

CURRICULUM VITAE

Sonja Keel, PhD

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ResearchGate: <https://www.researchgate.net/profile/Sonja-Keel>

PROFESSIONAL EXPERIENCE

- 2024 - Team leader, CO₂ Sources and Sinks in Agricultural Soils, Climate and Agriculture Group, Research Division Agroecology and Environment, Agroscope, Switzerland
- 2014 - 2024 Senior researcher and project leader, Climate and Agriculture Group, Research Division Agroecology and Environment, Agroscope, Switzerland
- 2012 - 2015 PostDoc, Climate & Environmental Physics, Physics Institute & Oeschger Centre for Climate Change Research, University of Bern, Switzerland
- 2009 - 2011 PostDoc, Department of Ecology & Evolutionary Biology and Princeton Environmental Institute, Princeton University, USA
- 2007 - 2008 PostDoc, Department of Forest Ecology and Management, Swedish University of Agricultural Sciences, Umeå, Sweden
- 2002 Internship, Laboratory of Atmospheric Chemistry, Paul Scherrer Institute, Villigen, Switzerland
- 2002 Coordination assistant, Global mountain biodiversity assessment, Basel, Switzerland

EDUCATION

- PhD 2006 Plant ecophysiology, University of Basel, Switzerland
- MS 2002 Plant ecophysiology, University of Basel, Switzerland

FUNDING

- 2024-2026 LACHSIM plus 'Prozessorientierte Modellierung der direkten N₂O-Emissionen landwirtschaftlicher Böden', funded by the Swiss Federal Office for the Environment, S. Keel. CHF 170 000.
- 2022-2024 Costs of greenhouse gas mitigation measures in Swiss agriculture, funded by Federal Office for Agriculture, S. Keel, D. Bretscher, G. Mack (PIs), CHF 250 000
- 2022-2024 Scenario modelling for assessing impacts of policy changes and socio-economic effects on ecosystem services of soils (SIMPLE), funded by European Joint Program Soil. S. Keel and J. Leifeld (PIs). € 1 558 000
- 2023-2025 Process Attribution of Regional Emissions (PARIS), funded by Horizon Europe. T. Röckmann and A. Ganesan (PIs). Contribution to WP4. S. Keel. € 290 000
- 2022-2023 Kohlenstoffbilanz von Gemüse-, Obst- und Weinbaubetrieben im landwirtschaftlichen Kontext, funded by Müller-Thurgau foundation, A. Mathis (PI), Contribution. S. Keel and S. Kay. CHF 7 500

- 2022-2023 'Umweltrechner', funded by Minerva foundation, Contribution to climate calculator. S. Keel and J. Leifeld. CHF 225 000
- 2020-2021 'Postulat 19.3639 Bourgeois «Kohlenstoffsequestrierung in Böden»: Analyse des Potentials und der Massnahmen', funded by the Swiss Federal Office for the Environment, S. Keel and A. Johannes. CHF 100 000.
- 2019-2023 LACHSIM 'Prozessorientierte Modellierung der direkten N₂O-Emissionen landwirtschaftlicher Böden', funded by the Swiss Federal Office for the Environment, S. Keel and J. Leifeld. CHF 390 000.

AWARDS

- 2007 Isotope award ("Isotopenpreis"), Dr. Karleugen Habfast foundation
- 2004 International Geosphere-Biosphere Program Poster award, Swiss Global Change Day, Bern

TEACHING

- 2021- Guest lecturer at University of Zurich (BIO295 Agroecology, Food Security and Sustainable Plant Production)
- 2023- Guest lecturer at Bern University of Applied Sciences (HAFL), How to apply the soil carbon model RothC
- 2020 Guest lecturer at Bern University of Applied Sciences (HAFL) (BUUK042: Klimawandel – Vermeidung und Anpassung)
- 2009 Guest lecturer for application of statistics in research. Department of Ecology and Evolutionary Biology, Princeton University.
- 2008 Guest lecturer, Response of forests to rising CO₂. Department of Forest Ecology and Management, Swedish University of Agricultural Sciences.
- 2004-2006 Graduate teaching assistant, University of Basel. Assistance in plant ecology field courses of Prof. Christian Körner and laboratory courses of Dr. Rolf Siegwolf on the application of stable isotopes in plant ecology (Paul Scherrer Institute).
- 2004-2006 Lectures and excursions to Swiss Canopy Crane site for students, laymen and conference participants.
- 2005 Field course for high school students on forest canopy.
- 2004 Lecture for high school students on responses of trees to CO₂ enrichment.
- 1998-1999 Teaching assistant, University of Basel. Plant taxonomy and plant anatomy courses.
- 1998 Lectures and excursions for laymen on tropical bats and flying foxes in Botanical Garden of Basel.

EXPERIENCE AS ADVISOR

2024-	PostDoc. Zhengzheng Hao
2024-2025	PostDoc. Muhammad Mehran Anjum
2022-	PostDoc. Shauna-Kay Rainford
2020-2023	PostDoc. Marcio dos Reis Martins
2005	MS thesis: Stefan Zeller (ETH Zurich) co-supervised with Prof. Dr. Alexander Wokaun and Dr. Rolf Siegwolf
2005	MS thesis: Robin Riedmann (ETH Zurich) co-supervised with Prof. Dr. Alexander Wokaun and Dr. Rolf Siegwolf

PEER-REVIEWED JOURNAL PUBLICATIONS

36. Rainford, S.K., Havsteen, J.C., Mohn, J., Ammann C., **Keel S.G.** Coupling observational methods and the DayCent model to improve examinations of N₂O production pathways. *Nutr Cycl Agroecosyst* 133, 6 (2026). <https://doi.org/10.1007/s10705-026-10504-1>
35. Seidel, F., J. Álvaro-Fuentes, M. A. Bolinder, et al. 2026. "Feasible Carbon Sequestration Potential in European Agricultural Mineral Soils Through Improved Management." *European Journal of Soil Science* 77, no. 3: e70357. <https://doi.org/10.1111/ejss.70357>.
34. Jarosch, K. A., N. Bütikofer, O. Heller, et al. 2026. "Opportunities and Challenges for Sustainable Agricultural Soil Management in Switzerland." *European Journal of Soil Science* 77, no. 3: e70355. <https://doi.org/10.1111/ejss.70355>.
33. Kreuzer, A., Herzog, F., Bretscher, D. et al. Designing where to crop and where to graze: a spatial approach toward sustainable farming. *Agron. Sustain. Dev.* 46, 29 (2026). <https://doi.org/10.1007/s13593-026-01096-9>
32. **Keel S.G.**, Budai A., Elsgaard L., Hardy B., Levavasseur F., Zhi L., Mondini C., Plaza C., Leifeld J. Efficiency of plant biomass processing pathways for long-term soil carbon storage. *European Journal of Soil Science*, 76, (2), 2025, DOI:10.1111/ejss.70074
31. Edlinger A., Herzog C., Garland G., Walder F., Banerjee S., **Keel S.**, Mayer J., Phillipot L., Romdhane S., Schiedung M., Schmidt M. W. I., Seitz B., Wüst C., van der Heijden M. Compost application enhances soil health and maintains crop yield: Insights from 56 farmer-managed arable fields. *Journal of Sustainable Agriculture and Environment*, 4, (1), 2025, DOI:10.1002/sae2.70041
30. Rainford, S., Leifeld, J., Siegl, S., Hagenbucher, S., Riedel, J., Gross, T., Niggli, U., & **Keel, S. G.** 2024. No relationship between outputs of simple humus balance calculators (VDLUFA and STAND) and soil organic carbon trends. *European Journal of Soil Science*, 75(6), e70007. <https://doi.org/10.1111/ejss.70007>
29. dos Reis Martins, M., Ammann, C., Boos, C., Calanca, P., Kiese, R., Wolf, B. & **Keel, S.G.** 2024. Reducing N fertilization in the framework of the European Farm to Fork strategy under global change: Impacts on yields, N₂O emissions and N leaching of temperate grasslands in the Alpine region. *Agricultural Systems*, 219, 104036. <https://doi.org/10.1016/j.agsy.2024.104036>

28. Hobbie, E.A., **Keel, S.G.**, Klein, T., Rog, I., Saurer, M., Siegwolf, R., Routhier, M.R. & Körner, C. 2024. Tracing the spatial extent and lag time of carbon transfer from *Picea abies* to ectomycorrhizal fungi differing in host type, taxonomy, or hyphal development. *Fungal Ecology*, 68, 101315. <https://doi.org/10.1016/j.funeco.2023.101315>
27. Hobbie EA, Siegwolf R, Körner C, Steinmann K, Wilhelm M, Saurer M, **Keel SG** (2023). Weather modifies the spatial extent of carbohydrate transfers from CO₂ supplied broad leaved trees to ectomycorrhizal fungi», *Plant Soil*. <https://doi.org/10.1007/s11104-023-06314-x>
26. **Keel SG**, Bretscher D, Leifeld J, von Ow A, Wüst-Galley C. Soil carbon sequestration potential bounded by population growth, land availability, food production, and climate change. *Carbon Management*. <https://doi.org/10.1080/17583004.2023.2244456>
R code: <https://zenodo.org/records/8218886>, Simulated soil organic carbon stocks: <https://zenodo.org/records/6413955>
25. Rodrigues L, Budai A, Elsgaard L, Hardy B, **Keel SG**, Mondini C, Plaza C, Leifeld J (2023). The importance of biochar quality and pyrolysis yield for soil carbon sequestration in practice. *European Journal of Soil Science*, 74(4), e13396. <https://doi.org/10.1111/ejss.13396>
24. Moll-Mielewicz J, **Keel SG**, Gubler A (2023). Organic carbon contents of mineral grassland soils in Switzerland over the last 30 years, *Agriculture, Ecosystems & Environment*, 342, 108258, doi.org/10.1016/j.agee.2022.108258
23. dos Reis Martins M, Necpalova M, Ammann C, Buchmann N, Calanca P, Flechard CR, Hartman MD, Krauss M, Le Roy P, Mäder P, Maier R, Morvan T, Nicolardot B, Skinner C, Six J, **Keel SG** (2022). Modeling N₂O emissions of complex cropland management in Western Europe using DayCent: performance and scope for improvement. *European Journal of Agronomy*, 141, 126613, doi.org/10.1016/j.eja.2022.126613
22. Leifeld J and **Keel SG** (2022). Quantifying negative radiative forcing of non-permanent and permanent soil carbon sinks. *Geoderma* 423, 115971
21. Taghizadeh-Toosi A, Cong WF, Eriksen J, Mayer J, Olesen JE, **Keel SG**, Glendining M, Kätterer T, Christensen BT (2020). Visiting dark sides of model simulation of carbon stocks in European temperate agricultural soils: allometric function and model initialization. *Plant and Soil* 450: 255-272.
20. **Keel SG**, Anken T, Büchi L, Chervet A, Fliessbach A, Flisch R, Huguenin-Elie O, Mäder P, Mayer J, Sinaj S, Sturny W, Wüst-Galley C, Zihlmann U, Leifeld J (2019). Loss of soil organic carbon in Swiss long-term agricultural experiments over a wide range of management practices. *Agriculture, Ecosystems and Environment* 286, 106654, doi.org/10.1016/j.agee.2019.106654
19. **Keel SG**, Hirte J, Abiven S, Wüst-Galley C, Leifeld J. (2017) Proper estimate of residue input as condition for understanding drivers of soil carbon dynamics. *Global Change Biology* 23: 4455–4456, <https://doi.org/10.1111/gcb.13822>
18. **Keel SG**, Leifeld J, Mayer J, Taghizadeh-Toosi A, Olesen JE. (2017) Large uncertainty in soil carbon modelling related to method of calculation of plant carbon input in agricultural systems. *European Journal of Soil Science* 68: 953–963, <https://doi.org/10.1111/ejss.12454>
17. Metcalfe DB, Ricciuto D, Palmroth S, Campbell C, Hurry V, Mao J, **Keel SG**, Linder S, Shi X, Näsholm T, Ohlsson KEA, Blackburn M, Thornton PE, Oren R (2016) Informing climate models with rapid chamber measurements of forest carbon uptake. *Global Change Biology* 23: 2130–2139, doi: 10.1111/gcb.13451

16. **Keel SG**, Joos F, Spahni R, Saurer M, Weigt RB, Klesse S (2016) Simulating oxygen isotope ratios in tree ring cellulose using a dynamic global vegetation model. *Biogeosciences* **13**: 3869–3886. doi: 10.5194/bg-13-3869-2016
15. Gerber S, Hedin LO, **Keel SG**, Pacala SW, Shevliakova E. Land use change and nitrogen feedbacks constrain the trajectory of the land carbon sink. *Geophysical Research Letters* **40**: 1–5, doi:10.1002/grl.50957
14. Bader MKF, Leuzinger S, **Keel SG**, Siegwolf RTW, Hagedorn F, Schleppei P, Körner C. Central European hardwood trees in a high-CO₂ future: synthesis of an 8-year forest canopy CO₂ enrichment project. *Journal of Ecology*, doi: 10.1111/1365-2745.12149
13. Näsholm T, Högberg P, Franklin O, Metcalfe DB, **Keel SG**, Campbell C, Hurry V, Linder S, Högberg MN. Are ectomycorrhizal fungi alleviating or aggravating N limitation of tree growth in boreal forests? *New Phytologist* **198**: 214–221
12. Hoch G, Siegwolf RTW, **Keel SG**, Körner C, Han Q. Fruit production in three masting tree species does not rely on stored carbon reserves. *Oecologia* **171**: 653–662
11. **Keel SG**, Campbell CD, Högberg MN, Richter A, Wild B, Zhou XH, Hurry V, Linder S, Näsholm T, Högberg P (2012). Allocation of carbon to fine root compounds and their residence times in a boreal forest depend on root size class and season. *New Phytologist* **194**: 972–981
10. Brüggemann N, Gessler A, Kayler Z, **Keel SG**, Barthel M, Boeckx P, Buchmann N, Gavrichkova O, Ghashghaie J, Gomez-Casanovas N, Keitel C, Knohl A, Kuptz D, Palacio S, Salmon Y, Uchida Y, Bahn M (2011). Carbon allocation and carbon isotope fluxes in the plant-soil-atmosphere continuum: a review. *Biogeosciences* **8**: 3457–3489
9. **Keel SG** and Schädel C (2010). Expanding leaves of mature deciduous forest trees rapidly become autotrophic. *Tree Physiology* **30**: 1253–1259
8. Högberg MN, Briones MJI, **Keel SG**, Metcalfe DB, Campbell C, Midwood AJ, Thornton B, Hurry V, Linder S, Näsholm T, Högberg P (2010). Quantification of effects of season and nitrogen supply on tree belowground carbon transfer to ectomycorrhizal fungi and other soil organisms in boreal pine forest. *New Phytologist* **187**: 485–493
7. Subke JA, Vallack HW, Magnusson T, **Keel SG**, Metcalfe DB, Högberg P, Ineson P (2009) Short term dynamics of abiotic and biotic soil ¹³CO₂ effluxes after *in situ* ¹³CO₂ pulse labelling of boreal pine forest. *New Phytologist* **183**: 349–357
6. Högberg P, Högberg MN, Göttlicher SG, Betson, NR, **Keel SG**, Metcalfe DB, Campbell C, Schindlbacher A, Hurry V, Lundmark T, Linder S, Näsholm T (2008) High temporal resolution tracing of photosynthate carbon from the tree canopy to forest soil microorganisms. *New Phytologist* **177**: 220–228
5. **Keel SG**, Jäggi M, Siegwolf RTW, Körner C (2007). Rapid mixing between old and new carbon pools in the canopy of mature forest trees. *Plant, Cell and Environment* **30**: 963–972
4. **Keel SG**, Pepin S, Leuzinger S, Körner C (2007) Stomatal conductance in mature deciduous forest trees exposed to elevated CO₂. *Trees-Structure and Function* **21**:151–159
3. Hoch G and **Keel SG** (2006) ¹³C-labelling reveals different contributions of photoassimilates from infructescences for fruiting in two temperate forest tree species. *Plant Biology* **8**: 606–614

2. **Keel SG**, Siegwolf RTW, Körner C (2006) Canopy CO₂ enrichment permits tracing the fate of recently assimilated carbon in a mature deciduous forest. *New Phytologist* **172**: 319-329
1. Körner C, Asshoff R, Bignucolo O, Hättenschwiler S, **Keel SG**, Peláez-Riedl S, Pepin S, Siegwolf RTW, Zotz G (2005) Carbon flux and growth in mature deciduous forest trees exposed to elevated CO₂. *Science* **309**: 1360-1362

OTHER PUBLICATIONS

Reports/Policy briefs:

11. Sonja G. Keel, Anjum MM, Lesschen JP, Madenoğlu S, Pape B, Pınar MÖ, Leifeld J. 2025. Identifying areas with low vs. high trade-offs of fertilization reduction for soil carbon storage and crop production in Europe, under the Farm to Fork strategy. <https://ejpsoil.eu/wp-content/uploads/2025/10/EJP-SOIL-policy-brief-N-fertilisation-target-of-EU-Green-Deal-vf.pdf>
10. dos Reis Martins M and **Keel SG**. 2024. Process-oriented modeling of direct N₂O emissions from agricultural soils: Project LACHSIM. *Agroscope Science*, 194, 2024. <https://doi.org/10.34776/as194e>
9. **Keel SG**, Ammann C, Bretscher D, Gross T, Guillaume T, Huguenin-Elie O, Moll J, Nemecek T, Roesch A, Volk M, Wüst C, Leifeld J. Dauergrünlandböden der Schweiz: Quelle oder Senke von Kohlendioxid? *Agroscope Science*, 189, 2024, 1-21. <https://doi.org/10.34776/as189g>
8. Roberti G., Bragazza L., Bretscher D., den Hond-Vaccaro C., Jarosch K., **Keel S.**, Mariotte P., Merbold L., Reissig L., Walder F., Herzog F., Kay S. 2024. Evaluation der Rolle von Agroforst in einer gesamtheitlichen Landwirtschafts- und Ernährungspolitik. *Agrarforschung Schweiz*, 15, 199-206. <https://doi.org/10.34776/afs15-199g>
7. Bretscher D., Hagemann N., Keel S., Leifeld J. Pflanzenkohle. *Agroscope. Merkblatt Nr. 191*, 2023, 4 S.
6. Wüst-Galley C and **Keel SG** (2021). Global Soil Carbon Sequestration Potential Map (GSOCseq) Switzerland.
5. **Keel SG**, Johannes A, Boivin P, Burgos S, Charles R, Hagedorn F, Kulli B, Leifeld J, Saluz A, Zimmermann S. Soil carbon sequestration in Switzerland: analysis of potentials and measures (Postulate Bourgeois 19.3639). Report by Agroscope. Commissioned by the Federal Office for the Environment, Bern (2021) [Soil carbon sequestration in Switzerland: analysis of potentials and measures \(PDF, 4 MB, 31.12.2021\)](#)
4. Wüst-Galley C, **Keel SG**, Leifeld J (2021) Modelling SOC in Switzerland's mineral agricultural soils using RothC: Sensitivity analysis. *Agroscope Science*, 113, 1-64, <https://doi.org/10.34776/as113e>
3. Wüst-Galley C, **Keel SG**, Leifeld J (2020) A model-based carbon inventory for national greenhouse gas reporting of mineral agricultural soils. *Agroscope Science*, 105, 1-110, <https://doi.org/10.34776/as105e>
2. Switzerland's greenhouse gas inventory / National inventory report. Federal Office for the Environment, Bern, Switzerland (Contributor to LULUCF sector since 2019) [Latest greenhouse gas inventory of Switzerland \(admin.ch\)](#)
1. Beuttler C, **Keel SG**, Leifeld J, Schmid M, Berta N, Gutknecht V, Wohlgemuth N, Brodmann U, Stadler Z, Tinibaev D, Wlodarczak D, Honegger M, Stettler C (2019). The Role of Atmospheric Carbon Dioxide Removal in Swiss Climate Policy – Fundamentals and Recommended Actions. Report by Risk Dialogue Foundation. Commissioned by the Federal Office for the Environment, Bern. <https://www.bafu.admin.ch/bafu/de/home/themen/klima/publikationen-studien/studien.html>

Book chapters:

1. Asshoff R, **Keel SG**, Siegwolf RTW, Körner C (2008) Tracing arthropod movement in a deciduous forest canopy using stable isotopes. In: Floren A & Schmidl J (eds): Canopy arthropod research in Europe, pp. 1 - 10, bioform entomology, Nuremberg.

PRESENTATIONS (First author only)

Invited talks and seminars:

Keel SG (2026) Treibhausgasinventar, C-Sequestrierung und THG-Minderungsmaßnahmen. Workshop: "Landwirtschaft auf dem Weg zum klimaneutralen Deutschland(?)". 20. April, Hrsg. Deutsche Agrarforschungsallianz (DAFA), Berlin (DE)

Keel SG, Rainford S, dos Reis Martins M (2025), Modelling national and field-scale N₂O emissions in Swiss croplands using DayCent: key challenges and potential ways forward. ReCLEAN seminar series. Bern. Recording: <https://reclean.epfl.ch/news/seminar-series/>

Keel S., Budai A., Elsgaard L., Hardy B., Levavasseur F., Zhi L., Mondini C., Plaza C., Leifeld J. (2025) Efficiency of plant biomass processing pathways for long-term soil carbon storage. Seminar in Department of Soil Science, Research Institute of Organic Agriculture, Frick.

Keel SG (2024), Kurzvortrag «CO₂-Senken in der Landwirtschaft», Klimadialog 2024: Negative Emissionen und CO₂-Sequestrierung, Akademien der Wissenschaften Schweiz. Bern.

Keel SG (2023), Input on "Soil carbon sequestration", Young professional Day 2023: Carbon markets», Zurich university of applied sciences (ZHAW) and Zurich Carbon Market Association (ZCMA).

Keel SG (2021), Landwirtschaftliche Böden als Kohlenstoffsinken, Anhörungen zur Bedeutung von negativen CO₂-Emissionen für die klimapolitischen Massnahmen der Schweiz, Kommission für Umwelt, Raumplanung und Energie des Nationalrates

Keel SG (2021), Landwirtschaftliche Böden als Kohlenstoffsinken, Agrocleantech Tagung

Keel SG, Wüst-Galley C, Leifeld J (2017). Bodenkohlenstoffmodellierung landwirtschaftlicher Mineralböden für das Treibhausgasinventar der Schweiz. Institute of Climate-Smart Agriculture, Thünen Institute, Braunschweig, Germany

Keel SG, Gerber S, Shevliakova E, Hedin LO (2011). Effects of CO₂ enrichment and nitrogen addition on forest productivity in a global land model. Environmental Geology & Geochemistry Seminar (EGGS) Lecture Series. Department of Geosciences, Princeton University. USA

Keel SG, Campbell CD, Högberg MN, Richter A, Wild B, Hurry V, Linder S, Näsholm T, Högberg P (2010). The residence time of fine-root carbon in a boreal forest measured by large scale pulse labelling. ETH Zurich. Switzerland

Keel SG, Gerber S, Shevliakova E, Hedin LO (2009) Resolution of biome-specific CO₂ fertilization effects in terrestrial ecosystems. 23rd New Phytologist Symposium. Guangzhou. China

Keel SG (2007) The fate of recently assimilated carbon in mature deciduous forest trees. Annual meeting of the German Association for Stable Isotope Research (GASIR). Bayreuth. Germany

Keel SG (2006) Public talk organized by Mushroom association Basel, Switzerland.

Other presentations:

Keel S., Wüst-Galley C. (2025) Challenges of model application for national greenhouse gas reporting of soil organic carbon changes. 23rd Swiss Geoscience Meeting

Keel S., Anjum M., Calone R., Madenoglu S., Pape B. (2025) European-scale trade-off analysis of reduced mineral nitrogen fertilization on cropland. EJP SOIL Annual Science Days. 6 October, Aarhus (DK)

Keel S., Budai A., Elsgaard L., Hardy B., Levavasseur F., Zhi L., Mondini C., Plaza C., Leifeld J. (2024) Einfluss der Düngung auf die Kohlenstoffspeicherung in Böden. BDU-Herbsttagung. Neues aus der Forschung zu Boden, Düngung und Umwelt. Olten

Keel SG and Leifeld J (2023) Scenario modelling for assessing impacts of policy changes and socio-economic effects on ecosystem services of soils (SIMPLE), Annual Soil Science Days of European Joint Programme (EJP) SOIL, Riga, Latvia (poster)

Keel SG, Bretscher D, Leifeld J, von Ow A, Wüst-Galley C (2023). Soil carbon sequestration potential bounded by population growth, land availability, food production, and climate change. 1st Northern Europe "4 per 1000" Regional Meeting, Helsinki (online, poster)

Keel SG (2023). Measurements of plant carbon allocation improve soil organic carbon modelling. SIMPLE workshop (online)

Keel SG (2023). Challenges and advantages of model-based soil carbon inventories. JRC LULUCF Workshop. Ispra (online)

Keel SG, Bretscher D, Leifeld J, von Ow A, Wüst-Galley C, (2022). The potential of healthier diets for sustainable food production in Switzerland. INTECOL. Geneva, Switzerland

Keel SG, Bretscher D, Leifeld J, von Ow A, Wüst-Galley C, (2022). Soil carbon sequestration is possible without trade-offs. Annual Soil Science Days of European Joint Programme (EJP) SOIL, Palermo (online)

Keel SG, Leifeld J, von Ow A, Wüst-Galley C, (2022). Realistic soil carbon sequestration potentials for Switzerland considering climate change and food security, Annual Meeting of Swiss Soil Science Society, Zollikofen

Keel SG, Leifeld J, von Ow A, Wüst-Galley C, (2021). Realistic soil carbon sequestration potentials for Switzerland considering climate change and food security, Eurosoil, online

Keel SG, Leifeld J, von Ow A, Wüst-Galley C, (2021). Realistic soil carbon sequestration potentials for Switzerland, CarboSeq meeting (online)

Keel SG, Wüst-Galley C, Leifeld J (2020) Soil carbon sequestration potential in Swiss agricultural mineral topsoils, 18th Swiss Geoscience Meeting, online

Keel SG, Anken T, Büchi L, Chervet A, Fließbach A, Flisch R, Huguenin-Elie O, Mäder P, Mayer J, Sinaj S, Sturny W, Wüst-Galley C, Zihlmann U, Leifeld J (2019). Loss of soil organic carbon in Swiss long-term

agricultural experiments over a wide range of management practices. 17th Swiss Geoscience Meeting, Fribourg

Keel SG, Wüst-Galley C, Leifeld J (2018) Swiss agricultural long-term experiments reveal little potential for soil carbon sequestration. Soil organic matter management in agriculture – Assessing the potential of the 4per1000 initiative, International symposium, Braunschweig, Germany

Keel SG, Wüst-Galley C, Leifeld J (2018) Carbon sink potential in Swiss agricultural soils. International conference on negative CO₂ emissions, Gothenburg, Sweden

Keel SG, Anken T, Büchi L, Chervet A, Fließbach A, Flisch R, Huguenin-Elie O, Mäder P, Mayer J, Sinaj S, Sturny W, Wüst-Galley C, Zihlmann U, Leifeld J (2018) Soil organic carbon stocks in Swiss agricultural long term experiments. Jahrestagung der Bodenkundlichen Gesellschaft der Schweiz, Grangeneuve

Keel SG, Wüst-Galley C, Leifeld J (2017) Developing of a model-based soil organic carbon inventory for agricultural soils in Switzerland. 10th International Carbon Dioxide Conference (ICDC10), Interlaken, Switzerland (Poster)

Keel SG, Leifeld J, Taghizadeh-Toosi A, Olesen JE (2016) Large uncertainty in soil carbon modelling related to carbon input calculation method. European Geosciences Union General Assembly, Vienna, Austria.

Keel SG, Leifeld J, Fuhrer J (2015) Carbon Input Calculation Method is Critical for Soil Carbon Modelling. 2nd International Workshop SOMpatic, Rauschholzhausen, Germany (Poster)

Keel SG, Spahni R, Kimák A, Leuenberger M, Joos F (2013). Oxygen isotope ratios in a global dynamic vegetation model as indicators of forest response to environmental change. Conference on Isotopes of Carbon, Water, and Geotracers in Paleoclimate Research. Bern. Switzerland (Poster)

Keel SG, Gerber S, Shevliakova E, Norby RJ, Hedin LO (2011). Disturbance and land-use history affect nutrient availability and response of forests to elevated CO₂. INTERFACE/CLIMMANI workshop on 'Nutrient constraints on the net carbon balance'. Keflavik. Iceland (Poster)

Keel SG, Gerber S, Shevliakova E, Hedin LO (2010) Effects of CO₂ enrichment and nitrogen addition on forest productivity in a global land model. Annual meeting of the Ecological Society of America (ESA). Pittsburgh. USA

Keel SG, Campbell CD, Högberg MN, Richter A, Wild B, Hurry V, Linder S, Näsholm T, Högberg P (2010) Reconciling differences between fine root lifetimes assessed by carbon isotope approaches and the minirhizotron technique. Stable Isotopes and Biogeochemical Cycles in Terrestrial Ecosystems Conference. Ascona. Switzerland.

Keel SG, Campbell CD, Högberg MN, Richter A, Wild B, Högberg P (2008) Fine root longevity still under debate. Annual meeting of the American Geophysical Union (AGU). San Francisco. USA

Keel SG, Campbell CD, Högberg MN, Richter A, Wild B, Högberg P (2008) Fine root longevity still under debate. Joint European Stable Isotope Users group Meeting (JESIUM). Presque-île de Giens. France (Poster)

Keel SG (2006) The fate of recently assimilated carbon in mature deciduous forest trees. General Energy Research Department (ENE), Paul Scherrer Institute. Switzerland

- Keel SG, Siegwolf RTW & Körner C (2006) Canopy CO₂ enrichment permits tracing the fate of recently assimilated carbon in a mature deciduous forest. International Conference on Applications of Stable Isotope Techniques to Ecological Studies (ISOECOL). Belfast. Ireland
- Keel SG, Siegwolf RTW & Körner C (2006) The fate of carbon in a mature deciduous forest exposed to elevated CO₂. Swiss Global Change Day. Berne. Switzerland. (Poster)
- Keel SG, Siegwolf RTW & Körner C (2005) Routes and rates of carbon input in a deciduous forest exposed to elevated CO₂. Annual meeting of the Ecological Society of America (ESA). Montréal. Canada.
- Keel SG, Siegwolf RTW & Körner C (2005) Isotope labeled mushrooms document the tree-fungus carbon linkage. Swiss Global Change Day. Berne. Switzerland. (Poster)
- Keel SG, Siegwolf RTW & Körner C (2004) Routes and rates of carbon input in a temperate deciduous forest demonstrated by a large scale ¹³C tracer experiment, SIBAE-BASIN conference (Stable Isotopes in Biospheric-Atmospheric Exchange/ Biosphere-Atmosphere Stable Isotope Network). Interlaken. Switzerland. (Poster)
- Keel SG, Siegwolf RTW & Körner C (2004) Routes and rates of carbon input in a temperate deciduous forest demonstrated by a large scale ¹³C tracer experiment. Swiss Global Change Day. Berne. Switzerland. (Poster)
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- Keel SG, Siegwolf RTW & Körner C (2004) Routes and rates of carbon input in a temperate deciduous forest demonstrated by a large scale ¹³C tracer experiment, Conference of the Commission of Atmospheric Chemistry and Physics of the Swiss Academy of Sciences. Sarnen. Switzerland. (Poster)
- Keel SG, Pepin S, Körner C (2003) Stomatal conductance in mature deciduous forest trees exposed to elevated CO₂. The carbon balance of forest biomes, Symposium held during the annual meeting of the British Ecological Society. Southampton. UK. (Poster)

IN THE NEWS

March 23, 2022: Swiss Radio SRF, Podcast "Trend". Mit Pflanzenkohle das Klima retten?
<https://www.srf.ch/audio/trend/mit-pflanzenkohle-das-klima-retten?id=12164780>

October 25, 2005: BBC International and BBC Radio 4 recordings, Andrew Luck-Baker interviews Christian Körner, Sonja Keel and Sebastian Leuzinger on implications of future CO₂ concentrations on forests.

May 27, 2005: Swiss TV (SF1), "Menschen, Technik, Wissenschaft" (Science program), Roland Blaser reports on Sonja Keel's carbon labeling experiments in the tree crowns.

REVIEWER ACTIVITY

For journals:

Agriculture Ecosystems and Environment, Agronomy, Ecology and Evolution, Environmental Modeling and Assessment, Field Crops Research, Functional Ecology, Geoderma, Journal of Plant Nutrition and Soil Science, New Phytologist, Nutrient Cycling in Agroecosystems, Oecologia, Plant Cell and Environment, Plant & Soil, PLOS Climate, Regional Environmental Change, Renewable and Sustainable Energy Reviews, Science of the Total Environment, Scientific reports, Soil Use and Management, Tree Physiology

For funding agencies:

European Cooperation in Science and Technology (COST)

German research foundation (Deutsche Forschungsgemeinschaft (DFG))

Federal Office for Agriculture (FOAG)