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Hydrology and Earth System Sciences Discussions

Interactive comment on "Sedimentation in the Three Gorges Dam and its impact on the sediment flux from the Changjiang (Yangtze River), China" *by* B. Q. Hu et al.

Anonymous Referee #1

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The paper (hess-2009-179) provides important findings of the world largest dam impacts on the sediment fluxes in Yangtze River, China.

I found the paper interesting to read and the results are well documented. The paper is well in focus of the HESS journal. The paper provides exceptionally good data over the sedimentation issues in the Yangtze River and the methods used are appropriate for such a study. However, I feel that the paper would benefit of moderate revisions following the overall comments below and more specific and technical comments in the attached pdf-file.

Overall comments:

- the structure of the paper is fine as it is. However, normally the papers are clearer if discussion is separated from the results. Now those have put together for one chapter. The authors have done this well and it is rather easy to distinct their results from the other results. The authors could, however, consider of separating the discussion from the results if they feel that it would enhance the quality of the paper. Further, the self-critical discussion of the own results is missing from the paper. This should be added (e.g. possible shortcomings of the method and data and the implications of those on the final results; the very short period of data for the post-TGD time, etc.)

- the language of the paper is fine and understandable. However, I would encourage the authors to use native English speaking professional to check the language as there are various sentences that are difficult to understand (I tried to comment few of them in the attached pdf but was not able to go the article through in details in sense of the language). Further, some of the sentences are very long and those should be cut in pieces (see attached pdf in more detail comments). Some of the paragraphs are also rather long and the paper would benefit of dividing those into two. Authors could also give attention to the tense used in different parts of the paper: normally present tense is used when referring to other work and past tense is used when describing own methods and results.

- abstract should be re-written in a way, that it would presents the following issues in logical order: introduction to the overall theme of the paper, what has been done and what are the main objectives of the paper (why the paper is important) and the main results. Now I found the abstract not well structured and I had difficulties to get an overview of the paper.

- The introduction could be slightly reorganised. See more detail comments in the attached pdf. Further, the introduction could include a statement why this work is important and what new information does it provide to well studied issue, i.e. some

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kind of motivation for the work.

- methods and data are well described and documented. The measurement station are illustrated in the map.

- results are well documented and compared to other results. There are, however, some smaller comments on the results parts in the attached pdf. Further, the table 3 and 4 are rather difficult to understand. The Table 3 could be turned into a figure. The Table 4 is really difficult to read and I would urge the authors to make a figure(s) out of it or in some other way to make the results more understandable.

- the TE calculations provide just an estimate to the trapping rates. However, author reports the results as they would be very accurate (e.g. page 5190, row 8: ...sediment load at Datong will decrease to...). I would ask the authors to use more conservative ways of expressing the results (e.g. SL at Datong is subject to decrease below 100 Mt/yr). The same applies on the conclusions (avoid using 'will' when expressing estimated results or predicted impacts). Further, the authors are giving precise estimations on the decreased SL in Datong although there might happen severe erosion along the mainstream, as the authors are stated in the conclusions, due to the "sediment hungry water". Therefore, I would, at least, add this to the discussion and ask authors to be careful of giving such detail estimates for the future sediment load several hundreds km below the dam sites.

- conclusions is compact and addresses the main issues. However, as stated on the previous point, I would ask the authors to consider how to express the estimated TE and future potential changes downstream from the dam site.

- tables are clear expect the table 3 and 4 as already stated above

- illustrations are well done with good quality, and those are well linked to the text.

Further, as stated above, more specific and technical comments are provided in the attached pdf.

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Please also note the Supplement to this comment.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 6, 5177, 2009.