Workshop Format

Scientific talks presented by invited speakers and workshop participants, poster session with guided tour, mixed discipline break-out-group discussions, public lecture, plenary discussion, informal interaction and time for networking.

Important Dates

Call for abstracts: **07 April 2020**

Abstract submission deadline: **03 August 2020**

Registration deadline: **07 September 2020**

Register at: www.eco-tracer.uni-freiburg.de

Workshop Fees

Regular: 200 €

Students: 150 €

(incl. beverages during breaks, lunch, social event and get-together)

Workshop Venue

Heidelberg is a flourishing university city in Germany. The university is the oldest in Germany and dates back to 1386. In the old city center, where the conference venue is situated, you can still experience the medieval flair. Together, we will explore the old town center during a guided city tour.

How to get to the workshop?

Located only 75 km south of Frankfurt, Heidelberg is easily accessible for participants from all over the world. From the Heidelberg-Altstadt train station, head West (the Neckar river should be on your right) and cross the Karlstor. Walk straight for another 10 minutes until you reach a larger square. From there you can already see the Heidelberg Academy building.

Address:

Heidelberger Akademie der Wissenschaften
Karlstraße 4, 69117 Heidelberg +49 (0)6221 543265








Accommodation (room charges can vary)

To help you find a place to stay during the workshop, here is a list of selected accommodations in Heidelberg:

*** Hotel am Rathaus: single room 109.80 € ; double room 121.50 € p.p./night (incl. breakfast)

*** Hotel am Schloss: single room 99 € ; double room 126 € p.p./night (incl. breakfast)

*** Hotel Goldener Falke: single room 75 €; double room 149 € p.p./night

Hostel Lotte: 6-bed dorm 23 € ; double room from 32 € p.p./night

Heidelberger Akademie der Wissenschaften
Heidelberg, Germany

Water and Nutrient Fluxes in Ecosystems Under a Changing Climate: a Tracer-based Perspective

04 - 06 November 2020

eco-tracer@hydrology.uni-freiburg.de
www.eco-tracer.uni-freiburg.de

Organizers

Dr. Natalie Orlowski, Dr. Michael Rinderer, Jaane Krüger, Dr. Maren Dubbert

HEIDELBERGER AKADEMIE DER WISSENSCHAFTEN
Akademie der Wissenschaften des Landes Baden-Württemberg

UNI FREIBURG

Workshop Aim

Water flows through ecosystems via interacting pathways, along which nutrients are mobilized, transported and retained. These pathways and biogeochemical processes are difficult to observe directly. Tracers (e.g., stable and radioactive isotopes or artificial tracers) provide a cross-disciplinary toolset for measuring water and nutrient fluxes through different ecosystems. Our conference aims at connecting different disciplines (e.g., ecosystem ecology, plant physiology, soil science and hydrology) to foster interdisciplinary discussion, highlight open questions and open new opportunities for collaborative research. This helps to overcome shared research gaps and generate a more holistic view of water and nutrient fluxes in diverse ecosystems. This is needed given the rapid changes in climatic conditions that we already face today.

Workshop Sessions

1. Transport Processes and Residence Times in Ecohydrological Systems

Chairs: Dr. Michael Rinderer, *Uni Freiburg, Germany*
Prof. Dr. Markus Hrachowitz, *TU Delft, Netherlands*

Inv. speaker: Ass. Prof. Dr. Giulia Zuecco, *Uni Padua, Italy*

High frequency measurements of water fluxes and their constituents as well as tracer applications allow for a better identification of flowpaths and a more precise estimation of transit times in different ecohydrological systems. However, different tracers, sampling strategies and analysis methods seem to capture different residence times. This session aims at identifying progress, challenges, and opportunities in the use of diverse tracers to identify water and nutrient flowpaths and quantify the transit time of water and its constituents. The session invites contributions from the catchment to the plot scale across an array of tracers and modeling techniques.

2. Novel Tracer Techniques for Investigating Processes in the Subsurface

Chairs: Jaane Krüger, *Uni Freiburg, Germany*
Dr. Federica Tamburini, *ETH, Switzerland*

Inv. speaker: Jun. Prof. Dr. Michaela Dippold, *Uni Goettingen, Germany*

Novel analytical techniques offer the opportunity to investigate tracers at unprecedented temporal and spatial resolution and precision. New experimental approaches (e.g., isotope dilution, component specific labeling) afford opportunities to study turnover of soil organic matter, nutrient uptake by plants, and nutrient sorption and exchange (in particular phosphorus and nitrogen), and thus help to identify the variables controlling nutrient and water cycling in soils. This session includes field and laboratory studies of soil nutrient and soil-hydrologic processes, particularly those using ^{18}O, ^{13}C, ^{15}N, ^{32}P, ^{33}P isotopes.

3. Ecohydrological Storages and Fluxes Mediated by Plants

Chairs: Dr. Maren Dubbert, *Uni Freiburg, Germany*
Prof. Dr. Arthur Gessler, *WSL, Switzerland*

Inv. speaker: Dr. Matthias Beyer, *TU Braunschweig, Germany*

Plants play a crucial role in controlling ecosystem's water and nutrient fluxes and storages. In this session, we welcome research that considers water and nutrient availability, soil-plant-atmosphere feedbacks and species competition to improve our understanding of ecosystem's water and nutrient fluxes. We also invite tracer studies that investigate how interactions between plants and their environment determine the partitioning and redistribution of water and nutrients in ecosystems under current and changing climate.

4. Methodological Developments and Monitoring Systems

Chairs: Dr. Natalie Orlowski, *Uni Freiburg, Germany*
Prof. Dr. Youri Rothfuss, *Research Centre Juelich, Germany*

Inv. speaker: Dr. Matthias Sprenger, *IDAEA, Spain*

Analytical advances have a strong bearing on ecosystem process understanding and interpretation of findings. This session aims at addressing the current state of the art of methods, applications, and process interpretations using environmental tracers in the soil-plant-atmosphere continuum. We welcome experimental and modeling studies that present methodological developments and applications of environmental tracers to improve the actual knowledge of water and nutrient exchanges at the cross-disciplinary interfaces between soils, plants and atmosphere.

Public Side Event

03 November 2020, 06:30 PM, *in German*

Wasserversorgung in Geschichte und Gegenwart

Public Lecture

04 November 2020, 07:00 PM

Prof. Dr. Jürgen Bauhus, *Uni Freiburg, Germany*

How to Adapt Our Forests to Climate Change?