



Joint European Stable Isotope User Meeting 2022

UNIVERSITY OF
EASTERN FINLAND
Kuopio, Finland

—
10–14 October 2022

—*Posters*—

“The important thing is to never stop questioning” (Albert Einstein)

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 *Neohygrocybe 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

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

Stable isotopes as indicators for the remaining gas generation potential at the Brånåsdalen decommissioned municipal waste landfill

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'Énergie 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 stable 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

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

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- $\delta^{13}\text{C}$ 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 N₂O metabolism in above-ground vegetation - significant northern N₂O 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

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 pellets 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 an gantry crane

Dubbert Maren, ZALF

Late-season biosynthesis of leaf fatty acids and n-alkanes of a mature beech tree traced via ^{13}C 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

Carbon allocation to banana suckers under optimal and drought conditions – evidence from a ^{13}C 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 $\delta^{13}\text{C}$ 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)

Loic 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

Room 1038

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

Producing stable Isotope Reference Gas Mixtures of CO_2 in air for Global Atmospheric Monitoring

Adnan Şimşek, TÜBİTAK 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 δD - 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 CO_2 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 N_2O 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 Šaplaitė**, 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)