

Dating Methods in Environmental Sciences

1st Scientific Symposium of the **Core Facility Environmental Analytics** at TU Dresden



2023, June 15th to 16th

at Dülfersaal (M13/DÜLF/U, Dülferstraße 2)

Thursday, June 15th:

12:00-16:00 Session 1

16:00-17:00 Poster Session (1)

17:00-18:00 Session 2

18:00- 19:30 Check-In Accomodations

19:30-21:30 Barbecue (in the Garden of Würzburger Str. 47)

21:30-22:30 Evening Presentation ‚Sherlock Stones‘

Friday, June 16th:

09:00-11:00 Session 3

11:00-11:45 Poster Session (2)

11:45-13:30 Session 3 & Conclusion

13:30-19:00 Field Trip to Saxon Switzerland or

13:30-14:30 Visit of VKTA-Lab ‚Felsenkeller‘

19:00-22:00 Joint Dinner (self-payd)

Further Informations and Registration:

<https://tu-dresden.de/cfea/symposium>

umweltanalytik@tu-dresden.de



Thursday, June 15th (12:00 - 16:00)

Time	Lecturer / Topic
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11:00	<i>Registration & Refreshments</i>
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12:00	Goddert von Oheimb, Karsten Kalbitz and Michael Zech (TU Dresden) Opening and CFEA presentation
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Session 1 (Chair: Michael Zech & Marieke van der Maaten-Theunissen)

12:30	Ulf Linnemann (Senckenberg Naturhistorische Sammlungen, Dresden) U-Pb dating of zircon by LA ICP-MS: Method and application
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13:00	Konstanze Stübner (Helmholtz-Zentrum Dresden-Rossendorf, Dresden) Dating landscape surfaces and processes using cosmogenic nuclides
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13:30	Margret Fuchs (Helmholtz-Zentrum Dresden-Rossendorf, Freiberg) Luminescence dating – potentials and limits for illuminating past sedimentation processes
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14:00	<i>Coffee Break</i>
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14:30	Sönke Szidat (Oeschger Centre for Climate Change Research, University Bern, Switzerland) ¹⁴ C dating – principles, recent methodological innovations and exemplary applications
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15:00	Torsten Haberzettl (Chair of Physical Geography, University Greifswald) Corroborating chronologies using paleomagnetic secular variations
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15:30	Marcel Bliedtner (Chair of Physical Geography, University Jena) A dual chronological approach for more robust paleoclimate reconstructions in semi-arid regions – a case study from Mongolian lakes
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Thursday, June 15th, 16:00 – 22:30

Time	Lecturer / Topic
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16:00	<i>Poster Sessions with Short Presentations (1)/ Refreshments</i>
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Session 2: (Chair: Marieke van der Maaten-Theunissen)

17:00	Ernst van der Maaten (Chair of Forest Growth and Woody Biomass Production, TU Dresden) <i>Tree rings and the stories they tell</i>
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17:30	Linar Akhmetzyanov (Universidad Pablo de Olavide, Seville, Spain) <i>Dendrochemistry and dendrogenomics to improve timber dating and provenancing</i>
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18:00	<i>Check-in accommodations</i>
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19:30	<i>Barbecue</i> (Garden Würzburger Str. 46, 01187 Dresden)
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21:30	Evening Lecture Andreas Gärtner (Saxon State Office of Criminal Investigations, Dresden) <i>Sherlock Stones – Insights into forensic soil science with a focus on dating</i> (Lecture hall, Würzburger Str. 46, 01187 Dresden)
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Friday, June 16th, 09:00 – 13:30

Time **Lecturer / Topic**

Session 3 (Chair: Stefan Stolte & Michael Zech)

09:00 **Florian Ritterbusch** (University of Science and Technology, Hefei, China)
Dating of groundwater, ocean water and glacier ice with ^{81}Kr , ^{85}Kr and ^{39}Ar

09:30 **Rolf Kipfer** (Eawag - Swiss Federal Institute of Aquatic Science and Technology, Zürich, Schweiz)
Real time on-site gas analysis - a ballad of (noble) gases, Arsenic, seismicity and trees

10:00 **Axel Suckow** (Commonwealth Scientific and Industrial Research Organisation CSIRO, Adelaide, Australia)
Groundwater Age: how multi-tracer studies and noble gas (isotope) data shed new light on an old concept

10:30 **Georg Houben** (Federal Institute for Geosciences and Natural Resources BGR, Hannover)
The importance of groundwater age for the search for a repository for nuclear waste in Germany
(and some Insights into the distribution of groundwater ages)

Poster Sessions with Short Presentations & Coffee Break

11:00 Overview to the COST Action 'WATER isotopes in the critical zONE: from groundwater recharge to plant transpiration - WATSON' (Natalie Orlowski)

11:45 **Detlev Degering** (VKTA Radiation Protection, Analytics, Waste Disposal Rossendorf e.V., Dresden)
Low-level radioactivity measurements as a tool for sensitive and precise dating

12:15 **Christoph Spötl** (Quaternary Research Group, University of Innsbruck, Austria)
Speleothems: Insights and applications of a key continental archive

12:45 **Michael Zech** (Heisenberg Chair of Physical Geography/ Paleoenvironmental Research, TU Dresden)
Brief digression on ^{18}O analysis of sugar biomarkers and their potential to serve as climate indicator
Conclusion of the Symposium

Fritz Haubold (13:30 – 19:00, max. 25 P.)
Field Trip to Saxon Switzerland

Detlev Degering (13:30 – 14:30, max. 15 P.)
Visit of the VKTA-Rock Laboratory ,Felsenkeller'