

Review comments on HYDRO-D-15-00236

Hydrologic and erosion models require spatial information on climate, topography, soils and land-use but also on landscape key features such as terraces, ditches, roads, dams and other structures that play an important role in water movements. The impact of these structures on water and sediment outputs from river basins together with the sensitivity analysis of models to the density of these spatial input data has thus become a challenging issue in environmental research and modeling. This is where hessd-12-4387-2015 comes in where the authors evaluated effects of dams and roads on hydrological simulation by the InVEST model.

**While I found the subject very interesting with aim towards payment for ecosystem services, the efforts the authors have put in data analysis, writing and the illustrations, this paper does not meet the requirements of international journals.**

There is a lack of acknowledgment of the existing literature on the field of research, which is usually followed by the identification of research gaps and research questions. None of this has been performed as can be seen in the abstract and Introduction sections.

This document appears most likely to be one of the thousands documents Brazilian students send to international journal, as a compulsory step for granting their prepared degree. In the present case however, the English terms and grammar seem to have been edited by a native English speaker or a professional.

**My suggestion to the authors is to consider the following tips for scientific writing, mainly on the structure on the different sections of a research article. Moreover, by reading the literature on the subject (hundreds of international papers have been published on impact of roads, dams, ... on water and sediment movements within river basins) the authors will probably realize more is to be done in terms of the methods used (calibration and validation are compulsory in hydrological modeling) and presentation and discussion of data.**

Comments on abstract:

Line 1: the research proposed here is not per se on PES but on hydrological modeling.

Research gaps should be presented here on the core of the paper

Line 3: what is "evidence-based management"?; the term "effect" contains strange "f" and this throughout the text

Line 6: what "comparison" is it about?

Line 9: the objectives of the study are missing

Lines 6-8: this statement is not really true. Models use landscape information as basic input.

Line 10-14: sentence too long, to be split in two

Line 17: Please elaborate "*Sediment concentration was estimated both with the observation and simulations, and annual comparisons seemed reasonable for mean annual estimates.*"

What kind of observations, where, how many? Same questions for simulations.

Line 24: what are these BMPs? Not introduced before

Line 27: please elaborate on "*few samples of observed data*"

Other questions/comments arising from the abstract

- Past tense should be used consistently to report on results
- Abstract is lacking of quantitative information on results (values, tests,...)
- Results on sediment concentration and sediment fluxes are missing
- How many runoff and sediment concentration measurements? How? Where? what frequency?
- How many ponds, roads (length, density,..)
- Why using modeling not field data? What distinction between these?
- What about calibration vs validation of the model; what about model's sensitivity to roads and dams as compared to other input information?

I hope these comments will be valuable to you.

Tips for improving the structure of the paper:

#### Abstract

- A. Topic sentence (s) on the subject and research question(s): what is(are) the research gaps in this field of research?
- B. Objectives of the study
- C. Materials and methods used in the study
- D. Main results (with quantitative information, tests of significance)
- E. Conclusions: how these results respond to the objectives; general implications of the research

#### Introduction sections

- A. Presenting the background of the subject;
- B. Indicating the importance of the research on the subject;
- C. Acknowledging what has been done so far on the subject by referring to existing research studies and reporting ones; referring to methods and ideas associated with other researchers;
- D. Pointing to a gap in knowledge of the subject;
- E. Selecting research objectives
- F. Explaining the organisation of the research;

Discussion section may fulfil one or more of the following functions:

- A Presenting background information
- B Summarising what was (not) done
- C Explaining why it was (not) done
- D Evaluating the method(s) or model used
- E Statement of result(s)
- F Explanation of result(s) – why and how it happened
- G Implication of the result(s) – what it does, or does not, imply
- H Making reference to previous research
- I General statement of interpretation
- J Elaboration of interpretation
- K Discussing implication(s) of the interpretation

- L Rejection of interpretation
- M Acceptance of interpretation
- N Making a recommendation
- O Stating the limitations of the data
- P ..... (other)

#### Conclusions

- A. Remind of research objectives
- B. Statements of general findings
- C. Statements of specific and significant finding
- D. Statement of overall trends with respect to what was known prior to the study
- E. How well do results respond to initial gaps, research questions
- F. Making predictions; recommendations.