Twenty-five LiDAR metrics (at 10 m resolution) capturing ecosystem structure and their implementation in the Laserfarm workflow (https://laserfarm.readthedocs.io/en/latest/)(building on the user-extendable features from the "Laserchicken" software: https://laserchicken.readthedocs.io/en/latest/#features). The listed LiDAR metrics are grouped into three key dimensions of ecosystem structure (ecosystem height, ecosystem cover and ecosystem structural complexity). All metrics are calculated with the normalized point cloud. More details on metric calculation are provided on GitHub (https://github.com/eEcoLiDAR/laserchicken), on the "Laserchicken" documentation page (https://laserchicken.readthedocs.io/en/latest/) and in this publication.

LiDAR metric	File name (ahn3_10m_xx)	Description	Ecological relevance
Ecosystem height			
Maximum vegetation height	max_normalized_height	Maximum of normalized z	Height of canopy surface, tree tops
Mean of vegetation height	mean_ normalized_height	Mean of normalized z	Average height of vegetation, mean tree height
Median of vegetation height	median_ normalized_height	Median of normalized z	Vegetation height, vertical distribution of vegetation
Percentiles of vegetation height (25th, 50th, 75th and 95th)	perc_xx_normalized_height	Four metrics, capturing 25th, 50th, 75th and 95th percentiles of normalized z, respectively	Vegetation height, vertical distribution of vegetation, density in vegetation layers
Ecosystem cover			
Pulse penetration ratio	pulse_penetration_ratio	Ratio of number of ground points to total number of points within a cell	Openness of vegetation, canopy fractional cover, laser penetration index
Canopy cover	density_absolute_mean_ normalized_height	Number of returns above mean height within a cell	Density of upper vegetation layer
Density of vegetation points within defined height layers (<1m, 1–2m, 2–3m, >3m, 3–4m, 4–5m, <5m, 5–20m, >20m)	band_ratio_x1_normalized_height_x2	Ratio of number of vegetation points in height layers to the total number of vegetation points. Height layers are defined in meter above ground (using x1 as the lower bound, and x2 as the upper bound)	Density of vegetation layers (e.g. canopy layer, understory layer, sub-canopy layer)
Ecosystem structural complexity			
Coefficient of variation of vegetation height	coeff_var_ normalized_height	Coefficient of variation of normalized z within a cell	Vertical variability of vegetation distribution
Shannon index	entropy_ normalized_height	The negative sum of the proportion of points within 0.5 m height layers multiplied with the logarithm of the proportion of points within 0.5 m height layers within a cell	Vertical complexity of vegetation, foliage height diversity
Kurtosis of vegetation height	kurto_ normalized_height	Kurtosis of normalized z within a cell	Vertical distribution of vegetation
Roughness of vegetation	sigma_z	Standard deviation of the residuals of a locally fitted plane within a cylinder	Small-scale roughness and variability of vegetation
Skewness of vegetation height	skew_ normalized_height	Skewness of normalized z within a cell	Vertical distribution of vegetation
Standard deviation of vegetation height	std_ normalized_height	Standard deviation of normalized z within a cell	Vertical variability of vegetation distribution
Variance of vegetation height	var_ normalized_height	Variance of normalized z within a cell	Vertical variability of vegetation distribution