Hydrology and Earth System Sciences

Discussions

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Interactive
comment

Interactive comment on "Geomorphometric analysis of cave ceiling channels mapped with 3D terrestrial laser scanning" *by* M. Gallay et al.

M. Gallay et al.

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We would like to thank the second reviewer for the positive feedback and the useful comments. I am summarizing our answers below:

Page 2 line 31: The highlighted sentence will be rephrased to:

This paper also provides new evidence of the hydrological regime acting during the cave formation.

—-

Page 6 line 10-13: The highlighted sentence will be rephrased to:

Bella et al. (2014) performed cosmogenic nuclide dating of quartz pebbles cemented in the upper parts of Domica (340 metres a.s.l.). Their results suggest that the upper

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level began to form after uplifting the region above sea level earlier than the Middle Pliocene (3.47±0.78 million years) when the current hydrographic network was being established. The lowest evolution level of Domica was found by drilling at 318 metres a.s.l. (Droppa 1972).

—-

Page 7 line 8: The highlighted word will be deleted.

—-

Page 7 line 15: We will include the statement on th total area measured.

—-

Page 8 line 5-6: The highlighted text will be rephrased to:

Two data sets were derived by subsampling using the minimal distance criterion. The points were reduced having a minimal spacing of 1 cm and 5 cm, respectively.

—-

Page 8 line 23: The highlighted text will be rephrased to:

Cignoni and Ranzuglia, 2014

We will use Cignoni throughout the paper to correct wrong spelling of the cited author Paolo Cignoni.

—-

Page 9 line 2-3: The highlighted text will be rephrased to:

It is the maximum depth of the octree hierarchy that is used for surface reconstruction by fitting an indicator function modelling the 3D surface. The method adapts the octree to the sampling density, therefore the specified reconstruction depth is only an upper bound.

—-

Page 9 line 5: The highlighted text will be rephrased to:

decimation of the mesh, or the mesh parameterization.

—-

Page 9 line 7: The highlighted text will be rephrased to:

data sets originated from subsampling the original point cloud at

—-

Page 9 line 23: The highlighted text will be rephrased to:

Also, the ceiling channels were extracted as polylines by the means of traditional 2-D geomorphometry.

—-

Page 10 line 10: The highlighted text will be rephrased to:

a normalized ceiling height (DEM_CH_NORM)

—-

Page 10 line 13: The highlighted text will be rephrased to:

The higher is the constant the smoother the line will be extracted.

—-

Page 10 line 29: The highlighted text will be rephrased to:

ceiling channels

—-

Page 11 line 9-10: The highlighted text will be rephrased to:

However, more powerful measures can be calculated to improve perception of the 3D shape and to help identifying the features.

—-

Page 13 line 6: The highlighted text will be rephrased to:

youngest evolution level of the Virgin passage developed at about 329 m a.s.l. (segment A in Fig. 8).

—-

Page 14 line 11: The highlighted text will be rephrased to:

and also it is the highest among the three groups.

—-

Page 14 line 30: The highlighted text will be rephrased to:

the 26 channels

—-

Page 15 line 1-2: The highlighted text will be rephrased to:

tectonic movement also suggested by formation of massive chimneys disrupting the horizontal continuity of the channels (Fig. 10B).

—-

Page 15 line 30: The highlighted text will be rephrased to:

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—-

Page 41: the comment will be implemented in the figure accordingly. The highlighted text in the figure caption will be changed to:

Domica ceiling which were grouped

—-

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