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Forest, Nature and Biomass
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Degrees

2006 PhD, Biology, University of Copenhagen.

2001 MSc, Biology, University of Copenhagen.

Positions

2014 - now Associate Professor at Section for Forest, Nature and Biomass, Dept. of and Natural Resource Management, University of Copenhagen.

Geosciences

2013 – 2015 Senior Scientist at DTU Chemical Engineering (KT-DTU).

2008 – 2013 Research Scientist at Biosystems Division, Risø DTU / ECO Centre, KT-DTU.

2006 – 2008 Post doc at Biosystems Division, Risø DTU.

2003 – 2006 PhD student at Biological Institute, University of Copenhagen.

2001 – 2003 Full-time administrator of Circus of Science (Danish: Cirkus Naturligvis) at the Science, University of Copenhagen.

Faculty of

Periods of leave

2010 Parental leave with second child (8-19 Mar + 1 Nov-23 Dec).

2007 Parental leave with first child (2-17 Jan + 7 Aug-18 Nov).

Scientific focus areas

Objective: To increase our understanding and improve the modeling of ecosystem-level biogeochemical cycling of carbon (C) and nutrients, primarily nitrogen (N), in a climate change perspective.

Activities: • Ecosystem greenhouse gas exchange (with focus on CO₂) and nutrient cycling/ leaching and their responses to current and expected future climate change • Improved modeling of processes involved in CO₂ capture (photosynthesis) and CO₂ emission (respiration) • Using stable isotope techniques to investigate fluxes and partitioning of C and N in ecosystems • Responsible for chamber CO₂ measurements at various field sites • Collaborator in measurements of other greenhouse gases (N₂O and CH₄) • Responsible for nutrient cycling measurements at various field sites • Development of novel automatic measurement techniques for greenhouse gas exchange between ecosystem and atmosphere.

Memberships of international scientific committees

Steering committee member of EU-infrastructure projects INCREASE (2009-2013), EXPEER (2010-2015), and ANAEE (2012-current). Management group member and working group leader in COST action 1308 CLIMMANI (2014-2018).

Member of Research Infrastructure Network for Nordic Atmospheric and Earth System Science (Nordic ENVRI, 2014-2016). Member of the Scientific Advisory Board of the SITES consortium in Sweden (2021-current),

<https://www.fieldsites.se/en-GB>.

Scientific network

Since 2006, I have participated in 6 national and 11 international/EU projects and have thereby developed a large international network within my research area. I am leading the AnaEE network in Denmark (AnaEE Denmark, anaee.dk) as National Focal Point and coordinator and I am the Head of the AnaEE Technology Centre in AnaEE Int (anaee.eu).

Awards

2011 First-author paper (Global Change Biology, 2011, Vol. 17(5), pp. 1884-1899) rated by Faculty of 1000 to be “among the top 2% of published articles in biology and medicine”.

Research project and management

2022 – 2025 Co-WP leader in WildSoil (DFF). Supervision of 1 PhD working with greenhouse gas exchange. Total uddet 12 mill. DKK.

2021 – 2027 Collaborator in Silva Nova. Supervision of 1 PhD working with greenhouse gas exchange. Total budget 60 mill. DKK.

2020 – 2024 WP leader in ForBioFunCtion. Principal supervisor of 1 PhD. Total budget 12 mill. DKK – UCPH budget 0.4 mill. DKK.

2020 – 2023 WP leader in RePeat. Co-supervisor of 1 PhD. Total budget 4.4 mill. DKK.

2019 – 2022 FutureArctic. Steering group member and principal supervisor of 1 PhD. Total budget 29.5 mill DKK – UCPH budget 2.5 mill. DKK.

2019 – 2023 Special consultant in Norway MIRE restoration project. Responsible for autochamber greenhouse gas budget estimation. Total budget 10 mill DKK – UCPH budget 0.6 mill DKK.

2018 – 2027 Coordinator of AnaEE Denmark and Head of AnaEE Technology Centre. AnaEE (Analysis and Experimentation on Ecosystem) is a European research infrastructure and AnaEE Denmark is the national consortium in Denmark. Total budget for AnaEE Denmark DKK 45 mill.

2014 – 2017 Work Packager (WP) leader in DFF-FNU project Partitioning forest ecosystem respiration by application of novel isotope laser spectroscopy. Total budget DKK 5.7 mill., WP budget DKK 2.8 mill. Focus of this WP is the study of individual components of ecosystem CO₂ fluxes using real-time isotope techniques.

2013 – WP leader in DFF-FNU project Partitioning forest ecosystem respiration by application of novel isotope laser

spectroscopy (2014-2017). Focus of WP is the study of individual components of ecosystem CO₂ fluxes using isotope techniques.

2013 – PI/Project manager for KT-DTU and Steering Committee Member in the EU project AnaEE (Infrastructure for Analysis and Experimentation on Ecosystems, 2012-2016) with 13 partners from 10 countries. Appointed as focal point among Danish Universities for AnaEE in Denmark to coordinate future Danish AnaEE activities.

2013 – PI/Project manager for KT-DTU and Steering Committee Member of the EU project ExpeER (Experimentation of Ecosystem Research, 2010-2014) with 35 partners from 19 countries.

2011 – Work Package member (database development) of the EU project ECLAIRE (Effects of Climate Change on Air Pollution and Response Strategies for European Ecosystems, 2011-2015).

2011 – Work Package member (chamber measurement techniques) of the EU project INGOS (Integrated non-CO₂ greenhouse gas observing system, 2011-2015).

2009 – 2013 PI/Project manager for KT-DTU and Steering Committee Member of in the EU project INCREASE (Integrated Network on Climate Change Research Activities on Scrubland Ecosystems, 2009-2013) with 9 European partners from six countries (2009-2013). Work package leader for net ecosystem CO₂ exchange work package within the project.

2006 – Responsible for ecosystem biogeochemical cycling measurements and from 2009 also responsible for ecosystem gaseous exchange of CO₂ in the VKR Centre of Excellence project CLIMAITE (2004-2015). Also responsible for chamber measurements of CO₂ at field sites Sorø (beech forest) and Pilemark (willow field plantation).

2006 – 2011 Data Management Committee Member and Data Manager for 37 climate experimental field sites in Europe within the NITROEUROPE IP project (2006-2011). Responsible for CO₂, NO, NO₂ and O₃ exchange measurements from the soil and canopy profile at the Sorø field site, a super-site within NITROEUROPE IP.

2006 – 2009 Responsible for CO₂ flux measurements from soil and canopy profile at the Sorø field site, a super-site within the CARBOEUROPE IP (2004-2009).

Project management courses

2010 Six day course Project Management Programme for Researchers at DTU including examination (passed). Held by Implement Consulting Group.

2008 Six day DTU course “Management of Research Projects” at DTU.

Supervision

2020 – 2023 Supervisor of PhD student Carl-Fredrik Johannesson in the ForBioFunCtioN project on GHG exchange of Norwegian Forests under climate change.

2020 Supervisor of MSc student Mathilde Køhler, and ENGEES student projects of Dominique Weckner, Quintin Laprovote, Simon Peredes and Fabien Seve.

2019 – 2022 Supervisor of PhD student Linsey Marie Avila in the FutureArctic project on GHG at experimental warming site in Iceland.

2019 – 2023 Supervisor of PhD student Qiaoyan Li in a CSC project on GHG exchange in heathland ecosystems.

2019 Supervisor of MSc students Linn Andersson and Anna Polaskova.

2018 Supervisor of MSc students Cesar Marina Montes, Casper Harder Rasmussen and Iris Katharina Bernadette Ulsamer.

2017 Supervisor of BSc students Kristine Skov, Matilde Køhler and Nann Budtz.

2016 Supervisor of MSc student Morten Martinsen and co-supervisor of MSc student Cecilia Isabella Karlsson.

2014 – 2017 Supervisor of PhD student Andreas Brændholt in the DFF-FNU project Partitioning forest ecosystem respiration by application of novel isotope laser spectroscopy.

2010 - 2012 Practical supervisor of PhD student Merete Bang Selsted in the VKR Centre of Excellence project CLIMAITE.

2005 Practical supervisor of BSc students Kristian Lindekrans og Astrid Kappel Nielsen, UCPH.

PhD Committees

2017 – Member of PhD evaluation committees of Relena Ribbons (2017), Philipp Schleusner (2018), Inge Althuizen (2018), and Yan Peng (2020).

Review activities (regularly reviews for the following journals)

Arctic, Antarctic, and Alpine Research, Biogeochemistry, Biogeosciences, Climatic Change, Ecosystems, European Journal of Soil Science, Global Change Biology, Plant and Soil.

Publications

Extreme drought impacts have been underestimated in grasslands and shrublands globally

Smith, M. D., Wilkins, K. D., Holdrege, M. C., Wilfahrt, P., Collins, S. L., Knapp, A. K., Sala, O. E., Dukes, J. S., Phillips, R. P., Yahdjian, L., Gherardi, L. A., Ohlert, T., Beier, C., Fraser, L. H., Jentsch, A., Loik, M. E., Maestre, F. T., Power, S. A., Yu, Q., Felton, A. J. & 153 others, Munson, S. M., Luo, Y., Abdoli, H., Abedi, M., Alados, C. L., Alberti, J., Alon, M., An, H., Anacker, B., Anderson, M., Auge, H., Bachle, S., Bahalkeh, K., Bahn, M., Batbaatar, A., Bauerle, T., Beard, K. H., Behn, K., Beil, I., Biancari, L., Blindow, I., Bondaruk, V. F., Borer, E. T., Bork, E. W., Bruschetti, C. M., Byrne, K. M., Cahill, J. F., Calvo, D. A., Carbognani, M., Cardoni, A., Carlyle, C. N., Castillo-Garcia, M., Chang, S. X., Chieppa, J., Cianciaruso, M. V., Cohen, O., Cordeiro, A. L., Cusack, D. F., Dahlke, S., Daleo, P., D'Antonio, C. M., Diatterich, L. H., Doherty, T. S., Dubbert, M., Ebeling, A., Eisenhauer, N., Fischer, F. M., Forte, T. G. W., Gebauer, T., Gozalo, B., Greenville, A. C., Guidoni-Martins, K. G., Hannusch, H. J., Haugum, S. V., Hautier, Y., Hefting, M., Henry, H. A. L., Hoss, D., Iribarne, O., Isbell, F., Johnson, Y., Jordan, S., Kelly, E. F., Kimmel, K., Kreyling, J., Kröel-Dulay, G., Ingrisich, J., Kröpfl, A., Kübert, A., Kulmatiski, A., Lamb, E. G., Larsen, Klaus Steenberg, Larson, J., Leder, C. V., Linstädter, A., Liu, J., Liu, S., Lodge, A. G., Longo, G., Loydi, A., Luan, J., Lawson, J., Lubbe, F. C., Macfarlane, C., Mackie-Haas, K., Malyshev, A. V., Maturano-

Ruiz, A., Merchant, T., Metcalfe, D. B., Mori, A. S., Mudongo, E., Newman, G. S., Nielsen, U. N., Nimmo, D., Niu, Y., Nobre, P., O'Connor, R. C., Ogaya, R., Oñatibia, G. R., Orbán, I., Osborne, B., Otfinowski, R., Pärtel, M., Penuelas, J., Peri, P. L., Peter, G., Petraglia, A., Picon-Cochard, C., Pillar, V. D., Piñeiro-Guerra, J. M., Ploughe, L. W., Plowes, R. M., Portales-Reyes, C., Prober, S. M., Pueyo, Y., Reed, S. C., Ritchie, E. G., Rodríguez, D. A., Rogers, W. E., Roscher, C., Sánchez, A. M., Santos, B. A., Scarfó, M. C., Seabloom, E. W., Shi, B., Souza, L., Stampfli, A., Standish, R. J., Sternberg, M., Sun, W., Sünnemann, M., Tedder, M., Thorvaldsen, P., Tian, D., Tielbörger, K., Valdecantos, A., van den Brink, L., Vandvik, V., Vankoughnett, M. R., Velle, L. G., Wang, C., Wang, Y., Wardle, G. M., Werner, C., Wei, C., Wiehl, G., Williams, J. L., Wolf, A. A., Zeiter, M., Zhang, F., Zhu, J., Zong, N. & Zuo, X., 2024, In: Proceedings of the National Academy of Sciences of the United States of America. 121, 4, 10 p., e2309881120.

Reading tea leaves worldwide: Decoupled drivers of initial litter decomposition mass-loss rate and stabilization

Sarneel, J. M., Hefting, M. M., Sandén, T., van den Hoogen, J., Routh, D., Adhikari, B. S., Alatalo, J. M., Aleksanyan, A., Althuizen, I. H. J., Alsafran, M. H. S. A., Atkins, J. W., Augusto, L., Aurela, M., Azarov, A. V., Barrio, I. C., Beier, C., Bejarano, M. D., Benham, S. E., Berg, B., Bezler, N. V. & 88 others, Björnsdóttir, K., Bolinder, M. A., Carbognani, M., Cazzolla Gatti, R., Chelli, S., Chistotin, M. V., Christiansen, C. T., Courtois, P., Crowther, T. W., Dechoum, M. S., Djukic, I., Duddigan, S., Egerton-Warburton, L. M., Fanin, N., Fantappiè, M., Fares, S., Fernandes, G. W., Filippova, N. V., Fliessbach, A., Fuentes, D., Godoy, R., Grünwald, T., Guzmán, G., Hawes, J. E., He, Y., Hero, J. M., Hess, L. L., Hogendoorn, K., Høye, T. T., Jans, W. W. P., Jónsdóttir, I. S., Keller, S., Kepfer Rojas, Sebastian, Kuz'menko, N. N., Larsen, Klaus Steenberg, Laudon, H., Lembrechts, J. J., Li, J., Limousin, J. M., Lukin, S. M., Marques, R., Marín, C., McDaniel, M. D., Meek, Q., Merzlaya, G. E., Michelsen, Anders, Montagnani, L., Mueller, P., Murugan, R., Myers-Smith, I. H., Nolte, S., Ochoa-Hueso, R., Okafor, B. N., Okorkov, V. V., Onipchenko, V. G., Orozco, M. C., Parkhurst, T., Peres, C. A., Petit Bon, M., Petraglia, A., Pingel, M., Rebmann, C., Scheffers, B. R., Schmidt, Inger Kappel, Scholes, M. C., Sheffer, E., Shevtsova, L. K., Smith, S. W., Sofo, A., Stevenson, P. R., Strouhalová, B., Sundsdal, A., Sühs, R. B., Tamene, G., Thomas, H. J. D., Tolunay, D., Tomaselli, M., Tresch, S., Tucker, D. L., Ulyshen, M. D., Valdecantos, A., Vandvik, V., Vanguelova, E. I., Verheyen, K., Wang, X., Yahdjian, L., Yumashev, X. S. & Keuskamp, J. A., 2024, In: Ecology Letters. 27, 5, 14 p., e14415.

Carbon dynamics of a controlled peatland restoration experiment in Norway

Bekken, M., Pirk, N., Vatne, A., Tallaksen, L., Westermann, S., Larsen, P., Ibrom, A., Larsen, Klaus Steenberg, Knutson, J. & Dörsch, P., 2023. 1 p.

Exploring the impacts of unprecedented climate extremes on forest ecosystems: hypotheses to guide modeling and experimental studies

Holm, J. A., Medvigy, D. M., Smith, B., Dukes, J. S., Beier, Claus, Mishurov, M., Xu, X., Lichstein, J. W., Allen, C. D., Larsen, Klaus Steenberg, Luo, Y., Ficken, C., Pockman, W. T., Anderegg, W. R. L. & Rammig, A., 2023, In: Biogeosciences. 20, 11, p. 2117-2142 26 p.

Forest soil and deadwood CH₄ fluxes in response to warming, increased precipitation, nitrogen fertilization and biochar addition across a Norwegian spruce age-management gradient

Johannesson, Carl-Fredrik, Larsen, Klaus Steenberg, Nordén, J. & Silvennoinen, H., 2023. 1 p.

High temporal resolution measurements of subarctic carbon exchange following natural soil temperature manipulation

Avila, Linsey Marie, Protti, F., Sigurdsson, P., Hamedpour, A., Sigurdsson, B. D. & Larsen, Klaus Steenberg, 2023. 1 p.

Higher sensitivity of gross primary production than ecosystem respiration to experimental drought and warming across six European shrubland ecosystems

Li, Qiaoyan, Tietema, A., Reinsch, S., Schmidt, Inger Kappel, de Dato, G., Guidolotti, G., Lellei-Kovács, E., Kopittke, G. & Larsen, Klaus Steenberg, 2023, In: The Science of the Total Environment. 900, 10 p., 165627.

Long-term temporal patterns in ecosystem carbon flux components and overall balance in a heathland ecosystem

Li, Qiaoyan, Larsen, Klaus Steenberg, Kopittke, G., van Loon, E. & Tietema, A., 2023, In: Science of the Total Environment. 875, 8 p., 162658.

A hotspot of CH₄ emission in a Danish agricultural soil: A soft spot in our knowledge?

Brændholt, Andreas, Tariq, Azeem, Hansen, Line Vinther, Jensen, Lars Stoumann, Larsen, Klaus Steenberg & Bruun, Sander, 2022. 2 p.

Communities of Collembola show functional resilience in a long-term field experiment simulating climate change

Bonfanti, J., Hedde, M., Cortet, J., Krogh, P. H., Larsen, Klaus Steenberg & Holmstrup, M., 2022, In: *Pedobiologia*. 90, 10 p., 150789.

Disentangling long-term and short-term temperature response of carbon fluxes in a subarctic grassland ecosystem exposed to long-term, geothermal warming

Avila, Linsey Marie, Sigurdsson, B. D., Christiansen, Jesper Riis & Larsen, Klaus Steenberg, 2022. 2 p.

Effect of nitrification inhibitor (DMPP) on nitrous oxide emissions from agricultural fields: Automated and manual measurements

Tariq, Azeem, Larsen, Klaus Steenberg, Hansen, Line Vinther, Jensen, Lars Stoumann & Bruun, Sander, 2022, In: *Science of the Total Environment*. 847, 14 p., 157650.

Effects of drought and warming treatments on CO₂ fluxes in shrubland ecosystems across European environmental gradients

Li, Qiaoyan, Tietema, A., Reinsch, S., Guidolotti, G., Schmidt, Inger Kappel, Dato, G. D., Emmett, B., Lellei-Kovács, E. & Larsen, Klaus Steenberg, 2022. 1 p.

Exploring the impacts of unprecedented climate extremes on forest ecosystems: hypotheses to guide modeling and experimental studies

Holm, J. A., Medvigy, D. M., Smith, B., Dukes, J. S., Beier, Claus, Mishurov, M., Xu, X., Lichstein, J. W., Allen, C. D., Larsen, Klaus Steenberg, Luo, Y., Ficken, C., Pockman, W. T., Anderegg, W. R. L. & Rammig, A., 2022, 45 p. (*Biogeosciences Discussions*; No. 65, Vol. 2022).

Field experiments underestimate aboveground biomass response to drought

Kröel-Dulay, G., Mojzes, A., Szitár, K., Bahn, M., Batáry, P., Beier, C., Bilton, M., De Boeck, H. J., Dukes, J. S., Estiarte, M., Holub, P., Jentsch, A., Schmidt, I. K., Kreyling, J., Reinsch, S., Larsen, K. S., Sternberg, M., Tielbörger, K., Tietema, A., Vicca, S. & 1 others, Peñuelas, J., 2022, In: *Nature Ecology and Evolution*. 9 p.

Forest soil and deadwood CH₄ fluxes in response to climate change and forest management

Johannesson, Carl-Fredrik, Larsen, Klaus Steenberg & Nordén, J., 2022. 1 p.

Greenhouse gas fluxes in two drained Northern peatlands inferred from eddy covariance and automatic light-dark chambers

Larsen, Klaus Steenberg, Ibrom, A., Pirk, N. & Larsen, P., 2022. 2 p.

Re-visiting soil carbon and nitrogen stocks in a temperate heathland seven years after the termination of free air CO₂ enrichment (FACE)

Li, Qiaoyan, Ambus, Per Lennart, Michelsen, Anders, Schmidt, Inger Kappel, Beier, Claus, Dietzen, Christiana Amalie, Reinsch, S., Arndal, M. F. & Larsen, Klaus Steenberg, 2022, In: *Geoderma*. 428, 7 p., 116185.

Spatiotemporal variability of CO₂, CH₄ and N₂O fluxes over a soil hydrological gradient reveal soil water-temperature interactions on biogeochemical pathways

Christiansen, Jesper Riis & Larsen, Klaus Steenberg, 2022. 1 p.

Supplementary material to "Exploring the impacts of unprecedented climate extremes on forest ecosystems: hypotheses to guide modeling and experimental studies"

Holm, J. A., Medvigy, D. M., Smith, B., Dukes, J. S., Beier, Claus, Mishurov, M., Xu, X., Lichstein, J. W., Allen, C. D., Larsen, Klaus Steenberg, Luo, Y., Ficken, C., Pockman, W. T., Anderegg, W. R. L. & Rammig, A., 2022, 9 p. (*Biogeosciences Discussions*; No. 65 - Supplement, Vol. 2022).

A High-Resolution Digital Elevation Model in Combination With Water Table Depth and Continuous Soil Redox Potential Measurements Explain Soil Respiration and Soil Carbon Stocks at the ICOS Site Sorø

Callesen, Ingeborg, Brændholt, A., Schrupf, M., Vesterdal, Lars, Magnussen, A., Vorenhout, M. & Larsen, Klaus Steenberg, 2021, In: *Frontiers in Forests and Global Change*. 3, 16 p., 563355.

Abandoned Peatland Ecosystem Response to Secondary Succession

Nielsen, Annelie Skov, Larsen, Klaus Steenberg, Vesterdal, Lars, Gundersen, Per & Christiansen, Jesper Riis, 2021. 2 p.

Disentangling climate from soil nutrient effects on plant biomass production using a multispecies phytometer

Wilfahrt, P. A., Schweiger, A. H., Abrantes, N., Arfin-khan, M. A. S., Bahn, M., Berauer, B. J., Bierbaumer, M., Djukic, I., Dusseldorp, M., Eibes, P., Estiarte, M., Hessberg, A., Holub, P., Ingrisch, J., Schmidt, I. K., Kesic, L., Klem, K., Kröel-dulay, G., Larsen, K. S., Löhmus, K. & 13 others, Mänd, P., Orbán, I., Orlovic, S., Peñuelas, J., Reinthaler, D., Radujković, D., Schuchardt, M., Schweiger, J. M. -, Stojnic, S., Tietema, A., Urban, O., Vicca, S. & Jentsch, A., 2021, In: Ecosphere. 12, 8, 14 p., e03719.

Effects of Climate and Atmospheric Nitrogen Deposition on Early to Mid-Term Stage Litter Decomposition Across Biomes

Kwon, T., Shibata, H., Kepfer Rojas, Sebastian, Schmidt, Inger Kappel, Larsen, Klaus Steenberg, Beier, Claus, Berg, B., Verheyen, K., Lamarque, J., Hagedorn, F., Eisenhauer, N. & Djukic, I., 2021, In: Frontiers in Forests and Global Change. 4, 18 p., 678480.

ForBioFunCtion: Forest soil carbon and the effects of climate change and forest management

Johannesson, Carl-Fredrik, Larsen, Klaus Steenberg, Malicki, B. & Nordén, J., 2021. 1 p.

In situ gas-exchange: automated, light-dark measurements of CO₂ fluxes on a geothermal temperature gradient in a Sub-Arctic grassland ecosystem

Avila, Linsey Marie, Larsen, Klaus Steenberg, Sigurdsson, B. D. & Sigurdsson, P., 2021. 2 p.

Inferring ecosystem-level rates of gross primary productivity, respiration, and evapotranspiration with automatic light-dark measurement chambers

Larsen, Klaus Steenberg, Pullens, J. W. M., Avila, Linsey Marie, Bruun, Sander, Chen, J., Christiansen, Jesper Riis, Ibrom, A., Larsen, P., Lærke, P. E., Jørgensen, P. & Tariq, Azeem, 2021.

Nitrous oxide emission from agricultural soils in response to nitrification inhibitor and N-fertilizer amount

Tariq, Azeem, Larsen, Klaus Steenberg, Hansen, Line Vinther, Jensen, Lars Stoumann & Bruun, Sander, 2021. 1 p.

Re-visiting a long-term Free Air CO₂ Enrichment (FACE) experiment in a Danish heathland/grassland ecosystem (CLIMAITE) reveals highly dynamic soil carbon

Li, Qiaoyan, Larsen, Klaus Steenberg & Gundersen, Per, 2021. 1 p.

Spatial variability of greenhouse gas fluxes in two drained Northern peatlands

Ibrom, A., Pirk, N., Larsen, Klaus Steenberg, Avila, Linsey Marie, Kissas, K. & Larsen, P., 2021. 2 p.

The TeaComposition initiative: Unleashing the power of international collaboration to understand litter decomposition

Djukic, I., Guerra, C., Maestre, F. T., Hagedorn, F., Oggioni, A., Bergami, C., Magagna, B., Kwon, T., Shibata, H., Eisenhauer, N., Patoine, G., Bierbaumer, M., Kepfer Rojas, Sebastian, Schmidt, Inger Kappel, Larsen, Klaus Steenberg, Beier, Claus, Berg, B., Verheyen, K., Trevathan-Tackett, S. M. & Macreadie, P. I., 2021, In: Soil Organisms. 93, 1, p. 73-78 6 p.

The handbook for standardized field and laboratory measurements in terrestrial climate change experiments and observational studies (ClimEx)

Schmidt, Inger Kappel & ClimMani Working Group, C. W. G., 1 Jan 2020, In: Methods in Ecology and Evolution. 11, 1, p. 22-37 16 p.

AnaEE: a European infrastructure for future-oriented experimental ecosystem research

Boeck, H. D., Reynaert, S., Nijs, I., Klem, K., Larsen, Klaus Steenberg, Sternberg, M. & Boer, M., 2020. 1 p.

Experimental approach to study the climate effects from drained peatland restoration

Ibrom, A., Pirk, N., Larsen, Klaus Steenberg, Kindler, P. A. & Larsen, P., 2020. 2 p.

Exploring the impacts of unprecedented climate extremes on forest ecosystems: hypotheses to guide modeling and experimental studies

Holm, J. A., Medvigy, D. M., Smith, B., Dukes, J. S., Beier, Claus, Mishurov, M., Xu, X., Lichstein, J. W., Allen, C. D., Larsen, Klaus Steenberg, Luo, Y., Ficken, C., Pockman, W. T., Anderegg, W. R. L. & Rammig, A., 2020. 2 p.

High temporal resolution measurements of CO₂, CH₄ and N₂O in a Norwegian mire ecosystem using automated light-dark chambers

Avila, Linsey Marie, Larsen, Klaus Steenberg, Ibrom, A., Pirk, N. & Larsen, P., 2020. 1 p.

Long-term effects of precipitation removal manipulations on soil carbon balance and exchange in a Danish heathland/grassland ecosystem

Li, Qiaoyan, Larsen, Klaus Steenberg & Gundersen, Per, 2020. 1 p.

Rainfall-manipulation experiments as simulated by terrestrial biosphere models: where do we stand?

Larsen, Klaus Steenberg & Schmidt, Inger Kappel, 2020, In: Global Change Biology. 26, 6, p. 3336-3355 20 p., 3336-3355.

Rewet or not – insights on spatiotemporal patterns of greenhouse gas fluxes from soils in a rewetted Danish forested wetland

Larsen, Klaus Steenberg & Christiansen, Jesper Riis, 2020. 1 p.

Understanding ecosystems of the future will require more than realistic climate change experiments - A response to Korell et al.

De Boeck, H. J., Bloor, J. M. G., Aerts, R., Bahn, M., Beier, C., Emmett, B. A., Estiarte, M., Gruenzweig, J. M., Halbritter, A. H., Holub, P., Jentsch, A., Klem, K., Kreyling, J., Kroel-Dulay, G., Larsen, K. S., Milcu, A., Roy, J., Sigurdsson, B. D., Smith, M. D., Sternberg, M. & 4 others, Vandvik, V., Wohlgemuth, T., Nijs, I. & Knapp, A. K., 2020, In: Global Change Biology. 26, 2, p. e6-e7 2 p.

2018-tørkens indflydelse på skovbruget 2. Tilvækst og jordvand

Callesen, Ingeborg, Jørgensen, Bruno Bilde, Vesterdal, Lars, Larsen, Klaus Steenberg, Hansen, Jon Kehlet, Thomsen, Iben Margrete, Ibrom, A. & Pilegaard, K., 2019, In: Skoven. 51, 3, p. 112-116 5 p.

Accumulation of soil carbon under elevated CO₂ unaffected by warming and drought

Dietzen, Christiana Amalie, Larsen, Klaus Steenberg, Ambus, Per Lennart, Arndal, M. F., Beier, Claus, Reinsch, S. & Schmidt, Inger Kappel, 2019, In: Geophysical Research Abstracts. 21, 1 p., EGU2019-5220.

Accumulation of soil carbon under elevated CO₂ unaffected by warming and drought

Dietzen, Christiana Amalie, Larsen, Klaus Steenberg, Ambus, Per Lennart, Michelsen, Anders, Arndal, M. F., Beier, Claus, Reinsch, S. & Schmidt, Inger Kappel, 2019, In: Global Change Biology. 25, 9, p. 2970-2977 8 p.

Combining a Quantum Cascade Laser Spectrometer with an Automated Closed-Chamber System for delta δ¹³ Measurements of Forest Soil, Tree Stem and Tree Root CO₂ Fluxes

Brændholt, A., Ibrom, A., Ambus, Per Lennart, Larsen, Klaus Steenberg & Pilegaard, K., 2019, In: Forests. 10, 5

High-resolution, ecosystem-level CO₂, H₂O and CH₄ fluxes with novel automatic light/dark chamber

Larsen, Klaus Steenberg, Jørgensen, P. & Christiansen, Jesper Riis, 2019, In: Geophysical Research Abstracts. 21, 1 p., EGU2019-5594.

Large loss of CO₂ in winter observed across the northern permafrost region: [incl. correction]

Natali, S. M., Waffs, J. D., Rogers, B. M., Potter, S., Ludwig, S. M., Selbmann, A-K., Sullivan, P. F., Abbott, B. W., Arndt, K. A., Birch, L., Björkman, M. P., Bloom, A. A., Celis, G., Christensen, T. R., Christiansen, C. T., Commane, R., Cooper, E. J., Crill, P., Czimczik, C., Davydov, S. P. & 55 others, Du, J., Egan, J. E., Elberling, Bo, Euskirchen, E. S., Friborg, Thomas, Genet, H., Göckede, M., Goodrich, J. P., Grogan, P., Helbig, M., Jafarov, E. E., Jastrow, J. D., Kalhori, A. A. M., Kim, Y., Kimball, J. S., Kutzbach, L., Lara, J. M., Larsen, Klaus Steenberg, Lee, B., Liu, Z., Lorant, M. M., Lund, M., Lupascu, M., Madani, N., Malhotra, A., Matamala, R., McFarland, J., McGuire, A. D., Michelsen, Anders, Minions, C., Oechel, W. C., Olefeldt, D., Parmentier, F. W., Pirk, N., Poulter, B., Quinton, W., Rezanezhad, F., Risk, D., Sachs, T.,

Schaefer, K., M. Schmidt, N., Schuur, E. A. G., Semenchuk, P. R., Shaver, G. R., Sonnentag, O., Starr, G., Treat, C. C., Waldrop, M. P., Wang, Y., Welker, J. M., Wille, C., Xue, X., Zhang, Z., Zhuang, Q. & Zona, D., 2019, In: Nature Climate Change. 9, p. 852-857 6 p.

Synthesis of Winter In Situ Soil CO₂ Flux in pan-Arctic and Boreal Regions, 1989-2017

Larsen, Klaus Steenberg, 2019

Vedr. vurdering af 2018-tørkens indflydelse på skovbruget - opdatering vinter 2018/2019: Sagsnotat

Thomsen, Iben Margrete, Jørgensen, Bruno Bilde, Callesen, Ingeborg, Vesterdal, Lars, Ravn, Hans Peter, Hansen, Jon Kehlet, Kjær, Erik Dahl, Nord-Larsen, Thomas, Larsen, Klaus Steenberg, Johannsen, VK & Ibrom, A., 2019, 18 p.. Jan 17, 2019.

On the problems of using linear models in ecological manipulation experiments: lessons learned from a climate experiment

Damgaard, C., Holmstrup, M., Schmidt, Inger Kappel, Beier, Claus & Larsen, Klaus Steenberg, 1 Jun 2018, In: Ecosphere. 9, 6, 9 p., e02322.

Crowther et al. reply

Crowther, T. W., Machmuller, M. B., Carey, J. C., Allison, S. D., Blair, J. M., Bridgham, S. D., Burton, A. J., Dijkstra, F. A., Elberling, B., Estiarte, M., Larsen, K. S., Laudon, H., Lupascu, M., Marhan, S., Mohan, J., Niu, S., J. Peñuelas, J., Schmidt, I. K., Templer, P. H., Kröel-Dulay, G. & 2 others, Frey, S. & Bradford, M. A., Feb 2018, In: Nature. 554, 7693, p. E7-E8 2 p.

Early stage litter decomposition across biomes

Djukic, I., Kepfer Rojas, Sebastian, Schmidt, Inger Kappel, Larsen, Klaus Steenberg, Beier, Claus, Berg, B. & Verheyen, K., 2018, In: Science of the Total Environment. 628-629, p. 1369-1394 26 p.

Early stage litter decomposition across biomes

TeaComposition, T., 2018, In: Geophysical Research Abstracts. 20, 1 p., EGU2018-5436.

Fine Root Growth and Vertical Distribution in Response to Elevated CO₂, Warming and Drought in a Mixed Heathland-Grassland

Arndal, M. F., Tolver, Anders, Larsen, Klaus Steenberg, Beier, Claus & Schmidt, Inger Kappel, 2018, In: Ecosystems. 21, p. 15-30 16 p.

High-resolution ecosystem-level CO₂ and CH₄ fluxes with novel automatic chamber techniques

Larsen, Klaus Steenberg, Christiansen, Jesper Riis & Jørgensen, P., 2018, In: Geophysical Research Abstracts. 20, 1 p., EGU2018-10252.

Partitioning of ecosystem respiration in a beech forest

Braendholt, A., Ibrom, A., Larsen, Klaus Steenberg & Pilegaard, K., 2018, In: Agricultural and Forest Meteorology. 252, p. 88-98 11 p.

Predicting soil carbon loss with warming reply

van Gestel, N., Crowther, T. W., Machmuller, M. B., Carey, J. C., Allison, S. D., Blair, J. M., Bridgham, S. D., Burton, A. J., Dijkstra, F. A., Elberling, B., Estiarte, M., Larsen, K. S., Laudon, H., Lupascu, M., Marhan, S., Mohan, J., Niu, S., Penuelas, J., Schmidt, I. K., Templer, P. H. & 3 others, Kroel-Dulay, G., Frey, S. & Bradford, M. A., 2018, In: Nature. 554, p. E7-E8 6 p.

To replicate, or not to replicate: Should we shift to unreplicated multi-level designs in ecological experimentation?

Schweiger, Andreas, Kreyling, J., Bahn, M., Ineson, P., Migliavacca, M., Christiansen, Jesper Riis & Larsen, Klaus Steenberg, 2018, In: Geophysical Research Abstracts. 20, 1 p., EGU2018-11902.

To replicate, or not to replicate - that is the question: how to tackle nonlinear responses in ecological experiments

Kreyling, J., Schweiger, A. H., Bahn, M., Ineson, P., Migliavacca, M., Morel-Journel, T., Christiansen, Jesper Riis, Schtickzelle, N. & Larsen, Klaus Steenberg, 2018, In: Ecology Letters. 21, 11, p. 1629-1638 10 p.

Variation in SOC stocks as explained by soil forming factors at the ICOS site Sorø, Denmark

Callesen, Ingeborg, Brændholt, A., Schruppf, M., Magnussen, A., Vorenhout, M., Vesterdal, Lars & Larsen, Klaus Steenberg, 2018, In: Geophysical Research Abstracts. 20, 1 p.

Decrease in heathland soil labile organic carbon under future atmospheric and climatic conditions

Thaysen, E. M., Reinsch, S., Larsen, Klaus Steenberg & Ambus, Per Lennart, 2017, In: Biogeochemistry. 133, 1, p. 17-36 20 p.

Importance of soil NO emissions for the total atmospheric NO_x budget of Saxony, Germany

Molina-Herrera, S., Haas, E., Grote, R., Kiese, R., Klatt, S., Kräus, D., Kampffmeyer, T., Friedrich, R., Andreae, H., Loubet, B., Ammann, C., Horváth, L., Larsen, Klaus Steenberg, Gruening, C., Frumau, A. & Butterbach-Bahl, K., 2017, In: Atmospheric Environment. 152, p. 61-76 16 p.

Long-term and realistic global change manipulations had low impact on diversity of soil biota in temperate heathland

Holmstrup, M., Damgaard, C., Schmidt, Inger Kappel, Arndal, M. F., Beier, Claus, Mikkelsen, T. N., Ambus, Per Lennart, Larsen, Klaus Steenberg, Pilegaard, K., Michelsen, Anders, Andresen, L. C., Haugwitz, M. S., Bergmark, L., Priemé, Anders, Zaitsev, A. S., Georgieva, S., Dam, M., Vestergård, M. & Christensen, Søren, 2017, In: Scientific Reports. 7, 11 p., 41388.

Overestimation of closed-chamber soil CO₂ effluxes at low atmospheric turbulence

Brændholt, Andreas, Larsen, Klaus Steenberg, Ibrom, A. & Pilegaard, K., 2017, In: Biogeosciences. 14, 6, p. 1603-1616 14 p.

Shrubland primary production and soil respiration diverge along European climate gradient

Reinsch, S., Koller, E., Sowerby, A., de Dato, G., Estiarte, M., Guidolotti, G., Kovács-Láng, E., Kröel-Dulay, G., Lellei-Kovács, E., Larsen, Klaus Steenberg, Liberati, D., Peñuelas, J., Ransijn, J., Robinson, D. A., Schmidt, Inger Kappel, Smith, A. R., Tietema, A., Dukes, J. S., Beier, Claus & Emmett, B. A., 2017, In: Scientific Reports. 7, 7 p., 43952.

A replicated climate change field experiment reveals rapid evolutionary response in an ecologically important soil invertebrate

Bataillon, T., Galtier, N., Bernard, A., Cryer, N., Faivre, N., Santoni, S., Severac, D., Mikkelsen, T. N., Larsen, Klaus Steenberg, Beier, Claus, Sorensen, J. G., Holmstrup, M. & Ehlers, B. K., Jul 2016, In: Global Change Biology. 22, 7, p. 2370-2379

Contrasting responses of shrubland carbon gain and soil carbon efflux to drought and warming across a European climate gradient

Reinsch, S., Koller, E., Sowerby, A., de Dato, G., Estiarte, M., Guidolotti, G., Kovács-Láng, E., Kröel-Dulay, G., Lellei-Kovács, E., Larsen, Klaus Steenberg, Liberati, D., Penuelas, J., Ransijn, J., Schmidt, Inger Kappel, Smith, A. R., Tietema, A., Dukes, J. S. & Emmett, B. A., 2016, In: Geophysical Research Abstracts. 18

Few multiyear precipitation-reduction experiments find a shift in the productivity-precipitation relationship

Estiarte, M., Vicca, S., Penuelas, J., Bahn, M., Beier, C., Emmett, B. A., Fay, P. A., Hanson, P. J., Hasibeder, R., Kigel, J., Kroel-Dulay, G., Larsen, K. S., Lellei-Kovacs, E., Limousin, J-M., Ogaya, R., Ourcival, J-M., Reinsch, S., Sala, O. E., Schmidt, I. K., Sternberg, M. & 3 others, Tielboerger, K., Tietema, A. & Janssens, I. A., 2016, In: Global Change Biology. 22, 7, 2570-2581.

Overestimation of closed chamber soil CO₂ effluxes at low atmospheric turbulence

Brændholt, Andreas, Larsen, Klaus Steenberg, Ibrom, A. & Pilegaard, K., 2016, (Biogeosciences Discussions, Vol. 2016).

Quantifying global soil carbon losses in response to warming

Crowther, T. W., Todd-Brown, K. E. O., Rowe, C. W., Wieder, W. R., Carey, J. C., Machmuller, M. B., Snoek, B. L., Fang, S., Zhou, G., Allison, S. D., Blair, J. M., Bridgham, S. D., Burton, A. J., Carrillo, Y., Reich, P. B., Clark, J. S., Classen, A. T., Dijkstra, F. A., Elberling, B., Emmett, B. A. & 30 others, Estiarte, M., Frey, S. D., Guo, J., Harte, J., Jiang, L., Johnson, B. R., Kröel-dulay, G., Larsen, Klaus Steenberg, Laudon, H., Lavallee, J. M., Luo, Y., Lupascu, M., Ma, L. N., Marhan, S., Michelsen, Anders, Mohan, J., Niu, S., Pendall, E., Peñuelas, J., Pfeifer-Meister, L., Poll, C., Reinsch, S., Reynolds, L. L., Schmidt, Inger Kappel, Sistla, S., Sokol, N. W., Templer, P. H., Treseder, K. K., Welker, J. M. & Bradford, M. A., 2016, In:

Temperature Dependence of Soil Respiration Modulated by Thresholds in Soil Water Availability Across European Shrubland Ecosystems

Lellei-Kovács, E., Botta-Dukát, Z., de Dato, G., Estiarte, M., Guidolotti, G., Kopittke, G. R., Kovács-Láng, E., Kröel-Dulay, G., Larsen, Klaus Steenberg, Peñuelas, J., Smith, A. R., Sowerby, A., Tietema, A. & Schmidt, Inger Kappel, 2016, In: *Ecosystems*. 19, 8, p. 1460–1477

Temperature response of soil respiration largely unaltered with experimental warming

Carey, J. C., Tang, J., Templer, P. H., Kroeger, K. D., Crowther, T. W., Burton, A. J., Dukes, J. S., Emmett, B., Frey, S. D., Heskell, M. A., Jiang, L., Machmuller, M. B., Mohan, J., Panetta, A. M., Reich, P. B., Reinsch, S., Wang, X., Allison, S. D., Bamminger, C., Bridgham, S. & 23 others, Collins, S. L., de Dato, G., Eddy, W. C., Enquist, B. J., Estiarte, M., Harte, J., Henderson, A., Johnson, B. R., Larsen, Klaus Steenberg, Luo, Y., Marhan, S., Melillo, J. M., Peñuelas, J., Pfeifer-Meister, L., Poll, C., Rastetter, E., Reinmann, A. B., Reynolds, L. L., Schmidt, Inger Kappel, Shaver, G. R., Strong, A. L., Suseela, V. & Tietema, A., 2016, In: *Proceedings of the National Academy of Sciences of the United States of America*. 113, 48, p. 13797–13802

Increased sensitivity to climate change in disturbed ecosystems

Kröel-Dulay, G., Ransijn, J., Schmidt, Inger Kappel, Beier, Claus, De Angelis, P., De Dato, G., Dukes, J. S., Emmett, B., Estiarte, M., Garadnai, J., Kongstad, J., Kovács-Láng, E., Larsen, Klaus Steenberg, Liberati, D., Ogaya, R., Riis-Nielsen, Torben, Smith, A. R., Sowerby, A., Tietema, A. & Penuelas, J., 2015, In: *Nature Communications*. 6, 6682.

Responses of enchytraeids to increased temperature, drought and atmospheric CO₂: results of an eight-year field experiment in dry heathland

Holmstrup, M., Schmelz, R. M., Carrera, N., Dyrnum, K., Larsen, Klaus Steenberg, Mikkelsen, T. N. & Beier, Claus, 2015, In: *European Journal of Soil Biology*. 70, p. 15-22 8 p.

A novel automatic chamber for measurements of ecosystem-level greenhouse gas fluxes

Larsen, Klaus Steenberg & Jørgensen, P., 2014. 1 p.

Can current moisture responses predict soil CO₂ efflux under altered precipitation regimes? A synthesis of manipulation experiments

Vicca, S., Bahn, M., Estiarte, M., van Loon, E. E., Vargas, R., Alberti, G., Ambus, P. L., Arain, A. M., Beier, C., Bentley, L. P., Borken, W., Buchmann, N., Collins, S. L., de Dato, G., Dukes, J. S., Escolar, C., Fay, P., Guidolotti, G., Hanson, P. J., Kahmen, A. & 28 others, Kröel-Dulay, G., Ladreiter-Knauss, T., Larsen, Klaus Steenberg, Lellei-Kovacs, E., Lebrija-Trejos, E., Maestre, F. T., Marhan, S., Marshall, M., Meir, P., Miao, Y., Muhr, J., Niklaus, P. A., Ogaya, R., Penuelas, J., Poll, C., Rustad, L. E., Savage, K., Schindlbacher, A., Schmidt, Inger Kappel, Smith, A. R., Sotta, E. D., Suseela, V., Tietema, A., van Gestel, N., van Straaten, O., Wan, S., Weber, U. & Janssens, I. A., 2014, In: *Biogeosciences*. 11, p. 2991-3013 23 p.

Corrigendum to "Can current moisture responses predict soil CO₂ efflux under altered precipitation regimes? A synthesis of manipulation experiments"

Vicca, S., Bahn, M., Estiarte, M., van Loon, E., Vargas, R., Alberti, G., Ambus, P. L., Arft, A. M., Beier, C., Bentley, L. P., Borken, W., Buchmann, N., Collins, S. L., de Dato, G., Dukes, J. S., Escolar, C., Fay, P., Guidolotti, G., Hanson, P. J., Kahmen, A. & 28 others, Kröel-Dulay, G., Ladreiter-Knauss, T., Larsen, Klaus Steenberg, Lellei-Kovacs, E., Lebrija-Trejos, E., Maestre, F. T., Marhan, S., Marshall, M., Meir, P., Miao, Y., Muhr, J., Niklaus, P. A., Ogaya, R., Penuelas, J., Poll, C., Rustad, L. E., Savage, K., Schindlbacher, A., Schmidt, Inger Kappel, Smith, A. R., Sotta, E. D., Suseela, V., Tietema, A., van Gestel, N., van Straaten, O., Wan, S., Weber, U. & Janssens, I. A., 2014, In: *Biogeosciences*. 11, 12, p. 3307-3308 2 p.

Effects of drought, warming and elevated CO₂ on insect herbivore weight

Scherber, C., Gladbach, D., Stevnbak, K., Karsten, R. J., Schmidt, Inger Kappel, Michelsen, Anders, Albert, K. R., Larsen, Klaus Steenberg, Mikkelsen, T. N., Beier, C. & Christensen, S., 2013

Effects of elevated CO₂ on condensed tannins and C:N ratio in *Calluna vulgaris*

Larsen, Klaus Steenberg, 2013, 1 p.

Effects of the number of climate change drivers on herbivore performance

Larsen, Klaus Steenberg, 2013, 1 p.

Efficiency of climate change treatments in a multi-factor climate change experiment

Larsen, Klaus Steenberg, 2013, 1 p.

Improving the performance of infrared reflective night curtains for warming field plots

Bruhn, D., Larsen, Klaus Steenberg, de Dato, G. D., Duce, P., Zara, P., Beier, Claus, Schmidt, Inger Kappel, Clausen, S. & Mikkelsen, T. N., 2013, In: *Agricultural and Forest Meteorology*. 173, p. 53-62 10 p.

Key indicators of air pollution and climate change impacts at forest supersites

Paoletti, E., de Vries, W., Mikkelsen, T. N., Ibrom, A., Larsen, Klaus Steenberg, Tuovinen, J. P., Serengil, Y., Yurtseven, I., Wieser, G. & Matyssek, R., 2013, *Climate Change, Air Pollution and Global Challenges: Understanding and Perspectives from Forest Research*. Matyssek, R., Clarke, N., Cudlin, P., Mikkelsen, T. N., Tuovinen, J-P., Wieser, G. & Paoletti, E. (eds.). Elsevier, p. 497-518 (Developments in Environmental Science, Vol. 13).

Multi-factor climate change effects on insect herbivore performance

Scherber, C., Gladbach, D. J., Andersen, K. S., Karsten, R. J., Schmidt, Inger Kappel, Michelsen, Anders, Albert, K. R., Larsen, Klaus Steenberg, Mikkelsen, T. N., Beier, Claus & Christensen, Søren, 2013, In: *Ecology and Evolution*. 3, 6, p. 1449-1460 12 p.

Multi-factor climate change experiment with an insect herbivore

Larsen, Klaus Steenberg, 2013

Structural equation model on multi-factor climate change on herbivore survival and growth

Scherber, C., Gladbach, D., Andersen, K. S., Karsten, R. J., Schmidt, Inger Kappel, Michelsen, Anders, Albert, K. R., Larsen, Klaus Steenberg, Mikkelsen, T. N., Beier, C. & Christensen, Søren, 2013

Synthesis on the carbon budget and cycling in a Danish, temperate deciduous forest

Wu, J., Larsen, Klaus Steenberg, van der Linden, L., Beier, Claus, Pilegaard, K. & Ibrom, A., 2013, In: *Agricultural and Forest Meteorology*. 181, p. 94-107 14 p.

Weight of heather beetle larvae (*Lochmaea suturalis*) in response to drought, warming and elevated CO₂ under multi-factor climate change

Larsen, Klaus Steenberg, 2013, 1 p.

Nitrogen uptake during fall, winter and spring differs among plant functional groups in a subarctic heath ecosystem

Larsen, Klaus Steenberg, Michelsen, Anders, Jonasson, S. E., Beier, C. & Grogan, P., 2012, In: *Ecosystems*. 15, 6, p. 927-939 13 p.

Simple additive effects are rare: a quantitative review of plant biomass and soil process responses to combined manipulations of CO₂ and temperature

Dieleman, W. I. J., Vicca, S., Dijkstra, F. A., Hagedorn, F., Hovenden, M. J., Larsen, Klaus Steenberg, Morgan, J. A., Volder, A., Beier, Claus, Dukes, J. S., King, J., Leuzinger, S., Linder, S., Luo, Y., Oren, R., De Angelis, P., Tingey, D., Hoosbeek, M. R. & Janssens, I. A., 2012, In: *Global Change Biology*. 18, 9, p. 2681-2693 13 p.

Soil respiration is stimulated by elevated CO₂ and reduced by summer drought: three years of measurements in a multifactor ecosystem manipulation experiment in a temperate heathland (CLIMAITE)

Selsted, M. B., van der Linden, L., Ibrom, A., Michelsen, Anders, Larsen, Klaus Steenberg, Pedersen, J., Mikkelsen, T. N., Pilegaard, K., Beier, Claus & Ambus, Per Lennart, 2012, In: *Global Change Biology*. 18, 4, p. 1216-1230 15 p.

Synthesizing greenhouse gas fluxes across nine european peatlands and shrublands: responses to climatic and environmental changes

Carter, M. S., Larsen, Klaus Steenberg, Emmett, B., Estiarte, M., Field, C., Leith, I. D., Lund, M., Mejjide, A., Mills, R. T. E., Niinemets, Ü., Peñuelas, J., Portillo-Estrada, M., Schmidt, Inger Kappel, Selsted, M. B., Sheppard, L. J., Sowerby, A., Tietema, A. & Beier, Claus, 2012, In: *Biogeosciences*. 9, 10, p. 3739-3755 17 p.

Measurement of carbon dioxide fluxes in a free-air carbon dioxide enrichment experiment using the closed flux chamber technique

Selsted, M. B., Ambus, Per Lennart, Michelsen, Anders, van der Linden, L., Larsen, Klaus Steenberg, Pilegaard, K., Mikkelsen, T. N. & Beier, Claus, 1 Jan 2011, In: Atmospheric Environment. 45, 1, p. 208-214 7 p.

Dissolved carbon leaching from soil is a crucial component of the net ecosystem carbon balance

Kindler, R., Siemens, J., Kaiser, K., Walmsley, D. C., Bernhofer, C., Buchmann, N., Cellier, P., Eugster, W., Gleixner, G., Grunwald, T., Heim, A., Ibrom, A., Jones, S. K., Jones, M., Klumpp, K., Kutsch, W., Larsen, K. S., Lehuger, S., Loubet, B., McKenzie, R. & 15 others, Moors, E., Osborne, B., Pilegaard, K., Rebmann, C., Saunders, M., Schmidt, M. W. I., Schrupf, M., Seyfferth, J., Skiba, U., Soussana, J., Sutton, M. A., Tefs, C., Vowinckel, B., Zeeman, M. J. & Kaupenjohann, M., 2011, In: Global Change Biology. 17, 2, p. 1167-1185

Effects of elevated atmospheric CO₂, prolonged summer drought and temperature increase on N₂O and CH₄ fluxes in a temperate heathland

Carter, M. S., Ambus, Per Lennart, Albert, K. R., Larsen, Klaus Steenberg, Andersson, M., Priemé, Anders, van der Linden, L. & Beier, Claus, 2011, In: Soil Biology & Biochemistry. 43, 8, p. 1660-1670 11 p.

Integrating empirical studies and global models to improve climate change predictions

Batterman, S. A. & Larsen, Klaus Steenberg, 2011, In: Eos. 92, 41, p. 352-353 2 p.

Is methane released from the forest canopy?

Mikkelsen, T. N., Bruhn, D., Ambus, Per Lennart, Larsen, Klaus Steenberg, Ibrom, I. & Pilegaard, K., 2011, In: iForest. 4, p. 200-204 5 p.

Reduced N cycling in response to elevated CO₂, warming, and drought in a Danish heathland: synthesizing results of the CLIMAITE project after two years of treatments

Larsen, K. S., Andresen, L. C., Beier, C., Jonasson, S. E., Albert, K. A., Ambus, P. L., Arndal, M. F., Carter, M. S., Christensen, S., Holmstrup, M., Ibrom, A., Nielsen, J. K., Van der Linden, L., Maraldo, K., Michelsen, A., Mikkelsen, T. N., Pilegaard, K., Priemé, A., Ro-Poulsen, H., Schmidt, I. K. & 2 others, Selsted, M. B. & Andersen, K. S., 2011, In: Global Change Biology. 17, 5, p. 1884-1899 16 p.

Flow tilt angles near forest edges - Part 1: Sonic anemometry

Dellwik, E., Mann, J. & Larsen, Klaus Steenberg, 2010, In: Biogeosciences. 7, 5, p. 1745-1757 13 p.

Biosphere-atmosphere exchange of reactive nitrogen and greenhouse gases at the NitroEurope core flux measurement sites: Measurement strategy and first data sets

Skiba, U., Drewer, J., Tang, Y. S., van Dijk, N., Helfter, C., Nemitz, E., Famulari, D., Cape, J. N., Jones, S. K., Twigg, M., Pihlatie, M., Vesala, T., Larsen, K. S., Carter, M. S., Ambus, P., Ibrom, A., Beier, C., Hensen, A., Frumau, A., Erisman, J. W. & 25 others, Brueggemann, N., Gasche, R., Butterbach-Bahl, K., Neftel, A., Spirig, C., Horvath, L., Freibauer, A., Cellier, P., Laville, P., Loubet, B., Magliulo, E., Bertolini, T., Seufert, G., Andersson, M., Manca, G., Laurila, T., Aurela, M., Lohila, A., Zechmeister-Boltenstern, S., Kitzler, B., Schaufler, G., Siemens, J., Kindler, R., Flechard, C. & Sutton, M. A., 2009, In: Applied Soil Ecology. 133, 3-4, p. 139-149

Is nitrogen deposition the main driver of increasing carbon sequestration in a Danish Beech forest?

Larsen, Klaus Steenberg, Ibrom, A., Pilegaard, K., Ambus, Per Lennart, Carter, M. S. & Beier, Claus, 2009, In: IOP Conference Series: Earth and Environmental Science. 6, 1 p., 082014.

Experimental design of multifactor climate change experiments with elevated CO₂, warming and drought: the CLIMAITE project

Mikkelsen, T. N., Beier, C., Jonasson, S. E., Holmstrup, M., Schmidt, I. K., Ambus, P. L., Pilegaard, K., Michelsen, A., Albert, K., Andresen, L. C., Arndal, M. F., Bruun, N., Christensen, S., Danbæk, S., Gundersen, P., Jørgensen, P., Linden, L., Nielsen, J. K., Maraldo, K., Priemé, A. & 11 others, Riis-Nielsen, Torben, Ro-Poulsen, Helge, Andersen, K. S., Selsted, M. B., Sørensen, P., Larsen, Klaus Steenberg, Carter, M. S., Ibrom, A., Martinussen, Torben, Miglietta, F. & Sverdrup, H., 2008, In: Functional Ecology. 22, 1, p. 185-195 11 p.

Ecosystem respiration depends strongly on photosynthesis in a temperate heath

Larsen, Klaus Steenberg, Ibrom, A., Beier, Claus, Jonasson, S. E. & Michelsen, Anders, 2007, In: Biogeochemistry. 85, 2, p. 201-213

Respiration and microbial dynamics in two subarctic ecosystems during winter and spring thaw: Effects of increased snow depth

Larsen, Klaus Steenberg, Grogan, P., Jonasson, S. E. & Michelsen, Anders, 2007, In: Arctic, Antarctic, and Alpine Research. 39, 2, p. 268-276

Significance of cold-season respiration and photosynthesis in a subarctic heath ecosystem in Northern Sweden.

Larsen, Klaus Steenberg, Ibrom, A., Jonasson, S. E., Michelsen, Anders & Beier, Claus, 2007, In: Global Change Biology. 13, 7, p. 1498-1508

Repeated freeze-thaw cycles and their effects on biological processes in two arctic ecosystem types

Larsen, Klaus Steenberg, Jonasson, S. E. & Michelsen, Anders, 2002, In: Applied Soil Ecology. 21, 3, p. 187-195