Forest structure and crown dataset of 22 Japanese natural forests

1. IDENTIFICATION INFORMATION

Name	Forest structure and crown dataset of 22 Japanese natural forests
Edition	ver. 1.0
DOI	doi:10.20783/DIAS.669 [https://doi.org/10.20783/DIAS.669]
Metadata Identifier	Moni1000_UAVLiDAR_Crowns20250329115357-DIAS20221121113753-en

2. CONTACT

2.1 CONTACT on DATASET

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2.2 CONTACT on PROJECT

2.2.1 Data Integration and Analysis System

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5. DATE OF THIS DOCUMENT

2025-03-29

6. DATE OF DATASET

creation : 2025-03-07

7. DATASET OVERVIEW

7.1 Abstract

The dataset includes following four types of dataset obtained by UAV-LiDAR survey and field work.

1. Digital Terrain Models (DTMs, 5 cm spatial resolution)

2. Canopy Height Models (CHMs, 5 cm spatial resolution)

3. Ortho-mosaic photos (2.2-2.6 cm spatial resolution)

4. Crown polygons of each trees (4328 crowns with 151 species, stem girth at breast height from the latest Moni1000 published data, and canopy height from the dataset 2).

Data were collected from 22 long-term monitoring plots (each approximenly one hector) across Japan, which are registered in the Monitoring Sites 1000 Projects under Japanese Mnistry of Environment. These plots span major climate zones (ranging from subtropical to subarctic) and forest types (evergreen conifer, broadleaf and conifer mixed deciduous broadleaf, and evergreen broadleaf forests). UAV surveys and ground-truthing filedwork for crown segments were conducted simultaneously from May 2022 to October 2023.

A data article regarding this dataset is avilable from the following link. (http://doi.org/10.1111/1440-1703.12555)

7.2 Topic Category(ISO19139)

biota

elevation

environment

geoscientificInformation

boundaries

location

structure

7.3 Temporal Extent

Begin Date	2022-05-18
End Date	2023-10-31
Temporal Characteristics	Only one time

7.4 Geographic Bounding Box

North bound latitude	44.37
West bound longitude	128.23
Eastbound longitude	143.51
South bound latitude	26.74

7.5 Grid

7.6 Geographic Description

山地斜面 Mountain slope

7.7 Keywords

7.7.1 Keywords on Dataset

Keyword Type	Keyword	Keyword thesaurus Name
theme	Drone, Forest census, JaLTER, The Monitoring Sites 1000 Project, Natural forest, Forest dynamics, Tree inventory, DTM, CHM, DEM, Ortho mosaic photo, Crown polygons, Crown boundry, Crown area	No_Dictionary
theme	Biological Classification > Plants > Angiosperms (flowering Plants) > Dicots, Biological Classification > Plants > Gymnosperms > Conifers, Biosphere > Ecological Dynamics > Community Dynamics > Biodiversity Functions, Biosphere > Ecological Dynamics > Community Dynamics > Community Structure, Biosphere > Ecological Dynamics > Community Dynamics > Species Dominance Indices, Biosphere > Ecological Dynamics > Community Dynamics > Plant Succession, Biosphere > Ecological Dynamics > Community Dynamics > Species Recruitment, Biosphere > Ecological Dynamics > Ecosystem Functions > Biomass Dynamics, Biosphere > Terrestrial Ecosystems > Forests, Biosphere > Vegetation > Biomass, Biosphere > Vegetation > Canopy Characteristics, Biosphere > Vegetation > Carbon, Biosphere	GCMD_science

	> Vegetation > Crown, Biosphere > Vegetation > Deciduous Vegetation, Biosphere > Vegetation > Dominant Species, Biosphere > Vegetation > Evergreen Vegetation, Biosphere > Vegetation > Forest Composition/Vegetation Structure, Biosphere > Vegetation > Indigenous Vegetation, Biosphere > Vegetation > Leaf Characteristics, Biosphere > Vegetation > Plant Characteristics, Biosphere > Vegetation > Vegetation Cover, Biosphere > Vegetation > Vegetation Species, Climate Indicators > Land Surface/Agriculture Indicators > Vegetation Cover, Land Surface > Landscape > Landscape Ecology, Land Surface > Topography > Terrain Elevation, Spectral/Engineering > Lidar	
theme	Aircraft > UAV, In Situ Land-based Platforms > FIELD INVESTIGATION, In Situ Land-based Platforms > FIELD SURVEYS, In Situ Land-based Platforms > FIXED OBSERVATION STATIONS, In Situ Land-based Platforms > GROUND-BASED OBSERVATIONS, Models > DEM	GCMD_platform
theme	BIOGEOSCIENCES > Biodiversity, BIOGEOSCIENCES > Data sets, BIOGEOSCIENCES > Ecosystems, structure and dynamics, BIOGEOSCIENCES > Plant ecology, BIOGEOSCIENCES > Remote sensing	AGU
theme	Ecosystems, Biodiversity	GEOSS
theme	Biodiversity, Carbon (stores, uptake, flux), Elevation, Ecosystem Function/Dynamics, Forest Cover, Forest Structure, Slope Angle, Vegetation Cover, Vegetation Type	GEO_COP
place	Asia > Eastern Asia > Japan	Country

7.7.2 Keywords on Project

7.7.2.1 Data Integration and Analysis System

Keyword Type	Keyword	Keyword thesaurus Name
theme	DIAS > Data Integration and Analysis System	No_Dictionary

7.8 Online Resource

file download : https://data.diasjp.net/dl/storages/filelist/dataset:669

Data paper of this dataset : http://doi.org/10.1111/1440-1703.12555

7.9 Data Environmental Information

This dataset is constucted in forest census plots registered in the Monitoring Sites 1000 Projects, Ministry of the Environment, Government of Japan. Forests census data for each plot is avilable via the following URL. https://www.biodic.go.jp/moni1000/findings/data/index_file.html

7.10 Distribution Information

name	version	specification
Moni1000_UAVLiDAR_Crown	ver1.0	DTMs, CHMs, Ortho-mosaic photos: Geotiff; Crown polygons: ESRI shapefile

8. DATA PROCESSING

9. DATA REMARKS

The authors visually inspected the ground point data, and residual noises, when present, were manually removed for constructing the degital terrain models (DTMs). We note that the crown shape data at Yona site cover only about 60% of the plot due to the extremely time-consuming fieldwork for the high abundance of small canopy trees. We could not identify the tree ID for delineated crowns in a few cases. This was due to the absence of tree tags, discrepancies between actual tag numbers and those in the publicly available census data, or the occasional misreading of tags during fieldwork. Crowns with such uncertainties are noted as “low” in the column of “confidence” in the dataset.

10. DATA POLICY

10.1 Data Policy by the Data Provider

This dataset is distributed under the CC BY-NC 4.0 license. Any results obtained using this dataset must explicitly cite the data paper for this dataset (Takeshige et al. 2025, Ecological Research). In particular, if this dataset is used for any publications, permission must be obtained from the data custodians beforehand. This condition is applied for at least two years after its release (until March 31, 2027). Depending on the purpose of the data usage, the data custodians may request to be included as co-authors. The creators of this dataset assume no responsibility for any loss or damage resulting from its use.

10.2 Data Policy by the Project

10.2.1 Data Integration and Analysis System

If data provider does not have data policy, DIAS Terms of Service (https://diasjp.net/en/terms/) and DIAS Privacy Policy (https://diasjp.net/en/privacy/) apply.

If there is a conflict between DIAS Terms of Service and data provider's policy, the data provider's policy shall prevail.

11. LICENSE

12. DATA SOURCE ACKNOWLEDGEMENT

12.1 Acknowledge the Data Provider

This study utilized the dataset published by Takeshige et al. (2025, Ecological Research). This dataset was collected and provided under the Data Integration and Analysis System (DIAS), which was developed and operated by a project supported by the Ministry of Education, Culture, Sports, Science and Technology.

12.2 Acknowledge the Project

12.2.1 Data Integration and Analysis System

If you plan to use this dataset for a conference presentation, paper, journal article, or report etc., please include acknowledgments referred to following examples. If the data provider describes examples of acknowledgments, include them as well.

”In this study, [Name of Dataset] provided by [Name of Data Provider] was utilized. This dataset was also collected and provided under the Data Integration and Analysis System (DIAS), which was developed and operated by a project supported by the Ministry of Education, Culture, Sports, Science and Technology. ”

13. REFERENCES

http://doi.org/10.1111/1440-1703.12555

https://doi.org/10.1016/j.foreco.2024.122185