

JESIUM 2022

Joint Europe Stable Isotope
Users group Meeting



UNIVERSITY OF
EASTERN FINLAND

10–14 October 2022 | Kuopio, Finland



Conference Programme

Joint Europe Stable Isotope
Users group Meeting

JESIUM 2022

10–14 October 2022
Kuopio, Finland

Our Sponsors



ThermoFisher
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Greetings from the organisers

After 2 years delay due to the pandemic, the Joint European Stable Isotope Users group Meeting (JESIUM) is finally back in 2022! Now we can cordially welcome you at the University of Eastern Finland, Kuopio campus, and are glad that we were able to organise JESIUM 2022 as a hybrid meeting with face-to-face and virtual participation.

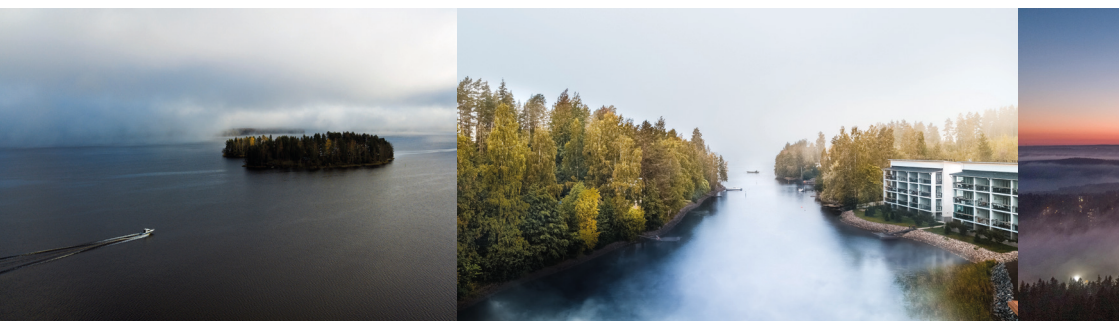
We are also grateful for the many interesting contributions submitted to the meeting to help grow this emerging field of science. The meeting represents a rich and diverse variety of topics, applications and methodologies of stable isotope research, with an interesting cross-section of the currently ongoing cutting-edge research.

Stable isotopes continue to be possibly one of the most important aspects of interpreting all kinds of biological, physical and chemical processes. Due to steady advances in analytical methods and instrumentations, our knowledge is rapidly increasing. Thus, stable isotopes can provide paradigm-shifting insights into diverse scientific disciplines and help us to address some of the most pressing environmental and health-related issues the world is facing nowadays, e.g. climate change, pollution, deforestation, ocean acidification and poorer health conditions. It is thus of utmost importance to meet and discuss, exchange know-how and experiences, and explore new ideas together. This will ultimately help to extend and develop new concepts to ultimately seek solutions for real-life problems.

We hope you will enjoy this meeting and trust that you will find this event to be of value. We look forward to meeting you all during the talks and poster sessions.

Christina Biasi

On behalf of the organising and scientific committee



Welcome from the university

Welcome to University of Eastern Finland (UEF), the most multidisciplinary of Finnish universities. Many of the scientific disciplines and applications relevant to JESIUM lie at the core of UEF's strategy, which is focused on four profile areas in research and education. The profile area 'Environmental change and sustainable use of natural resources' includes a wide range of topics related to climate change and human health, in which the methodologies and instrumentations used by the JESIUM community play a vital role. We are proud to have you here.

In addition to exiting science, I hope that especially our international guests have a chance to enjoy some of Finnish culture and the natural beauty of our lakes and fall colours. Also, don't forget to taste some of the most famous culinary wonders of Eastern Finland, such as kalakukko and karjalanpiirakka.

I wish you all a great conference week here in Kuopio, both scientifically and socially!

Kari Lehtinen

(Dean of the Faculty of Science and Forestry, University of Eastern Finland)



Jarmo Kittinen @jarmokuttinen

JESIUM2022 Scientific Committee

Christina Biasi (Finland)
Pascal Boeckx (Belgium)
Caroline Buchen-Tschiskale (Germany)
Federica Camin (Austria)
Jaleh Ghashghaie (France)
Thorsten Grams (Germany)
Ansgar Kahmen (Switzerland)
Kristiina Karhu (Finland)
Paul Königer (Germany)
Mikko Kuljunen (Finland)
Maria Lahtinen-Kaislaniemi (Finland)
Marja Maljanen (Finland)
Harro Meijer (Netherlands)
Loic Michel (Belgium)
Joachim Mohn (Switzerland)
Jukka Pumpanen (Finland)
Katja Rinne-Garmston (Finland)
Tobias Rütting (Sweden)
Dirk Sachse (Germany)
Marja Tiirola (Finland)
Katja van Nieuland (Belgium)
Marcel van der Meer (Netherlands)
Annikki Welling (Finland)

The organisers would like to thank UEF and its staff for their support of JESIUM.

More thanks go out to the team at F&U confirm for their dedication and invaluable experience in organising scientific conferences, and to Johanna Kerttula from UEF for taking over the demanding task of handling the registration system for us.

We also thank Iso-Kallan brewery in Kuopio for supporting our poster sessions with their liquid contributions.

Finally we would like to thank all the assistants on-site and online without whom JESIUM 2022 would not have been possible to realise:

Krishnapriya Thisagarasaiyar, Carlos Palacin Lizarbe, Niko Kinnunen, Wasi Hashmi, Taija Saarela, Jenie Gil Lugo, Dhiraj Paul, Tatiana Trubnikova, Hannu Nykänen, Huizhong Zhang, Dan Kou, Paula Martínez, Mirkka Rovamo, Lukas Kohl

Special Issue of JESIUM 2022

The Editors of *Isotopes in Environmental and Health Studies* and *Rapid Communications in Mass Spectrometry* invite all participants to publish their contributions to the Joint European Stable Isotope User Meeting JESIUM 2022, Kuopio, Finland, in a Special Issue of the JESIUM 2022.

The contribution to the Special Issue JESIUM 2022 should

- Present novel scientific investigations & results
- Contribute to the application of stable isotopes in the fields of Ecology, Biogeochemistry, Physiology, Hydrology, Archaeology, Nutrition, Forensics, Atmospheric Sciences, Geochemistry, Medicine & Methodology

More details and links on our website <https://www.jesium2022-kuopio.org>



The place

University of East Finland, Kuopio campus

Tietoteknia building, Savilahdentie 6, 70210 Kuopio, Finland



The Conference dinner

Tuesday at 18:45 at the Saana restaurant right at the lake (Siikaranta 12, 70620 Kuopio).





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The place

Some nearby restaurants

University restaurant at Tietoteknia building (Food & Co Tietoteknia)
at the venue

University restaurant at Snellmania building (Food & Co. Snellmania)
Yliopistonranta 1 E, 500 m

University restaurants at Technopolis building complex:

Ravintola Hyvä Huomen Bioteknia
Neulaniementie 2, 350 m

Antell Round
Microkatu 1, 700 m

Tastory Ravintola Origo
Microkatu 1, 650 m

Restaurants at Prisma Kuopio shopping centre

Hesburger / Pizzabuffa
Savilahdentie 10, 650 m

Antell Highway
Viestikatu 7, 500 m

Pharmacy

Prisma Kuopio shopping centre (Niiralan Apteekki / Niiralan pharmacy)



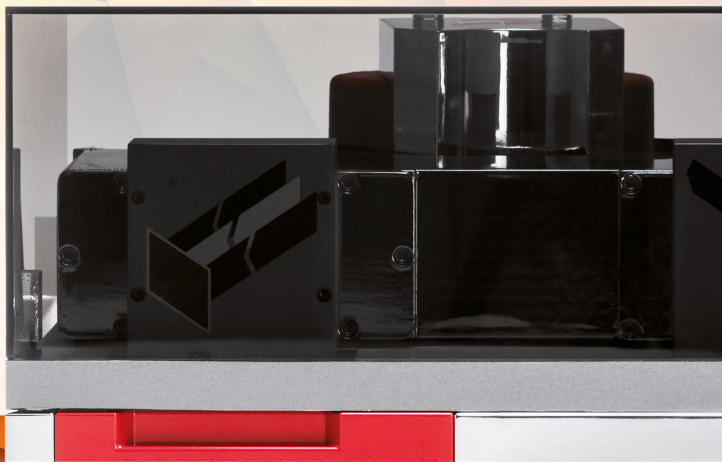
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Programme (scheme)

Monday 10 Oct	Opening (Auditorium)	Session 1: Methodological Advances (Auditorium)	Session 2: Terrestrial & Aquatic Biogeo- chemistry (Auditorium)	Session 5: Health & Medical Sciences (Auditorium)	Poster session (Rooms 1036 & 1038)
Tuesday 11 Oct		Session 11: Molecular & Intramolecular Biology (Auditorium)	Session 4: Paleoclimatol- ogy & Archae- ology (Auditorium)	Session 6: Food Authenticity, Nutrition, Forensic (Auditorium)	Sponsor session (Auditorium)
		Stellar M27 Meeting* (Room 1035)			
Wednes- day 12 Oct		Sponsor ses- sion (ctd.) (Auditorium)	Session 7: Atmospheric Sciences (Auditorium)	Side events	
				Thermo Fisher Scientific Isotope Hunters Evening, beer and bites at Hophaus Kuopio*	
				ASI members meeting* (online)	
Thursday 13 Oct		Session 3: Plant Ecophysiology (Auditorium)	Session 9: Isoscape, Spatial Variability of Stable Isotopes (Auditorium)	Session 10: Geochemistry and Hydrology (Auditorium)	Poster session (Rooms 1036 & 1038)
			Learn&Lunch – JESIUM 2022 by Thermo Fisher* (Auditorium)		
Friday 14 Oct		Session 10: Geochemistry and Hydrology (Auditorium)	Session 8: Soil Carbon and Ni- trogen Cycling (Auditorium)	Wrap up (Auditorium)	

* Details in Parallel programme items.

Latest programme updates
on our page:
(www.jesium2022-kuopio.org)





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Environmental
Science



Material Science



Planetary Science



Life
Science

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Programme (Monday, 10 October)

08:00–08:30 Opening

Session 1: Methodological Advances (chairs: Harro Meijer & Pascal Boeckx)

08:30–09:00

Senior keynote: *Thomas Röckmann*: Possibilities, experiences and applications: the Thermo 253 ultra

09:00–09:15

Christian Ostertag-Henning: Raman spectroscopy as a tool to quantify the (relative) abundances of isotopologues of CO₂, experiences and applications: the Thermo 253 ultra

09:15–09:30

Chris Rennick: Calibration of a preconcentrator and laser spectrometer for $\delta^{13}\text{C}(\text{CH}_4)$ and $\delta\text{D}(\text{CH}_4)$ measurement in ambient air

09:30–09:45

Anita Aerts-Bijma: Where do IRMS's go wrong? $\delta^{18}\text{O}$ SLAP determined at -56.3 ‰

09:45–10:15 Break

10:15–10:45

Junior keynote: *Lukas Flierl*: Absolute Isotope Ratios

10:45–11:00

Caroline Gauchotte-Lindsay: RGC-based concentration, pyrolysis and trapping prep-system for position specific stable isotope analysis

11:00–11:15

David Dettman: Tunable infra-red laser differential absorption spectroscopy (TILDAS) measurement of multiple clumped isotope ratios in carbonates: progress and new horizons

11:15–11:30

Xuefei Li: Belowground Methane Turnover at a Boreal Peatland: Quantifying the Processes with in-situ Stable Isotope Methods

Session 2: Terrestrial & Aquatic Biogeochemistry
(chairs: Christina Biasi & Tobias Rütting)

11:30–12:00

Senior keynote: *Naomi S Wells*: Decoding the sources (and sinks) of N_2O in aquatic ecosystems

12:00–12:15

Joachim Mohn: Tracing N_2O formation in full-scale wastewater treatment with natural abundance isotopes

12:15–12:30

Kirstin Dähnke: Nitrogen isotopes reveal a particulate-matter driven biogeochemical reactor in a temperate estuary

12:30–13:45

Lunch

13:45–14:00

Michaela Dippold: Belowground C allocation of tropical rainforests in response to drought: an ecosystem $^{13}\text{CO}_2$ labeling experiment

14:00–14:30

Junior keynote: *Isabell Klawonn*: Tracing carbon and nitrogen cycling pathways within microbial plankton communities: from single-cell to mesoscale processes

14:30–14:45

Tuula Larmola: Mosses as biofilters for ditch methane emissions from forestry drained peatlands

14:45–15:00

Travis Meador: Stable Hydrogen and Oxygen Isotope Ratios of Dissolved Organic Matter in Inland Waters

15:00–15:15

Xiao Liu: Characterizing the transformation of hexachlorocyclohexane in soil-plant systems from lab to field scale using multi-element compound specific isotope analysis

15:15–15:30

Dominika Lewicka-Szczebak: Combining isotope mixing and fractionation with a new modelling tool applying the Monte Carlo approach

15:30–16:00 Short break

Session 5: Health & Medical Sciences
(chair: Douglas Morrison)

16:00–16:30

Keynote: *Douglas Morrison & Caj Neubauer*: New opportunities for isotopocules in biomedical research

16:30–16:45

Ricardo Fernandes: Tracking nutrient metabolic pathways and detecting protein malnutrition using isotopic tracers

16:45–17:00

Thomas Piper: Development of mass spectrometry-based methods for the detection of 11-ketotestosterone, a novel doping agent

17:00–17:15

Harro A.J. Meijer: First Use of Triply Labelled Water analysis for energy expenditure measurements in mice

17:15–17:30

Noreen Tuross: Changes in the Nitrogen Isotope Composition of Serum Amino Acids in a Longterm Feeding Trial

17:30–19:00 Poster session 1

Room 1036

Session 2: Terrestrial and Aquatic Biochemistry

Session 6: Food Authenticity, Nutrition, Forensic

Room 1038

Session 1: Methodological Advances

Session 5: Health and Medical Sciences

Session 11: Molecular and Intra-Molecular Biology

Session 4: Paleoclimatology & Archaeology

JESIUM 2022
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Programme (Tuesday, 11 October)

9:00–18:00: STELLAR M27 meeting*

Session 11: Molecular & Intramolecular Biology (chairs: Marja Tirola & David Berry)

08:30–09:00

Senior keynote: *Nico Jehmlich*: Tracing incorporation the metabolic activity in microbiomes using protein-based stable isotope probing (protein-SIP)

09:00–09:15

Anca Amariei: Position-Specific Isotope Analysis in Hopanoid Lipids

09:15–09:30

Henri Siljanen: Methanotrophy by putative monooxygenase in boreal spruce phyllosphere

09:30–10:00

Junior keynote: *Fatima Pereira*: Raman-stable isotope probing (SIP) approaches to study microbiome function at the single-cell level

10:00–10:30 Break

Session 4: Paleoclimatology & Archaeology (chairs: Marcel van der Meer & Maria Lahtinen-Kaislaniemi)

10:30–11:00

Senior keynote: *Kerstin Lidén*: How strontium isotopes have been to used and abused in archaeology

11:00–11:15

Carlo Coccozza: Bayesian uncertainty estimates for Atomic C:N Ratios in Archaeological Collagen

11:15–11:30

Samuel Bodé: Unravelling dietary aspects of Late Mesolithic to Early/Middle Neolithic cultures in the Scheldt river valley, Belgium, by compound-specific ^{13}C analysis

* Details in Parallel programme items.

Programme (Tuesday, 11 October)

11:30–11:45

Markus Fjellström: Historic reindeer mobility in northern Sweden – a study of diet, mobility, and climatic changes by multiple stable isotope analysis

11:45–12:15

Junior keynote: *Julie Lattaud*: Changes in snow meltwater uptake by plants in the Mackenzie River Delta? Insight from compound-specific isotopes.

12:15–12:30

Raminta Skipityte: Stable isotopes tell the dietary history of the last two millennia Lithuanian inhabitants

12:30–13:45 Lunch

13:45–14:00

Sean Hixon: Environmental and Anthropogenic Effects on Plant Amino Acid Nitrogen Isotope Values

14:00–14:15

Kerstin Treydte: European summer vapor pressure deficit of the last 400 years reconstructed from a tree-ring oxygen isotope network

Session 6: Food Authenticity, Nutrition, Forensic (chairs: Federica Camin & Annikki Welling)

14:15–14:45

Keynote: *Matteo Perini*: Stable isotope analysis for the authenticity and traceability of food products, supplements and drugs

14:45–15:00

Micha Horacek: Species identification of ivory by stable isotope investigations

15:00–15:15

Kurt Krammer: Stable isotope investigations to control of declared geographic origin of Austrian and Slovak apricots, and apricots from other countries

15:15–15:30

Silvia Pianezza: Characterisation of beef coming from different European countries through stable isotope (H, C, N, S and Sr) ratio analysis

15:30–16:00 Break

Sponsor session
(chairs: Lukas Kohl & Jukka Pumpanen)

16:00–16:15

Meike Fischer, Thermo Fisher Scientific: Workflow advancements in high precision $\delta^{18}\text{O}$ analysis of water by means of low-T $\text{CO}_2\text{-H}_2\text{O}$ equilibration

16:15–16:30

Calum Preece, Elementar UK Ltd.: Analysis of dissolved nitrate stable isotopes using the one-step Ti (III) reduction method and iso FLOW GHG headspace analyzer

16:30–16:45

David Dettman, University of Arizona & *David Nelson*, Aerodyne Research, Inc.: Tunable infra-red laser differential absorption spectroscopy (TILDAS) measurement of multiple clumped isotope ratios in carbonates: progress and new horizons

16:45–17:00

Magdalena E. G. Hofmann, Picarro B.V. Improved throughput for $\delta^{18}\text{O}$ and δD measurements of water with Cavity Ring-Down Spectroscopy

from 19:00 Conference dinner



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- Consumables
- Isotopically Labelled Compounds
- ^{18}O Enriched Water
- Support

Programme (Wednesday, 12 October)

Sponsor session (chairs: Lukas Kohl & Jukka Pumpanen)

08:30–08:45

Joanne Shorter, Aerodyne Research, Inc: Integration of Laser Spectrometers with Diffusive In Situ Probes for Real Time Monitoring of Isotopes and Isotopologues of Soil Gases

08:45–09:00

Nina Albrecht, Thermo Fisher Scientific: The analysis of clumped isotopes in various gas species and fresh insights into petroleum and atmospheric research

Session 7: Atmospheric Sciences (chairs: Joachim Mohn & Caroline Buchen-Tschiskale)

09:00–09:30

Senior keynote: *Jan Kaiser*: Polyisotopocules for atmospheric chemistry

9:30–9:45

Sara M Defratyka: Verification of method used to determine $\delta^{13}\text{CH}_4$ during mobile vehicle-based methane measurements

9:45–10:00

Tim Arnold: Measuring and modelling four isotopologue ratios of methane in the atmosphere

10:00–10:45 Break

10:45–11:15

Junior keynote: *Wendell W. Walters*: Evaluating the Atmospheric Dynamics of Nitrate in New England in Response to Emission Regulations: Utilizing Novel Isotope Observations

11:15–11:30

Sarah Albertin: Diurnal variations in N and O isotopes of atmospheric nitrogen dioxide and nitrate

Programme (Wednesday, 12 October)

11:30–11:45

Agne Masalaite, FTMC: Isotopic ratios of aerosols for air pollution observation and its assessment as source indicators

11:45–12:00

Axel Horst: Stable chlorine isotopic composition of CH_3Cl and CFC-12 in tropospheric air samples

12:00–12:15

Sanjeev Dasari: A potential proxy for tracing ozone layer depletion events–sulfur isotope anomalies ($\Delta^{33}\text{S}$) in polar ice cores

12:15–13:15

Lunch

Afternoon:

Side events

17:30–20:30:

ASI members online meeting*

18:30–21:00:

Thermo Fisher Scientific Isotope Hunters Evening*

Programme (Thursday, 13 October)

Session 3: Plant Ecophysiology (chairs: Jaleh Ghashghaie & Thorsten Grams)

8:30–9:00

Senior keynote: *Lisa Wingate*: Using stable isotopes to probe the carbon and water cycle

9:00–9:15

Angelika Kübert: Tracing carbon, water and VOC fluxes through soil-plant-atmosphere by ecosystem $^{13}\text{CO}_2$ and $^2\text{H}_2\text{O}$ Pulse-Labeling during drought and recovery

9:15–9:30

Ansgar Kahmen: Accounting for the metabolic component in the hydrogen isotopic composition of plant carbohydrates

9:30–9:45

Katja Rinne-Garmston: Interpretation of intra-annual tree-ring $\delta^{13}\text{C}$ profiles of control, droughted and re-watered Scots pines

9:45–10:00

Yang Xia: Impact of varying $\text{NH}_4^+:\text{NO}_3^-$ on C-isotope composition of leaf- and root-respired CO_2 and putative respiratory substrates in *Phaseolus vulgaris* L.)

10:00–10:30

Junior keynote: *Philipp Gieseemann*: Green plants are not as green as they seem to be. Are half of the plant kingdom potentially cheating on their fungal partners?

10:30–10:45

Break

10:45–11:00

John Marshall: Monitoring passage of a point-based label of ^2HHO through the soils and stems of a boreal pine forest

11:00–11:15

Olli-Pekka Tikkasalo: Interpreting tree ring carbon and oxygen isotopes as a response to selection harvest in a drained peatland forest

Programme (Thursday, 13 October)

11:15–11:30

Kyohsuke Hikino: Carbon transport and allocation of mature Norway spruce during recovery from five years of repeated summer drought

11:30–11:45

Jeffrey Welker: Geometrid moth outbreaks alter understory plant nutrient and carbon dynamics in northern Finland's mountain birch forest.

Session 9: Isoscape, Spatial Variability of Stable Isotopes (Migration, Food Webs) (chairs: Loïc Michel & Mikko Kiljunen)

11:45–12:15

Senior keynote: *Clive Trueman*: Exploiting biogeochemical and physiological isotope systematics to address ecological questions

12:15–12:30

Esther Cepeda Gamella: Towards fouling fauna fingerprinting: what is their contribution to the marine organic matter pool of an offshore wind farms?

12:30–13:45 Lunch

13:00–13:30: Learn&Lunch – JESIUM 2022*

13:45–14:00

Clément Massé: Long- and short-term dietary shifts in a generalist predator, the wolverine (*Gulo gulo*) over a century of change

14:00–14:15

Tamara Ann Hiltunen: Stable isotopes provide a window into the diets of Eurasian reindeer at different temporal and spatial scales

14:15–14:45

Junior keynote: *Doreen Kohlbach*: Using stable isotope approaches to distinguish carbon sources in marine food webs

14:45–15:00

Amanda Ziegler: Seasonal and spatial variability of pelagic-benthic coupling strength in the Northern Barents Sea: A benthic food web approach

15:00–15:15

Philip Riekenberg: Reconstructing the diet, trophic level and migration pattern of mysticete whales based on baleen isotopic composition

15:15–15:30

Andrea Walters: Body size and depth drive trophic functioning: a case study of the English Channel-Celtic Sea continuum

15:30–15:45

Antti Eloranta: The variable food webs in cold-water lakes

15:45–16:15 Break

Session 10: Geochemistry and Hydrology (chairs: Dirk Sachse & Ansgar Kahmen)

16:15–16:45

Senior keynote: *Matthias Sprenger*: title to be announced

16:45–17:00

Daniel Nelson: Using machine learning to generate historic European monthly precipitation isotope time series from the 20th century to present day

17:00–17:15

Theis Winter: New insights into the paleoclimate and recharge history of the Upper Jurassic aquifer using noble gas infiltration temperatures and ¹⁴CDOC.

17:30–19:00 Poster session 2

Room 1036

Session 3: Plant Ecophysiology


Session 9: Isoscape, Spatial Variability of Stable Isotopes (Migration, Food Webs)

Room 1038

Session 7: Atmospheric Sciences (Pollution, Climate Change, Cosmogenochemistry)

Session 8: Soil Carbon and Nitrogen Cycling, with Focus on Agricultural Soils

Session 10: Geochemistry and Hydrology

A background image of laboratory glassware, including a large beaker on the left and several smaller beakers and a pipette on the right. The image is in grayscale, with an orange graphic overlay on the left side.

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A stylized orange graphic overlay consisting of several parallel, wavy lines that create a sense of movement or a liquid flow, positioned over the laboratory glassware.

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Programme (Friday, 14 October)

Session 10 ctd: Geochemistry and Hydrology (chairs: Dirk Sachse & Ansgar Kahmen)

8:30–9:00

Junior keynote: *S. Nemiah Ladd*: Resolving hydroclimate signals from ecological shifts using H isotopes of concurrent lipid biomarkers

9:00–9:15

Evan James Wilcox: Exploring the influence of lake and watershed properties on lake water balances with water isotopes in the Canadian Arctic

9:15–9:30

Christin Müller: High frequency isotope monitoring for assessing hydrological extremes in the mesoscale Bode river catchment, Germany

9:30–9:45

Haiyan Yu: Multi-element Compound-Specific Stable Isotope Analysis (^2H , ^{13}C , $^{33/34}\text{S}$) to characterize the mechanism of sulfate and hydroxyl radical reactions with benzothiazole

9:45–10:00

Paul Koeniger: Stable isotope studies (d^2H , d^{18}O) of soil water movement in spruce and beech ecosystems at Solling, Germany

Session 8: Soil Carbon and Nitrogen Cycling (chairs: Kristiina Karhu & Marja Maljanen)

10:00–10:30

Senior keynote: *Christopher Poeplau*: Five years of experience with the ^{18}O Carbon Use Efficiency for understanding microbial physiology as a key driver of soil carbon cycling

10:30–11:00 Break

11:00–11:15

Pauline Sophie Rummel: Increased C and N turnover after litter addition alters contribution of nitrification and denitrification to NO and N_2O formation

Programme (Friday, 14 October)

11:15–11:30

Rob Roscioli: Real-time mapping of subsurface nitrous oxide isotopes and other trace gases from diffusive gas probes under a cattle grazing pasture

11:30–12:00

Junior keynote: *HemRaj Bhattarai*: Stable isotope approaches to identify HONO production mechanisms from soils

12:00–12:15

Caroline Buchen-Tschiskale: Tracing nitrogen transformations induced by ^{15}N labelled cattle slurry applied with different techniques in winter wheat

12:15–12:30

Shasha Zhang: Continental-scale effects on the natural ^{15}N abundance of plants and soils and isotope fractionation

12:30–12:45

Marie Spohn: Nitrogen but not phosphorus addition affects symbiotic N_2 fixation by legumes in natural and semi-natural grasslands located on four continents

12:45–13:00

Angela Martin-Vivanco: Direct effects of temperature on the balance between priming and entombing effects under controlled conditions

13:00–14:00

Lunch

14:00–15:00

Wrap up of JESIUM 2022

End of the Jesium 2022

Parallel programme items

Tuesday

STELLAR M27 meeting

9:00–18:00 Room 1035

Wednesday

ASI members online meeting

17:30–20:30 online

ASI members online meeting

(Invitations are sent directly to ASI members.)

Thermo Fisher Scientific Isotope Hunters Evening

18:30–21:00 Hophaus Kuopio

Thermo Fisher Scientific Isotope Hunters Evening, beer and bites at Hophaus Kuopio

(Tickets available at Thermo Fisher Scientific booth.)

Thursday

Thermo Fisher Scientific: Learn&Lunch – JESIUM 2022

13:00–13:30 Auditorium

Issaku E. Kohl, Nils Kuhlbusch: A world of possibilities. New dimensions in isotope ratio analysis.

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Poster list Monday session

17:30–19:00 Room 1036

Session 2: Terrestrial and Aquatic Biochemistry

A new tool to investigate the implication of the “mixoplankton” paradigm
Marc-Andre Cormier, University of Oxford

Spatial and temporal variation of ^{13}C signature of methane emitted from a temperate mire
Janne Rinne, Natural Resources Institute Finland / Lund University

Molecular tracers for characterization and distribution of organic matter in a freshwater lake system from lesser Himalaya
Diptimayee Behera, IISER Mohali

Violation of Keeling plot assumptions in peatland static chamber $\delta^{13}\text{CCH}_4$ measurements
Lukas Kohl, University of Helsinki

Stable isotopes quantify organic matter turnover into dissolved inorganic carbon in a drinking water reservoir
Marlene Dordoni, Friedrich-Alexander Universität Erlangen-Nürnberg

^{15}N and ^{13}C content of the newly discovered waxcap *Neohygrocye pseudoingrata*
Roland Bol, Forschungszentrum Jülich, Germany

A decade of measuring nitrate stable isotopes along the Elbe estuary
Gesa Schulz, Helmholtz Center Hereon

Effects of water table and glucose addition to dissolved organic carbon in drained boreal peatland
Niko Kinnunen, University of Eastern Finland

Winter nitrogen cycling in sediments of boreal lakes affected by browning and mining
Anssi Vainikka, University of Eastern Finland

Application of stable isotope dilution to identify novel proxies of sediment reactivity
Fabrizio Minutolo, Helmholtz - Zentrum Hereon

Poster list Monday session

How does wildfire and post-fire management affect the nitrogen soil cycle in a Swedish boreal forest?

Louise Andresen, Göteborgs Universitet

Transport and turnover of reactive nitrogen in the Lena River Delta

Tina Sanders, Helmholtz-Zentrum Hereon, Institute for Carbon Cycles, Geesthacht, Germany

Nitrification rates and their driving microbial communities along the Elbe estuary

Vanessa Russnak, Helmholtz-Zentrum hereon; *Kirstin Dähnke*, Helmholtz-Zentrum hereon

Spatial variation in the stable $^{13}\text{C}/^{12}\text{C}$ ratio in methane within decommissioned municipal waste landfills

Christian Schöpke, Institute for Energy Technology

Primary production determined by ^{13}C -labelling is a viable alternative to radiocarbon

Alexander H. Frank, Leibniz Institute for Freshwater Ecology and Inland Fisheries; University of Bayreuth

Session 6: Food Authenticity, Nutrition, Forensic

Wild or captive bred? Stable isotope analysis of shed skins of green tree pythons as forensic evidence for prohibited trade

Jitka Kufnerova, Institute for Environmental Studies, Charles University

Applications of the stable isotope ratio method to identify the raw materials for explosives

Andrius Garbaras, General Jonas Zemaitis Lithuanian Military Academy

Combining optical spectroscopy and IRMS for the measurement of $\delta^{18}\text{O}$ and $\delta^2\text{H}$ of water and ethanol directly in wine

Harro A.J. Meijer, Centre for Isotope Research (CIO), University of Groningen

Legal or illegal pet tortoises? Stable isotope analysis can provide an answer

Jitka Kufnerova, Institute for Environmental Studies, Faculty of Science, Charles University, Ben

Tracing geographical origin of Argan oil using carbon and oxygen isotope fingerprints

Fouad Taous, Centre National de l'Energie des Sciences et des Techniques Nucléaires

Italian garlic (*Allium sativum* L.) characterization through gas chromatography-isotope ratio mass spectrometry and headspace gas chromatography-mass spectrometry volatile profile

Matteo Perini, Fondazione Edmund Mach, San Michele all'Adige (TN), Italy

Stable isotope reference database of Finnish strawberries

Annikki Welling, Finnish Food Authority

Strontium isotopes in identification of food forgeries in Finland

Jenniina Siira, Finnish Food Authority/University of Helsinki, Department of Geosciences;

Maria Lahtinen, Finnish Food Authority/University of Helsinki, Laboratory of Chronology

Traceability of protein hydrolysed fertilizers authorised in organic production

José Manuel Muñoz-Redondo, Andalusian Institute of Agricultural and Fisheries Research and Training (IFAPA)

Authentication of Spanish avocado (*Persea americana* Mill) through multi-element and stable isotopes: a data fusion approach

José Manuel Muñoz-Redondo, Andalusian Institute of Agricultural and Fisheries Research and Training (IFAPA)

Traceability of commercial Spanish mango (*Mangifera indica* L.) using stables isotopes, mineral content and chemometrics

José Manuel Muñoz-Redondo, Andalusian Institute of Agricultural and Fisheries Research and Training (IFAPA)

Verifying the Origin of Slovenian Fruit and Vegetables Based on Isotopic and Elemental Profiles Using a One-Class Chemometric Model

Bor Krajnc, Jozef Stefan Institute

17:30–19:00

Room 1038

Session 1: Methodological Advances

A new high-resolution sampling methodology for monitoring hyporheic zone geochemistry

Tamara Michaelis, Chair of Hydrogeology, School of Engineering and Design, TU Munich

Poster list Monday session

Qtegra ISDS Software – Driving Isotope Analysis

Nina Albrecht, Thermo Fisher Scientific

High resolution spatial analysis of carbon isotope composition by laser ablation IRMS using an automated system

Elina Sahlstedt, Natural Resources Institute Finland

Grip on drifting oxygen isotopes in glass sample flasks

Pharahilda Steur, University of Groningen

A dilution method for obtaining dry ambient 'air' samples from pure CO₂ for stable isotope analysis using laser absorption spectroscopy

Pharahilda Steur, University of Groningen

Mobile, discrete vapor sampling for in-situ measurements of matrix-bound water stable isotopes

Barbara Herbstritt, Chair of Hydrology, Albert Ludwigs University, Freiburg, Germany

Coping with spectral interferences when measuring vegetables' water (vapor) isotopic composition

Natalie Orlowski, University of Freiburg, Chair of Hydrology

High precision CO₂- δ¹³C analysis of 1-mL air samples: from vial preparation and storage, to GasBench continuous flow IRMS analysis

Joana Sauze, CNRS Ecotron

The effects of freezing and thawing to a stable isotopic composition of different elements in an organic sample

Simo Jokinen, Finnish Food Authority

Practical measurements of water stable isotopes in tree stems and soils using conservative water vapor storage

Ruth-Kristina Magh, Swedish University of Agricultural Sciences, Forest Ecology Management, Sweden

Improved metrologically compatible calibration approaches for CO₂ stable isotope ratio measurements using optical isotope ratio spectroscopy (OIRS)

Anas Emad, PTB

Modified GasBench and GC-Isolink peripherals to determine stable isotope ratios of nitrate and trace quantities of methane

Ljubov Polakova, Biology Centre Czech Academy of Sciences

Isotope delta scales

Federica Camin, IAEA

Discontinuity in the realization of the VPDB carbon isotope ratio scale

Jean-Francois Helie, Geotop-UQAM

Comprehensive Isotope Ratio MS with Electrospray-Orbitrap

Nils Kuhlbusch, Thermo Fisher Scientific

Session 5: Health and Medical Sciences

Stable isotope labeling, measurement accuracy, and challenges to unravel food web structure of slow sand filters in drinking water production

Salima Sadeghi, Utrecht University, Department of Earth Sciences, Faculty of Geosciences

Session 11: Molecular and Intra-Molecular Biology

NitroBiome -project: Microbial mechanisms regulating N_2O metabolism in above-ground vegetation - significant northern N_2O sink?

Henri Siljanen, University of Eastern Finland, Kuopio, Finland

Session 4: Paleoclimatology & Archaeology

Terrestrial and Aquatic Snails from the Sultanate of Oman: Combined, an Excellent Climate Archive of the Early Bronze Age?

Katharina Schmitt, Johannes Gutenberg-Universität Mainz

A Bayesian high-resolution osteo-biography of an unknown individual from Early Medieval Sorrento

Carlo Coccozza, LMU Munich; MPI-SHH Jena; Università di Caserta

Tracking the global human dietary history under the IsoMemo initiative

Ricardo Fernandes, Max Planck Institute for the Science of Human History

This image shows a single sheet of white paper with horizontal blue ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Poster list Thursday session

17:30–19:00 Room 1036

Session 3: Plant Ecophysiology

Ecological implications of leaf water deuterium enrichment

Charlotte Angove, Natural Resources Institute Finland

The underappreciated value of hydrogen isotopes in elucidating heterotrophic carbon gains by plants

Gerhard Gebauer, BayCEER - Laboratory of Isotope Biogeochemistry, University of Bayreuth

Tracing plant water source dynamics by continuous in-situ isotope measurements of transpiration

Angelika Kübert, INAR, Univ. of Helsinki, Finland; Ecosystem Physiology, Univ. of Freiburg, Germany

Information hidden in tiny root fungi: Assessing stable isotope signatures of fungal pelotons of three *Epipactis* orchid species

Franziska E. Zahn, BayCEER – Laboratory of Isotope Biogeochemistry, University of Bayreuth, Germany

Continuous observations and gap filling strategies of evapotranspiration and its isotopic signature using a gantry crane

Dubbert Maren, ZALF

Late-season biosynthesis of leaf fatty acids and n-alkanes of a mature beech tree traced via $^{13}\text{CO}_2$ pulse-chase labelling

Tatjana Carina Speckert, Department of Geography, University of Zurich

Fast recovery of suppressed Norway spruce trees after selection harvest on a drained peatland forest site

Aleksi Lehtonen, Natural Resources Institute Finland

Tracing carbon allocation and associated changes in $\delta^{13}\text{C}$ from leaf photosynthates to mycorrhizal fungi

Lan Mo, Natural Resources Institute Finland (Luke)

Linking climate change induced drought stress and bark beetle susceptibility in Austrian forests with stable isotope methods (^{13}C , ^{18}O)

Katharina Schott, University of Natural Resources and Life Sciences

Poster list Thursday session

Carbon allocation to banana suckers under optimal and drought conditions – evidence from a $^{13}\text{CO}_2$ pulse-labeling experiment

Mathilde Vantghem, IAEA, KU Leuven, BOKU

Using carbon and oxygen isotopes in herbarium specimen to infer long-term physiological response of plants to global environmental change

Ansgar Kahmen, University of Basel

Drought effect on tree-ring $\delta^{13}\text{C}$ of sessile oak from Thayatal national park

Kathiravan Meeran, Institute of Soil Research, Universität für Bodenkultur Wien

Characteristics of water isotopes translocation and fractionation in soil-plant system

Diana Costinel, National R&D Institute for Cryogenics and Isotopic Technologies ICSI Valcea

Session 9: Isoscape, Spatial Variability of Stable Isotopes (Migration, Food Webs)

Unraveling the land-to-reef continuum: Stable isotope signatures of benthic reef communities along the coast of Curaçao

Nienke C.J. van de Loosdrecht, University of Amsterdam

Tracing carbon allocation and associated changes in d^{13}C from leaf photosynthates to mycorrhizal fungi

Lan Mo, Natural Resources Institute Finland

Effects of dam removal on riverine food web structure, River Hiitolanjoki example

Riku Rinnevali, Luonnonvarakeskus

Food web structure and trophic interactions at the recently discovered deep-sea La Scala hydrothermal vent field (SW Pacific)

Loïc N. Michel, Ifremer Brittany, France

How variable are Sr isotope ratios in soil associations? — Implications for extrapolating isoscapes

Carol-Ann Craig, The James Hutton Institute, Aberdeen, UK

Isotopic turnover in Polar cod (*Boreogadus saida*) muscle determined through a controlled feeding experiment

Amanda Ziegler, University of Tromsø

The effect of increased DOC concentration on food sources and life history of *Daphnia* – insights from compound-specific stable isotopes

Minna Hiltunen, University of Jyväskylä

Lipid-normalization of hydrogen stable isotope ratios of tissues from aquatic organisms

Mikko Kiljunen, University of Jyväskylä

17:30–19:00

Room 1038

Session 7: Atmospheric Sciences (Pollution, Climate Change, Cosmogeochimistry)

Producing stable Isotope Reference Gas Mixtures of CO₂ in air for Global Atmospheric Monitoring

Adnan Şimşek, TUBITAK National Metrology Institute

Ammonium stable isotopes in Ice Core: volatile versus thermic emissions in Europe

Alexis Lamothe, Univ. Grenoble Alpes, CNRS, IRD, INP-G, IGE (UMR 5001), Grenoble, France

Real-time analysis of $\delta^{13}\text{C}$ and $\delta\text{D-CH}_4$ in ambient air with a QCL based absorption spectrometer: Method development

Kerstin Zeyer, Empa

Diel and seasonal variation in the carbon isotope composition of atmospheric CO₂ in Vienna

Kathiravan Meeran, Institute of Soil Research, Universität für Bodenkultur Wien

Characterization of urban aerosol pollution sources by sulfur and carbon isotope analysis

Laurynas Bučinskas, Center for Physical sciences and Technology

Boreas: A new instrument for in-situ measurements of $\delta^{13}\text{C}(\text{CH}_4)$ and $\delta^2\text{H}(\text{CH}_4)$

Tim Arnold, National Physical Laboratory and Edinburgh University

Research Gate Discussion Group: Isotopic tools to study N₂O in soil and aquatic systems

Caroline Buchen-Tschiskale, Climate-Smart Agriculture, Thünen Institute, Braunschweig, Germany

Session 8: Soil Carbon and Nitrogen Cycling, with Focus on Agricultural Soils

Temperature sensitivity of mineral-associated soil organic carbon is not related to its age

Kristiina Karhu, University of Helsinki

New technique reveals low gross nitrification rates and high variability in field applications

C. Florian Stange, BGR

Impact of plant diversity on microbial community and carbon use efficiency in boreal agricultural soil

Rashmi Shrestha, University of Helsinki

Cover crop C inputs; isotope insights from a long-term field trial.

Rebecca Hood-Nowotny, Institute of Soil Research, Department of Forest- and Soil Sciences, University

EJP Soil Project MaxRoot-C Optimizing roots for sustainable crop production in Europe—pure cultures and cover crops.

Rebecca Hood-Nowotny, Institute of Soil Research, University of Natural Resources and Life Sciences Vi

Trans-European decomposition index study in arable soils with different crop species diversity using ^{13}C -labelled litter

Ansa Palojarvi, Natural Resources Institute Finland (LUKE)

Rhizosphere priming: Phonology controls through exudate quality and quantity

Ezekiel Bore, University of Helsinki

^{13}C PLFA/FA fingerprinting to assess taxonomic and functional development of the soil microbial community and mesofauna after heavy metal remediation

Christoph Noller, University of Natural Resources and Life Sciences, Vienna, Austria

Impact of EDTA soil washing on microbial life and ecosystem functions — a stable isotope labelling approach

Corinna Eichinger, Institute of Soil Research, Department of Forest- and Soil Sciences, University

Studying the decomposition and priming effect of two forestry-drained peatland soils with different nutrient status

Maiju Linkosalmi, Finnish Meteorological Institute

How passive warming changes mineral soil microbial communities and stabilization of microbial residues to soil?

Outi-Maaria Sietiö, Department of Forest Sciences, University of Helsinki, Finland

Session 10: Geochemistry and Hydrology

Development of physical-biological filters for groundwater remediation of tetrachloroethene and naphthalene

Simon Leitner, University of Natural Resources and Life Sciences, Vienna

Analysis of radiocarbon distribution in the eutrophic lake fish assemblage using stable C, N, S isotopes

Vytautas Rakauskas, State Research Institute Nature Research Centre, Lithuania;

Žilvinas Ežerinskis, State Research Institute Center for Physical Sciences and Technology, Lithuania;

Justina Šapolaityė, State research institute Center for Physical Sciences and Technology, Lithuania

Combined isotopic (C-Cl) and molecular approach for the assessment of EVO biostimulation treatment of an aquifer polluted with chlorinated ethenes

Sergio Gil-Villalba, Grup MAiMA, Facultat de Ciències de la Terra, Universitat de Barcelona (UB)

Event-based stable isotope data of precipitation from the high-altitude Sonnblick Observatory (Hohe Tauern, Austria)

Julia Wenske, Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU)

Stable Isotopes Outline Groundwater Issues in Southern Morocco (NW Africa)

Yassine Ait Brahim, Mohammed VI Polytechnic University

Using stable isotopes of dissolved sulphates and nitrates to determine contamination sources in two characteristics water systems of southern Spain

José Manuel Muñoz-Redondo, Andalusian Institute of Agricultural and Fisheries Research and Training (IFAPA)

Imprint

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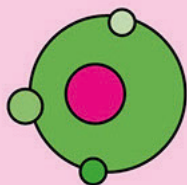
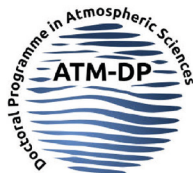
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