

**The study of recent vertical movements using very precise levelling measurements – first results in the central part of Slovakia**

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ABSTRACT

Very precise levelling, as the most precise method for the height determination, offers the opportunity to use it for a study of the recent vertical movements.

Reliability of this method lies in the fact that it is founded on precise measurement methodology and strict criteria for the accuracy. Thanks to this, it can be used also in the areas where the vertical movements are very slightly.

The study of the recent vertical movements is based on the comparison of three or more repeated levelling measurements realized in the different times. The condition for achieving a reliable result is compliance of the accuracy criteria for the very precise levelling, the correct selection of the levelling points, the sufficient time interval and so on.

In the Slovak national levelling network we have data from the 2<sup>nd</sup> Czechoslovak levelling (1949 – 1957), 1<sup>st</sup> and 2<sup>nd</sup> repeated levelling (1961 – 1978) and the latest realization of the 1<sup>st</sup> order levelling lines (1996 – 2002). The goal of this contribution is to analyse the levelling measurements for the study of recent vertical movements in the central part of Slovakia which are a result of the dynamic tectonic processes in the Earth and also the movements induced by the human activity, for example the mining.