

Interactive comment on “Modeling runoff and erosion risk in a small steep cultivated watershed using different data sources: from on-site measurements to farmers’ perceptions” by B. Auvet et al.

Anonymous Referee #2

Received and published: 30 November 2015

The submitted manuscript "Modeling runoff and erosion risk in a small steep cultivated watershed using different data sources: from on-site measurements to farmers' perceptions" by Auvet et al. seeks to establish water and sediment fluxes in a data-scarce setting in Java.

From the supplied pictures of the intensely used steep slopes I consider the topic highly relevant. But I fully share the concerns and the main points of critique raised by reviewer 1. At the current stage it is impossible to follow and reproduce the applied approach. The suggestions of reviewer 1 focus mainly on adaptations of the manuscript.

C5242

In addition, I would suggest revisiting the goals and the methodology applied. The authors accomplished a very nice data set which involves the local farmers and it would be a pity if the data could not be published or be used to prevent soil erosion in this area.

If the authors stick to their aim to assess runoff and soil erosion in a “data scarce” basin, it might be helpful to clearly split the collected data. For instance start using very basic data (rainfall, DEM, vegetation cover) that can easily be obtained also on larger scale in order to estimate runoff and soil erosion, use statistical approaches in order to decide which parameter(s) explains additional variability and finally validate and discuss your results by involving all the detailed data (plot). If you can come up with an easy to use model that for instance depends on rainfall, slope and vegetation cover this might be of high relevance also for other sites with similar characteristics in Indonesia. Maybe the authors can add some statement how representative the study site is.

An important aim is also to provide feedback to the farmers; however, at the current state the output of the study seems not to exceed the knowledge of the farmers. In order to advise the farmers and to prevent erosion you might want to use the distributed STREAM to assess the effect of different conservation measures (e.g. different crops along one slope). To achieve this goal it would be necessary to focus and assess the impact of parameters that can be influenced by management. This was partly done in Table 1 and might be used to run scenarios.

With respect to the manuscript (ms) I have some other general points:

- The ms should be better structured particularly method and result section are often mixed
- Even though the ms is quite long most approaches are not clearly presented (e.g. on which rational were the susceptibility maps established?), instead the same information is repeated several times

C5243

- I also consider some graphs to provide little information (Fig. 2, 3 and maybe also 9, 10 and 11 could be presented in a concise way.

- The terminology needs to be used more precisely throughout the ms: when you talk about runoff do you refer to surface runoff? The terms susceptibility, vulnerability, hazard and risk should be introduced since they are used differently in the soil science and landslide community. And also the terminology related to erosion processes is confusing (linear erosion in plots and waterways, ephemeral rill intra-field and permanent gully extra-field, linear erosion in the permanent gully outside the field etc.)

The annotated PDF contains more minor comments and indications where I had difficulties to follow. Overall the study has potential but due to the lacking transparency of the applied methods and the missing focus with respect to the goals, parameters used and conclusions I cannot recommend publication at the current stage, but I would be looking forward to the resubmission of a fundamentally revised version.

Please also note the supplement to this comment:

<http://www.hydrol-earth-syst-sci-discuss.net/12/C5242/2015/hessd-12-C5242-2015-supplement.pdf>

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 12, 9701, 2015.