

TRACE 2018 Conference

Tree Rings in Archaeology, Climatology and Ecology
April 24-27 2018, Greifswald, Germany

Tuesday, April 24

Location: Pomeranian State Museum, Rakower Straße 9

18:00 – 22:00 Registration and Icebreaker

Wednesday, April 25

Location: Alfried Krupp Wissenschaftskolleg, Martin-Luther-Straße 14

08:00 Registration & hanging posters

09:00 Conference Opening

Session 1: Forests under change – tree-ring perspectives on global change impacts

Moderator: Prof. Dr. Ute Sass-Klaassen

09:15 Ute Sass-Klaassen Session Introduction

09:30 Andrew Hacket-Pain Climatically controlled reproduction drives tree growth

09:45 Carla Vázquez-González Environmental significance of resin duct differentiation assessed by its quantification in tree rings of a Mediterranean pine

10:00 Alen Berta Investigation of age and site index in unevenaged private forests in Croatian Mediterranean and Submediterranean with dendrochronological methods and multispectral satellite images

10:15 Poster Session 1 with Coffee Break:

- Forests under change – tree-ring perspectives on global change impacts
- Tree rings and knowledge of the human past
- From leaves and roots to the wood – explorations of tree physiological functioning in a changing world

11:00 Stefan Kruse Responses of high latitudinal tree stands to global warming at the Siberian Arctic treeline - combining dendrochronology and simulation modelling

11:15 Marcin Klisz Provenance-specific growth reaction of Norway spruce

- 11:30 **Jenny Berg** Investigations into changing periodicity of western spruce budworm at its western distribution limits on Vancouver Island, BC, Canada
- 11:45 **Georgios Skiadaresis** Groundwater extraction increases growth sensitivity of pedunculate oak trees (*Quercus robur* L.) to summer drought
- 12:00 **Tanja Sanders** Intensive forest monitoring: describing stress from two sides
- 12:15 **Johannes Edvardsson** ECHoES - Effects of tree Colonization on Hydrology and carbon sequestration in peatland EcoSystems

12:30 Lunch

Session 2: Tree rings and knowledge of the human past

Moderator: Assoc. Prof. Dr. Aoife Daly

- 13:45 **Aoife Daly** Session Introduction
- 14:00 **Karl-Uwe Heussner** Dendrochronological Data from the Hanseatic City of Greifswald
- 14:15 **Lisa Shindo** Buildings and wood trade in Aix-en-Provence (South of France) during modern period
- 14:30 **Marie-Therese Barrett** Refining the statistical parameters for constructing tree-ring chronologies using short-lived species: Alder (*Alnus glutinosa* Gaertn)
- 14:45 **Andreas Kirchhefer** Cultural modified pines in Dividalen, Norway, reveal 17th-18th century dynamics of reindeer herding and Sámi use of forest resources
- 15:00 **Andrew Trant** Eco-cultural legacies of forests and plants over millennia

15:15 Coffee Break

Session 3: From leaves and roots to the wood – explorations of tree physiological functioning in a changing world

Moderator: Assoc. Prof. Dr. Mary Gagen

- 15:45 **Mary Gagen** Session Introduction
- 16:00 **Matthias Saurer** Combining tree-ring growth and carbon isotope variability to infer the long-term drought responses of trees
- 16:15 **Giovanna Battipaglia** Elevated CO₂ influences the productivity and the water use efficiency of the invasive woody species Ponderosa pine in savanna-like ecosystems of Nebraska
- 16:30 **Ivan Tychkov** Simulated cambial phenology of Siberian conifer trees and global climate change

16:45 **Elisabeth Robert** Variation in leaf, xylem and phloem tissue fractions along environmental gradients: testing the functional equilibrium hypothesis

17:00 **General Poster Session and Refreshments**

18:00 **Association for Tree-Ring Research Annual Meeting**

Thursday, April 26

Location: Alfried Krupp Wissenschaftskolleg, Martin-Luther-Straße 14

Session 4: Exploring the tree-ring archive to study climate variability

Moderator: Dr. Rob Wilson

08:30 **Danielle Verdon-Kidd** An Intercomparison of Reconstructions of the El Niño/Southern Oscillation Based on Different Proxy Data

08:45 **Fan Zhao** Spring drought fluctuation inferred from tree-ring $\delta^{18}\text{O}$ during the past 200 years and linkage with El Niño-Southern Oscillation in Diancang Mountain, Northwest Yunnan

09:00 **Sonja Szymczak** The intra-annual oxygen isotope cycle of tree-ring cellulose from pine trees as indicator of current and past hydroclimate

09:15 **Giles Young** Climate from Stable Oxygen Isotopes in United Kingdom Oaks

09:30 **Xiaochun Wang** Inverse phase relationship between the East and South Asian Monsoon over the past millennium and unprecedented weakening of the East Asian summer monsoon in recent decades

09:45 **Scott St. George** A new framework to test the origins of western American megadrought

10:00 **Tom Levanič** Suitability of endemic Balkan pines for climate reconstruction: case study from the W Balkan

10:15 **Poster Session 2 with Coffee Break:**

- Exploring the tree-ring archive to study climate variability
- Open poster session

11:00 **Marko Kazimirović** Climate-growth variability of beech chronologies: a case study from NP "Djerdap", Serbia

11:15 **Lara Klippel** A 1000+ year reconstruction of temperature extremes for the northeastern Mediterranean region

11:30 **Ryszard J. Kaczka** What can we learn from using daily climate data for growth-climate response analyses?

11:45 **Lixin Lyu** Usage of daily weather data for pattern recognition of tree-ring climate signals along environmental gradients

12:00 **Invited “provocative” lecture by Rob Wilson** All climate reconstructions are “wrong”: A tree-ring perspective to understanding past climate

12:30 **Lunch**

14:00 **Mid-Conference Excursions:**
(1) Tree-planting campaign, (2) City tour, (3) Experimental forest

18:00 **Public Lecture** by Prof. Harald Bugmann, ETH Zürich, Switzerland
Ein Streifzug durch die Wälder der Vergangenheit, Gegenwart und Zukunft (Lecture in German); afterwards snacks and drinks

Friday, April 27

Location: Alfried Krupp Wissenschaftskolleg, Martin-Luther-Straße 14

Session 5: Methodological challenges in analyzing tree-ring data

Moderator: Dr. Holger Gärtner

08:30 **Holger Gärtner** Session Introduction

08:45 **Jernej Jevšenak** Comparison of linear and nonlinear machine learning methods for the analysis of statistical relationships between tree-rings and climate

09:00 **Darren Davies** SwanCal: An R-Shiny App for Reconstructing Past Climates from Tree-Rings

09:15 **Christin Carl** Direction Specific Radial Growth of *Robinia pseudoacacia* L. Stump Shoots - A Competition Analysis

09:30 **Jörg Niederberger** Phosphorus in Space and Time – P distribution within the woody biomass of trees

09:45 **Viorica Nagavciuc** Influence of decayed wood in tree rings stable isotopes analysis

10:00 **Allan Buras** Schizophrenic shrubs: Multi-directional, multi-proxy exploration of intra-individual growth heterogeneity

10:15 **Poster Session 3 with Coffee Break:**

- Methodological challenges in analyzing tree-ring data
- Inside wood – xylem anatomical features as indicators of change
- Towards the extremes – growth responses and resilience of trees after climatic disturbance

Session 6: Inside wood – xylem anatomical features as indicators of change

Moderator: Assoc. Prof. Dr. Marco Carrer

11:00 **Marco Carrer** Session Introduction

11:15 **Angela Balzano** Xylogenesis investigations and dendrochronology reveal the functions of IADFs in Mediterranean woods

- 11:30 **Jan Tumajer** Studying wood anatomical response of *Betula pendula* to mechanical damage using experimental approach
- 11:45 **Alma Piermattei** Exploring inter-individual wood anatomical variation along a *Picea abies* altitudinal transect
- 12:00 **Agata Buchwal** From anatomical to annual growth rings scale: dendroecological signal derived from *Betula nana* chronology in Northern Alaska
- 12:15 **Angela Luisa Prendin** Evidences of cyclic *Eurois occulta* outbreaks in West Greenland based on shrub-ring anatomy and remote sensing

12:30 Lunch

Session 7: Towards the extremes – growth responses and resilience of trees after climatic and environmental disturbance

Moderator: Prof. Dr. Marieke van der Maaten-Theunissen

- 13:45 **Marieke van der Maaten-Theunissen** Session Introduction
- 14:00 **Ouya Fang** Tree rings reveal a major episode of forest mortality in the late 18th century on the Tibetan Plateau
- 14:15 **Robert Weigel** Experimental Plant Ecology meets Dendroecology: Indications for the influence of winter climate on growth towards the cold distribution margin of European beech (*Fagus sylvatica* L.)
- 14:30 **Mohsen Arsalani** Reconstruction of droughts using a tree-ring width chronology of *Q. brantii* in the Zagros oak woodlands, Iran
- 14:45 **Dominika Wrońska-Watach** Dendrogeomorphological analysis of foothills' landslides activity - an example from Wiśnickie foothill
- 15:00 **Gottfried Jetschke** On the track of extreme growth responses – a review and evaluation of methods for pointer year detection

15:15 Coffee Break

- 15:45 **Andrea Hevia** Do long-term nutrient imbalances contribute to drought-triggered forest dieback? Insights from tree-ring chemistry
- 16:00 **Martina Lavrič** Growth and drought response of *Quercus pubescens* wild. in different soils of sub-mediterranean region
- 16:15 **Henriette Schmidt** Reactions of rare native tree species in Germany to drought stress
- 16:30 **Raúl Sánchez-Salguero** Forest vulnerability to a warmer 21st-century climate: Assessing climate extremes using process-based models of tree growth

**16:45 Conference Closing Remarks
Please Remove Your Posters**

19:00 Conference Dinner and Awards
Location: Theater Café, Anklamer Straße 108