

The thesis deals with use of hyperspectral data from APEX and AISA sensors for detection and classification of anthropogenic materials in the areas of Čáslav, Rokytnice nad Jizerou and Harrachov. The main goal is to propose methodology for the detection and classification of roof materials and road surface materials based on established spectral libraries. Another goal is to evaluate applicability of spectral libraries for classification, to compare possibilities of hyperspectral data with larger and smaller spectral range and to create maps of anthropogenic materials above. The methodological approach including masks of anthropogenic materials for roads surface materials and roof materials creation, settings of four classifications algorithms (Linear Spectral Unmixing, Multiple endmember spectral mixture analysis, Spectral Angle Mapper, Spectral Information Divergence) parameters and assessment of classification results, is in the methodology part. The results are visualized and evaluated using overall accuracy and percentage of classified pixels. Finally the results are compared with existing studies and possible improvements for further research are proposed.