

Per Lennart Ambus  
Professor  
Geography 1  
**Postal address:**  
Øster Voldgade 10  
1350  
København K  
**Email:** peam@ign.ku.dk  
**Mobile:** +4524611987  
**Phone:** +4535336626  
**Web address:** <https://ign.ku.dk>

## Employment

### Professor

Geography 1  
København K  
1 Dec 2014 → nu

### Senior scientist

Institut for Kemiteknik, DTU  
Lyngby, Denmark  
1 Jan 2011 → 30 Nov 2014

### Senior scientist

Forskningscenter Risø  
Roskilde, Denmark  
1 Jan 1997 → 1 Jan 2011

### Visiting research associate

Michigan State University  
United States  
1 Jan 1995 → 1 Jan 1996

### Scientist

Forskningscenter Risø  
Roskilde, Denmark  
1 Jan 1993 → 1 Jan 1994

## Publications

### **Deepened snow in combination with summer warming increases growing season nitrous oxide emissions in dry tundra, but not in wet tundra**

Xu, Wenyi, Frendrup, L. L., Michelsen, Anders, Elberling, Bo & Ambus, Per Lennart, 2023, In: Soil Biology and Biochemistry. 180, 12 p., 109013.

### **Delayed nitrogen application after straw and charred straw addition altered the hot moment of soil N<sub>2</sub>O emissions**

Ye, X., Ran, H., Wang, X., Li, G., Ambus, Per Lennart, Wang, G. & Zhu, K., 2023, In: European Journal of Soil Science. 74, 1, 15 p., e13349.

### **Effects of long-term organic fertilizer substitutions on soil nitrous oxide emissions and nitrogen cycling gene abundance in a greenhouse vegetable field**

Xu, Wenyi, Zhao, D., Ma, Y., Yang, G., Ambus, Per Lennart, Liu, X. & Luo, J., 2023, In: Applied Soil Ecology. 188, 10 p., 104877.

**Fate and stabilization of labile carbon in a sandy boreal forest soil – A question of nitrogen availability?**

Meyer, N., Sietiö, O., Adamczyk, S., Ambus, Per Lennart, Biasi, C., Glaser, B., Kalu, S., Martin, A., Mganga, K. Z., Olin, M., Seppänen, A., Shrestha, R. & Karhu, K., 2023, In: Applied Soil Ecology. 191, 14 p., 105052.

**Moderate nitrogen retention in temperate heath ecosystem after elevated CO<sub>2</sub>, 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.

**Våd natur kan give væsentlig klimaeffekt – men på lang sigt**

Christiansen, Jesper Riis, Jepsen, Martin Rudbeck, Ambus, Per Lennart, Elberling, Bo, Mueller, Carsten W., Bruun, Sander, Busck, Anne Gravsholt, Jensen, Lars Stoumann, Bruun, Hans Henrik, Krøijer, Stine, Jessen, Nina Toudal, Jessen, Søren & Stisen, S., 25 May 2022, BIO (DM).

**A review of the importance of mineral nitrogen cycling in the plant-soil-microbe system of permafrost-affected soils—changing the paradigm**

Ramm, E., Liu, C., Ambus, Per Lennart, Butterbach-bahl, K., Hu, B., Martikainen, P. J., Marushchak, M. E., Mueller, Carsten W., Rennenberg, H., Schloter, M., Siljanen, H. M. P., Voigt, C., Werner, C., Biasi, C. & Dannenmann, M., 1 Jan 2022, In: Environmental Research Letters. 17, 1, 34 p., 013004.

**Challenges in measuring nitrogen isotope signatures in inorganic nitrogen forms: An interlaboratory comparison of three common measurement approaches**

Biasi, C., Jokinen, S., Prommer, J., Ambus, Per Lennart, Dörsch, P., Yu, L., Granger, S., Boeckx, P., Van Nieuland, K., Brueggemann, N., Wissel, H., Voropaev, A., Zilberman, T., Jaentti, H., Trubnikova, T., Welti, N., Voigt, C., Gebus-Czupyt, B., Czupyt, Z. & Wanek, W., 2022, In: Rapid Communications in Mass Spectrometry. 36, 22, 16 p., 9370.

**Effects of fire on CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O exchange in a well-drained Arctic heath ecosystem**

Hermesdorf, L., Elberling, Bo, D'Imperio, Ludovica, Xu, Wenyi, Lambæk, A. & Ambus, Per Lennart, 2022, In: Global Change Biology. 28, 16, p. 4882-4899

**Microbial carbon use efficiency along an altitudinal gradient**

Mganga, K. Z., Sietiö, O., Meyer, N., Poeplau, C., Adamczyk, S., Biasi, C., Kalu, S., Räsänen, M., Ambus, Per Lennart, Fritze, H., Pellikka, P. K. E. & Karhu, K., 2022, In: Soil Biology and Biochemistry. 173, 12 p., 108799.

**Modelling impacts of lateral N flows and seasonal warming on an arctic footslope ecosystem N budget and N<sub>2</sub>O emissions based on species-level responses**

Rasmussen, Laura Helene, Zhang, Wenxin, Ambus, Per Lennart, Jansson, P. E., Kitzler, B. & Elberling, Bo, 2022, In: Biogeochemistry. 158, 2, p. 195–213 19 p.

**Normalizing time in terms of space: What drives the fate of spring thaw-released nitrogen in a sloping Arctic landscape?**

Rasmussen, Laura Helene, Mortensen, Louise Hindborg, Ambus, Per Lennart, Michelsen, Anders & Elberling, Bo, 2022, In: Soil Biology and Biochemistry. 175, 8 p., 108840.

**Pyrogenic organic matter as a nitrogen source to microbes and plants following fire in an Arctic heath tundra**

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**Re-visiting soil carbon and nitrogen stocks in a temperate heathland seven years after the termination of free air CO<sub>2</sub> 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.

**Effects of experimental fire in combination with climate warming on greenhouse gas fluxes in Arctic tundra soils**

Xu, Wenyi, Lambæk, A., Holm, S. S., Furbo-halken, A., Elberling, Bo & Ambus, Per Lennart, 1 Nov 2021, In: Science of the Total Environment. 795, 12 p., 148847.

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**Short-term effects of experimental fire on CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O exchange in a well-drained arctic tundra**

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**Analysis of narwhal tusks reveals lifelong feeding ecology and mercury exposure**

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**Effects of two wood-based biochars on the fate of added fertilizer nitrogen—a <sup>15</sup>N tracing study**

Kalu, S., Oyekoya, G. N., Ambus, Per Lennart, Tammeorg, P., Simojoki, A., Pihlatie, M. & Karhu, K., 2021, In: Biology and Fertility of Soils. 14 p.

**Fire increases soil nitrogen retention and alters nitrogen uptake patterns among dominant shrub species in an Arctic dry heath tundra**

Xu, Wenyi, Elberling, Bo & Ambus, Per Lennart, 2021, In: Science of the Total Environment. 807, Part 3, 11 p., 150990.

**Nitrogen transport in a tundra landscape: the effects of early and late growing season lateral N inputs on arctic soil and plant N pools and N<sub>2</sub>O fluxes**

Rasmussen, Laura Helene, Zhang, Wenxin, Ambus, Per Lennart, Michelsen, Anders, Jansson, P. E., Kitzler, B. & Elberling, Bo, 2021, In: Biogeochemistry. 157, p. 69–84 16 p.

**Nitrous oxide surface fluxes in a low Arctic heath: Effects of experimental warming along a natural snowmelt gradient**

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**The Influence of Grain Legume and Tillage Strategies on CO<sub>2</sub> and N<sub>2</sub>O Gas Exchange under Varied Environmental Conditions**

Hansen, E. M. Ø., Hauggaard-nielsen, H., Justes, E., Ambus, Per Lennart & Mikkelsen, T. N., 2021, In: Agriculture. 11, 5, 18 p., 464.

**Slope hydrology and permafrost: The effect of snowmelt N transport on downslope ecosystem**

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**A new dataset of soil carbon and nitrogen stocks and profiles from an instrumented Greenlandic fen designed to evaluate land-surface models**

Morel, X., Hansen, Birger, Delire, C., Ambus, Per Lennart, Mastepanov, M. & Decharme, B., 2020, In: Earth System Science Data. 12, 4, p. 2365-2380 16 p.

**Combined effects of glacial retreat and penguin activity on soil greenhouse gas fluxes on South Georgia, sub-Antarctica**

Wang, P., D'Imperio, Ludovica, Biersma, Elisabeth M., Ranniku, R., Xu, Wenyi, Tian, Q., Ambus, Per Lennart & Elberling, Bo, 2020, In: The Science of the Total Environment. 718, 135255.

**Nitrogen isotopes reveal high N retention in plants and soil of old Norse and Inuit deposits along a wet-dry arctic fjord transect in Greenland**

Andersen, E. A. S., Michelsen, Anders, Fenger-Nielsen, R., Hollesen, J., Ambus, Per Lennart & Elberling, Bo, 2020, In: Plant and Soil. 455, 1-2, p. 241-255 15 p.

**Accumulation of soil carbon under elevated CO<sub>2</sub> unaffected by warming and drought**

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**Accumulation of soil carbon under elevated CO<sub>2</sub> unaffected by warming and drought**

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**Biochar application as a tool to decrease soil nitrogen losses (NH<sub>3</sub> volatilization, N<sub>2</sub>O emissions, and N leaching) from croplands: Options and mitigation strength in a global perspective**

Liu, Q., Liu, B., Zhang, Y., Hu, T., Lin, Z., Liu, G., Wang, X., Ma, J., Wang, H., Jin, H., Ambus, Per Lennart, Amonette, J. E. & Xie, Z., 2019, In: *Global Change Biology*. 25, 6, p. 2077-2093 17 p.

**Combining a Quantum Cascade Laser Spectrometer with an Automated Closed-Chamber System for delta δ<sup>13</sup> Measurements of Forest Soil, Tree Stem and Tree Root CO<sub>2</sub> Fluxes**

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

**Deepened winter snow significantly influences the availability and forms of nitrogen taken up by plants in High Arctic tundra**

Mörsdorf, M. A., Baggesen, N. S., Yoccoz, N. G., Michelsen, Anders, Elberling, Bo, Ambus, Per Lennart & Cooper, E. J., 2019, In: *Soil Biology & Biochemistry*. 135, p. 222-234 13 p.

**Sea animal activity controls CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O emission hotspots on South Georgia, sub-Antarctica**

Wang, P., D'Imperio, Ludovica, Liu, B., Tian, Q., Jia, Z., Ambus, Per Lennart, Rasch, M. & Elberling, Bo, 2019, In: *Soil Biology and Biochemistry*. 132, p. 174-186 13 p.

**Context-dependent tree species effects on soil nitrogen transformations and related microbial functional genes**

Ribbons, R. R., Kepfer Rojas, Sebastian, Kosawang, Chatchai, Hansen, Ole Kim, Ambus, Per Lennart, McDonald, M., Grayston, S. J., Prescott, C. E. & Vesterdal, Lars, 1 Sep 2018, In: *Biogeochemistry*. 140, 2, p. 145-160 1 p.

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Liu, Q., Zhang, Y., Liu, B., Amonette, J. E., Lin, Z., Liu, G., Ambus, Per Lennart & Xie, Z., 2018, In: *Plant and Soil*. 426, 1-2, p. 211-225 15 p.

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

Andresen, L. C., Domínguez, 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.

**Minimum tillage mitigated soil N<sub>2</sub>O emissions and maximized crop yield in faba bean in a Mediterranean environment**

Volpi, I., Antichi, D., Ambus, Per Lennart, Bonari, E., Nasso, N. & Bosco, S., 2018, In: *Soil & Tillage Research*. 178, p. 11-21 11 p.

**Paddy soil drainage influences residue carbon contribution to methane emissions**

Tariq, Azeem, Jensen, Lars Stoumann, Sander, B. O., de Tourdonnet, S., Ambus, Per Lennart, Phan Huu Thanh, Mai Van Trinh & de Neergaard, A., 2018, In: *Journal of Environmental Management*. 225, p. 168-176 9 p.

**Postfire nitrogen balance of Mediterranean shrublands: Direct combustion losses versus gaseous and leaching losses from the postfire soil mineral nitrogen flush**

Dannenmann, M., Diaz-Pines, E., Kitzler, B., Karhu, K., Tejedor, J., Ambus, Per Lennart, Parra, A., Sanchez-Martin, L., Resco, V., Ramirez, D. A., Povoas-Guimaraes, L., Willibald, G., Gasche, R., Zechmeister-Boltenstern, S., Kraus, D., Castaldi, S., Vallejo, A., Rubio, A., Moreno, J. M. & Butterbach-Bahl, K., 2018, In: *Global Change Biology*. 24, 10, p. 4505-4520 16 p.

**Resistance of soil protein depolymerization rates to eight years of elevated CO<sub>2</sub>, warming, and summer drought in a temperate heathland**

Wild, B., Ambus, Per Lennart, Reinsch, S. & Richter, A., 2018, In: *Biogeochemistry*. 140, 3, p. 255-267 13 p.

**Activity of Type I Methanotrophs Dominates under High Methane Concentration: Methanotrophic Activity in Slurry Surface Crusts as Influenced by Methane, Oxygen, and Inorganic Nitrogen**

Duan, Y., Reinsch, S., Ambus, Per Lennart, Elsgaard, L. & Petersen, S. O., 2017, In: Journal of Environmental Quality. 46, 4, p. 767-775 9 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.

**Gas chromatography vs. quantum cascade laser-based N<sub>2</sub>O flux measurements using a novel chamber design**

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**Impact of decade-long warming, nutrient addition and shading on emission and carbon isotopic composition of CO<sub>2</sub> from two subarctic dwarf shrub heaths**

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**Individual variation of persistent organic pollutants in relation to stable isotope ratios, sex, reproductive phase and oxidative status in Scopoli's shearwaters (*Calonectris diomedea*) from the Southern Mediterranean**

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**Linking rhizospheric CH<sub>4</sub> oxidation and net CH<sub>4</sub> emissions in an arctic wetland based on <sup>13</sup>CH<sub>4</sub> labeling of mesocosms**  
Nielsen, C. S., Michelsen, Anders, Ambus, Per Lennart, Deepagoda, T. K. K. C. & Elberling, Bo, 2017, In: Plant and Soil. 412, 1-2, p. 201-213 13 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.

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**Urea in Weaver Ant Feces: Quantification and Investigation of the Uptake and Translocation of Urea in *Coffea arabica***

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**Productivity and carbon footprint of perennial grass-forage legume intercropping strategies with high or low nitrogen fertilizer input**

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**Carbon footprint of rice production under biochar amendment - a case study in a Chinese rice cropping system**

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**Enhanced priming of old, not new soil carbon at elevated atmospheric CO<sub>2</sub>**

Vestergård, M., Reinsch, S., Bengtson, P., Ambus, Per Lennart & Christensen, Søren, 2016, In: Soil Biology & Biochemistry. 100, p. 140-148 9 p.

**Fire increases the risk of higher soil N<sub>2</sub>O emissions from Mediterranean Macchia ecosystems**

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**UV-induced N<sub>2</sub>O emission from plants**

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**Effects of green manure storage and incorporation methods on nitrogen release and N<sub>2</sub>O emissions after soil application**

Carter, M. S., Sorensen, P., Petersen, S. O., Ma, X. & Ambus, Per Lennart, 1 Nov 2014, In: Biology and Fertility of Soils. 50, 8, p. 1233-1246 14 p.

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**Combined climate factors alleviate changes in gross soil nitrogen dynamics in heathlands**

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**Collembola feeding habits and niche specialization in agricultural grasslands of different composition**

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**Gas cleaning with hot char beds studied by stable isotopes**

Egsgaard, H., Ahrenfeldt, J., Ambus, Per Lennart, Schaumburg, K. & Henriksen, U. B., 1 May 2014, In: Journal of Analytical and Applied Pyrolysis. 107, p. 174-182 9 p.

**A decade of free-air CO<sub>2</sub> enrichment increased the carbon throughput in a grass-clover ecosystem but did not drastically change carbon allocation patterns**

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**Bacteria and fungi respond differently to multifactorial climate change in a temperate heathland, traced with <sup>13</sup>C-Glycine and FACE CO<sub>2</sub>**

Andresen, L. C., Dungait, J. A. J., Bol, R., Selsted, M. B., Ambus, Per Lennart & Michelsen, Anders, 2014, In: P L o S One. 9, 1, 9 p., e85070.

**Biological <sup>12</sup>C-<sup>13</sup>C fractionation increases with increasing community-complexity in soil microcosms**

Yang, W., Magid, Jakob, Christensen, Søren, Rønn, R., Ambus, Per Lennart & Ekelund, Flemming, 2014, In: Soil Biology & Biochemistry. 69, p. 197-201 5 p.

**Can current moisture responses predict soil CO<sub>2</sub> 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, Per Lennart, Arain, A. M., Beier, Claus, 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., 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.,

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**Corrigendum to "Can current moisture responses predict soil CO<sub>2</sub> efflux under altered precipitation regimes? A synthesis of manipulation experiments"**

Vicca, S., Bahn, M., Estiarte, M., van Loon, E., Vargas, R., Alberti, G., Ambus, Per Lennart, Arft, 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., Kroel-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.

**Inorganic carbon fluxes across the vadose zone of planted and unplanted soil mesocosms**

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**Short-term utilization of carbon by the soil microbial community under future climatic conditions in a temperate heathland**

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

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**Priming of Soil Carbon Decomposition in Two Inner Mongolia Grassland Soils following Sheep Dung Addition: A Study Using C-13 Natural Abundance Approach**

Ma, X., Ambus, Per Lennart, Wang, S., Wang, Y. & Wang, C., 13 Nov 2013, In: PLOS ONE. 8, 11

**Impact of future climatic conditions on the potential for soil organic matter priming**

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