

## International Summer School of the DBG Working Group Soil Gases: “Soil-Borne Greenhouse Gases: From Field Data to Publication“ (6 ECTS)

August 30 – September 05, 2015 in and around Vienna (Austria)



### Scientific Outline

This summer school will focus on the measurement and modelling of greenhouse gas (GHG) exchange between soil, plants and the atmosphere as required for process-oriented studies as well as for field- or landscape level GHG budgets. The course will address the various challenges associated with the widely used closed chamber measurement systems with respect to data quality, analysis and up-scaling. Combining lectures, hands-on exercises, discussions and excursions, acknowledged experts will provide training on the following topics:

- Soil-borne greenhouse gases (CO<sub>2</sub>, N<sub>2</sub>O, CH<sub>4</sub>): research objectives, measurement methods, and relevant environmental factors
- Error sources associated with gas flux measurements and ongoing standardization efforts within the German Soil Science Society (DBG)
- Data management: Preparation, handling, storage, and open-access publication of data
- Flux rate calculation: Introduction, theory and hands-on practical exercises
- Methods for data gap-filling for i) N<sub>2</sub>O and CH<sub>4</sub> and ii) CO<sub>2</sub> (incl. interpolation and empirical models)
- Methods for the statistical analysis of gas flux data as well as of relevant environmental parameters and management data methods accounting for inherent spatial and temporal variability

### Venue, Excursions and Cultural Programme

The first half of this course will be held at the Forest Demonstration and Research Centre (Lehrforst) of the University of Natural Resources and Life Sciences (BOKU) in the remote and picturesque Rosalian mountains near Forchtenstein, some 60 km south of Vienna, Austria. Upon arrival of the participants in the BOKU Lehrforst on August 30, the summer school will start off with an icebreaker barbecue. The lectures and exercises will be complemented by short excursions to a current experimental forest site of the BOKU Institute of Soil Research and to greenhouse gas measurement devices of the Austrian Agency for Health and Food Security (AGES). The second venue for this course is the BOKU campus ‘Muthgasse’, directly in the city of Vienna, where the program includes a social dinner in a ‘Heuriger’, a typical Viennese wine restaurant.

### Schedule, Accommodation, Credits, and Costs

The summer school will start in the afternoon of Sunday, August 30, 2015 and will end at lunchtime on Saturday, September 5, 2015. This schedule allows participants to attend to the DBG annual conference in Munich directly after the end of this summer school. Transportation by bus from the

major transportation hubs (Vienna train stations 'Westbahnhof' and 'Hauptbahnhof', Vienna airport) to the BOKU Lehrforst will be organized. Three nights will be spent in the BOKU Lehrforst, where shared rooms for 6-8 people are available. After transfer to Vienna, participants will be accommodated in a student hostel near the 'Muthgasse' campus (2-bed shared rooms).

**The course fee of €475 (to be paid after acceptance for participation)** includes course materials, transportation during the course, accommodation (6 nights) and full board in the Lehrforst, breakfast in the student hotel in Vienna and the social dinner in Vienna. Lunches (3) and dinners (2) in Vienna have to be directly paid by the participants. Participants are responsible for arranging and paying for their travels to and from Vienna. 2 grants for participants from developing economies (according to the [definition of the International Monetary Fund](#)) are available upon request. The course will be awarded with 6.0 ECTS credits.

## Application

The summer school is dedicated to **PhD students** with a background in soil science, agriculture, biogeochemistry and other environmental sciences with experience in field GHG measurements as well as fundamental skills in statistics and R programming.

Applications should include the registration form, a short curriculum vitae of the applicant (maximum of 2 A4 pages), and a motivation letter (max. 1 A4 page). Please send three separate PDF files named with the last name of the applicant, e.g., *Schwen\_Registration.pdf*, *Schwen\_CV.pdf* and *Schwen\_Motivation.pdf*. **All applications should be sent electronically (PDF files only) to Dr. Andreas Schwen (andreas.schwen@boku.ac.at) no later than April 24, 2015 (application deadline).**

## Organizing Committee:

- Prof. Dr. Sophie Zechmeister-Boltenstern, Dr. Michael Zimmermann and Mag. Sonja Leitner, Institute of Soil Research (BOKU), Vienna (Austria)
- Prof. Dr. Stephan Glatzel, Institute of Geography, University of Vienna, Vienna
- Dr. Andreas Schwen, Institute of Hydraulics and Rural Water Management (BOKU)
- Dr. Ulrike Hagemann, Institute of Landscape Biogeochemistry, ZALF, Müncheberg
- Ao. Prof. Dr. Helmut Schume and Ao. Prof. Dr. Klaus Katzensteiner, Institute of Forest Ecology (BOKU)
- Dr. Andreas Gatteringer and Maike Krauss, Department of Soil Sciences, Research Institute of Organic Agriculture (FiBL), Frick (Switzerland)

## Scientific Contributors:

- Assoc. Prof. Lars Elsgaard, Department of Agroecology - Soil Fertility, Aarhus University, Aarhus (Denmark)
- Dr. Roland Fuß, Institute of Climate-Smart Agriculture, Thünen Institute, Braunschweig
- Mathias Hoffmann, Institute of Soil Landscape Research, ZALF, Müncheberg
- Dr. Gerald Jurasinski, Landscape Ecology and Site Evaluation, University of Rostock
- Dr. Ralf Kiese, Institute of Meteorology and Climate Research - Atmospheric Environmental Research, KIT, Garmisch-Patenkirchen
- Dr. Martin Wattenbach, German Research Centre For Geosciences, Potsdam
- Prof. Dr. Friedrich. Leisch, Institute of Applied Statistics and Computing (BOKU)

**This summer school is financially supported by:**



