

## ***Interactive comment on “Large-scale quantification of suspended sediment transport and deposition in the Mekong Delta” by N. V. Manh et al.***

### **Anonymous Referee #1**

Received and published: 9 May 2014

Review of the hessd-11-4311-2014: Large-scale quantification of suspended sediment transport and deposition in the Mekong Delta

The article ‘Large-scale quantification of suspended sediment transport and deposition in the Mekong Delta’ aims to quantify and map the sediment transport and sedimentation in the Mekong Delta in Vietnam. The study increases considerably the understanding of the suspended sediment interaction between the Mekong main rivers and lower Mekong floodplains, and also within the floodplains. The manuscript is generally well written, methods are presented with sufficient details and results are mostly clearly illustrated.

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I recommend this HESSD manuscript for publication, after the following minor comments are replied thoughtfully and taken into account when revising the manuscript.

0. Abstract: it would be beneficial to add how large part of the sediment entering to the MD at Kratie finally reaches the sea / coastal zone. This is, to my opinion, one of the main results of the paper.

1. Introduction:

1a. Page 4314; line 16: while it is true that there is large difference between Vietnamese and Cambodian floodplains in terms of human interfere, I would not claim that Cambodian floodplains are fully in natural state as there are quite a few roads and few millions of people living there. Please reformulate the sentence here, and elsewhere in the article.

2. Study area:

2a. It is unclear for me, to which definition it is based that the Mekong delta starts at Kratie? If looked for example Gupta and Liew (2007), they define that delta starts after the Tonle Sap river and Mekong river confluence. This is indeed justified, as i) Tonle Sap area clearly is not part of the delta, and ii) the tidal impact (during dry season) reaches Phnom Penh but not too much further. Therefore, I would recommend of either justify the current division of the study area or then change the definition

2b. The paragraph starting from page 4316; line 19 is unclear. The Tonle Sap River flows from the Mekong to the Tonle Sap lake from June to September and then reverses back towards the sea. Further, it would be good to mention that the temporally stored water in the lake forms an important part of the dry season flow to the delta. Please rewrite.

2c. Page 4316; line 27: the claim that Mekong Delta is the most complex river delta in the world requires a reference

2d. Page 4318; line 1: unclear to which population the ~1 million people refer to. Delta

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obviously has more population, around 17.3 million (according to national statistics).

3. Model setup and data: the section is well written and everything is well documented; I do not have comments on it

4. Model calibration and validation: well documented, no comments on this section

5. Results and discussion:

5a. Page 4330; line 21: misspelling VDM should be VMD

5b. Page 4332; line 2: Most of the water from Tonle Sap river enters to the Bassac but not all, as stated in the text. Please revise.

5c. Terminology of the sea names is mixed in the article; at the beginning South China Sea is used while later the West Sea and East Sea are used. While West Sea and East Sea are used in Vietnam, those are not, however, internationally used names. Therefore, I would advice to use Gulf of Thailand and South China Sea, respectively, in terms of clarity. Please harmonise the use of these names also in Fig 1.

6. Conclusions: the conclusion section reads now more like a summary section. I would recommend of condensing the methods part and list the very key results only, and then extend the concluding remarks, answering question what does these findings mean in wider context.

7. Tables:

7a. Table 2: please indicate what all the abbreviations mean

7b. Table 3: now table mixes the sediment load and sedimentation; it is very hard to understand which parts are actual sediment load and which are the sedimentation figures. Please divide the figures to those two categories. Further, does coast mean that this amount of sediment enters to the sea?

8. Figures:

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8a. Figure 5 (right tile): as in Table 3, it is not clear which part of the sediment in the subsystems actually stays there and which moves to the next subsystem. Please indicate clearly the SS load and sedimentation in the Figure. Further, add clearly the proportion of the sediment reaching the coast in each point. Ideally reader would get a good understanding of the sediment balances in the system, which would be very important result, to my opinion.

8b. Figure 9: it is not easy to understand what the difference between the modelled and measured sedimentation mean (unit and values missing; i.e. is the modelling larger or lower than the measured). Please revise the figure to be clearer.

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