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Short presentation

My research concentrates on ecosystem responses to air pollution and climate change - in particular impacts on ecosystem functioning and feedback to the atmosphere. I have in particular used ecosystem manipulation to understand these impacts - latest through the VILLUM foundation Centre of Excellence CLIMAITE, where KU, DTU and AU collaborated to investigate impacts of single and multifactor climate change on shrubland ecosystems. Currently my particular research focus is on extreme events and impacts on ecosystem functioning

Employment

Professor

Forest and Landscape Ecology
Frederiksberg C
1 May 2015 → nu

Research Director

NIVA - Norsk Institut for Vannforskning
Oslo, Norway
1 Aug 2013 → 1 May 2015

Head of Research Center

Technical University of Denmark
Kongens Lyngby, Denmark
1 Jan 2012 → 1 Aug 2013

Head of Research Programme

Technical University of Denmark
Kongens Lyngby, Denmark
1 May 2006 → 31 Dec 2011

Senior Researcher

Forskningscenter Risø
Roskilde, Denmark
1 Jun 1996 → 30 Apr 2006

Senior Researcher

Forskningscentret for Skov & Landskab
Denmark
1 May 1992 → 31 May 1996

PostDoc

Technical University of Denmark
Kongens Lyngby, Denmark
1 Aug 1989 → 30 Apr 1992

PhD

Technical University of Denmark

Kongens Lyngby, Denmark

1 Apr 1985 → 31 Jul 1989

Publications

Scattered tree death contributes to substantial forest loss in California

Cheng, Yan, Oehmcke, Stefan, Brandt, Martin Stefan, Rosenthal, L., Das, A., Vrieling, A., Saatchi, S., Wagner, F., Mugabowindekwe, Maurice, Verbruggen, Wim, Beier, Claus & Horion, Stéphanie, 2024, In: Nature Communications. 15, 1, p. 1-13 641.

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.

MAPPING TREE MORTALITY IN CALIFORNIA FROM VERY HIGH RESOLUTION IMAGERY USING DEEP LEARNING

Cheng, Yan, Oehmcke, Stefan, Brandt, Martin Stefan, Das, A., Rosenthal, L., Saatchi, S., Wagner, F., Vrieling, A., Verbruggen, Wim, Beier, Claus & Horion, Stéphanie, 2023.

Mapping and characterising tree mortality in California at individual tree level using deep learning

Cheng, Yan, Oehmcke, Stefan, Brandt, Martin Stefan, Das, A., Rosenthal, L., Saatchi, S., Wagner, F., Verbruggen, Wim, Vrieling, A., Beier, Claus & Horion, Stéphanie, 2023. 1 p.

Moderate nitrogen retention in temperate heath ecosystem after elevated CO₂, drought and warming through 7 years

Andresen, L. C., Ambus, Per Lennart, Beier, Claus & Michelsen, Anders, 2023, In: European Journal of Soil Science. 74, 4, 13 p., e13397.

Trait-mediated responses to aridity and experimental drought by springtail communities across Europe

Ferrín, M., Márquez, L., Petersen, H., Salmon, S., Ponge, J. F., Arnedo, M., Emmett, B., Beier, Claus, Schmidt, Inger Kappel, Tietema, A., de Angelis, P., Liberati, D., Kovács-Láng, E., Kröel-Dulay, G., Estiarte, M., Bartrons, M., Peñuelas, J. & Peguero, G., 2023, In: Functional Ecology. 37, 1, p. 44-56

Vi må ikke stirre os blinde på isolerede teknologiske løsninger i den grønne omstilling

Thorsen, Bo Jellesmark & Beier, Claus, 13 Jan 2022, Altinget.dk.

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., Sztár, 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.

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.

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).

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.

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.

Notat om klimaeffekt af urørt skov: Sagsnotat

Højgaard Petersen, A., Johannsen, VK, Rahbek, Carsten, Beier, Claus, Bruun, Hans Henrik, Heilmann-Clausen, Jacob, Vesterdal, Lars, Bentsen, Niclas Scott, Gundersen, Per & Nord-Larsen, Thomas, 27 May 2020, 4 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.

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.

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.

A meta-analysis of 1,119 manipulative experiments on terrestrial carbon-cycling responses to global change

Song, J., Wan, S., Piao, S., Knapp, A. K., Classen, A. T., Vicca, S., Ciais, P., Hovenden, M. J., Leuzinger, S., Beier, C., Kardol, P., Xia, J., Liu, Q., Ru, J., Zhou, Z., Luo, Y., Guo, D., Langlely, J. A., Zscheischler, J., Dukes, J. S. & 39 others, Tang, J., Chen, J., Hofmockel, K. S., Kueppers, L. M., Rustad, L., Liu, L., Smith, M. D., Templer, P. H., Thomas, R. Q., Norby, R. J., Phillips, R. P., Niu, S., Fatichi, S., Wang, Y., Shao, P., Han, H., Wang, D., Lei, L., Wang, J., Li, X., Zhang, Q., Li, X., Su, F., Liu, B., Yang, F., Ma, G., Li, G., Liu, Y., Liu, Y., Yang, Z., Zhang, K., Miao, Y., Hu, M., Yan, C., Zhang, A., Zhong, M., Hui, Y., Li, Y. & Zheng, M., 2019, In: *Nature Ecology & Evolution*. 3, 9, p. 1309-1320 12 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.

Fast attrition of springtail communities by experimental drought and richness–decomposition relationships across Europe

Peguero, G., Sol, D., Arnedo, M., Petersen, H., Salmon, S., Ponge, J. F., Maspons, J., Emmett, B., Beier, Claus, Schmidt, Inger Kappel, Tietema, A., De Angelis, P., Kovács-Láng, E., Kröel-Dulay, G., Estiarte, M., Bartrons, M., Holmstrup, M., Janssens, I. A. & Peñuelas, J., 2019, In: *Global Change Biology*. 25, 8, p. 2727-2738 12 p.

Globally consistent influences of seasonal precipitation limit grassland biomass response to elevated CO₂

Hovenden, M. J., Leuzinger, S., Newton, P. C. D., Fletcher, A., Fatichi, S., Luscher, A., Reich, P. B., Andresen, L. C., Beier, Claus, Blumenthal, D. M., Chiariello, N. R., Dukes, J. S., Kellner, J., Hofmockel, K., Niklaus, P. A., Song, J., Wan, S., Classen, A. T. & Langley, J. A., 2019, In: Nature Plants. 5, 2, p. 167-173 7 p.

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.

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.

Isotopic methods for non-destructive assessment of carbon dynamics in shrublands under long-term climate change manipulation

Andresen, L. C., Dominguez, M. T., Reinsch, S., Smith, A. R., Schmidt, Inger Kappel, Ambus, Per Lennart, Beier, Claus, Boeckx, P., Bol, R., De Dato, G., Emmett, B. A., Estiarte, M., Garnett, M. H., Kröel-dulay, G., Mason, S. L., Nielsen, C. S., Peñuelas, J. & Tietema, A., 2018, In: Methods in Ecology and Evolution. 9, 4, p. 866-880 15 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.

Pushing precipitation to the extremes in distributed experiments: recommendations for simulating wet and dry years

Knapp, A. K., Avolio, M. L., Beier, Claus, Carroll, C. J. W., Collins, S. L., Dukes, J. S., Fraser, L. H., Griffin-Nolan, R. J., Hoover, D. L., Jentsch, A., Loik, M. E., Phillips, R. P., Post, A. K., Sala, O. E., Slette, I. J., Yahdjian, L. & Smith, M. D., 2017, In: Global Change Biology. 23, 5, p. 1774-1782

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.

Udvikling i Agerlandet 1954-2025: Kortlægning af Markstørrelse, markveje og småbiotoper

Beier, Claus (ed.), Caspersen, Ole H. & Karlsson Nyed, Patrik, 2017, 1 ed. Frederiksberg. 67 p. (IGN Rapport; No. Januar 2017).

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

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.

Experiments to confront the environmental extremes of climate change

Kayler, Z. E., De Boeck, H. J., Fatichi, S., Grünzweig, J. M., Merbold, L., Beier, C., Claus, M., McDowell, N. & Dukes, J. S., 2015, In: *Frontiers in Ecology and the Environment*. 13, 4, p. 219-225

Global Change Experiments: Challenges and Opportunities

De Boeck, H. J., Vicca, S., Roy, J., Nijs, I., Milcu, A., Kreyling, J., Jentsch, A., Chabbi, A., Campioli, M., Callaghan, T., Beierkuhnlein, C. & Beier, C., 2015, In: *BioScience*. 65, 9, p. 922-931

Increased sensitivity to climate change in disturbed ecosystems

Kroel-Dulay, G., Ransijn, J., Schmidt, I., Inger Kappel, C., Beier, C., Claus, M., De Angelis, P., De Dato, G., Dukes, J. S., Emmett, B., Estiarte, M., Garadnai, J., Kongstad, J., Kovács-Láng, E., Larsen, K., Klaus Steenberg, M., Liberati, D., Ogaya, R., Riis-Nielsen, T., Torben, S., 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, K., Klaus Steenberg, M., Mikkelsen, T. N. & Beier, C., 2015, In: *European Journal of Soil Biology*. 70, p. 15-22 8 p.

Beyond realism in climate change experiments: gradient approaches identify thresholds and tipping points

Kreyling, J., Jentsch, A. & Beier, C., 2014, In: *Ecology Letters*. 17, 1, p. 125-e1

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., Escobar, C., Fay, P., Guidolotti, G., Hanson, P. J., Kahmen, A. & 28 others, Kröel-Dulay, G., Ladreiter-Knauss, T., Larsen, K., Klaus Steenberg, M., 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, I., Inger Kappel, C., 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.

Root growth and N dynamics in response to multi-year experimental warming, summer drought and elevated CO₂ in a mixed heathland-grass ecosystem

Arndal, M. F., Schmidt, I., Inger Kappel, C., Nielsen, J., Kongstad, J., Beier, C., Claus, M. & Michelsen, A., 2014, In: *Functional Plant Biology*. 41, 1, p. 1-10 10 p.

Soil microorganisms respond to five years of climate change manipulations and elevated atmospheric CO₂ in a temperate heath ecosystem

Haugwitz, M. S., Bergmark, L., Priemé, J., Anders, M., Christensen, S., Sørensen, P., Beier, C., Claus, M. & Michelsen, A., 2014, In: *Plant and Soil*. 374, 1-2, p. 211-222 12 p.

Technical Note: Mesocosm approach to quantify dissolved inorganic carbon percolation fluxes

Thaysen, E. M., Jessen, S., Sørensen, P., Ambus, P., Lennart, B., Beier, C., Claus, M., Postma, D. & Jakobsen, I., 2014, In: *Biogeosciences*. 11, 4, p. 1077-1084 8 p.

Complexity in Climate Change Manipulation Experiments

Kreyling, J. & Beier, C., 2013, In: *BioScience*. 63, 9, p. 763-767

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

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

Modelling the decadal trend of ecosystem carbon fluxes demonstrates the important role of functional changes in a temperate deciduous forest

Wu, J., Jansson, P. E., van der Linden, L., Pilegaard, K., Beier, Claus & Ibrom, A., 2013, In: Ecological Modelling. 260, p. 50-61

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.

Net root growth and nutrient acquisition in response to predicted climate change in two contrasting heathland species

Arndal, M. F., Merrild, M. P., Michelsen, Anders, Schmidt, Inger Kappel, Mikkelsen, T. N. & Beier, Claus, 2013, In: Plant and Soil. 369, p. 615-629 15 p.

Soil microarthropods are only weakly impacted after 13 years of repeated drought treatment in wet and dry heathland soils

Holmstrup, M., Sørensen, J. G., Schmidt, Inger Kappel, Nielsen, P. L., Mason, S., Tietema, A., Smith, A. R., Bataillon, T., Beier, Claus & Ehlers, B., 2013, In: Soil Biology & Biochemistry. 66, p. 110-118 9 p.

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.

Technical note: mesocosm approach to quantification of carbon dioxide fluxes across the vadose zone

Thaysen, E. M., Jessen, Søren, Ambus, Per Lennart, Beier, Claus, Postma, D. & Jakobsen, Iver, 2013, In: Biogeosciences Discussions. p. 9947-9967

Corrigendum to "Effects of climate variability and functional changes on the interannual variation of the carbon balance in a temperate deciduous forest" published in Biogeosciences, 9, 13-28, 2012

Wu, J., Van Der Linden, L., Lasslop, G., Carvalhais, N., Pilegaard, K., Beier, Claus & Ibrom, A., 2012, In: Biogeosciences. 9, 2, p. 715

Effects of climate variability and functional changes on the interannual variation of the carbon balance in a temperate deciduous forest (vol 9, pg 13, 2012)

Wu, J., van der Linden, L., Lasslop, G., Carvalhais, N., Pilegaard, K., Beier, Claus & Ibrom, A., 2012, In: Biogeosciences. 9, p. 13-28

High resilience in heathland plants to changes in temperature, drought, and CO₂ in combination: results from the CLIMAITE experiment

Nielsen, Jane Kongstad, Schmidt, Inger Kappel, Riis-Nielsen, Torben, Arndal, M. F., Mikkelsen, T. N. & Beier, Claus, 2012, In: Ecosystems. 15, 2, p. 269-283 15 p.

Increased frequency of drought reduces species richness of enchytraeid communities in both wet and dry heathland soils

Holmstrup, M., Sørensen, J. G., Maraldo, K., Schmidt, Inger Kappel, Mason, S., Tietema, A., Smith, A. R., Emmett, B., Schmelz, R. M., Bataillon, T., Beier, Claus & Ehlers, B. K., 2012, In: Soil Biology & Biochemistry. 53, p. 43-49 7 p.

Interactions between above- and belowground organisms modified in climate change experiments

Andersen, K. S., Scherber, C., Gladbach, D., Beier, Claus, Mikkelsen, T. N. & Christensen, Søren, 2012, In: Nature Climate Change. 2, p. 805-808 4 p.

Precipitation manipulation experiments - challenges and recommendations for the future

Beier, Claus, Beierkuhnlein, C., Wohlgemuth, T., Penuelas, J., Emmett, B., Körner, C., de Boeck, H., Christensen, Jens Hesselbjerg, Leuzinger, S., Janssens, I. A. & Hansen, K., 2012, In: Ecology Letters. 15, 8, p. 899-911

Preface: "Nitrogen & global change"

Sutton, M. A., Reis, S., Billen, G., Cellier, P., Erisman, J. W., Mosier, A. R., Nemitz, E., Sprent, J., Van Grinsven, H., Voss, M., Beier, Claus & Skiba, U., 2012, In: *Biogeosciences*. 9, 5, p. 1691-1693 3 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.

Suppression of soil decomposers and promotion of long-lived, root herbivorous nematodes by climate change

Andersen, K. S., Maraldo, K., Georgieva, S., Strandmark, L. B., Beier, Claus, Schmidt, Inger Kappel & Christensen, Søren, 2012, In: *European Journal of Soil Biology*. 52, p. 1-7 7 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., Meijide, 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.

Temperate heath plant response to dry conditions depends on growth strategy and less on physiology

Albert, K. R., Nielsen, Jane Kongstad, Schmidt, Inger Kappel, Ro-Poulsen, Helge, Mikkelsen, T. N., Michelsen, Anders, Linden, L. V. D. & Beier, Claus, 2012, In: *Acta Oecologica*. 45, p. 79-87 9 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.

Coordinated approaches to quantify long-term ecosystem dynamics in response to global change

Luo, Y., Melillo, J., Niu, S., Beier, C., Clark, J. S., Classen, A. T., Davidson, E., Dukes, J. S., Evans, R. D., Field, C. B., Czimczik, C. I., Keller, M., Kimball, B. A., Kueppers, L. M., Norby, R. J., Pelini, S. L., Pendall, E., Rastetter, E., Six, J., Smith, M. & 2 others, Tjoelker, M. G. & Torn, M. S., 2011, In: *Global Change Biology*. 17, 2, p. 843-854 12 p.

Do global change experiments overestimate impacts on terrestrial ecosystems?

Leuzinger, S., Luo, Y., Beier, Claus, Dieleman, W., Vicca, S. & Körner, C., 2011, In: *Trends in Ecology and Evolution*. 26, 5, p. 236-241

Effects of elevated CO₂, warming and drought episodes on plant carbon uptake in a temperate heath ecosystem are controlled by soil water status.

Albert, K. R., Ro-Poulsen, Helge, Mikkelsen, T. N., Michelsen, Anders, van der Linden, L. & Beier, Claus, 2011, In: *Plant, Cell and Environment*. 34, 7, p. 1207-1222 16 p.

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.

Interactive effects of elevated CO₂, warming, and drought on photosynthesis of *Deschampsia flexuosa* in a temperate heath ecosystem.

Albert, K. R., Ro-Poulsen, Helge, Mikkelsen, T. N., Michelsen, A., Linden, L. V. D. & Beier, Claus, 2011, In: *Journal of Experimental Botany*. 62, 12, p. 4253-4266 14 p.

Organic matter flow in the food web at a temperate heath under multifactorial climate change

Andresen, L. C., Konestabo, H. S., Maraldo, K., Holmstrup, M., Ambus, Per Lennart, Beier, Claus & Michelsen, Anders, 2011, In: Rapid Communications in Mass Spectrometry. 25, 11, p. 1485-1496 12 p.

Reduced N cycling in response to elevated CO₂, warming, and drought in a Danish heathland

Larsen, K. S., Andresen, L. C., Beier, C., Jonasson, S. E., Albert, K. R., 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, *Nitrogen & global change: key findings - future challenges*. 2 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.

Thresholds and interactive effects of soil moisture on the temperature response of soil respiration

Lellei-Kovács, E., Kovács-Láng, E., Botta-Dukát, Z., Kalapos, T., Emmett, B. & Beier, Claus, 2011, In: *European Journal of Soil Biology*. 47, 4, p. 247-255

Greenhouse gas exchange in European ecosystems and their interactions with nitrogen – results from NitroEurope IP: Guest Editor's Introduction

Beier, Claus, Skiba, U. & Sutton, M. A., Oct 2010, In: *European Journal of Soil Science*. 61, 5, p. 627-630 4 p.

Belowground heathland responses after 2 years of combined warming, elevated CO₂ and summer drought

Andresen, L. C., Michelsen, Anders, Ambus, Per Lennart & Beier, Claus, 2010, In: *Biogeochemistry*. 101, 1-3, p. 27-42 16 p.

Challenges in elevated CO₂ experiments on forests

Calfapietra, C., Ainsworth, E. A., Beier, C., De Angelis, P., Ellsworth, D. S., Godbold, D. L., Hendrey, G. R., Hickler, T., Hoosbeek, M. R., Karnosky, D. F., King, J., Körner, C., Leakey, A. D. B., Lewin, K. F., Liberloo, M., Long, S. P., Lukac, M., Matussek, R., Miglietta, F., Nagy, J. & 8 others, Norby, R. J., Oren, R., Percy, K. E., Rogers, A., Mugnozza, G. S., Stitt, M., Taylor, G. & Ceulemans, R., 2010, In: *Trends in Plant Science*. 15, 1, p. 5-10

Impact of drought and increasing temperatures on soil CO₂ emissions in a Mediterranean shrubland (gariga)

de Dato, G. D., De Angelis, P., Sirca, C. & Beier, Claus, 2010, In: *Plant and Soil*. 327, 1, p. 153-166 14 p.

Plant nutrient mobilization in temperate heathland responds to elevated CO₂, temperature and drought

Andresen, L. C., Michelsen, Anders, Jonasson, S. E., Schmidt, Inger Kappel, Mikkelsen, T. N., Ambus, Per Lennart & Beier, Claus, 2010, In: *Plant and Soil*. 328, 1-2, p. 381-396 16 p.

Responses of the reflectance indices PRI and NDVI to experimental warming and drought in European shrublands along a north-south climatic gradient

Mänd, P., Hallik, L., Peñuelas, J., Nielsen, T., Duce, P., Emmett, B. A., Beier, Claus, Estiarte, M., Garadnai, J., Kalapos, T., Schmidt, Inger Kappel, Kovács-Láng, E., Prieto, P., Tietema, A., Westerveld, J. W. & Kull, O., 2010, In: *Remote Sensing of Environment*. 114, 3, p. 626-636 11 p.

The counteracting effects of elevated atmospheric CO₂ concentrations and drought episodes: studies of enchytraeid communities in a dry heathland

Maraldo, K., Krogh, P. H., van der Linden, L., Christensen, B., Mikkelsen, T. N., Beier, Claus & Holmstrup, M., 2010, In: *Soil Biology & Biochemistry*. 42, 11, p. 1958-1966 9 p.

The response of dissolved organic carbon (DOC) and the ecosystem carbon balance to experimental drought in a temperate shrubland

Sowerby, A., Emmett, B. A., Williams, D., Beier, Claus & Evans, C. D., 2010, In: European Journal of Soil Science. 61, 5, p. 697-709

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, Brüggemann, 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., Schauffler, G., Siemens, J., Kindler, R., Flechard, C. & Sutton, M. A., 2009, In: Applied Soil Ecology. 133, 3-4, p. 139-149

Carbon and nitrogen balances for six shrublands across Europe

Beier, Claus, Emmett, B. A., Tietema, A., Schmidt, Inger Kappel, Peñuelas, J., Láng, E. K., Duce, P., De Angelis, P., Gorissen, A., Estiarte, M., de Dato, G. D., Sowerby, A., Kröel-Dulay, G., Lellei-Kovács, E., Kull, O., Mand, P., Petersen, H., Gjelstrup, P. & Spano, D., 2009, In: Global Biogeochemical Cycles. 23, 13 p., 4008.

Changes in the onset of spring growth in shrubland species in response to experimental warming along a north-south gradient in Europe

Prieto, P., Peñuelas, J., Niinemets, Ü., Ogaya, R., Schmidt, Inger Kappel, Beier, Claus, Tietema, A., Sowerby, A., Emmett, B. A., Láng, E. K., Kröel-Dulay, G., Lhotsky, B., Cesaraccio, C., Pellizzaro, G., de Dato, G., Sirca, C. & Estiarte, M., 2009, In: Global Ecology and Biogeography. 18, 4, p. 473-484 12 p.

Glycine uptake in heath plants and soil microbes responds to elevated temperature, CO₂ and drought

Andresen, L. C., Michelsen, Anders, Jonasson, S. E., Beier, Claus & Ambus, Per Lennart, 2009, In: Acta Oecologica. 35, 6, p. 786-796 11 p.

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.

Nitrogen uptake in temperate heath vegetation and soil microbes is influenced by elevated temperature, CO₂ and drought

Andresen, L. C., Michelsen, Anders, Jonasson, S. E., Beier, Claus & Ambus, Per Lennart, 2009, In: Institute of Physics Conference Series.

The rapid cold hardening response of Collembola is influenced by thermal variability of the habitat

Bahrndorff, S., Loeschcke, V., Pertoldi, C., Beier, Claus & Holmstrup, M., 2009, In: Functional Ecology. 23, 2, p. 340-347 8 p.

Consequences of more extreme precipitation regimes for terrestrial ecosystems

Knapp, A. K., Beier, Claus, Briske, D. D., Classen, A. T., Yiqi, L., Reichstein, M., Smith, M. D., Smith, S. D., Bell, J. E., Fay, P. A., Heisler, J. L., Leavitt, S. W., Sherry, R., Smith, B. & Weng, E., Oct 2008, In: BioScience. 58, 9, p. 811-821

Can field populations of the enchytraeid, *Cognettia sphagnetorum*, adapt to increased drought stress?

Maraldo, K., Schmidt, Inger Kappel, Beier, Claus & Holmstrup, M., 2008, In: Soil Biology & Biochemistry. 40, 7, p. 1765-1771 7 p.

Carbon and nitrogen cycles in European ecosystems respond differently to global warming

Beier, Claus, Emmett, B. A., Peñuelas, J., Schmidt, Inger Kappel, Tietema, A., Estiarte, M., Gundersen, Per, Llorens, L., Riis-Nielsen, Torben, Sowerby, A. & Gorissen, A., 2008, In: Science of the Total Environment. 407, 1, p. 692-697 6 p.

Contrasting effects of repeated summer drought on soil carbon efflux in hydric and mesic heathland soils

Sowerby, A., Emmett, B. A., Tietema, A. & Beier, Claus, 2008, In: Global Change Biology. 14, 10, p. 2388-2404

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.

Experimental warming does not enhance soil respiration in a semiarid temperate forest-steppe ecosystem

Lellei-Kovács, E., Kovács-Láng, E., Kalapos, T., Botta-Dukát, Z., Barabás, S. & Beier, Claus, 2008, In: *Community Ecology*. 9, 1, p. 29-37

Modeled interactive effects of precipitation, temperature, and [CO₂] on ecosystem carbon and water dynamics in different climatic zones

Luo, Y., Gerten, D., Le Maire, G., Parton, W. J., Weng, E., Zhou, X., Keough, C., Beier, Claus, Ciais, P., Cramer, W., Dukes, J. S., Emmett, B., Hanson, P. J., Knapp, A., Linder, S., Nepstad, D. & Rustad, L., 2008, In: *Global Change Biology*. 14, 9, p. 1986-1999

Modelled effects of precipitation on ecosystem carbon and water dynamics in different climatic zones

Gerten, D., Luo, Y., Le Maire, G., Parton, W. J., Keough, C., Weng, E., Beier, Claus, Ciais, P., Cramer, W., Dukes, J. S., Hanson, P. J., Knapp, A. A. K., Linder, S., Nepstad, D., Rustad, L. & Sowerby, A., 2008, In: *Global Change Biology*. 14, 10, p. 2365-2379

Next generation of elevated [CO₂] experiments with crops: A critical investment for feeding the future world

Ainsworth, E. A., Beier, C., Calafapietra, C., Ceulemans, R., Durand-Tardif, M., Farquhar, G. D., Godbold, D. L., Hendrey, G. R., Hickler, T., Kaduk, J., Karnosky, D. F., Kimball, B. A., Körner, C., Koornneef, M., Lafarge, T., Leakey, A. D. B., Lewin, K. F., Long, S. P., Manderscheid, R., Mcneil, D. L. & 12 others, Mies, T. A., Miglietta, F., Morgan, J. A., Nagy, J., Norby, R. J., Norton, R. M., Percy, K. E., Rogers, A., Soussana, J. F., Stitt, M., Weigel, H. J. & White, J. W., 2008, In: *Plant, Cell and Environment*. 31, 9, p. 1317-1324

Root-surface phosphatase activity in shrublands across a European gradient: effects of warming

Estiarte, M., Penuelas, J., Sardans, J., Emmett, B. A., Sowerby, A., Beier, Claus, Schmidt, Inger Kappel, Tietema, A., Meeteren, M. J. M. V., Lang, E. K., Mathe, P., Angelis, P. D. & Dato, G. D., 2008, In: *Journal of Environmental Biology*. 29, 1, p. 25-29 5 p.

Challenges in quantifying biosphere-atmosphere exchange of nitrogen species

Sutton, M. A., Nemitz, E., Erisman, J. W., Beier, C., Bahl, K. B., Cellier, P., Vries, W. D., Cotrufo, F., Skiba, U., Marco, C. D., Jones, S., Laville, P., Soussana, J. F., Loubet, B., Twigg, M., Famulari, D., Whitehead, J., Gallagher, N. W., Neftel, A., Flechard, C. R. & 27 others, Herrmann, B., Calanca, P. L., Schjoerring, Jan K., Daemmgen, U., Horvath, L., Tang, Y. S., Emmett, B. A., Tietema, A., Peñuelas, J., Kesik, D., Brueggemann, N., Pilegaard, K., Vesala, T., Campbell, C. L., Olesen, J. E., Dragosits, U., Theobald, M. R., Levy, P., Mobbs, D. C., Milne, R., Viovy, N., Vuichard, N., Smith, J. U., Smith, P., Bergamaschi, P., Fowler, D. & Reis, S., 2007, In: *Environmental Pollution*. 150, 1, p. 125-139 15 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

Response of plant species richness and primary productivity in shrublands along north-south gradient in Europe to seven years of experimental warming and drought: reduction in primary productivity in the heat and drought year of 2003

Penuelas, J., Prieto, P., Beier, Claus, Cesaraccio, C., Angelis, P. D., Dato, G. D., Emmett, B. A., Estiarte, M., Garadnai, J., Gorissen, A., Láng, E. K., Kröel-Dulay, G., Llorens, L., Pellizzaro, G., Riis-Nielsen, Torben, Schmidt, Inger Kappel, Sirca, C., Sowerby, A., Spano, D. & Tietema, A., 2007, In: *Global Change Biology*. 13, p. 2563-2581 19 p.

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

Microbial community changes in heathland soil communities along a geographical gradient: Interaction with climate change manipulations

Sowerby, A., Emmett, B., Beier, Claus, Tietema, A., Peñuelas, J., Estiarte, M., Van Meeteren, M. J. M., Hughes, S. & Freeman, C., 2005, In: *Soil Biology and Biochemistry*. 37, 10, p. 1805-1813

A qualitative ecosystem assessment for different shrublands in western Europe under impact of climate change

Wessel, W. W., Tietema, A., Beier, Claus, Emmet, B. A., Peñuelas, J. & Riis-Nielsen, Torben, 2004, In: *Ecosystems*. 7, 6, p. 662-671 10 p.

Climate change affects carbon allocation to the soil in shrublands

Gorissen, A., Tietema, A., Joosten, N. N., Estiarte, M., Peñuelas, J., Sowerby, A., Emmett, B. A. & Beier, Claus, 2004, In: *Ecosystems*. 7, p. 650-661

Climate change and ecosystem function - full-scale manipulations of CO₂ and temperature

Beier, Claus, 2004, In: *New Phytologist*. 162, 2, p. 243-245 3 p.

Effects of an experimental increase of temperature and drought on the photosynthetic performance of two ericaceous shrub species along a north-south European gradient

Llorens, L., Peñuelas, J., Beier, Claus, Emmett, B., Estiarte, M. & Tietema, A., 2004, In: *Ecosystems*. 7, p. 613-624

Effects of climate and ecosystem disturbances on biogeochemical cycling in a semi-natural terrestrial ecosystem

Beier, Claus, Schmidt, Inger Kappel & Kristensen, H. L., 2004, In: *Water, Air, and Soil Pollution: Focus*. 4, p. 191-206

Nonintrusive field experiments show different plant responses to warming and drought among sites, seasons, and species in a north-south European gradient

Peñuelas, J., Gordon, C., Llorens, L., Nielsen, T., Tietema, A., Beier, Claus, Bruna, P., Emmett, B., Estiarte, M. & Gorissen, A., 2004, In: *Ecosystems*. 7, p. 598-612 15 p.

Novel approaches to study climate change effects on terrestrial ecosystems in the field: Drought and passive nighttime warming

Beier, Claus, Emmett, B., Gundersen, Per, Tietema, A., Peñuelas, J., Estiarte, M., Gordon, C., Gorissen, A., Llorens, L., Roda, F. & Williams, D., 2004, In: *Ecosystems*. 7, 6, p. 583-597

Soil solution chemistry and element fluxes in three european heathlands and their responses to warming and drought

Schmidt, Inger Kappel, Tietema, A., Williams, D., Gundersen, Per, Beier, Claus, Emmet, B. A. & Estiarte, M., 2004, In: *Ecosystems*. 7, 6, p. 638-649 18 p.

The response of soil processes to climate change: results from manipulation studies of shrublands across an environmental gradient

Emmet, B. A., Beier, Claus, Estiarte, M., Tietema, A., Kristensen, H. L., Williams, D., Peñuelas, J., Schmidt, Inger Kappel & Sowerby, A., 2004, In: *Ecosystems*. 7, 6, p. 625-637 13 p.

Field measurements of atmosphere-biosphere interactions in a Danish beech forest

Pilegaard, K., Mikkelsen, T., Beier, Claus, Jensen, N., Ambus, Per Lennart & Ro-Poulsen, Helge, 10 Dec 2003, In: *Boreal Environment Research*. 8, 4, p. 315-333 19 p.

Terrestrial Ecosystem Recovery – Modelling the Effects of Reduced Acidic Inputs and Increased Inputs of Sea-salts Induced by Global Change

Beier, Claus, Moldan, F. & Wright, R. F., Jun 2003, In: *Ambio Special Report*. 32, 4, p. 275-282

Effects of experimental drought on microbial processes in two temperate heathlands at contrasting water conditions

Jensen, K. D., Beier, Claus, Michelsen, Anders & Emmett, B. A., 2003, In: *Applied Soil Ecology*. 24, 24, p. 165-176

Experimental manipulations of old pine forest ecosystems to predict the potential tree growth effects of increased CO₂ and temperature in a future climate

Rasmussen, L., Beier, Claus & Bergstedt, A., 2002, In: Forest Ecology and Management. 158, 1-3, p. 179-188

A meta-analysis of the response of soil respiration, net nitrogen mineralization, and aboveground plant growth to experimental ecosystem warming

Rustad, L. E., Campbell, J. L., Marion, G. M., Norby, R. J., Mitchell, M. J., Hartley, A. E., Cornelissen, J. H. C., Gurevitch, J., Alward, R., Beier, C., Burke, I., Canadell, J., Callaghan, T., Christensen, T. R., Fahnestock, J., Fernandez, I., Harte, J., Hollister, R., John, H., Ineson, P. & 23 others, Johnson, M. G., Jonasson, S., John, L., Linder, S., Lukewille, A., Masters, G., Melillo, J., Mickelsen, A., Neill, C., Olszyk, D. M., Press, M., Pregitzer, K., Robinson, C., Rygiel, P. T., Sala, O., Schmidt, Inger Kappel, Shaver, G., Thompson, K., Tingey, D. T., Verburg, P., Wall, D., Welker, J. & Wright, R., 2001, In: Oecologia. 126, p. 543-562

Fluxes of NO₃⁻, NH₄⁺, NO, NO₂, and N₂O in an old danish beech forest

Beier, Claus, Rasmussen, L., Pilegaard, K., Ambus, Per Lennart, Mikkelsen, T. N., Jensen, N. O., Kjeller, Annelise Helene, Priemé, Anders & Ladekar, U. L., 2001, In: Water, Air, and Soil Pollution: Focus. 1, p. 187-195

Nitrogen cycling in a Norway spruce plantation in Denmark - A SOILN model application including organic N uptake.

Beier, Claus, Eckersten, H. & Gundersen, Per, 2001, In: TheScientificWorldJournal.

Terrestrial ecosystem research in Europe: Lessons from the European Union's research projects 1996-2000

Troumbis, A., Beier, Claus, Wolters, V. & Peter, D., 2001, In: Environmental Science and Policy. 4, 1, p. 51-58

Atmospheric deposition and soil acidification in five coniferous forest ecosystems: a comparison of the control plots of the EXMAN sites

Kreutzer, K., Beier, Claus, Bredemeier, M., BLANCK, K., Cummins, T., Farrell, E. P., Lamersdorf, N., Rasmussen, L., Rothe, A., deVisser, P., Weis, W., Weiss, T. & Xu, Y., 1998, In: Forest Ecology and Management. 101, 1-3, p. 125-142

Comparison of N and C dynamics in two Norway spruce stands using a process oriented simulation model

Eckersten, H. & Beier, Claus, 1998, In: Environmental Pollution. 102, 1, S1, p. 395-401

Effect of drought experiments using roof installations on acidification/nitrification of soils

Lamersdorf, N., Beier, Claus, Blanck, K., Bredemeier, M., Cummins, T., Farrell, E. P., Kreutzer, K., Rasmussen, L., Ryan, M., Weis, W., Weiss, T. & Xu, Y., 1998, In: Forest Ecology and Management. 101, 1-3, p. 95-109

Effects of nitrogen deposition and climate change on nitrogen runoff at Norwegian boreal forest catchments: the MERLIN model applied to Risdalsheia (RAIN and CLIMEX projects)

Wright, R. F., Beier, Claus & Cosby, B. J., 1998, In: Hydrology and Earth System Sciences. 2, 4, p. 399-414

European experience of manipulation of forest ecosystems by roof cover: possibilities and limitations

Beier, Claus, Gundersen, Per & Rasmussen, L., 1998, *Experimental reversal of acid rain effects: The Gaardsjön roof project*. Hultberg, H. & Skeffington, R. (eds.). Chichester: John Wiley and Sons, Inc., p. 397-409

Field-scale 'clean rain' treatments to two Norway spruce stands within the EXMAN project—effects on soil solution chemistry, foliar nutrition and tree growth

Beier, Claus, BLANCK, K., Bredemeier, M., Lamersdorf, N., Rasmussen, L. & Xu, Y., 1998, In: Forest Ecology and Management. 101, p. 111-123

Impacts of elevated carbon dioxide and temperature on a boreal forest ecosystem (CLIMEX project)

van Breemen, N., Jenkins, A., Wright, R., Beerling, D., Arp, W., Berendse, F., Beier, Claus, Collins, R., van Dam, D., Rasmussen, L., Verburg, P. & Wills, M., 1998, In: Ecosystems. 1, p. 345-351

Modelling the effects of nitrogen addition on soil nitrogen status and nitrogen uptake in a Norway spruce stand in Denmark

Beier, Claus & Eckersten, H., 1998, In: Environmental Pollution. 102, 1, S1, p. 409-414

Water and element fluxes calculated in a sandy forest soil taking spatial variability into account

Beier, Claus, 1998, In: Forest Ecology and Management. 101, 1-3, p. 269-280

Nitrate leaching in coniferous forest ecosystems: The European field-scale manipulation experiments NITREX (nitrogen saturation experiments) and EXMAN (experimental manipulation of forest ecosystems)

Tietema, A., Beier, Claus, deVisser, P., Emmett, B., Gundersen, Per, Kjonaas, O. & Koopmans, C., 1997, In: Global Biogeochemical Cycles. 11, 4, p. 617-626

A correlative evaluation of nitrogen cycling in the forest ecosystems of the EC projects NITREX and EXMAN

Tietema, A. & Beier, Claus, 1995, In: Forest Ecology and Management. 71, 1-2, p. 143-151

Experimental manipulation of water and nutrient input to a Norway spruce plantation at Klosterhede, Denmark: II. Effects on tree growth and nutrition

Beier, Claus, Gundersen, Per, Hansen, K. & Rasmussen, L., 1995, In: Plant and Soil. 168, p. 613-622

Experimental manipulations of water and nutrient input to a Norway spruce plantation at Klosterhede, Denmark: III. Effects on throughfall, soil water chemistry and decomposition

Hansen, K., Beier, Claus, Gundersen, Per & Rasmussen, L., 1995, In: Plant and Soil. p. 623-632

Experimental manipulations of water and nutrient input to a Norway spruce plantation at Klosterhede, Denmark - I. Unintended physical and chemical changes by roof experiments

Gundersen, Per, Andersen, B. R., Beier, Claus & Rasmussen, L., 1995, In: Plant and Soil. 168, 1, p. 601-611

Magic applied to roof experiments (Risø, N; Gårdsjön, S; Klosterhede, DK) to evaluate the rate of reversibility of acidification following experimentally reduced acid deposition

Beier, Claus, Hultberg, H., Moldan, F. & Wright, R. F., 1995, In: Water, Air, & Soil Pollution. 85, p. 1745-1751

Modelling clean rain treatments in acidified soils-EXMAN project results

Walse, C., Beier, Claus, Warfvinge, P. & Rasmussen, L., 1995, In: Water, Air, & Soil Pollution. 85, p. 1807-1812

The exman project—Biogeochemical fluxes in plantation forests on acid soils

Cummins, T., Beier, Claus, Blanck, K., de Visser, P. H. B., Farrell, E. P., Rasmussen, L., Kreutzer, K., Weis, W. I., Bredemeier, M. & Lamersdorf, N., 1995, In: Water, Air and Soil Pollution. 85, p. 1653-1658

A comparison of sites in the EXMAN project, with respect to atmospheric deposition and the chemical composition of the soil solution and foliage

Farrell, E. P., Cummins, T., Collins, J. F., Beier, Claus, Blanck, K., Bredemeier, M., Visser, P. H. B. D., Kreutzer, K., Rasmussen, L., Rothe, A. & Steinberg, N., 1994, In: Forest Ecology and Management. 68, 1, p. 3-14

Biological response of five forest ecosystems in the EXMAN project to input changes of water, nutrients and atmospheric loads

de Visser, P. H. B., Beier, Claus, Rasmussen, L., Kreutzer, K., Steinberg, N., Bredemeier, M., BLANCK, K., Farrell, E. P. & Cummins, T., 1994, In: Forest Ecology and Management. 68, p. 15-29

Effects of whole-ecosystem manipulations on ecosystem internal processes

Beier, Claus & Rasmussen, L., 1994, In: Trends in Ecology and Evolution. 9, 6, p. 218-223

Organic matter decomposition in an acidic forest soil in Denmark as measured by the cotton strip assay

Beier, Claus & Rasmussen, L., 1994, In: Scandinavian Journal of Forest Research. 9, p. 106-114

Review of deposition monitoring methods

Erismann, J. A. N. W., Beier, Claus, Draaijers, G. & Lindberg, S., 1994, In: Tellus Series B-chemical and Physical Meteorology. 46B, p. 79-93

Spatial variability of throughfall fluxes in a spruce forest

Beier, Claus, Hansen, K. & Gundersen, Per, 1993, In: Environmental Pollution. 81, 3, p. 257-267

A NEW METHOD FOR ESTIMATION OF DRY DEPOSITION OF PARTICLES BASED ON THROUGHFALL MEASUREMENTS IN A FOREST EDGE

Beier, Claus, Gundersen, Per & Rasmussen, L., 1992, In: ATMOSPHERIC ENVIRONMENT PART A-GENERAL TOPICS. 26, 9, p. 1553-1559

Evaluation of porous cup soil-water samplers under controlled field conditions: comparison of ceramic and PTFE cups

Beier, Claus & HANSEN, K., 1992, In: European Journal of Soil Science. 43, 2, p. 261-271

Long-term field comparison of ceramic and poly(tetrafluoroethene) porous cup soil water samplers

Beier, Claus, Hansen, K., Gundersen, Per, Andersen, B. R. & Rasmussen, L., 1992, In: Environmental Science & Technology (Washington). 26, 10, p. 2005-2011

THE "EXMAN" PROJECT EXPERIMENTAL MANIPULATIONS OF FOREST ECOSYSTEMS

Rasmussen, L., Beier, Claus, de Visser, P., Van Breemen, N., Kreutzer, K., Schierl, R., Bredemeier, M., Raben, G. & Farrell, E. P., 1992, *Responses of Forest Ecosystems To Environmental Changes*. Teller, A., Mathy, P. & Jeffers, J. N. R. (eds.). Elsevier Applied Science, p. 325-334

Separation of Gaseous and Particulate Dry Deposition of Sulfur at a Forest Edge in Denmark

Beier, Claus, 1991, In: Journal of Environmental Quality. 20, 2, p. 460-466

Atmospheric deposition to the edge of a spruce forest in Denmark

Beier, Claus & Gundersen, Per, 1989, In: Environmental Pollution. 60, 3-4, p. 257-271

Aluminium sulphate solubility in acid forest soils in Denmark

Gundersen, Per & Beier, Claus, 1988, In: Water, Air, and Soil Pollution. 39, p. 247-261

Other

More Other

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