

Interactive comment on “Hydroclimatic control of sediment and metal export from a rural catchment in Northwest Spain” by L. Palleiro et al.

Anonymous Referee #2

Received and published: 1 June 2014

General comments:

This paper deals with an analysis of temporal variability in sediment and metal transport at different time scales (annual, seasonal and event). The work is well suited to the journal scope. The objectives are relevant, as they aim understand hydroclimatic factors affecting the transport of sediments and metals (dissolved and particulate) from an agroforestry catchment to a river. Overall the paper presents a large volume of data that could be much more exploited and discussed. The writing style is correct, as in general the English standard. Tables and figures are suitable although they can be improved. In general a critical reading of the manuscript in order to correct editorial errors is necessary. Some suggestions for improving the manuscript are indicated in the following comments.

Specific comments:

Abstract

Page 3758/L9: Please check the percentages. The total values of the metals transported in particulate form (38%) don't correspond with the metals transported in dissolved form (49%?).

1 Introduction

The introduction is very general; I recommend doing a bit of emphasis in relation to previous studies on export of the metals analyzed in this study (Al, Fe, Mn, Cu, Zn).

2 Study area

Include more catchment data as: average height, average slope and time of concentration. This information allows the reader to better understand the behaviour of the catchment.

3 Material and methods

Page 3762/L7: Please include a sub-session call: chemical analysis. This will distinguish more clearly the data recorded in field, sample collection and laboratory analysis.

Page 3762/L7: Enter the five metals species analyzed. In this section, it could be important to specify clearly again the metals determined, although they have already been mentioned twice before (abstract and objectives).

Page 3762/L23-27: Specify the total number of samples collected.

4 Results and discussion

4.1 Annual sediment and metal export

Page 3765/L13-26: Include more information on the studies with which you are comparing your results. Note that the climatic conditions, the characteristics of the catchments and geology can produce big differences. This information may help the reader

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to distinguish the similarities and differences in the results.

4.3 Contribution of runoff events to total sediment and metal loads

Page 3768/L3-10: Given that some metals have higher affinity to form complexes with the organic matter, in the experimental design was taken into account the organic matter determination in suspended matter? If these data are available please include them. This information could answer questions about how the transport of particulate metals may have occurred. Moreover, doubts raised in the objectives of the work would be clarified.

4.5 Factors affecting sediment and metal loads during rainfall–runoff events

Page 3770/L16-24: Please include more information about the results obtained from the analysis of antecedent precipitation. The information provided is reduced to "Antecedent rainfall 1, 3, 5, 7, 15 and 21 days before the event also affected sediment load during events". A more thorough analysis of these data, together with the information discussed in this paper, could answer questions about its importance in the analysis of the factors affecting the transport of sediments and metals load.

Conclusions

Page 3772/L7-8: Concentrations or loads in the case of Fe (B) and Mn (D)?

Page 3772/L24: Please check this sentence: "Qb were the hydroclimatic factors governing the sediment", are you sure with this statement, if it is correct please give a explanation.

References

Page 3771/L2, Page 3772/L1 and Page 3774/L18: Please check the correct name of the author: Kuterbanch or Kurtenbach?

Figures

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It is difficult to understand the figure 1, I recommend adjusting colours or increasing the size of the information that you want to highlight. Moreover, if it thinks fit, could superimpose the river on the map of land use.

Figure 3: Please indicate in the caption of the figure: "Figure 3 Fractions of sediment (SS), particulate (p) and dissolved (D) metals....." Although this information may seem redundant, the figures have to provide the reader with all necessary information. The same indications are required for figure 4, 5 and all the tables.

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