Annikki MÃ¤kelÃ¤

List of Publications by Year
in descending order

137 papers	7,182 citations	50276 46 h-index	64796 79 g-index
142 all docs	142 docs citations	142 times ranked	8167 citing authors

#	Article	IF	Citations
1	TRY plant trait database â€“ enhanced coverage and open access. Global Change Biology, 2020, 26, 119-188.	9.5	1,038
2	Process-based models for forest ecosystem management: current state of the art and challenges for practical implementation. Tree Physiology, 2000, 20, 289-298.	3.1	314
3	Air temperature triggers the recovery of evergreen boreal forest photosynthesis in spring. Global Change Biology, 2003, 9, 1410-1426.	9.5	273
4	Implications of the pipe model theory on dry matter partitioning and height growth in trees. Journal of Theoretical Biology, 1986, 123, 103-120.	1.7	169
5	Acclimation of photosynthetic capacity in Scots pine to the annual cycle of temperature. Tree Physiology, 2004, 24, 369-376.	3.1	169
6	Optimal Control of Gas Exchange during Drought: Theoretical Analysis. Annals of Botany, 1996, 77, 461-468.	2.9	168
7	Assimilate transport in phloem sets conditions for leaf gas exchange. Plant, Cell and Environment, 2013, 36, 655-669.	5.7	161
8	Optimal control of gas exchange. Tree Physiology, 1986, 2, 169-175.	3.1	158
9	New insights into the covariation of stomatal, mesophyll and hydraulic conductances from optimization models incorporating nonstomatal limitations to photosynthesis. New Phytologist, 2018, 217, 571-585.	7.3	135
10	Developing an empirical model of stand GPP with the LUE approach: analysis of eddy covariance data at five contrasting conifer sites in Europe. Global Change Biology, 2008, 14, 92-108.	9.5	132
11	BAAD: a Biomass And Allometry Database for woody plants. Ecology, 2015, 96, 1445-1445.	3.2	122
12	Stand growth model based on carbon uptake and allocation in individual trees. Ecological Modelling, 1986, 33, 205-229.	2.5	107
13	Derivation of stem taper from the pipe theory in a carbon balance framework. Tree Physiology, 2002, 22, 891-905.	3.1	104
14	Effects of age and site quality on the distribution of biomass in Scots pine (Pinus sylvestris L.). Trees - Structure and Function, 1996, 10, 231-238.	1.9	103
15	CROWN RATIO INFLUENCES ALLOMETRIC SCALING IN TREES. Ecology, 2006, 87, 2967-2972.	3.2	103
16	Bridging process-based and empirical approaches to modeling tree growth. Tree Physiology, 2005, 25, 769-779.	3.1	98
17	A physiological model of softwood cambial growth. Tree Physiology, 2010, 30, 1235-1252.	3.1	96
18	Organizing principles for vegetation dynamics. Nature Plants, 2020, 6, 444-453.	9.3	95

#	Article	IF	Citations
19	Model analysis of the effects of soil age, fires and harvesting on the carbon storage of boreal forest soils. European Journal of Soil Science, 1998, 49, 407-416.	3.9	94
20	Optimal Function Explains Forest Responses to Global Change. BioScience, 2009, 59, 127-139.	4.9	92
21	<scp>CASSIA</scp> â€“ a dynamic model for predicting intraâ€annual sink demand and interannual growth variation in <scp>S</scp>cots pine. New Phytologist, 2015, 206, 647-659.	7.3	91
22	Optimal coâ€allocation of carbon and nitrogen in a forest stand at steady state. New Phytologist, 2008, 180, 114-123.	7.3	89
23	Modelling five years of weather-driven variation of GPP in a boreal forest. Agricultural and Forest Meteorology, 2006, 139, 382-398.	4.8	87
24	Impacts of size and competition on tree form and distribution of aboveground biomass in Scots pine. Canadian Journal of Forest Research, 1998, 28, 216-227.	1.7	86
25	Early snowmelt significantly enhances boreal springtime carbon uptake. Proceedings of the National Academy of Sciences of the United States of America, 2017, 114, 11081-11086.	7.1	84
26	Crown rise due to competition drives biomass allocation in silver birch. Canadian Journal of Forest Research, 2003, 33, 2395-2404.	1.7	80
27	Bayesian calibration, comparison and averaging of six forest models, using data from Scots pine stands across Europe. Forest Ecology and Management, 2013, 289, 255-268.	3.2	79
28			

#	Article	IF	Citations
37	Generating 3D sawlogs with a process-based growth model. Forest Ecology and Management, 2003, 184, 337-354.	3.2	60
38	Vertical structure of Scots pine crowns in different age and size classes. Trees - Structure and Function, 2001, 15, 385-392.	1.9	58
39	Available and missing data to model impact of climate change on European forests. Ecological Modelling, 2020, 416, 108870.	2.5	58
40	Differential games in evolutionary theory: Height growth strategies of trees. Theoretical Population Biology, 1985, 27, 239-267.	1.1	55
41	Picea abies sapwood width: Variations within and between trees. Scandinavian Journal of Forest Research, 2006, 21, 41-53.	1.4	54
42	Optimal Control of Gas Exchange during Drought: Empirical Evidence. Annals of Botany, 1996, 77, 469-476.	2.9	52
43	Process-based modelling of tree and stand growth: towards a hierarchical treatment of multiscale processes. Canadian Journal of Forest Research, 2003, 33, 398-409.	1.7	51
44	Analysis of the NSC Storage Dynamics in Tree Organs Reveals the Allocation to Belowground Symbionts in the Framework of Whole Tree Carbon Balance. Frontiers in Forests and Global Change, 2019, 2, .	2.3	51
45	Comparison of Two Shootâ€"Root Partitioning Models with Respect to Substrate Utilization and Functional Balance. Annals of Botany, 1987, 59, 129-140.	2.9	48
46	Using stand-scale forest models for estimating indicators of sustainable forest management. Forest Ecology and Management, 2012, 285, 164-178.	3.2	48
47	Field evidence for the optimality hypothesis of gas exchange in plants. Functional Plant Biology, 1999, 26, 239.	2.1	47
48	Analysis of biomass accumulation and stem size distributions over long periods in managed stands of Pinus sylvestris in Finland using the 3-PG model. Tree Physiology, 2005, 25, 781-792.	3.1	46
49	Application of volume growth and survival graphs in the evaluation of four process-based forest growth models. Tree Physiology, 2000, 20, 347-355.	3.1	45
50	Potential litterfall of Scots pine branches in southern Finland. Ecological Modelling, 2004, 180, 305-315.	2.5	44
51	Connecting a process-based forest growth model to stand-level economic optimization. Canadian Journal of Forest Research, 2004, 34, 2060-2073.	1.7	44
52	Stem form and branchiness of Norway spruce as a sawn timberâ€"Predicted by a process based model. Forest Ecology and Management, 2007, 241, 209-222.	3.2	43
53	A steady-state stomatal model of balanced leaf gas exchange, hydraulics and maximal sourceâ€"sink flux. Tree Physiology, 2017, 37, 851-868.	3.1	43
54	Development of biomass proportions in Norway spruce (Picea abies [L.] Karst.). Trees - Structure and Function, 2006, 20, 111-121.	1.9	42

#	Article	IF	Citations
55	A climate-sensitive forest model for assessing impacts of forest management in Europe. Environmental Modelling and Software, 2019, 115, 128-143.	4.5	41
56	Effects of tree size and position on pipe model ratios in Scots pine. Canadian Journal of Forest Research, 2005, 35, 1294-1304.	1.7	40
57	Bayesian calibration of a carbon balance model PREBAS using data from permanent growth experiments and national forest inventory. Forest Ecology and Management, 2019, 440, 208-257.	3.2	40
58	Estimating annual GPP, NPP and stem growth in Finland using summary models. Forest Ecology and Management, 2010, 259, 524-533.	3.2	39
59	Modeling forest stand dynamics from optimal balances of carbon and nitrogen. New Phytologist, 2012, 194, 961-971.	7.3	39
60	Calibration and validation of a semi-empirical flux ecosystem model for coniferous forests in the Boreal region. Ecological Modelling, 2016, 341, 37-52.	2.5	39
61	Challenges and opportunities of the optimality approach in plant ecology. Silva Fennica, 2002, 36, .	1.3	37
62	Effects of thinning and fertilization on wood properties and economic returns for Norway spruce. Forest Ecology and Management, 2008, 256, 1280-1289.	3.2	36
63	Applying a process-based model in Norway spruce management. Forest Ecology and Management, 2012, 265, 102-115.	3.2	34
64	On the economics of Norway spruce stands and carbon storage. Canadian Journal of Forest Research, 2013, 43, 637-648.	1.7	33
65	The PROFOUND Database for evaluating vegetation models and simulating climate impacts on European forests. Earth System Science Data, 2020, 12, 1295-1320.	9.9	33
66	Mitigation Impact of Different Harvest Scenarios of Finnish Forests That Account for Albedo, Aerosols, and Trade-Offs of Carbon Sequestration and Avoided Emissions. Frontiers in Forests and Global Change, 2020, 3, .	2.3	32
67	Ecosystem Services Related to Carbon Cycling â€“ Modeling Present and Future Impacts in Boreal Forests. Frontiers in Plant Science, 2019, 10, 343.	3.6	31
68	Models relating stem growth to crown length dynamics: application to loblolly pine and Norway spruce. Trees - Structure and Function, 2012, 26, 469-478.	1.9	30
69	The effects of ring width, stem position, and stand density on the relationship between foliage biomass and sapwood area in Scots pine (<i>Pinus</i><i>sylvestris</i>). Canadian Journal of Forest Research, 1995, 25, 970-977.	1.7	28
70	Economic analysis of stand establishment for Scots pine. Canadian Journal of Forest Research, 2006, 36, 1179-1189.	1.7	28
71	The quarter-power scaling model does not imply size-invariant hydraulic resistance in plants. Journal of Theoretical Biology, 2006, 243, 283-285.	1.7	28
72	A comparison of carbon assessment methods for optimizing timber production and carbon sequestration in Scots pine stands. Forest Ecology and Management, 2010, 260, 1726-1734.	3.2	27

#	Article	IF	Citations
73	Performance analysis of a processâ€based stand growth model using Monte Carlo techniques. Scandinavian Journal of Forest Research, 1988, 3, 315-331.	1.4	26
74	Modeling acclimation of photosynthesis to temperature in evergreen conifer forests. New Phytologist, 2010, 188, 175-186.	7.3	26
75	Decomposing sources of uncertainty in climate change projections of boreal forest primary production. Agricultural and Forest Meteorology, 2018, 262, 192-205.	4.8	26
76	Estimating forest carbon fluxes for large regions based on process-based modelling, NFI data and Landsat satellite images. Forest Ecology and Management, 2011, 262, 2364-2377.	3.2	25
77	Crown-rise and crown-length dynamics: application to loblolly pine. Forestry, 2013, 86, 371-375.	2.3	25
78	Mitigation of climate change with biomass harvesting in Norway spruce stands: are harvesting practices carbon neutral?. Canadian Journal of Forest Research, 2015, 45, 217-225.	1.7	25
79	An application of process-based modelling to the development of branchiness in Scots pine.. Silva Fennica, 1997, 31, .	1.3	25
80	Predicting lumber grade and by-product yields for Scots pine trees. Forest Ecology and Management, 2009, 258, 146-158.	3.2	23
81	Within crown variation in the relationship between foliage biomass and sapwood area in jack pine. Tree Physiology, 2011, 31, 22-29.	3.1	23
82	Does canopy mean nitrogen concentration explain variation in canopy light use efficiency across 14 contrasting forest sites?. Tree Physiology, 2012, 32, 200-218.	3.1	23
83	An analysis of the relationship between foliage biomass and crown surface area in<i>Pinus sylvestris</i>in Sweden. Scandinavian Journal of Forest Research, 1992, 7, 297-307.	1.4	22
84	Bridging empirical and carbon-balance based forest site productivity â€" Significance of below-ground allocation. Forest Ecology and Management, 2016, 372, 64-77.	3.2	22
85	Estimation of fine root mortality and growth from simple measurements: a method based on system dynamics. Trees - Structure and Function, 2000, 14, 316-323.	1.9	21
86	Effects of Competition, Drought Stress and Photosynthetic Productivity on the Radial Growth of White Spruce in Western Canada. Frontiers in Plant Science, 2017, 8, 1915.	3.6	21
87	Predicting basal area of Scots pine branches. Forest Ecology and Management, 2003, 179, 351-362.	3.2	20
88	Acclimation in dynamic models based on structural relationships. Functional Ecology, 1999, 13, 145-156.	3.6	19
89	Duration of shoot elongation in Scots pine varies within the crown and between years. Annals of Botany, 2013, 112, 1181-1191.	2.9	19
90	Age effect on tree structure and biomass allocation in Scots pine (Pinus sylvestris L.) and Norway spruce (Picea abies [L.] Karst.). Annals of Forest Science, 2020, 77, 1.	2.0	18

#	Article	IF	Citations
91	Extending the range of applicability of the semiâ€empirical ecosystem flux model PRELES for varying forest types and climate. Global Change Biology, 2020, 26, 2923-2943.	9.5	18
92	Developing a spatially explicit modelling and evaluation framework for integrated carbon sequestration and biodiversity conservation: Application in southern Finland. Science of the Total Environment, 2021, 775, 145847.	8.0	18
93	A method for generating stand structures using Gibbs marked point process. Silva Fennica, 2002, 36, .	1.3	17
94	Volume growth and survival graphs: a method for evaluating process-based forest growth models. Tree Physiology, 2000, 20, 357-365.	3.1	16
95	Predicting forest growth based on airborne light detection and ranging data, climate data, and a simplified process-based model. Canadian Journal of Forest Research, 2013, 43, 364-375.	1.7	14
96	Regeneration and tree growth dynamics of<i>Picea abies</i>,<i>Betula pendula and Betula pubescens</i>in regeneration areas treated with spot mounding in southern Finland. Scandinavian Journal of Forest Research, 2010, 25, 213-223.	1.4	13
97	Scots pine and Norway spruce foliage biomass in Finland and Sweden â€" testing traditional models vs. the pipe model theory. Canadian Journal of Forest Research, 2020, 50, 146-154.	1.7	13
98	On guiding principles for carbon allocation in eco-physiological growth models. Tree Physiology, 2012, 32, 644-647.	3.1	12
99	Models of Tree and Stand Dynamics. , 2020, , .		12
100	Sensitivity of 21st century simulated ecosystem indicators to model parameters, prescribed climate drivers, RCP scenarios and forest management actions for two Finnish boreal forest sites. Biogeosciences, 2020, 17, 2681-2700.	3.3	12
101	Partitioning Coefficients in Plant Models with Turn-over. Annals of Botany, 1986, 57, 291-297.	2.9	11
102	Estimating canopy gross primary production by combining phloem stable isotopes with canopy and mesophyll conductances. Plant, Cell and Environment, 2020, 43, 2124-2142.	5.7	11
103	Linking canopyâ€scale mesophyll conductance and phloem sugar Î´¹³C using empirical and modelling approaches. New Phytologist, 2021, 229, 3141-3155.	7.3	11
104	En route to improved phenological models: can space-for-time substitution give guidance?. Tree Physiology, 2013, 33, 1253-1255.	3.1	10
105	Demonstration of large area forest volume and primary production estimation approach based on Sentinel-2 imagery and process based ecosystem modelling. International Journal of Remote Sensing, 2021, 42, 9467-9489.	2.9	10
106	Sources and sinks of greenhouse gases in the landscape: Approach for spatially explicit estimates. Science of the Total Environment, 2021, 781, 146668.	8.0	9
107	Temperature Dependence of Old Soil Organic Matter. Ambio, 2000, 29, 56-57.	5.5	8
108	Comparison of population-based algorithms for optimizing thinnings and rotation using a process-based growth model. Scandinavian Journal of Forest Research, 2019, 34, 458-468.	1.4	8

#	Article	IF	Citations
109	Disaggregating the effects of nitrogen addition on gross primary production in a boreal Scots pine forest. Agricultural and Forest Meteorology, 2021, 301-302, 108337.	4.8	8
110	Predicting timber properties from tree measurements at felling: Evaluation of the RetroSTEM model and TreeViz software for Norway spruce. Forest Ecology and Management, 2008, 255, 3524-3533.	3.2	7
111	Temperature dependence of needle and shoot elongation before bud break in Scots pine. Tree Physiology, 2017, 37, 316-325.	3.1	7
112	A new method to estimate branch biomass from terrestrial laser scanning data by bridging tree structure models. Annals of Botany, 2021, 128, 737-752.	2.9	7
113	Surprising implications of the optimality hypothesis of stomatal regulation gain support in a field test. Functional Plant Biology, 2000, 27, 77.	2.1	7
114	How Forest Management and Climate Change Affect the Carbon Sequestration of a Norway Spruce Stand?(<Special Issue>Multipurpose Forest Management). Journal of Forest Planning, 2011, 16, 107-120.	0.1	7
115	Branch age and light conditions determine leaf-area-specific conductivity in current shoots of Scots pine. Tree Physiology, 2016, 36, 994-1006.	3.1	6
116	Evaluation of stand-level hybrid PipeQual model with permanent sample plot data of Norway spruce. Canadian Journal of Forest Research, 2017, 47, 234-245.	1.7	6
117	Biomass and structure of Norway spruce trees grown in uneven-aged stands in southern Finland. Scandinavian Journal of Forest Research, 2020, 35, 252-261.	1.4	6
118	A model bridging waterlogging, stomatal behavior and water use in trees in drained peatland. Tree Physiology, 2022, , .	3.1	6
119	Interrelationships between the Lotka-Volterra model and plant eco-physiology. Theoretical Population Biology, 1984, 25, 194-209.	1.1	5
120	Seedling emergence in uneven-aged Norway spruce stands in Finland. Scandinavian Journal of Forest Research, 2019, 34, 200-207.	1.4	4
121	Do mycorrhizal symbionts drive latitudinal trends in photosynthetic carbon use efficiency and carbon sequestration in boreal forests?. Forest Ecology and Management, 2022, 520, 120355.	3.2	4
122	Current-year shoot hydraulic structure in two boreal conifersâ€"implications of growth habit on water potential. Tree Physiology, 2019, 39, 1995-2007.	3.1	3
123	Weaker Light Response, Lower Stomatal Conductance and Structural Changes in Old Boreal Conifers Implied by a Bayesian Hierarchical Model. Frontiers in Plant Science, 2020, 11, 579319.	3.6	2
124	Wind and gravity in shaping Picea trunks. Trees - Structure and Function, 2021, 35, 1587-1599.	1.9	2
125	Proxy Indicators for Mapping the End of the Vegetation Active Period in Boreal Forests Inferred from Satellite-Observed Soil Freeze and ERA-Interim Reanalysis Air Temperature. PFG - Journal of Photogrammetry, Remote Sensing and Geoinformation Science, 2018, 86, 169-185.	1.1	1
126	A Methodology for Implementing a Digital Twin of the Earthâ€™s Forests to Match the Requirements of Different User Groups. GI_Forum, 0, 1, 130-136.	0.2	1

#	Article	IF	Citations
127	Connections Between Processes, Transport and Structure. , 0, , 425-432.		1
128	Correction: Scots pine and Norway spruce foliage biomass in Finland and Sweden â€" testing traditional models vs. the pipe model theory. Canadian Journal of Forest Research, 2020, 50, 444-445.	1.7	0
129	Isotopic Branchpoints: Linkages and Efficiencies in Carbon and Water Budgets. Journal of Geophysical Research G: Biogeosciences, 2021, 126, e2020JG006043.	3.0	0
130	Energy from Biomass: Assessing Sustainability by Geoinformation Technology. GI_Forum, 0, 1, 137-142.	0.2	0
131	Combining the Carbon Balance and Structure into a Core Model. , 2020, , 101-126.		0
132	Tree Structure Revisited: Eco-Evolutionary Models. , 2020, , 161-198.		0
133	Applications and Future Outlook. , 2020, , 245-266.		0
134	Predicting Stand Growth: Parameters, Drivers, and Modular Inputs. , 2020, , 199-221.		0
135	Descriptive Models. , 2020, , 21-46.		0
136	Carbon Balance. , 2020, , 47-66.		0
137	Tree Structure. , 2020, , 67-100.		0