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Discussions

# *Interactive comment on* "On the propagation of diel signals in river networks using analytic solutions of flow equations" *by* M. Fonley et al.

**Anonymous Referee #2**

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The topic of this paper is interesting. The authors aim to design and implement an analytic experiment to test the hypotheses of explaining the magnitude and timing of diel stream-ïňĆow oscillations during low ïňĆow conditions through a theoretical approach. However, the manuscript lacks a solid statement that informs the motivation for the paper, i.e. why this paper, what is the shortage or problem of previous studies. This solid statement should quite relate back to the scientific literatures more clearly in the introduction section. Secondly, large amount of equations with no scientific support by previous literatures exist in the method section, in spite of well-organized description of the calculations. It is very difficult to follow the reasoning of the manuscript. Thirdly, in order to achieve a convincible results, theoretical experiment should be implemented or checked by a true monitoring data. Finally, current version of the manuscript could



not be recommended to publish in the journal, the paper needs a substantial revision both in terms of motivation stated and in terms of methods used.

Some specific comments and questions are listed as follows:

1. In my opinion, it is not just because there are two hypotheses exists in previous studies that support the motivation of this paper, but the shortage of this two hypotheses, such as these two hypotheses are descriptive which need to be quantified. So previous studied related to this issue should be discussed in detail and more clearly.

2. There are 37 equations in the paper (24 in the main manuscript, 13 in the appendix part). Do these equations proposed by the authors alone or have been already used in previous research. For the former one, the author should discuss the availability of the equation, for the later one, more literatures should be informed to reader.

3. 12 figures exist in the entire manuscript, but only 7 figures informed in the text (i.e. figure 1 2 3 5 7 8 12). And the caption of the figure should be more concise and objective. I do not like the captions like figure 1 and figure 2.

4. Page 8194 line 13-14. These kind of description should not be existed in the main manuscript. The author should go through the manuscript carefully, which makes the paper more like a scientific paper rather than a report.

5. No real discussion exist in the paper. I believe this section would be of interest to hydrologists. This part should fully discuss the similarities and differences between the analytical solution proposed by the author and previous relate studies, and also the availability of the proposed analytical solution.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 12, 8175, 2015.