

Interactive comment on “Effective rainfall: a significant parameter to improve understanding of deep-seated rainfall triggering landslide – a simple computation temperature based method applied to Séchilienne unstable slope (French Alps)” by A. Vallet et al.

Anonymous Referee #2

Received and published: 30 August 2013

General comments

This is an interesting topic and certainly one that deserves consideration in a journal such as HESS. However, there are numerous concerns that I have. Many of them have already been highlighted by Anonymous Referee 1, which I will avoid repeating again. While I understand that English is not the author’s first language, this paper needs to be reviewed by a grammar expert to correct which improve the paper. The

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first problem with this paper is that the title suggests that it is about effective rainfall and deep-seated landslide, but this relationship is only considered superficially. There is also a lot of repetition in this paper which needs to be rectified. The conclusion is not really a conclusion and needs to be improved. The authors need to try and emphasize the relevance of the research and discuss in detail how the effective rainfall is an important parameter for understanding landslides. You also need to state any shortcomings of the research. This paper needs major revision before it should be considered for publication.

Specific Comments

Pg 8946 L22: “Soil-water balance” should be “soil-water balance”. The use of a capital letter for soil is use throughout the document and should be corrected.

Pg 8946 L23-25: the term evapotranspiration is used incorrectly in places in this paper. Evapotranspiration means the same as total evaporation and is the sum of open water evaporation, soil evaporation, canopy and litter interception, and transpiration. Interception is an important component of evapotranspiration and is not considered adequately in this paper.

Pg 8947 L1: “took” should be “take”

Pg 8947 L1: it is stated that in other studies interception is disregarded. The authors need to critique the problem of not considering interception as it is an important variable. Interception can be as much as 10% of gross precipitation in a grassland and considerably higher in forests.

Pg 8947 L5: “reference crop evapotranspiration” should be changed to “reference crop evaporation”. This needs to be corrected throughout the document.

Pg 8947 L13: “weather parameters” should be “weather variables”.

Pg 8947 L19: “. . .have methods alternative to. . .” should be changed to “. . .have alternate methods to”

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Pg 8948 L6: elaborate on “indirect methods”

Pg 8948 L8: “error” should be “errors”

Pg 8948 L17: what is “raw rainfall”? is it the same as gross precipitation/rainfall. Therefore, is effective rainfall the same as “net precipitation/rainfall”?

Pg 8948 L24: “this method was designed for the hydrology non-specialist” should be changed to “. . .this method was designed to be used by individuals who may not be hydrologists”

Pg 8949 L11: “unconformably” should be changed to “non-uniformly”

Pg 8949 L20: “ slightly dipping” should be changed to “dipping slightly”

Pg 8949 L20: the vegetation at the study site needs to be described in more detail as this is important information in terms of effective rainfall.

Pg 8949 L23-25: this sentence needs a reference.

Pg 8951 L3-6: this sentence is incorrect. Soil is not the first recipient of rainfall. Vegetation is the first recipient of rainfall and that is why canopy interception is considered a threshold process as only once the canopy storage has been fill can subsequent processes take place, unless there is a significant amount of direct throughfall.

Pg 8951 L15/16: “superior to average” should be changed to “ greater than average”.

Pg 8951 L26: “. . .left-over can infiltrate. . .” should be changed to “. . .remaining water can infiltrate into the aquifer”

Pg 8952 L1: “evapotranspired” should be changed to “evaporated”.

Pg 8953 L2: the heading should be changed to “Short wave radiation and reference evaporation dataset”

Pg 8955 L13: change heading to “Reference evaporation equations”

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Pg 8960 L12: “a and b are the calibration coefficients”. The “a” and “b” needs to be in italics.

Pg 8962 L6: “as well, AWS. . .” should be changed to “Also, AWS. . .”

Pg 8962 L12: “well defined water catchments” should be changed to “well defined catchment” correct throughout document.

Pg 8962 L16: I am not sure why “(conditional statement)” is there. Please explain.

Pg 8962 L26: is one auger hole for each geology/vegetation zone enough. Please expand on why not more samples were taken.

Pg 8963 L9: “precipitations” should be “precipitation” i.e. remove the “s”

Pg 8963 L17: add a reference at the end of the sentence “air temperature. . .to elevation”.

Pg 8963 L26-27: the date (1994 to now) needs to be change to (1994 to 2012). Correct throughout document.

Pg 8964 L8: change “. . .in meters” to [m].

Pg 8965 L1: change to “The trend was defined. . .”

Pg 8965 L6: Please explain what antecedent cumulative rainfall is. I am only familiar with antecedent soil moisture etc.

Pg 8966 L20: Correct “sensitive analysis” to “sensitivity analysis” throughout the document.

Pg 8966 L25: correct “. . .spatial homogenous. . .” to “. . .spatially homogenous. . .”

Pg 8967 L1: change the sentence to “This comparison allowed for the assessment of the input signal. . .”

Pg 8968 L3: “considerably effortless” should be changed to “simple”

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Pg 8968 L9-26: Please explain how the runoff coefficient was determined.

Pg 8971: correct “Sensitive analysis” to “sensitivity analysis” throughout document.

Pg 8972 L4: remove the word “overall”.

Pg 8972 L5: Change the sentence to “The best sensitivity analysis correlation is obtained with. . .”

Pg 8972 L11: change “transit” to “transect”

Pg 8973 L5: change “. . .worst uncertainty. . .” to “. . .greatest uncertainty. . .”

Pg 8973: The conclusion need to be improved and try and emphasize the relevance of the research and discuss in detail how the effective rainfall is an important parameter for understanding landslides. You also need to state any shortcomings of the research.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 10, 8945, 2013.

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