

Abstract

The aim of this thesis was to test the suitability of PlanetScope imagery to differentiate and evaluate the possibility of multi-temporal approach to improve classification accuracy of selected vegetation species (*Molinia caerulea*, *Calamagrostis villosa*, *Nardus stricta*) in eastern tundra in the Krkonoše Mts. National Park. PlanetScope imagery - 4 spectral bands with spatial resolution 3 m - was used. Per-pixel classifications Maximum Likelihood, Support Vector Machine and Random Forest and object-based classification SVM were executed in software ENVI 5.3. based on GPS field data collected from 2014 till 2018. The best classification results were compared to classification results in Kupková et al. 2017 and Marcinkowska-Ochytra et al. (2018a). The overall accuracy of the best classification result (multitemporal composite using Random Forest classifier) was 80,67 %. It is better result than in the case of single image classification (overall accuracy was 76,06 %). PlanetScope data were compared to RapidEye and Apex data. The overall accuracy of the RapidEye best classification result (multitemporal composite using Random Forest classifier) was 74,75 %, the best overall accuracy of monotemporal classification of Apex data reached 75,91 %.

Key words: multi-temporal classification, vegetation, spectral features, PlanetScope, tundra, The Krkonoše Mts. National Park, Random Forest, *Molinia caerulea*, *Calamagrostis villosa*, *Nardus stricta*