The diploma thesis deals with time-lapse electrical resistivity tomography (TL-ERT) of active slope deformations. Slope deformations represent one of the important land-forming processes. Frequently, they can cause considerable property damages and can endanger health and lives of inhabitants. Therefore, we can consider them as potentially dangerous so complete understanding of their dynamics, and their mechanisms of origin, is essential. Electrical resistivity tomography (ERT) then represents an effective geophysical tool for slope deformation investigation. Within diploma thesis, the evaluation of the several different time-series of the ERT measurements was performed. Based on findings of the one-year (August 1013 to July 2014) monitoring of resistivity changes by ERT, and also, based on daily and hourly recurrences of measured resistivity data, the optimum measuring interval has been determined, namely 12 hours. The most applicable electrode arrays and their combinations were suggested based on a testing of different electrode configurations. The results of detailed measurement with 1 m electrode spacing offered the idea of shortening of the total length of the present permanent TL-ERT profile as well as shortening the electrode spacing. These conclusions and proposed adjustments then resulted in general suggestion of the Čeřeniště landslide TL-ERT optimisation for the next periods of measurements.

Achieved results confirmed basic hypothesis – a dependency of water saturation of the subsurface environment on precipitations, the system of precipitations – infiltration – evaporation respectively. Additionally, work on diploma project brought valuable knowledge and experiences in the field of technical arrangement and methodology of repeated measurements and subsequent data processing.