

Grassland Soil Carbon Dynamics under Global Change

Supervisors:

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We are looking for a highly motivated PhD student in the frame of CLIMGRASS, a unique Climate Change project, which aims at assessing the interactive effects of multiple global change drivers (elevated CO₂ x warming x drought/heat) on ecosystem carbon balance in a managed grassland in Austria.

What we want to do in this science?

The interactive effects of multiple climatic drivers on ecosystem carbon balance strongly depend on how they affect the balance between production, stabilization and decomposition of organic matter in soil. Despite the fact that this balance is mechanistically not well understood, there is strong evidence that belowground biotic interactions, specifically between plant roots and microorganisms, play a key role in the regulation of the functioning of ecosystems and of their response to global change. This PhD project therefore aims at understanding how interactive effects of climatic drivers (CO₂, temperature, drought/heat) influence rhizosphere processes and the interaction of plant roots and microorganisms (including mycorrhizal fungi) and how these changes in plant-microbe interactions in turn affect soil carbon sequestration.



CLIMGRASS Experimental Site, AREC Raumberg-Gumpenstein, Styria, Austria

This PhD project is based at **TER** (Terrestrial Ecosystem Research Group, Department of Microbiology and Ecosystem Science, University of Vienna) and **SILVER** (the Stable Isotope Laboratory of the University of Vienna), and involves fieldwork at the **AREC** (Agricultural Research & Education Centre Raumberg-Gumpenstein) in Styria, Austria.

What's in it for you?

Become an expert in *Global Change Biology* and *Isotope Biogeochemistry*!

You will extensively use a range of advanced stable isotope ^{13}C and ^{15}N tracer techniques, including unique isotope pool dilution assays to estimate gross depolymerisation rates of macromolecules in soil organic matter. You will be working with compound-specific stable isotope ratio mass spectrometry (e.g., GC-IRMS, HPLC-IRMS) and other high-end analytical methods such as pyrolysis GC-MS and Orbitrap LC-MS.

Join an exciting research environment.

The Department of Microbiology and Ecosystem Science is one of the leading research institutions in its field in Europe. You will join a lively, intellectually stimulating and collaborative research group and be part of a cosmopolitan and vibrant research department with about 100 members. The project also brings together Austria's leading research groups in global change ecology of plant-soil interactions in the area, i.e. the Universities of Vienna and Innsbruck and the AREC.

Who should apply?

We are looking for highly motivated students with a Master degree in life sciences, chemistry or geosciences and a solid background in ecology, biogeochemistry and/or microbial ecology. As part of a larger research team, we expect you to have excellent communication skills and to be fluent in English. Any knowledge of instrumental analytics and experience in the application of stable isotopes is desirable but not essential

Application procedure

Your application should include a

- (i) detailed CV and list of publications,
- (ii) letter explaining your motivation, experience and skills, and
- (iii) contact details of your supervisor(s) of your Master thesis
- (iv) at least one reference (please, ask your referee to send the letter per email to christof.oberwalder@univie.ac.at until 27th August 2014)

Please, send your application in one file (preferably as PDF) until Wednesday 27th August 2014, 18:00 at the latest, to Christof Oberwalder (christof.oberwalder@univie.ac.at).

Review of applications will begin Monday 14th July and end Wednesday 27th August 2014.

Final interviews will take place on 1st/2nd September 2014 (also per Skype). Please, indicate in your application if you are not available for interviews at these dates.

Expected start date is 15th September 2014 or at the earliest convenience.

For further information and informal discussion, please contact Prof Andreas Richter (andreas.richter@univie.ac.at).