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CORRELATION OF NORWAY SPRUCE BIOMETRIC STAND PARAMETERS BASED ON AIRBORNE LIDAR AND TERRESTRIAL METHODS

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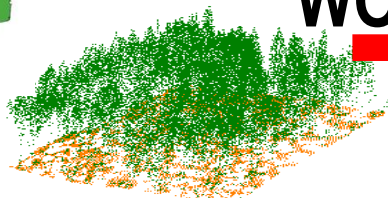[2] "TRANSILVANIA" University of Braşov, Romania

TEST AREA

The study is focused on the correlation of Norway spruce (*Picea abies* (L.) H. Karst) biometric stand parameters based on both airborne LiDAR and terrestrial methods for a test site in Romania - three stands (sample plot 100 x 100 m) of 65, 90 and 110 years old.
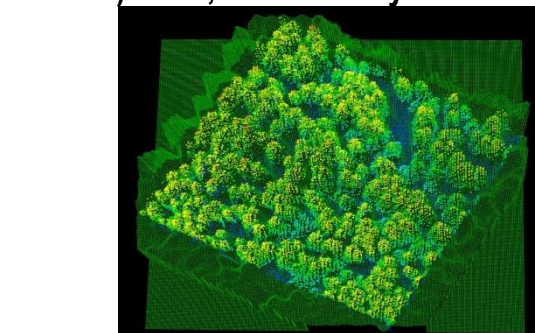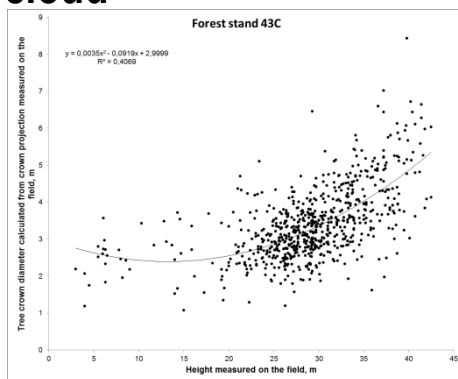
WORKFLOW

Classification of LiDAR echoes in two classes *Ground* and *Vegetation* class (LP360 software)
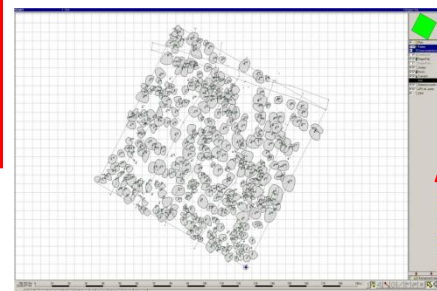
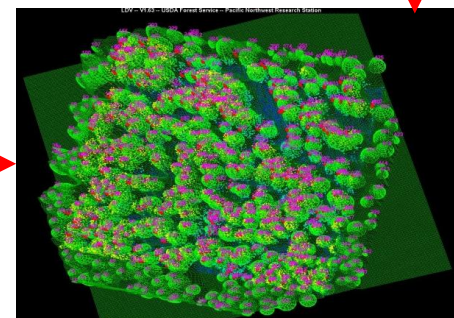**Canopy Height Model (CHM) with the height LiDAR point cloud values normalized**

Digital terrain model extracted from classified LiDAR point cloud

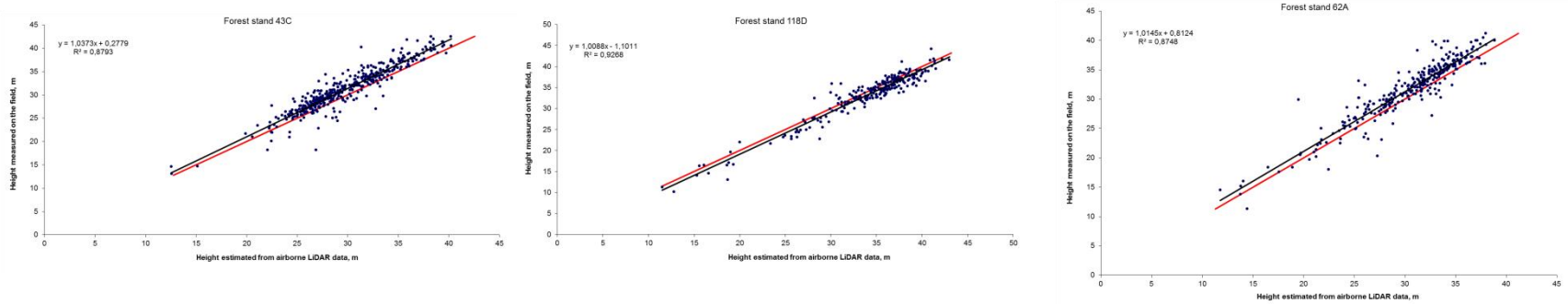**Height and tree crown diameter correlation (measured on the field)**

Forest stand 43C

$y = 0.0035x^2 - 0.0919x + 2.9999$
$R^2 = 0.4069$

Tree crown diameter calculated from crown projection measured on the field, m

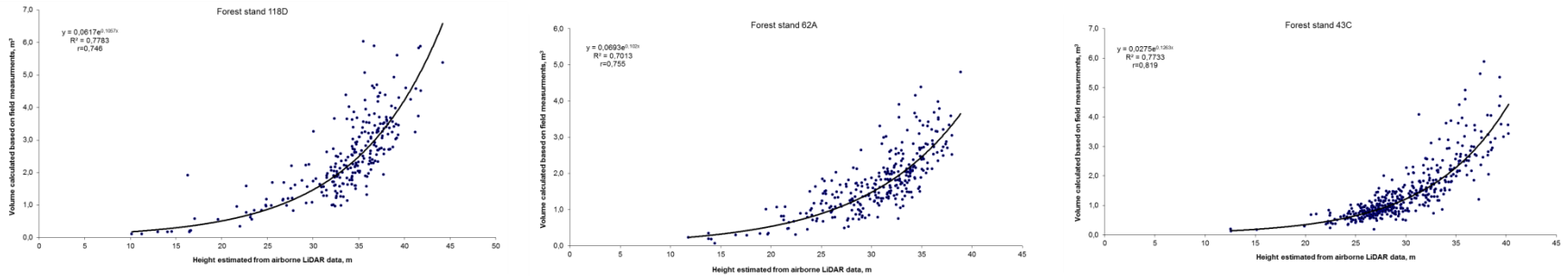Height measured on the field, m
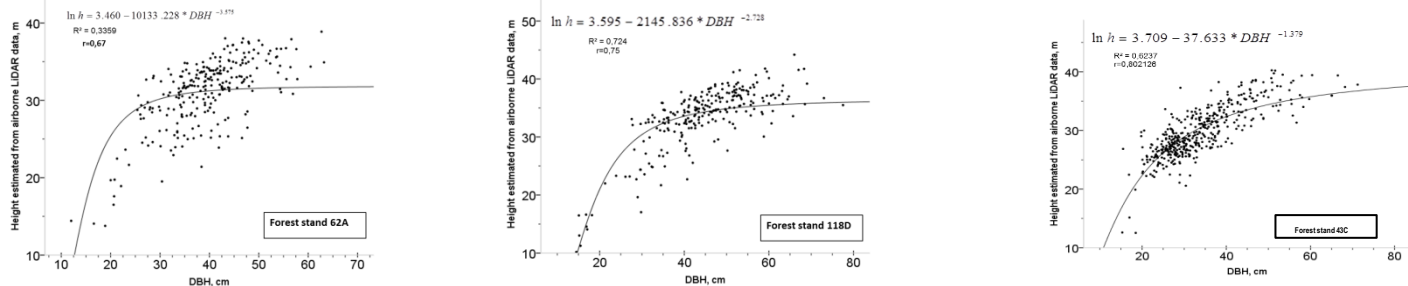
Tree file format (FUSION software)

4. RESULTS AND CONCLUSIONS

Correlation between height measured in the field and automated height estimated using airborne LiDAR data

Correlation between automated height extracted from airborne LiDAR data and estimated individual tree volume based on the field data

Correlation between DBH measured based on the field and the height automated extracted using airborne LiDAR data