

Interactive comment on “Modelling soil erosion at European scale: towards harmonization and reproducibility” by C. Bosco et al.

Anonymous Referee #3

Received and published: 17 July 2014

Summary:

The authors present a new approach to model water erosion on a small scale in Europe. Aim of the article should be the presentation of ways to harmonise soil erosion modelling. The study is quite interesting, but it is not in the main scope of NHESS and should not be included in the journal. Soil erosion is not a natural hazard. The paper states that there is a link between soil erosion and natural hazards, but it fails to highlight this link. Without this link, I would recommend to publish this article in another journal. With major revision in this and other sections, it might be possible to publish the article in Nat. Hazards Earth Syst. Sci.

Problems:

C1592

New data and/or novel concepts, ideas, tools, methods or results? The used model (RUSLE) is often used and therefore not new. There are no new methods of validation and interpretation of the data, only older methods used on the new map. And there have been maps of soil erosion for Europe before. The paper shows some important but more or less minor revision in the RUSLE. The climate ensemble seems new and appropriate for the main goal.

Results and interpretations:

The interpretation section is rather short, but the results support them quite well.

Conclusions:

The conclusion section is rather short and more or less a second abstract. The drawn conclusions are general applicable for small-scale maps. The focus should be more on the new GIS-techniques.

In general, the presentation is quite clear and. Some observations are listed below that might be clarified.

- Abstract: C 9“at large spatial scale” A map for Europe is small scaled. Clarify the use of scale - Page2641, C 7: “soil erosion is linked to several natural hazards...” This is important for an acceptance in this journal. What is the link? Who can soil erosion modelling help to understand NH. - C13: “impractical to measure soil loss across landscapes...” Why? Here a short abstract of the complexity of erosion measurement and the problem of remote sensing and erosion is needed. - Section 1.1: Why an introduction to physical based models. There is no need to. No physical models are mentioned in the text. - Section 2.2, page 2645, C. 20: “USLE ... has been applied all over the world...”. The model is used everywhere, but is it valid? Is there any regional validation for Europe? Is it valid on the scale used on? A wide spread model usage is no validation. - page 2646, C. 25:Why does a 1,000,000 scale soil map lead to a 1km raster resolution. In my opinion there is no direct link between map scale and

C1593

raster resolution. . - Section2.3.3, page 2653: Which factor is used? L- S- or LS? If slope is the only input than you use just the S-Factor, or not? Please clarify - Section 2.3.4, page 2654, c19: “ dimensionless proportion [0, 100 %]” C-factors range from 0,001 and 1. - Page 2655, C. 9: reference not available. Calculation of the C-factor is unclear. - Section 2.3.5 , page 2656: “... we assumed the rock fragments cover equals the volumetric rock fragment content...” One sentence is needed to show connection and the difference between those two parameters. - Section3, general question: How is it possible to see erosion/deposition on a satellite image? Are there any gullies visible? The erosion/deposition categories of Warren et al 2005 are made for field surveys and not for satellite image. Is a “stonier surface” really visible on a google image? Is a satellite image of one day representative for a long-term process like water erosion? - Table 1 : There are newer empirical equations for the R-factor in Germany.

Please also note the supplement to this comment:

<http://www.nat-hazards-earth-syst-sci-discuss.net/2/C1592/2014/nhessd-2-C1592-2014-supplement.pdf>

Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., 2, 2639, 2014.

C1594