

Interactive comment on “Comparison of occurrence-bias-adjusting methods for hydrological impact modelling” by Jorn Van de Velde et al.

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As a person who is currently working on multivariate bias correction, I really enjoyed reading this manuscript. Although the overall view of jointly bias correcting variables seemed quite promising since a decade ago, the uncertainties that come with adopting complex methods can not be taken for granted. Therefore, multivariate bias correction needs further investigation and I personally find your manuscript a good initiative in assessment of these methods. I think you made a good point by your conclusion: “The use of simpler methods seems recommended to reduce the uncertainty as much as possible when assessing and communicating global change impacts.”

C1

For the sake of clarity, I'd like to make some comments on the text; pointing out phrases that I couldn't understand thoroughly (though I am not the person who is officially assigned to do that).

Line 62-63: such as CDF-t (Michelangeli et al. (2009), used in e.g. Vrac (2018)) : -Maybe better to change to: such as CDF-t which was originally proposed by Michelangeli et al. (2009) and later used in e.g. Vrac (2018).

Line 154-155: Third, both historical and future simulations are adjusted at the same moment, to ensure a sound comparison during the intensity phase of the adjustment: -I do not fully understand what do you mean by moment? Do you mean mathematical moments or time? And if it is the latter, how does it insure a sound comparison during the intensity phase?

Line 159: To overcome the assumption that the simulated time series has to have more wet days than the observations... -Why simulated time series must have more wet days than observations?

Line 286: This method is essentially the only difference with the univariate QDM, implying that differences in performance can be related to it. -This sentence is a bit unclear to me.

Line 332-333: Thus, only the combinations of these methods with respectively (respective?) QDM and MBCn were simulated 20 times. -This sentence is a bit unclear to me.

Line 368-369: “This” extrapolation is often advised for these quantiles, as their simulated values might be larger than the largest values of the observations. -It is a bit unclear to me what is “this” referring to.

Line 484: When all methods are compared, the performance of the adjusted climate simulations is for the indices considered here generally better than the climate simulations. -This sentence is a bit unclear to me.

C2

