

Interactive comment on “Water discharge and sediment flux changes in the Lower Mekong River” by X. X. Lu and R. Y. Siew

Anonymous Referee #1

Received and published: 16 November 2005

1. General comments

This paper provides important information about a major river in SE Asia. Assessing the impacts of recent dam construction is also a good topic, both scientifically and practically. The quality of the data available is not so great, but the authors are not responsible for this. But the authors are responsible for making more persuasive discussion. So I recommend acceptance with moderate revision.

2. Specific comments.

* Title

Vague. Please write about dam construction as well as the period (years) of discussion.

* Abstract

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- Sudden appearances of local names such as “Manwan reservoir” and “Chiang Sean” are unfriendly to readers.

- The fourth sentence (The infilling of...) tells something like a result, although it is written before the sentence “Analyses of discharge and sediment flux...have indicated...”.

* Key words

“Downstream dam effects” sounds awkward to me.

* 1. Introduction.

- 1st sentence. “Asia and Southeast Asia” is strange, because the latter is included in the former.

- The latter half of the 2nd sentence is about China, which is sandwiched between the remarks about western developed countries. Please move the Chinese part elsewhere.

- 2nd paragraph. Please clearly state which month of 1992 the operation of the Manwan Dam started. This is crucial for the following discussion. For instance, you defined “pre-dam period” as 1962-1992, but it is not clear whether the dam started its operation near the end of 1992.

* 2. Study area

- 1st sentence of 2nd paragraph. It is better to cite Fig. 2 instead of Fig. 1, because the latter does not show the local names written in the sentence.

* 3. Data and methods

- There are two relatively long paragraphs before Subsection 3.1. It seems better to define Subsection 3.1 with the first two paragraphs, and increase the number of the current subsections by 0.1 (i.e., the current 3.1 will be 3.2).

- Near the end of the 2nd paragraph. The phrase “Table 2 lists the stations meeting the above requirement” sounds repetitive. “Table 2 lists the selected stations” would be

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better.

- About Eq. (1). You wrote “Daily sediment concentration value was estimated using this relation”. How can you assume that the values of a and b in Eq. (1) did not change during the period you dealt with? The values may have changed with time, especially due to the dam construction. The possibility of such changes is even interesting here, because this paper analyzes the hydrological effects of dam construction. Thus, more careful data analysis is needed.

* 4. Results.

- This section sometimes includes discussion/interpretations. In other words, separation between Sections 4 and 5 is unclear. It is better to make only plain descriptions of the results in Section 4.

- Middle of 4.1. Interpretations about the year 1992 require monthly-level information as I commented before (Also, this is an example of discussion within the current Section 4).

- 2nd sentence of 4.2. You wrote “all stations” but it does not apply to Nakhon Phanom.

- Latter part of 1st paragraph of 4.2. Why did you show a table only for mean (Table 4), not for maximum?

- Middle part of 2nd paragraph of 4.2. I looked at Fig. 4a,b, but it does not clearly show what you wrote here. Can you show this in a more quantitative way?

- 1st sentence of 3rd paragraph of 4.2. This is a repetition of what was already mentioned.

- Section 4.4. Overall, what is written here is not so convincing to me, partly because of the use of Eq. (1) without serious consideration.

- 1st sentence of 2nd paragraph of 4.4. This is similar to what you already mentioned.

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- 1st paragraph of 4.5. Your remark about Luang Prabang is not convincing because data are very sparse.

- 2nd paragraph of 4.5. Another example of discussion within Section 4.

* 5. Discussion.

- 5.1. Overall, discussion here is not so strong, because your findings tend to be the same as what has already been reported elsewhere, or something like common knowledge.

- 1st paragraph of 5.2. This sounds a sort of a matter of course.

* 6. Conclusions.

I am wondering how similar the paper by Kummu et al. (in press) is. The title suggests that the paper deals with something similar to this draft, and you wrote that your findings agree with theirs. I could not check the contents of the Kummu et al. paper because it is not yet available even on-line. But it will appear in a major international journal, so your originality needs to be ensured.

* Table 1.

- “Project” sounds a bit strange, because what is actually shown is the name of a dam.

- “-“ is put in the column of Total Storage, but nothing is put in the lower part of the column “Commissioning”. What is the difference between these two?

* Table 2.

- Please clearly define “No. of annual sediment records”. Does it mean the number of years when sediment records are available?

* Table 3.

- Please show the number of samples used. Otherwise it is hard to evaluate the usefulness of R-squared.

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* Fig. 1.

The “inset” map seems to be the main point here, but it is smaller than the general map. The general map looks a scanned copy from a report, and it includes non-relevant information such as the locations of power plants far from the river. Please enlarge the “inset” map, and reduce and simplify the general map.

* Fig. 10.

Is this really necessary? The pictures seem to show only usual river banks.

3. Technical corrections.

- Final sentence of Section 1. Put “the” before Manwan Dam.
- Final sentence of 1st paragraph of 4.4. Put “and” between Tan Chau and My Thuan.

Interactive comment on Hydrology and Earth System Sciences Discussions, 2, 2287, 2005.

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