

Interactive comment on “Temporal and spatial changes of rainfall and streamflow in the Upper Tekeze–Atbara River Basin, Ethiopia” by Tesfay Gebretsadkan Gebremicael et al.

Anonymous Referee #2

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General Comments.

The study presented historical trend analysis of rainfall and streamflow data in the Upper Tekeze-Atbara River Basin, Ethiopia. The statistical methods (Mann-Kendall and Pettitt tests) have been well applied in many other studies, hence the methodology is not unique. However attributing hydrological changes, which were shown to be not statistically related to rainfall in the Tekeze-Atbara basin but rather to land and water resource management changes in the catchment will be of considerable use to managers and policy makers. This manuscript will therefore represent an important scientific knowledge addition to the region in question. I have provided annotated comments in the attached supplementary file, but my general comments are as

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follows: - Greater emphasis could be placed on discussion of spatial variability of hydrological change, some of the sub-headings suggested this would be discussed but it never really materialised in the manuscript. I have suggested to amend fig 1 accordingly and thereby develop this discussion from there. - Some of the charts to need to be reorganised to provide this spatio-temporal context to the data – see annotations - At some points in the manuscript there is some discussion on monthly data but this is not presented, only the aggregated seasonal/annual data. This data should be presented, perhaps as a supplementary file. I have pointed out also that other pre-statistical data is discussed at length but not given – again I think there is place for this at least as a supplementary file as the authors entrust the reader to believe some of the conclusions drawn from this pre-analysis. - Whilst conclusions are drawn on why hydrological changes have occurred in the basin as a result of land use/water management changes rather than being linked to rainfall, the authors point to subsequent work to unpack the causes (which will assumingly be published somewhere at a later date), one expects that grey literature/policy documents etc could be cited in this manuscript, if available, to substantiate the arguments in the interim – at editors discretion of course.

Please also note the supplement to this comment:

<http://www.hydrol-earth-syst-sci-discuss.net/hess-2016-318/hess-2016-318-RC2-supplement.pdf>

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., doi:10.5194/hess-2016-318, 2016.

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