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Original Articles

# Estimating above-ground biomass in young forests with airborne laser scanning

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models with square root transformation of the response. The different canopy thresholds considered were fixed values of 0.5, 1.3 and 2.0 m defining the limit between laser canopy echoes and below-canopy echoes. The proportion of explained variability of the estimated models ranged from 60% to 83%. Tree species had a significant influence on the models. For given values of the ALS-derived metrics related to canopy height and canopy density, spruce tended to have higher above-ground biomass values than pine and deciduous species. There were no clear effects of model form and canopy threshold on the accuracy of predictions produced by cross validation of the various models, but there is a risk of heteroskedasticity with linear models. Cross validation revealed an accuracy of the root mean square error (RMSE) ranging from 3.85 to 13.9 Mg ha<sup>-1</sup>, corresponding to 22.6% to 48.1% of mean field-measured biomass. It was concluded that airborne laser scanning has a potential for predicting biomass in young forest stands (> 0.5 ha) with an accuracy of 20–30% of mean ground value.

Related Research Data

- Airborne laser scanning accuracy

assessment of the accuracy of airborne laser scanning data in the field

Source: [unintelligible]

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