

A review for Hydrology and Earth System Sciences Discussions

Manuscript hess-2011-261: "Spatial and temporal variability of rainfall erosivity factor for Switzerland"

The manuscript presents a method to improve the temporal and spatial distribution of rainfall erosivity in Switzerland, based on a multiple regression to interpolate individual stations and generate a map.

The point of this review is not to argue on the ground of the work, which appears sound in spite of the remarks made by Reviewer #1. Overall, the manuscript is of interest and may be published after revision. However, the concluding section is not entirely convincing in that the Authors reproduce a summary of their results, without bringing their findings within the context of ongoing hydrological research in central Europe. The Authors should get acquainted with the literature on the subject. The identification of May, September and October as critical months is indeed an important issue for rainfall-runoff erosivity in Europe. There is certainly a link with the regime of within-year floods caused by heavy rains and the monthly distribution of precipitation rates as documented by, for instance, van Delden (2001, Atmos. Res.), Barrera et al. (2006, Nat. Hazards Earth Syst. Sci), Llasat et al. (2007, Atmos. Res.) and Gaume et al. (2009, J. Hydrol.).

The text also requires to be checked because the English usage is imprecise. Some of the criticism is presented below.

Abstract

The first two sentences are too generic.

R-factor. Please specify that it is the Universal Soil Loss Equation *R*-Factor

“significant predictors”. Please add probability levels.

“winter month... the month May to October”. It is “months”.

“susceptible”. Not sure this term is properly employed in the sentence.

Introduction

“Southern Africa”. The Authors probably mean South Africa.

“Brown and Foster, 1987 ... and Smith, 1978”. Please re-arrange these references chronologically.

“to regional approximation equations”. Information about regional equations is little elaborated. The Authors may refer, for instance, to Yang et al. (2003, Hydrol. Proc.) or Diodato and Bellocchi (2010, J. Hydrol.)

“Diodato and Bellocchi, 2007... and De Azevedo Coutinho, 2001”. Please re-arrange these references chronologically.

“Few torrential... temporal resolution”. This statement should be supported by one or more references.

“Angulo-Martinez et al., 2009 ... and Coutinho, 2001”. Please re-arrange these references chronologically.

Materials and methods

“The data was subjected”. It is probably “The data were subject”.

“Of course”. Omit it.

“Several stations... a large proportion...” The Authors should be more precise regarding quantities.

“Therefore”. Omit it.

“Weisse... Daly et al., 2002”. Please rearrange these references alphabetically.

“normalized”. Please specify how normalization was performed.

“were not normal distributed”. It is “normally”.

“Surprisingly”. Omit it and try to explain what you deem being counterintuitive here.

“in the summer month (May to September)”. It is "months”.

Conclusion and outlook

“implementation”. This term is probably inappropriately used.

“both spatial and temporal pattern”. It is “patterns”.

“result of this study indicate”. It is “indicates”.

“Alpine”. Please use a consistent term (“alpine” or “Alpine” throughout the text).

“crops ... and for Alpine grassland”. It is probably “grasslands”.

Acknowledgement

“I”. It is “of”.

“Colaboration”. It is “Collaboration”.

“F. Carré”. You may add affiliation.

Tables

Table 1. *R*-factor. Is this the USLE factor?

Figures

Fig. 2. *R*-factor is inappropriately said “observed”. *R*-factor can be calculated or estimated. Please rescale x- and y-axes on both graphs to make them equally bounded.

Fig. 3. Is *R*-factor residuals from regression-based techniques? Please specify.

Fig. 5. Please rescale the axes.