REMOTE SENSING DATA USAGE CAPABILITIES FOR THE ANALYSIS OF DISTRIBUTION OF FOREST RESOURCES OUTSIDE NFI SAMPLE PLOTS

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Aim of studies – usage of remote sensing data for regionalization to obtain forest coverage maps of Latvian territory.

Remote sensing data – orthophotos (RGB, IR), LIDAR data (Figure 1). Ground truth data – NFI sample plots. Type of analysis: Multispectral analysis (supervised); Image texture classification; LIDAR data classification.

Multispectral analysis shows a good stand classification at coniferous / deciduous level. However, separating the forest stands by age, using biomass equations, classification of young stands often shows similar results as middle-aged stands.

Image Texture Analysis shows that classification quality is high (Kappa coefficient 0.83 for stand dominant species assessment). However, the reliability of the study is not enough (sample plot number of aspen and alder stands). We need to increase the reliability of the results by higher number of observations.

LIDAR CHM model average height is a close relationship with the forest compartment the average height data. State Forest Register data have marginally higher average height values, which could be explained by the LIDAR measurements with a small number of points per m^2 to obtain measurements directly from the treetops.

LIDAR CHM model average height relationship with the forest statistical inventory measurements is higher than with the State Forest Register data, that we can explain that sample plot measurements are done with instruments instead of surveyor experience.

Keywords: *LIDAR, remote sensing*