



Isotope Workshop XIII - Zadar, Croatia, 20-24 September, 2015

# ESIR Isotope Workshop XIII

European Society for Isotope Research – ESIR 2015

Zadar, Croatia

September 20 – 24, 2015

## Program



Ruđer Bošković Institute



University of Zadar

ESIR 2015

## Program ESIR Isotope Workshop XIII

---

### Sunday, September 20, 2015

---

18:00 **Registration**

19:00 *Welcome reception – Ice-breaking party*

---

### Monday, September 21, 2015

---

08:30 **Registration**

09:30 **Opening**, Chair: B. Obelić

10:00 **HYDROGEOLOGY**, [Keynote lecture](#)

**K. Rozanski:** Time scales of groundwater flow: A contemporary perspective

10:40 *Coffee break*

11:20 **HYDROGEOLOGY**, Chair: K. Rozanski, B. Obelić

11:20 **D. Paar, A. Stroj, D. Mance, T. Hunjak, Z. Roller-Lutz, F. Gabrovšek:**

Stable isotope analysis of Mt. Velebit karst hydrological system

11:40 **N. Rman, A. Lapanje:**

Monthly variations of selected geochemical parameters and stable isotopes in thermal waters from deep wells in Slovenia

12:00 **GEOCHEMISTRY**, Chair: A.-V. Bojar, M.O. Jedrysek

12:00 **A.-V. Bojar, S. Halas, H-P. Bojar, A. Trembaczowski:**

Isotopic composition of Permian-Triassic sulphate accumulations: examples from the Eastern Alps, Austria

12:20 **W. Drzewicki, A. Trojanowska-Olichwer, M. Jakubiak, M.-O. Jędrysek:**

Variability of sulphur speciation in sediments from Sulejów, Turawa and Siemianówka reservoirs (Poland)

12:40 **N. Horvatinčić, A. Sironić, J. Barešić:**

Correlation of stable isotope composition of carbonate precipitated in the water under different conditions

13:00 *Lunch*

14:20 **GEOCHEMISTRY**, Chair: T. Kanduč, S. Kele

14:20 [Keynote lecture](#)

**A. Leis, M. Dietzel, P. Saccon, H. Stadler, J. Saverino, J. Kaiser:**

Use of isotopes and selected chemical tracers to investigate the origin and fate of nitrate in aquatic systems

15:00 **S. Kele, S.F.M. Breitenbach, E. Capezzuoli, A. N. Meckler, M. Ziegler, I.M. Millan, T.**

**Kluge, J. Deák, K. Hanselmann, C. M. John, H. Yan, Z. Liu, S. M. Bernasconi:**

Temperature dependence of oxygen- and clumped-isotope fractionation in travertines and tufas in the 6 – 95 °C temperature range

15:20 **M. Bucha, M.-O. Jędrysek, D. Kufka, Ł. Plesniak, M. Blaszczyk, K. Kubiak, N. Jimenez,**

**H. Richnow:**

Methanogenic biodegradation of lignite from Konin mine, central Poland

- 15:40 **T. Kanduč, F. Grassa, J. Lazar, S. Zavšek:**  
Geochemical and isotopic characterization of coalbed gases in active excavation fields at Preloge and Pesje (Velenje Basin) mining areas
- 16:00 **T. Kaulina, A. Kalinin, D. Elizarov, P. Serov:**  
Stages of uranium mineralization in the Kola-Karelian region (Russia): Sm-Nd, Rb-Sr and U-Pb data
- 16:20 *Coffee break*
- 17:00 **ESIR Assembly**
- 17:40 **POSTER SESSION, part 1**
- 

## **Tuesday, September 22, 2015**

---

- 08:30 **Registration**
- 09:00 **GEOLOGY AND PALEOCLIMATOLOGY, Chair: M. Surić, Ch. Spötl**
- 09:00 **Keynote lecture**  
**M. Surić:** Speleothems as archives of Quaternary palaeoenvironmental changes in Croatian karst – isotopic approach
- 09:40 **C. Prud'Homme, P. Antoine, O. Moine, C. Hatte, F.s Martineau, F. Fourel, Ch. Lecuyer:**  
Last Glacial palaeotemperatures: A new proxy provided by oxygen isotopic signature of earthworm calcite granules in loess context
- 10:00 **Ch. Spötl, M. Luetscher, Yu. Dublyansky, G. Moseley:**  
Stable isotope palaeoclimatology using speleothems: a progress report from the Alps
- 10:20 **A. Demeny, Z. Kern, A. Nemeth, Gy. Czuppon, S. Leel-Ossy, M. Molnar:**  
Recently forming stalagmites from NE Hungary as recorders of regional climate conditions
- 10:40 *Coffee break*
- 11:20 **GEOLOGY AND PALEOCLIMATOLOGY, Chair: A. Demeny, N. Lončar**
- 11:20 **A. Demeny, Gy. Czuppon, Z. Siklosy, S. Leel-Ossy, K. Lin, C.-C. Shen, T. W. Vennemann:**  
Temperature and humidity changes at the beginning of the last interglacial reflected by combined H and O isotope compositions of inclusion-hosted water
- 11:40 **N. Lončar, M. Bar-Matthew, A. Ayalon, M. Surić, S. Faivre:**  
Stable isotope records of the speleothems from the eastern Adriatic islands caves
- 12:00 **G. Koltai, Ch. Spötl, H. Cheng:**  
Late Glacial to Early Holocene climate change recorded by calcite-aragonite and calcite speleothems in an inneralpine dry valley (Vinschgau, northern Italy)
- 12:20 **Ch. Lécuyer, F. Atrops, R. Amiot, F. Fourel:**  
Tsunami deposits record past climates
- 12:40 *Lunch*
- 14:20 **KARST ENVIRONMENT, Chair: S. Faivre, R. Lončarić**
- 14:20 **Keynote lecture**  
**S. Lojen, T. Kanduč, S. Zavadlav, B. Kranjc, N. Ogrinc, K. Mezga:**  
Carbon cycling in karstic areas: application of traditional and potential of non-traditional stable isotopes

- 15:00 **N. Horvatinčić, M. Surić, S. Faivre, I. Krajcar Bronić, T. Bakran-Petricioli, J. Barešić, N. Buzjak, N. Bočić, R. Lončarić, N. Lončar, A. Sironić, I. Veverec:**  
Study of Dinaric karst using isotope methods: project REQUENCRIM
- 15:20 **R. Lončarić, M. Surić, N. Lončar, N. Buzjak, N. Bočić:**  
Cave-based palaeoenvironmental research within the REQUENCRIM project
- 15:40 **A. Sironić, N. Horvatinčić, J. Barešić, D. Borković:**  
Isotope and chemical analyses of the surface lake sediments in two karstic lakes, Plitvice Lakes, Croatia
- 16:00 *Coffee break*
- 16:40 **KARST ENVIRONMENT**, Chair: T. Bakran-Petricioli, J. Barešić
- 16:40 **J. Barešić, I. Veverec, S. Faivre, N. Buzjak, N. Horvatinčić:**  
Isotope and chemical analyses of water and tufa in the Zrmanja River, Croatia
- 17:00 **T. Bakran-Petricioli, S. Faivre, N. Horvatinčić, D. Petricioli:**  
Monitoring of algal rims within the scope of the project REQUENCRIM
- 17:20 **S. Faivre, T. Bakran-Petricioli, J. Barešić, N. Horvatinčić:**  
Relative sea-level change and climate change in the Eastern Adriatic based on the isotopic study of algal rims
- 17:40 **POSTER SESSION, part 2**
- 20:00 *Conference dinner*

---

## Wednesday, September 23, 2015

---

- 08:30 **Registration**
- 09:00 **HYDROGEOLOGY**, Chair: H.J. Jost, I. Krajcar Bronić
- 09:00 **Keynote lecture**  
**T. Müller, G. Strauch, K. S. Al-Mashaikhi, W. Aeschbach-Hertig:**  
Groundwater dynamic in Southern Oman – a multi-isotope approach
- 09:40 **METHODS AND INSTRUMENTAL TECHNIQUES**, Chair: H.J. Jost, I. Krajcar Bronić
- 09:40 **R. Winkler, K.J. Dennis, N. Saad:**  
Applications of Cavity Ring-Down Spectroscopy (CRDS) to isotopologues of water, as well as nitrogen and oxygen isotopes in N<sub>2</sub>O for soil studies
- 10:00 **H.J. Jost, N. Stoebener, E. Wapelhorst, M. Mandić, T. Stoltmann, M. Elvert:**  
Carbon isotope ratios of dissolved inorganic carbon (DIC) and carbonates measured with a field deployable isotope ratio infrared spectrometer
- 10:20 **S. Hałas, T. Pieńkos, A. Pelc, A. Wójtowicz:**  
Towards the study of isotopic anomalies,  $\Delta^{17}\text{O}$  and  $\Delta^{33}\text{S}$ , in terrestrial samples
- 10:40 *Coffee break*
- 11:20 **METHODS AND INSTRUMENTAL TECHNIQUES**, Chair: S. Halas, L. Boros
- 11:20 **T. Marković, H. Čučuzović, O. Larva:**  
High-precision measurements of  $^2\text{H}/^1\text{H}$  and  $^{18}\text{O}/^{16}\text{O}$  stable isotopes ratios in groundwater

- 11:40 **L. G. Boros, G. Somlyai:**  
Deuterium and hydrogen ratios determine proton spin-lattice T1-weighted Magnetic Resonance Images: Clinical applications in cancer
- 12:00 **Z. Czupty:**  
SHRIMP IIe/MC an isotope multitool
- 12:20 **A. Pelc, S. Hałas:**  
The high precision oxygen isotope analysis of phosphates
- 12:40 **M. Nodilo, Ž. Grahek:**  
Extraction chromatography separation of lead and determination of  $^{210}\text{Pb}$
- 13:00 *Lunch*
- 14:20 **EXCURSION to Modrič Cave**

---

## Thursday, September 24, 2015

---

- 09:00 **ECOLOGY AND ENVIRONMENTAL RESEARCH**, Chair: J. Ghashghaie, A. Trojanowska-Olichwer
- 09:00 **J. Ghashghaie, F.-W. Badeck:**  
Opposite carbon isotope discrimination during dark-respiration in leaves versus roots – A review
- 09:20 **A. Kimak, Z. Kern, M. Leuenberger:**  
Qualitative distinction of autotrophic and heterotrophic processes on the leaf level by means of triple stable isotope (C-O-H) pattern
- 09:40 **S. Kelemen, H. Simon, E. Reizer, L. Preoteasa, R.-C. Begy:**  
The evidence of anthropic signature the sedimentation processes of the Uzlina and Isac Lakes, Danube Delta, Romania
- 10:00 **A. Trojanowska-Olichwer, W. Drzewicki, M.-O. Jędrysek :**  
Seasonal variations of bacterial input to sulphur turnover and its isotopic signature in sediments of dam reservoir
- 10:20 **B. Sensuła, S. Pawełczyk, N. Piotrowska, A. Michczyński:**  
Trees' response to climatic and anthropogenic environmental changes: Application of stable isotopes and  $^{14}\text{C}$  analysis in monitoring of industrial area
- 10:40 *Coffee break*
- 11:20 **ECOLOGY AND ENVIRONMENTAL RESEARCH**, Chair: J. Kožar Logar, M. Sertić Perić
- 11:20 **M. Sertić Perić, C.T. Robinson, C. Schubert, B. Primc:**  
Stable isotopes as proxies for food sourcing in alpine streams undergoing glacial recession
- 11:40 **J. Kožar Logar, T. Vodopivec:**  
Radionuclides in drinking water of Slovenia
- 12:00 **Z. Grolmusova, A. Rapcanova, J. Michalko, P. Cech, P. Veis:**  
Stable isotope composition of human fingernails from Slovakia
- 12:20 **A. Mahne Opačić, S. Žigon, N. Ogrinc, M. Nečemer, S. Lojen, R. Vidrih:**  
The use of stable isotopes and metal concentrations for discrimination between conventional, hydroponic and organic vegetable production regimes
- 12:40 **Closing**

## Geochemistry

- GC9-P M. Jakubiak, M. Modelska, S. Buczynski, M. Wcislo, W. Drzewicki, M.-O. Jedrysek**  
Variations of  $\delta^{34}\text{S}(\text{SO}_4^{2-})$  and sulphate content in water from precipitation to groundwater drainage in Tylicz area (Beskidy Mountains, SW Poland)
- GC10-P S. Lojen, I. Jurina, I. Sondi**  
Deposition and sources of sedimentary organic matter in the Neretva deltaic plain and coastal area: its relation to the sediment surface properties
- GC11-P D. Hamryszczak, W. Drzewicki, M. Malkiewicz, M.-O. Jędrysek**  
Isotopic and palynological signatures of the paleoclimatic conditions of peat bog from the polar region (south-western Spitsbergen)
- GC12-P S. Herenda, G. Radović-Rajević, E. Zovko**  
Gamma-spectrometric determination of radionuclides in soil
- GC13-P Ł. Pleśniak, S. Lojen, M. Jakubiak, M.-O. Jędrysek, S. Žigon, M. Bucha, M. Janiga, D. Kufka, J. Krajniak, M. Matuszewicz**  
Carbon, hydrogen and sulphur isotopic analysis to trace migration of natural gas in the enhanced gas recovery system
- GC14-P I. Forisz, I. Hegyi, B. Bajnóczi, V. Mozgai, M. Szabó, M. Tóth**  
The effect of non-carbonate soil components on the measured isotopic composition of carbonate

## Hydrogeology

- HG5-P T. Kanduč, B. Rožič, M. Gaberšek, M. Zega, P. Žvab Rožič, T. Verbovšek**  
Hydrogeochemical and isotopic characteristics of the Žveplenica sulphide karstic spring (Trebuša Valley, NW Slovenia)
- HG6-P M. Surić, N. Lončar, N. Buzjak, R. Lončarić**  
Altitudinal and seasonal isotope variation in meteoric and cave drip water in north Dalmatia (Croatia) – importance for the palaeoenvironmental studies
- HG7-P T. Ferjan Stanič, K. Mezga, J. Urbanc, S. Lojen**  
Use of stable isotopes for tracing contamination in a groundwater protection area (Dravsko polje aquifer, NE Slovenia)
- HG8-P Z. Roller-Lutz, T. Matsumoto, L. Han, H.O. Lutz, T. Hunjak, P. Aggarwal**  
Groundwater mixing in the Gacka Area (Croatia), as revealed by stable water isotopes, tritium, CFCs and noble gases
- HG9-P N. Rman, T. Kanduč**  
Isotopic composition and geochemistry of mineral water springs and mofettes, a case study of Slovenia
- HG10-P S. Kapelj, J. Loborec, J. Kapelj**  
Trans-boundary character of the several springs recharge area of the Middle Dalmatia, Croatia
- HG11-P N. Piotrowska, A. Gabryś, W. Tylmann, A. Bonk**  
Isotopic investigations of contemporary carbonate sedimentation in lakes from N Poland

**HG12-P A. Koroša, N. Mali, A. Leis**  
Deuterium as a tracer in experimental hydrogeology

**HG13-P C-A. Bădăluță**  
Distribution of stable isotopes composition in river waters from Romania – preliminary investigations

## Methods and Instrumental Techniques

**MI9-P V. Sevastyanov, N. Babulevich, E. Galimov**  
Application of a solid electrolyte reduction reactor in CF-IRMS for  $\delta^{15}\text{N}$  determination of organic substances

**MI10-P E. Reizer, H. Simon, S. Kelemen, A. I. Gabor, R.-Cs. Begy**  
Different potential uncertainties in the  $^{210}\text{Pb}$  dating method

**MI11-P A. Pacek, S. Hałas, T. Pieńkos**  
Precise determination of isotopic composition of lithium and potassium with use of improved three-filament thermal ionization ion source for TIMS

**MI12-P Cs. Molnár, T. Lukács, E. Horváth Némethné, M. Gyapjas**  
Isoprime100 instrument and gas geochemical application, determination of thermal maturity

**MI13-P E. A. Nesterov, V. S. Skuridin, E. S. Stasyuk, N. V. Varlamova, A.S. Rogov, V. L. Sadkin, L. A. Larionova, A. A. Nesterov, V. I. Otmakhov**  
Investigation and development of generator of technetium-99m based on activation and wasteless technology

**MI14-P I. Krajcar Bronić, J. Barešić, N. Horvatinčić**  
Application of  $^{14}\text{C}$  method for biogenic component determination in waste and liquid fuels

---

**POSTER SESSION, part 2, Tuesday, September 22, 2015, 17:40 – 18:40**

---

## Geology and Paleoclimatology

**GP9-P A. Giurgiu, F. Forray, I. Tanțău, C. Roman**  
Cave sediments as time capsule: The Aeneolithic and Early Bronze in Poiana Ruscă Mts. (Romania)

**GP10-P S. Pawelczyk, B. Sensula, A. Pazdur**  
Stable isotopes in tree rings from Southern Poland and Eastern Carpathian: temporal stability of climatic signal versus pollution emissions

**GP11-P Gy. Czuppon, A. Demeny, Z. Siklosy, S. Leel-Ossy, K. Lin, C.-C. Shen**  
The 8.2 kyr event in Central Europe recorded by combined H-C-O isotope compositions of calcite and inclusion-hosted water of a stalagmite

**GP12-P Á. Török, A. Mindszenty, S. Kele, R. Swennen**  
Paleoenvironmental reconstruction of the “Gazda” travertine quarry based on sedimentological and geochemical studies (Süttő, Gerecse Hills, Hungary)

**GP13-P E.Z. Yakovlev, G.P. Kiselev**  
Uranium isotope disequilibrium as an indicator for interaction ore matter with enclosing sediments rocks of Arkhangelski kimberlite tube from Lomonosov field



**GP14-P M. Janiga, I. Matyasik**

Carbon and hydrogen isotopic composition (GC-C-IRMS) of natural gas acquired from Polish shale formations

## **Ecology and Environmental Research**

**EE10-P T. Kanduč, Z. Šlejkovec, U. Kristan, A. Baričević, D. Pavičić Hamer, B. Hamer**

Quality of Mediterranean mussel *Mytilus galloprovincialis* at mariculture locations from NE Adriatic (Croatia): insights from condition indexes, stable isotopes and selected elements

**EE11-P B. Gebus, S. Chmiel, A. Trembaczowski, S. Hałas**

Isotopic studies of nitrates ( $\delta^{15}\text{N}$ ,  $\delta^{18}\text{O}$ ) and phosphates ( $\delta^{18}\text{O}$ ) in the assessment of the eutrophication reasons in Zemborzycki Lagoon

**EE12-P B. Biega, D. Kufka, M.-O. Jędrysek**

Isotopic signatures of methane and carbon dioxide from mixed maize silage and manure fermentation

**EE13-P D. Costinel, R. Elena Ionete, O.-R. Dinca, A.-M. Iordache, I. Stefanescu**

Assessing the influence of ecosystems on stable isotopes and trace elements signature in plants

**EE14-P M. Yu. Sinai, V.G. Povarov, M.A. Kulkova**

Carbon and oxygen stable isotopes in paleo-environmental reconstructions

**EE15-P A. Sironić, N. Horvatinčić, J. Barešić, I. Krajcar Bronić**

Carbon isotope fractionation during photosynthesis in submerged moss and aquatic plants

**EE16-P M. Lojović, B. Marošanić**

Determination of the authenticity fruit spirits by isotope ratio mass spectrometry

**EE17-P A. I. Janeiro, P. Saragoça, A.-F. Maurer, L. Soberl, M. da Conceição Lopes, I. Leandro, C. Umbelino, C. Barrocas-Dias**

Using stable isotopes from human bones to infer the diet of a Late Antiquity population from the Roman villae of Alpendre dos Lagares (Lusitania)

**EE18-P V. Nagavciuc**

The climatic signal recorded by Swiss stone pine (*Pinus Cembra* L.) tree-ring oxygen and carbon isotopes in NE Romania

## **Karst environment**

**KE8-P I. Krajcar Bronić, J. Barešić, A. Sironić, N. Horvatinčić**

Stable isotope composition of surface and deep waters from Plitvice Lakes

**KE9-P P. Kotula, W. Andrejczuk, J. Pawlyta**

Carbon isotopic investigations of Zolushka Cave