

Laboratory and image spectroscopy for mapping of selected rocks in peak areas of the Krkonoše Mountains

Abstract

This thesis deals with geological mapping of selected rocks in peak areas of the Krkonoše Mountains. Four areas of interest were situated in two parts of Krkonoše Mountains – on the west side it is the area of Vysoké kolo and Harrachovy kameny and on the east side there is the area of Sněžka and the area of Kozí hřbety. The main data were acquired by the hyperspectral sensor APEX. Ground spectral measurements of selected rocks and block fields were executed and the laboratory spectral measurements of geological samples and lichens were executed. Practical part aims at classification of rocks and lichens in selected areas using four classification methods: SAM, SID, MESMA and LSU. The spectral library is one of the outputs of this thesis. This spectral library contains the spectra of pure rocks and lichens and mixed spectra of rocks and lichens. The output of this thesis is the comparison of used classification methods, the analysis of spatial and geological accuracy and evaluation of lichens influence on the classification results, spectral library and maps of classified rocks occurrence.

Keywords: classification, block fields, hyperspectral data, spectral mixture, lichens, The Krkonoše Mountains