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Discussions

Interactive comment on "Assessing the operation rules of a reservoir system based on a detailed modelling-chain" *by* M. Bruwier et al.

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This is an interesting discussion paper that deserves publication in NHESS.

While reading the paper, I came across the following statement that needs revision:

Page 5803 – lines 1-5: ". . . it applies the Delta change method to perturb the measured time series of temperature and precipitation (Lenderink et al., 2007). This is currently the most advanced tool readily available for impacts studies in Belgian catchment. This method is simple and often used (Fortin et al., 2007; Lenderink et al., 2007) despite some criticism (Hay et al., 2000)."

I agree with the comment on the Delta change method by Lenderink et al. (2007), but

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the authors should make it clear that the Delta change method has been modified in recent studies to improve on the limitations of the classical approach where the percentage change of all intensities is constant. In the simple approach that is applied in Lenderink et al. (2007), the effect is only a change in the mean of the climate. However, the quantile perturbation approach implemented in the CCI-HYDR Perturbation Tool – as applied by the authors – strongly differs from the basic delta change method by Lenderink et al. (2007). An advanced method is implemented in that tool where perturbations are applied to the historical time series in two steps: first the number of wet and dry days are perturbed in the time series, followed by rainfall intensity changes for the wet days in a quantile (or exceedance probability) dependent way. I invite the authors to read the reference of Ntegeka et al. (2014) for further details. So, the suggestion made in lines 1-2 that the Delta change method of Lenderink et al. (2007) was applied is incorrect. Also the statement in lines 4-5 that the method (of the tool applied) is simple and often used is incorrect.

References:

Lenderink, G., Buishand, A., and van Deursen, W. (2007), 'Estimates of future discharges of the river Rhine using two scenario methodologies: direct versus delta approach', Hydrology and Earth System Sciences, 11, 1145–1159

Ntegeka, V., Baguis, P., Roulin, E., Willems, P. (2014), 'Developing tailored climate change scenarios for hydrological impact assessments', Journal of Hydrology, 508C, 307-321

Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., 2, 5797, 2014.