

## CV of Annemieke Gärdenäs (Aug 2020)

### Contact:

**Annemieke Gärdenäs**, entire name Annemarie Ingrid Reurslag Gärdenäs  
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### Academic exams:

**Associate Professorship/Senior lecture expertise: 2008** (Swedish University of Agricultural Sciences, SLU, Sweden),  
**Doctoral degree 1998:** PhD in Soil Sciences, Biogeophysics (SLU, Sweden),  
PhD-thesis: **'Soil organic matter in forest soils - effects of climate and water balance'**.  
**MSc, Ir, Soil Sciences 1989:** with a major in soil sciences, plant ecology and vegetation science as well as remote sensing. Wageningen Agricultural University, the Netherlands.

### Employments:

**2016- present Senior Lecture in Environmental Science**, Dept. of Biological and Environmental Sciences, University of Gothenburg (GU), Sweden. (75-90% 2016-2019, fulltime since May 2019).  
**1998 – April 2019 April Researcher**, Dep. of Soil & Environment, Swedish Univ. of Agricultural Scs., (SLU), Sweden. (part-time employment 1998, 2016-2019)  
**2003 - 2004 Post Doc position**, Univ. of California, Davis, Dep. of Land, Air and Water Res, USA.  
**1992 - 1998 PhD-position**, Dep. of Soil Sciences, SLU, Sweden.  
**1994 Guest researcher**, Wageningen Agric. Univ., the Netherlands  
**1990 - 1992 Research Assistant**, Dep. of Soil Sciences, SLU, Sweden.  
**1989 - 1990 Research Assistant**, Dep. of Environmental Ecology, SLU, Sweden.

### Scientific topics:

My research focus on the impact of climate and human activities on functioning and health of terrestrial ecosystems, especially:

- Anthropogenic Impacts on C, N and P cycling,
- Interactions between Climate and Land Use and management,
- Integrated assessment of Ecosystem Services of a mosaic landscape.
- Synthesizing models and information sources of different scales and complexity.

### My most important contributions to science and environmental policy are:

- 1) Improved understanding of the importance of physical processes for biogeochemical processes, including model descriptions of transport processes in heterogeneous soils (Simunek et al. 2003, circa 600 citations).
- 2) Recognition that many important knowledge gaps of C and N processes in terrestrial ecosystems exist for climate-land interactions from plot to global scales. A key question is the sensitivity of older soil organic matter for elevated temperature and its consequences for plant available N in soils (Gärdenäs et al. 2011, *Web of Sciences: top 1% within the academic field of Agricultural Sciences*).
- 3) Development of environmental assessment modeling tools (Gärdenäs et al. 2009, 2017, and He et al. 2020) for designing strategies to preserve ecosystem services and for providing scientific evidence for policy-makers. This includes many environmental issues such as: i) greenhouse gas emissions for international climate reporting policy, ii) forest fertilization recommendations to underpin national environmental objectives and EU directives, and iii) risks assessments of contaminants.

### **Ongoing and recent membership of Excellent and/or (Inter-)national research consortia,**

- **IMPRESS**, a strong research environment funded by FORMAS to improve prediction of future C balance of forest ecosystems. 25 Msek, PI Björn Lindahl, SLU (2012-2019).
- **Cleo-program**, Climate change and environmental objectives, funded by Swedish EPA. 40Msek, PI John Munthe, IVL, (2010-2016).
- **EU-COST Action 639** - Greenhouse gas budget of soils under changing climate and land use. I was the lead author of the Chapter *Estimating soil carbon stock changes by process-based models and soil inventories - uncertainties and complementarities*. In Jandl R., Olsson M., Rodeghiero M. (Eds) 2011. Soil Carbon in Sensitive European Ecosystems: from science to land management.
- **MERGE- [Modeling the regional and Global Earth System](#)** 2017-present
- **BECC - [Biodiversity and Ecosystem services in a Changing Climate](#)** 2016-present

### **Administrative experiences:**

- **Vice/Deputy head unit** ‘Biogeochemistry and Environmental assessment’, (2010-2015)
- Extensive experience as a **project leader** of research projects
- **Director of study** of the research school Focus on Soils 2003-2008 and of Focus on Soils & Water (2008 – 2012, ca. 2000 individual interactions, *see appendices P5 and P6*).
- **(Co-)Organizer of international 6 workshops and 2 symposia**
- **Course organization** for 7 PhD-courses including 6 Process-oriented Modelling of water, heat and elements cycling in terrestrial ecosystems and 3 BSc-courses Biogeophysics, Environmental Impact Assessment, Processes in Environment.
- **Coordinator Professor Water (Popular Science) and Soil Science for Sustainable Multifunctional Land Use (Strategic Program SLU)**

### **BSc-, MSc-and PhD-courses Teaching and Organization**

Teaching at all levels from 1<sup>st</sup> year to PhD-students, especially Biogeophysics, Biogeochemistry and Risk Assessment and Environmental Impact Assessment. Editor of course compendium, Introduction to Biogeophysics, and Exercise Compendium with various micrometeorological exercises. Much experience in organizing courses for BSc- and PhD-students, especially PhD-course Modelling water, heat and element fluxes in terrestrial ecosystems.

### **Principal supervisor of PhD-students**

1. **Kristina Mjöfors** (2015) Carbon dynamics of forest soils exposed to mechanical site preparation and stump harvest, 2. **Martin Rappe George** (2016) Nitrogen in Soil Water of Coniferous Forests. Effects of Anthropogenic Disturbances. 3. **Linnéa Hansson** (2019) Impacts of forestry operations on soil physical properties, water and temperature dynamics.

### **Co-supervisor of PhD-students**

1. **Anna Lindahl** (2009) Soil physics. 2. **Carina Ortiz** (2012) Soil Sciences and Biogeochemistry. 3. **Solomon Gebreyohannis** (2012) Forest hydrology. 4. **Stefan Bengtsson** (2013) Radioecology. 5. **Preetisri Baskaran** (2017) System Ecology.

**Host for international guest researchers** 1) Guest prof. **Prof. Hana Santruckova** Univ. of South Bohemia, Czech Republic 2013, 2) Post-doc **Thomas Wutzler**, Max-Planck-Inst. Biogeochemistry, Germany, ‘08-’09, and 3) PhD-student **Ina Kyselová** Mendel University in Brno, Slovakia

### **Outreach**

Two years I was the coordinator of **Professor Water of the Uppsala Water Centre**. The mission was to raise awareness among children about water and its societal and ecological importance.

### **Personally developed generally accessible computer programs:**

Major contributions to the process-oriented ecosystem model **CoupModel** (Jansson & Karlberg, 2011) especially chapters Nitrogen and Carbon, above- and below-ground, Plant water and salt processes. [www.coupmodel.com](http://www.coupmodel.com). P cycling processes He, H. et al. under revision.

**Tracey**, a model for fluxes of trace elements in water-soil-plant-atmosphere system described in **Gärdenäs, A.** et al., 2009. Modelling long-term accumulation of radionuclides in the biosphere originating from continuous groundwater contamination – a sensitivity analysis. SKB-report TR-09-24. <http://www.skb.se/upload/publications/pdf/TR-09-24.pdf>

**Gärdenäs, A.I.**, S.L. Berglund, S.B. Bengtsson, K. Rosén. 2017. The grain storage of wet-deposited caesium and strontium by spring wheat — A modelling study based on a field experiment. *Science of total Environment* 574:1313–1325. doi: [10.1016/j.scitotenv.2016.08.036](https://doi.org/10.1016/j.scitotenv.2016.08.036)

### **Other merits - Membership of boards and committees**

Member of board Gothenburg Air and Climate Network, GAC, a network for activities in atmospheric science in the Göteborg region since 2017.

Department board as deputy Head Biogeochemistry and Environmental Assessment (irregular 2010-2014) and regular as temporary holder of Faculty Chair Forest Soils (2015)

Member of post-graduate education board of Faculty of Forest Sciences, 2014-2015.

Member of post-graduate education board of Dept. Soil & Environment, 2008- 2010.

Department's deputy in Swedish Hydrological Council (SHR), 2008 – 2011

Department's SULF (The Swedish Association of University Teachers and Researchers) representative during 1-2 years around the year 1999. Providing information for salary negotiations, supporting employees when giving notice, in private and during meetings with employer.

Member of exam committee or pre-examiner of a PhD defense 8 times and Licentiate 1 time, Referee for various scientific journals,

Referee for application foreign research grants (2\* Czech republic, the Netherlands)  
Guest editor for special session in Soil Biology and Biochemistry (2011).

## **2. Funding**

### **2.1 Research council funds (accumulated sum of 43.1 Msek)**

- **The Swedish Research Council Formas, A management guide for converting drained organic soils from large GHG sources into sinks** Åsa Kasimir (PI), L. Andresen, A. Gärdenäs, L. Klemedtsson (GU), S. Belyazid (Stockholm Univ), C. Akselsson, E. Hammer, N. Kljun, E. Kritzberg, P. Vestin (Lund Univ), P-E Jansson (CoupModel Solutions Co.), S. Toet (York Univ, UK). Formas 2019-01991, including 2 PhD-positions, 7.5 Msek 2020-2023.

-**The Swedish Research Council Formas, Organic beef and other ecosystem services produced at semi- natural pastures and forests mosaics** by Gärdenäs A (PI), Hessle A, Olsson M., Kumm K-I, Emanuelsson U.(6.4 Msek 2015-2020).

-**The Swedish Research Council Formas, Strong Research Environments; IMPRESS – Integrating microorganisms in predictive models of carbon sequestration in forest soils** by Prof Björn Lindahl (PI), Ågren G.I., Ekblad A., Clemmenson K., Finlay R., Fransson P. Gärdenäs A.; Grelle A. Hyvönen R. & Karlton E.(25 Msek 2012-2019 funding for applicants and 3 new PhD-positions).

-**Formas Nitrogen dynamics in previously N-fertilized forests following final felling and operational disc trenching** Dr. Eva Ring (PI), Gärdenäs A., Högbom L & Johansson K. (1.5 Msek 2007-2010)

- SIDA (Swedish International Development cooperation Agency); Securing dry season flow in the northwestern highlands of Ethiopia: How much can forest management help as the climate changes?** Prof Kevin Bishop (PI), Gärdenäs A, Mellander P-E. (2 M\$ek 2007-2010).
- VR (Swedish Research Council); Two dimensional modeling of solute transport including macro pore flow.** Annemieke Gärdenäs (PI), Simunek J, Jarvis N., van Genuchten M. (700 k\$ek 2001-2003), resulted in Šimunek et al. 2003 (600 citations 2020), Gärdenäs et al. 2006.

## 2.2 EU funds and other international funds.

- California FREP, fertilizer Research and Education Program, Post-doc ‘Two-dimensional modelling of nitrate leaching under micro-irrigation for various fertigation strategies’** at Univ. of California, Davis, USA, Post-doc position September 2003-February 2004 with Prof. Jan Hopmans, Dr Blaine Hanson (UC Davis), and Prof. Jiri Šimunek (UC Riverside). (56,070\$ 2002-2004) Published in Hanson et al. 2004 and Gärdenäs et al. 2005.
- CAMSCALE (EU-project of catchment studies at different scales, 1999-2001; SLU’s part 1.6 MSEK 8 month’s salary for my part, I joined the 2<sup>nd</sup> year of the project).** Jarvis et al. 2001 *report*, Lindahl et al. 2005, Stenemo et al. 2007 papers

## 2.3 Others (accumulated sum of 51.9 M\$ek).

- Swedish Radiation Safety Authority Radiological risk assessment of contaminated landscape** Mats Isaksson (PI) Eva Forssell-Aronsson, Francisco Piñero García, Rimón Thomas, Martin Hjellström (Sahlgrenska Acad. Hospital), Annemieke Gärdenäs, SSM2019-7854 1 M\$ek 2020-2021
- MERGE Towards improved understanding of albedo’s climate forcing of common land uses across Sweden** Annemieke Gärdenäs (PI), Deliang Chen, Heather Reese (GU). MERGE Modelling the Regional and Global Earth system, 577 k\$ek 2020-2021.
- GU+MERGE+BECC Integrating P cycling in biogeochemical studies.** Gärdenäs (PI) funding from GU acquired by Gärdenäs (PI) to hire a post-doc 2 years or junior researcher 19 months (Hongxing He), BECC-GU 200 k\$ek (Gärdenäs, PI), MERGE (He & Gärdenäs) 240 k\$ek, in total ca. 2 M\$ek 2018-2021.
- Swedish Environmental Protection Agency; Cleo – Climate change and environmental objectives** (<http://cleoresearch.se/>) A national research programme lead by Dr John Munthe et al. involving 2 Swedish research institutions, IVL and SMHI, and 3 Swedish universities SLU, Stockholm and Lund university (40 M\$ek 2010-2015)
- Swedish Energy Agency LULUCFS and REDD+** Hans Petersson and David Ellison (PI) 2.5M\$ek 2013-spring 2016.
- **Swedish Nuclear Fuel and Waste Management (SKB)** Annemieke Gärdenäs (PI) funding for post-doc Linnea Berglund 500 k\$ek 2013 to work within the project ‘The uptake and storage of radionuclides by spring wheat – a modelling study based on a field experiment’ additional funding of Impress for post-doc 340 k\$ek, so all together 1 yr.
- **SKB Modelling long-term accumulation of radionuclides in the soil-plant-system originating from continuous groundwater contamination – a sensitivity analysis** Annemieke Gärdenäs, Prof. Henrik Eckersten (SLU), Ass. Prof. David Gustafsson & Prof. Per-Erik Jansson (KTH Royal Institute of Technology), Assoc. Prof. Maria Greger (Stockholm University), Dr Rodolfo Avila and Per-Anders Ekströme (Facilia Co.) (SLU’s part 1 M\$ek, 2005-2007). Gärdenäs et al. 2009.
- Carl Tryggers Foundation. N leaching after forest fertilization with N: Short-term and post-felling effects** (Gärdenäs A. & Ring E. (280 K\$ek + 50 k\$ek Formas 2004-2007)
- SKB: Development of a model to describe accumulation of radio nuclides in biosphere originating from groundwater contamination** Annemieke Gärdenäs, Per-Erik Jansson & Louise Karlberg (KTH) (SLU part: 300 k\$ek, 2003-2004).

- **FoMa Acidification Critical loads of nitrogen – concepts and models** Gärdenäs A. (project leader and PI since 2010), Berggren Kleja D., Högberg M. Rappe George M. (2 MSek 2009-2016)
- FoMa Climate Verification of Swedish Climate reporting- Evaluation of different models for calculation climatic impact of soil carbon storage**, Annemieke Gärdenäs, Göran Ågren, Carina Ortiz, Johan Stendahl (810 KSek, 2009-2011). Ortiz et al. 2011a,b & Gardena et al. 2011B.
- **FoMa Acidification Importance of hydrology for availability of base cations in forest soils** Gärdenäs A., Berggren Kleja D., Öborn I. Akselsson C., Stendahl J. (250 kSek, 2009)
- FoMa Eutrication; Improved calculating of nitrogen and phosphorous leaching from forest ecosystems** by Karin Blombäck & Annemieke Gärdenäs (300 kSek 2009)
- SLU funding for co-operation with CGIAR institutions. 'Impact of climate change on water scarcity in the Blue Nile Basin in Ethiopia'** Annemieke Gärdenäs, Atakilte Bekele, Matthew McCartney (IWMI) & Kevin Bishop (100 KSek, 2009).

#### 4. Publication list of Annemieke Gärdenäs (*include A. or A. I. or Annemieke Gärdenäs as well as A. Reurslag in search*)

Google Scholar H-index 20, Total citations=2433, i10-index: 29,

Scopus H-index 19, Total citations 1583 (missing Mjöfors et al. 2015 with 10 according WoSc),

Web of Science H-index 17, total of 1441 citations.

##### 4.1 Pre-reviewed publications in international scientific journals

(50% with international co-author, 24 % 1e author, 27% last author and 22% corresponding author).

1. He H., P-E Jansson, **A.I. Gärdenäs**. 2020. CoupModel (v6.0): an ecosystem model for coupled phosphorus, nitrogen and carbon dynamics – evaluated against empirical data from a climatic and fertility gradient in Sweden. Geoscientific Model Development. Under revision since 4 Aug 2020, Preprint was available at <https://doi.org/10.5194/gmd-2020-65>.
2. Hansson Linnea J., Jirka Šimůnek, Eva Ring, Kevin Bishop and **Annemieke I. Gärdenäs**. 2019. Soil Compaction Effects on Root-Zone Hydrology and Vegetation in Boreal Forest Clearcuts. Soil Science Society of America Journal 83(S1) doi:10.2136/sssaj2018.08.0302
3. Hansson L.J., J. Koestel, E. Ring, **A.I. Gärdenäs**. 2018. Soil physical changes caused by off-road traffic on forest clear-cuts: X-ray and laboratory analysis. Scandinavian Journal of Forest Research, 33(2): 166-177 [dx.doi.org/10.1080/02827581.2017.1339121](https://doi.org/10.1080/02827581.2017.1339121).
4. Linnea J. Hansson, Eva Ring, Mikael A. Franko, **Annemieke I. Gärdenäs**, 2018. Soil temperature and water content dynamics after disc trenching a subxeric Scots pine clearcut in central Sweden. Geoderma 327, 1 Oct 2018, 85–96. doi.org/10.1016/j.geoderma.2018.04.023
5. Rappe George, M.O., M. Choma, P. Čapek, G. Börjesson, E. Kaštovská, H. Šantrůčková, **A.I. Gärdenäs** 2017. Indications that long-term nitrogen loading limits carbon resources for soil microbes. Soil Biology and biogeochemistry 115, 310-321 [doi.org/10.1016/j.soilbio.2017.07.015](https://doi.org/10.1016/j.soilbio.2017.07.015)
6. **Gärdenäs, A.I.**, S.L. Berglund, S.B. Bengtsson, K. Rosén. 2017. The grain storage of wet-deposited caesium and strontium by spring wheat — A modelling study based on a field experiment. Science of total Environment 574:1313–1325. [doi: 10.1016/j.scitotenv.2016.08.036](https://doi.org/10.1016/j.scitotenv.2016.08.036).
7. Rappe George, M.O., L.J. Hansson, E. Ring, P.E. Jansson, **A.I. Gärdenäs**. 2017. Nitrogen leaching following clear-cutting and soil scarification at a Scots pine site -a modelling study of a fertilization experiment. Forest Ecology & Management 385:281–294. [doi:](https://doi.org/)

[10.1016/j.foreco.2016.11.006](https://doi.org/10.1016/j.foreco.2016.11.006).

8. Mjöfors, K., M. Strömgren, H.-Ö. Nohrstedt, M.-B. Johansson, **A.I. Gärdenäs**, 2017. Indications that Site Preparation Increases Forest Ecosystems Carbon Stocks in the Long-Term Scandinavian Journal of Forest Research, 1-9. [doi.org/10.1080/02827581.2017.1293152](https://doi.org/10.1080/02827581.2017.1293152)
9. Choma M., M.O. Rappe George, J. Bárta, P. Čapek, E. Kaštovská, **A.I. Gärdenäs**, H. Šantrůčková, 2017. Recovery of the ectomycorrhizal community after termination of long-term nitrogen fertilisation of a boreal Norway spruce forest. Fungal Ecology 29, 116-122 [doi.org/10.1016/j.funeco.2016.10.002](https://doi.org/10.1016/j.funeco.2016.10.002).
10. Mjöfors, K., M. Strömgren, H.-Ö. Nohrstedt, **A.I. Gärdenäs**. 2015. Impact of site-preparation on soil-surface CO<sub>2</sub> flux and litter decomposition in a clear-cut in Sweden. Silva Fennica 49(5), article id 1403. [doi: org/10.14214/sf.1403](https://doi.org/10.14214/sf.1403).
11. Bengtsson, S.B., **A.I. Gärdenäs**, J. Eriksson, M. Vinichuk, K. Rosén. 2014. Interception and retention of wet-deposition radiocaesium and radiostrontium on a ley mixture of grass and clover. Science of the Total Environment 497-498:412-419. [doi: 10.1016/j.scitotenv.2014.07.099](https://doi.org/10.1016/j.scitotenv.2014.07.099).
12. Gebrehiwot, G.S., W. Bewket, **A.I. Gärdenäs**, K. Bishop. 2014. Forest cover change over four decades in the Blue Nile Basin, Ethiopia: comparison of three watersheds. Regional Environmental Change 14:253-266. [doi: 10.1007/s10113-013-0483-x](https://doi.org/10.1007/s10113-013-0483-x).
13. Gebrehiwot, G.S., **A.I. Gärdenäs**, W. Bewket, J. Seibert, U. Ilstedt, K. Bishop. 2014. The long-term hydrology of East Africa's water tower: Statistical change detection in the watersheds of the Abbay Basin. Regional Environmental Change 14, 321-331. [doi: 10.1007/s10113-013-0491-x](https://doi.org/10.1007/s10113-013-0491-x)
14. Bengtsson, S.B., J. Eriksson, **A.I. Gärdenäs**, M. Vinichuk, K. Rosén. 2013. Accumulation of wet-deposited radiocaesium and radiostrontium by spring oilseed rape (*Brassica napus* L.) and spring wheat (*Triticum aestivum* L.). Environmental Pollution 182:335-342. [doi.org/10.1016/j.envpol.2013.07.035](https://doi.org/10.1016/j.envpol.2013.07.035)
15. Mellander, P.-E., S.G. Gebrehiwot, **A.I. Gärdenäs**, W. Bewket, K. Bishop. 2013. Summer Rains and Dry Seasons in the Upper Blue Nile Basin: half a century of past and future spatiotemporal patterns. PLoS ONE 8(7): e68461. [doi: 10.1371/journal.pone.0068461](https://doi.org/10.1371/journal.pone.0068461).
16. Gebrehiwot, G.S., J. Seibert, **A.I. Gärdenäs**, P.-E. Mellander, K. Bishop. 2013. Hydrological change detection using modeling: Half a century of runoff from four rivers in the Blue Nile Basin. Water Resources Research 49, 3842–3851 [doi: 10.1002/wrcr.20319](https://doi.org/10.1002/wrcr.20319).
17. Ortiz, C., J. Liski, **A.I. Gärdenäs**, A. Lehtonen, M. Lundblad, J. Stendahl, G.I. Ågren, E. Karlton. 2013. Soil organic carbon stock changes in Swedish forest soils – A comparison of uncertainties and their sources through a national inventory and two simulation models. Ecological Modelling 251:221–231. [doi.org/10.1016/j.ecolmodel.2012.12.017](https://doi.org/10.1016/j.ecolmodel.2012.12.017)
18. Rappe-George, M.O., **A.I. Gärdenäs**, D. Berggren Kleja. 2013. The impact of four decades of annual nitrogen addition on dissolved organic matter in a boreal forest soil. Biogeosciences Special Issue: Nitrogen and global change. Biogeosciences 10:1365–1377, [doi:10.5194/bg-10-1365-2013](https://doi.org/10.5194/bg-10-1365-2013).
19. Bengtsson, S.B., J. Eriksson, **A.I. Gärdenäs**, K. Rosén. 2012. Influence of development stage of spring oilseed rape and spring wheat on interception of wet-deposited radiocaesium and radiostrontium. Atmospheric Environment 60:227-233. [doi: 10.1016/j.atmosenv.2012.06.062](https://doi.org/10.1016/j.atmosenv.2012.06.062)
20. Karhu, K., **A.I. Gärdenäs**, J. Heikkinen, P. Vanhala, J. Liski. 2012. Carbon stock of agricultural soil and organic amendments - comparison of model-simulations to measurements. Geoderma 189–190:606–616. doi: [10.1016/j.geoderma.2012.06.007](https://doi.org/10.1016/j.geoderma.2012.06.007).
21. **Gärdenäs, A.I.**, G.I. Ågren, J.A. Bird, M. Clarholm, S. Hallin, P. Ineson, T. Kätterer, H. Knicker, S.I. Nilsson, T. Näsholm, S. Ogle, K. Paustian, T. Persson, J. Stendahl. 2011. Knowledge gaps in soil carbon and nitrogen interactions - From molecular to global scale. Soil Biology &

- Biochemistry 43:702-717. [doi:10.1016/j.soilbio.2010.04.006](https://doi.org/10.1016/j.soilbio.2010.04.006)
22. **Gärdenäs, A.I.**, G.I. Ågren, S.I. Nilsson. 2011. Knowledge gaps in soil C and N interactions. Preface. Special section in Soil Biology and Biochemistry 43:701. [doi.org/10.1016/j.soilbio.2011.01.025](https://doi.org/10.1016/j.soilbio.2011.01.025)
  23. Gebrehiwot, S.G., U. Ilstedt, **A.I. Gärdenäs**, K. Bishop. 2011. Hydrological characterization of watersheds in the Blue Nile Basin. Hydrology & Earth System Sciences 15:11-20. [doi:10.5194/hess-15-11-2011](https://doi.org/10.5194/hess-15-11-2011)
  24. Ortiz, C.A., E. Karlton, J. Stendahl, **A.I. Gärdenäs**, G.I. Ågren. 2011. Modelling soil carbon build-up in Swedish coniferous forest soils - an uncertainty analysis of parameters and model estimates. Ecol. Modelling 222:3020– 3032. [doi.org/10.1016/j.ecolmodel.2011.05.034](https://doi.org/10.1016/j.ecolmodel.2011.05.034)
  25. Peltoniemi, M., E. Thürig, S. Ogle, T. Palosuo, M. Shrumph, Th. Wütler, K. Butterbach-Bahl, O. Chertov, A. Komarov, A. Mikhailov, **A. Gärdenäs**, Ch. Perry, J. Liski, P. Smith, R. Mäkipää. 2007. Models in country scale carbon accounting of forest soils. Silva Fennica 41, id 290. [doi: 10.14214/sf.290](https://doi.org/10.14214/sf.290)
  26. Stenemo, F., A.M.L. Lindahl, **A. Gärdenäs**, N. Jarvis. 2007. Meta-modeling of the pesticide fate model MACRO for groundwater exposure assessments using artificial neural networks. J. of Contaminant Hydrology 93: 270-283. [doi:10.1016/j.jconhyd.2007.03.003](https://doi.org/10.1016/j.jconhyd.2007.03.003)
  27. **Gärdenäs, A.I.**, J. Šimunek, N. Jarvis, M.Th. Van Genuchten. 2006. Two-dimensional modelling of preferential water flow and pesticide transport from a tile-drained field. J. of Hydrology 329:647-660. [doi:10.1016/j.jhydrol.2006.03.021](https://doi.org/10.1016/j.jhydrol.2006.03.021)
  28. **Gärdenäs, A.I.**, J.W. Hopmans, B.R. Hanson, J. Šimunek. 2005. Two-dimensional modeling of nitrate leaching for various fertigation scenarios under micro-irrigation. Agricultural Water Management 74:219-242. [doi: 10.1016/j.agwat.2004.11.011](https://doi.org/10.1016/j.agwat.2004.11.011)
  29. Lindahl, A., J. Kreuger, J. Stenström, **A. Gärdenäs**, A. Alavi, S. Roulier, N. Jarvis. 2005. Stochastic Modelling of Diffuse Pesticide Losses from a Small Agricultural Catchment. J. of Environmental Quality. 34:1174-1185. [doi:10.2134/jeq2004.0044](https://doi.org/10.2134/jeq2004.0044)
  30. Šimunek, J., Van Genuchten, M Th., Jarvis, N. & **Gärdenäs A.** 2003. Review and comparison of models for describing non-equilibrium and preferential flow and transport in the vadose zone. J. Hydrol. 272, 14-35. [doi: 10.1016/S0022-1694\(02\)00252-4](https://doi.org/10.1016/S0022-1694(02)00252-4)
  31. **Gärdenäs A. I.** 2000. Soil respiration fluxes measured along a hydrological transect in a Norway spruce stand in south Sweden (Skogaby). Plant & Soil 221, 273-280. doi: [10.1023/A:1004765118967](https://doi.org/10.1023/A:1004765118967)
  32. **Gärdenäs A.** 1998. Soil organic matter in European forest floor in relation to stand characteristics and environmental factors. Scandinavian J. of Forest Research 13, 274-283. [doi: 10.1080/02827589809382985](https://doi.org/10.1080/02827589809382985)
  33. Iritz, Z., Lindroth, A. & **A. Gärdenäs**, 1997. Open ventilated chamber system for measurements of H<sub>2</sub>O and CO<sub>2</sub> fluxes from soil surface. Soil Technology 10, 169-184. [doi: 10.1016/S0933-3630\(96\)00136-5](https://doi.org/10.1016/S0933-3630(96)00136-5)
  34. **Gärdenäs A.** & Jansson, P-E. 1995. Simulated water balance of Scots Pine for different climate change scenarios. Journal of Hydrology 166, 107 – 125. [doi: 10.1016/0022-1694\(94\)02594-2](https://doi.org/10.1016/0022-1694(94)02594-2)
  35. Eckersten, H., **Gärdenäs A.** and Jansson, P.-E. 1995. Modelling seasonal nitrogen, carbon, water and heat dynamics of the Solling spruce stand. Ecological Modelling 83, 119-129. [doi: 10.1016/0304-3800\(95\)00091-9](https://doi.org/10.1016/0304-3800(95)00091-9)
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- climatic transect. Longterm decomposition in a Scots pine forest x. Canadian J. of Botany 73, 1423-1435. [doi: 10.1139/b95-155](https://doi.org/10.1139/b95-155)
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38. Shibabaw Achenef T, Rappe George M, **Gärdenäs A. I.** 2020. Impacts of Land Use change and Climate change on Soil Organic Carbon Stocks in the Ethiopian Highlands. Geoderma, manuscript in prep.
39. **Annemieke Gärdenäs**, Michal Choma, Muhammad Shahbaz, Martin Rappe-George, Petr Čapek, Gunnar Börjesson, Eva Kaštovská, Hana Šantrůčková. 2020. Soil microbial responses to changing climate and nitrogen availability. Soil Biology & biogeochemistry, manuscript in prep.
40. **Annemieke Gärdenäs**. 2020. Climate impact of organic beef production systems at mosaic agricultural landscapes in Sweden. Manuscript in preparation.
41. **Annemieke Gärdenäs**, Urban Emanuelsson, Anna Hessle, Karl-Ivar Kumm, Frida Dahlström, Mats Olsson, 2020. The interplay between organic beef and other ecosystem services produced at semi-natural pasture and forest mosaics – the present and possible futures. Manuscript in preparation.
42. Choma M., Jiří Bárta, Petr Čapek, Annemieke Gärdenäs, Eva Kaštovská, Filip Moldan, Martin Rappe-George, Filip Oulehle, Hana Šantrůčková, Karolina Tahovská. In prep. Nitrogen loading-induced shift in ectomycorrhizal community and its effect on nitrogen loading

#### **Other publications**

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#### **4.2 Reports**

- Eckersten H., Djurle A., Albihn A., Andersson L., Båge R., de Toro A., **Gärdenäs A.I.**, Hultgren J., Kvarnheden A., Lewan E., Nkurunziza L., Rosén K., Spörndly R., Vågsholm I., von Rosen D., Yuen J., Magnusson U. 2015 Future risks and threats against Swedish cereal and milk production; an analysis of need of research for risk assessment (*In Swedish; Framtida risker och hot mot svensk spannmåls- respektive mjölkproduktion; en analys av forskningsbehov för att bedöma risker*) 124 pp. Especially Chapter 8.4.1. Radioactive Deposition Cereals by Annemieke Gärdenäs, Klas Rosén, Annika Djurle, Henrik Eckersten pp. 52-62.

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- Munthe, J. et al. 2014, Climate change and environmental objectives, Report to Swedish Environmental Agency for 2015 evaluation of environmental objectives. (In Swedish, Klimatförändringar och miljömålen). 196 pp. Available at <http://www.cleoresearch.se/publications> Especially **Gärdenäs A.**, Rappe George M., Temnerud J., Bishop K., Lindström G., Pers Ch., Strömqvist J., Arheimer B., Moldan F., Juttström S., Hytteborn J. Chapter 5.1 and 5.2 Leaching processes at the interface terrestrial and aquatic systems pp 75-81.



- Hansson L., Rappe George M. **Gärdenäs A.I.** 2014. Site preparation in Swedish forestry present and in the future with focus on environmental consequences. Markberedning i svenskt skogsbruk nu och i framtiden med fokus på miljökonsekvenser litteraturstudie och expertintervjuer med Skogsstyrelsen och Skogforsk CLEO-rapport D1.2.2 26 pp.
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- Nordin, A., Bergström, A-K., Granberg, G., Grip, H., Gustafsson, D., **Gärdenäs, A.**, Hyvönen-Olsson, R., Jansson, P-E., Laudon, H., Nilsson, M. B., Svensson, M., Öquist, M. 2009. Effects of intensified forestry on soil, water and greenhouse gases in forested landscape. Facts for the MINT-inquiry. (*In Swedish*). Effekter av ett intensivare skogsbruk på skogslandskapets mark, vatten och växthusgaser. Faktaunderlag till MINT-utredningen. SLU, Rapport. ISBN 978-91-86197-46-9.
- Ortiz C., Lundblad M., Liski J., Stendahl J., Karlton E., Lethonen A., **Gärdenäs A.** 2009. Measurements and models – a comparison of quantification methods for SOC changes in forest soils SMED Report vol. 31, 30 pp.
- Gärdenäs, A.** Jansson. P-E. & Karlberg, L. 2006. A model of accumulation of radionuclides in biosphere originating from groundwater contamination. SKB report. R-06-47
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- Hanson, B., Hopmans, J.W., Simunek, J., **Gärdenäs, A.** 2004. Crop Nitrate Availability and Nitrate Leaching under Micro-Irrigation for Different Fertigation Strategies. Dep. LAWR, University of California, Davis, CA 95616, 141 p.
- Jarvis, N. Hanze, K. Larsbo, M. Stenemo, F. Persson, L. Roulier, S. Alavi, G. **Gärdenäs, A.** Rönngren, J. 2003. Scenario development and parameterization for pesticide exposure assessments for Swedish groundwater. Emergo 2003:4, 26 p. ISBN: 91-576-6588-5.
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#### 4.3 Book Chapters

**Gärdenäs A.I.**, Jansson P-E., Karlton E., Klemendsson L., Lehtonen A., Ortíz C., Palosuo T., Svensson M. 2011. Estimating soil carbon stock changes by process-based models and soil inventories - uncertainties and complementarities. In Jandl R., Olsson M., Rodeghiero M. (Eds). *Soil Carbon in Sensitive European Ecosystems: from science to land management* Wiley-Blackwell 239-266.

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Jansson P-E., Cienciala E., .... **Gärdenäs A.**...et al.. 2004. Plant water Processes. In Jansson P.-E. & Karlberg L. (Eds) *Coupled heat and mass transfer model for soil-plant-atmosphere systems*. Royal Institute of Technology, Dept of Civil and Environmental Engineering, Stockholm, pp 115-182.

Verburg, P.S.J. **Gärdenäs, A.**, Ent, M. & Nieuwenhuis, R. 1998. The influence of temperature on C mineralization is depth dependent: Evidence from a boreal forest. In Verburg, P.S.J. *Organic Matter Dynamics in a Forest Soil as affected by Climate Change*. PhD-thesis. Wageningen Agricultural University, The Netherlands pp. 53-70.

Jansson, P-E. & **A. Reurslag**. 1991. Climatic influence on litter decomposition: methods and some results of a NW-European transect. In: Teller, A., Mathy, P. & Jefferes, J.N.R. *Responses of Forest Ecosystems to Environmental Changes*. Symposium proceedings First European Symposium on Terrestrial Ecosystems: Forests and Woodlands, Florence 1991. pp. 351-358

#### 4.4 Personally developed generally accessible computer programs:

Major contributions to *CoupModel* (Jansson & Karlberg 2010) in chapters (<http://www2.lwr.kth.se/Vara%20Datorprogram/CoupModel/coupmanual.pdf>):

- Plant water Processes.
  - Nitrogen and Carbon processes – above ground processes.
  - Nitrogen and Carbon processes – below ground processes.
  - Salt processes
- and 2020 Phosphorous processes (see He et al. 2020 under review).

*Tracey*, a model for fluxes of trace elements in atmosphere-plant-soil-hydrosphere system described in:

*Groundwater contamination:*

**Gärdenäs, A.**, Eckersten, H., Reinlert, A. Gustafsson, D, Jansson P-E., Ekström P-A., Avila R. Greger M., 2009. Modelling long-term accumulation of radionuclides in the biosphere originating from continuous groundwater contamination – a sensitivity analysis. SKB-TR-09-24.

**Gärdenäs, A.** Jansson. P-E. & Karlberg, L. 2006. A model of accumulation of radionuclides in biosphere originating from groundwater contamination. SKB report. R-06-47

*Atmospheric contamination:*

**Gärdenäs, A.I.**, S.L. Berglund, S.B. Bengtsson, K. Rosén. 2017. The grain storage of wet-deposited caesium and strontium by spring wheat — A modelling study based on a field experiment. *Science of total Environment* 574:1313–1325. [doi: 10.1016/j.scitotenv.2016.08.036](https://doi.org/10.1016/j.scitotenv.2016.08.036)

#### 4.5 Editorship of Proceedings

Hansson L. **Gärdenäs A.I.** (Eds.) 2014. Abstracts Workshop Driving damage in forestry – consequences for production and environment. In Swedish: 'Körskador i skogsbruket – konsekvenser för produktion och miljö'

Kahlert, M & **Gärdenäs, A.** (Eds.) 2011. Ecosystem services in soil and water research. Focus on Soils and water symposium. 7-10 June 2011 Uppsala, Sweden. Programme and abstracts. 104 pp.

**Gärdenäs, A.I.**, Ågren, G.I., Nilsson, S.I. (Eds.) 2011. Knowledge gaps in soil C and N interactions'. Special section in *Soil Biology and Biochemistry* 43, 701-725.

**Gärdenäs, A.**, Stendahl, J., (Eds.) 2008. Focus on Soils workshop 'Knowledge gaps in soil C and N interactions'. Dept. of Soil & Environment, Swedish University of Agricultural Sciences, 40 pp. ISBN: 978-91-85911-52-3

**Gärdenäs, A.** & Karlton, E. (Eds.) 2005. Focus on Soils Symposium 'Managing soils for the future'. Programme and Abstracts. Dept. of forest soils. Swedish University of Agricultural Sciences. ISBN 91-576-6860-4.

**Gärdenäs, A.** (Ed.) 1999. Workshop proceedings 'Scale and variability issues in the soil-hydrological system' - the 25-27th of August 1999 at Wiks Castle, Sweden. Swedish University of Agricultural Sciences, Dep. of Soil Sciences, Division of Agricultural Hydrotechnics, Communications 99:3, 57 pp. (ISRN SLU-HY-AVDM--99/3--SE).

#### 4.6 Oral and poster presentations (selection of 2010-2020)

Åsa Kasimir, Salim Belyazid, Louise Andresen, Natascha Kljun, Sylvia Toet, Cecilia Akselsson, Edith Hammer, Emma Kritzberg, **Annemarie Gärdenäs**, Patrik Vestin, Per-Erik Jansson, and Leif Klemedtsson. Guiding drained peatland management towards negative GHG emissions, EGU poster. EGU2020-19120 <https://doi.org/10.5194/egusphere-egu2020-19120>.

**Annemieke Gärdenäs**, Heather Reese, Deliang Chen 2020. Towards improved understanding of albedo's climate forcing. Virtual BECC-MERGE workshop 18 May 2020, invited speaker.

Shibabaw Acheneff T, Rappe George M, **Reurslag Gärdenäs A.** 2019. Impacts of Land Use change and Climate change on Soil Organic Carbon Stocks in the Ethiopian Highlands. [Wageningen Soil Conference](#), 27-30 Aug 2019. Wageningen, the Netherlands, Book of abstracts p. 1 (poster).

**Annemieke Gärdenäs**, Urban Emanuelsson, Anna Hesse, Karl-Ivar Kumm, Frida Dahlström, Mats Olsson, 2019. Organic beef and other ecosystem services produced at mosaic landscape. BECC yearly meeting -Interdisciplinarity in research on Biodiversity and Ecosystem services in a Changing Climate 22-23 Oct 2019 (invited speaker).

**Annemieke Gärdenäs** 2019. Scientific need of including N and P interactions in models within environmental science. 11 March 2019 Gothenburg, Int. Workshop 'Phosphorus and Nitrogen interactions in ecosystem models' organized by Gärdenäs and He, funded by MERGE - Modelling the Regional and Global Earth system (speaker).

Hongxing He, Per-Erik Jansson, **Annemieke Gärdenäs 2019.** Phosphorus and its interaction with Nitrogen in the new CoupModel V 6.0. 11 March 2019 Gothenburg, Int. Workshop 'Phosphorus and Nitrogen interactions in ecosystem models' (oral).

**Annemieke Gärdenäs**, Michal Choma, Muhammad Shahbaz, Martin Rappe George, Petr Capek, Gunnar Börjesson, Hana Šantruková. Soil microbial responses to changing climate and nitrogen availability – implications for carbon sequestration. [North American Forest Soil Conference-International Symposium on Forest Soils](#) 10-16 June 2018 Quebec, Canada (poster). Book of abstracts, p. 30 (poster).

Linnea J. Hansson, Jiri Simunek, Eva Ring, Per-Erik Jansson, Kevin Bishop, **Annemieke I. Gärdenäs** Root zone hydrology in and around wheel tracks on boreal forest clear-cuts: 2D modelling and vegetation inventory. [North American Forest Soil Conference-International Symposium on Forest Soils](#) 10-16 June 2018 Quebec, Canada (poster). Book of abstracts, p. 66. (poster).

Martin Rappe George, Michal Choma, Petr Čapek, Gunnar Börjesson, Eva Kaštovská, Hana Šantrůčková, **Annemieke Gärdenäs** Indications that long-term nitrogen loading limits carbon BIOGEOMON 2017 - 9th International Symposium on Ecosystem Behaviour 20-24 Aug 2017, Litomyšl, Czech Republic (Gärdenäs presenter).

**Annemieke I. Gärdenäs**, S. Linnea Berglund, Stefan B. Bengtsson, Klas Rosén The uptake and storage of caesium and strontium by spring wheat – a modeling study based on a field experiment. BIOGEOMON 2017 - 9th International Symposium on Ecosystem Behaviour 20-24 Aug, Litomyšl, Czech Republic (poster).

Mjöfors K., Strömberg M., Nohrstedt H-Ö., Johansson M-B, **Gärdenäs A.I.** 2015. Indications that site preparation in the long-term increases overall carbon stocks in coniferous forests, the CAR-ES conference "Managing Forests to Promote Environmental Services" 3-5 Nov 2015 Copenhagen (Gärdenäs speaker).

**Annemieke Gärdenäs**, Urban Emanuelsson, Anna Hesse, Karl-Ivar Kumm, Frida Dahlström, Mats Olsson, 2015. Organic beef and other ecosystem services produced at semi-natural pasture and forest mosaics. the CAR-ES conference "Managing Forests to Promote Environmental Services" 3-5 Nov 2015 Copenhagen (poster).

**Annemieke Gärdenäs**, Henrik Eckersten, Stefan Bengtsson and Klas Rosén. 2015. Irrigation as a measure to reduce radioactive contamination of cereal yields. SSM:s Forskningsdagarna 19-20 Nov 2015 Stockholm (invited speaker by funder/end-user).

- Gärdenäs A**, Eckersten H, Reinert A, Gustafsson D, Jansson P-E, Ekström PA, Greger M. 2014. Modelling accumulation of radionuclides in terrestrial ecosystems originating from a long-term groundwater contamination. the International Conference on Radioecology and Environmental Radioactivity, Barcelona 7-12 sept. 2014, oral.
- Gärdenäs, A.I.**, Berglund S. L., Bengtsson, S. B. Rosen, K. 2014. The Uptake and Storage of Caesium and Strontium by Spring Wheat – A Modelling Study Based on a Field Experiment. the International Conference on Radioecology and Environmental Radioactivity, Barcelona 7-12 sept. 2014, poster.
- Martin Rappe George and **Annemieke I. Gärdenäs 2014**. CoupModel – Effekter i skog, mark och vatten. CLEO avnärmare seminarie - Forskningsresultat som underlag till utvärderingen av de nationella miljömålen -hur påverkar klimatförändringen möjligheten att uppnå våra miljömål? 8 Sept. 2014 (Stakeholder workshop)
- Kristina E.I. Mjöfors, Monika Strömgren and **Annemieke I. Gärdenäs**. 2014. Soil carbon stocks were not altered by site preparation method-results from three Swedish long-term site preparation experiments “8th International Forest Vegetation Management Conference, Halmstad, Sweden, August 25-28th 2014 (oral presentation)
- Hansson, L. Koestel J. Ring.E. **Gärdenäs, A. 2014**. Soil physical changes caused by driving with heavy vehicles on boreal regeneration areas. Oral presentation at the Nordic Baltic Conference OSCAR 14, “Solutions for Sustainable Forestry”, 25-27 June
- Choma Michal, Čapek Petr, **Gärdenäs Annemieke I.**, Kaštovská Eva, Rappe-George Martin and Šantrůčková Hana 2014. Minor answer response of soil microbial biomass and activity to changes in soil chemical properties caused by nitrogen deposition of in a Norway spruce forest ecosystems to changes in soil chemical properties caused by nitrogen deposition. Biogeomon 13-17 July Bayreuth, Germany.
- Gärdenäs, A.I.**, Berglund S. L., Bengtsson, S. B. Rosen, K. 2013. The Uptake and Storage of Caesium and Strontium by Spring Wheat – A Modelling Study Based on a Field Experiment. AGU, San Francisco, USA. poster.
- Gärdenäs, A.**, Ågren, G.I., Bird, J.A., Clarholm, M., Hallin, S., Ineson, P., Kätterer, T., Knicker, H., Nilsson, I., Näsholm, T., Ogle, S., Paustian, K., Persson, T., Stendahl, J. 2012. Knowledge gaps in soil carbon and nitrogen interactions - From molecular to global scale. Greenhouse gas management in European Land Use system, 16-18 September Antwerp, Belgium 2013 (oral).
- Karhu K., **Gärdenäs A.I.**, Heikkinen J., Vanhala P., Liski J. 2013. Carbon stock of agricultural soil and organic amendments - comparison of model-simulations to measurements. 16-18 September Antwerp, Belgium 2013 poster.
- Ortiz C., Liski J., **Gärdenäs A.I.**, Lehtonen A., Lundblad M., Stendahl J., Ågren G.I. and Karlton E. 2013. Soil organic carbon stock changes in Swedish forest soils – A comparison of uncertainties and their sources through a national inventory and two simulation models. Greenhouse gas management in European Land Use system, 16-18 September Antwerp, Belgium 2013. Poster.
- Gärdenäs, A.**, Ågren, G.I., Bird, J.A., Clarholm, M., Hallin, S., Ineson, P., Kätterer, T., Knicker, H., Nilsson, I., Näsholm, T., Ogle, S., Paustian, K., Persson, T., Stendahl, J. 2012. Knowledge gaps in soil carbon and nitrogen interactions - From molecular to global scale. Biogeomon Maine (USA) July 2012 (speaker).
- Annemieke Gärdenäs & Martin Rappe George**. 2012 How can forest management contribute to reduce nitrogen losses when climate changes. (*In Swedish: Hur kan skogskötsel bidra till att minska kväveförluster när klimatet förändras?*), Cleo-end users workshop 21 May 2012. (Invited speaker Stakeholder workshop)
- Gärdenäs, A.** 2012. Measuring what models need vs. modelling what can be measured. Workshop Models and measurements in forestry and agriculture – problems and prospects. 10 May 2012 Uppsala (speaker).
- Gärdenäs A.I.**, Gebrehiwot S.G. Mellander P-E., Seibert J., Bishop K. & Bewket, W. 2012. The impact of climate and land use change on evapotranspiration of three catchments within the Blue

- Nile Basin, Ethiopia. PUB Symposium 2012 "Completion of the IAHS decade on Prediction in Ungauged Basins and the way ahead" Delft, the Netherlands. October 2012 (poster).
- Gebrehiwot S G, **Gärdenäs A.I.**, Bewket W., Seibert J., Mellander P-E., Ilstedt U., Bishop K. 2012. Forest hydrology in the Blue Nile Basin: based on observational analysis and community perception. PUB Symposium 2012 "Completion of the IAHS decade on Prediction in Ungauged Basins and the way ahead" Delft, the Netherlands. October 2012 (Oral presentation).
- Gärdenäs A.**, Eckersten H, Reinert A, Gustafsson D, Jansson P-E, Ekström PA, Greger M. 2012. Modelling accumulation of radionuclides in terrestrial ecosystems originating from an eventual long- term groundwater contamination. Biogeomon Maine (USA) July (poster).
- Hansson, L., Ring, E., **Gärdenäs, A.** 2012. Impacts of disc trenching on soil water and heat flows in a West-Swedish forest regeneration area. Eurosoil 2012 Bari, Italy (poster).
- Ortiz, C., **Gärdenäs, A.I.**, Karlton, E., Ågren, G.I. 2012. Importance of model complexity for capturing climate impacts on soil carbon - Comparison of four models with inventories. Biogeomon, Maine (USA) July 2012 (oral presentation).
- Gärdenäs, A.I.**, Eckersten H., et al. Modeling accumulation of radionuclides in terrestrial ecosystems originating from an eventual long-term groundwater contamination, graduate school Focus on Soils & Water lunch seminar 28 Oct 2011, Uppsala, Sweden (invited speaker)
- Gärdenäs, A.I.**, Rappe George M. Berggren Kleja D., Nordström Högberg M. 2011. Critical load of nitrogen – test of concepts and models in long-term experiments (In Swedish: Kritisk belastning av kväve – test av koncept och modeller i långliggande försök). Workshop Acidification; was not the problem solved, 15 Nov. 2011 (invited speaker)  
<http://www.slu.se/acidsuperseminar2011>
- Gärdenäs A.I.**, Ågren G.I., Bird J.A., Clarholm M., Hallin S. Ineson Ph., Kätterer Th., Knicker H. Nilsson S.I., Näsholm T., Ogle S., Paustian K., Persson T., Stendahl J. 2011. Knowledge gaps in soil carbon and nitrogen interactions - From molecular to global scale. Soil Science in a Changing World Wageningen, the Netherlands 18-22 Sept. 2011 Keestra & Mol (Eds) pp. 169 (speaker)
- Gärdenäs, A.I.**, Eckersten H., et al. Modeling accumulation of radionuclides in terrestrial ecosystems originating from an eventual long-term groundwater contamination Soil Science in a Changing World Wageningen, the Netherlands 18-22 Sept. 2011 Keestra & Mol (Eds) (poster)
- Gärdenäs A.I.**, Jansson P-E., Karlton E., Klemendsson L., Lehtonen A., Ortíz C., Palosuo T., Svensson M. 2011. Estimating soil carbon stock changes by process-based models and soil inventories -uncertainties and complementarities. Oral presentation at final meeting COST action 639 7-9 March 2011 Vienna, Austria (invited speaker)
- Gärdenäs A.I.**, Ågren G.I., Bird J.A., Paustian K., et al. 2011. Highlighting two knowledge gaps. Oral presentation at Soil Carbon Workshop 4-5 April Höör, Sweden (contributed speaker).
- Gärdenäs, A.**, Eckersten H., et al. Modelling accumulation of radionuclides in soil-plant system after a groundwater contamination. Bioprota workshop, Belgium, sept. 2011 (Invited speaker)
- Bengtsson, S.B., Rosén K., Eriksson J., **Gärdenäs A.I.** 2011. Interception of wet deposited and transfers of radiocesium and radiostrontium by *Brássica napus* L. and *Triticum aestivum* L., Proceeding of the International Conference on Radioecology & Environmental Radioactivity, Hamilton, Ontario, Canada, 2011 (Poster). Radioprotection 46, 6 SUPPL., 2011, S475-S478.
- Bengtsson, S.B., Rosén K., Eriksson J., **Gärdenäs A.I.** 2011. Concentration in different plant compartments of radiocaesium and radiostrontium, wet deposited on spring oilseed crop., Abstract, Radioecological research during 25 years after the Chernobyl accident, The Swedish Society for Radioecology, Stockholm, Sweden, 2011 (oral presentation).

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#### 4.7 Popular scientific publications

**Gärdenäs, A.**, Holmberg H., Eklöf K., 2009. Experiments with professor Water (In Swedish: Experimentera med professor Vatten, Uppsala Water Centrum). 22 pp.

Olsson M., Freeman M., **Gärdenäs A.**, Blennow K., Henriksson K. 2007. Increased growth in forest/Ökad tillväxt i skogen. In: Hallin A-K. (Ed.), Kunskapsbank Fortlöpande miljöanalys.

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Hyvönen, R., **Gärdenäs, A.** & Klemetsson, L. 2005. More N to forest increases environmental risks/Mera kväve till skogen ökar riskerna för miljön. In: Morén, A-S & Strömberg, M.(Eds.). Lustra Årsrapport 2005, 12-14 pp.

Jansson, P-E., Karlberg, L., Svensson, M., & **Gärdenäs, A.** 2000. Modellering av kopplingen mellan klimat och omsättning av kol i mark och biomassa. Lustra Årsrapport 2000, 26-27 pp.

#### **4.8 Popular scientific presentations**

**Gårdenäs A.** 2017. Kol och kväve – fem kunskapsluckor (In Swedish: Carbon and Nitrogen: five knowledge gaps), oral presentation at the celebration of the International Soil Day at the University of Gothenburg 5 Dec 2017.

For presentations for stakeholders see: *pedagogic portfolio- popular science presentations*,  
*Leadership portfolio- Collaboration with public and private sectors and attachements.*