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Hydrology and Earth System Sciences
Discussions

Interactive comment on "How to determine the effective discharge and its return period in a semi-arid basin? The case of the Wadi Sebdou, Algeria (1973–2004)" *by* Abdesselam Megnounif and Sylvain Ouillon

Anonymous Referee #2

Received and published: 26 July 2018

I think this is an interesting manuscript potentially reporting on an interesting data set and a thorough analysis. However, in my opinion the authors fail to make a convincing case for while this paper is a significant and original contribution to the scientific literature. The introduction is mostly a methodological introduction. There is some text in section 3.3 which does try to describe the scientific context of this particular study which could perhaps be used as a starting point for a more focused introduction, reviewing the literature and identifying knowledge gaps.

Also, the manuscript is quite long as there is a lot of fundamental methodology in-

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cluded. I think it would be more readable if the focus was more on the original aspects of the analysis with less reference to standard methods used.

The conclusion is very long. I would suggest a more concise set of conclusions would help to communicate the potential importance of the paper to readers.

In summary: this is potentially an interesting paper, but there is much that can be done in order to improve the quality of the presentation.

Other comments

Section 3: Discharge is Q, concentration is C, and the product of the two is Qs. I find that notation a little confusing. Especially as a few lines down sediment load is denoted ïĄĎY.

Page 7, line 16: what is a locally made abacus and how does it work?

Page 8, line 14: A subdivision of what exactly?

Page 9, line 8: what flow frequencies are being referred to? Annual, daily, instantaneous, all of them?

Page 9, line 9: What is meant by 'irregular flow'

Page 9 line 10: No results for the exponential distribution are included in this study?

Section 3.7: I don't think this section is necessary

Page 11, line 8-11: I don't understand this sentence. What is QT99, and what is meant by '1% of the annual time'? Is this based on analysis of annual maximum data, or all daily flow data? Also, there is a reference to Fig.2 but I have no idea from the text what I am looking at in that Figure. More explanation is required here. Finally, this section used QY for sediment (check units in line 16, page 11) rather than QS as on page 3.

Page 12, line 3: From the description in the text I am not sure what I am looking at in Figure 3. Please try to be more helpful to the reader.

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Section 4.2: This headline is not very helpful in describing what is the content of this section.

Page 17, line 8: Qs, but should that be QY?

Figures 7 and 8: The layout of these two figures is different and it would be better if they had a more uniform look. For example, remove gridlines from Figure 8, add y-axis label on Figure 7.

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