

Interactive comment on “Have precipitation extremes and annual totals been increasing in the world’s dry regions over the last 60 years?” by Sebastian Sippel et al.

Anonymous Referee #1

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This manuscript highlights two concerns with the recent analysis presented in Donat et al (2016), who reported increasing trends in extreme precipitation and total precipitation in dry regions around the world. The two concerns raised by the authors with the analysis of Donat et al (2016) are valid. Here the authors present a re-analysis of the Donat et al (2016) work using more appropriate methodologies and find the results of Donat et al (2016) are highly dependent on the methodology they adopted, which has significant implications for the conclusions of Donat et al (2016). Overall, this manuscript presents an important critique of Donat et al (2016), which is highly relevant to the general scientific community. I believe the manuscript will be worthy of publication following moderate revision to improve the clarity of the manuscript, as it is

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hard to follow at times.

My key comments / suggestions are as follows.

The overall style of this manuscript is abbreviated and densely packed. In fact, some sections are difficult to follow as helpful explanations are not provided. Figures and Tables are cited, but little accompanying explanation is provided to help the reader understand and interpret them. The current manuscript style is like a very compact 'communication arising'. I think this style provides the key messages, but it is very difficult to follow the technical argument in places. Also, why are Appendix A and B not just normal Figures and Tables, like the other Figures and Tables? Why the separate Appendices? I recommend you move this material from the Appendices into the paper.

The key points made in this manuscript are fine, but the explanation accompanying the Figures and Tables requires expansion to improve the readability of the manuscript. At times I found it difficult to know how each Figure and Table slotted into the overall story; not because the material is irrelevant, but because a context for the material was not provided. There is a lot of interesting material in the Figures and Tables, which is hardly covered in the text. Expanding the explanations around the Figures and Tables will guide the reader through this important material and significantly increase the accessibility of this research.

Minor comments

Page 3, line 18: "the dataset will result". Are you 100% certain it will result in a higher probability for wetter (drier) conditions. Or is a better word to use here "may" result. I think this paragraph would benefit from an expanded explanation of the statistical bias being discussed as it is not easy to follow.

Appendix B second Table: Replace "Rx1day" with "PRCPTOT" in the wet and dry regions.

Figure 1: you need to improve the explanation of this Figure. The illustration provided

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in the text (page 3, lines 6-13) was excellent, but the connection to Figure 1 was not obvious.

Figure 3c, 3d: are the p-values for the one-sided and two-sided trend tests reported correct or have they been switched?

Tables 1 & 2: Explain what Period Inc. means.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., doi:10.5194/hess-2016-452, 2016.

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