

2 PhD Students

Reference number: D167/2014, Physical geography, meteorology, or a related natural or earth science

For our Institute of Bio- and Geosciences - Agrosphere (IBG-3) we are seeking 2 PhD Students with a degree in physical geography, meteorology, or a related natural or earth science for a 3 year position.

The Institute of Bio- and Geosciences – Agrosphere (IBG-3) conducts research to improve our understanding of hydrological and biogeochemical processes in terrestrial systems. Studies focus on the fate and behavior of anthropogenic and geogenic substances, the analysis of exchange processes and nutrient dynamics in the soil-plant-atmosphere continuum. A combination of experiments, modeling and innovative observation technologies is used to bridge the gap between model, process and management scale. Its research contributes to the sustainable and resource-conserving use of soils and water and to the quantification of the effect of climate and land use change on terrestrial ecosystems. We offer a competent and interdisciplinary working environment, as well as an excellent framework in the areas of experiments and modeling.

Job Description: The project IDAS-GHG, funded by the German Federal Ministry of Education and Research (BMBF) and hosted at the Research Centre Jülich, aims at improving and facilitating the partitioning of existing greenhouse gas exchange measurements between vegetated surfaces and the atmosphere. While net exchange of CO₂ and water vapor is measured on a routine basis, their sources (e.g. photosynthesis vs. soil respiration and plant transpiration vs. evaporation) can only be inferred indirectly, which is currently done by a wide variety of methods. You will work in a team of 3 PhD students, one group leader and additional mentors and assistants to perform a comprehensive comparison of the strengths and weaknesses of existing methods, develop improved methods, and apply them to agricultural, grassland and forest ecosystems relevant for the mitigation of anthropogenic greenhouse gas emissions. The first PhD student (position I) will focus on analyzing turbulent fluctuations of CO₂ and water vapor to infer source partitioning; the second PhD student (position II) will focus on using the natural abundance of stable isotopes in CO₂ and water vapor for source partitioning and explore the scope of this method for the greenhouse gas N₂O. Research will be conducted with the latest analytical equipment, such as an isotope-specific laser absorption spectrometer.

Requirements:

University degree in a natural or earth science with a focus on the interface and exchange between atmosphere and terrestrial biosphere

Preferably, experience in programming (position I) or isotope analytics (position II), familiarity with micrometeorological methods, and a driving license

Strong English writing and communication skills.

We offer a well-maintained infrastructure for the measurement of environmental variables and fluxes, into which you will embed your experiments and analyses; working in an interdisciplinary environment offering opportunities to being part of the national and international scientific community; and courses to improve your programming or other skills as needed and the opportunity of a three-month internship abroad with an international research group.

For further information please contact Dr. Alexander Graf, e-mail: a.graf@fz-juelich.de

Equal opportunity is a cornerstone of our staff policy. Applications from disabled persons are welcomed.

Please send your **application** - quoting the reference number and the position of interest - with the relevant documentation to Mr. K. Beumers, Institut für Bio- und Geowissenschaften, Forschungszentrum Jülich GmbH, 52425 Jülich, Germany; e-mail: k.beumers@fz-juelich.de