



List of publications and presentations

Scientific publications

1. Jana L. Heisler and Jake F. Weltzin (2004) Variability matters: towards a perspective on the influence of precipitation on terrestrial ecosystems. *New Phytologist* (in press)
2. Beier, C. (2004) Interactions of elevated CO₂ and temperature on terrestrial ecosystem structure and functioning – the role of whole-ecosystem manipulation experiments. *New Phytologist*, 162, 243-245.
3. Andresen, L. C. & Michelsen, A. (2005) Off-season uptake of nitrogen in temperate heath vegetation. *Oecologia* 144; 585 - 597.
4. Maraldo K, Christensen B, Strandberg B, Holmstrup M (2006) Effects of copper on enchytraeids in the field under differing soil moisture regimes. *Environmental Toxicology and Chemistry* 25: 604-612
5. Bahrndorff S, Holmstrup M, Petersen H, Loeschcke V (2006) Geographic variation for climatic stress resistance traits in the springtail *Orchesella cincta*. *Journal of Insect Physiology* 52:951-959
6. Mikkelsen, T.N.; Beier, C.; Jonasson, S.; Holmstrup, M.; Schmidt, I.K.; Ambus, P.; Pilegaard, K.; Michelsen, A.; Albert, K.; Andresen, L.C.; Arndal, M.F.; Bruun, N.; Christensen, S.; Danbæk, S.; Gundersen, P.; Jørgensen, P.; Kongstad, J.; Maraldo, K.; Priemé, A.; Riis-Nielsen, T.; Ro-Poulsen, H.; Stevnbak, K.; Selsted, M.B.; Sørensen, P.; Larsen, K.S.; Carter, M.S.; Martinussen, T.; Miglietta, F. and Sverdrup, H. (2008) Experimental design of multifactor climate change experiments with elevated CO₂, warming and drought – the CLIMAITE project. *Functional Ecology*, 22, 185-195.
7. Holmstrup M, Maraldo K, Krogh PH (2007) Combined effect of copper and prolonged summer drought on soil Microarthropods in the field. *Environmental Pollution* 146: 525-533
8. Peñuelas J, Prieto P, Beier C, Cesaraccio C, De Angelis P, de Dato G, Emmett BA, Estiarte M, Gorissen T, Garadnai J, Láng EK, Kröel-Dulay G, Llorens L, Pellizzaro P, Riis-Nielsen T, Schmidt IK, Sirca C, Sowerby A, Spano D, and Tietema A. (2007) Response of plant species richness and primary productivity in shrublands along a north-south gradient in Europe to

- seven years of experimental warming and drought: reductions in primary productivity in the heat and drought year of 2003. *Global Change Biology* 13(12), 2563-2581
9. Cornelissen, J.H.C., Bodegom, P.M. van, Aerts, R. Gallagher, T.V., Logtestijn, R.S.P. van, Alatalo, J., Chapin, F.S., Gerdol, R., Gudmundsson, J. Gwynn-Jones, D., Hartley, A.E., Hik, D.S., Hofgaard, A., Jonsdottir, I.S., Karlsson, S., Klein, J.A., Laundre, J., Magnusson, B., Michelsel, A., Molau, U., Onipchenko, V.G., Quested, H.M., Sandvik, S.M., Schmidt, I.K., Shaver, G.R. Solheim, B., Soudzilovskaia, N.A., Stenstrom, A., Tolvanen, A., Totland, O., Wada, N., Welker, J.M. Zhao, X., and Team, M.O.L. (2007) Global negative vegetation feedback to climate warming responses of leaf litter decomposition rates in cold biomes. *Ecology Letters* 10: 619-627.
 10. M.A. Sutton, E. Nemitz, J.W. Erisman, C. Beier, K. Butterbach Bahl, P. Cellier, W. de Vries, F. Cotrufo, U. Skiba, C. Di Marco, S. Jones, P. Laville, J.F. Soussana, B. Loubet, M. Twigg, D. Famulari, J. Whitehead, M.W. Gallagher, A. Neftel, C.R. Flechard, B. Herrmann, P.L. Calanca, M.E. Mattsson, J.K. Schjoerring, U. Daemmgen, L. Horvath, Y.S. Tang, B.A. Emmett, A. Tietema, J. Peñuelas, M. Kesik, C. Campbell, J.E. Olesen, U. Dragosits, M.R. Theobald, P. Levy, D. Mobbs, R. Milne, M. Reido, N. Viovy, N. Vuichard, J.U. Smith, P. Smith, P. Bergamaschi, J. Muller and D. Fowler (2007) Challenges in quantifying biosphere-atmosphere exchange of nitrogen species. *Environmental Pollution*, 150, 125-139.
 11. Estiarte M, Penuelas J, Sardans J, Emmett BA, Sowerby A, Beier C, Schmidt IK, Tietema A, Van Meeteren MJM, Lang EK, Mathe P, De Angelis P, De Dato G (2008) Root-surface phosphatase activities in shrublands across an European gradient: effects of warming. *Journal of Environmental Biology* 29 (1), 25-29
 12. Gerten, D.; Luo, Y.; le Maire, G.; Parton, W.J.; Keough, C.; Weng, E.; Beier, C.; Ciais, P. Cramer, W.; Dukes, J.S.; Hanson, P.J.; Knapp, A.; Linder, S.; Nepstad, D. Rustad, L. and Sowerby, A. (2008) Modelled effects of precipitation on ecosystem carbon and water dynamics in different climatic zones. *Global Change Biology*, 14, 1-15.
 13. Luo, Y.; Gerten, D.; Maire, G.L.; Parton, W.J.; Weng, E.; Zhou, X.; Keough, C. Beier, C.; Ciais, P. Cramer, W.; Dukes, J.S.; Emmett, B.; Hanson, P.J.; Knapp, A.; Linder, S.; Nepstad, D. and Rustad, L. (2008) Modelled interactive effects of precipitation, temperature and [CO₂] on ecosystem carbon and water dynamics in different climatic zones. *Global Change Biology*, 14, 1986-1999
 14. Knapp, A.; Beier, C.; Briske, D.; Classen, A.T.; Luo, Y.; Reichstein, M.; Smith, M.; Smith, S.D.; Bell, J.E.; Heisler, J.L.; Leavitt, S.W.; Sherry, R.S.; Smith, B.; Weltzin, J.; Weng, E. and Yarie, J. (2008) Consequences of altered precipitation regimes for terrestrial ecosystems. *BioScience*, 58, 1-11.
 15. Ainsworth, E.A.; Beier, C.; Calfapietra, C.; Ceulemans, R.; Durand-Tardif, M.; 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.; 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. and White, J.W. (2008) Next generation of elevated [CO₂] experiments with crops: A critical investment for feeding the future world. *Plant Cell & Environment*, 31, 1317-1324.

16. Maraldo K, Schmidt IK, Beier C, Holmstrup M (2008) Can field populations of the enchytraeid, *Cognettia sphagnetorum*, adapt to increased drought stress? *Soil Biology and Biochemistry* 40: 1765-1771
17. Maraldo K, Ravn HW, Slotsbo S, Holmstrup M (2009) Responses to acute and chronic desiccation stress in *Enchytraeus* (Oligochaeta: Enchytraeidae). *Journal of Comparative Physiology B* 179: 113-123
18. Bahrdorff S, Tunnacliffe A, Wise MJ, McGee B, Holmstrup M, Loeschcke V (2009) Bioinformatics and protein expression analyses implicate LEA proteins in the drought response of *Collembola*. *Journal of Insect Physiology* 55: 210-217
19. Bahrdorff S, Loeschcke V, Pertoldi C, Beier C, Holmstrup M (2009) The rapid cold hardening response of *Collembola* is influenced by thermal variability of the habitat. *Functional Ecology* 23: 340-347
20. Damgaard C, Riis-Nielsen T, Schmidt IK. (2009) Estimating plant competition coefficients and predicting community dynamics from non-destructive pin-point data: a case study of *Calluna vulgaris* and *Deschampsia flexuosa*. *Plant Ecol* 201:687-69.
21. Beier, C.; Emmett, B.A.; Tietema, A.; Schmidt, I.K.; 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. and Spano, D. (in press) Carbon and nitrogen balances for 6 shrublands across Europe. *Global Biogeochemical cycles*. 23, GB4008, doi:10.1029/2008GB003381
22. Andresen, L.C.; Michelsen, A.; Jonasson, S.; Beier, C. and Ambus, P. (2009) Glycine uptake in heath plants and soil microbes responds to elevated temperature, CO₂ and drought. *Acta Oecologia*, 35, 786-796; DOI: 10.1016/j.actao.2009.08.010.
23. Andresen, L.C.; Michelsen, A.; Jonasson, S.; Schmidt, I.K.; Mikkelsen, T.N.; Ambus, P. and Beier, C. (2009) Plant nutrient mobilization in temperate heathland responds to elevated CO₂, temperature and drought. *Plant & Soil*. <http://dx.doi.org/10.1007/s11104-009-0118-7>
24. Maraldo K, Holmstrup M (2009) Recovery of enchytraeid populations after severe drought events. *Applied Soil Ecology* 42: 227-235
25. Nielsen, P.L, Andresen, L.C., Michelsen, A., Schmidt, I.K, Kongstad, J. (2009) Seasonal variations and effects of nutrient applications on N and P and microbial biomass under two temperate heathland plants. *Applied Soil Ecology* 42, 279-287. doi:10.1016/j.apsoil.2009.05.006
26. Prieto, P.; Peñuelas, J.; Niinemets, Ü.; Ogaya, R.; Schmidt, I.K.; Beier, C.; Tietema, A.; Sowerby, A.; Emmett, B.A.; Kovács Láng, E.; Kröel-Dulay, G.; Barbara Lhotsky, B.; Cesaraccio, C.; Pellizzaro, G.; de Dato, G.; Sirca, C. and Estiarte, M. (2009) Changes in the onset of spring growth in shrubland species spring growth in response to experimental warming along a north-south gradient in Europe. *Global Ecology and Biogeography*, 18, 473-484.
27. 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.; Matyssek, R.; Miglietta, F.; Nagy, J.; Norby, R.J.; Oren, R.; Percy, K.E.; Rogers, A.; Mugnozza, G.S.; Stitt, M.; Taylor, G. and Ceulemans, R.

- (2010) Challenges in elevated CO₂ experiments on forests. *Trends in Plant Science*, 15, 5-10.
28. Andresen, L.C.; Michelsen, A.; Jonasson, S.; Schmidt, I.K.; Mikkelsen, T.N.; Ambus, P. and Beier, C. (2010) Plant nutrient mobilization in temperate heathland responds to elevated CO₂, temperature and drought. *Plant & Soil*, 328, 381-396. <http://dx.doi.org/10.1007/s11104-009-0118-7>
29. Giovanbattista Domenico de Dato, Paolo De Angelis, Costantino Sirca and Claus Beier (2010) Impact of drought and increasing temperatures on soil CO₂ emissions in a Mediterranean shrubland (gariga). *Plant and Soil*, 327, 153-166
30. Pille Mänd, Lea Hallik, Josep Peñuelas, Tiit Nilson, Pierpaolo Duce, Bridget A. Emmett, Claus Beier, Marc Estiarte, János Garadnai, Tibor Kalapos, Inger Kappel Schmidt, Edit Kovács-Láng, Patricia Prieto, Albert Tietema, Joke W. Westerveld, Olevi Kull (2010) Responses of the reflectance indices PRI and NDVI to experimental warming and drought in European shrublands along a north–south climatic gradient. *Remote Sensing of Environment*, 114, 626–636.
31. Yiqi Luo, Jerry Melillo, Shuli Niu, Claus Beier, Jim Clark, Aimée Classen, Eric Davidson, Jeffrey S Dukes, R. Dave Evans, Chris Field, Claudia I. Czimczik, Michael Keller, Bruce A Kimball, Lara Kueppers, Rich Norby, Shannon L. Peline, Elise Pendall, Ed Rastetter, Johan Six, Melinda Smith, Mark Tjoelker, Margaret Torn (submitted) Coordinated Approaches to Quantify Long-Term Ecosystem dynamics in Response to Global Change. *Global Change Biology*, Submitted.
32. Sebastian Leuzinger, Yiqi Luo, Claus Beier and Christian Körner (submitted) Global change experiments overestimate impacts on terrestrial ecosystems. *Global Change Biology*, submitted.
33. Maraldo K, Holmstrup M (in press) Enchytraeids in a changing climate: a mini-review. *Pedobiologia*
34. Lindberg N, Holmstrup M, Hedlund K, Mortimer S, Christensen S (submitted to *Soil Biology and Biochemistry*) Consequences of climate change for soil fauna – a review
35. Christensen S., Bjørnlund L., Vestergård M. (In press) Decomposer biomass in the rhizosphere to assess rhizodeposition. *Oikos* (in press).
36. L.C.Andresen, Michelsen, A., S.Jonasson, L.Ström (submitted) Free amino acid and ammonium uptake in temperate heathland vegetation and soil microorganisms under influence of enhanced soil tannic acid
37. Andresen, L.A., Michelsen A., Ambus P., Beier C. (submitted) Belowground heathland responses after two years of combined warming, elevated CO₂ and summer drought. *Biogeochemistry*

Other publications

Schmidt IK, Beier C, Kongstad J, Andresen L, Michelsen A, Albert K, Ambus P, Selsted M, Maraldo K, Holmstrup M, Arndal M, Mikkelsen TN, Ro-Poulsen H, Jonasson S, Karsten RJ. 2007. Klimaændringer, processer og funktion i terrestriske økosystemer. *Flora og Fauna* 113(4) 121-132.

Schmidt IK. 2008. Jordbund, klima og fremtidens natur. I: Dam M et al. *Wilhelm+6 Naturen og dens forvaltning i lyset af klimaforandringerne* p63-72. www.dn-ku.dk

NN (2008) Danske planter tilpasser sig. *Dynamo*, Technical University of Denmark, 28-31

Beier, C.; Mikkelsen, T.; Holmstrup, M.; Schmidt, I.K.; Michelsen, A. and CLIMAITE (2007) CLIMAITE – manipulation med klimaet (In Danish). *Jord & Vand*, 2, 71-74.

Beier, C. (2006) Klimaforandringer vil ændre nedbøren (In Danish). *Politiken*, Sunday 12/10 - 2006 .

Beier, C. (ed.) (2006) *Eprecot – Effects of precipitation changes on terrestrial ecosystems*. Brochure for policy makers based on findings from the Eprecot workshop, May 2006, 12 pp.

Beier, C. and Jonasson, S. (2005) Et glimt af fremtiden (In Danish). *Villum Kann Rasmussen årsskrift*. P. 5-11.

Andersen, K. (2005) Tidsmaskine skal afsløre klimaeffekter (in Danish). *MiljøDanmark*, 6, p. 8-9.

Ryde, M (2004) Forskningen skal ud - og ses. Artikel om CLIMAITE og formidling. (in Danish). *Riposten*, 4, 14-15.

Andresen, L. C. & Michelsen, A. (2004) Optager hedeplanter kvælstof om vinteren, og vokser de? (In Danish) *URT* 28 4; 122 - 125.

Oral presentations

Schmidt IK, Beier C et al. 2009. Climate change studies in large scale experiments in vulnerable ecosystems across Europe. The 11th European Heathland Workshop, Cornwall, UK, 13th-18th September 2009.

Kongstad J, Schmidt IK (2009) Flowering responses of *D. flexuosa* to climate change manipulations. The 11th European Heathland Workshop, Cornwall, UK, 13th-18th September 2009.

Kongstad J (2009) Betydning af klimaændringer. Hedernes økologi og pleje. Københavns Universitet 2. November 2009.

Scherber C, Gladbach D (2009) Climate change effects on growth and survival of herbivorous insects. Workshop. Hedernes økologi og pleje. Københavns Universitet 2. November 2009.

Larsen, K.S., Beier, C., Linden, L.G., Ibrom, A., Andresen, L., Albert, K., Maraldo, K., Pedersen, J.K., Schmidt, I.K. (2009) *Climaite – Consequences of multifactor climate change on the carbon and nitrogen cycles*. Oral presentation (invited speaker) at the *Biogeomon* conference, Helsinki, Finland, 29 June-3 July.

Ambus, P. et al. (2009) Climate controls on gas- and water mediated losses of N from a terrestrial ecosystem. Invited presentation at NeU Workshop on Landscape flows and transformations of nitrogen. Foulum, April 28.

Carter, M.S., Ambus, P., Albert, K.R., Larsen, K.S., Andersson, M., Andresen, L.C., Mikkelsen, T.N. and Beier, C. (2009) Effects of elevated CO₂, drought and warming on N₂O and CH₄ fluxes in a temperate heathland. Oral presentation at NitroEurope 5th General Assembly, 26-28 January, Gothenburg, SE.

Andresen LC, Michelsen A., Jonasson, SE ; Beier C, Ambus P (2009). Nitrogen uptake in temperate heath vegetation and soil microbes is influenced by elevated temperature, CO₂ and drought. Oral Presentation at the BIOGEOMON 2009 conference, Finland Helsinki, Finland, 29. June 2009 - 3. July 2009

Ro-Poulsen H, Albert K, Michelsen A, Mikkelsen TN, Beier C. (2009) Unpredictable responses to interactions between climatic drivers: Impact of warming, elevated CO₂, drought and their combinations on photosynthesis and growth patterns of heath plants. 6th International Symposium on Ecosystem Behaviour BIOGEOMON 2009, Helsinki, Finland, 29. June 2009 - 3. July 2009

Albert K, Mikkelsen TN, Ro-Poulsen, H. 2008. Future photosynthetic performance of heath plants – results from the multi-factorial ecosystem experiment, CLIMAITE : 5th SPPS 2008 PhD conference January 24-27 2008 in Haslev, Denmark

Albert K, Mikkelsen T, Ro-Poulsen H, Michelsen A. Plant eco-physiological response patterns to summer drought, elevated CO₂ and warming in a natural temperate heath ecosystem. Ecological Society of America, 93rd ESA annual meeting August 3-8, Milwaukee, Wisconsin. August 2008

Albert K, Mikkelsen T, Ro-Poulsen H, Michelsen A. Plant eco-physiological response patterns to summer drought, elevated CO₂ and warming in a natural temperate heath ecosystem. Nordic Photosynthetic Congress, 21-24 October 2008, Faculty of Life Sciences, University of Copenhagen, Denmark, Copenhagen, Denmark, 21-24 Oct 2008

Maraldo (2008) Can field populations of the enchytraeid, *Cognettia sphagnetorum*, adapt to increased drought stress? Oral presentation at the 8th Meeting of the Aarhus Stress Group. 10. September 2008

Maraldo, "Ecophysiological and ecological responses of enchytraeids exposed to climate change", PhD workshop "Organic matter in soil; pools and processes" held by University of Copenhagen, June 2008

Maraldo, "Ecophysiological and ecological responses of enchytraeids exposed to climate change" presentation of PhD-project at the University of Vigo, Spain, 14 January 2008

Beier, C. (2008) Climate change experiments and dynamic ecosystem modelling. Presentation at the ANAEE workshop, Paris, 2-4 September, 2008

Beier, C. (2008) Klima , biologi og kulstof - når klimaet ændrer sig. Presentation at "Forskningens døgn", Lyngby, 26th April 2008.

Pedersen, J.K. (2008) 'CLIMAITE - a Danish FACE experiment. Responses of Plant Communities to Climate Change'. UTAS, Tasmania 29 of February 2008.

Larsen , K.S.; Ambus, P.; Carter, M.S.; Priemé, A.; Albert, K.; Andersson, M., Beier, C. Denitrification and N₂O losses in a heathland under changing climate conditions. Presentation at NitroEurope General Assembly, Ghent, February 2008.

Carter, M.S., Ambus, P., Priemé, A., Albert, K., Larsen, K.S., Andersson, M., Mikkelsen, T. and Beier, C. 2008 Greenhouse gas fluxes in a temperate shrub-land under future climatic and environmental conditions. NECC and BACCI Nordic Centres of Excellence Conference: Greenhouse gases and aerosols: Interactions between northern ecosystems and climate. 16-18 June, Reykjavik, Iceland.

Ambus, P., Carter, M.S., Albert, K., Larsen, K.S., Andersson, M., Priemé, A., Mikkelsen, T. and Beier, C. 2008 Effects of climatic perturbations on greenhouse gas emissions in a temperate shrub land. Invited presentation at University of Hohenheim, Stuttgart, Germany, 2. June. Unpublished

Ambus, P; Selsted, M.B.; Carter, M.S.; Albert, K.R.; Andersson, M. Larsen, K.S.; Priemé, A.; Michelsen, A.; Mikkelsen, T.N.; Pilegaard, K.; Beier, C. 2007. Denitrification and N₂O losses in a heath-land under changing climate conditions. 14th and final meeting of the ESF COST 856 Action on Denitrification and related aspects: Achievements of COST 856, Uppsala, Sweden, 5-8 December

Ambus, P; Selsted, M.B.; Carter, M.S.; Albert, K.R.; Andersson, M. Larsen, K.S.; Michelsen, A.; Mikkelsen, T.N.; Pilegaard, K.; Beier, C. 2007. Combined effects of drought, temperature and CO₂ on GHG emissions from temperate shrub-land. COST-639. Plenary meeting, Vienna, Austria, 12-13 April.

Louise C. Andresen, Anders Michelsen, Sven Jonasson, Claus Beier, Per Ambus Temperate heath plant biomass, root and soil microbial acquisition of organic nitrogen is influenced by elevated temperature, CO₂ and drought' JESIUM 2008 (Joint European Stable Isotope User Meeting) Presq' Ile de Giens, France 1 - 6 September.

Kristian Rost Albert, Helge Ro-Poulsen, Teis N. Mikkelsen and Anders Michelsen. Plant eco-physiological response patterns to summer drought, elevated CO₂ and warming in a semi-natural temperate heath ecosystem. The Ecological Society of America, 93rd Annual Meeting. Oral presentation and abstract. Milwaukee, Wisconsin, August 3-8, 2008.

Linden, L.G.; Beier, C.; Belyazid, S. and Sverdrup, H. (2007) Simulating a heathland ecosystem under climate change scenarios with ForSAFE-VEG. Presentation at COGCI PhD school, June 2007.

Carter, M.S. (2007) Brandbjerg – a Danish heathland site. Oral presentation at NEU model workshop, 21-23 March, Dragør, DK.

Carter, M.S. (2007) N₂O and CH₄ flux measurements at two Danish shrublands. Oral presentation at NEU annual meeting, 5-9 February, Paestum, IT.

Schmidt IK, Beier C. 2007. Jordbund, klima og fremtidens nature. Wilhelm+6 Naturen og dens forvaltning I lyset af klima-forandringerne. Kbh. 9. November 2007.

Schmidt IK and CLIMAITE partners. 2007. Klimaændringer og processer og funktion i terrestriske økosystemer. Abstract and oral presentation. Konference. Klimaændringer og den danske natur - set i et internationalt perspektiv. Naturhistorisk Forening for Jylland. Århus nov, 2007

Emmett, B.A. and Beier, C. (2007) Climate change experiments – going for simplicity or complexity. Presentation at Gordon Conference, July 2007.

Schmidt IK, Beier C. Changes in biogeochemical cycling in response to climate manipulation in two mixed heath/grassland: result from VULCAN and CLIMAITE. Presentation at International Symposium: Soil Processes under Extreme Meteorological Conditions, Bayreuth, February, 2007.

Merete Bang Petersen, CLIMAITE: Ecosystem-atmosphere exchange of carbon in a heath land under future climatic conditions. PhD Workshop: Hvordan formidler du din forskning? 27.– 29. januar 2006

Merete Bang Petersen, CLIMAITE: Ecosystem-atmosphere exchange of carbon in a heath land under future climatic conditions. Seminar at Risø National Laboratory, Biosystem Department, March 2006

Merete Bang Petersen, CLIMAITE: Ecosystem-atmosphere exchange of carbon in a heath land under future climatic conditions Isotope Ecology Course, Salt Lake City, Utah: 15. juni 2006

Maraldo, "Vulcan – a climate study" Presentation at the PhD workshop "Ecological genomics" in Wageningen, Holland, February 2006

Kristian Albert: The Biological Time machine – Biological responses to multiple environmental and climatic changes. Presentation at Environment and Stress Symposium November 2006, KVL.

Pilegaard, K (2006). CLIMAITE - a 3-factor climate change ecosystem manipulation study: Set-up and first responses. Seminar at Department of Forest Ecology, University of Helsinki, Finland, 6th October, 2006.

Beier C. (2006) Vulnerability assessment for European shrublands to climate change. Lecture at AVEC summerschool, Peyresque, France, 2nd September 2006.

Teis N. Mikkelsen: Nationalt global change forsknings initiativ: CLIMAITE. Geografisk Institut, Københavns Universitet. (januar 05).

Søren Christensen: CLIMAITE – a Danish multifactor climate change experiments. Presentation at "Monitoring the effects of climate change, development of a future national initiative" arranged by Richard Bradshaw, (GEUS, København 13 og 20 januar 2005)

Beier, C. (2005) Effects of climate change on terrestrial ecosystems studied by field scale manipulation experiments. Foredrag ved 7th International Conference on Acid Deposition Acid Rain 2005, Prague, Tjekkiet, 12–17 June 2005

Beier, C. (2005) Field scale climate change experiments - what about biodiversity? Foredrag ved 2nd BIORHIZ symposium: 'Rhizosphere Impact on Plant Communities - The Soil Biodiversity Conservation Perspective' og 4th CONSIDER project workshop: 'Global Climate Change and Soil Biodiversity', Reading, 24. August 2005.

Andresen L. C., Michelsen A., Jonasson S., Ambus P., Beier C. CLIMAITE – Climate change effects on soil processes. 9th European Heathland Workshop. Oral presentation and abstract. Belgium, 13th – 17th September 2005.

Beier C. (2005) Vulnerability of European shrublands to climate change. Lecture at AVEC summerschool, Peyresque, France, 20 september 2005

Teis N. Mikkelsen: CLIMAITE – et nyt dansk forskningsprojekt. Åbent studiekreds arrangement – Orø beboerforening, Orø. (oktober 05).

Beier C. (2005) CLIMAITE – a project on climate change effects on biological processes in terrestrial ecosystems. NoNaKlim symposium "Conservation of Nordic Nature in a Changing Climate", København, 14 oktober 2005

Beier, C. (2004) Research centre on biological effects of Climate Change. Scientific Friday seminar, Risø, 23rd April, 2004.

Martin Holmstrup: Methods to assess multiple environmental risks. Use of soil invertebrates. EU Workshop om interaktioner mellem klima og forurening, Mallorca, 8-12 november, 2004

Inger K Schmidt: CLIMAITE – et nyt dansk forskningsprojekt vedr. klimaforandringer. Foredrag, Skov & Landskab, KVL, 10. december 2004.

Posters

Schmidt IK, Beier C, de Angelis P, Duce P, Emmett B, Kroel-Dulay G, Peñuelas J, Spano D, Tietema A. (2009) Impacts of climate change on vulnerable European shrubland ecosystems. Presentation Copenhagen Climate Congress 10-12 March 2009

Kongstad J, Arndal MF, Schmidt IK (2009) Above and belowground phenology in a heathland during future climate change. Presentation Copenhagen Climate Congress 10-12 March 2009

Schmidt IK, Beier C, Tietema A, Emmett B, deAngelis P, Duce P, Spano D, Kroel-Dulay G 2009. Climate change studies in large scale experiments in vulnerable ecosystems across Europe. Poster and abstract. Biogeomon p351. Helsinki 29 Jun- 3 Jul.

Arndal M, Schmidt IK, Beier C 2009. Root dynamic and nutrient uptake during future climate change. Poster and abstract. Biogeomon p 406. Helsinki 29 Jun- 3 Jul.

Carter, M.S., Ambus, P., Albert, K., Larsen, K.S., Andersson, M., Andresen, L., Mikkelsen, T.N. and Beier, C. (2009) N₂O and CH₄ fluxes in a temperate heathland under future climatic conditions. Fifth International Symposium on Non-CO₂ Greenhouse Gases (NCGG-5). Science, Reduction Policy and Implementation. Wageningen, The Netherlands, June 30 - July 3

Selsted, M.B., Albert, K., Ambus, P., Michelsen, A., Ro-Poulsen, H. and Mikkelsen, T.N. (2009) Ecosystem recovery after drought events in our future climate. International Scientific Congress on Climate Change, Copenhagen, 10-12 March

Andresen LC, Michelsen A., Jonasson, SE ; Beier C, Ambus P (2009). Nitrogen uptake in temperate heath vegetation and soil microbes is influenced by elevated temperature, CO₂ and drought. Climate Change: Global Risks, Challenges and Decisions, Copenhagen 2009, Denmark, 10-12 March 2009

Selsted, MB, Albert K; Ambus P, Michelsen A, Ro-Poulsen H., Mikkelsen TN, Ibrom A. (2009). Ecosystem Recovery after Drought Events in Our Future Climate. Climate Change: Global Risks, Challenges and Decisions, Copenhagen 2009, Denmark, 10-12 March 2009

Selsted MB, Albert K, Ambus P, Michelsen A, Ro-Poulsen H. Mikkelsen TN. ; Ibrom, Andreas. 2009. Responses of carbon and water fluxes following drought events in combinations with warming and elevated CO₂. 6th International Symposium on Ecosystem Behaviour BIOGEOMON 2009, Helsinki, Finland, 29 June - 3 July 2009.

Maraldo K, Ravn HW, Slotsbo S, Holmstrup M. Drought Strategies in *Enchytraeus albidus*. Poster presentation at The annual meeting of the Society for Experimental Biology in, France July 2008

Arndal, M. F., Schmidt, I. K., Beier, C. (2007) Root dynamics and below ground carbon input in a changing climate. Poster at "Woody root symposium", Wales, UK. 16.-21. Sep. 2007.

- Arndal MF, Kappel Schmidt I, Beier C. (2007) Effects of climate change on root function and below ground carbon input. Poster&Abstract at Rhizosphere2 Conference, Montpellier, Frankrig 26. - 31. august, 2007.
- Pedersen JK, Arndal MF. (2007) Effect of climate change on above- and belowground plant dynamics in a heath land. Poster&Abstract at Heathland Workshop, Norge juli, 2007
- Pedersen JK, Schmidt IK. (2006) Responses of plant communities to climate change. Poster fremlagt ved Environment and Stress, Copenhagen, Danmark. november, 2006.
- Albert K., Ro-Poulsen H., Mikkelsen T.N. (2006) Den biologiske tidsmaskine og planternes fysiologiske respons. Poster & abstract, Copenhagen, BIO-dagen January 2006.
- Andresen L. C., Michelsen A., Jonasson S., Ström L., Tracing amino acids through plants and soil with ¹⁵N ¹³C labeled compounds. 5th international conference on applications of stable isotopes in ecology; Belfast 13. – 18. august 2006. Poster and Abstract.
- Petersen, MB, Ambus, P 2006. CLIMAITE: Presentation of PhD project: Ecosystem-atmosphere exchange of carbon in a heath land under future climatic conditions. Poster & abstract, EPRECOT, Helsingør, DK, May 2006
- Maraldo, K., Schmidt, I.K., Beier, C. & Holmstrup, M.: Effects of warming and enforced summer drought on enchytraeids in a temperate heathland. Poster presented at 7 th International Symposium on Enchytraeidae, Masaryk University, Brno, Czech Republic, May 25-28 2006.
- Albert K., Ro-Poulsen H., Mikkelsen T.N. (2006) How does prolonged drought affect plant physiological processes? - Focus on the interactions with increased temperature and elevated [CO₂] within the CLIMAITE project. Poster & abstract, EPRECOT, Helsingør, DK, May 2006
- Schmidt IK et al. CLIMAITE – Climate change effects on biological processes in terrestrial ecosystems. Poster & abstract, EPRECOT, Helsingør, DK, May 2006
- Beier, C. (2006) CLIMAITE – a biological time machine to investigate multifactor climate change effects in terrestrial ecosystems. Poster presentation at the 5th BIOGEMON Conference (Santa Cruz, US, 2–5 July 2006).
- Albert K., Ro-Poulsen H., Mikkelsen T.N., Michelsen A., Beier C., Jonasson S., Pilegård K., Ambus P., Kappel Schmidt I., Holmstrup M., Primé A., Christensen S. (2006) The Biological Time Machine - Biological responses to multiple environmental and climatic changes. Poster & abstract, Environment and Stress, Ph.d. symposium at KVL October 2006.
- Beier, C. (2005) CLIMAITE – a biological time machine. Poster presentation at the 7th International Conference on Acid Deposition Acid Rain 2005 (Prague, Czech Republic, 12–17 June 2005).

Schmidt IK, Beier C. 2005. CLIMAITE – Climate change effects on biological processes in terrestrial ecosystems. 9th European Heathland Workshop, p106. Poster og abstract. Belgium, 13th – 17th September.

Maraldo, K., Strandberg, B., Christensen, B., & Holmstrup, M.: Combined effects of copper and summer drought on enchytraeids: comparison of laboratory and field studies. Poster presented at SETAC Europe 15th Annual Meeting, The Reason d'Être of environmental toxicology and chemistry, Lille, France, May 22-26, 2005.

PhD and Student reports

Ph.D. degree projects

Title: Enchytraeidae (Oligochaeta) in a changing climate. Ecology and ecophysiology of enchytraeids exposed to climate changes
Date: April 2009
Student: Kristine Maraldo
Supervisors: Martin Holmstrup, Søren Christensen
Institution: University of Copenhagen, Department of Biology, Terrestrial Ecology Section, Physiological Ecology

Title: Plant eco-physiological responses to multiple environmental and climate changes
Date: March 2009
Student: Kristian Albert
Supervisors: Helge Ro-Poulsen, Teis Mikkelsen
Institution: University of Copenhagen, Department of Biology, Terrestrial Ecology Section, Physiological Ecology

Title: Nitrogen cycling in temperate heathland ecosystems and effects of climate change
Date: May 2008
Student: Louise C. Andresen
Supervisors: Anders Michelsen, Sven Jonasson, Claus Beier, Per Ambus
Institution: University of Copenhagen, Department of Biology, Terrestrial Ecology Section, Physiological Ecology

M.Sc. degree project

Title: Nutrient content in soil, roots and microorganisms, and soil microbial biomass below *C. vulgaris* and *D.flexuosa*: seasonal variation and effects of nutrient addition
Date: 2006
Student: Pia Lund Nielsen
Supervisors: Anders Michelsen, Inger Kappel Schmidt
Institution: University of Copenhagen, Department of Biology, Terrestrial Ecology Section, Physiological Ecology

Title: The influence of nitrogen and phosphorus on phenology, growth and nutrient content in *D.flexuosa* and *C. vulgaris*
Date: 2006
Student: Jane Kongstad Pedersen
Supervisors: Anders Michelsen, Sven Jonasson
Institution: University of Copenhagen, Department of Biology, Terrestrial Ecology Section, Physiological Ecology

Title: The effect of ants, organic matter and manipulation of precipitation on CO₂ fluxes in a heath ecosystem
Date: Aug. 2008
Student: Lasse Kjems
Supervisors: Anders Michelsen, Per Ambus
Institution: University of Copenhagen, Department of Biology, Terrestrial Ecology Section, Physiological Ecology

Bachelor degree projects

Title: Respiration in *Calluna vulgaris* and *Deschampsia flexuosa* in relation to climate change
Date: June 2008
Students: Julie Hirsch & Linda Agerbo Jensen
Supervisors: Helge Ro-Poulsen, Teis Mikkelsen
Institution: University of Copenhagen, Department of Biology, Terrestrial Ecology Section, Physiological Ecology

Title: Effect of enhanced CO₂, temperature, drought and combinations on the concentration of condensed tannin in leaves and fine roots in *Calluna vulgaris* and *Deschampsia flexuosa*
Date: Dec. 2007
Student: Rune Juelsborg Karsten
Supervisors: Anders Michelsen
Institution: University of Copenhagen, Department of Biology, Terrestrial Ecology Section, Physiological Ecology

Title: Global change affected eco-physiological winter processes in *C.vulgaris*
Date: 2007
Student: Kristine S.Boesgård and Kristina Louise Mathiesen
Supervisors: Helge Ro-Poulsen, Anders Michelsen, Kristian Albert
Institution: University of Copenhagen, Department of Biology, Terrestrial Ecology Section, Physiological Ecology

Title: Photosynthesis and respiration in relation to variations in precipitation in a heath ecosystem.
Date: June 2007
Student: Jakob Juul
Supervisors: Anders Michelsen, Per Ambus
Institution: University of Copenhagen, Department of Biology, Terrestrial Ecology Section, Physiological Ecology

Title: Effects of CO₂, drought and temperature on *Deschampsia flexuosa* in a FACE-experiment.
Date: June 2009
Student: Simon Lindegaard
Supervisors: Helge Ro-Poulsen, Kristian Albert
Institution: University of Copenhagen, Department of Biology, Terrestrial Ecology Section, Physiological Ecology

Title: Investigation of the response of *Deschampsia flexuosa* to water stress
Date: June 2009
Student: Thomas Bang
Supervisors: Helge Ro-Poulsen, Kristian Albert
Institution: University of Copenhagen, Department of Biology, Terrestrial Ecology Section, Physiological Ecology

Other projects

Title: The effect of drought and enhanced water supply on microbial C, N and P, inorganic N and P, and plant biomass.
Date: June 2007
Student: Merian Skouw-Rasmussen
Supervisors: Anders Michelsen
Institution: University of Copenhagen, Department of Biology, Terrestrial Ecology Section, Physiological Ecology

Title: Global change effects on plant senescence.
Date: 2006
Student: Christine Aagaard
Supervisors: Helge Ro-Poulsen and Kristian Albert
Institution: University of Copenhagen, Department of Biology, Terrestrial Ecology Section, Physiological Ecology