Meta data description

These web map layers present high-resolution forest resource information for Denmark derived from airborne LiDAR data and advanced deep-learning models developed at the University of Copenhagen (IGN). The maps provide spatially consistent estimates of forest structural attributes such as forest growing stock and above-ground biomass from three campaigns of airborne laser scanning conducted in 2014-15, 2019-23, and 2024.

Map 1: National Forest Resource Map (LiDAR 2014/15)

Description:

This map represents forest structural attributes derived from the national airborne LiDAR campaign conducted in 2014/15. It provides spatially explicit estimates of forest growing stock and above-ground biomass across Denmark from deep learning models trained on National Forest Inventory (NFI) field plots. The dataset is based on a uniform, countrywide LiDAR acquisition with moderate point density and serves as a historical baseline for national forest resource assessment and carbon stock estimation.

Spatial representation:

Points in a hexagonal grid (30 m width), consistent with NFI plot geometry.

Projection: ETRS89 / UTM zone 32N

Intended use:

Baseline forest monitoring, national reporting, and forest management planning.

Map 2: National Forest Resource Map (LiDAR 2019–2023)

Description:

This map is based on a composite national LiDAR dataset collected incrementally between 2019 and 2023, covering the entire country over five annual sub-campaigns. Compared to the 2014/15 campaign, this dataset has substantially higher point density, enabling more detailed characterization of forest structure. Deep neural networks were retrained using updated field and LiDAR data, resulting in improved accuracy for estimates of forest growing stock and above-ground biomass.

Spatial representation:

Points in a hexagonal grid (30 m width), consistent with NFI plot geometry.

Projection: ETRS89 / UTM zone 32N

Intended use:

Updated national forest resource assessment, change detection relative to 2014/15, and improved estimation of biomass and carbon stocks for climate reporting.

Map 3: Forest Resource Map (LiDAR 2024 Campaign)

Description:

This map is derived from the most recent airborne LiDAR data collected in 2024, covering approximately one-fifth of Denmark. It reflects further advances in LiDAR acquisition technology and point density and applies the latest version of the deep learning models developed in the study. The map provides highly detailed and up-to-date estimates of forest structural variables, supporting near-real-time forest monitoring in newly scanned areas.

Spatial representation:

Points in a hexagonal grid (30 m width), consistent with NFI plot geometry.

Projection: ETRS89 / UTM zone 32N

Intended use:

Operational forest management, local-scale analysis, and incremental updating of national forest resource and carbon maps as new LiDAR data become available.

Disclaimer

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Use of these maps for scientific research, education, and innovation is strongly encouraged. To avoid misinterpretation, ensure correct methodological understanding, and support continued scientific advancement, users are encouraged to collaborate with IGN / University of Copenhagen when conducting further analyses, publications, or derivative products. Such collaboration helps ensure responsible use of the data and fosters the development of improved methods and new scientific discoveries.