SCIENTIFIC CONFERENCE ON

BIOTIC INTERACTIONS AND THEIR ROLE IN ECOSYSTEM -CLIMATE FEEDBACKS

INSTITUTE OF PLANT SCIENCE AND MICROBIOLOGY

HAMBURG, 14 -17 MAY 2023

The conference was funded by:

Universität Hamburg within the funding initiative
“Next Generation Partnerships”

Partnership for research on biota-climate-feedbacks (PERICLES): International : Universität Hamburg (uni-hamburg.de)

ABOUT THE CONFERENCE

Interactions between plants, animals and microbiota constitute the structure and functioning of terrestrial, coastal, and marine ecosystems. The upcoming conference will address the open question: How do these biotic interactions shape the impacts of ecosystems on climate?

Direct impacts of climate and climatic change on biota are extensively studied, and the general short- and long-term effects of ecosystem processes and properties on climate are relatively well known. Both biogeochemical feedbacks of ecosystems to the climate through e.g. carbon sequestration and greenhouse gas emissions and biogeophysical feedbacks through changes in transpiration and albedo have been acknowledged in the past. Yet it is unclear how biotic interactions between plants, animals and microbiota mediate these biogeochemical and biogeophysical feedbacks of ecosystems to the climate and how this may change with global warming. This has potentially strong implications for projections of future climate change and ecosystem functioning due to additional effects of biotic interactions.

The aim of this conference is to bring together the world´s foremost experts on the role of biotic interactions for ecosystem functioning and possible feedbacks to the climate system.

We welcome contributions from terrestrial, coastal, and marine ecosystems, ranging in approaches from molecular biology to ecosystem ecology and from experimentation to modelling. The overall aim of the conference is to discuss the state of knowledge and establish new vital directions for research. Oral and poster contributions as well as group and panel discussions aim at addressing the following key questions:

- Which role do biotic interactions play for biogeochemical and biogeophysical feedbacks of ecosystems to climate?

- Which experimental approaches and analytical tools can be used to quantify the role of biotic interactions?

- How can interdisciplinary crosstalk contribute to synthesize our current knowledge and to pave the way for future research directions?

We cordially invite you to this conference and look forward to outstanding presentations and lively discussions that will contribute to a better understanding of the role of biotic interactions in ecosystem-climate feedbacks.

Kai Jensen, Nicole Aberle-Malzahn, Christian Beer, Ina Meier, Christian Möllmann, Philipp Porada, Elisa Schaum & Viktoria Unger

ORGANISING COMMITTEE

The PERICLES-Consortium in Hamburg

Prof. Dr. Kai Jensen, Applied Plant Ecology
Prof. Dr. Nicole Aberle-Malzahn, Experimental Ecology of Marine Zooplankton
Prof. Dr. Christian Beer, Dynamics of Soil Processes
Prof. Dr. Ina Meier, Functional Forest Ecology
Prof. Dr. Christian Möllmann, Marine Ecosystem Dynamics and Management
Prof. Dr. Philipp Porada, Ecological Modelling
Prof. Dr. Elisa Schaum, Plankton Ecology and Evolution
Dr. Viktoria Unger, Applied Plant Ecology

Local organizing committee

Prof. Dr. Kai Jensen
Dr. Viktoria Unger
Dr. Susanne Stirn
Amelie Meyer

THE VENUE

The symposium will be held at the Institute of Plant Science and Microbiology of Universität Hamburg.

How to get there:

By train:
From the central station or the train station Altona, take the S1 (green line, direction Blankenese/Wedel) or the S11 (green line, direction Blankenese) to the stop Klein Flottbek (Botanischer Garten) (approx. 10 minutes).

By car:
Coming from north or south: A7 exit Bahrenfeld, then to the west on Osdorfer Weg/B431, after 2.4 km turn left into Heinrich-Plett-Straße, after 1.5 km turn right into Ohnhorststraße.

By plane:
From the airport, take the S1 direction Blankenese/Wedel to the stop Klein Flottbek (Botanischer Garten) (approx. 50 minutes).

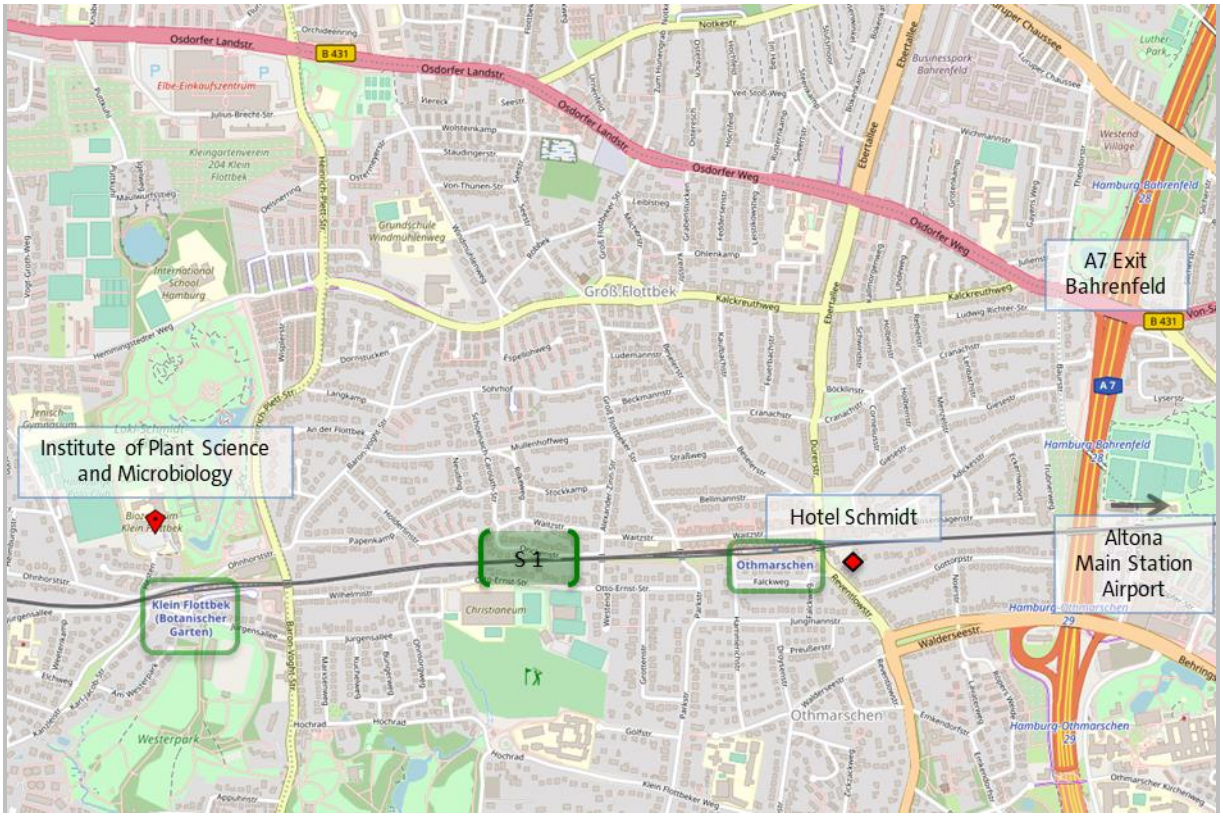
Institute of Plant Science and Microbiology, Ohnhorststr. 18, 22609 Hamburg

Picture: UHH/Kober

For your orientation:

The location of the institute directly at the S-Bahn station Klein Flottbek

The surroundings of the Institute of Plant Science and Microbiology



ACCOMODATION

The Institute of Plant Science and Microbiology is located in the west of Hamburg.
The following hotels (in alphabetical order) are within a 15-minute S-Bahn ride radius of the institute:

Gastwerk Hotel Hamburg
Beim Alten Gaswerk 3
22761 Hamburg
Phone: +49-40-890620
e-mail: info@gastwerk-hotel.de·

Hotel Behrmann
Elbchaussee 522-528
22587 Hamburg
Phone: +49-40-8669720
e-mail: reservierung@hotel-behrmann.de

Hotel Schmidt
Reventlowstraße 60
22605 Hamburg
Phone: +49-40-889070
e-mail: reservierung@hotel-schmidt.de

Hotel-Hamburg-Altona
Hahnenkamp 8
22765 Hamburg
Phone: +49-40-39908954
e-mail: info@hotel-hamburg-altona.de

Hotel Stephan
Schmarjestraße 31
22767 Hamburg
Phone: +49-40-3895195
e-mail: stephan@hamburg-hotels.de

Meininger Hotel, Hamburg City Center
Goetheallee 11
22765 Hamburg
Phone: +49-40-28464388

THE CONFERENCE DINNER

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The conference dinner on Tuesday night will be held at the event location "Am Kai", Große Elbstraße 145c, 22767 Hamburg.

We will have a buffet and are looking forward to enjoy the beautiful location directly at the Elbe.

How to get there:

After the panel discussion, we will either walk down to the Elbe (a 20 minutes' walk) and take the ferry boat to the station "Dockland" directly at the restaurant. Alternatively, we can take the S-Bahn to Altona and walk down to the restaurant or go there by bus

After dinner there will be no problems returning to the hotel or home since the S-Bahn runs all night long!

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Programme

Sunday, 14 May 2023

4 - 5 p.m.	Registration
5.00 - 5.15 p.m.	Welcome Address Representative of Universität Hamburg Kai Jensen, Universität Hamburg
5.15 - 6.00 p.m.	Opening Plenary Lecture Helmut Hillebrand, Carl von Ossietzky Universität Oldenburg, Germany *Biotic interactions, metacommunities and ecosystem functioning at the land-sea interface*
6.00 - 8.00 p.m.	Welcome Reception at the Loki Schmidt Haus

Monday, 15 May 2023

Session 1: Microbial interactions & ecosystem functions
Chair: Christian Beer, Universität Hamburg

9.00 – 10.30 a.m.	Jennifer A. Rudgers, Albuquerque, USA *Microbially mediated recovery from drought: A tale of two grasslands* Johannes Rousk, Lund, Sweden *The microbial control of biogeochemistry in warming soils* Benton Taylor, Cambridge, USA *The symbiotic spectrum of plant-microbe mutualisms and the future of forest carbon storage*
10.30 – 11.00 a.m.	Coffee Break

Session 2: Terrestrial & marine ecosystem ecology
Chair: Elisa Schaum, Universität Hamburg

11.00 a.m. - 12.30 p.m.	Martina Doblin, Sydney, Australia *Microscale interactions influence the ocean's biological carbon pump* Paul Miller, Lund, Sweden *Potential climate feedbacks inferred from modelled vegetation change and interactions in high-latitude ecosystems*

	Ellen Dorrepaal, Umeå, Sweden *Expanding our understanding of plant-soil-microbe interactions in arctic ecosystems: redefining seasonality?*
12.30 – 2.00 p.m.	**Lunch Break**

Session 3: Experiments, animals & modeling
Chair: Philipp Porada, Universität Hamburg

2.00 -3.30 p.m.	**Nico Eisenhauer, Leipzig, Germany** *Multitrophic communities and energy fluxes in a changing world* **Shawn Leroux, St John's, Canada** *Mechanistic models linking biotic interactions to the carbon cycle* **Thomas Hickler, Frankfurt, Germany** *The role of ungulate grazers in carbon cycle dynamics*
3.30 - 4.30 p.m.	**Coffee Break &** **Poster Session 1**
4.30 - 5.30 p.m	**Discussion Groups - Interdisciplinary Crosstalk (in parallel)** A: How to link marine & terrestrial ecosystem ecology? B: Effects of biotic interactions on climate – experimental approaches
5.30 - 6.00 p.m.	**Group Reporting and Panel Discussion**

Tuesday, 16 May 2023

Session 4: Carbon cycling in ecosystems
Chair: Nicole Aberle-Malzahn, Universität Hamburg

9.30 – 10.30 a.m.	**Andreas Richter, Vienna, Austria** *Microbial growth drives carbon and nutrient cycling in soil* **Neil Saintilan, Sydney, Australia** *The upper limits of tidal wetland adjustment to sea-level rise*

10.30 – 11.30 a.m.	**Coffee Break &** **Poster Session 2**

Session 5: Possible future directions
Chair: Ina Meier, Universität Hamburg

11.30 a.m. – 1.00 p.m.	**Alga Zuccaro, Cologne, Germany** *Reductionist Approaches to a Molecular Understanding of Plant Microbiota Functions* **Thomas Pugh, Lund, Sweden** *Developing model-based hypotheses of plant functional trait distributions across the world's forests* **Kai Jensen, Hamburg, Germany** *Some knowns and many unknowns: How do biotic interactions affect ecosystem-climate feedbacks*
1.00 – 2.00 p.m.	**Lunch Break**
2.00 – 2.30 p.m.	**Alexandra Z. Worden, Kiel, Germany** *Factoring in microbial interactions to understanding the marine carbon cycle*
2.30 – 3.30 p.m.	**Discussion Groups - Interdisciplinary Crosstalk (in parallel)** C: Effects of biotic interactions on climate – modelling approaches D: How to combine insights from molecular biology & ecosystem science?
3.30 – 4.30 p.m.	**Coffee Break**
4.30 – 5.00 p.m.	**Group Reporting and Discussion**
5.00 – 5.30 p.m.	**Panel Discussion on Future Directions for Research**
19:00	**Conference Dinner**

Wednesday, 17 May 2023	
9.00 a.m. – 4.00 p.m.	**Field trip to the research site at the Hamburger Hallig**