

Abstract

The submitted diploma thesis is concerned with the geomorphological analysis of specific landforms in the High Tatras which are the result of its Quaternary mountain glaciation. The traces of the last three glacials (Mindel, Riss and Würm) are well documented in the studied area. The presence of the Early Pleistocene glaciations (Biber, Donau, Günz) is more difficult to prove. The aim of this thesis is 1) to define the rate of glacial shaping of glacial erosional landforms - cirques; 2) to determine the number of glacials or stadial oscillations of glaciers on the basis of relative dating of moraines during the Last Glaciation. A total number of 122 cirques were analysed. Cirques were classified as follows: simple cirque, termination cirque, stepped cirque and highest cirque. Morphometric characteristics that were implemented are consistent with other studies (e. g. Federici & Spagnollo, 2004, García-Ruiz et al., 2000). A degree of glacial overdeepening of a cirque was quantified by use of k coefficient which is derived from k -curve (sensu Haynes, 1968). Value of k coefficient depends on profile location and cirque headwall foot location. Range of values of k coefficient for the cirques in High Tatras is between 0,503 and 1,951. Based on morphometric analysis the northern mountainside cirques are more developed than the southern mountainside ones. Thus, cirques of northern mountainside overcame more intensive and/or longer lasting glaciation during the Pleistocene. Specific shaping of the relief of the High Tatras (different morphology of southern and northern mountainside, morphology of valleys, preglacial relief) was the most determinative factor in formation and course of glaciation. Moraines in Batizovská dolina Valley and Velická dolina Valley were chosen for application of Schmidt Hammer test which represents a tool for the relative dating of glacial sediments. Based on the results of Schmidt Hammer test, there were recognized four different types of moraines in the Batizovská dolina Valley and five different types of moraines in the Velická dolina Valley. Schmidt Hammer test was unable to distinguish moraines of stadials B and C (sensu Lukniš, 1968).

key words: glaciation, cirque, morphometry, Schmidt Hammer, High Tatras