Contact Information

Natural Resources Building
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Education

University of Minnesota, St. Paul, MN

Ph.D., Natural Resources Science and Management. Completed 2006
Dissertation title: Application of Bayesian spatial models in multisource forest inventory
Advisers: Sudipto Banerjee (Division of Biostatistics) and Alan R. Ek (Department of Forest Resources)

M.S., Statistics. Completed 2007
Adviser: Galin L. Jones (School of Statistics)

University of Massachusetts, Amherst, MA

M.S., Forestry. Completed 2003
Thesis title: Assessing private forest landowners' attitudes toward, and ideas for, cross-boundary cooperation in western Massachusetts
Adviser: David B. Kittredge (Department of Natural Resources Conservation)

The Pennsylvania State University, University Park, PA

B.S., Forestry. Completed 2000

Academic Experience

Professor **2019 – Current**
Departments of Forestry (75%) and Statistics & Probability (25%), Michigan State University, East Lansing, MI.

Associate Professor **2013 – 2019**
Departments of Forestry (75%) and Geography (25%), Michigan State University, East Lansing, MI.

Assistant Professor **2007 – 2013**
Departments of Forestry (75%) and Geography (25%), Michigan State University, East Lansing, MI.

NASA, Earth System Science Graduate Fellow **2003 – 2007**
Department of Forest Resources, University of Minnesota, St. Paul, MN.

Research Assistant **2001 – 2003**
Department of Natural Resources Conservation, University of Massachusetts, Amherst, MA.

Visiting Researcher and Undergraduate Researcher Mentor **Summer 1999, 2000, 2001**
Harvard Forest LTER, Harvard University, Petersham, MA.

Active grants

USDA, Forest Service. *Toward operational FIA model-based estimation of high-dimensional forest inventory parameters to support inference at user-defined spatial scales.* PI.

USDA, Forest Service. *Spatial-temporal models for FIA data: Combining plots across time and space for time-specific and change estimates of forest biomass stocks*, Co-PI.

NSF, DEB. *Collaborative Research: MRA: Estimating and forecasting nonstationary, multi-scale climate and land-use effects on avian communities.* Co-PI.

USDA, Forest Service. *Small area estimation methods and tool development for carbon monitoring in Interior Alaska.* PI.

NPS. *Assessing the factors affecting forest condition along the Appalachian National Scenic Trail (APPA) and neighboring lands.* PI.

NASA, Carbon Monitoring System. *NASA-USFS Partnership to Advance Operational Forest Carbon Monitoring in Interior Alaska.* Co-PI.

USDA, Forest Service. *Small domain estimation using strategic-level forest inventory data and auxiliary information.* PI.

NSF, DMS. *Collaborative Research: High-Dimensional Spatial-Temporal Modeling and Inference for Large Multi-Source Environmental Monitoring Systems.* PI.

USDA, Forest Service. *Advancing forest health by investigating changes in forest mortality with the application of the computer language R to the Forest Inventory Analysis (rFIA).* PI.

NASA. *The FORest Carbon Estimation (FORCE) Project: Mapping GEDI-derived forest structure metrics in the U.S. and Canada with plot-based inventory and multimodal remote sensing data in a hierarchical spatial modeling framework.* Co-PI.

NSF, DEB. *Collaborative Proposal: Redefining the ecological memory of disturbance over multiple temporal and spatial scales in forest ecosystems.* Co-PI.

USDA. *CRP Soil Carbon Assessment - Wetlands: Integrating strategic sampling with an ensemble multi-model approach to quantify and scale soil carbon stocks and climate benefits in CRP.* Co-I.

Previous grants

NASA, *Carbon Monitoring System. Extreme Remote Sensing in Alaska's Southwest Inventory Unit.* Co-PI.

NSF, DMS, *High-Dimensional Spatial-Temporal Modeling and Inference for Complex BIG DATA in Remote Sensing Based Environmental Monitoring.* Co-PI.

NASA, Carbon Monitoring System. *Remote Sensing as a Bridge to Operational Forest Carbon Monitoring in Interior Alaska.* Co-I.

NSF, DMS. *Collaborative Research: Hierarchical sparsity inducing Gaussian Process models for large spatiotemporal datasets.* Co-PI.

NSF, DBS. *Collaborative Research: PalEON—a paleoEcological observatory network to assess terrestrial ecosystem models.* Co-I.

NSF, DEB. *CAREER: Advancements in spatio-temporal modeling and education in support of NEON and large-scale and long-term ecological research.* PI.

NASA, Carbon Monitoring System. *High-Resolution Carbon Monitoring and Modeling:*

Continuing Prototype Development and Deployment. Co-I.

NASA, Carbon Monitoring System. *An ALS-augmented USFS-FIA biomass and carbon inventory of the Tanana District, Alaska.* Co-PI.

NASA, Carbon Monitoring System. *Development of a prototype MRV system to support carbon ecomarket infrastructure in Sonoma County, CA.* Co-I.

NSF, DBS. *Collaborative Research: Climate change impacts on forest biodiversity: individual risk to subcontinental impacts.* Co-PI.

NSF. *Travel and accommodation support for global south and early career participants in Spatial Accuracy 2014.* Co-PI.

NSF, DBS, *Postdoctoral Research Fellowships in Biology. Climatic and hydrologic influences on tree regeneration and distribution in the Western United States.* Co-mentor for D.Bell.

NASA, Carbon Monitoring System. *High resolution carbon monitoring and modeling: A CMS phase 2 study.* Co-I.

NSF, DMS. *Hierarchical models for large geostatistical datasets with applications to forestry and ecology.* Co-PI.

NASA, Carbon Monitoring System. *Improving forest biomass mapping accuracy with optical LiDAR data and hierarchical Bayesian spatial models.* Co-PI.

NASA, Carbon Monitoring System. *Systematic and spatially explicit estimates of carbon stock and stock changes of the US forestlands.* Co-I.

NASA. *Integrating landscape-scale forest measurements with remote sensing and ecosystem models to improve carbon management decisions.* Co-I.

NIH. *Hierarchical spatial process models for estimating and predicting health effects of climate change.* Co-PI.

USDA, Forest Service. *Forest complexity in the Lake States: Implications for carbon storage.* PI.

USDA, Forest Service. *Toward Development of Spatially Explicit Nationwide Estimates of Forest Attributes.* PI.

Graduate grants

USDA, *Forest Service. Spatial prediction and estimation of forest attributes.* PI.

NASA, *Earth System Science Graduate Fellowship.* PI.

National Ford Foundation Masters Fellowship. PI.

Honors

2017 Outstanding Statistical Application Award, American Statistical Association.

Summer 2013, 2014. Visiting Scientist, Institute for Mathematics Applied to Geosciences, National Center for Atmospheric Research.

Summer 2012. Visiting Scientist, National Ecological Observatory Network.

2009–2010. Research Fellow, Statistical and Applied Mathematical Sciences Institute.

2009. Young Investigator Award, American Statistical Association's Section on Statistics and the Environment.

2007. Student paper competition, American Statistical Association's Section on Statistical

Computing.

2007. Student paper competition, American Statistical Association's Section on Statistics and the Environment.

2003–2006 NASA Earth System Science Graduate Fellowship.

2001–2002 National Ford Foundation Masters Fellowship.

Manuscripts

Peruzzi, M., S. Banerjee, D.B. Dunson, A.O. Finley. Grid-Parametrize-Split (GriPS) for improved scalable inference in spatial big data analysis. `https://arxiv.org/abs/2101.03579`.

Doser, J.D., A.O. Finley, M. Kéry, and E.F. Zipkin. spAbundance: An R package for single-species and multi-species spatially-explicit abundance models. `https://arxiv.org/abs/2310.19446`.

Nothdurft, A., A. Tockner, S. Witzmann, C. Gollob, T. Ritter, R. Kraßnitzer, K. Stampfer, and A.O. Finley. Spatial prediction of diameter distributions for the alpine protection forests in Ebensee, Austria, using ALS/PLS and spatial distributional regression models. `https://arxiv.org/abs/2311.01893`.

Zhang, L, A.O. Finley, A. Nothdurft, and S. Banerjee. Bayesian modeling of incompatible spatial data: A case study involving post-Adrian storm forest damage assessment. `https://arxiv.org/abs/2311.11256`.

Peer Reviewed Publications

108. Finley, A.O., H.-E. Anderson, B.D. Cook, C. Babcock, and S. Banerjee. (2024) Forest inventory using sparsely sampled LiDAR and NFI: A case study using G-LiHT LiDAR and FIA across Tanana, Alaska. *Journal of Agricultural and Biological Statistics*. Accepted `https://arxiv.org/abs/2302.06410`.

107. Doser, J.W., M. Kéry, A.O. Finley, S.P. Saunders, A.S. Weed, and E.F. Zipkin. (2024) Guidelines for the use of spatially-varying coefficients in species distribution models. *Global Ecology and Biogeography*. Accepted `https://arxiv.org/abs/2301.05645`.

106. May, P., A.O. Finley, and R. Dubayah. (2024) A spatial mixture model for space-borne LiDAR observations over mixed forest and non-forest land types. *Journal of Agricultural, Biological, and Environmental Statistics*. Accepted `https://doi.org/10.1007/s13253-024-00600-6`.

105. Shannon, E.S.*, A.O. Finley, D.J. Hayes, S.N, Noralez, A.R. Weiskettel, B.D. Cook, and C. Babcock. (2024) Quantifying and correcting geolocation error in sampling LiDAR forest canopy observations using high spatial accuracy ALS: A case study involving GEDI. *Environmetrics*, e2840.

104. Doser, J.W.*, A.O. Finley, and S. Banerjee. (2023) Joint species distribution models with imperfect detection for high-dimensional spatial data. *Ecology*, 104(9), e4137.

103. Shirota, S., A.O. Finley, S. Banerjee, and B.D. Cook. (2023) Conjugate nearest neighbor Gaussian process models for efficient statistical interpolation of large spatial data.

*Graduate student.

102. Emick, E.*, C. Babcock, G.W. White, A.T. Hudak, G.M. Domke, A.O. Finley. (2023) An approach to estimating forest biomass while quantifying estimate uncertainty and correcting bias in machine learning maps. *Remote Sensing of Environment*, 295, 113678.

101. Finley, A.O., A. Datta, and S. Banerjee. (2022) spNNGP R package for Nearest Neighbor Gaussian Process models. *Journal of Statistical Software*, 103(5), 1-40.

100. Stanke, H.*, A.O. Finley, and G.M. Domke. (2022) Simplifying small area estimation with rFIA: a demonstration of tools and techniques. *Frontiers in Forests and Global Change*, `https://doi.org/10.3389/ffgc.2022.745874`

99. Doser, J.W.*, A.O. Finley, M. Kéry, and E.F. Zipkin. (2022) spOccupancy: An R package for single species, multispecies, and integrated spatial occupancy models. *Methods in Ecology and Evolution*, 13, 1670-1678.

98. Heilman, K.A., M.C. Dietze, A.A. Arizpe, J. Aragon, A. Gray, J.D. Shaw, A.O. Finley, S. Klesse, R. Justin DeRose, M.E.K. Evans. (2022) Ecological forecasting of tree growth: Regional fusion of tree-ring and forest inventory data to quantify drivers and characterize uncertainty. *Global Change Biology*, doi:doi.org/10.1111/gcb.16038.

97. Nothdurft, A., C. Gollob, R. Kraßitzer, G. Erber, T. Ritter, K. Stampfer, and A.O. Finley. (2021) Estimating timber volume loss due to storm damage in Carinthia, Austria, using ALS/TLS and spatial regression models. *Forest Ecology and Management*, 502, 119714.

96. Doser, J.W.*, A.S. Weed, E.F. Zipkin, K.M. Miller, and A.O. Finley. (2021) Trends in bird abundance differ among protected forests but not bird guilds. *Ecological Applications*, 31, e02377.

95. Babcock, C., A.O. Finley, and N. Looker. (2021) A Bayesian model to estimate land surface phenology parameters with harmonized Landsat 8 and Sentinel-2 images. *Remote Sensing of Environment*, 261, 112471.

94. Pham, L.T.*, L. Luo, and A.O. Finley. (2021) Evaluation of random forests for short-term daily streamflow forecasting in rainfall-and snowmelt-driven watersheds. *Hydrology and Earth System Sciences*, 25, 2997-3015.

93. Doser, J.W.*, A.O. Finley, A.S. Weed, and E.F. Zipkin. (2021) Integrating automated acoustic vocalization data and point count surveys for estimation of bird abundance. *Methods in Ecology and Evolution*, 12, 1040-1049.

92. Zhang, L., S. Banerjee, and A.O. Finley (2021) High-dimensional multivariate geostatistics: A Bayesian matrix-normal approach. *Environmetrics*, 32, e2675.[†]

91. Rollinson, C.R., A.O Finley, M.R. Alexander, S. Banerjee, K.-A. Dixon Hamil, L.E. Koenig, D. Henry Locke, M.L. DeMarche, M.W. Tingley, K. Wheeler, C. Youngflesh, and E.F. Zipkin. (2021) Working across space and time: nonstationarity in ecological research and application. *Frontiers in Ecology and the Environment*, 19, 66-72.

[†]Selected for the 2021 Wiley-TIES Best Paper Award.

90. Zipkin, E.F., E.R. Zylstra, A.D. Wright, S.P. Saunders, A.O. Finley, M.C. Dietze, M.S. Itter, and M.W. Tingley. (2021) Addressing data integration challenges to link ecological processes across scales. *Frontiers in Ecology and the Environment*, 19, 30-38.

89. Stanke, H.*, A.O. Finley, G.M. Domke, A.S. Weed, and D.W. MacFarlane. (2021) Over half of western United States' most abundant tree species in decline. *Nature Communications*, 12, 1-11.

88. Harris, V., J. Caputo, A.O. Finley, B.J. Butler, F. Bowlick, and P. Catanzaro. (2021) Small-Area Estimation for the USDA Forest Service, National Woodland Owner Survey: Creating a Fine-Scale Land Cover and Ownership Layer to Support County-Level Population Estimates. *Frontiers in Forests and Global Change*, 4, DOI:10.3389/ffgc.2021.745840.

87. Peruzzi, M.[‡], S. Banerjee, A.O. Finley. (2020) Highly scalable Bayesian geostatistical modeling via Meshed Gaussian Processes on partitioned domains. *Journal of the American Statistical Association*, DOI:10.1080/01621459.2020.1833889

86. Stanke, H., A.O. Finley, A.S. Weed, B.F. Walters, G.M. Domke. (2020) rFIA: An R package for estimation of forest attributes with the US Forest Inventory and Analysis database. *Environmental Modelling & Software*, 127, 104664.

85. Read, Q.D., P.L. Zarnetske, S. Record, K.M. Dahlin, J.K. Costanza, A.O. Finley, K.D. Gaddis, J.M. Grady, M.L. Hobi, A.M. Latimer, S.L. Malone, S.V. Ollinger, S.Pau, A.M. Wilson. (2020) Beyond counts and averages: Relating geodiversity to dimensions of biodiversity. *Global Ecology and Biogeography*, 29, 696-710.

84. Lany, N.K., P.L. Zarnetske, A.O. Finley, and D.G. McCullough. (2020), Complementary strengths of spatially-explicit and multi-species distribution models. *Ecography*, 43, 456-466.

83. Finley, A.O. and S. Banerjee. (2020) Bayesian spatially varying coefficient models in the spBayes R package, *Environmental Modelling & Software*, 125, 104608.

82. Henry, C.*, M. Walters, A.O. Finley, and G. Roloff. (2020) Complex drivers of sugar maple (*Acer saccharum*) regeneration reveal challenges to long-term sustainability of managed northern hardwood forests. *Forest Ecology and Management*, 475, 118541.

81. Doser, J.D.*, K.M. Hannam, and A.O. Finley. (2020) Characterizing functional relationships between anthropogenic and biological sounds: A western New York state soundscape case study. *Landscape Ecology*, 35, 689-707.

80. Teimouri, M., J.W. Doser, and A.O. Finley. (2020) ForestFit: An R package for modeling plant size distributions *Environmental Modelling & Software*, 131, 104668.

79. Itter, M.S.*, J. Vanhatalo, and A.O. Finley. (2019) EcoMem: An R package for quantifying ecological memory. *Environmental Modelling & Software*, 119, 305-308.

78. Heaton, M.J. A. Datta, A.O. Finley, R. Furrer, R. Guhaniyogi, F. Gerber, R.B. Gramacy, D. Hammerling, M. Katzfuss, F. Lindgren, D.W. Nychka, F. Sun, and A. Zammit-Mangion. (2019) Methods for analyzing large spatial data: A review and comparison.

[‡]Postdoctoral researcher.

77. Zarnetske, P.L., Q.D. Read, S. Record, K.D. Gaddis, S. Pau, M.L. Hobi, S.L. Malone, J. Costanza, K.M. Dahlin, A.M. Latimer, A.M. Wilson, J.M. Grady, S.V. Ollinger, and A.O. Finley. (2019) Towards connecting biodiversity and geodiversity across scales with satellite remote sensing. *Global Ecology and Biogeography*, 28, 548-556

76. Itter, M.S.*, L. D'Orangeville, A. Dawson, D. Kneeshaw, L. Duchesne, and A.O. Finley. (2019) Boreal tree growth exhibits decadal-scale ecological memory to drought and insect defoliation, but no negative response to their interaction. *Journal of Ecology*, 107, 1288-1301.

75. Taylor-Rodriguez, D., A.O. Finley, A. Datta, C. Babcock, H.-E. Andersen, B.D. Cook, D.C. Morton, and S. Banerjee. (2019) Spatial factor models for high-dimensional and large spatial data: An application in forest variable mapping. *Statistica Sinica*, 29, 1155-1180.

74. Finley, A.O., A. Datta, B.C. Cook, D.C. Morton, H.E. Andersen, and S. Banerjee. (2019) Efficient Algorithms for Bayesian Nearest Neighbor Gaussian Processes. *Journal of Computational and Graphical Statistics*, 28, 401-411.

73. Itter, M.S.*, Loïc D'Orangeville†, A. Dawson, D. Kneeshaw, L. Duchesne, and A.O. Finley. (2019) Boreal forest growth exhibits decadal-scale ecosystem memory to drought and insect defoliation. *Journal of Ecology*, 107:1288-1301.

72. Finley, A.O., P.S. Forsythe, J.A. Crossman E.A. Baker, K.T. Scribner. (2018) Assessing impact of exogenous features on biotic phenomena in the presence of strong spatial dependence: A lake sturgeon case study in natural stream settings. *PLOS ONE*.

71. Babcock, C.†, A.O. Finley, H-E. Andersen, R. Pattison, B.D. Cook, D.C. Morton, M. Alonzo, R. Nelson, T. Gregoire, L. Ene, T. Gobakken, E. Næsset. (2018) Geostatistical estimation of forest biomass in interior Alaska combining Landsat-derived tree cover, sampled airborne lidar and field observations. *Remote Sensing of Environment*, 212:212–230.

70. Ver Planck, N.R.*, A.O. Finley, J.A. Kershaw, Jr., A. Weiskettel, and M.C. Kress. (2018) Hierarchical Bayesian models for small area estimation of forest variables using LiDAR. *Remote Sensing of Environment*, 204:287–295.

69. Ver Planck, N.R.*, A.O. Finley, E. Huff (2018) Hierarchical Bayesian models for small area estimation of county-level private forest landowner population. *Canadian Journal of Forest Research*, 47:1577–1589.

68. Snow N.P.*, Z. Zhang*, A.O. Finley, B.A. Rudolph, W.F. Porter, D.M. Williams, S.R. Winterstein. (2018) Regional-based mitigation approaches to reduce wildlife-vehicle collisions at large scales. *Journal of Wildlife Management*, 82:756–765.

67. Itter, M.S.*, A.O. Finley, M.B. Hooten, P.E. Higuera, J.R. Marlon, R. Kelly, and J.S. McLachlan. (2017) A model-based approach to wildland fire reconstruction using sediment charcoal records. *Environmetrics*, DOI: 10.1002/env.2450.

66. Itter, M.S.*, A.O. Finley, A.W. D'Amato, J.R. Foster, and J.B. Bradford. (2017)

Variable effects of climate on forest growth in relation to ecosystem state. *Ecological Applications*, 27:1082-1095.

65. Finley, A.O., S. Banerjee, Y., Zhou*, B.D. Cook. (2017) Joint hierarchical models for sparsely sampled high-dimensional LiDAR and forest variables. *Remote Sensing of Environment*, 1:149-161.

64. Fergus, E.*, A.O. Finley, P.A. Soranno, and T. Wagner. (2016) Spatial variation in nutrient and water color effects on lake chlorophyll at macroscales. *PLOS ONE*, `https://doi.org/10.1371/journal.pone.0164592`.

63. Salazar, E.†, D. Hammerling, X. Wang, B. Sanso, A.O. Finley, and L. Mearns. (2016) Observation-based Blended Projections from Ensembles of Regional Climate Models. *Climatic Change*, 138:55-69.

62. Datta, A., S. Banerjee, A.O. Finley, and A.E. Gelfand. (2016) On Nearest-Neighbor Gaussian Process Models for Massive Spatial Data. *WIREs Computational Statistics*, 8:162-171.

61. Jarzyna, M.A.*, B. Zuckerberg, A.O. Finley, and W. Porter. (2016) Synergistic effects of climate and land cover: Grassland birds are more vulnerable to climate change. *Landscape Ecology*, 10:2275-2290.

60. Ver Planck, N.R.*, A.L. Metcalf, A.O. Finley, and J.C. Finley. (2016) Evaluation of the USDA Forest Service National Woodland Owner Survey estimators for private forest area and landowners: A case study of Montana. *Forest Science*, 5:525-534.

59. Record, S.†, R.K. Kobe, C.F. Vriesendorp, and A.O. Finley. (2016) Seedling survival responses to conspecific density, soil nutrients, and irradiance vary with age in a tropical forest. *Ecology*, 9:2406-2415.

58. Datta, A., S. Banerjee, A.O. Finley, N.A.S. Hamm, and M. Schaap. (2016) Nonseparable Dynamic Nearest Neighbor Gaussian Process Models for Large Spatio-temporal Data with Application to Particulate Matter Analysis. *Annals of Applied Statistics*, 31286-1316.

57. Datta, A., S. Banerjee, A.O. Finley, and A.E. Gelfand. (2016) Hierarchical Nearest-Neighbor Gaussian process models for large geostatistical datasets. *Journal of the American Statistical Association*, 111:800-812.

56. Babcock, C.*, A.O. Finley, B.C. Cook, A. Weiskittel, and C.W. Woodall. (2016) Modeling forest biomass and productivity: Coupling long-term inventory and LiDAR data. *Remote Sensing of Environment*, 182:1-12.

55. Foster, J.R., A.O. Finley, A.W. D'Amato, J.B. Bradford, and S. Banerjee. (2016) Predicting tree biomass growth in the temperate-boreal ecotone: is tree size, age, competition or climate response most important? *Global Change Biology*, 22:2138-2151.

54. Babcock, C.*, A.O. Finley, J.B. Bradford, R. Birdsey, R. Kolka, and M.G. Ryan. (2015) LiDAR based prediction of forest biomass using hierarchical models with spatially varying

coefficients. *Remote Sensing of Environment*, 169:113–127.

53. Campbell, L.P.*, A.O. Finley, M.E. Benbow, J. van Ravensway, P.L.C. Small, R. Christian Johnson, G. Soppin, R.M. Merritt, H. Williamson, J. Qi. (2015) Spatial analysis of anthropogenic landscape disturbance and Buruli Ulcer disease in Benin. *PLoS Neglected Tropical Diseases*, DOI:10.1371/journal.pntd.0004123.

52. Pastick, N.*, T. Jorgenson, B.K. Wylie, S.J. Nield, K.D. Johnson, and A.O. Finley. (2015) Distribution of Near-Surface Permafrost in Alaska: Estimates of Present and Future Conditions. *Remote Sensing of Environment*, 168:301-315.

51. Jarzyna, M.*, W. Porter, B. Maurer, B. Zuckerber, and A.O. Finley. (2015) Landscape fragmentation affects responses of avian communities to climate change. *Global Change Biology*, 21:2942–12953.

50. Jarzyna, M.*, B. Zuckerber, W. Porter, A.O. Finley, and B. Maurer. (2015) Spatial scaling of temporal changes in avian communities. *Global Ecology and Biogeography*, 22:242–251.

49. Junttila, V.†, T. Kauranne, A.O. Finley, and J. Bradford. (2015) Linear models for airborne laser scanning based operational forest inventory with small field sample size and highly correlated LiDAR data. *IEEE Transactions on Geoscience and Remote Sensing*, 53:5600–15612.

48. Finley, A.O., S. Banerjee, A.E. Gelfand. (2015) spBayes for large univariate and multivariate point-referenced spatio-temporal data models. *Journal of Statistical Software*, 63:1-28. www.jstatsoft.org/v63/i13.

47. Hamm, N.A.A, A.O. Finley, M. Schaap, and A. Stein. (2015) A spatially varying coefficient model for mapping PM10 air quality at the European scale. *Atmospheric Environment*, 102:393–405.

46. Finley, A.O., S. Banerjee, C. Babcock, and B.D. Cook. (2014) Dynamic spatial regression models for space-varying forest stand tables. *Environmetrics*, 25:596–609.

45. Schimel, D, D.R. Strong, A.M. Ellison, D.P.C. Peters, S. Silver, E.A. Johnson, J. Belnap, A.T. Classen, T.E. Essington, A.O. Finley, B.D. Inouye, E.H. Stanley. (2014) Editors are editors, not oracles. *Bulletin of the Ecological Society of America*, 95:342–346.

44. Jarzyna, M.*, A.O. Finley, W. Porter, B. Mauer, C. Beier, and B. Zuckerberg. (2014) Accounting for the space-varying nature of the relationships between temporal community turnover and the environment. *Ecography*, 37:1073–1083.

43. Finley, A.O., S. Banerjee, and B.D. Cook. (2014) Bayesian hierarchical models for spatially misaligned data. *Methods in Ecology and Evolution*, 5:514–523.

42. Levy, O.†, B.A. Ball, B. Bond-Lamberty, K.S. Cheruvelil, A.O. Finley, N. Lottig, S.W. Punyasena, J. Xiao, J. Zhou, L.B. Buckley, C.T. Filstrup, T. Keitt, J.R. Kellner, A.K. Knapp, A.D. Richardson, C. Stow, D. Tcheng, M. Toomey, R. Vargas, J.W. Voordeckers, T. Wagner, J.W. Williams. (2014) Approaches for advancing scientific understanding of

macrosystems. *Frontiers in Ecology and the Environment*, 12:15–23.

41. Johnson, K.D., Birdsey, R., Finley, A.O., Swantaran, A, Dubayah, R, Wayson, C. and Riemann, R. (2014) Integrating forest inventory and analysis data into a LIDAR-based carbon monitoring system. *Carbon Balance and Management*, 9:3

40. Johnson, K.D., J.W. Harden, A.D. McGuire, M. Clark, F. Yuan, A.O. Finley. (2013) Permafrost and organic layer interactions over a climate gradient in a discontinuous permafrost zone. *Environmental Research Letters*, 8:1–12.

39. Guhaniyogi, R., A.O. Finley, S. Banerjee and Rich K. Kobe. (2013) Modeling complex spatial dependencies: low-rank spatially-varying cross-covariances with application to soil nutrient data. *Journal of Agricultural, Biological, and Environmental Statistics*, 18:274–298.

38. Junttila, V.†, A.O. Finley, J.B. Bradford, and T. Kauranne. (2013) Strategies for minimizing sample size for use in airborne LiDAR-based forest inventory. *Forest Ecology and Management*, 292:75–85.

37. Babcock, C.*, J. Matney†, A.O. Finley, A. Weiskittel, and B.D. Cook. (2013) Multivariate spatial regression models for predicting individual tree structure variables using LiDAR data. *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, 6:6–14.

36. Record, S., M. Fitzpatrick, A.O. Finley, S. Veloz, and A. Ellison. (2013) Should species distribution models account for spatial autocorrelation? A test of model projections across eight millennia of climate change. *Global Ecology and Biogeography*, 22:760–771.

35. Swanson, A.*, S. Dobrowski, A.O. Finley, J.H. Thorne, and M.K. Schwartz. (2013) Spatial regression methods capture prediction uncertainty in species distribution model projections through time. *Global Ecology and Biogeography*, 22:242–251.

34. Finley, A.O., S. Banerjee, B.D. Cook, and J.B. Bradford. (2013) Hierarchical Bayesian spatial models for predicting multiple forest variables using waveform LiDAR, hyperspectral imagery, and large inventory datasets. International *Journal of Applied Earth Observation and Geoinformation*, 22:147–160.

33. Delameter, P.L.*, A.O. Finley†, and S. Banerjee. (2012) An analysis of asthma hospitalizations, air pollution, and weather conditions in Los Angeles County, California. *Science of the Total Environment*, 425:110–1118.

32. Baribault, T.*, R.K. Kobe, and A.O. Finley. (2012) Tropical tree growth is correlated with soil phosphorus, potassium, and calcium, though not for legumes. *Ecological Monographs*, 82:189–1203.

31. Eidsvik, J., A.O. Finley, S. Banerjee, and H. Rue. (2012) Approximate Bayesian inference for large spatial datasets using predictive process models. *Computational Statistics and Data Analysis*, 56: 1362–1380.

30. Finley, A.O., S. Banerjee, A.E. Gelfand. (2012) Bayesian dynamic modeling for large space-time datasets using Gaussian predictive processes.*Journal of Geographical Systems*,

29. Finley, A.O., S. Banerjee, and B. Basso. (2011) Improving crop model inference through Bayesian melding with spatially-varying parameters. *Journal of Agricultural, Biological, and Environmental Statistics*, 16:453–474.

28. Salazar, E., B. Sanso, A.O. Finley, D. Hammerling, I. Steinsland, X. Wang, and P. Delamater. (2011) Comparing and blending regional climate model predictions for the American Southwest. *Journal of Agricultural, Biological, and Environmental Statistics*, 16:586–605.

27. Guhaniyogi, R., A.O. Finley, S. Banerjee, A.E. Gelfand. (2011) Adaptive Gaussian predictive process models for large spatial datasets. *Environmetrics*, 22:997–1007.

26. Ren, Q., S. Banerjee, A.O. Finley, and J.S. Hodges. (2011) Variational Bayesian methods for spatial data analysis. *Computational Statistics and Data Analysis*, 55:3197–3217.

25. Woodall, C.W., A.W. D'Amato, J.B. Bradford, and A.O. Finley. (2011) Effects of stand and inter-specific stocking on maximizing standing tree carbon stocks in the eastern U.S. *Forest Science*, 57:365–378.

24. Finley, A.O., S. Banerjee, and D.W. MacFarlane. (2011) A hierarchical model for quantifying forest variables over large heterogeneous landscapes with uncertain forest areas. *Journal of the American Statistical Association*, 106:31–48.

23. Finley, A.O. (2011) Comparing spatially-varying coefficients models for analysis of ecological data with non-stationary and anisotropic residual dependence. *Methods in Ecology and Evolution*, 2:143–154.

22. Munoz, J.D.*, A.O. Finley†, R. Gehl, and S. Kravchenko. (2010) Nonlinear hierarchical models for predicting cover crop biomass using Normalized Difference Vegetation Index. *Remote Sensing of Environment*, 114:2833–2840.

21. Woodall, C.W., C.M. Oswalt, J.A. Westfall, C.H. Perry, M.D. Nelson, and A.O. Finley. (2010) Selecting tree species for testing climate change migration hypotheses using forest inventory data. *Forest Ecology and Management*, 259:778-785.

20. Banerjee, S., A.O. Finley, P. Waldmann, and T. Ericsson. (2010) Hierarchical spatial process models for multiple traits in large genetic trials. *Journal of the American Statistical Association*, 105:506–521.

19. Finley, A.O., S. Banerjee, and R.E. McRoberts. (2009) Hierarchical spatial models for predicting tree species assemblages across large domains. *Annals of Applied Statistics*, 3:1052–1079.

18. Woodall, C.W., C.M. Oswalt, J.A. Westfall, C.H. Perry, M.D. Nelson, and A.O. Finley. (2009) An indicator of tree migration in forests of the eastern United States. *Forest Ecology and Management*, 257:1434–1444.

17. Finley, A.O., H. Sang, S. Banerjee, and A.E. Gelfand. (2009) Improving the perfor-

mance of predictive process modeling for large datasets. *Computational Statistics and Data Analysis*, 53:2873–2884.

16. Finley, A.O., S. Banerjee, P. Waldmann, and T. Ericsson. (2009) Hierarchical spatial modeling of additive and dominance genetic variance for large spatial trial datasets. *Biometrics*, 65:441–451.

15. Clark, S. and A.O. Finley. (2009) Spatial Modelling of Car Ownership Data: A Case Study from the United Kingdom. *Applied Spatial Analysis and Policy*, DOI 10.1007/s12061-009-9030-z.

14. Banerjee, S., A.E. Gelfand, A.O. Finley, and H. Sang. (2008) Gaussian Predictive Process Models for Large Spatial Datasets. *Journal of the Royal Statistical Society Series B*, 70:825–848.

13. Nicholas, L.C. and A.O. Finley. (2008) yaImpute: An R package for kNN Imputation. *Journal of Statistical Software*, 23:10.

12. Finley, A.O. and R.E. McRoberts. (2008) Efficient k–nearest neighbor searches for multi-source forest attribute mapping. *Remote Sensing of Environment*, 112:2203–2211.

11. Liang, S.*, S. Banerjee, S. Bushhouse, A.O. Finley, and B.P. Carlin. (2008) Hierarchical multiresolution approaches for dense point–level breast cancer treatment data. *Computational Statistics and Data Analysis*, 52:2650–2668.

10. Finley, A.O., S. Banerjee, A.R. Ek, and R.E. McRoberts. (2008) Bayesian multivariate process modeling for prediction of forest attributes. *Journal of Agricultural, Biological, and Environmental Statistics*, 13:60–83.

9. Finley, A.O., S. Banerjee, and R.E. McRoberts. (2008) A Bayesian approach to quantifying uncertainty in multi-source forest area estimates. *Environmental and Ecological Statistics*, 15:241–258.

8. McRoberts, R.E., E. Tomppo, A.O. Finley, and J. Heikkinen. (2007) Model–based estimators for the k–nearest neighbors technique. *Remote Sensing of Environment*, 111:466–480.

7. Finley, A.O., S. Banerjee, and B.P. Carlin. (2007) spBayes: A program for multivariate point-referenced spatial modeling. *Journal of Statistical Software*, 19:4.

6. Banerjee, S. and A.O. Finley. (2007) Bayesian multi-resolution modeling for spatially replicated data sets with application to forest biomass data. *Journal of Statistical Planning and Inference*, 137:3193–3205.

5. Finley, A.O., R.E. McRoberts, and A.R. Ek. (2006) Applying an efficient k–nearest neighbor search to forest attribute imputation. *Forest Science*, 52:130–135.

4. Finley, A.O., D.B. Kittredge, T.H. Stevens, C.M. Schweik, and D. Dennis. (2006) Possibilities for cross-boundary cooperation in a landscape dominated by private ownership: a case study from Massachusetts. *Forest Science*, 52:10–22.

3. Finley, A.O. and D.B. Kittredge. (2006) Thoreau, Muir, and Jane Doe: different types of private forest owners need different kinds of forest management. *Northern Journal of Applied Forestry*, 23:27–34.

2. Haapanen, R., A.R. Ek, M.E. Bauer, and A.O. Finley. (2004) Delineation of forest/non-forest land-use classes using k–nearest neighbor classification. *Remote Sensing of Environment*, 89:265–271.

1. Kittredge, D.B., A.O. Finley, and D.R. Foster. (2003) Timber harvesting as ongoing disturbance in a landscape of diverse ownership. *Forest Ecology and Management*, 180:425–442.

Books

Finley, A.O. and J.W. Doser. Introduction to Forestry Data Analysis with R. Under contract with CRC. Expected publication date 2024.

Green, E.J., A.O. Finley, and W.E. Strawderman. (2020) Introduction to Bayesian Methods in Ecology and Natural Resources. Springer Nature. `https://link.springer.com/book/10.1007/978-3-030-60750-0`

Book Chapters

Record, S., K.M. Dahlin, P.L. Zarnetske, Q.D. Read, S.L. Malone, K.D. Gaddis, J.M. Grady, J. Costanza, M.L. Hobi, A.M. Latimer, S. Pau, A.M. Wilson, S.V. Ollinger, A.O. Finley, and E. Hestir. (2020). Remote Sensing of Geodiversity as a Link to Biodiversity. In *Remote Sensing of Plant Biodiversity*. Springer.

Gelfand, A.E., S. Banerjee, and A.O. Finley. (2012) Spatial design for knot selection in knot–based dimension reduction models. In *Spatio-temporal Design: Advances in Efficient Data Acquisition*. Wiley.

Finley, A.O. and S. Banerjee. (2016) Point-referenced Spatial Modeling. In *The SAGE Handbook of Multilevel Modeling*. Sage Publishing.

Qi, J., L.P. Campbell, J. van Ravensway, A.O. Finley, R.W. Merritt, and M.E. Benbow. (2012) Buruli Ulcer Disease: The Unknown Environmental and Social Ecology of a Bacterial Pathogen. In *Ecologies and Politics of Health. Routledge*, Taylor and Francis Group.

Finley, A.O. and S. Banerjee. (2008) Bayesian spatial regression for multi–source mapping. In *Encyclopedia of Geographic Information Systems*. Springer–Verlag, New York.

Book Reviews

Environmental and Ecological Statistics with R, by S. Qian. Chapman & Hall/CRC 2010. *Biometrics*. 2011, **67**:674–675.

Sampling Techniques for Forest Inventories, by D. Mandallaz. Chapman & Hall/CRC 2008. *The American Statistician*. 2009, **63**:287–288.

Published Software

spOccupancy. Doser J.W. and A.O. Finley. (2021–current) Single-Species, Multi-Species, and Integrated Spatial Occupancy Models. `https://cran.r-project.org/web/packages/spOccupancy/index.html`. Downloaded 11k times as of September 26, 2023 `https://cranlogs.r-pkg.org/badges/grand-total/spOccupancy`.

rFIA. Stanke, H. and A.O. Finley. (2020–current) Estimation of Forest Variables using the FIA Database. `https://rfia.netlify.app/`. Downloaded 23k times as of September 26, 2023 `https://cranlogs.r-pkg.org/badges/grand-total/rFIA`.

spNNGP. Finley, A.O., A. Datta, S. Banerjee. (2017–current) Spatial Regression Models for Large Datasets using Nearest Neighbor Gaussian Processes. `https://cran.r-project.org/web/packages/spNNGP`. Downloaded 28k times as of September 26, 2023 `https://cranlogs.r-pkg.org/badges/grand-total/spNNGP`.

MBA. Finley, A.O. and S. Banerjee. (2007–current) Multilevel B-Spline Approximation. `https://cran.r-project.org/web/packages/MBA`. Downloaded 345k times as of September 26, 2023 `https://cranlogs.r-pkg.org/badges/grand-total/MBA`.

spBayes. Finley, A.O. and S. Banerjee. (2007–current) Univariate and Multivariate Spatial-Temporal Modeling. `https://cran.r-project.org/web/packages/spBayes`. Downloaded 132k times as of September 26, 2023 `https://cranlogs.r-pkg.org/badges/grand-total/spBayes`.

yaImpute. Crookston, N.L. and A.O. Finley (2007–current) Nearest Neighbor Observation Imputation and Evaluation Tools. `https://cran.r-project.org/web/packages/yaImpute`. Downloaded 542k times as of September 26, 2023 `https://cranlogs.r-pkg.org/badges/grand-total/yaImpute`.

Editorial Service

Assigning Editor, *Ecological Applications*: 2012 – Current.

Subject Matter Editor, *Ecology*: 2011 – Current.

Subject Matter Editor, *Ecological Monographs*: 2011 – Current.

Associate Editor, *Journal of Agricultural, Biological, and Environmental Statistics*: 2011 – 2015.

Associate Editor, *Spatial Statistics*: 2015 – 2017.

Editorial Board Member, *Spatial Statistics*: 2012 – 2020.

Peer Reviews (selected subset)

Canadian Journal of Forest Research, *Computational Statistics and Data Analysis*, *Environmental and Ecological Statistics*, *Environmetrics*, *Ecography*, *Ecoshpere*, *Ecology*, *Ecological Monographs*, *Fisheries Research*, *Forest Science*, *Forest Ecology and Management*, *Forestry: An International Journal of Forest Research*, *Global Change Biology*, *International Journal of Biometeorology*, *International Journal of Remote Sensing*, *Journal of the Royal Statistical Society Series C (Applied Statistics)*, *Journal of the American Statistical Association*, *Landscape Ecology*, *National Science Foundation, Division of Environmental Biology*, *Photogrammetric Engineering and Remote Sensing*, *Remote Sensing of Environment*, *Statistical Modelling*, *Statistics in Medicine*, *The Annals of Applied Statistics*.

Presentations

Finley, A.O. Models to support forest inventory and small area estimation using sparsely sampled LiDAR: A case study involving G-LiHT LiDAR in Tanana, Alaska. August, 10, 2023. Joint Statistical Meeting. Toronto, Canada. Invited.

Finley, A.O. Tackling large spatial datasets via dimension reduction, induced sparsity, and distributed computing: A case study in forestry applications. May 15, 2023. Keynote at 2023 Conference on Applied Statistics in Agriculture and Natural Resources. Purdue University, West Lafayette, IN.

Itter, M. and A.O. Finley. Estimation and application of ecological memory functions in time and space. International Statistical Ecology Conference. July 2, 2018. Edinburgh, Scotland.

Daniel Taylor Rodriguez and A.O. Finley. Spatial Factor Models for High-Dimensional and Large Spatial Data: An Application in Forest Variable Mapping. Joint Statistical Meeting. July 31, 2018. Vancouver, Canada.

Chad Babcock and A.O. Finley. Coupling Forest In-Situ and Spaced-Based Lidar Samples to Improve National-Scale Forest Inventory: a Joint Spatial Modeling Framework for Forest and Lidar Variable Prediction Lever. Joint Statistical Meeting. July 31, 2018. Vancouver, Canada. Invited.

Finley, A.O. Joint Hierarchical Models for Sparsely Sampled High-Dimensional LiDAR and Forest Variables. Joint Statistical Meeting. August 1, 2018. Vancouver, Canada. Invited.

Finley, A.O. Hierarchical models for sparsely sampled high-dimensional LiDAR and forest variables: An interior Alaska FIA case study. University of Maine, Wheatland Seminar Series. May 2, 2018. Orono, Maine. Invited.

Itter, M. and A.O. Finley. Methods to model individual-scale variability in ecological processes. XXIXth International Biometric Conference. July 8, 2018. Barcelona, Spain. Invited.

Finley, A.O. Challenges and opportunities in training collaborative research teams: Insights from graduate workshops on environmental data analytics. NSF Macrosystems Biology PI meeting. January 9, 2018. Alexandria, Virginia. Invited.

Finley, A.O. Joint Hierarchical Models for Sparsely Sampled High-dimensional LiDAR and FIA Measurements. Forest Inventory and Analysis Stakeholder Science Meeting. October 25, 2017. Park City, Utah.

Finley, A.O. Computational Considerations for Large Spatial Data Sets: Forest Canopy Structure and Biomass Prediction Across Tanana Valley Alaska. University of Wisconsin, Madison, Department of Forest and Wildlife Ecology. April 20, 2017. Madison Wisconsin. Invited.

Finley, A.O. Computational Considerations for Applying Nearest Neighbor Gaussian Processes to Large Spatial Data Sets: A Case Study in Forest Canopy Structure and Biomass Prediction Across Tanana Valley Alaska. Scaling Problems in Statistics Colloquium Georg-August-Universität. January 11, 2017. Göttingen, Germany. Invited.

Zhou Y., A.O. Finley, and S. Banerjee, A. Datta, and B.D. Cook. Process-Based Hierarchical Models for Coupling High-Dimensional LiDAR and Forest Variables Over Large Geographic Domains. Joint Statistical Meeting. August 3, 2016. Chicago.

Finley, A.O. Recent Developments in Bayesian Modeling to Analyze Large-Scale Spatial and Spatio-Temporal Data Sets. Joint Statistical Meeting. August 3, 2016. Chicago. Invited.

Finley, A.O. Computational Considerations for Applying Nearest Neighbor Gaussian Processes to Large Spatial Data Sets. International Society for Bayesian Analysis World Meeting. June 17, 2016. Sardinia, Italy.

Finley, A.O. Computational Considerations for Applying Nearest Neighbor Gaussian Processes to Large Spatial Data Sets: A Case Study from Forest Biomass Prediction across Alaska. Workshop on Bayesian Environmetrics, April 12, 2016. The Ohio State University, Columbus, OH. `http://community.amstat.org/envr/events/bayesenvr`. Invited.

Finley, A.O. Computational Considerations for Applying Nearest Neighbor Gaussian Processes to Large Spatial Data Sets: A Case Study from Forest Biomass Prediction across Alaska. Big Data Tsunami at the Interface of Statistics, Environmental Sciences and Beyond Workshop, March 12, 2016. Banff International Research Station for Mathematical Innovation and Discovery (BIRS). `http://www.birs.ca/events/2016/2-day-workshops/16w2669`. Invited.

Finley, A.O. Dynamic nearest-neighbor Gaussian Process models for massive spatio-temporal datasets: An application to interpolation of environmental pollutants. 30th International Workshop on Statistical Modelling. July 7, 2015. Linz, Austria. `http://ifas.jku.at/iwsm2015`. Invited.

Finley A.O. Computing considerations for hierarchical sparsity-inducing Gaussian Process models for massive datasets. G70: A Celebration of Alan Gelfand's 70th Birthday. April 22, 2015. Durham, North Carolina. `https://stat.duke.edu/G70`. Invited.

Finley A.O., Datta, A., and S. Banerjee. Modeling spatio-temporal dynamics of the High Plains Aquifer using a dimension-reducing Nearest-Neighbor Gaussian Process. Joint Statistical Meeting. August 4, 2014. Boston, MA.

Datta, A., and S. Banerjee, A.O. Finley and A. Gelfand. Hierarchical Nearest-Neighbor Gaussian Process models for large geostatistical data. Joint Statistical Meeting. August 4, 2014. Boston, MA. Invited.

Finley, A.O. Bayesian melding models with spatially-varying parameters. School of Mathematical and Statistical Science, Arizona State University. March 28, 2014. Tempe, AZ. Invited.

Finley, A.O. Improving crop model inference through Bayesian melding with spatially-varying parameters. Department of Statistics, University of Michigan. February 28, 2014. Ann Arbor, MI. Invited.

Finley, A.O. Modeling spatially dependent forest diameter class distributions using high-dimensional lidar data. Joint Statistical Meeting. August 5, 2013. Montreal, Canada. Invited.

Datta, A., S. Banerjee, and A.O. Finley. Hierarchical nearest-neighbor Gaussian process models for massive geostatistical datasets. Eastern North American Region, International

Biometric Society. March 16, 2014. Baltimore, MD.

Finley, A.O. Advances in hierarchical Bayesian spatial-temporal models for large data: applications in environmental sciences. Institut für Geographie und Geologie, University of Würzburg. November 12, 2013. Würzburg, Germany. Invited.

Finley, A.O., S. Banerjee, and B. Basso. Improving crop model inference through Bayesian melding with spatially-varying parameters. Eastern North American Region, International Biometric Society. March 12, 2013. Orlando, FL. Invited.

Finley, A.O. Research and teaching challenges and opportunities in environmental spatial statistics. Department of Geography, The Pennsylvania State University. February 25, 2013. State College, PA. Invited.

Finley, A.O. Bayesian dynamic modeling for large space-time data sets using Gaussian predictive processes. SAMSI-NCAR Workshop on Massive Datasets in Environment and Climate. February 13, 2013, National Center for Atmospheric Research (NCAR), Boulder, CO. Invited.

Finley, A.O. Improving crop model inference through Bayesian melding with spatially-varying parameters. SAMSI-SAVI Workshop on Environmental Statistics. March 5, 2013. Research Triangle Park, NC. Invited.

Finley, A.O. Bayesian dynamic modeling for large multivariate space-time data sets using Gaussian predictive processes. International Workshop on Spatio-Temporal Modeling (METMAVI). September 13, 2012. Guimaraes, Portugal. Invited.

Finley, A.O. Bayesian dynamic modeling for large multivariate space-time data sets using Gaussian predictive processes. American Statistical Association Joint Statistical Meeting. July 30, 2012. San Diego, CA. Invited.

Guhaniyogi, R., Finley, A.O., Banerjee, S., Rich, R. Modeling low-rank spatially varying cross-covariances using predictive processes with application to soil nutrient data. American Statistical Association Joint Statistical Meeting. July 31, 2012. San Diego, CA.

Finley, A.O. Bayesian dynamic modeling for large space-time datasets using Gaussian predictive processes. Department of Statistics, February, 15, 2011. Brigham Young University. February 16, 2012. Provo, UT. Invited.

Finley, A.O. Bayesian dynamic modeling for large space-time datasets using Gaussian predictive processes. GEOMED, October 21, 2011. Victoria, British Columbia, Canada. Invited.

Finley, A.O. and S. Banerjee. Advances in hierarchical spatial models for mapping forest attributes across large domains. Case Studies in Bayesian Statistics and Machine Learning, October 15, 2011. Carnegie Mellon University Pittsburgh, PA. Invited.

Banerjee, S., and A.O. Finley. Computationally feasible hierarchical modeling strategies for large spatial data sets. International Statistical Institute Conference, August 22, 2011. Dublin, Ireland. Invited.

Finley, A.O., S. Banerjee, and B. Cook. A Bayesian functional data model for predicting forest variables using high-dimensional waveform LiDAR over large geographic domains. International Statistical Institute Conference, August 22, 2011. Dublin, Ireland. Invited.

Guhaniyogi, R., S. Banerjee, and A.O. Finley. Computationally feasible hierarchical modeling strategies for large spatial data sets. American Statistical Association Joint Statistical Meeting. August 1, 2011. Miami, FL. Invited.

Finley, A.O., S. Banerjee, and B. Cook. A Bayesian functional data model for predicting forest variables using high-dimensional waveform LiDAR over large geographic domains. American Statistical Association Joint Statistical Meeting. August 1, 2011. Miami, FL. Invited.

Finley, A.O. Advances in hierarchical spatial models for quantifying forest attributes. Workshop on Statistical Issues in Forest Management. May 4, 2011. Centre de recherches mathématiques. Université Laval, Québec. Invited.

Finley, A.O., S. Banerjee, and B. Cook. Bayesian functional data model for predicting forest variables using high-dimensional waveform LiDAR over large geographic domains. 1st Conference on Spatial Statistics. March 24, 2011. University of Twente, The Netherlands.

Finley, A.O. Modeling and mapping non-stationary multivariate processes for large spatial datasets. March 22, 2011. Environmental Sciences Group, Wageningen University and Research Centre, Wageningen, The Netherlands. Invited.

Finley, A.O. Advances in hierarchical spatial models for quantifying forest attributes. February 21, 2011. Lappeenranta University of Technology, Department of Mathematics, Lappeenranta, Finland. Invited.

Finley, A.O., S. Banerjee, and B. Cook. Bayesian functional data model for predicting forest variables using high-dimensional waveform LiDAR over large geographic domains. December 17, 2010. American Geophysical Union. San Francisco, CA.

Banerjee, S., A.O. Finley, and R. Guhaniyogi. Estimating low rank hierarchical spatial models. Workshop on Environmetrics. October 15, 2010. The National Center for Atmospheric Research, Boulder, CO. Invited.

Sanso, B., P. Delamater, A.O. Finley, D. Hammerling, E. Salazar, I. Steinsland, and X. Wang. Comparing and blending regional climate model predictions for the american southwest. Workshop on Environmetrics. October 15, 2010. The National Center for Atmospheric Research, Boulder, CO. Invited.

Sanso, B., P. Delamater, A.O. Finley, D. Hammerling, E. Salazar, I. Steinsland, and X. Wang. Comparing and blending regional climate model predictions for the American southwest. Spatial Program Transition Workshop. October 11, 2010. Statistical and Applied Mathematical Sciences Institute, Research Triangle Park, NC. Invited.

Guhaniyogi, R., A.O. Finley, S. Banerjee, and A.E. Gelfand. Adaptive Gaussian predictive process model for large spatial data sets. American Statistical Association Joint Statistical Meeting. August 2, 2010. Vancouver, British Columbia.

Banerjee, S. and A.O. Finley. Hierarchical spatial models for predicting forest variables over large heterogeneous domains. American Statistical Association Joint Statistical Meeting. August 1, 2010. Vancouver, British Columbia. Invited.

Finley, A.O. Advances in hierarchical spatial models for environmental data. June 10, 2010. University of New Hampshire, Durham, NH. Invited.

Finley, A.O. and S. Banerjee. Modeling and mapping non-stationary multivariate processes for large spatial datasets. International Environmetrics Society. June 23, 2010. Margarita Island, Venezuela. Invited.

Finley, A.O. Modeling and mapping non-stationary multivariate processes for large spatial datasets. Statistical Aspects of Environmental Risk Workshop. April 8, 2010. Statistical and Applied Mathematical Sciences Institute, Research Triangle Park, NC. Invited.

Qian, R., S. Banerjee, and A.O. Finley. Variational Bayesian method for spatial data analysis. Eastern North American Region, International Biometric Society. March 22, 2010. New Orleans, LA.

Guhaniyogi, R., A.O. Finley, and S. Banerjee. Gaussian predictive process model for random knots. Eastern North American Region, International Biometric Society. March 22, 2010. New Orleans, LA.

Finley, A.O. and S. Banerjee. A hierarchical model for predicting forest variables over large heterogeneous domains. Eastern North American Region, International Biometric Society. March 22, 2010. New Orleans, LA.

Finley, A.O. Hierarchical modeling of large spatially referenced forest inventory datasets. October 30, 2009. Department of Statistics, Western Michigan University. Kalamazoo MI. Invited.

Finley, A.O. Hierarchical modeling of large spatially referenced forest inventory datasets. September 30, 2009. Department of Statistical Science, Duke University. Durham, NC. Invited.

Finley, A.O., S. Banerjee, and A. Gelfand. An adaptive predictive process modeling approach for large spatial-temporal data sets. American Statistical Association Joint Statistical Meeting. August 3, 2009. Washington, DC. Invited.

Finley, A.O. and S. Banerjee. Hierarchical spatial models with remotely sensed predictors for mapping tree species assemblages across large domains. International Environmetrics Society. July 7, 2009. Bologna, Italy.

Finley, A.O. Hierarchical spatial models with remotely sensed predictors for mapping tree species assemblages across large domains. Eastern North American Region, International Biometric Society. March 18, 2009. San Antonio, TX. Invited.

Finley, A.O., S. Banerjee, and R.E. McRoberts. Hierarchical spatial models with remotely sensed predictors for mapping tree species assemblages across large domains. Eastern North American Region, International Biometric Society. March 18, 2009. San Antonio, TX.

Invited.

Banerjee, S., A.O. Finley, P. Waldmann, and T. Ericsson. Hierarchical spatial modeling of genetic variance for large spatial trial datasets. Eastern North American Region, International Biometric Society. March 18, 2009. San Antonio, TX.

Finley, A.O., S. Banerjee, and R.E. McRoberts. Hierarchical spatial models for predicting tree species assemblages across large domains. Section on Statistics and the Environment at the American Statistical Association Joint Statistical Meeting. August 4, 2008. Denver, CO. Invited.

Banerjee, S., A.O. Finley, P. Waldmann, and T. Ericsson. Hierarchical multivariate spatial modeling of additive and dominance genetic variance for large spatial trial datasets. The International Environmetrics Society conference. June 10, 2008. Kelowna, Canada. Invited.

Finley, A.O., S. Banerjee, P. Waldmann, and T. Ericsson. Hierarchical spatial modeling of additive and dominance genetic variance for large spatial trial datasets. Eastern North American Region, International Biometric Society. March 17, 2008. Arlington, VA.

Finley, A.O., S. Banerjee, and B. Carlin. spBayes: An R package for univariate and multivariate hierarchical point-referenced spatial models. Section on Statistical Computing at the American Statistical Association Joint Statistical Meeting. July 29, 2007. Salt Lake City, UT. Invited.

Finley, A.O. and S. Banerjee. Spatial modeling for large multivariate environmental data: Advancing methods and applications. Section on Statistics and the Environment at the American Statistical Association Joint Statistical Meeting. July 29, 2007. Salt Lake City, UT. Invited.

McRoberts, R.E. and A.O. Finley. Design-based and model-based issues in natural resource inventories. Section on Statistics and the Environment at the American Statistical Association Joint Statistical Meeting. July 29, 2007. Salt Lake City, UT. Invited.

Finley, A.O. Bayesian spatial regression analysis of continuous forest attributes using the *spBayes* software. University of Minnesota's Department of Forest Resources Seminar Series. Feb. 27, 2006. St. Paul, MN. Invited.

Finley, A.O., R.E. McRoberts, and A.R. Ek. A comparative study of a new nearest neighbor variance estimator. The 2006 Nearest Neighbors Workshop. August. 28–30, 2006. University of Minnesota, Minneapolis, MN.

Crookston, N.L. and A.O. Finley. *yaImpute*: A `R` Package for k–NN imputation. The 2006 Nearest Neighbors Workshop. August 28–30, 2006. University of Minnesota, Minneapolis, MN.

Banerjee, S. and A.O. Finley. Modeling large multivariate spatial data sets with Gaussian predictive processes. The Center for Statistical Sciences, Brown University. Sept. 25, 2006. Providence, RI. Invited.

Finley, A.O., A.R. Ek, Y. Bai, and M.E. Bauer. Fast k–nearest neighbor imputation.

Presented at the 2nd International Conference of Forest Measurements and Quantitative Methods and Management and the 2004 Southern Mensurationists Meeting. June 15–18, 2004. Hot Springs, AR.

Kittredge, D.B. and A.O. Finley. North Quabbin Region's Chapter 61 spatial database. Presented at the 12th Annual Harvard Forest Ecology Symposium. April 23, 2001. Petersham, MA.

Kittredge, D.B., A.O. Finley, and D.R. Foster. Pattern and intensity of timber harvest in a complex forest landscape of private and public ownership. Presented at the 12th Annual Harvard Forest Ecology Symposium. April 23, 2001. Petersham, MA.

Finley, A.O. Exploring modern timber harvesting as a form of disturbance across the North Quabbin Region of Massachusetts. Presented at the 8th Annual Harvard Forest Summer Research Program. August 16, 2000. Petersham, MA.

Graduate Students

Completed

Committee Chair (with year of completion)

Elliot Shannon, Dual Ph.D., MSU, Department of Forestry and Department of Statistics and Probability. Ongoing.

Grayson White, Dual Ph.D., MSU, Department of Forestry and Department of Statistics and Probability. Ongoing.

Jeffery Doser, Ph.D., MSU, Department of Forestry, 2021.

Hunter Stanke, M.S., MSU, Department of Forestry, 2020.

Gloria Desanker, M.S., MSU, Department of Forestry, 2018.

Malcolm Itter, Ph.D., MSU, Department of Forestry, 2017.

Neil Verplanck, Ph.D., MSU, Department of Forestry, 2017.

Chad Babcock, M.S., MSU, Department of Geography, 2014.

Jason Matney, M.S., MSU, Department of Geography, 2014.

Huirong Zhu, M.S., MSU, Department of Forestry, 2011.

Brian F. Walters, M.S., MSU, Department of Geography, 2009.

Committee Member (with year of completion)

Catherine Henry, Ph.D., MSU, Department of Forestry, 2021.

Matt Farr, Ph.D., MSU, Department of Integrative Biology, 2021.

Yang Li, Ph.D., MSU, Department of Fisheries and Wildlife, 2018.

Yongfang Lu, Ph.D., MSU, Department of Animal Science, 2017.

Matthew Vincent, Ph.D., MSU, Department of Fisheries and Wildlife, 2017.

Bryan Stevens, Ph.D., MSU, Department of Fisheries and Wildlife, 2016.

Warveen Mosa, M.S., MSU, Department of Forestry, 2016.

Emi Fergus, M.S., MSU, Department of Fisheries and Wildlife, 2016.

Steven Schultze, Ph.D., MSU, Department of Geography, 2016.

Nathan Snow, Ph.D., MSU, Department of Fisheries and Wildlife, 2015.

Yuzhen Zhou, Ph.D., MSU, Department of Statistics and Probability, 2015.

Abolfazl Safikhani, Ph.D., MSU, Department of Statistics and Probability, 2015.

Lisa Stelzner, M.S., MSU, Department of Plant Biology, 2015.

Danielle Fegan, M.S., MSU, Department of Plant Biology, 2015.

Marta Jarzyna, Ph.D., MSU, Department of Fisheries and Wildlife, 2014.

Zhen Zhang, Ph.D., MSU, Department of Statistics and Probability, 2014.

Brendan Shirkey, M.S., MSU, Department of Fisheries and Wildlife, 2013.

Neil Verplanck, M.S., MSU, Department of Forestry, 2013.

David Minor, M.S., MSU, Department of Forestry, 2013.

Juan David Munoz-R, Ph.D., MSU, Department of Crop and Soil Science, 2013.

Ellen Holste, M.S., MSU, Department of Forestry, 2012.

Hong Su An, Ph.D., MSU, Department of Forestry, 2011.

Lindsay Campbell, M.S., MSU, Department of Geography, 2010.

Virpi Junttila, Ph.D., Lappeenranta University of Technology, Department of Mathematics, opponent 2010.

Lee S. Mueller, M.S., MSU, Department of Forestry, 2010.

Megan Matonis, M.S., MSU, Department of Forestry, 2009.

Post-Doctoral Advisees

Michele Peruzzi, Ph.D., Bocconi University in Milan, Statistics. 2019–2020.

Chad Babcock, Ph.D., University of Washington, Forest Science. 2017–2018.

Shinichiro Shirota, Ph.D., Duke, Statistical Science. 2017–2019.

Daniel Taylor-Rodriguez, Ph.D., University of Florida, Interdisciplinary Ecology. 2016–2017.

Virpi Junttila, Ph.D., Lappeenranta University of Technology, Department of Mathematics. 2011–2012.

Santonu Goswami, Ph.D., University of Texas, Department of Environmental Science and Engineering, 2012.

Francesc Montane, Ph.D., University of Barcelona, Department of Ecology, Spain. 2012.

Courses

FOR 128, Practical Computing and Data Science Tools: Spring 2023 – Current.

FOR/STT 875, R Programming for Data Sciences: Summer 2017 – Current.

STT 301, Computational Methods for Data Science: Fall 2016.

FOR 472, Ecological Monitoring and Data Analysis: Fall 2014 – Current.

FOR 462, Forest Resource Economics and Management: Fall 2014 – 2018.

FOR 408, Forest Resource Management: Spring 2008, Fall 2008 – 2013.

FOR 306, Forest Biometry: Spring 2012.

GEO 890, Hierarchical Bayesian Models for Environmental Spatial Data Analysis: Spring 2011.

Short Courses

Application of Bayesian Hierarchical Models Forestry, Ecology, Agriculture, and Climate Sciences, May 15, 2023. Conference on Applied Statistics in Agriculture and Natural Resources. Purdue University, West Lafayette, IN.

Practical Computing for Spatial Data Models, September 4, 2019. Scaling Problems in Statistics colloquium series, University of Göttingen, Germany.

High Performance Computing for Spatial Data, October 11, 2018. American Statistical Association ENVR Workshop - Statistics for the Environment: Research, Practice and Policy. Ashevill, NC.

Undergraduate Modelling Workshop, May 21-25, 2018. The Statistical and Applied Mathematical Sciences Institute, and Institute of Advanced Analytics, NC State University. Raleigh, NC.

Hierarchical Modeling and Analysis of Spatial-Temporal Data. University of Maine. May 1, 2018. Orono, ME.

Fourth Annual Graduate Workshop on Environmental Data Analytics, June 12-16, 2017. Institute for Mathematics Applied to Geosciences, NCAR. Boulder, CO.

Bayesian Modeling and Inference for High-Dimensional Spatial-Temporal Data. Joint Statistical Meeting. July 31, 2017. Baltimore, Maryland.

Hierarchical Modeling and Analysis of Spatial-Temporal Data. Department of Forest and Wildlife Ecology, University of Wisconsin. April 20, 2017. Madison Wisconsin.

Climate Ecology and Tree Growth Workshop, September 26-29, 2016. Harvard Forest, Petersham, MA.

Third Annual Graduate Workshop on Environmental Data Analytics, July 25-29, 2016 Boulder, CO.

STATMOS workshop on High Performance Computing for Spatial Statistics, September 1-2, 2015. University of Michigan, MI.

Second Annual Graduate Workshop on Environmental Data Analytics, July 27-31, 2015. Boulder, CO.

Hierarchical random effects models using Markov chain Monte Carlo: Analysis of spatio-temporal data. September 7, 2014. Graybill/ENVR Conference, Department of Statistics, Colorado State University, Fort Collins, CO.

First annual graduate workshop on environmental data analytics. July 28-August 1, 2014. Institute for Mathematics Applied to Geosciences, NCAR. Boulder, CO.

Forest biometry workshop. November 6–8, 2013. International Biometric Society meeting,

Freising, Germany.

Hierarchical modeling of large point-referenced datasets using the `spBayes` package. March 11, 2013. Eastern North American Region, International Biometric Society meeting, Orlando, FL.

Applied Bayesian spatio-temporal data analysis. March 7–8, 2013. National Ecological Observatory Network (NEON) Applied Bayesian Regression Workshop. Boulder, CO.

Bayesian modeling for spatial and spatio-temporal data analysis. March 9, 2013. MSU Center for Statistical Training and Consulting, East Lansing, MI.

Applied Bayesian regression analysis using `R` and `JAGS`. January 25, 2013. MSU Center for Statistical Training and Consulting, East Lansing, MI.

Bayesian Modeling for spatial and spatio-temporal data analysis. October 15-16, 2012. University of Nebraska–Lincoln, Department of Statistics, University of Nebraska, Lincoln, NE.

Bayesian Modeling for spatial and spatio-temporal data with applications to environmental sciences and public health. March 17, 2010. Frontier of Statistical Decision Making and Bayesian Analysis Conference, San Antonio, TX.

Hierarchical modeling and analysis of spatial-temporal data: Emphasis in forestry, ecology, and environmental sciences. March 15-18, 2009. Eastern North American Region, International Biometric Society meeting, San Antonio, TX.

Hierarchical modeling and analysis of spatial-temporal data: Emphasis in forestry, ecology, and environmental Sciences. July 5, 2009. The International Environmetrics Society conference, Bologna, Italy.

Hierarchical Modeling and analysis of spatial-temporal data: Emphasis in forestry, ecology, and environmental sciences. August 2, 2009. Joint Statistical Meeting, Washington, DC.

Working Group Membership

USDA Forest Service Forest Inventory and Analysis Small Area Estimation Science Panel: 2023.

NSF Research Coordination Network (RCN) – Forecasting of Resources and Environmental Changes Using Data Assimilation Science and Technology (FORECAST). PIs Y. Luo, D. Schimel, J. Clark, K. Ogle, S. LaDeau: 2010–2012.

SAMSI – Computation, Visualization, and Dimension Reduction in Spatio-Temporal Modeling. Working group leader B. Sanso: 2009–Current.

SAMSI – Geostatistics. Working group leader S. Banerjee: 2009–2010.

University Service

Department Advisory Committee, Michigan State University, Department of Forestry: 2018–2020.

University Academic Hearing Boards Pool: 2018.

University Committee on Undergraduate Education, Michigan State University: Spring 2018.

College Advisory Council, Michigan State University, College of Agriculture and Natural Resources: 2017–2018.

Chair of search committee for forest economics position, Michigan State University, Department of Forestry: 2017.

Chair of search committee for forest policy position, Michigan State University, Department of Forestry: 2016.

Chair of search committee for two tenure track positions in human dimension and natural resources, Michigan State University, Department of Forestry: 2015.

Chair of undergraduate advisor search committee, Michigan State University, Department of Forestry: 2014.

Department Advisory Committee, Michigan State University, Department of Forestry: 2013–2016.

Technology Services Faculty Advisory Committee, Michigan State University, College of Agriculture and Natural Resources: 2013–2015.

Director of Information and Technology, Michigan State University, Department of Forestry: 2011–2015.

Graduate Committee, Michigan State University, Department of Forestry: 2007–2010.

Ad hoc Undergraduate Curriculum Committee (chair), Michigan State University, Department of Forestry: 2008–2010.

Professional Service

General service (Not complete)

Session chair, Climate change, detection and attribution, causal inference and socio-economic considerations, Joint Statistical Meeting. August 6, 2023. Toronto, Canada.

Session organizer, Hierarchical Bayesian Models to Support Next-Generation Climate Data Products, Joint Statistical Meeting. August 4, 2014. Boston, MA.

Roundtable discussion leader, Opportunities for Environmental, Ecological, and Climate Change Research in a Data-Rich Era. Joint Statistical Meeting, August 7, 2013. Montreal, Canada.

Session chair, Survey and Statistical Methods in Forestry Research. Joint Statistical Meeting. August 6, 2013. Montreal, Canada.

Education Program Committee, 2013 Eastern North American Region, International Biometric Society.

Roundtable discussion leader, Opportunities in Environmental and Climate Change Research. Eastern North American Region, International Biometric Society. March 21–23, 2010. New Orleans, LA.

Representative to the American Association for the Advancement of Science, Eastern North American Region, International Biometric Society: 2011–2014.

Inventory Working Group Secretary, Society of American Foresters: 2009–2010.

Regional Advisory Board, International Biometric Society: 2009–2011.

Newsletter Editorial Board, The International Environmetrics Society (TIES): 2011–2018.

Scientific meetings (Not complete)

Travel and budget Chair, 8th International Workshop on Climate Informatics. September 19-21, 2018. NCAR Boulder, CO.

Co-organizer, American Statistical Association ENVR Workshop - Statistics for the Environment: Research, Practice and Policy. October 11–13, 2018. Ashevill, NC.

Co-organizer, Climate Ecology and Tree Growth Workshop. September 26-29, 2016. Harvard Forest, Petersham, MA.

Chair, Fourth Annual Graduate Workshop on Environmental Data Analytics. June 12-16, 2017. Boulder, CO.

Chair, Third Annual Graduate Workshop on Environmental Data Analytics. July 25–29, 2016. Boulder, CO.

Chair, Second Annual Graduate Workshop on Environmental Data Analytics. July 27–31, 2015. Boulder, CO.

Chair, First Annual Graduate Workshop on Environmental Data Analytics. July 28–August 1, 2014. Boulder, CO.

Co-organizer, 11th International Symposium on Spatial Accuracy Assessment in Natural Resources and Environmental Sciences. July 8–11, 2014. Michigan State University, East Lansing, MI. `http://web2.geo.msu.edu/sa14`.

Co-organizer, Next Generation Climate Data Products Workshop. July 15–19, 2013. NCAR/IMAGe Boulder, CO. `www2.image.ucar.edu/event/ngcdp13`.

Advisory committee, 2nd Conference on Spatial Statistics 2013: Mapping Global Change. June 4–7, 2013. Ohio State University, Columbus, OH.

Advisory committee, 1st Conference on Spatial Statistics 2011: Mapping Global Change. March 23–25, 2011. University of Twente, Enschede, Netherlands.

Scientific committee, Eastern North American Region/International Biometric Society. March 20–23, 2011. Miami, FL.

Scientific committee, Extending Forest Inventory and Monitoring Over Space and Time. May 19–22, 2009. Quebec City, Canada.

Scientific committee, Nearest Neighbors Workshop. July 5–7, 2007. University of Florence, Florence, Italy.

Co-organizer, Nearest Neighbors Workshop: Meeting in the Middle. August 28–30, 2006. University of Minnesota, Minneapolis, MN.

Membership

Member of American Statistical Association: 2007 – Current.

Member of International Biometric Society: 2007 – 2019.

Society of American Foresters: 2000 – 2008, 2023.

Scholarships

University of Minnesota, Department of Forest Resources Scholarship 2006, $1,500.

University of Minnesota, Department of Forest Resources Scholarship 2004, $6,000.

University of Massachusetts–Amherst, Department of Natural Resources Conservation's Donald L. Mader Scholarship 2002, $500.

University of Massachusetts–Amherst, Department of Natural Resources Conservation's Frank M. West Scholarship 2002, $250.

Consulting

Stratus Consulting, Boulder, CO: 2014–2015. Conducted review of BP's Deepwater Horizon oil spill impacts as an expert statistician representing the US Government.