

Abstract

The thesis deals with the possible use of optical data for modeling forest area compared with utilization of airborne laser scanning data. At first these two datasets are compared and causes of differences are explained. Then canopy height models are made and object-oriented classification is applied for separation of vegetation stands. Methodical procedure is suggested for delineation and detection individual trees in forest. Then their height is detected. There are summarized and other possibilities for improvement in detection and delineation of trees. The results show that optical data with resolution about 25 cm are suitable for determining the characteristics of the forest stands up to individual tree level. The outputs of this research can be used for forest inventory.

Key words: aerial imagery, image matching, laser scanning, point cloud, forest inventory