

REFERENCE LIST

1. Leuschner C, Voss S, Foetzki A, Clases Y. (2006) Variation in leaf area index and stand leaf mass of European beech across gradients of soil acidity and precipitation. *Plant Ecology* 186(2): 247-258.
2. Meier IC, Leuschner C. (2008) Leaf size and leaf area index in *Fagus sylvatica* forests: Competing effects of precipitation, temperature, and nitrogen availability. *Ecosystems* 11(5): 655-669.
3. Cutini A, Matteucci G, Mugnozza GS. (1998) Estimation of leaf area index with the Li-Cor LAI 2000 in deciduous forests. *Forest Ecology and Management* 105(1-3): 55-65.
4. Granier A, Breda N, Longdoz B, Gross P, Ngao J. (2008) Ten years of fluxes and stand growth in a young beech forest at Hesse, North-eastern France. *Annals of Forest Science* 65(7): 704.
5. Ladd B, Bonser SP, Peri PL, Larsen JR, Laffan SW, Pepper DA, Cendon DI. (2009) Towards a physical description of habitat: quantifying environmental adversity (abiotic stress) in temperate forest and woodland ecosystems. *Journal of Ecology* 97(5): 964-971.
6. Awaya Y, Tanaka K, Kodani E, Nishizono T. (2009) Responses of a beech (*Fagus crenata* Blume) stand to late spring frost damage in Morioka, Japan. *Forest Ecology and Management* 257(12): 2359-2369.
7. Davi H, Baret F, Huc R, Dufrene E. (2008) Effect of thinning on LAI variance in heterogeneous forests. *Forest Ecology and Management* 256(5): 890-899.
8. Le Dantec V, Dufrene E, Saugier B. (2000) Interannual and spatial variation in maximum leaf area index of temperate deciduous stands. *Forest Ecology and Management* 134(1-3): 71-81.
9. Soudani K, Francois C, Le Maire G, Le Dantec V, Dufrene E. (2006) Comparative analysis of IKONOS, SPOT, and ETM+ data for leaf area index estimation in temperate coniferous and deciduous forest

stands. *Remote Sensing of Environment* 102(1-2): 161-175.

10. Wiman BLB, Gaydarova PN. (2008) Spectral composition of shade light in coastal-zone oak forests in SE Bulgaria, and relationships with leaf area index: a first overview. *Trees-Structure and Function* 22(1): 63-76.

11. Williams M, Shimabukuro YE, Herbert DA, Lacruz SP, Renno C, Rastetter EB. (2002) Heterogeneity of soils and vegetation in an eastern Amazonian rain forest: Implications for scaling up biomass and production. *Ecosystems* 5(7): 692-704.

12. Thimonier A, Sedivy I, Schleppi P. (2010) Estimating leaf area index in different types of mature forest stands in Switzerland: a comparison of methods. *European Journal of Forest Research* 129(4): 543-562.

13. Santa-Regina I. (2000) Biomass estimation and nutrient pools in four *Quercus pyrenaica* in Sierra de Gata Mountains, Salamanca, Spain. *Forest Ecology and Management* 132(2-3): 127-141.

14. Santa-Regina I. (2000) Organic matter distribution and nutrient fluxes within a sweet chestnut (*Castanea sativa* Mill.) stand of the Sierra de Gata, Spain. *Annals of Forest Science* 57(7): 691-700.

15. Moser G, Hertel D, Leuschner C. (2007) Altitudinal change in LAI and stand leaf biomass in tropical montane forests: a transect study in Ecuador and a pan-tropical meta-analysis. *Ecosystems* 10(6): 924-935.

16. Kitayama K, Aiba SI. (2002) Ecosystem structure and productivity of tropical rain forests along altitudinal gradients with contrasting soil phosphorus pools on Mount Kinabalu, Borneo. *Journal of Ecology* 90(1): 37-51.

17. Takyu M, Aiba SI, Kitayama K. (2003) Changes in biomass, productivity and decomposition along topographical gradients under different geological conditions in tropical lower montane forests on Mount Kinabalu, Borneo. *Oecologia* 134(3): 397-404.
18. Sprintsin M, Karnieli A, Berliner P, Rotenberg E, Yakir D, Cohen S. (2007) The effect of spatial resolution on the accuracy of leaf area index estimation for a forest planted in the desert transition zone. *Remote Sensing of Environment* 109(4): 416-428.
19. Duursma RA, Marshall JD, Robinson AP. (2003) Leaf area index inferred from solar beam transmission in mixed conifer forests on complex terrain. *Agricultural and Forest Meteorology* 118(3-4): 221-236.
20. Luo TX, Pan YD, Ouyang H, Shi PL, Luo J, Yu ZL, Lu Q. (2004) Leaf area index and net primary productivity along subtropical to alpine gradients in the Tibetan Plateau. *Global Ecology and Biogeography* 13(4): 345-358.
21. Luo TX, Neilson RP, Tian HQ, Vorosmarty CJ, Zhu HZ, Liu SR. (2002) A model for seasonality and distribution of leaf area index of forests and its application to China. *Journal of Vegetation Science* 13(6): 817-830.
22. Granier A, Loustau D, Br?da N. (2000) A generic model of forest canopy conductance dependent on climate, soil water availability and leaf area index. *Annals of Forest Science* 57(8): 755-765.
23. Granier A, Huc R, Colin F. (1992) Transpiration and stomatal conductance of two rain forest species growing in plantations (*Simarouba amara* and *Goupia glabra*) in French Guyana. *Annals of Forest Science* 49(1): 17-24.
24. Lu P, Biron P, Breda N, Granier A. (1995) Water relations of adult Norway spruce (*Picea abies* (L) Karst) under soil drought in the Vosges mountains: water potential, stomatal conductance and transpiration. *Annals of Forest Science* 52(2): 117-129.

25. Ogink-Hendriks MJ. (1995) Modelling surface conductance and transpiration of an oak forest in The Netherlands. *Agricultural and Forest Meteorology* 74(1-2): 99-118.

26. Reichstein M, Rey A, Freibauer A, Tenhunen J, Valentini R, Banza J, Casals P, Cheng YF, Grunzweig JM, Irvine J, Joffre R, Law BE, Loustau D, Miglietta F, Oechel W, Ourcival JM, Pereira JS, Peressotti A, Ponti F, Qi Y, Rambal S, Rayment M, Romanya J, Rossi F, Tedeschi V, Tirone G, Xu M, Yakir D. (2003) Modeling temporal and large-scale spatial variability of soil respiration from soil water availability, temperature and vegetation productivity indices. *Global Biogeochemical Cycles* 17(4): 1104.

27. Misson L, Baldocchi DD, Black TA, Blanken PD, Brunet Y, Yuste JC, Dorsey JR, Falk M, Granier A, Irvine MR, Jarosz N, Lamaud E, Launiainen S, Law BE, Longdoz B, Loustau D, McKay M, Paw KTU, Vesala T, Vickers D, Wilson KB, Goldstein AH. (2007) Partitioning forest carbon fluxes with overstory and understory eddy-covariance measurements: A synthesis based on FLUXNET data. *Agricultural and Forest Meteorology* 144(1-2): 14-31.

28. Suganuma H, Abe Y, Taniguchi M, Tanouchi H, Utsugi H, Kojima T, Yamada K. (2006) Stand biomass estimation method by canopy coverage for application to remote sensing in an area of Western Australia. *Forest Ecology and Management* 222(1-3): 75-87.

29. Campioli M, Street LE, Michelsen A, Shaver GR, Maere T, Samson R, Lemeur R. (2009) Determination of Leaf Area Index, Total Foliar N, and Normalized Difference Vegetation Index for Arctic Ecosystems Dominated by *Cassiope tetragona*. *Arctic Antarctic and Alpine Research* 41(4): 426-433.

30. Williams M, Rastetter EB. (1999) Vegetation characteristics and primary productivity along an arctic transect: implications for scaling-up. *Journal of Ecology* 87(5): 885-898.

31. Riedel SM, Epstein HE, Walker DA, Richardson DL, Calef MP, Edwards E, Moody A. (2005) Spatial and temporal heterogeneity of vegetation properties among four tundra plant communities at Ivotuk, Alaska, USA. *Arctic Antarctic and Alpine Research* 37(1): 25-33.

32. Cohen WB, Maersperger TK, Turner DP, Ritts WD, Pflugmacher D, Kennedy RE, Kirschbaum A, Running SW, Costa M, Gower ST. (2006) MODIS land cover and LAI collection 4 product quality across nine sites in the western hemisphere. *IEEE Transactions on Geoscience and Remote Sensing* 44(7): 1843-1857.
33. Chen JM, Govind A, Sonnentag O, Zhang Y, Barr A, Amiro B. (2006) Leaf area index measurements at Fluxnet-Canada forest sites. *Agricultural and Forest Meteorology* 140(1-4): 257-268.
34. Lund M, Lafleur PM, Roulet NT, Lindroth A, Christensen TR, Aurela M, Chojnicki BH, Flanagan LB, Humphreys ER, Laurila T, Oechel WC, Olejnik J, Rinne J, Schubert P, Nilsson MB. (2010) Variability in exchange of CO₂ across 12 northern peatland and tundra sites. *Global Change Biology* 16(9): 2436-2448.
35. Hasegawa K, Matsuyama H, Tsuzuki H, Sweda T. (2010) Improving the estimation of leaf area index by using remotely sensed NDVI with BRDF signatures. *Remote Sensing of Environment* 114(3): 514-519.
36. Forrester DI, Collopy JJ, Morris JD. (2010) Transpiration along an age series of *Eucalyptus globulus* plantations in southeastern Australia. *Forest Ecology and Management* 259(9): 1754-1760.
37. Canisius F, Fernandes R, Chen J. (2010) Comparison and evaluation of Medium Resolution Imaging Spectrometer leaf area index products across a range of land use. *Remote Sensing of Environment* 114(5): 950-960.
38. Du S, Wang Y-L, Kume T, Zhang J-G, Otsuki K, Yamanaka N, Liu G-B. (2011) Sapflow characteristics and climatic responses in three forest species in the semiarid Loess Plateau region of China. *Agricultural and Forest Meteorology* 151(1): 1-10.

39. Raffy M, Soudani K. (2004) On the LAI of mixed soils-forests regions. *International Journal of Remote Sensing* 25(15): 3073-3090.

40. Lemenih M, Gidyelew T, Teketay D. (2004) Effects of canopy cover and understory environment of tree plantations on richness, density and size of colonizing woody species in southern Ethiopia. *Forest Ecology and Management* 194(1-3): 1-10.

41. Rhoads AG, Hamburg SP, Fahey TJ, Siccama TG, Kobe R. (2004) Comparing direct and indirect methods of assessing canopy structure in a northern hardwood forest. *Canadian Journal of Forest Research* 34(3): 584-591.

42. Shinohara Y, Onozawa Y, Chiwa M, Kume T, Komatsu H, Otsuki K. (2010) Spatial variations in throughfall in a Moso bamboo forest: sampling design for the estimates of stand-scale throughfall. *Hydrological Processes* 24(3): 253-259.

43. Ryu Y, Sonnentag O, Nilson T, Vargas R, Kobayashi H, Wenk R, Baldocchi DD. (2010) How to quantify tree leaf area index in an open savanna ecosystems: A multi-instrument and multi-model approach. *Agricultural and Forest Meteorology* 150: 63-76.

44. Brantley ST, Young DR. (2010) Linking light attenuation, sunflecks, and canopy architecture in mesic shrub thickets. *Plant Ecology* 206(2): 225-236.

45. Brantley ST, Young DR. (2007) Leaf-area index and light attenuation in rapidly expanding shrub thickets. *Ecology* 88(2): 524-530.

46. Bolstad PV, Vose JM, McNulty SG . (2001) Forest productivity, leaf area, and terrain in southern Appalachian deciduous forests. *Forest Science* 47(3): 419-427.

47. Macfarlane C, Coote M, White DA, Adams MA. (2000) Photographic exposure affects indirect estimation of leaf area in plantations of *Eucalyptus globulus* Labill. *Agricultural and Forest Meteorology* 100(2-3): 155-168.
48. Macfarlane C, Hoffman M, Eamus D, Kerp N, Higginson S, Mcmurtrie R, Adams M. (2007) Estimation of leaf area index in eucalypt forest using digital photography. *Agricultural and Forest Meteorology* 143(3-4): 176-188.
49. Macfarlane C, Grigg A, Evangelista C. (2007) Estimating forest leaf area using cover and fullframe fisheye photography: Thinking inside the circle. *Agricultural and Forest Meteorology* 146(1-2): 1-12.
50. Fleck S. (2001) Integrated analysis of relationships between 3D-structure, leaf photosynthesis, and branch transpiration of mature *Fagus sylvatica* and *Quercus petraea* trees in a mixed forest stand. PhD. Dissertation, BITOK, University of Bayreuth.
51. Sumida A, Nakai T, Yamada M, Ono K, Uemura S, Hara T. (2009) Ground-based estimation of leaf area index and vertical distribution of leaf area density in a *Betula ermanii* forest. *Silva Fennica* 43(5): 799-816.
52. DeRose RJ, Seymour RS. (2010) Patterns of leaf area index during stand development in even-aged balsam fir-red spruce stands. *Canadian Journal of Forest Research* 40(4): 629-637.
53. Butler AJ, Barbier N, Cermak J, Koller J, Thornily C, Mcevoy C, Nicoll B, Perks MP, Grace J, Meir P. (2010) Estimates and relationships between aboveground and belowground resource exchange surface areas in a Sitka spruce managed forest. *Tree Physiology* 30(6): 705-714.
54. Tobin B, Black K, Osborne B, Reidy B, Bolger T, Nieuwenhuis M. (2006) Assessment of allometric algorithms for estimating leaf biomass, leaf area index and litter fall in different-aged Sitka spruce forests. *Forestry* 79(4): 453-465.

55. Jonckheere I, Muys B, Coppin P. (2005) Allometry and evaluation of in situ optical LAI determination in Scots pine: a case study in Belgium. *Tree Physiology* 25(6): 723-732.
56. Kussner R, Mosandl R. (2000) Comparison of direct and indirect estimation of leaf area index in mature Norway spruce stands of eastern Germany. *Canadian Journal of Forest Research* 30(3): 440-447.
57. Law BE, Van Tuyl S, Cescatti A, Baldocchi DD. (2001) Estimation of leaf area index in open-canopy ponderosa pine forests at different successional stages and management regimes in Oregon. *Agricultural and Forest Meteorology* 108(1): 1-14.
58. Mund M, Kummerow E, Hein M, Bauer GA, Schulze ED. (2002) Growth and carbon stocks of a spruce forest chronosequence in central Europe. *Forest Ecology and Management* 171(3): 275-296.
59. Alsheimer M, Kostner B, Falge E, Tenhunen JD. (1998) Temporal and spatial variation in transpiration of Norway spruce stands within a forested catchment of the Fichtelgebirge, Germany. *Annals of Forest Science* 55(1-2): 103-123.
60. Turner DP, Acker SA, Means JE, Garman SL. (2000) Assessing alternative allometric algorithms for estimating leaf area of Douglas-fir trees and stands. *Forest Ecology and Management* 126(1): 61-76.
61. Frazer GW, Trofymow JA, Lertzman KP. (2000) Canopy openness and leaf area in chronosequences of coastal temperate rainforests. *Canadian Journal of Forest Research* 30(2): 239-256.
62. Baynes J, Dunn GM. (1997) Estimating foliage surface area index in 8-year-old stands of *Pinus elliottii* var. *elliottii* x *Pinus caribaea* var. *hondurensis* of variable quality. *Canadian Journal of Forest Research* 27(9): 1367-1375.

63. Coops NC, Smith ML, Jacobsen KL, Martin M, Ollinger S. (2004) Estimation of plant and leaf area index using three techniques in a mature native eucalypt canopy. *Austral Ecology* 29(3): 332-341.
64. Cherry M, Hingston A, Battaglia M, Beadle C. (1998) Calibrating the LI-COR LAI-2000 for estimating leaf area index in eucalypt plantations. *Tasforests* 10: 75-82.
65. Whitford KR, Colquhoun IJ, Lang AR, Harper BM. (1995) Measuring leaf area index in a sparse eucalypt forest: A comparison of estimates from direct measurement, hemispherical photography, sunlight transmittance and allometric regression. *Agricultural and Forest Meteorology* 74(3-4): 237-249.
66. Montes F, Pita P, Rubio A, Canellas I. (2007) Leaf area index estimation in mountain even-aged *Pinus silvestris* L. stands from hemispherical photographs. *Agricultural and Forest Meteorology* 145(3-4): 215-228.
67. Carbon BA, Bartle GA, Murray AM. (1979) Leaf area index of some eucalypt forests in South-west Australia. *Australian Forest Research* 9: 323-326.
68. Ellis TW, Hatton TJ. (2008) Relating leaf area index of natural eucalypt vegetation to climate variables in southern Australia. *Agricultural Water Management* 95(6): 743-747.
69. Mcvicar T, Walker J, Jupp D, Pierce L, Byrne GT, Dallwitz R. (1996) Relating AVHRR vegetation indices to in situ measurements of leaf area index. CSIRO, Division of Water Resources, Technical Memorandum 96.5.
70. Pook EW. (1984) Canopy dynamics of *Eucalyptus maculata* Hook. II. Canopy leaf area balance. *Australian Journal of Botany* 32: 405-413.

71. Hutley LB, O'grady AP, Eamus D. (2001) Monsoonal influences on evapotranspiration of savanna vegetation of northern Australia. *Oecologia* 126(3): 434-443.
72. Scholes RJ, Frost PGH, Tian YH (2004) Canopy structure in savannas along a moisture gradient on Kalahari sands. *Global Change Biology* 10(3): 292-302.
73. Santiago LS, Goldstein G, Meinzer FC, Fownes JH, Mueller-Dombois D. (2000) Transpiration and forest structure in relation to soil waterlogging in a Hawaiian montane cloud forest. *Tree Physiology* 20(10): 673-681.
74. Roberts S, Vertessy R, Grayson R. (2001) Transpiration from *Eucalyptus sieberi* (L. Johnson) forests of different age. *Forest Ecology and Management* 143(1-3): 153-161.
75. Vertessy RA, Benyon RG, O'sullivan SK, Gribben PR. (1995) Relationships between stem diameter, sapwood area, leaf area and transpiration in a young mountain ash forest. *Tree Physiology* 15(9): 559-567.
76. Hoffmann WA, Da Silva ER, Machado GC, Bucci SJ, Scholz FG, Goldstein G, Meinzer FC. (2005) Seasonal leaf dynamics across a tree density gradient in a Brazilian savanna. *Oecologia* 145(2): 307-316.
77. Roser C, Montagnani L, Schulze ED, Mollicone D, Kolle O, Meroni M, Papale D, Marchesini LB, Federici S, Valentini R. (2002) Net CO₂ exchange rates in three different successional stages of the "Dark Taiga" of central Siberia. *Tellus B* 54(5): 642-654.
78. Clark DB, Olivas PC, Oberbauer SF, Clark DA, Ryan MG. (2008) First direct landscape-scale measurement of tropical rain forest Leaf Area Index, a key driver of global primary productivity. *Ecology Letters* 11(2): 163-172.

79. Ryan MG, Binkley D, Fownes JH, Giardina CP, Senock RS. (2004) An experimental test of the causes of forest growth decline with stand age. *Ecological Monographs* 74(3): 393-414.
80. Stape JL, Binkley D, Ryan MG. (2004) Eucalyptus production and the supply, use and efficiency of use of water, light and nitrogen across a geographic gradient in Brazil. *Forest Ecology and Management* 193(1-2): 17-31.
81. Fan SM, Wofsy SC, Bakwin PS, Jacob DJ. (1990) Atmosphere-biosphere exchange of CO₂ and O₃ in the central Amazon forest. *Journal of Geophysical Research* 95: 16851-16864.
82. Williams M, Malhi Y, Nobre AD, Rastetter EB, Grace J, Pererira MGP. (1998) Seasonal variation in net carbon exchange and evapotranspiration in a Brazilian rain forest: A modelling analysis. *Plant Cell and Environment* 21: 953-968.
83. Silberstein R, Held A, Hatton T, Viney N, Sivapalan M. (2001) Energy balance of a natural jarrah (*Eucalyptus marginata*) forest in Western Australia: measurements during the spring and summer. *Agricultural and Forest Meteorology* 109(2): 79-104.
84. Silberstein RP, Vertessy RA, Morris J, Feikema PM. (1999) Modelling the effects of soil moisture and solute conditions on long-term tree growth and water use: a case study from the Shepparton irrigation area, Australia. *Agricultural Water Management* 39(2-3): 283-315.
85. Anderson MC. (1981) The geometry of leaf distribution in some South-eastern Australian forests. *Agricultural Meteorology* 25: 195-206.
86. Macfarlane C, Adams MA. (1998) Delta C-13 of wood in growth-rings indicates cambial activity of drought-stressed trees of *Eucalyptus globulus*. *Functional Ecology* 12(4): 655-664.

87. Hingston FJ, Galbraith JH, Dimmock GM. (1998) Application of the process-based model BIOMASS to *Eucalyptus globulus* subsp. *globulus* plantations on ex-farmland in south western Australia I. Water use by trees and assessing risk of losses due to drought. *Forest Ecology and Management* 106(2-3): 141-156.
88. Hingston FJ, Dimmock GM, Turton AG. (1980) Nutrient distribution in a jarrah (*Eucalyptus marginata* Donn ex Sm) ecosystem in south-west Western Australia. *Forest Ecology and Management* 3: 183-207.
89. Hingston FJ, Turton AG, Dimmock GM. (1979) Nutrient distribution in karri (*Eucalyptus diversicolor* F. muell) ecosystems in southwest western Australia. *Forest Ecology and Management* 2(C): 133-158.
90. Hirano T, Segah H, Harada T, Limin S, June T, Hirata R, Osaki M. (2007) Carbon dioxide balance of a tropical peat swamp forest in Kalimantan, Indonesia. *Global Change Biology* 13(2): 412-425.
91. Malhado ACM, Costa MH, De Lima FZ, Portilho KC, Figueiredo DN. (2009) Seasonal leaf dynamics in an Amazonian tropical forest. *Forest Ecology and Management* 258(7): 1161-1165.
92. Vourlitis GL, Nogueira JDS, Lobo FDA, Sendall KM, De Paulo SR, Dias CaA, Pinto OB, Jr, De Andrade NLR. (2008) Energy balance and canopy conductance of a tropical semi-deciduous forest of the southern Amazon Basin. *Water Resources Research* 44(3): W03412.
93. Fu D, Duan C, Hou X, Xia T, Gao K. (2009) Patterns and relationships of plant traits, community structural attributes, and eco-hydrological functions during a subtropical secondary succession in Central Yunnan (Southwest China). *Archives of Biological Sciences* 61(4): 741-749.
94. Gonsamo A, Pellikka P. (2008) Methodology comparison for slope correction in canopy leaf area index estimation using hemispherical photography. *Forest Ecology and Management* 256(4): 749-759.

95. Suwa R, Khan MNI, Hagihara A. (2006) Canopy photosynthesis, canopy respiration and surplus production in a subtropical mangrove *Kandelia candel* forest, Okinawa Island, Japan. *Marine Ecology-Progress Series* 320: 131-139.
96. Nakasuga T. (1979) Analysis of the mangrove stand (Department of Forestry). *Ryūkyū Daigaku No?gakubu gakujutsu ho?koku* 26: 413-519.
97. Clough BF, Ong JE, Gong WK. (1997) Estimating leaf area index and photosynthetic production in canopies of the mangrove *Rhizophora apiculata*. *Marine Ecology-Progress Series* 159: 285-292.
98. Clough B, Tan DT, Phuong DX, Buu DC. (2000) Canopy leaf area index and litter fall in stands of the mangrove *Rhizophora apiculata* of different age in the Mekong Delta, Vietnam. *Aquatic Botany* 66(4): 311-320.
99. Dietz J, Hoelscher D, Leuschner C, Hendrayanto. (2006) Rainfall partitioning in relation to forest structure in differently managed montane forest stands in Central Sulawesi, Indonesia. *Forest Ecology and Management* 237(1-3): 170-178.
100. Trichon V, Walter JMN, Laumonier Y. (1998) Identifying spatial patterns in the tropical rain forest structure using hemispherical photographs. *Plant Ecology* 137(2): 227-244.
101. Kumagai T, Ichie T, Yoshimura M, Yamashita M, Kenzo T, Saitoh TM, Ohashi M, Suzuki M, Koike T, Komatsu H. (2006) Modeling CO₂ exchange over a Bornean tropical rain forest using measured vertical and horizontal variations in leaf-level physiological parameters and leaf area densities. *Journal of Geophysical Research-Atmospheres* 111(D10): D10107.

102. Vyas D, Mehta N, Dinakaran J, Krishnayya NSR. (2010) Allometric equations for estimating leaf area index (LAI) of two important tropical species (*Tectona grandis* and *Dendrocalamus strictus*). *Journal of Forestry Research* 21(2): 197-200.

103. Kaláčska M, Sánchez-Azofeifa GA, Rivard B, Calvo-Alvarado JC, Journet ARP, Arroyo-Mora JP, Ortiz-Ortiz D. (2004) Leaf area index measurements in a tropical moist forest: A case study from Costa Rica. *Remote Sensing of Environment* 91(2): 134-152.

104. Kaláčska M, Calvo-Alvarado JC, Sanchez-Azofeifa GA. (2005) Calibration and assessment of seasonal changes in leaf area index of a tropical dry forest in different stages of succession. *Tree Physiology* 25(6): 733-744.

105. Ray D, Nepstad D, Moutinho P. (2005) Micrometeorological and canopy controls of fire susceptibility in a forested Amazon landscape. *Ecological Applications* 15(5): 1664-1678.

106. Kollmann J, Cordova JPP, Andersen RM. (2008) Factors limiting regeneration of an endangered conifer in the highlands of Guatemala. *Journal for Nature Conservation* 16(3): 146-156.

107. Hoshi N, Tatsuhara S, Abe N. (2001) Estimation of leaf area index in natural deciduous broad-leaved forests using Landsat TM data. *Journal of the Japanese Forest Society* 83(4): 315-321.

108. Ishii T. (2007) Estimation of forest leaf area index using remote sensing data and its applications to predicting forest carbon sequestration and water budget. PhD. Thesis, Waseda University.

109. Kusakabe T, Tsuzuki H, Sweda T. (2006) Long-range estimation of leaf area index using airborne laser altimetry in Siberian boreal forest. *Journal of the Japanese Forest Society* 88(1): 21-29.

110. Goto Y. (1999) Ryuunokuchi Shinrin Risuishikenchi no Rinbunkouzou. FFPRI Kansai, Annual report 41.

111. Yajima T, Watanabe N, Shibuya M. (1997) Changes in biomass of above- and under-ground parts in *Sasa kurilensis* and *Sasa senanensis* stands with culm height. *Journal of the Japanese Forest Society* 79(4): 234-238.

112. Sakurai S. (1983) Studies on a *Sasa tokugawana* community in the Shikoku Mountains (I): Seasonal changes of biomass and relationship between light intensity and biomass. *Journal of the Japanese Forest Society* 65(6): 220-223.

113. Ogasawara R. (1987) Effective Use and Forest Working of the Hardwood Secondary Stand: In the Case of the Kunugi Secondary Stand. *Hardwood Research* 4: 85-118.

114. Ogasawara R, Yamamoto T, Arita T. (1987) Biomass and Production of the Konara (*Quercus serrata*) Secondary Stand. *Hardwood Research* 4: 257-262.

115. Nakagawa M, Saito H, Kasuya N. (2006) Dry-matter production of a young *Quercus phillyraeoides* stand at Nantoh-cho, Mie. *The scientific reports of Kyoto Prefectural University*.

116. Tada M, Saito H, Ohkubo M, Kasuya N. (2006) Dry-matter production of a middle-aged *Quercus phillyraeoides* stand at Shodoshima Island, Kagawa Prefecture. *The scientific reports of Kyoto Prefectural University*.

117. Tadaki Y, Ogata N, Nagatomo Y, Yoshida T. (1966) Studies on the Production Structure of Forest X: Primary Productivity of an unthinned 45-year-old stand of *Chamaecyparis obtusa*. *Journal of the Japanese Forest Society* 48(11): 387-393.

118. Lang ARG, McMurtrie RE, Benson ML. (1991) Validity of surface area indices of *Pinus radiata* estimated from transmittance of the sun's beam. *Agricultural and Forest Meteorology* 57(1-3): 157-170.
119. Zianis D, Mencuccini M. (2005) Aboveground net primary productivity of a beech (*Fagus moesiaca*) forest: a case study of Naousa forest, northern Greece. *Tree Physiology* 25(6): 713-722.
120. Ryan MG, Waring RH. (1992) Maintenance Respiration and Stand Development in a Subalpine Lodgepole Pine Forest. *Ecology* 73(6): 2100-2108.
121. Knight DH, Fahey TJ. (1985) Water and nutrient outflow from contrasting lodgepole pine forests in Wyoming. *Ecological Monographs* 55(1): 29-48.
122. O'hara KL, Lahde E, Laiho O, Norokorpi Y, Saksa T. (1999) Leaf area and tree increment dynamics on a fertile mixed-conifer site in southern Finland. *Annals of Forest Science* 56(3): 237-247.
123. Vose JM, Clinton BD, Sullivan NH, Bolstad PV. (1995) Vertical leaf area distribution, light transmittance, and application of the Beer-Lambert Law in four mature hardwood stands in the southern Appalachians. *Canadian Journal of Forest Research* 25(6): 1036-1043.
124. Radtke PJ, Bolstad PV. (2001) Laser point-quadrat sampling for estimating foliage-height profiles in broad-leaved forests. *Canadian Journal of Forest Research* 31(3): 410-418.
125. Mencuccini M, Grace J. (1996) Hydraulic conductance, light interception and needle nutrient concentration in Scots pine stands and their relations with net primary productivity. *Tree Physiology* 16(5): 459-468.
126. Mencuccini M, Grace J. (1995) Climate influences the leaf area/sapwood area ratio in Scots pine. *Tree Physiology* 15(1): 1-10.

127. Kollenberg CL, O'hara KL. (1999) Leaf area and tree increment dynamics of even-aged and multiaged lodgepole pine stands in Montana. *Canadian Journal of Forest Research* 29(6): 687-695.
128. Barclay HJ, Trofymow JA. (2000) Relationship of readings from the LI-COR canopy analyzer to total one-sided leaf area index and stand structure in immature Douglas-fir. *Forest Ecology and Management* 132(2-3): 121-126.
129. Monserud RA, Marshall JD. (1999) Allometric crown relations in three northern Idaho conifer species. *Canadian Journal of Forest Research* 29(5): 521-535.
130. Bealde CL, Talbot H, Jarvis PG. (1982) Canopy structure and leaf area index in a mature scots pine forest. *Forestry* 55(2): 105-123.
131. Berrill J-P, O'hara KL. (2007) Patterns of leaf area and growing space efficiency in young even-aged and multiaged coast redwood stands. *Canadian Journal of Forest Research* 37(3): 617-626.
132. O'hara KL, Stancioiu PT, Spencer MA. (2007) Understory stump sprout development under variable canopy density and leaf area in coast redwood. *Forest Ecology and Management* 244(1-3): 76-85.
133. Van Pelt R, Franklin JF. (2000) Influence of canopy structure on the understory environment in tall, old-growth, conifer forests. *Canadian Journal of Forest Research* 30(8): 1231-1245.
134. Innes JC, Ducey MJ, Gove JH, Leak WB, Barrett JP. (2005) Size-density metrics, leaf area, and productivity in eastern white pine. *Canadian Journal of Forest Research* 35(10): 2469-2478.

135. Luo Z, Sun OJ, Wang E, Ren H, Xu H. (2010) Modeling productivity in mangrove forests as impacted by effective soil water availability and its sensitivity to climate change using Biome-BGC. *Ecosystems* 13(7): 949-965.

136. Uri V, Lohmus K, Ostonen I, Tullus H, Lastik R, Vildo M. (2007) Biomass production, foliar and root characteristics and nutrient accumulation in young silver birch (*Betula pendula* Roth.) stand growing on abandoned agricultural land. *European Journal of Forest Research* 126(4): 495-506.

137. Hernandez-Santana V, Martinez-Fernandez J, Moran C, Cano A. (2008) Response of *Quercus pyrenaica* (melojo oak) to soil water deficit: a case study in Spain. *European Journal of Forest Research* 127(5): 369-378.

138. Merilo E, Heinsoo K, Kull O, Soderbergh I, Lundmark T, Koppel A. (2006) Leaf photosynthetic properties in a willow (*Salix viminalis* and *Salix dasyclados*) plantation in response to fertilization. *European Journal of Forest Research* 125(2): 93-100.

139. Rewald B, Leuschner C. (2009) Belowground competition in a broad-leaved temperate mixed forest: pattern analysis and experiments in a four-species stand. *European Journal of Forest Research* 128(4): 387-398.

140. Matyssek R, Wieser G, Patzner K, Blaschke H, Haeberle KH. (2009) Transpiration of forest trees and stands at different altitude: consistencies rather than contrasts?. *European Journal of Forest Research* 128(6): 579-596.

141. Jagodzinski AM, Kalucka I (2008) Age-related changes in leaf area index of young Scots pine stands. *Dendrobiology* 59: 57-65.

142. Jimenez E, Vega JA, Perez-Gorostiaga P, Fonturbel T, Fernandez C. (2010) Evaluation of sap flow density of *Acacia melanoxylon* R. Br. (blackwood) trees in overstocked stands in north-western Iberian Peninsula. *European Journal of Forest Research* 129(1): 61-72.

143. Aboal JR, Jimenez MS, Morales D, Gil P. (2000) Effects of thinning on throughfall in Canary Islands pine forest - the role of fog. *Journal of Hydrology* 238(3-4): 218-230.
144. Johansson T. (1996) Estimation of canopy density and irradiance in 20- to 40-year-old birch stands (*Betula pubescens* Ehrh and *Betula pendula* Roth). *Trees-Structure and Function* 10(4): 223-230.
145. Johansson T. (1999) Biomass production of Norway spruce (*Picea abies* (L.) Karst.) growing on abandoned farmland. *Silva Fennica* 33(4): 261-280.
146. Johansson T. (2000) Biomass equations for determining fractions of common and grey alders growing on abandoned farmland and some practical implications. *Biomass & Bioenergy* 18(2): 147-159.
147. Johansson T. (1999) Biomass equations for determining fractions of pendula and pubescent birches growing on abandoned farmland and some practical implications. *Biomass & Bioenergy* 16(3): 223-238.
148. Johansson T. (1999) Biomass equations for determining fractions of European aspen growing on abandoned farmland and some practical implications. *Biomass & Bioenergy* 17(6): 471-480.
149. Dovey SB, Du Toit B. (2006) Calibration of LAI-2000 canopy analyzer with leaf area index in a young eucalypt stand. *Trees-Structure and Function* 20(3): 273-277.
150. Sala A, Sabate S, Gracia C, Tenhunen JD. (1994) Canopy structure within a *Quercus ilex* forested watershed - Variations due to location, phenological development, and water availability. *Trees-Structure and Function* 8(5): 254.

151. Kull O, Broadmeadow M, Kruijt B, Meir P. (1999) Light distribution and foliage structure in an oak canopy. *Trees-Structure and Function* 14(2): 55-64.
152. Reid DEB, Lieffers VJ, Silins U. (2004) Growth and crown efficiency of height repressed lodgepole pine; are suppressed trees more efficient? . *Trees-Structure and Function* 18(4): 390-398.
153. Devakumar AS, Prakash PG, Sathik MBM, Jacob J (1999) Drought alters the canopy architecture and micro-climate of *Hevea brasiliensis* trees. *Trees-Structure and Function* 13(3): 161-167.
154. Lebourgeois F, Breda N, Ulrich E, Granier A. (2005) Climate-tree-growth relationships of European beech (*Fagus sylvatica* L.) in the French Permanent Plot Network (RENECOFOR). *Trees-Structure and Function* 19(4): 385-401.
155. Weiskittel AR, Maguire DA . (2007) Response of Douglas-fir leaf area index and litterfall dynamics to Swiss needle cast in north coastal Oregon, USA. *Annals of Forest Science* 64(2): 121-132.
156. Bartelink HH. (1997) Allometric relationships for biomass and leaf area of beech (*Fagus sylvatica* L). *Annals of Forest Science* 54(1): 39-50.
157. Bartelink HH. (1996) Allometric relationships on biomass and needle area of Douglas-fir. *Forest Ecology and Management* 86(1-3): 193-203.
158. Planchais I, Pontaville JY. (1999) Validity of leaf areas and angles estimated in a beech forest from analysis of gap frequencies, using hemispherical photographs and a plant canopy analyzer. *Annals of Forest Science* 56(1): 1-10.
159. Kull O, Tulva I. (2000) Modelling canopy growth and steady-state leaf area index in an aspen stand. *Annals of Forest Science* 57(5-6): 611-621.

160. Wilson DS . (2003) Soil-site productivity relationships of Central Oregon ponderosa pine. PhD. Thesis, Oregon State University.
161. Delzon S, Bosc A, Cantet L, Loustau D. (2005) Variation of the photosynthetic capacity across a chronosequence of maritime pine correlates with needle phosphorus concentration. *Annals of Forest Science* 62(6): 537-543.
162. Sturm N, Kostner B, Hartung W, Tenhunen JD. (1998) Environmental and endogenous controls on leaf- and stand-level water conductance in a Scots pine plantation. *Annals of Forest Science* 55(1-2): 237-253.
163. Valladares F, Guzman B. (2006) Canopy structure and spatial heterogeneity of understory light in an abandoned Holm oak woodland. *Annals of Forest Science* 63(7): 749-761.
164. Pitacco A, Gallinaro N. (1996) Micrometeorological assessment of sensitivity of canopy resistance to vapour pressure deficit in a Mediterranean oak forest. *Annals of Forest Science* 53(2-3): 513-520.
165. Vande Walle I, Mussche S, Samson R, Lust N, Lemeur R. (2001) The above- and belowground carbon pools of two mixed deciduous forest stands located in East-Flanders (Belgium). *Annals of Forest Science* 58(5): 507-517.
166. Vincke C, Breda N, Granier A, Devillez F. (2005) Evapotranspiration of a declining *Quercus robur* (L.) stand from 1999 to 2001. I. Trees and forest floor daily transpiration. *Annals of Forest Science* 62(6): 503-512.
167. Ma L, Lu P, Zhao P, Rao X-Q, Cai X-A, Zeng X-P. (2008) Diurnal, daily, seasonal and annual patterns of sap-flux-scaled transpiration from an *Acacia mangium* plantation in South China. *Annals of Forest*

Science 65(4): 402.

168. Bellot J, Escarre A. (1998) Stemflow and throughfall determination in a resprouted Mediterranean holm-oak forest. *Annals of Forest Science* 55(7): 847-865.

169. Gondard H, Romane F. (2005) Long-term evolution of understory plant species composition after logging in chestnut coppice stands - (Cevennes Mountains, southern France). *Annals of Forest Science* 62(4): 333-342.

170. Loustau D, Berbigier P, Roumagnac P, Arruda-Pacheco C, David JS, Ferreira MI, Pereira JS, Tavares R. (1996) Transpiration of a 64-year-old maritime pine stand in Portugal 1. Seasonal course of water flux through maritime pine.. *Oecologia* 107: 33-42.

171. Cabral OMR, Gash JHC, Rocha HR, Marsden C, Ligo MaV, Freitas HC, Tatsch JD, Gomes E . (2011) Fluxes of CO₂ above a plantation of Eucalyptus in southeast Brazil. *Agricultural and Forest Meteorology* 151(1): 49-59.

172. Bitencourt MD, De Mesquita HN, Jr, Kuntzschik G, Da Rocha HR, Furley PA. (2007) Cerrado vegetation study using optical and radar remote sensing: two Brazilian case studies. *Canadian Journal of Remote Sensing* 33(6): 468-480.

173. Wang KY, Kellomaki S, Zha T, Peltola H. (2004) Seasonal variation in energy and water fluxes in a pine forest: an analysis based on eddy covariance and an integrated model. *Ecological Modelling* 179(3): 259-279.

174. Kelliher FM, K^ostner BMM, Hollinger DY, Byers JN, Hunt JE, Mcseveny TM, Meserth R, Weir PL, Schulze ED. (1992) Evaporation, xylem sap flow, and tree transpiration in a New Zealand broad-leaved forest. *Agricultural and Forest Meteorology* 62(1-2): 53-73.

175. Ripley BS, Pammenter NW. (2004) Do low standing biomass and leaf area index of sub-tropical coastal dunes ensure that plants have an adequate supply of water?. *Oecologia* 139(4): 535-544.
176. Oren R, Schulze ED, Werk KS, Meyer J, Schneider BU, Heilmeyer H. (1988) Performance of two *Picea abies* (L.) Karst. stands at different stages of decline - I. Carbon relations and stand growth. *Oecologia* 75(1): 25-37.
177. Harrington R, Fownes J, Meinzer F, Scowcroft P. (1995) Forest growth along a rainfall gradient in Hawaii: *Acacia koa* stand structure, productivity, foliar nutrients, and water- and nutrient-use efficiencies. *Oecologia* 102(3): 277-284.
178. Lovelock CE, Feller IC, Ellis J, Schwarz AM, Hancock N, Nichols P, Sorrell B. (2007) Mangrove growth in New Zealand estuaries: the role of nutrient enrichment at sites with contrasting rates of sedimentation. *Oecologia* 153(3): 633-641.
179. Wirth C, Schulze ED, Schulze W, Von Stunzner-Karbe D, Ziegler W, Miljukova IM, Sogatchev A, Varlagin AB, Panvyorov M, Grigoriev S, Kusnetzova W, Siry M, Harges G, Zimmermann R, Vygodskaya NN. (1999) Above-ground biomass and structure of pristine Siberian Scots pine forests as controlled by competition and fire. *Oecologia* 121(1): 66-80.
180. Ares A, Fownes JH. (1999) Water supply regulates structure, productivity, and water use efficiency of *Acacia koa* forest in Hawaii. *Oecologia* 121(4): 458-466.
181. Walcroft AS, Brown KJ, Schuster WSF, Tissue DT, Turnbull MH, Griffin KL, Whitehead D. (2005) Radiative transfer and carbon assimilation in relation to canopy architecture, foliage area distribution and clumping in a mature temperate rainforest canopy in New Zealand. *Agricultural and Forest Meteorology* 135(1-4): 326-339.
182. Schulze ED, Mooney HA, Sala OE, Jobbagy E, Buchmann N, Bauer G, Canadell J, Jackson RB, Loreti J, Oesterheld M, Ehleringer JR. (1996) Rooting depth, water availability, and vegetation cover along an

aridity gradient in Patagonia. *Oecologia* 108(3): 503-511.

183. Oren R, Pataki DE. (2001) Transpiration in response to variation in microclimate and soil moisture in southeastern deciduous forests. *Oecologia* 127(4): 549-559.

184. Warren CR, Adams MA. (2000) Trade-offs between the persistence of foliage and productivity in two *Pinus* species. *Oecologia* 124(4): 487-494.

185. Liames Jr. JS, Congalton R, Pilant A, Lewis T. (2008) Validation of an integrated estimation of loblolly pine (*Pinus taeda* L.) leaf area index (LAI) using two indirect optical methods in the southeastern United States. *Southern Journal of Applied Forestry* 32(3): 101-110.

186. Hunt ER, Lavigne MB, Franklin SE. (1999) Factors controlling the decline of net primary production with stand age for balsam fir in Newfoundland assessed using an ecosystem simulation model. *Ecological Modelling* 122(3): 151-164.

187. Lavigne MB, Foster RJ, Goodine G, Bernier PY, Ung CH. (2005) Alternative method for estimating aboveground net primary productivity applied to balsam fir stands in eastern Canada. *Canadian Journal of Forest Research* 35(5): 1193-1201.

188. Chambers JQ, Tribuzy ES, Toledo LC, Crispim BF, Higuchi N, Dos Santos J, Araujo AC, Kruijt B, Nobre AD, Trumbore SE. (2004) Respiration from a tropical forest ecosystem: Partitioning of sources and low carbon use efficiency. *Ecological Applications* 14(4): S72-S88.

189. Levy PE, Jarvis PG. (1999) Direct and indirect measurements of LAI in millet and fallow vegetation in HAPEX-Sahel. *Agricultural and Forest Meteorology* 97(3): 199-212.

190. Norby RJ, Sholtis JD, Gunderson CA, Jawdy SS. (2003) Leaf dynamics of a deciduous forest canopy: no response to elevated CO₂. *Oecologia* 136(4): 574-584.

191. Aston AR . (1985) The effect of vertical separation of psychrometers on the determination of Bowen ratios over a young eucalypt forest. *Agricultural and Forest Meteorology* 35(1-4): 299-307.

192. Walker DA, Epstein HE, Jia GJ, Balser A, Copass C, Edwards EJ, Gould WA, Hollingsworth J, Knudson J, Maier HA, Moody A, Reynolds MK. (2003) Phytomass, LAI, and NDVI in northern Alaska: Relationships to summer warmth, soil pH, plant functional types, and extrapolation to the circumpolar Arctic. *Journal of Geophysical Research-Atmospheres* 108(D2): 8169.

193. Walker DA, Jia GJ, Epstein HE, Reynolds MK, Chapin FS, Copass C, Hinzman LD, Knudson JA, Maier HA, Michaelson GJ, Nelson F, Ping CL, Romanovsky VE, Shiklomanov N. (2003) Vegetation-soil-thaw-depth relationships along a Low-Arctic bioclimate gradient, Alaska: Synthesis of information from the ATLAS studies. *Permafrost and Periglacial Processes* 14(2): 103-123.

194. Holscher D. (2004) Leaf traits and photosynthetic parameters of saplings and adult trees of co-existing species in a temperate broad-leaved forest. *Basic and Applied Ecology* 5(2): 163-172.

195. Knohl A, Schulze ED, Kolle O, Buchmann N. (2003) Large carbon uptake by an unmanaged 250-year-old deciduous forest in Central Germany. *Agricultural and Forest Meteorology* 118(3-4): 151-167.

196. Anthoni PM, Knohl A, Rebmann C, Freibauer A, Mund M, Ziegler W, Kolle O, Schulze ED. (2004) Forest and agricultural land-use-dependent CO₂ exchange in Thuringia, Germany. *Global Change Biology* 10(12): 2005-2019.

197. Iio et al. unpublished data.

198. Macfarlane C, Adams MA, White DA. (2004) Productivity, carbon isotope discrimination and leaf traits of trees of *Eucalyptus globulus* Labill. in relation to water availability. *Plant Cell and Environment* 27(12): 1515-1524.
199. Ogino K. (1977) A beech forest at Ashiu? Biomass, its increment and net production. *Primary Productivity in Japanese Forests*.
200. Tadaki Y. (1962) Studies on production structure of forest (III) Estimation of standing crop and some analyses on productivity of young stands of *Castanopsis cuspidata*. *Journal of the Japanese Forest Society* 44(12): 350-359.
201. Kan M, Saito H, Shidei T. (1965) Studies of productivity of evergreen broadleaved forests. *Bulletin of the Kyoto University Forests* 37: 55-75.
202. Pardo F, Gil L, Pardos JA. (2004) Structure and composition of pole-stage stands developed in an ancient wood pasture in central Spain. *Forestry* 77(1): 67-74.
203. James T, Smith D. (1977) Short-term effects of surface fire on the biomass and nutrient standing crop of *Populus tremuloides* in southern Ontario. *Canadian Journal of Forest Research* 7: 666-679.
204. Peterson EB, Chan YH, Cragg JB. (1970) Aboveground standing crop, leaf area, and caloric value in an aspen clone near Calgary, Alberta. *Canadian Journal of Botany* 48(8): 1459-1469.
205. Weetman G, Harland R. (1964) Foliage and wood production in unthinned black spruce in northern Quebec. *Forest Science* 10(1): 80-88.

206. Vyskot M. (1982) In: Cannell MGR (ed) World Forest Biomass and Primary Production Data. p57.
207. Burger H. (1982) In: Cannell MGR (ed) World Forest Biomass and Primary Production Data. p229-232.
208. Ogawa H, Yoda K, Ogino K, Kira T. (1961) Comparative ecological studies on three main types of forest vegetation in Thailand II. Plant biomass. Nature and Life in South East Asia 4: 13-48.
209. Rees A, Tinker P. (1963) Dry-matter production and nutrient content of plantation oil palms in Nigeria. I. Growth and dry-matter production. Plant and Soil 19(1): 19-32.
210. Kira T. (1978) Community architecture and organic matter dynamics in tropical lowland rain forests of Southeast Asia with special reference to Pasoh Forest, West Malaysia. In: Tropical trees as living systems (Tomlinson PB, Zimmermann MH eds): 561-590.
211. Satoo T, Negishi K, Senda M. (1959) Materials for the studies of growth in stands (V). Bulletin of the Tokyo University Forests 55:101-123.
212. Miyata I, Shiomi T. (1965) Ecological studies on the vegetation of Akiyoshi-dai limestone plateau. 1. Structure of the forest community of Chojagamori. Japanese Journal of Ecology 15: 29-34.
213. Kawanabe S. (1977) A subtropical broad-leaved forest at Yona, Okinawa. JIBP Synthesis 16: 268-279.
214. Yasui H, Fujie I. (1971) Studies on the productive structure of "Shirakashi" (*Cyclobalanopsis myrsinaefolia* Oerst.) coppice-forest managed by selection method. 8. On the growth and the biomass at the Shirakashi sprout forest by clearing system. Bulletin of the Faculty of Agriculture, Shimane University 5:49-55.

215. Oshima Y. (1961) Ecological studies of Sasa communities I. Productive structure of some of the Sasa communities in Japan. *The Botanical Magazine, Tokyo* 74: 199-210.
216. Yamakura T, Saito H, Shidei T. (1972) Investigations on the primary productivity and production structure of *Chamaecyparis obtusa* Sieb. et Zucc. Stands. *Bulletin of the Kyoto University Forests* 43: 106-123.
217. Ogata N. (1982) In: Cannell MGR (ed) *World Forest Biomass and Primary Production Data*. p136.
218. Lugo AE, Gonzalez-Liboy JA, Cintron B, Dugger K. (1978) Structure, productivity and transpiration of a subtropical dry forest in Puerto Rico. *Biotropica* 10(4): 278-291.
219. Miller HG, Miller JD. (1976) Effect of nitrogen supply on net primary production in Corsican pine. *Journal of Applied Ecology* 13(1): 249-256.
220. Franklin JF, Waring RH . (1982) In: Cannell MGR (ed) *World Forest Biomass and Primary Production Data*. p338-339.
221. Madgwick HAI. (1982) In: Cannell MGR (ed) *World Forest Biomass and Primary Production Data*. p314-315.
222. Bray JR, Dudkiewicz LA. (1963) The composition, biomass and productivity of two *Populus* forests. *Bulletin of the Torrey Botanical Club* 90 (5): 298-308.
223. Grier CC, Fujimori T . (1982) In: Cannell MGR (ed) *World Forest Biomass and Primary Production Data*. p349.

224. Eriksson H, Eklundh L, Hall K, Lindroth A. (2005) Estimating LAI in deciduous forest stands. *Agricultural and Forest Meteorology* 129(1-2): 27-37.
225. Eklundh L, Hall K, Eriksson H, Ardo J, Pilesjo P. (2003) Investigating the use of Landsat thematic mapper data for estimation of forest leaf area index in southern Sweden. *Canadian Journal of Remote Sensing* 29(3): 349-362.
226. Eklundh L, Harrie L, Kuusk A. (2001) Investigating relationships between Landsat ETM plus sensor data and leaf area index in a boreal conifer forest. *Remote Sensing of Environment* 78(3): 239-251.
227. Le Maire G, Marsden C, Verhoef W, Ponzoni FJ, Lo Seen D, Begue A, Stape J-L, Nouvellon Y. (2011) Leaf area index estimation with MODIS reflectance time series and model inversion during full rotations of Eucalyptus plantations. *Remote Sensing of Environment* 115(2): 586-599.
228. Sinz A, Gardiner ES, Lockhart BR, Souter RA. (2011) Morphological acclimation and growth of ash (*Fraxinus pennsylvanica* Marsh.) advance regeneration following overstory harvesting in a Mississippi River floodplain forest. *Forest Ecology and Management* 261(2): 246-254.
229. Forrester DI, Theiveyanathan S, Collopy JJ, Marcar NE. (2010) Enhanced water use efficiency in a mixed Eucalyptus globulus and Acacia mearnsii plantation. *Forest Ecology and Management* 259(9): 1761-1770.
230. Pisek J. (2009) Development and Refinement of New Products from Multi-angle Remote Sensing to Improve Leaf Area Index Retrieval. PhD. Thesis, University of Toronto.
231. Lopez-Serrano FR, Landete-Castillejos T, Martinez-Millan J, Del Cerro-Barja A. (2000) LAI estimation of natural pine forest using a non-standard sampling technique. *Agricultural and Forest Meteorology*

101(2-3): 95-111.

232. Chen JM, Cihlar J. (1996) Retrieving leaf area index of boreal conifer forests using landsat TM images. *Remote Sensing of Environment* 55(2): 153-162.

233. Bhatti JS, Errington RC, Bauer IE, Hurdle FA. (2006) Carbon stock trends along forested peatland margins in central Saskatchewan. *Canadian Journal of Soil Science* 86(2): 321-333.

234. Hedman CW, Binkley D. (1988) Canopy profiles of some Piedmont hardwood forests. *Canadian Journal of Forest Research* 18(8): 1090-1093.

235. Silva LCR, Sternberg L, Haridasan M, Hoffmann WA, Miralles-Wilhelm F, Franco AC. (2008) Expansion of gallery forests into central Brazilian savannas. *Global Change Biology* 14(9): 2108-2118.

236. De Wasseige C, Bastin D, Defourny P. (2003) Seasonal variation of tropical forest LAI based on field measurements in Central African Republic. *Agricultural and Forest Meteorology* 119(3-4): 181-194.

237. Bond-Lamberty B, Wang CK, Gower ST. (2004) Net primary production and net ecosystem production of a boreal black spruce wildfire chronosequence. *Global Change Biology* 10(4): 473-487.

238. Kochendorfer J, Castillo EG, Haas E, Oechel WC, Paw KTU. (2011) Net ecosystem exchange, evapotranspiration and canopy conductance in a riparian forest. *Agricultural and Forest Meteorology* 151(5): 544-553.

239. Wang CK, Gower ST, Wang YH, Zhao HX, Yan P, Bond-Lamberty BP. (2001) The influence of fire on carbon distribution and net primary production of boreal *Larix gmelinii* forests in north-eastern China. *Global Change Biology* 7(6): 719-730.

240. Hall RJ, Davidson DP, Peddle DR . (2003) Ground and remote estimation of leaf area index in Rocky Mountain forest stands, Kananaskis, Alberta. *Canadian Journal of Remote Sensing* 29(3): 411-427.
241. Lindroth A, Lagergren F, Aurela M, Bjarnadottir B, Christensen T, Dellwik E, Grelle A, Ibrom A, Johansson T, Lankreijer H, Launiainen S, Laurila T, Molder M, Nikinmaa E, Pilegaard K, Sigurdsson BD, Vesala T . (2008) Leaf area index is the principal scaling parameter for both gross photosynthesis and ecosystem respiration of Northern deciduous and coniferous forests. *Tellus B* 60(2): 129-142.
242. Aurela M . (2005) Carbon dioxide exchange in subarctic ecosystems measured by a micrometeorological technique. *Finnish Meteorological Institute Contributions* 51.
243. Drake JE, Davis SC, Raetz LM, Delucia EH . (2011) Mechanisms of age-related changes in forest production: the influence of physiological and successional changes. *Global Change Biology* 17(4): 1522-1535.
244. Jenkins JP, Richardson AD, Braswell BH, Ollinger SV, Hollinger DY, Smith ML. (2007) Refining light-use efficiency calculations for a deciduous forest canopy using simultaneous tower-based carbon flux and radiometric measurements. *Agricultural and Forest Meteorology* 143: 64-79.
245. Wilson KB, Baldocchi DD. (2000) Seasonal and interannual variability of energy fluxes over a broadleaved temperate deciduous forest in North America. *Agricultural and Forest Meteorology* 100: 1-18.
246. Hollinger DY, Ollinger SV, Richardson AD, Meyers TP, Dail DB, Martin ME, Scott NA, Arkebauer TJ, Baldocchi DD, Clark KL, Curtis PS, Davis KJ, Desai AR, Dragoni D, Goulden ML, Gu L, Katul GG, Pallardy SG, Paw U KT, Schmid HP, Stoy PC, Suyker AE, Verma SB . (2010) Albedo estimates for land surface models and support for a new paradigm based on foliage nitrogen concentration. *Global Change Biology* 16(2): 696-710.

247. Schafer KVR, Clark KL, Skowronski N, Hamerlynck EP. (2010) Impact of insect defoliation on forest carbon balance as assessed with a canopy assimilation model. *Global Change Biology* 16: 546-560.

248. Goulden ML, Winston GC, Mcmillan AMS, Litvak ME, Read EL, Rocha AV, Elliot JR. (2006) An eddy covariance mesonet to measure the effect of forest age on land-atmosphere exchange. *Global Change Biology* 12(11): 2146-2162.

249. Litvak M, Miller S, Wofsy SC, Goulden M. (2003) Effect of stand age on whole ecosystem CO₂ exchange in the Canadian boreal forest. *Journal of Geophysical Research-Atmospheres* 108(D3): 8225.

250. Watson FGR, Vertessy RA, Grayson RB. (1997) Large scale, long term, physically based production of water yield in forested catchments. *Proceedings of MODISM (97)*: 397-402.

251. Mielke MS, Oliva MA, De Barros NF, Penchel RM, Martinez CA, De Almeida AC. (1999) Stomatal control of transpiration in the canopy of a clonal *Eucalyptus grandis* plantation. *Trees-Structure and Function* 13(3): 152-160.

252. Dye PJ, Jacobs S, Drew D. (2004) Verification of 3-PG growth and water-use predictions in twelve *Eucalyptus* plantation stands in Zululand, South Africa. *Forest Ecology and Management* 193(1-2): 197-218.

253. Zhang M, Yu G-R, Zhuang J, Gentry R, Fu Y-L, Sun X-M, Zhang L-M, Wen X-F, Wang Q-F, Han S-J, Yan J-H, Zhang Y-P, Wang Y-F, Li Y-N. (2011) Effects of cloudiness change on net ecosystem exchange, light use efficiency, and water use efficiency in typical ecosystems of China. *Agricultural and Forest Meteorology* 151(7): 803-816.

254. Zhang L, Yu G, Sun X, Wen X, Ren C, Song x, Liu Y, Guan D, Yan J, Zhang Y. (2006) Seasonal variation of carbon exchange of typical forest ecosystems along the eastern forest transect in China. *Science in China Series D: Earth Sciences* 49: 47-62.

255. Hunt MA, Battaglia M, Davidson NJ, Unwin GL. (2006) Competition between plantation *Eucalyptus nitens* and *Acacia dealbata* weeds in northeastern Tasmania. *Forest Ecology and Management* 233(2-3): 260-274.

256. Sea WB, Choler P, Beringer J, Weinmann RA, Hutley LB, Leuning R. (2011) Documenting improvement in leaf area index estimates from MODIS using hemispherical photos for Australian savannas. *Agricultural and Forest Meteorology* 151(11): 1453-1461.

257. Smethurst P, Baillie C, Cherry M, Holz G. (2003) Fertilizer effects on LAI and growth of four *Eucalyptus nitens* plantations. *Forest Ecology and Management* 176(1-3): 531-542.

258. Medhurst JL, Beadle CL. (2001) Crown structure and leaf area index development in thinned and unthinned *Eucalyptus nitens* plantations. *Tree Physiology* 21(12-13): 989-999.

259. Hill MJ, Senarath U, Lee A, Zeppel M, Nightingale JM, Williams RDJ, Mcvicar TR. (2006) Assessment of the MODIS LAI product for Australian ecosystems. *Remote Sensing of Environment* 101(4): 495-518.

260. Genet H, Breda N, Dufrene E. (2010) Age-related variation in carbon allocation at tree and stand scales in beech (*Fagus sylvatica* L.) and sessile oak (*Quercus petraea* (Matt.) Liebl.) using a chronosequence approach. *Tree Physiology* 30(2): 177-192.

261. Berger TW, Untersteiner H, Topfitzer M, Neubauer C. (2009) Nutrient fluxes in pure and mixed stands of spruce (*Picea abies*) and beech (*Fagus sylvatica*). *Plant and Soil* 322(1-2): 317-342.

262. Barilotti A, Turco S. (2006) A 3-D GIS for the sustainable management of forest resources. IUFRO Landscape Ecology Conference, Bari, Italy.
263. Sraj M, Brilly M, Mikos M. (2008) Rainfall interception by two deciduous Mediterranean forests of contrasting stature in Slovenia. *Agricultural and Forest Meteorology* 148(1): 121-134.
264. Nilson T, Anniste J, Lang M, Praks J. (1999) Determination of needle area indices of coniferous forest canopies in the NOPEX region by ground-based optical measurements and satellite images. *Agricultural and Forest Meteorology* 98-9(SI): 449-462.
265. Nilson T. (1999) Inversion of gap frequency data in forest stands. *Agricultural and Forest Meteorology* 98-9(SI): 437-448.
266. Werner C, Correia O, Beyschlag W. (1999) Two different strategies of Mediterranean macchia plants to avoid photoinhibitory damage by excessive radiation levels during summer drought. *Acta Oecologica* 20(1): 15-23.
267. Gleason SM, Williams LJ, Read J, Metcalfe DJ, Baker PJ. (2008) Cyclone effects on the structure and production of a tropical upland rainforest: Implications for life-history tradeoffs. *Ecosystems* 11: 1277-1290.
268. Roberts J, Hopkins R, Morecroft M. (1999) Towards a predictive description of forest canopies from litter properties. *Functional Ecology* 13(2): 265-272.
269. Spadavecchia L, Williams M, Bell R, Stoy PC, Huntley B, Van Wijk MT. (2008) Topographic controls on the leaf area index and plant functional type of a tundra ecosystem. *Journal of Ecology* 96(6): 1238-1251.

270. Holdaway RJ, Allen RB, Clinton PW, Davis MR, Coomes DA. (2008) Intraspecific changes in forest canopy allometries during self-thinning. *Functional Ecology* 22(3): 460-469.
271. Uri V, Lohmus K, Kiviste A, Aosaar J. (2009) The dynamics of biomass production in relation to foliar and root traits in a grey alder (*Alnus incana* (L.) Moench) plantation on abandoned agricultural land. *Forestry* 82(1): 61-74.
272. Johansson T. (2007) Biomass production and allometric above- and below-ground relations for young birch stands planted at four spacings on abandoned farmland. *Forestry* 80(1): 41-52.
273. Jacob M, Leuschner C, Thomas FM. (2010) Productivity of temperate broad-leaved forest stands differing in tree species diversity. *Annals of Forest Science* 67(5): 503.
274. Alberti G, Candido P, Peressotti A, Turco S, Piussi P, Zerbi G. (2005) Aboveground biomass relationships for mixed ash (*Fraxinus excelsior* L. and *Ulmus glabra* Hudson) stands in Eastern Prealps of Friuli Venezia Giulia (Italy). *Annals of Forest Science* 62(8): 831-836.
275. Uri V, Vares A, Tullus H, Kanal A. (2007) Above-ground biomass production and nutrient accumulation in young stands of silver birch on abandoned agricultural land. *Biomass & Bioenergy* 31(4): 195-204.
276. Waring RH, Cromack K, Matson PA, Boone RD, Stafford SG. (1987) Responses to pathogen-induced disturbance: Decomposition, nutrient availability, and tree vigor. *Forestry* 60(2): 219-227.
277. Waring RH, Newman K, Bell J. (1981) Efficiency of tree crowns and stemwood production at different canopy leaf densities. *Forestry* 54(2): 129-137.

278. Kruijt B. (1989) Estimating canopy structure of an oak forest at several scales. *Forestry* 62(3): 269-284.

279. Schwenberger W. (1984) Above-ground biomass of mountain beech (*Nothofagus solandri* (Hook.f.) Oerst. Var. *cliffortioides* (Hook. f.) poole) in different stand types near timberline in New Zealand. *Forestry* 57(1): 59-73.

280. Metcalfe DB, Lobo-Do-Vale R, Chaves MM, Maroco JP, Aragao LEOC, Malhi Y, Da Costa AL, Braga AP, Goncalves PL, De Athaydes J, Da Costa M, Almeida SS, Campbell C, Hurry V, Williams M, Meir P. (2010) Impacts of experimentally imposed drought on leaf respiration and morphology in an Amazon rain forest. *Functional Ecology* 24(3): 524-533.

281. Kawaguchi H, Yoda K. (1985) Carbon-cycling changes during regeneration of a deciduous broadleaf forest after clear-cutting: I. Changes in organic matter and carbon storage. *Japanese Journal of Ecology* 35(5): 551-563.

282. Noh NJ, Son Y, Lee SK, Yoon TK, Seo KW, Kim C, Lee W-K, Bae SW, Hwang J. (2010) Influence of stand density on soil CO₂ efflux for a *Pinus densiflora* forest in Korea. *Journal of Plant Research* 123(4): 411-419.

283. Noormets A, Chen J, Crow TR. (2007) Age-dependent changes in ecosystem carbon fluxes in managed forests in northern Wisconsin, USA. *Ecosystems* 10(2): 187-203.

284. Migliavacca M, Meroni M, Manca G, Matteucci G, Montagnani L, Grassi G, Zenone T, Teobaldelli M, Godea I, Colombo R, Seufert G. (2009) Seasonal and interannual patterns of carbon and water fluxes of a poplar plantation under peculiar eco-climatic conditions. *Agricultural and Forest Meteorology* 149(9): 1460-1476.

285. Desai AR, Bolstad PV, Cook BD, Davis KJ, Carey EV. (2005) Comparing net ecosystem exchange of carbon dioxide between an old-growth and mature forest in the upper Midwest, USA. *Agricultural and*

Forest Meteorology 128(1-2): 33-55.

286. Powell TL, Bracho R, Li J, Dore S, Hinkle CR, Drake BG. (2006) Environmental controls over net ecosystem carbon exchange of scrub oak in central Florida. *Agricultural and Forest Meteorology* 141(1): 19-34.

287. Domec J-C, Noormets A, King JS, Sun G, McNulty SG, Gavazzi MJ, Boggs JL, Treasure EA. (2009) Decoupling the influence of leaf and root hydraulic conductances on stomatal conductance and its sensitivity to vapour pressure deficit as soil dries in a drained loblolly pine plantation. *Plant Cell and Environment* 32(8): 980-991.

288. Noormets A, McNulty SG, Deforest JL, Sun G, Li Q, Chen J. (2008) Drought during canopy development has lasting effect on annual carbon balance in a deciduous temperate forest. *New Phytologist* 179(3): 818-828.

289. Yang WQ, Wang KY, Kellomaki S, Gong HD. (2005) Litter dynamics of three subalpine forests in Western Sichuan. *Pedosphere* 15(5): 653-659.

290. Coble D, Marshall J. (2002) Aspect differences in above- and belowground carbon allocation: a Montana case-study. *Environmental Pollution* 116(S1): S149-S155.

291. Wirth R, Weber B, Ryel RJ. (2001) Spatial and temporal variability of canopy structure in a tropical moist forest. *Acta Oecologica* 22(5-6): 235-244.

292. Schafer KVR, Oren R, Lai CT, Katul GG. (2002) Hydrologic balance in an intact temperate forest ecosystem under ambient and elevated atmospheric CO₂ concentration. *Global Change Biology* 8(9): 895-911.

293. Pinno BD, Lieffers VJ, Stadt KJ. (2001) Measuring and modelling the crown and light transmission characteristics of juvenile aspen. *Canadian Journal of Forest Research* 31(11): 1930-1939.

294. Groffman PM, Pouyat RV, Cadenasso ML, Zipperer WC, Szlavecz K, Yesilonis ID, Band LE, Brush GS. (2006) Land use context and natural soil controls on plant community composition and soil nitrogen and carbon dynamics in urban and rural forests. *Forest Ecology and Management* 236(2-3): 177-192.

295. Fleischbein K, Wilcke W, Goller R, Boy J, Valarezo C, Zech W, Knoblich K. (2005) Rainfall interception in a lower montane forest in Ecuador: effects of canopy properties. *Hydrological Processes* 19(7): 1355-1371.

296. Fajardo A, Alaback P. (2005) Effects of natural and human disturbances on the dynamics and spatial structure of *Nothofagus glauca* in south-central Chile. *Journal of Biogeography* 32(10): 1811-1825.

297. Cavalcanti GG, Lockaby BG. (2006) Effects of sediment deposition on aboveground net primary productivity, vegetation composition, and structure in riparian forests. *Wetlands* 26(2): 400-409.

298. Deguchi A, Hattori S, Park HT. (2006) The influence of seasonal changes in canopy structure on interception loss: Application of the revised Gash model. *Journal of Hydrology* 318(1-4): 80-102.

299. Cleverly JR, Dahm CN, Thibault JR, McDonnell DE, Coonrod JEA. (2006) Riparian ecohydrology: Regulation of water flux from the ground to the atmosphere in the Middle Rio Grande, New Mexico. *Hydrological Processes* 20(15): 3207-3225.

300. Hall RJ, Fernandes RA, Hogg EH, Brandt JP, Butson C, Case BS, Leblanc SG. (2003) Relating aspen defoliation to changes in leaf area derived from field and satellite remote sensing data. *Canadian Journal of Remote Sensing* 29(3): 299-313.

301. Schwarzkopf T, Riha SJ, Fahey TJ, Degloria S. (2011) Are cloud forest tree structure and environment related in the Venezuelan Andes? . *Austral Ecology* 36(3): 280-289.
302. Kutsch WL, Liu CJ, Hormann G, Herbst M. (2005) Spatial heterogeneity of ecosystem carbon fluxes in a broadleaved forest in Northern Germany. *Global Change Biology* 11(1): 70-88.
303. Beringer J, Chapin FS, Thompson CC, Mcguire AD. (2005) Surface energy exchanges along a tundra-forest transition and feedbacks to climate. *Agricultural and Forest Meteorology* 131(3-4): 143-161.
304. Sonnentag O, Talbot J, Chen JM, Roulet N. (2007) Using direct and indirect measurements of leaf area index to characterize the shrub canopy in an ombrotrophic peatland. *Agricultural and Forest Meteorology* 144(3-4): 200-212.
305. Kashian DM, Turner MG, Romme W . (2005) Variability in leaf area and stemwood increment along a 300-year lodgepole pine chronosequence. *Ecosystems* 8(1): 48-61.
306. Martin TA, Jokela EJ. (2004) Developmental patterns and nutrition impact radiation use efficiency components in southern pine stands. *Ecological Applications* 14(6): 1839-1854.
307. Hebert MT, Jack SB. (1998) Leaf area index and site water balance of loblolly pine (*Pinus taeda* L.) across a precipitation gradient in east Texas. *Forest Ecology and Management* 105(1-3): 273-282.
308. Binkley D, Smith FW, Son Y. (1995) Nutrient supply and declines in leaf area and production in lodgepole pine. *Canadian Journal of Forest Research* 25(4): 621-628.
309. Litton CM, Ryan MG, Knight DH. (2004) Effects of tree density and stand age on carbon allocation patterns in postfire lodgepole pine. *Ecological Applications* 14(2): 460-475.

310. Wagner S, Hagemeyer M. (2006) Method of segmentation affects leaf inclination angle estimation in hemispherical photography. *Agricultural and Forest Meteorology* 139(1-2): 12-24.
311. Sherman RE, Fahey TJ, Martinez P. (2003) Spatial patterns of Biomass and aboveground net primary productivity in a mangrove ecosystem in the Dominican Republic. *Ecosystems* 6(4): 384-398.
312. Kram KJ . (2008) Nitrogen deposition and flux through birch stands (*Betula pubescens* Ehrh.) in the Kampinos national park (central Poland). *Polish Journal of Ecology* 56(4): 605-612.
313. Lemma B, Kleja DB, Olsson M, Nilsson I. (2007) Factors controlling soil organic carbon sequestration under exotic tree plantations: A case study using the CO₂ fix model in Southwestern Ethiopia. *Forest Ecology and Management* 252(1-3): 124-131.
314. Lafleur PM, Farnsworth AG. (2008) Light interception and canopy radiation balance of staghorn sumac (*Rhus typhina*). *Canadian Journal of Forest Research* 38(6): 1695-1700.
315. Andre F, Jonard M, Ponette Q. (2008) Precipitation water storage capacity in a temperate mixed oak-beech canopy. *Hydrological Processes* 22(20): 4130-4141.
316. Xavier AC, Vettorazzi CA. (2004) Monitoring leaf area index at watershed level through NDVI from Landsat-7/ETM+ data. *Scientia Agricola* 61(3): 243-252.
317. Lovelock CE, Bennion V, Grinham A, Cahoon DR. (2011) The role of surface and subsurface processes in keeping pace with sea level rise in intertidal wetlands of Moreton Bay, Queensland, Australia. *Ecosystems* 14(5): 745-757.

318. Vincke C, Thiry Y. (2008) Water table is a relevant source for water uptake by a Scots pine (*Pinus sylvestris* L.) stand: Evidences from continuous evapotranspiration and water table monitoring..
319. Kotz B, Schaepman M, Morsdorf F, Bowyer P, Itten K, Allgower B. (2004) Radiative transfer modeling within a heterogeneous canopy for estimation of forest fire fuel properties. *Remote Sensing of Environment* 92(3): 332-344.
320. Steltzer H, Welker JM. (2006) Modeling the effect of photosynthetic vegetation properties on the NDVI-LAI relationship. *Ecology* 87(11): 2765-2772.
321. Nizzetto L, Cassani C, Di Guardo A. (2006) Deposition of PCBs in mountains: The forest filter effect of different forest ecosystem types. *Ecotoxicology and Environmental Safety* 63(1): 75-83.
322. Parker GG, Tibbs DJ . (2004) Structural phenology of the leaf community in the canopy of a *Liriodendron tulipifera* L. forest in Maryland, USA. *Forest Science* 50(3): 387-397.
323. Utsugi H, Araki M, Kawasaki T, Ishizuka M. (2006) Vertical distributions of leaf area and inclination angle, and their relationship in a 46-year-old *Chamaecyparis obtusa* stand. *Forest Ecology and Management* 225(1-3): 104-112.
324. Litton CM, Sandquist DR, Cordell S. (2006) Effects of non-native grass invasion on aboveground carbon pools and tree population structure in a tropical dry forest of Hawaii. *Forest Ecology and Management* 231(1-3): 105-113.
325. Kang S, Kim S, Oh S, Lee D. (2000) Predicting spatial and temporal patterns of soil temperature based on topography, surface cover and air temperature. *Forest Ecology and Management* 136(1-3): 173-184.

326. Chiesi M, Maselli F, Bindi M, Fibbi L, Bonora L, Raschi A, Tognetti R, Cermak J, Nadezhdina N. (2002) Calibration and application of FOREST-BGC in a Mediterranean area by the use of conventional and remote sensing data. *Ecological Modelling* 154(3): 251-262.
327. Cutini A. (2001) New management options in chestnut coppices: an evaluation on ecological bases. *Forest Ecology and Management* 141(3): 165-174.
328. Larocque GR. (2002) Coupling a detailed photosynthetic model with foliage distribution and light attenuation functions to compute daily gross photosynthesis in sugar maple (*Acer saccharum* Marsh.) stands. *Ecological Modelling* 148(3): 213-232.
329. Burton AJ, Pregitzer KS, Reed DD. (1991) Leaf area and foliar biomass relationships in northern hardwood forests located along an 800 km acid deposition gradient. *Forest Science* 37(4): 1041-1059.
330. Kovacs JM, Wang JF, Flores-Verdugo F. (2005) Mapping mangrove leaf area index at the species level using IKONOS and LAI-2000 sensors for the Agua Brava Lagoon, Mexican Pacific. *Estuarine Coastal and Shelf Science* 62(1-2): 377-384.
331. Jack SB, Long JN. (1991) Response of leaf area index to density for two contrasting tree species. *Canadian Journal of Forest Research* 21(12): 1760-1764.
332. Keane MG, Weetman GF. (1987) Leaf area-sapwood cross-sectional area relationships in repressed stands of Lodgepole pine. *Canadian Journal of Forest Research* 17(3): 205-209.
333. Magnussen S, Smith VG, Yeatman CW. (1986) Foliage and canopy characteristics in relation to aboveground dry matter increment of seven jack pine provenances. *Canadian Journal of Forest Research* 16(3): 464-470.

334. Cregg BM, Hennessey TC, Dougherty PM. (1990) Water relations of loblolly pine trees in southeastern Oklahoma following precommercial thinning. *Canadian Journal of Forest Research* 20(9): 1508-1513.
335. Oren R, Waring RH, Stafford SG, Barrett JW. (1987) Twenty-four years of ponderosa pine growth in relation to canopy leaf area and understory competition. *Forest Science* 33(2): 538-547.
336. Larsson S, Oren R, Waring RH, Barrett JW. (1983) Attacks of mountain pine beetle as related to tree vigor of ponderosa pine. *Forest Science* 29(2): 395-402.
337. Vose JM, Allen HL. (1988) Leaf area, stem wood growth, and nutrition relationships in loblolly pine. *Forest Science* 34(3): 547-563.
338. Wang YS, Miller D. (1987) Notes: Calibration of the hemispherical photographic technique to measure leaf area index distributions in hardwood forests. *Forest Science* 33(1): 210-216.
339. McIntyre BM, Scholl MA, Sigmon JT. (1990) A quantitative description of a deciduous forest canopy using a photographic technique. *Forest Science* 36(2): 381-393.
340. Strachan IB, Mccaughey JH. (1996) Spatial and vertical leaf area index of a deciduous forest resolved using the LAI-2000 plant canopy analyzer. *Forest Science* 42(2): 176-181.
341. Wang YS, Miller DR, Welles JM, Heisler GM. (1992) Spatial variability of canopy foliage in an oak forest estimated with fisheye sensors. *Forest Science* 38(4): 854-865.
342. O'Hara KL. (1996) Dynamics and stocking-level relationships of multi-aged Ponderosa pine stands. *Forest Science* 42(4): 1-34.

343. Reich PB, Peterson DW, Wedin DA, Wrage K. (2001) Fire and vegetation effects on productivity and nitrogen cycling across a forest-grassland continuum. *Ecology* 82(6): 1703-1719.
344. Declerck FaJ, Barbour MG, Sawyer JO. (2005) Resource use efficiency as a function of species richness and stand composition in upper montane conifer forests of the Sierra Nevada. *Journal of Vegetation Science* 16(4): 443-452.
345. Kazda M, Salzer J. (2000) Leaves of lianas and self-supporting plants differ in mass per unit area and in nitrogen content. *Plant Biology* 2(3): 268-271.
346. Leuschner C, Hertel D, Coners H, Buttner V. (2001) Root competition between beech and oak: a hypothesis. *Oecologia* 126(2): 276-284.
347. Heiskanen J. (2006) Estimating aboveground tree biomass and leaf area index in a mountain birch forest using ASTER satellite data. *International Journal of Remote Sensing* 27(5-6): 1135-1158.
348. Balch JK, Nepstad DC, Brando PM, Curran LM, Portela O, De Carvalho Jr. O, Lefebvre P. (2008) Negative fire feedback in a transitional forest of southeastern Amazonia. *Global Change Biology* 14(10): 2276-2287.
349. Lim K, Treitz P, Baldwin K, Morrison I, Green J. (2003) Lidar remote sensing of biophysical properties of tolerant northern hardwood forests. *Canadian Journal of Remote Sensing* 29(5): 658-678.
350. Ares A, Fownes JH. (2000) Productivity, nutrient and water-use efficiency of *Eucalyptus saligna* and *Toona ciliata* in Hawaii. *Forest Ecology and Management* 139(1-3): 227-236.

351. Tagesson T, Eklundh L, Lindroth A. (2009) Applicability of leaf area index products for boreal regions of Sweden. *International Journal of Remote Sensing* 30(21): 5619-5632.
352. Campioli M, Michelsen A, Samson R, Lemeur . (2009) Seasonal variability of leaf area index and foliar nitrogen in contrasting dry-mesic tundras. *Botany* 87(5): 431-442.
353. Johansson T. (2002) Increment and biomass in 26-to 91-year-old European aspen and some practical implications. *Biomass & Bioenergy* 23(4): 245-255.
354. Leblanc SG, Chen JM. (2001) A practical scheme for correcting multiple scattering effects on optical LAI measurements. *Agricultural and Forest Meteorology* 110(2): 125-139.
355. Nilson T, Kuusk A. (2004) Improved algorithm for estimating canopy indices from gap fraction data in forest canopies. *Agricultural and Forest Meteorology* 124(3-4): 157-169.
356. Constable JVH, Peffer BJ, Denicola DM. (2007) Temporal and light-based changes in carbon uptake and storage in the spring ephemeral *Podophyllum peltatum* (Berberidaceae). *Environmental and Experimental Botany* 60(1): 112-120.
357. Leuning R, Cleugh HA, Zegelin SJ, Hughes D. (2005) Carbon and water fluxes over a temperate Eucalyptus forest and a tropical wet/dry savanna in Australia: measurements and comparison with MODIS remote sensing estimates. *Agricultural and Forest Meteorology* 129(3-4): 151-173.
358. Chand TRK, Badarinath KVS. (2007) Analysis of ENVISAT ASAR data for forest parameter retrieval and forest type classification - a case study over deciduous forests of central India. *International Journal of Remote Sensing* 28(22): 4985-4999.

359. Zhang Y, Chen JM, Miller JR, Noland TL. (2008) Leaf chlorophyll content retrieval from airborne hyperspectral remote sensing imagery. *Remote Sensing of Environment* 112(7): 3234-3247.
360. Sang W, Chen S, Li G. (2008) Dynamics of leaf area index and canopy openness of three forest types in a warm temperate zone. *Frontiers of Forestry in China* 3(4): 416-421.
361. Smith ML, Ollinger SV, Martin ME, Aber JD, Hallett RA, Goodale CL. (2002) Direct estimation of aboveground forest productivity through hyperspectral remote sensing of canopy nitrogen. *Ecological Applications* 12(5): 1286-1302.
362. Martinez Pastur GJ, Peri PL, Cellini JM, Lencinas MV, Barrera M, Ivancich H. (2011) Canopy structure analysis for estimating forest regeneration dynamics and growth in *Nothofagus pumilio* forests. *Annals of Forest Science* 68(3): 587-594.
363. Bequet R, Kint V, Campioli M, Vansteenkiste D, Muys B, Ceulemans R. (2012) Influence of stand, site and meteorological variables on the maximum leaf area index of beech, oak and Scots pine. *European Journal of Forest Research* 131(2): 283-295.
364. Kraus T, Schmidt M, Dech SW, Samimi C (2009) The potential of optical high resolution data for the assessment of leaf area index in East African rainforest ecosystems. *International Journal of Remote Sensing* 30(19): 5039-5059.
365. Macfarlane C, Bond C, White DA, Grigg AH, Ogden GN, Silberstein R. (2010) Transpiration and hydraulic traits of old and regrowth eucalypt forest in southwestern Australia. *Forest Ecology and Management* 260(1): 96-105.
366. Yamakura T, Hagihara A, Sukardjo S, Ogawa H. (1986) Aboveground biomass of tropical rain forest stands in Indonesian Borneo. *Vegetatio* 69: 71-82.

367. Letts MG, Mulligan M. (2005) The impact of light quality and leaf wetness on photosynthesis in north-west Andean tropical montane cloud forest. *Journal of Tropical Ecology* 21: 549-557.

368. Maass J, Vose JM, Swank WT, Martínez-Yrizar A. (1995) Seasonal changes of leaf area index (LAI) in a tropical deciduous forest in west Mexico. *Forest Ecology and Management* 74(1-3): 171-180.

369. Fassnacht KS, Gower ST. (1997) Interrelationships among the edaphic and stand characteristics, leaf area index, and aboveground net primary production of upland forest ecosystems in north central Wisconsin. *Canadian Journal of Forest Research* 27(7): 1058-1067.

370. Herbert DA, Fownes JH. (1999) Forest productivity and efficiency of resource use across a chronosequence of tropical montane soils. *Ecosystems* 2(3): 242-254.

371. Herbert D, Fownes J. (1995) Phosphorus limitation of forest leaf area and net primary production on a highly weathered soil. *Biogeochemistry* 29(3): 223-235.

372. Gholz HL, Vogel SA, Cropper WP, Mckelvey K, Ewel KC, Teskey RO, Curran PJ. (1991) Dynamics of canopy structure and light interception in *Pinus elliottii* stands, north Florida. *Ecological Monographs* 61(1): 33-51.

373. Gholz HL. (1982) Environmental limits on aboveground net primary production, leaf area, and biomass in vegetation zones of the Pacific Northwest. *Ecology* 63(2): 469-481.

374. Fassnacht KS, Gower ST, Norman JM, Mcmurtric RE. (1994) A comparison of optical and direct methods for estimating foliage surface area index in forests. *Agricultural and Forest Meteorology* 71(1-2): 183-207.

375. Bolstad PV, Gower ST. (1990) Estimation of leaf area index in fourteen southern Wisconsin forest stands using a portable radiometer. *Tree Physiology* 7(1-4): 115-124.
376. Gower ST, Reich PB, Son Y. (1993) Canopy dynamics and aboveground production of five tree species with different leaf longevities. *Tree Physiology* 12(4): 327-345.
377. Runyon J, Waring RH, Goward SN, Welles JM. (1994) Environmental limits on net primary production and light-use efficiency across the Oregon transect. *Ecological Applications* 4(2): 226-237.
378. Marshall JD, Waring RH. (1986) Comparison of methods of estimating Leaf-area index in old-growth Douglas-fir. *Ecology* 67(4): 975-979.
379. Gower ST, Vogt KA, Grier CC. (1992) Carbon dynamics of Rocky mountain Douglas-fir: Influence of water and nutrient availability. *Ecological Monographs* 62(1): 43-65.
380. Pierce LL, Running SW. (1988) Rapid estimation of coniferous forest leaf area index using a portable integrating radiometer. *Ecology* 69(6): 1762-1767.
381. Vose JM, Swank WT. (1990) Assessing seasonal leaf area dynamics and vertical leaf area distribution in eastern white pine (*Pinus strobus* L.) with a portable light meter. *Tree Physiology* 7(1-4): 125-134.
382. Gower ST, Vogel JG, Norman JM, Kucharik CJ, Steele SJ, Stow TK. (1997) Carbon distribution and aboveground net primary production in aspen, jack pine, and black spruce stands in Saskatchewan and Manitoba, Canada. *Journal of Geophysical Research-Atmospheres* 102(D24): 29029-29041.
383. Nilg?rd B. (1972) Plant biomass, primary production and distribution of chemical elements in a beech and a planted spruce forest in south Sweden. *Oikos* 23(1): 69-81.

384. Reed RA, Finley ME, Romme WH, Turner MG. (1999) Aboveground net primary production and leaf-area index in early post fire vegetation in Yellowstone National Park. *Ecosystems* 2(1): 88-94.
385. Stenberg P, Linder S, Smolander H, Flower-Ellis J. (1994) Performance of the LAI-2000 plant canopy analyzer in estimating leaf area index of some Scots pine stands. *Tree Physiology* 14(7-9): 981-995.
386. Tadaki Y, Hatiya K, Tochiaki K. (1969) Studies on the production structure of forest (XV) : Primary productivity of *Fagus crenata* in plantation. *Journal of the Japanese Forest Society* 51(12): 331-339.
387. Kakubari Y. (1977) Beech forests in the Naeba mountains. Part II. Distribution of primary productivity along the altitudinal gradient. *JIBP Synthesis* 16: 201-212.
388. Tadaki Y. (1970) Studies on the production structure of forest (XVI). Primary productivity of *Abies veitchii* forests in the subalpine zone of Mt. Fuji. *Bulletin of the Government Forest Experiment Station Tokyo* 229: 1-22.
389. Saito H, Shidei T, Kira T. (1965) Dry-matter production by *Camellia japonica* stands. *Japanese Journal of Ecology* 15(4): 131-139.
390. Tadaki Y. (1967) Studies on production structure of forest. XI. Primary productivities of 28-year-old plantations of *Cryptomeria* of cuttings and of seedlings origin. *Bulletin of the Government Forest Experiment Station Tokyo* 199: 47-65.
391. Miyamoto M, Tanimoto T, Ando T. (1980) Analysis of the growth of Hinoki (*Chamaecyparis obtusa*) artificial forests in Shikoku district. *Bulletin of the Government Forest Experiment Station Tokyo* 309: 89-107.

392. Tadaki Y, Ogata N, Nagatomo Y. (1965) The dry matter productivity in several stands of *Cryptomeria japonica* in Kyushu. *Bulletin of the Government Forest Experiment Station Tokyo* 173: 45-66.

393. Tadaki Y. (1968) The primary productivity and the stand density control in *Acacia mollissima* stand. *Bulletin of the Government Forest Experiment Station Tokyo* 216: 99-125.

394. Tadaki Y. (1968) Studies on the production structure of forest (XIV) : The third report on the primary production of a young stand of *Castanopsis cuspidata*. *Journal of the Japanese Forest Society* 50(3): 60-65.

395. Tadaki Y, Kawasaki Y. (1966) Studies on the production structure of forest. IX. Primary Productivity of a young *Cryptomeria* plantation with excessively high stand density. *Journal of the Japanese Forest Society* 48(2): 55-61.

396. Whittaker RH, Niering WA. (1975) Vegetation of the Santa Catalina mountains, Arizona. V. Biomass, production and diversity along the elevation gradient. *Ecology* 56: 771-790.

397. Whittaker RH. (1966) Forest dimensions and production in the Great Smoky mountains. *Ecology* 47(1): 103-121.

398. Whittaker RH. (1982) In: Cannell MGR (ed) *World Forest Biomass and Primary Production Data*. p260, 263, 278.

399. Whittaker RH. (1963) Net production of heath balds and forest heaths in the Great Smoky mountains. *Ecology* 44(1): 176-182.

400. Whittaker RH, Bormann FH, Likens GE, Siccama TG. (1974) The Hubbard Brook ecosystem study: Forest biomass and production. *Ecological Monographs* 44(2): 233-254.
401. Tadaki Y, Shidei T, Sakasegawa T, Ogino K. (1961) Studies on productive structure of forest (II): Estimation of standing crop and some analyses on productivity of young birch stand (*Betula platyphylla*). *Journal of the Japanese Forest Society* 43(1): 19-26.
402. Takagi K, Fukuzawa K, Liang N, Kayama M, Nomura M, Hojyo H, Sugata S, Shibata H, Fukuzawa T, Takahashi Y, Nakaji T, Oguma H, Mano M, Akibayashi Y, Murayama T, Koike T, Sasa K, Fujinuma Y. (2009) Change in CO₂ balance under a series of forestry activities in a cool-temperate mixed forest with dense undergrowth. *Global Change Biology* 15: 1275-1288.
403. Nakai T, Sumida A, Daikoku K, Mastumoto K, van der Molen MK, Kodama Y, Kononov AV, Maximov TC, Dolman AJ, Yabuki H, Hara T, Ohta T. (2008) Parameterization of aerodynamic roughness over boreal, cool- and warm-temperate forests. *Agricultural and Forest Meteorology* 148: 1916-1925.
404. Takahashi K, Yoshida K, Suzuki M, Seino T, Tani T, Tashiro N, Ishii T, Sugata S, Fujito E, Naniwa A, Kudi G, Hiura T, Kohyama T. (1999) Stand biomass, net production and canopy structure in a secondary deciduous broad-leaved forest, northern Japan. *Research Bulletin of the Hokkaido University Forests* 56(1): 70-85.
405. Takanashi S, Kosugi Y, Tanaka Y, Yano M, Katayama T, Tanaka H, Tani M. (2005) CO₂ exchange in a temperate Japanese cypress forest compared with that in a cool-temperate deciduous broad-leaved forest. *Ecological Research* 20: 313-324.
406. Nakai Y, Kitamura K, Suzuki S, Abe S. (2003) Year-long carbon dioxide exchange above a broadleaf deciduous forest in Sapporo, Northern Japan. *Tellus B* 55: 305-312.
407. Chiba Y. (2004) Forest structure and dynamics in relation to evaluation of CO₂ budget. *Chikyuu Kankyo* 9(2): 213-220.

408. Nakaya K, Suzuki C, Kobayashi T, Ikeda H, Yasuike S. (2007) Spatial averaging effect on local flux measurement using displaced-beam small aperture scintillometer above the forest canopy. *Agricultural and Forest Meteorology* 145: 97-109.
409. Muraoka H, Saigusa N, Nasahara KN, Noda H, Yoshino J, Saitoh TM, Nagai S, Murayama S, Koizumi H. (2010) Effects of seasonal and interannual variations in leaf photosynthesis and canopy leaf area index on gross primary production of a cool-temperate deciduous broadleaf forest in Takayama, Japan. *Journal of Plant Research* 123: 563-576.
410. Matsumoto K, Ohta T, Nakai T, Kuwada T, Daikoku K, Iida S, Yabuki H, Kononov AV, vander Molen MK, Kodama Y, Maximov TC, Dolman AJ, Hattori S. (2008) Energy consumption and evapotranspiration at several boreal and temperate forests in the Far East. *Agricultural and Forest Meteorology* 148: 1978-1989.
411. Kosugi Y, Tanaka H, Takanashi S, Matsuo N, Ohte N, Shibata S, Tani M. (2005) Three years of carbon and energy fluxes from Japanese evergreen broad-leaved forest. *Agricultural and Forest Meteorology* 132: 329-343.
412. Komatsu H, Onozawa Y, Kume T, Tsuruta K, Kumagai T, Shinohara Y, Otsuki K. (2010) Stand-scale transpiration estimates in a Moso bamboo forest: II. Comparison with coniferous forests. *Forest Ecology and Management* 260: 1295-1302.
413. Iida S, Ohta T, Matsumoto K, Nakai T, Kuwada T, Kononov AV, Maximov TC, van der Molen MK, Dolman H, Tanaka H, Yabuki H. (2009) Evapotranspiration from understory vegetation in an eastern Siberian boreal larch forest. *Agricultural and Forest Meteorology* 149: 1129-1139.
414. Hamada S, Ohta T, Hiyama T, Kuwada T, Takahashi A, Maximov TC. (2004) Hydrometeorological behaviors of pine and larch forests in eastern Siberia. *Hydrological Processes* 18: 23-39.

415. Li S, Tsujimura M, Sugimoto A, Sasaki L, Yamanaka T, Davaa G, Oyunbaatar D, Sugita M. (2006) Seasonal variation in oxygen isotope composition of waters for a montane larch forest in Mongolia. *Trees-Structure and Function* 20: 122-130.
416. Wang H, Saigusa N, Zu Y, Wang W, Yamamoto S, Kondo H. (2008) Carbon fluxes and their response to environmental variables in a Dahurian larch forest ecosystem in northeast China. *Journal of Forestry Research* 19(1): 1-10.
417. Wilske B, Lu N, Wei L, Chen S, Zha T, Liu C, Xu W, Noormets A, Huang J, Wei Y, Chen J, Zhang Z, Ni J, Sun G, Guo K, McNulty S, John R, Han X, Lin G, Chen J. (2009) Poplar plantation has the potential to alter the water balance in semiarid Inner Mongolia. *Journal of Environmental Management* 90: 2762-2770.
418. Chen YY, Chu CR, Li MH. (2012) A gap-filling model for eddy covariance latent heat flux: Estimating evapotranspiration of a subtropical seasonal evergreen broad-leaved forest as an example. *Journal of Hydrology* 468-469: 101-110.
419. Tanaka K, Takizawa H, Tanaka N, Kosaka I, Yoshifuji N, Tantasirin C, Piman S, Suzuki M, Tangtham N. (2003) Transpiration peak over a hill evergreen forest in northern Thailand in the late dry season: Assessing the seasonal changes in evapotranspiration using a multilayer model. *Journal of Geophysical Research* 108: D174533.
420. Yoshifuji N, Komatsu H, Kumagai T, Tanaka N, Tantasirin C, Suzuki M. (2011) Interannual variation in transpiration onset and its predictive indicator of a tropical deciduous forest in northern Thailand based on 8-year sap-flow records. *Ecohydrology* 4: 225-235.
421. Pitman JI. (1996) Ecophysiology of tropical dry evergreen forest, Thailand: Measured and modelled stomatal conductance of *Hopea ferrea*, a dominant canopy emergent. *Journal of Applied Ecology* 33: 1366-1378.

422. Thaler P, Kasemsap P. (2007) Site presentation. Rubber flux, CO₂, water and energy budget of rubber plantation in Thailand. *Asia flux news letter* 22: 20-25.
423. Jonsson JA, Sigurdsson BD. (2010) Effects of early thinning and fertilization on soil temperature and soil respiration in a poplar plantation. *Iceland Agricultural Sciences* 23: 97-109.
424. Mencuccini M, Bonosi L. (2001) Leaf/sapwood area ratios in Scots pine show acclimation across Europe. *Canadian Journal of Forest Research* 31: 442-456.
425. Dalsgaard L. (2008) Transpiration and water budgets of European beech (*Fagus sylvatica* L.) dominated stands in relation to canopy structure. *Forest and Landscape Research* 39: 1-68.
426. Gond V, De Pury DGG, Veroustraete F, Ceulemans R. (1999) Seasonal variations in leaf area index, leaf chlorophyll, and water content; scaling-up to estimate fAPAR and carbon balance in a multilayer, multispecies temperate forest. *Tree Physiology* 19: 673-679.
427. Constantin J, Inclanb MG, Raschendorfera M. (1998) The energy budget of a spruce forest: Field measurements and comparison with the forest?land?atmosphere model (FLAME). *Journal of Hydrology* 212-213: 22-35.
428. Mannani F, Bensada A, Cinnirella S, Ripullone F, Borghetti M. (2008) Hydraulic limitations and water-use efficiency in *Pinus pinaster* along a chronosequence. *Canadian Journal of Forest Research* 38: 73-81.
429. Homolova L., Malenovsky Z., Hanus J., Tomaskova I., Dvorakov, M., Pokorny R. (2007) Comparison of different ground techniques to map leaf area index of Norway spruce forest canopy. In M.E. Schaepman, S. Liang, N.E. Groot & M. Kneubuhler (eds), 10th Intl. Symposium on Physical

Measurements and Spectral Signatures in Remote Sensing (pp. 499-504). Davos, Switzerland.

430. Rasmus S, Gustafsson D, Koivusalo H, Lauren A, Grelle A, Kauppinen OK, Lagnvall O, Lindroth A, Rasmus K, Svensson M, Weslien P. (2012) Estimation of winter leaf area index and sky view fraction for snow modelling in boreal coniferous forests: Consequences on snow mass and energy balance. *Hydrological Processes* (in press).

431. Eschenbach C, Kappen L. (1996) Leaf area index determination in an alder forest: A comparison of three methods. *Journal of Experimental Botany* 47(302): 1457-1462.

432. Dufrene E, Br?da N. (1995) Estimation of deciduous forest leaf area index using direct and indirect methods. *Oecologia* 104(2): 156-162.

433. Hollinger DY. (1989) Canopy organization and foliage photosynthetic capacity in a broad-leaved evergreen montane forest. *Functional Ecology* 3(1): 53-62.

434. Holm E, Jensen V. (1972) Aerobic chemoorganotrophic bacteria of a Danish beech forest. *Microbiology of a Danish beech forest I. Oikos* 23(2): 248-260.

435. Grier CC, Elliott KJ, McCullough DG. (1992) Biomass distribution and productivity of *Pinus edulis*-*Juniperus monosperma* woodlands of north-central Arizona. *Forest Ecology and Management* 50(3-4): 331-350.

436. Klinge H, Herrera R. (1983) Phytomass structure of natural plant communities on spodosols in southern Venezuela: The tall Amazon Caatinga forest. *Vegetatio* 53(2): 65-84.

437. Saldarriaga JG, Luxmoore RJ. (1991) Solar energy conversion efficiencies during succession of a tropical rain forest in Amazonia. *Journal of Tropical Ecology* 7(02): 233-242.

438. Hutchison BA, Matt DR, Mcmillen RT, Gross LJ, Tajchman SJ, Norman JM. (1986) The architecture of a deciduous forest canopy in Eastern Tennessee, U.S.A.. *Journal of Ecology* 74(3): 635-646.

439. Smith K, Gholz HL, Oliveira FA. (1998) Litterfall and nitrogen-use efficiency of plantations and primary forest in the eastern Brazilian Amazon. *Forest Ecology and Management* 109(1-3): 209-220.

440. Shippert MM, Walker DA, Auerbach NA, Lewis BE. (1995) Biomass and leaf-area index maps derived from SPOT images for Toolik Lake and Imnavait Creek areas, Alaska. *Polar Record* 31(177): 147-154.

441. Vogt DJ. (1987) Douglas-fir ecosystems in western Washington: biomass and production as related to site quality and stand age . PhD. Thesis, Washington University.

442. Hall FG, Huemrlich KF, Strebel DE, Goets SJ, Nickeson JE, Woods KD. (1992) Biophysical, morphological, canopy optical property, and productivity data from the superior national forest. Technical Memorandum TM-104568: 137.

443. Deblonde G, Penner M, Royer A. (1994) Measuring leaf area index with the Li-Cor LAI-2000 in pine stands. *Ecology* 75(5): 1507-1511.

444. Ovington JD, Madgwick HAI. (1959) The growth and composition of natural stands of birch. *Plant and Soil* 10(3): 271-283.

445. Ovington JD. (1957) Dry-matter production by *Pinus sylvestris* L.. *Annals of Botany* 21(2): 287-314.

446. Foruqi Q. (1982) In: Cannell MGR (ed) World Forest Biomass and Primary Production Data. p79, 83.

447. Raman SS. (1982) In: Cannell MGR (ed) World Forest Biomass and Primary Production Data. p80.

448. Lossaint P. (1982) In: Cannell MGR (ed) World Forest Biomass and Primary Production Data. p67.

449. Bandhu D. (1982) In: Cannell MGR (ed) World Forest Biomass and Primary Production Data. p81.

450. Lemee G. (1982) In: Cannell MGR (ed) World Forest Biomass and Primary Production Data. p 91.

451. Satoo T. (1977) Studies at IBP research sites (JIBP/PT supporting projects). Larch plantations. JIBP Synthesis 16: 169-172.

452. Ando T, Chiba K, Nishimura T, Tanimoto T. (1982) In: Cannell MGR (ed) World Forest Biomass and Primary Production Data. p125, 186.

453. Drift J van der. (1982) In: Cannell MGR (ed) World Forest Biomass and Primary Production Data. p201.

454. Medwecka-Kornas A, Bandolo-Ciolczyk E. (1982) In: Cannell MGR (ed) World Forest Biomass and Primary Production Data. p213.

455. Donita N. (1982) In: Cannell MGR (ed) World Forest Biomass and Primary Production Data. p219.

456. Andersson F. (1982) In: Cannell MGR (ed) World Forest Biomass and Primary Production Data. p223.

457. Nihlgard B. (1982) In: Cannell MGR (ed) World Forest Biomass and Primary Production Data. p224.

458. Ellenberg H. (1982) In: Cannell MGR (ed) World Forest Biomass and Primary Production Data. p72.

459. Satchell JE. (1982) In: Cannell MGR (ed) World Forest Biomass and Primary Production Data. p240.

460. Whittaker RH, Woodwell GM. (1969) Structure, production and diversity of the oak-pine forest at Brookhaven, New York. *Journal of Ecology* 57: 155-174.

461. Swank WT, Schreuder HT. (1974) Temporal changes in biomass, surface area, and net production for a *Pinus strobus* L. forest. *IUFRO Biomass Studies*, 171-182.

462. Relston CW, Kinerson RS, Harris WF, et al. (1982) In: Cannell MGR (ed) World Forest Biomass and Primary Production Data. p326.

463. Grier CC. (1982) In: Cannell MGR (ed) World Forest Biomass and Primary Production Data. p341.

464. Reichle DE, Edwards NT, Harris WF, Sollins P. (1981) In: Reichle DE (ed) *Dynamic Properties of Forest Ecosystems* 23. p657.

465. Malaisse F. (1981) In: Reichle DE (ed) *Dynamic Properties of Forest Ecosystems* 23. p672.

466. Groeneveld DP. (1997) Vertical point quadrat sampling and an extinction factor to calculate leaf area index. *Journal of Arid Environments* 36(3): 475-485.

467. Crow TR. (1978) Biomass and production in three contiguous forests in northern Wisconsin. *Ecology* 59(2): 265-273.

468. Jose S, Gillespie A. (1998) Compensatory mechanisms of central U. S. hardwood forest communities in a changing environment. *Plant Ecology* 135(2): 125-134.

469. Brown S. (1981) A comparison of the structure, primary productivity, and transpiration of cypress ecosystems in Florida. *Ecological Monographs* 51(4): 403-427.

470. Pollard DFW. (1972) Above-ground dry matter production in three stands of trembling aspen. *Canadian Journal of Forest Research* 2(1): 27-33.

471. Moller CM. (1982) In: Cannell MGR (ed) *World Forest Biomass and Primary Production Data*. p58.

472. Hytteborn H. (1982) In: Cannell MGR (ed) *World Forest Biomass and Primary Production Data*. p222.

473. Mcleod SD, Running SW. (1988) Comparing site quality indices and productivity in ponderosa pine stands of western Montana. *Canadian Journal of Forest Research* 18(3): 346-352.

474. Jurik TW, Briggs GM, Gates DM. (1985) A comparison of four methods for determining leaf area index in successional hardwood forests. *Canadian Journal of Forest Research* 15(6): 1154-1158.

475. Larcher W, Schmidt L, Grabherr G, Cernusca A. (1973) Plant biomass and production of Alpine shrub heaths at Mt. Patscherkofel, Austria. In: Bliss LC, Wielgolaski FE (eds) Primary production and production processes, tundra biome: proceedings of the conference, Dublin, Ireland, April 1973: 65-73.

476. Albaugh TJ, Allen HL, Dougherty PM, Kress LW, King JS. (1998) Leaf area and above- and belowground growth responses of loblolly pine to nutrient and water additions. *Forest Science* 44(2): 317-328.

477. Scurlock JMO, Asner GP, Gower ST. (2001) Global leaf area index from field measurements, 1932-2000. Data set. Available on-line [<http://www.daac.ornl.gov>] from Oak Ridge National Laboratory Distributed Active Archive Center, Oak Ridge, Tennessee, U.S.A. doi:10.3334/ORNLDAAC/584.

478. Benecke U, Evans G. (1987) Growth and water use in *Nothofagus truncata* (hard beech) in temperate hill country, Nelson, New Zealand. In: Yang H (ed) *The temperate forest ecosystem: proceedings of international Symposium on Temperate Forest Ecosystem Management and Environmental Protection*, Changbai Mountain Research Station, Academia Sinica, Antu, Jilin Province, People's Republic of China, 5-11 July 1986 20: 131-140.

479. Attiwill PM. (1979) Nutrient cycling in a *Eucalyptus obliqua* (L'Herit.) forest. III. Growth, biomass and net primary production. *Australian Journal of Botany* 27: 439-458.

480. Maruyama K. (1977) Beech forests in the Naeba mountains. Part I. Comparison of forest structure, biomass and net primary productivity between the upper and lower parts of beech forest zone. *JIBP Synthesis* 16: 186-201.

481. Westman WE. (1987) Aboveground biomass, surface area, and production relations of red fir (*Abies magnified*) and white fir (*A. concolor*). *Canadian Journal of Forest Research* 17(4): 311-319.

482. Nel EM, Wessman CA. (1993) Canopy transmittance models for estimating forest leaf area index. *Canadian Journal of Forest Research* 23(12): 2579-2586.

483. Honzak M, Lucas RM, Do Amaral I, Curran P, Foody GM, Amaral S. (1996) Estimation of the leaf area index and total biomass of regenerating tropical forest: a comparison of methodologies. In: Gash JHC, Nobre CA, Roberts JM, Victoria RL (eds) Amazonian deforestation and climate: 365-381.
484. Ashton DH. (1976) Phosphorus in forest ecosystems at Beenak, Victoria. *Journal of Ecology* 64(1): 171-186.
485. Westman WE, Rogers RW. (1977) Biomass and structure of a subtropical Eucalyptus forest, north Stradbroke island. *Australian Journal of Botany* 25: 171-191.
486. Keay J, Turton AG. (1970) Distribution of biomass and major nutrients in a marine pine plantation. *Australian Forestry* 34(1): 39-48.
487. Kestemont P. (1982) In: Cannell MGR (ed) *World Forest Biomass and Primary Production Data*. p24.
488. Duvigneaud P. (1982) In: Cannell MGR (ed) *World Forest Biomass and Primary Production Data*. p25, 26, 28.
489. Kubicek F. (1982) In: Cannell MGR (ed) *World Forest Biomass and Primary Production Data*. p56.
490. Boysen-Jensen P. (1982) In: Cannell MGR (ed) *World Forest Biomass and Primary Production Data*. p60.
491. Lemee G. (1982) In: Cannell MGR (ed) *World Forest Biomass and Primary Production Data*. p66.

492. Droste zu Hulshoff BV. (1982) In: Cannell MGR (ed) World Forest Biomass and Primary Production Data. p73.

493. Elkington TT, Jones BMG. (1974) Biomass and primary productivity of birch (*Betula Pubescens* S. Lat.) in south-west Greenland. *Journal of Ecology* 62(3): 821-830.

494. Singh KP, Misra R. (1982) In: Cannell MGR (ed) World Forest Biomass and Primary Production Data. p82, 84.

495. Muller D, Nielsen J. (1982) In: Cannell MGR (ed) World Forest Biomass and Primary Production Data. p90.

496. Tanner EVJ. (1980) Studies on the biomass and productivity in a series of montane rain forests in Jamaica. *Journal of Ecology* 68(2): 573-588.

497. Christensen B. (1978) Biomass and primary production of *Rhizophora apiculata* Bl. in a mangrove in southern Thailand. *Aquatic Botany* 4(0): 43-52.

498. Kira T. (1978) Primary productivity of Pasoh Forest-a synthesis. *Malaysian Nature Journal* 30: 291-297.

499. Kira T, Ono Y, Hosokawa T. (1978) Biological production in a warm-temperate evergreen oak forest of Japan. *JIBP Synthesis* 18, pp288.

500. Golley F, Odum HT, Wilson RF. (1962) The structure and metabolism of a Puerto Rican red mangrove forest in May. *Ecology* 43(1): 9-19.

501. Golley FB. (1982) In: Cannell MGR (ed) World Forest Biomass and Primary Production Data. p210, 211.

502. Golley FB, McGinnis JT, Clements RG, Child GI, Duever MJ. (1975) The structure of the tropical moist forest. In Mineral cycling in a tropical moist forest ecosystem, University of Georgia Press, p13-62.

503. Edwards PJ, Grubb PJ. (1977) Studies of mineral cycling in a montane rain forest in New Guinea: I. The distribution of organic matter in the vegetation and soil. *Journal of Ecology* 65(3): 943-969.

504. Yoda K. (1968) A preliminary survey of the forest vegetation of eastern Nepal. *Journal of the College of Arts and Sciences, Chiba University* 5(2): 277.

505. Jordan CF, Uhl C. (1978) Biomass of a "tierra firme" forest of the Amazon Basin. *Oecologia Plantarum* 13(4): 387-400.

506. Satoo T. (1974) Primary production relations in a natural forest of *Betula maximowicziana* in Hokkaido: Materials for the studies of growth in forest stands. 9. *Bulletin of the Tokyo University Forests* 66: 109-117.

507. Satoo T. (1973) A synthesis of studies by harvest method: primary production relations in the temperate deciduous forest of Japan. In: Reichle DE (ed) *Analysis of temperate forest ecosystems*. (Ecological Studies. Analysis and Synthesis, No. 1): 55-72.

508. Satoo T. (1968) Primary production and distribution of produced dry matter in a plantation of *Cinnamomum camphora*. Materials for the studies of growth in stands 7.. *Bulletin of the Tokyo University Forests* 64: 241-275.

509. Satoo T, Kunugi R, Kumekawa A. (1956) Materials for the studies of growth in stands 3. Amount of leaves and production of wood in an aspen (*Populus Davidiana*) second growth in Hokkaido. Bulletin of the Tokyo University Forests 52: 15-31.

510. Satoo T. (1974) Primary production relations of a young stand of *Metasequoia Glyptostroboidea* planted in Tokyo: Materials for the studies of growth in forest stands. 13. Bulletin of the Tokyo University Forests 66: 153-164.

511. Satoo T, Negisi KI, Yagi K. (1974) Primary production relations in plantations of *Thujaopsis dolabrata* in the Noto peninsula: Materials for the studies of growth in forest stands. 12. Bulletin of the Tokyo University Forests 66: 139-151.

512. Kimura M. (1960) Primary production of the warm-temperate laurel forest in the southern part of Osumi Peninsula, Kyushu, Japan. Miscellaneous reports of Research Institute for Natural Resources 49: 19-35.

513. Kimura M. (1982) In: Cannell MGR (ed) World Forest Biomass and Primary Production Data. p132.

514. Hozumi K. (1969) Production ecology of tropical rain forests in southern-western Cambodia I. Plant biomass. Nature and Life in Southeast Asia 6: 1-51.

515. Peterken GF, Newbould PJ. (1966) Dry matter production by *Ilex Aquifolium* L. in the New forest. Journal of Ecology 54(1): 143-150.

516. Alvera. (1982) In: Cannell MGR (ed) World Forest Biomass and Primary Production Data. p221.

517. Hughes MK. (1971) Tree biocontent, net production and litter fall in a deciduous woodland. Oikos 22(1): 62-73.

518. Ford ED, Newbould PJ. (1971) The leaf canopy of a coppiced deciduous woodland: I. Development and structure. *Journal of Ecology* 59(3): 843-862.

519. Ford ED. (1982) High productivity in a polestage Sitka spruce stand and its relation to canopy structure. *Forestry* 55(1): 1-17.

520. Zavitkovski J, Stevens RD. (1972) Primary productivity of red alder ecosystems. *Ecology* 53(2): 235-242.

521. Harris WF. (1982) In: Cannell MGR (ed) *World Forest Biomass and Primary Production Data*. p264.

522. Johnson FL, Risser PG. (1974) Biomass, annual net primary production, and dynamics of six mineral elements in a post oak-blackjack oak forest. *Ecology* 55(6): 1246-1258.

523. Monk CD, Child GI, Nicholson SA. (1970) Biomass, litter and leaf surface area estimates of an oak-hickory forest. *Oikos* 21(1): 138-141.

524. Schlesinger WH. (1978) Community structure, dynamics and nutrient cycling in the Okefenokee cypress swamp-forest. *Ecological Monographs* 48(1): 43-65.

525. Westman WE, Whittaker RH. (1975) The Pygmy forest region of northern California: Studies on biomass and primary productivity. *Journal of Ecology* 63(2): 493-520.

526. Odum HT. (1971) Summary: An emerging view of the ecological system at El Verde. In Odum HT, Pigeon RF (eds) *Tropical rain forest*, p191-289.

527. Weaver PL, Murphy PG. (1990) Forest structure and productivity in Puerto Rico's Luquillo Mountains. *Biotropica* 22(1): 69-82.
528. Weaver PL, Medina E, Pool D, Dugger K, Gonzales-Liboy J, Cuevas E. (1984) Ecological observations in the dwarf cloud forest of the Luquillo mountains in Puerto Rico. *Biotropica* 18(1): 79-85.
529. Murphy PG, Lugo AE. (1986) Structure and biomass of a subtropical dry forest in Puerto Rico. *Biotropica* 18(2): 82-96.
530. Coops N, Delahaye A, Pook E. (1997) Estimation of eucalypt forest leaf area index on the south coast of New South Wales using Landsat MSS data. *Australian Journal of Botany* 45(5): 757-769.
531. Kawahara T, Kanazawa Y, Sakurai S. (1981) Biomass and net production of man-made forests in the Philippines. *Journal of the Japanese Forest Society* 63(9): 320-327.
532. Shaver GR, Chapin FS III. (1991) Production, biomass relationships and element cycling in contrasting arctic vegetation types. *Ecological Monographs* 61(1): 1-31.
533. Marks PL. (1974) The role of pin cherry (*Prunus pensylvanica* L.) in the maintenance of stability in northern hardwood ecosystems. *Ecological Monographs* 44(1): 73-88.
534. Carey EV, Callaway RM, Delucia EH. (1998) Increased photosynthesis offsets costs of allocation to sapwood in an arid environment. *Ecology* 79(7): 2281-2291.
535. Martens SN, Ustin SL, Rousseau RA. (1993) Estimation of tree canopy leaf area index by gap fraction analysis. *Forest Ecology and Management* 61(1-2): 91-108.

536. Ellsworth DS, Reich PB. (1993) Canopy structure and vertical patterns of photosynthesis and related leaf traits in a deciduous forest. *Oecologia* 96(2): 169-178.

537. Leigh EGJ, Windsor DM. (1982) Forest production and regulation of primary consumers on Barro Colorado Island. In: Leigh EG, Rand AS, Windsor DM, Institute STR (eds) *The Ecology of a tropical forest: seasonal rhythms and long-term changes*: 111-122.

538. Isagi Y, Kawahara T, Kamo K. (1993) Biomass and net production in a bamboo *Phyllostachys bambusoides* stand. *Ecological Research* 8(2): 123-133.

539. Leonardi S, Rapp M, Failla M, Komaromy E. (1994) Organic matter and nutrient cycling within an endemic birch stand in the Etna massif (Sicily): *Betula aetnensis* Rafin. *Vegetatio* 111(1): 45-57.

540. Pataki DE, Oren R. (2003) Species differences in stomatal control of water loss at the canopy scale in a mature bottomland deciduous forest. *Advances in Water Resources* 26(12): 1267-1278.

541. Vogel JG, Gower ST. (1998) Carbon and nitrogen dynamics of boreal jack pine stands with and without a green alder understory. *Ecosystems* 1(4): 386-400.

542. Carbon BA, Bartle GA, Murray AM. (1981) Water stress, transpiration and leaf area index in eucalypt plantations in a bauxite mining area in south-west Australia. *Australian Journal of Ecology* 6(4): 459-466.

543. Crombie DS. (1992) Root depth, leaf area and daytime water relations of Jarrah *Eucalyptus marginata* forest overstorey and understorey during summer drought. *Australian Journal of Botany* 40(2): 113-122.

544. Coyne PI, Van Cleve K. (1977) Fertilizer induced morphological and chemical responses of a quaking aspen stand in interior alaska. *Forest Science* 23(1): 92-102.

545. Borghetti M, Vendramin GG, Giannini R. (1986) Specific leaf area and leaf area index distribution in a young Douglas-fir plantation. *Canadian Journal of Forest Research* 16(6): 1283-1288.

546. Gower ST, Grier CC. (1989) Aboveground organic matter and production of a montane forest on the eastern slopes of the Washington Cascade Range. *Canadian Journal of Forest Research* 19(4): 515-518.

547. Schulze ED, Schulze W, Kelliher FM, Vygodskaya NN, Ziegler W, Kobak KI, Koch H, Arneth A, Kusnetsova WA, Sogatchev A, Issajev A, Bauer G, Hollinger DY,. (1995) Aboveground biomass and nitrogen nutrition in a chronosequence of pristine Dahurian Larix stands in eastern Siberia. *Canadian Journal of Forest Research* 25(6): 943-960.

548. Kangas PC, Caswell HHJ. (1987) A litter intercept method for determining leaf area index in deciduous forests. *Michigan Botanist* 26: 25-26.

549. Prasad R, Sah AK, Bhandari AS, Chaubey OP. (1984) Dry matter production by Eucalyptus camaldulensis Dehn plantation in Jabalpur. *Indian Forestry* 110(9): 868-878.

550. Qiu GX, Shen YK, Li DY, Wang ZW, Hudang QM, Yang DD, Gao AX. (1991) Bamboo in sub-tropical eastern China. In: Long SP, Jones B, Roberts J (eds) *Primary productivity of grass ecosystems of the tropics and sub-tropics*: 159-188.

551. Dylis N. (1971) Primary production of mixed forests. In: Duvigneaud P, Colloque PBI, Colloque U (ed) *Productivity of Forest Ecosystems: Proceedings of the Brussels*: 227-232.

552. Jordan CF. (1969) Derivation of leaf-area index from quality of light on the forest floor. *Ecology* 50(4): 663-666.

553. Bongers F, Engelen D, Klinge H. (1985) Phytomass structure of natural plant communities on spodosols in southern Venezuela: the Bana woodland. *Vegetatio* 63(1): 13-34.

554. Database of the Validation of Land European Remote sensing Instruments (VALERI) project, <http://www.avignon.inra.fr/valeri>.