

Colleen M. Iversen · Curriculum Vitae

Oak Ridge National Laboratory · Environmental Sciences Division · Oak Ridge · TN · 37831
Phone: (865) 241-3961 · Fax: (865) 574-9501 · iversencm@ornl.gov · <http://www.ornl.gov/~ciz>

Research interests

I am an ecosystem ecologist who uses a variety of field and laboratory techniques to understand and predict how ecosystems are shaped by climatic change. Specifically, I work at the root-soil interface to investigate how atmospheric and climatic change alters belowground carbon and nutrient cycling.

Education

Ph.D., University of Tennessee (2003 – 2008)

Ecology and Evolutionary Biology

Co-advisors: Richard J. Norby and Aimée T. Classen

Dissertation: Forest responses to rising atmospheric CO₂: Causes and consequences of increased fine-root production in a CO₂-enriched sweetgum plantation

M.S., University of Notre Dame (2001 – 2004)

Biological Sciences

Advisor: Scott D. Bridgham

Thesis: Scaling community nitrogen use- and uptake efficiencies in response to increased nutrient availability in peatlands

B.S. (*cum laude*), Hope College (1997 – 2001)

Biological and Environmental Sciences

Appointments

Staff scientist (2010 – present)

Environmental Sciences Division

Oak Ridge National Laboratory

Post-doctoral research associate (2008 – 2010)

Environmental Sciences Division

Oak Ridge National Laboratory

Marvin L. Wesely Graduate Research Environmental Fellow (2007 – 2008)

Global Change Education Program

Department of Energy

Publications

2013

Lynch DJ, Matamala R, **Iversen CM**, Norby RJ, Gonzalez-Meler MA. (2013). Stored carbon partly fuels fine-root respiration but is not used for production of new fine roots. *New Phytologist* 199: 420-430.

2012

Warren JM, **Iversen CM**, Garten CT, Norby RJ, Childs J, Brice DJ, Evans RM, Gu L, Thornton PE, Weston DJ (2012). Timing and magnitude of carbon partitioning through a young loblolly pine (*Pinus taeda* L.) stand using ^{13}C labeling and shade treatments. *Tree Physiology* 32: 799-813.

McMurtrie RE, **Iversen CM**, Dewar RC, Medlyn BE, Näsholm T, Pepper DA, Norby RJ (2012). Plant root distributions and nitrogen uptake predicted by a hypothesis of optimal root foraging. *Ecology and Evolution* 2: 1235-1250.

Iversen CM, Keller JK, Garten CT, Norby RJ (2012). Soil carbon and nitrogen cycling and storage throughout the soil profile in a sweetgum plantation after 11 years of CO_2 -enrichment. *Global Change Biology* 18: 1684-1697.

Iversen CM, Murphy MT, Allen MF, Childs J, Eissenstat DM, Lilleskov EA, Sarjala TM, Sloan VL, Sullivan PF (2012). Advancing the use of minirhizotrons in wetlands. *Plant and Soil* 352: 23–39.

2011

Iversen CM, Hooker TD, Classen AT, Norby RJ (2011). Net mineralization of N at deeper soil depths as a potential mechanism for sustained forest production under elevated $[\text{CO}_2]$. *Global Change Biology* 17: 1130-1139.

Garten CT, **Iversen CM**, Norby RJ (2011). Litterfall ^{15}N abundance indicates declining soil nitrogen availability in a free air CO_2 -enrichment experiment. *Ecology* 92: 133-139.

2010

Iversen CM (2010). Digging deeper: Fine root responses to rising atmospheric CO_2 concentration in forested ecosystems. *New Phytologist* 186: 346-357.

Norby RJ, Warren JM, **Iversen CM**, Medlyn BE, McMurtrie RE (2010). CO_2 enhancement of forest productivity constrained by limited nitrogen availability. *Proceedings of the National Academy of Sciences, USA* 107: 19368-19373.

Iversen CM, Bridgham SD, Kellogg LE (2010). Scaling plant nitrogen-use and uptake efficiencies in response to nutrient addition in peatlands. *Ecology* 91: 693-707.

Iversen CM, O'Brien SL (2010). Organized Oral Session 3. Missing links in the root–soil organic matter continuum. *Bulletin of the Ecological Society of America* 91: 54-64.

2009

O'Brien SL, **Iversen CM** (2009). Missing links in the root-soil organic matter continuum. *New Phytologist* 184: 513-516.

Franklin O, McMurtrie RE, **Iversen CM**, Crous KY, Finzi A, Tissue DT, Ellsworth DS, Oren R, Norby RJ (2009). Forest fine-root production and nitrogen use under elevated CO₂: contrasting responses in evergreen and deciduous trees explained by a common principle. *Global Change Biology* 15: 132-144.

2008

Iversen CM, Ledford J, Norby RJ (2008). CO₂ enrichment increases carbon and nitrogen input from fine roots in a deciduous forest. *New Phytologist*. 179: 837-847.

Iversen CM, Norby RJ (2008). Nitrogen limitation in a sweetgum plantation: Implications for carbon allocation and storage. *Canadian Journal of Forest Research* 38: 1021-1032.

2005 – 2007

Finzi AC, Norby RJ, Calfapietra C, Gallet-Budynek A, Gielen B, Holmes WE, Hoosbeek MR, **Iversen CM**, Jackson RB, Kubiske MB, Ledford J, Liberloo M, Oren R, Polle A, Pritchard S, Zak DR, Schlesinger WH, Ceulemans R (2007). Increases in nitrogen uptake rather than nitrogen-use efficiency support higher rates of temperate forest productivity under elevated CO₂. *Proceedings of the National Academy of Sciences, USA* 104: 14014-14019.

Norby RJ, **Iversen CM** (2006). Nitrogen uptake, distribution, turnover, and efficiency of use in a CO₂-enriched sweetgum forest. *Ecology* 87: 5-14.

Keller JK, Bauers AK, Bridgham SD, Kellogg LE, **Iversen CM** (2006). Nutrient control of microbial carbon cycling along an ombrotrophic-minerotrophic peatland gradient. *Journal of Geophysical Research* 111: G03006.

Keller JK, Bridgham SD, Chapin CT, **Iversen CM** (2005). Limited effects of six years of fertilization on carbon mineralization dynamics in a Minnesota fen. *Soil Biology and Biochemistry* 37: 1197-1204.

External funding

Current

- | | |
|-----------|--|
| 2013-2014 | Measuring and modeling fine roots to improve predictive understanding of climate change feedbacks; US Department of Energy ; PI |
| 2011- | Next-Generation Ecosystem Experiments (NGEE) – Arctic (http://ngee-arctic.ornl.gov/); US Department of Energy ; Co-PI |
| 2010- | Spruce and Peatland Responses Under Climatic and Environmental Change (SPRUCE) (http://mnspruce.ornl.gov/); US Department of Energy ; Co-PI |

Previous

- 2010-2013 Partitioning in Trees and Soils (PiTS): Field research facilities for testing and improving dynamic carbon partitioning representations in global models; **US Department of Energy**, Co-PI
- 2007 – 2009 Doctoral Dissertation Improvement Grant. Will CO₂ mediated increases in fine-root litter progressively decrease forest N availability by increasing N immobilization in soil organic matter? **National Science Foundation**
- 2005 – 2008 Graduate Research Environmental Fellowship. Global Change Education Program, **US Department of Energy**

Honors and awards

- 2012 Stanley I. Auerbach Early-Career Award for Excellence in Environmental Sciences. Environmental Sciences Division, Oak Ridge National Laboratory.
- 2010 Finalist in *New Phytologist* Tansley Medal competition for mini-review: Iversen CM (2010), *New Phytologist* 186: 346-357. Highlighted in Woodward & Hetherington 'The *New Phytologist* Tansley medal', *New Phytologist* 186: 263-264.
- 2009 Distinguished Achievement Award for Post-Graduate Research. Environmental Sciences Division, Oak Ridge National Laboratory.
- 2007 – 2008 Marvin L. Wesely Graduate Research Environmental Fellow. Global Change Education Program, United States Department of Energy.
- 2006 Best student poster presentation in the Soil Ecology Section of the Ecological Society of America annual meeting, Memphis, TN, USA.
- 2006 Travel award from Terrestrial Ecosystem Responses to Atmospheric and Climatic Change network to attend forested FACE synthesis in Antwerp, Belgium.
- 2005 Second best student poster presentation. Soil Ecology Society biennial meeting, Argonne National Laboratory, Argonne, IL, USA.
- 2004 Travel award to attend Terrestrial Ecosystem Responses to Atmospheric and Climatic Change annual meeting, Fort Meyers, FL, USA.
- 2003 – 2004 Travel awards from the Society of Wetland Scientists to attend Society of Wetland Scientists annual meeting, New Orleans, LA, USA (2003) and Association of Southeastern Biologists annual meeting, Memphis, TN, USA (2004).

Selected presentations (Past 5 years)

Iversen CM. 2013. Quantifying and categorizing the unseen: The representation of root traits in PFTs. *Organized Oral Session: Plant Functional Types in DVM for Arctic Ecosystems: Past Experiences, Future Directions.* Ecological Society of America Annual Meeting, Minneapolis, MN, USA.

Iversen CM, Walker AP, Childs J, Norby RJ. 2013. 'From near to far, from here to there, funny things are everywhere' *Ignite: Scaling in Global Change Studies: Representation in Multiple Dimensions.* Ecological Society of America Annual Meeting, Minneapolis, MN, USA.

Iversen CM. 2013. Digging deeper: Improving our understanding of ecosystem responses to atmospheric and climatic change through measurements and modeling of belowground processes. *Invited talk.* Biogeochemistry and Environmental Science and Sustainability Fall 2012 Seminar Series, Cornell University, Ithaca, NY, USA.

Iversen CM, et al. 2013. Improving our understanding of ecosystem responses to climate change through measurements and modeling of belowground processes'. *Invited talk.* Belowground Carbon Cycling Processes at the Molecular Scale workshop, Environmental Molecular Sciences Laboratory at Pacific Northwest National Laboratory, Richland, WA, USA.

Iversen CM, Childs J, Norby RJ, Kolka, RK, Ontl TA. 2013. Advancing the use of minirhizotrons in wetlands. *Invited talk.* Environmental Sensing Technology workshop associated with the Center for Embedded Network Sensors at the University of California, Riverside, CA, USA.

Iversen CM, Norby RJ. 2012. Digging deeper: Rooting distributions in forested CO₂-enrichment experiments. *Invited talk.* Scaling Root Processes: Global Impacts workshop, Washington, D.C., USA.

Iversen CM, Norby RJ. 2011. The interplay between soil N availability, C partitioning, and ecosystem C storage in a CO₂-enriched sweetgum plantation. *Invited talk.* The 27th *New Phytologist* Symposium: Stoichiometric flexibility in terrestrial ecosystems under global change. Biosphere 2, Oracle, AZ, USA.

Iversen CM, Keller JK, Garten GT, Norby RJ. 2011. The consequences of deeper rooting distributions under elevated [CO₂]. *Organized oral session.* Ecological Society of America annual meeting, Austin, TX, USA

Iversen CM. 2010. At the root of the response: Carbon and nitrogen cycling in a CO₂-enriched deciduous forest. *Invited talk.* Biology Department, Hope College, Holland, MI, USA.

Iversen CM. 2009. The causes and consequences of increased fine-root production in a CO₂-enriched sweetgum plantation. *Invited talk.* Department of Biological Sciences Seminar, University of Illinois at Chicago, Chicago, IL, USA.

Iversen CM. 2008. The causes and consequences of increased fine-root production in a CO₂-enriched sweetgum plantation. *Keynote address.* High CO₂ Workshop, University of Western Sydney, New South Wales, Australia.

Professional activities

Organizing committee: “Scaling Root Processes: Global Impacts” workshop held in Washington, D.C., in March, 2012 and funded by the Department of Energy, Office of Science (<http://www.bio.anl.gov/ScalingRootProcesses-GlobalImpactsWorkshop>).

Organizer: “Advancing minirhizotron use to examine ephemeral root dynamics in peatland and high carbon ecosystems”. Workshop hosted at Oak Ridge National Laboratory in October, 2010, and funded by the Department of Energy, Office of Science and New Phytologist Trust.

Co-organizer: “Missing links in the root-soil organic matter continuum”. Organized oral session at the annual Ecological Society of America meeting, August, 2009 in Albuquerque, NM, USA.

Ad-hoc reviewer for: *Acta Oecologica*; *Agriculture, Ecosystems & Environment*; *Biogeosciences*; *Biological Invasions*; *Canadian Journal of Forest Research*; *Ecology*; *Ecology Letters*; *Ecosphere*; *Global Biogeochemical Cycles*; *Global Change Biology*; *Journal of Ecology*; *Nature*; *New Phytologist*; *Oecologia*; *Plant and Soil*; *Soil Biology and Biochemistry*; *Soil Science Society of America Journal*; *Tree Physiology*; National Science Foundation; National Institute for Climate Change Research; Department of Energy, Office of Science.

Public outreach: Local NPR interview; web cast for Oak Ridge Associated Universities; part of a feature story in the *ORNL Review*; ORNL recruitment video, National Geographic JASON program.

Society memberships: American Geophysical Union, Ecological Society of America, Soil Ecology Society