

Interactive comment on “Technical Note: Erosion processes in black-marls at the millimetre scale, the input of an analogical model” by J. Bechet et al.

Anonymous Referee #3

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During the last decade terrestrial laser scanning has become a standard technology e.g. in civil engineering and is also a promising tool in erosion research. There are still several challenges such as shading, time resolution, and high-precision referencing of subsequent scans that makes purely methodological studies important too. However, the discussion paper in the present form remains below the state of the art and can therefore not be recommended for publication in HESS. The actual focus of the paper remains unclear, is it on methodology of terrestrial laser scanning in erosion research or does it target the specific erosion processes on black marls? In the first case the novelty of the study is limited and does not go beyond the existing literature. In the second

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case the experimental setup (aggressive irrigation of the soil (fig. 2), then complete drying out of the monolith with subsequent application of a moderately erosive rain not in reference to the natural environment of the soil) seems to be inadequate. Furthermore, the data analysis is not very ambitious. E.g. roughness estimations and their time dynamics could be an interesting aspect to be analyzed with the data.

Concerning the formal aspects, the linguistic quality is weak, the terminology has to be adapted to standards in erosion research. Table 1 does not really contribute to the understanding, at least column 1 could be omitted. Also figure 1 and 2 do not really contribute to the understanding, they could probably be replaced by a schematic drawing of the experimental setup. Figure 4 is overloaded, axis tick mark captions are not readable, details of the shaded 2.5 dimensional visualizations cannot be identified.

Some specific doubts:

What is "manual cleaning", is it clipping out the area of interest or is it the identification and deletion of outliers due to hit raindrops or insects?

Terrestrial laser scanning is time consuming, time resolution is therefore limited. What was the actual scanning time in relation to the investigated processes?

Some of the comments could possibly help to find a base for resubmission of the paper with some data, that are worth to be analyzed.

What is "creeping", how was it quantified in fig. 4 and 5?

What is shown in fig.3: Is it a crosshill or a downhill section of the DEM? What is the width where vector points are included around the section through the DEM? What was the reason to choose the specific smoothing parameters of the DEM?

The dataset could principally be reanalyzed as a base for a resubmission of the paper.

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