Geological control of the gravitational processes in the Spišská Hill pseudokarst region (Levočské Vrchy Mts., Slovakia)

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Abstract

The article presents the study of the pseudokarst region around the Spiššká Hill (Levočské vrchy Mts.). The caves were formed in the Quaternary by the movement of rock blocks and slabs along the bedding planes and joints on slopes of the Spišká Hill. The movement is probably a combination of lateral spreading and very slow translational sliding (rock block sliding). The toppling and falling of the rock blocks represent other types of movements observed. The joints are mostly of tectonic origin and have a systematic character (diagonal, longitudinal and transversal). The caves represent parts of open cracks, which represent the initial forms of landslide development. A spectacular example of such structures is the longest known crevice-type cave in Slovakia – Jaskyňa pod Spišskou (Cave under the Spišská Hill). The length of this cave is about 740 m.

The paper summarizes the knowledge gained about one part of the Levočské vrchy Mts. where the pseudokarst cave system has been discovered. Based on a description of the biggest Slovakian pseudokarst cave; namely the Jaskyňa pod Spišskou, a detailed description of the geology and caves is presented.

Key words

Crevice-type caves, mass movements, pseudokarst, Levočské vrchy Mts., Central Western Carpathians.