Geoscientific Instrumentation Methods and Data Systems Discussions

Geosci. Instrum. Method. Data Syst. Discuss., referee comment RC1
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Comment on gi-2021-10

Anonymous Referee #1

Referee comment on "Study on a Compatible Model Combining Point Cloud Model and Digital Elevation Model" by Wenbo Guo and Jun Zhao, Geosci. Instrum. Method. Data Syst. Discuss., https://doi.org/10.5194/gi-2021-10-RC1, 2021

The paper presents a method for the representation of 3D data through the use of Digital Elevation Models. It discusses the basic of DEM description of natural terrain, and then introduces an extension of the digital representation of topographic data in a DEM to account for multiple subsurface interfaces, such as the ceiling and roof of a cave.

The paper is well written and organized, and the language is clear. The presentation of the method is clear and concise. The conclusions are supported by the data. What to me seems to require a more in-depth discussion is how the present work compares to previous solutions to the problem of 3D data representation. Also, the quality of the resulting 3D representation is discussed in qualitative terms, without providing some numerical measure of the fidelity of the DEM to the original point cloud, for example. Lastly, limitations of the proposed methods are not discussed: how would a concave shape be represented, for example?

A final remark concerns the list of references: very often, standards and methodologies are quoted indirectly by citing papers that presumably contain references to the original works that present their description. I think that an effort should be made to quote the original sources.