Hydrology and Earth System Sciences Discussions

Interactive comment on "Use of the 3-D scanner in mapping and monitoring the dynamic degradation of soils. Case study of the Cucuteni-Baiceni Gully on the Moldavian Plateau (Romania)." *by* G. Romanescu et al.

Anonymous Referee #1

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General comments

Using terrestrial laser scanning to observe erosion processes is a new method with high potential for hydrological and geomorphological monitoring campaigns. The data provided in this paper show very well how the observed gully developed within the study's time span. Unfortunately there is no stepwise evolution shown by making use of the data from scans in 2009 and early 2010. In this study the potential of processing high resolution data is not fully tapped, I would have appreciated an interpretation of

the data that covers the spatial development of the gully, not only by showing elevation comparison of the cross sections.

Specific comments

1. Introduction: An introduction should highlight the relevance of your study, and this by referring to publications that are dealing with similar issues. The list of references added at the end of your introduction should be enmeshed in the text.

2. Materials and methods: The methods are explained very sparsely and need a more a detailed description, both for the laser scanning and the total station application: how was the experimental setup, how many reference objects were used and how was their spatial arrangement...

3. Results and discussions: The first paragraph on page 6912 until line 4 is a very general description of the gully and rather belongs to the section "Regional settings". Page 6917 line 4f better: Those obstacles can be removed by applying filters to the data.

4. Conclusions: Stating that the three-dimensional model has an accuracy of 6 mm is deceptive as the measurement accuracy of the scanner might be 6 mm but by processing the data and merging pointclouds from the different scan positions to one scan affects the accuracy of the pointcloud.

Technical corrections

1. Page 6908 line 12 wrong tense: The gully has not yet attacked the archaeological site; 2. Page 6917 line 4 Man → man; 3. Page 6917 line 5 "they" does not refer to the

obstacles but to the contour maps; 4. Page 6918 line 11 "Taking measurements is a new specialty" → Working with terrestrial laser scanning data is a new application; 5. Fig. 3 there is no scale denoted; 6. Fig. 6-14 bring all these figures to one scale; 7. Fig. 4, 5, 15 standardise decimal places, four decimal places are not reliable;