained” On p.7415, line 7: change “observation” to “observational” On p.7418, line 11: change “coefficient-of-determination” to “the coefficient of determination” On p.7420, line 18: change “show large number” to “show a large number” On p.7423, line 12: change “the annual rainfall but also” to “the annual rainfall, but it also” On p.7426, line 24: change “agreements” to “agreement” On p.7427, lines 16-17 need to be re-written. On p.7428, line 10: change “is” to “are” On p.7429, line 4: change “leads an overestimation” to “leads to an overestimation” On p.7429, line 10: change “an” to “the” On p.7429, line 16: it may be better to list the names of countries after you mentioned “several countries...”. On p.7458, line 4: please revise near the end of caption of Fig. 10. Something is missing.

In Figs 3, 6 where the authors used log-log plots to present, then, are the very high R squares statistics shown in Table 7 derived from the log(water demand) data or the original water demand data? Please note it should never use the log data to calculate the correlation.

It is also better to define which type of drought is under concern of this paper (meteorological, agricultural, or hydrologic drought?)

Finally, the following very recent paper is relevant to this study –

Pokhrel., et al., 2011: Incorporating anthropogenic water regulation modules into a land surface model, J. of Hydrometeorology doi:10.1175/JHM-D-11-013.1

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Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 8, 7399, 2011.

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