

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.

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We thank the referee no. 2 for the suggestions regarding the article.

We would like to begin by mentioning the fact that the gully in question is extremely active, and this was the reason behind its selection for our exercise. The area occupied by the gully is very sparsely covered by vegetation, and the trees are virtually absent. Some of the lateral sectors have a very steep, almost vertical slope, and therefore cave-

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ins and falls are frequent and contribute to the local aggradation of the gully. The above mentioned factors are the main reason behind the very spectacular recorded values. The 4 m accretion is due to the collapse of a vertical wall which lacked physical support. This sector is situated between the two secondary arms of the gully. The large volume of deposited material was caused by the high precipitations which broke whole packets of material from the lateral walls. These breakings are specific to loess packets. This material contributed to the local aggradation of the gully, and this is what caused the conspicuous positive changes noted by referee no. 2. The use of the 3D scanner, conjointly with the total station, proved that scanner measuring is much faster and that the acquired data is more accurate. The 3D scanner collects data from throughout the surface of the investigated land form, while the use of only classic equipment presents the risk of harvesting only partial data, i.e., along transversal lines. In the areas between the transversal sections the actual data is absent and a virtual model is used instead. Moreover, using traditional techniques it is almost impossible to collect data from very steep walls such as the ones found at the gully from Cucuteni-Baiceni. Likewise, such measurements would take a very long time to complete, and this constitutes another reason for preferring state-of-the-art equipments for such undertakings. In the final version of the article we will highlight, in detail, those characteristics of the methods and results that bear witness to the advantages of the 3D scanner. The accuracy of the data, the speed at which the measurements were made, and many other factors all bear witness to the fact that the 3D scanner is the most suitable for monitoring large and very large gullies, very active and with very steep walls. For other types of gullies, traditional equipment and methods can indeed be successfully employed.

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Fig. 1.

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Fig. 2.

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Fig. 3.

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Fig. 4.

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