

## ***Interactive comment on “Decision support for the selection of reference sites using $^{137}\text{Cs}$ as soil erosion tracer” by Laura Arata et al.***

**Anonymous Referee #2**

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The paper addressed a very important topic in the soil erosion evaluation using Cs-137 technique. A good orientation about the reference site choice will define a different history about the soil erosion and deposition rates in the end. In my opinion the MS give us a good understanding about this and the complexity associate. In my opinion, the discussion about the commitment about the reference site is meaningful to the scientific community to reveal the uncertainties about it and to help to establish a protocol. However, I think the protocol will be site specific.

In general terms, it is quite difficult to establish a protocol to choose the reference value. I agree with the arguments and factors explored by the authors, but I'm not sure if the protocol suggested is the main contribution of the MS or even the application of this with the study of case showed. In my point of view the main contribution is the discussion about the control factor and the uncertainty associated. Maybe the paper

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should be written more theoretical and with less pretension to establish a protocol applicable worldwide or to prove its application.

Another question/doubt is about the temporal variation. It was not so clear if the authors highly recommend a temporal analysis or no. If yes, how much time it takes to researchers decide if this is a good site to be used. Is this a constrain about the methodology proposed? Maybe the author could explore the fact the temporal evaluation will take a long time and maybe people will not be able to test it.

In my point of view the spatial variation is more pertinent and easy to be applicable. In the abstract the temporal variability is highlighted, for example, maybe the analysis could start with spatial variability and after the authors could show some insights about the temporal analysis.

Figure 1: Because this MS is proposing a reflexing/protocol, in my opinion the reference site should be chosen in a flat area in the top instead in the base of hillslope, for example, in a plateau without erosion/deposition possibilities.

Beside this, Maybe we can come back to the form and structure after the discussion about the points presented above.

Best regards

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Interactive comment on SOIL Discuss., doi:10.5194/soil-2016-72, 2016.

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