Hydrol. Earth Syst. Sci. Discuss., 7, C5101–C5103, 2011
www.hydrol-earth-syst-sci-discuss.net/7/C5101/2011/

Hydrology and Earth System Sciences Discussions

Interactive comment on "Sub-daily variability of suspended sediment fluxes in small mountainous catchments – implications for community-based river monitoring" *by* C. Duvert et al.

Anonymous Referee #2

Received and published: 16 February 2011

This manuscript fits squarely into HESS's scope of interests on studies of the interactions of hydrologic and other processes (in this case sediment transport) and applications (e.g. sustainable management of water and land resources). It presents a clear investigation of the influence of sampling design on estimates of suspended sediment fluxes and clearly shows how this information may help inform community-based sampling for sustainable management. The paper identifies the rarity of this analysis at both time (sub-daily variability) and spatial scales (small catchments < 100 km2) compared to existing studies of sediment fluxes and contributes to a discussion of appropriate sampling design.

1. Are the scientific methods and assumptions valid and clearly outlined? Yes.

2. Are the results sufficient to support the interpretations and conclusions? Yes. Figures 4-6 provide a very nice concise set of figures illustrating the influence of sampling frequency and catchment scale on SSY estimates.

3. Is the description of experiments and calculations sufficiently complete and precise to allow their reproduction by fellow scientists (traceability of results)? Yes.

4. Do the authors give proper credit to related work and clearly indicate their own new/original contribution? Yes.

5. Does the title clearly reflect the contents of the paper? Yes.

6. Does the abstract provide a concise and complete summary? Yes.

7. Is the overall presentation well structured and clear? Yes. The paper is very clearly written.

8. Is the language fluent and precise? Yes. Here I provide a number of suggested changes or identification where minor clarification could be added. Otherwise, I find the manuscript very well written.

p. 8238, line 18. Authors refer to SSC without providing definition. Previously, only referred to SSY (equation 1 only provided later).

p. 8240, first paragraph of section 2.2.2. Please clarify the origins of the rating curve relationship. Was the rating curve developed using NaCL tracer dilution data only? This is a little unclear, and perhaps also a little confused by the use of 'previously'. Suggestion: "...For each station, a rating curve was developed using stage readings and discharge measurements generated from NaCl tracer dilution gauging methods...".

p. 8243, line 2. Provide the mean discharge as one of the lowest in 60 yrs but what about providing a reference (mean of 60 yr mean discharge) for some context?

p. 8244, line 6. Test reads “Catchment characteristics such as land cover, steepness and degree of land degradation were the prevailing factors in explaining suspended solid yields discrepancies”. Does this refer to a detailed analysis elsewhere or just a general evaluation? No information is really provided here to support this statement.

p. 8246, line 9. Replace ‘Imprecision’ with ‘Error due to sampling design’. Then “this is an evidence for. . .”, replace with ;This is evidence of scale effects. . .”.

p. 8249, line 23. Replace ‘lied’ with ‘lie’.

9. Are mathematical formulae, symbols, abbreviations, and units correctly defined and used? Yes, See minor suggestions above for SSC.

10. Should any parts of the paper (text, formulae, figures, tables) be clarified, reduced, combined, or eliminated? No. The paper is succinctly written. Suggestions provided above for minor clarifications.

11. Are the number and quality of references appropriate? Yes.

12. Is the amount and quality of supplementary material appropriate? All figures and tables are concise and informative.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 7, 8233, 2010.