Comment on hess-2021-457

Anonymous Referee #1

Referee comment on "High-resolution erosion susceptibility data for agricultural lands of Finland" by Timo A. Räsänen et al., Hydrol. Earth Syst. Sci. Discuss., https://doi.org/10.5194/hess-2021-457-RC1, 2021

This is a very interesting paper addressing soil erosion in a Nordic country. The interesting aspects are the modified approaches of a well known model and the calibration of different factors. This manuscript may help in better spatial planning and better decision making in agricultural sector. There are some issues that can be improved. I would suggest a moderate revision.

Abstract. L12-13: In terms distances??? Please correct this sentence.

Introduction

You have used some abbreviations which are not appropriate in many parts of the manuscript. E.g. L38 Fig.s…., VegeTab.s (l.218).

L41: it is not only the transfer of phosphorus and nutrients but also the transfer of heavy metals. Please add a sentence there with a proper reference.

L70: "was" ? better to put in present. In L72: You can say that the objective of this study is addressed by 1)…………

L89-91: Your reference is always the Fig.1. Please put (B, Fig.1).

L96: The results were analysed spatially (you do not need this sentence). I tis obvious.

For Equations 2 and 3 you refer to the relevant publication. However, please be more specific by providing the reference to the LANDUM model which estimates them.

Section 2.2. what is the difference between your high resolution LS factor (2m) and the European one (at 25m)?

In table 1, please add a column with the Spatial resolution of each dataset.

Somewhere in section 2, please provide a map with the Agricultural land of Finland, with a zoom also in the location of the seven monitoring sites, etc. Maybe can you include also the boarders of the 14 selected basins?

In the paragraph 175-185: there is a fourth reason which does not allow to compare RUSLE with sediment data. Sediments are the results of many processes: gully, wind erosion, harvest erosion, landslides (not only sheet and rill erosion as RUSLE predicts).

L214: attention 2,34 should be 2.34

In section 2.6: You shoud be more specific about Emax, Emin, Ei. What are they? How they are calculated?

In figure 4, important to see also the C-factor

Figure 6a: legend. The Field area is misleading. Please use the 6a) description in the legend. The same applies for 6d. not simly EMI but what is Erosion Management Index.

The last paragraph of the conclusion is very generic. I would expect something relevant to your findings.

Finally, it will be excellent to know the most effective practices to reduce erosion in Finland.

Section 4.1 can be renamed (earlier is not an appropriate term)