



Interactive comment on “Modelling runoff at the plot scale taking into account rainfall partitioning by vegetation: application to stemflow of banana (*Musa* spp.) plant” by J.-B. Charlier et al.

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General comments

The article investigates the runoff at the plot scale taking into account rainfall partitioning by banana plant. The problem addressed in the article may not be of high interest on the global scale but its results are to the point meeting the requirements of the funding project “Assessment of water-pollution risks associated with agriculture in the French West Indies: management at the catchment scale”. To my opinion a weakness of the study is the extremely short observation period of only four months. But I do not

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reproach the authors for this. It looks like a typical video clip research brought about by the typical strategy how scientific projects are funded. Results have to be achieved as quickly as possible.

The article is clearly structured and, thus, easily understandable. It shows interesting results of practical relevance: The runoff concentration and surface runoff production induced by stemflow could be a motivation for the operators of banana plantations to take the necessary steps for reducing this effect and thus avoiding water pollution in streams adjacent to such plantations. The two-criteria-calibration (runoff depth and shape of the hydrograph; see chapter 3.4.3) is enjoyable, and such is the sensitivity analysis on a representative event (chapter 4.2) and the split-sample test (chapter 5.1.1). Therefore, I recommend the manuscript for publication with minor revisions.

Some suggestions for further improvement:

1) Further information should be given on the plot

How old is the banana plantation? And what was the previous plant cover?

How does the surface of the plot look like? (See the comment of N. van de Giesen and see some statements in the conclusion, p. 4332 line 15ff)

What is the proportion of open soil to that covered by the leaves of the banana plants? (See the comment of M. Sraj)

Are there macropores or preferential pathways in or under the soil?

2) Further information should be given on the measurements

What was the registration interval of the rain gauge(if more than one, how many)?

Are long term observations of rain intensity available? And if yes, how do the calibration/verification events fit to the long term observations (maximum and mean intensity, probability distribution)?

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In Table 2 an additional column “duration of event” or “mean rain intensity” should be given.

Specific comment

On p. 4327 line 1 we find the statement “To improve the understanding of stemflow production . . .” and in the following sections 4.1f the model behaviour is discussed. This improves the understanding of the model, not of stemflow production. If ever, the understanding of the process of stemflow production could be improved by stemflow measurements (as M. Saraj states). Maybe, these measurements could be made in a subsequent project.

Typing error on page 4332 line 19: . . . should be taken into account (instead of taking)

I strongly agree with M. Saraj’s statement that Figure 7 is too small!

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 6, 4307, 2009.

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