ABSTRACT

Title: Evaluation of soil coverage with Remote sensing

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Soil coverage of Czech Republic is well mapped, especialy thanks to Complex Soil Survey during the 1970s. Results of this survey were digitalized and nowadays they are usefull for many analysis, studies, spatial planning and other administrative needs. Despite their considerable details, they are not capturing many of the non-negligible phenomena, either due to inaccuracies at the time of collecting these data or due to ongoing natural processes, in this case mainly soil erosion.

This thesis deals with soil mosaics that are visible from aerial photographs on agricultural land but are not affected in the Complex Soil Survey maps. For this purpose 50 locations in the Czech Republic were selected where mosaics are studied. Attention is paid to the way of origin, places of occurrence and the shape of the mosaic itself. Based on these variables a classification of individual mosaic types was created.

The resulting classification consists of 3 groups together containing 9 categories. Not all selected locations contain only one type of category. The mosaic is often made up of several types, and the resulting shape is the sum of many processes. The dominant cause of the mosaic formation was chosen as the decisive one.

Fractal dimensions of shapes of individual mosaics were calculated in an effort to describe the relationship between the cause and the shape of the mosaic. The calculations were made with program ImageJ and tool V-LATE 2.0 using the Box-count method to calculate fractal dimensions. The obtained results were analyzed and compared with the created classification.

keywords: soil mosaic, Remote Sensing, erosion, classification, fractal dimension, Box-counting method, V-LATE, ImageJ