

Regelation (freeze-thaw cycles) is the collective term used for a process of alternate freezing and thawing of water and solutions into the soil or bedrock. The series of geomorphological and pedological processes such as migration of soil water, formation of segregated ice or frost heaving, is connected with regelation. Condition of freezing-thawing process is a phase transition of water that leads to an important phenomenon – a release or consumption of latent heat. This phenomenon can be observed from the data obtained by measuring the temperature in the soil profile. In the present bachelor thesis, here are investigated sites of sorted patterned ground (Hincovo pleso, Lučné sedlo) and earth hummocks (Kopské sedlo) in the High Tatras for the purposes of the study regelation process. In addition to detailed description of the physical-geomorphological processes associated with phase changes of water in patterned ground, the main aim of the thesis is to set regelation cycles and their characteristics using different methods for determination of regelation on the basis of temperature measurements in patterned ground of the foregoing locations. The results indicate differences in regelation in the individual shapes within the locations, among the sites, but also between different types of patterned ground – sorted and unsorted. The results also reflect the difference in the used methods, particularly in the count of cycles, their duration and the duration of regelation season. Overall, these results approximately correlate together, especially in determining the longest cycles.