

Metadata form of Silva Fennica

This form is designed for writing the elements of metadata, which are used in the description of research materials such as data and codes. The form is based on the work done in the Work Group “Description of research materials” under the Finnish Open Science Coordination.

Item	Description	Responsible
<i>Name of the data / code</i>	Harvester production files (hpr files) and information computed from the files	Author
<i>Author & ORCID</i>	Hpr files: Owner companies of Metsäteho Oy Computed information: Juha-Antti Sorsa (no ORCID), Kirsi Riekk 0009-0007-8366-3297 Heikki Ovaskainen 0000-0001-5063-6662 Riku Tarvainen 0009-0001-2336-3125	Author
<i>Authors' affiliation(s)</i>	Computed information: Juha-Antti Sorsa, Metsäteho Oy Kirsi Riekk, Metsäteho Oy Heikki Ovaskainen, Metsäteho Oy Riku Tarvainen, Metsäteho Oy. Other authors of the paper: Kalle Kärhä, University of Eastern Finland Jukka Malinen, Metsäteho Oy	Author
<i>Owner of the material</i>	Metsäteho Oy	Author
<i>Publisher</i>	Metsäteho Oy	Author
<i>Funder</i>	Metsäteho Oy.	Author
<i>Description</i>	Harvester production files (hpr files). HPR files offer information of individual harvested trees and harvester machine. In this research, precise spatial information of harvester head and harvester was used to locate harvested trees. HPR also records information about tree dimension i.e. diameters and length of commercial part of stem.	Author
<i>Methods</i>	All methods are described in our research paper. Measurement areas in the forest were selected (targeted sampling) by their area and characteristics of the strip road networks. Within the selected areas, complete field measurement of trees was performed with Trimble R12i GNSS receiver and Trimble Access field measuring software. Geospatial analysis of field data and hpr data was performed with QGIS 3 software and own program codes in Python 3. Diameters of the hpr trees were obtained with Metsäteho's in-house tool which is based on nonlinear least squares fitting of Laasasenaho's taper curve model and implemented as Metsäteho's program code in C#, see Appendix A of paper. Diameters were used to compile diameter distributions and calculate basal areas of the trees. Reynold's Error Index was used to compare diameter distributions.	Author
<i>Variables</i>	ObjectID = identifier of measument area, StemID = identifier of stem, SpeciesGroup = tree species, DBH (m) = diameter at breast height, LatitudeMachine (degree) = harvester's latitude coordinate, LongitudeMachine (degree) = harvester's longitude coordinate, MachineBearing (degree) = direction of machine, CraneAngle (degree) = direction of crane, MeanCraneLength (m) = crane lenght,	Author

	fitted_DBH = diameter at breast height computed by Metsäteho's tool, fitted_D130 = diameter at 130 cm above stump computed by Metsäteho's tool, X (m) = metric latitude coordinate of harvester, Y (m) = metric longitude coordinate of harvester, newX (m) = corrected metric latitude coordinate of harvester, newY(m) = corrected metric longitude coordinate of harvester, crane_ANGLE_corrected (degree) = due to asymmetrical boom placement in Komatsu, corrected angle of crane, striproadtree = Boolean variable to mark tree is classified as strip road tree, basalarea (m²) = basal area of individual tree	
Author keywords	Harvester data, diameter distribution	Author
Vocabulary keywords (community standard)	Harvester = https://dictionary.cambridge.org/dictionary/english/harvester Data = https://dictionary.cambridge.org/dictionary/english/data	Author
Discipline	Field(s) of study to which the material is related. This is generally given by the repository as they use specific classifications.	Archive/Repository/Publisher
Type of material	No additional data than the research paper itself is deposited Program codes are deposited within Metsäteho Oy	Author
Language	ENG	Author
Time range covered	2024-01-01 – 2025-02-01	Author
Geographic region	FIN	Author
Version	Only one version exists	Author
File format(s)	Metsäteho Oy internal archive contains: .py .docx .cs	Author
Availability of the materials (open, embargo, registration, limited, registration required)	Private forest sector company owns the data and it is restricted.	Author
Justification for access restrictions	Data is restricted due to privacy policy.	Author
Licence	A licence defines the conditions for reuse of the material. Silva Fennica requests the use of Creative Commons licences .	Author
Connections with other research materials	Research data is not related to other data.	Author
Access to the connected research materials	Metsäteho Oy controls the access to data.	Author
Codes only: hardware/software requirements for running the code	Python 3.11 was used to calculate results. Processor 12th Gen Intel(R) Core(TM) i7-12700H, 2300 Mhz, 14 Core(s), 20 Logical Processor(s) Microsoft Windows 11 Business Version 10.0.22631	Author
Connections to other products of research	Data have not been used in other articles	Author
Personal data	Material contains detailed spatial information of harvesting operations which can be identified to landowner. This is one of the reasons why the data is not shared openly.	Author
Confidential or secret data	Yes	Author

<i>Publication date</i>	Date of publication in an archive or repository.	Archive/Repository/Publisher
<i>Preservation policy</i>	No data is publicly shared.	Author
<i>Permanent identifier (PID)</i>	Unambiguous, permanent identifier of the material. The identifier may be DOI, URN or accession number.	Archive/Repository/Publisher