Tim Rademacher

Postdoctoral Research Fellow · Plant and Terrestrial Ecosystem Sciences

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Scholarly Profile

Tim is interested in the eco-physiology of terrestrial vegetation and its interactions with other parts of the earth system. My current focus is on the eco-physiology of trees using observations and experiments at Harvard Forest. In particular, my current work investigates the mechanisms underlying the link between wood growth and the sequestration of atmospheric carbon in forests building on novel and innovative uses of technology.

Postdoctoral Research

Harvard University

Cambridge, USA

Advisor: Prof. David Foster

2017-present

- conduct observational and experimental studies at Harvard Forest to elucidated drivers of wood growth with the aim of answering whether carbon sequestration in forests is source- or sink-driven.
- assist the development of a global vegetation model informed by observational and experimental studies.

Northern Arizona University

Flagstaff, USA

Advisor: Prof. Andrew Richardson

2017-present

- conduct laboratory analysis of nonstructural carbon sample collected at Harvard Forest.

Education

PhD in Physical Geography, University of Cambridge

Cambridge, UK

Advisor: Dr. Andrew D. Friend

2016

- Dynamics and patterns of residence time of carbon in vegetation and soils at regional to global scales

BA in Natural Sciences, University of Cambridge

Cambridge, UK

Advisors: Dr. Andrew D. Friend and Prof. Howard Griffiths

2012

- Best dissertation in Plant Sciences: "Application of a mechanistic single tree growth model to simulate climatic constraints on beech growth (Fagus sylvatica L.) along an altitudinal gradient on Mount Vermio, Northern Greece".

Publications

Published

1. Jucker, ..., **Rademacher** et al. (2018) "Ten‐year assessment of the 100 priority questions for global biodiversity conservation", Conservation Biology
2. Thurner, ..., **Rademacher** et al. (2017) "Evaluation of climate-related carbon turnover processes in global vegetation models for boreal and temperate forests", Global Change Biology
3. Hayat, ..., **Rademacher** et al. (2017) "Modelling tree growth taking into account source and sink limitations", Frontiers in Plant Sciences
4. Friend, Lucht, **Rademacher** et al. (2014) "Anticipating terrestrial vegetation response to future climate and atmospheric CO_2", Poceedings of the National Academy of Sciences
5. Warzawksi, ..., **Rademacher** et al. (2014) "A multi-model analysis of risk of ecosystem shifts under climate change", Environmental Research Letters
6. Nishina, ..., **Rademacher** et al. (2014) "Quantifying uncertainties in soil carbon responses to changes in global mean temperature and precipitation", Earth System Dynamics

In review

7. Zhang, ..., **Rademacher**, et al. (2018) "Snowmelt and early-mid growing season water augments tree growth during rapid warming in dry Asian boreal forests", Global Change Biology

Grants, Honours and Awards

Grants

2017	**NSF-DEB Plant Growth,** initiator and co-investigator on a collaborative NERC-NSF grant worth circa 2 million US-$ in total.	*Cambridge, USA*

Prizes

2012	**W.P. Brian Prize,** for best final year research project in Plant Sciences at the University of Cambridge.	*Cambridge, UK*

Bursaries and Scholarships

2016	**Scholarship from the Heinrich Böll Foundation,** for the intellectual and financial support during a PhD (highly competitive, requiring excellent academic performance and social commitment).	*Berlin, Germany*
2016	**Bursary from the Cambridge Philosophical Society,** for the advancement of a member's academic career.	*Cambridge, UK*
2015	**Travel Bursary from the American Geophysical Union (AGU),** for the attendance and presentation of a poster the the annual fall meeting.	*Washington, USA*
2015	**Young Explorers Grant from National Geographic (NatGeo),** for an expedition on the Kinabatangan river to juxtapose diverse perspectives on palm oil cultivation.	*Borneo, Malaysia*
2013	**Parkyn Boursary from the British Ecological Society (BES),** for the attendance and presentation of a talk at INTECOL 2013.	*London, UK*

Services to Profession

Reviewer	Agricultural and Forest Meteorology, Environmental Research Letters, Forests, Global Biogeochemical Cycles, International Association of Wood Anatomists Journal, Journal of Climate, Journal of Global Ecology and Biogeography, Tree Physiology, Scientific Reports.
Organiser	Poster sessions, meetings, seminars, international visits and networking events.
Committee work	Selection of a handful of students for admission to undergraduate Geography Tripos at the University of Cambridge (Sidney Sussex and Christ's College).
	Selection of two postdoctotral fellows, and one laboratory technician at Northern Arizona University.
	Selection of three students to participate in the Harvard Forest Research Experience for Undergraduates Summer programme 2018.
	General committee work for the Cambridge Centre for Climate Science, Heinrich Böll Foundation and Planet Workshops.

Skills

Plantbiology	Ecology, physiology, anatomy, dendrochronology, biochemistry and biophysics.
Programming	R, Fortran, LaTeX, CRBasics, Processing, Matlab, C, CSS and HTML.
Statistics	Statistical learning, machine learning and inferential statistics.
Laboratory skills	Preparation of wood samples for dendrochronological and xylogenetic analysis, measuring non-structural carbohydrates using colorimetric assays.
Field skills	Collection of microcores and wood cores, physiological measurements (e.g. respiration and photosynthesis), allometric as well as phenological measurements and sap flux measurements.
Languages	German, English, French, Spanish and Plattdüütsch.

Committees

2018	**Member,** Harvard Forest Diversity, Inclusion and Equity Working Group	*Petersham, USA*
2013	**Early-career representative,** Cambridge Centre for Climate Science (CCfCS)	*Cambridge, UK*
2013	**Member,** Transformations cluster, Heinrich Böll Foundation	*Berlin, Germany*
2012	**Invited Member,** Youth Commission, Planet Workshops	*Evian, France*

Miscellaneous

Sports

UK & Germany

International *2011, 2015 & 2017*

- Current double world record holder in indoor rowing and winning member of the lightweight *Oxford Cambridge Boat Race* in 2015.
- Starting selection of the German National Rugby League Team in 2011.
- Starting selection of the Cambridge University Rugby League Football Club for the varsity match in 2011.

Film

UK

Producer & star *2016 & 2017*

- Creation of the short documentary ”Unkaputtbar - Unbreakable”, which describes my journey to break several indoor rowing world records during the final stages of my PhD.

Languages

- German, French and English (fluent); Spanish and Plattdüütsch (advanced); Portuguese (beginner).