

## ***Interactive comment on “Are streamflow recession characteristics really characteristic?” by M. Stoelzle et al.***

**M. Stoelzle et al.**

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The comment was uploaded in the form of a supplement:  
<http://www.hydrol-earth-syst-sci-discuss.net/9/C5933/2012/hessd-9-C5933-2012-supplement.pdf>

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 9, 10563, 2012.

C5933

### **Authors Reply to the Anonymous Referee Comment #2 on “Are streamflow recession characteristics really characteristic?” by M. Stoelzle et al.**

**Review Overview:** The authors make the point that investigators have used a variety of techniques to estimate recession parameters in the recession model  $dQ/dt = -aQ^b$ . Even within these techniques, a variety of ways of censoring the data have been applied. The authors estimate recession parameters use 9 ways (3 estimation methods by 3 censoring methods) and show that a wide range of parameter values results. They recommend a multi-method estimation approach for further studies, where appropriate.

The results merit publishing, but the manuscript needs some attention. In particular, more discussion of how the different objectives of the original investigators (and the methods they, in response, subsequently developed) would seem to explain much of the variability in results.

We thank the Anonymous Referee #2 for the thoughtful comments and the helpful suggestions on our manuscript. Please see below for our detailed answers and suggested revisions (in blue).

#### **Comments:**

1. Title: I appreciate the desire to have a title that grabs attention, but this title is not very informative of the content. Recession parameter estimation methods are compared that were devised towards different ends, so to what extent do the authors truly address this question?

**Authors Reply:** We agree with the reviewer that each recession parameter estimation method was built on a certain perceptual model. However, all methods are still highly subjective, since the methodology to extract recessions and the method to fit the recession model cannot be compared with an unbiased estimation. On the other side, hydrologists continuously use these methods to compare catchments or extract characteristic information from the discharge data. With our paper we wanted to provide evidence, that the methods are actually not so characteristic as often being assumed based on the perceptual model (or the “physical basis” behind). As we could show in the paper (e.g. Figure 1) the methods results of the methods are inconsistent and therefore we should be allowed to ask the question “Are streamflow recession characteristics really characteristic?”

2. Abstract: The abstract would be more informative if the type of RAMS were briefly given. For one, they are all variations on the  $dQ/dt = -Q$  method. This at least could be said.

**Authors Reply:** As “ $dQ/dt = -Q$ ” is a widely used paraphrase for the presented recession analysis methods we will add a “ $dQ/dt = -Q$ ” term in the revised abstract.

3. p. 10566, line 9: Units of “a” should be  $[L^3 T^{-1} b^{-1}] [T]^{(2-b)}$

**Authors Reply:** The units of parameter a will be changed accordingly.

4. p. 10571, Section 2.1: While it was easy to recall what le, reg, and bin refer to as I read the paper, it was a challenge to remember all the details of BRU, VOG and KIR, even after more than one reading. It would be very helpful if the long paragraph on page 10571 were summarized in a table so important differences in the methods could be easily seen by the reader.

**Authors Reply:** An additional table (see below) will be added to the revised manuscript to illustrate the principal differences of the three recession extraction procedures.

**Fig. 1.**