

# Naturally occurring botryoidal carbonates in a Holocene karst paleolake Prološko Blato (Dalmatia, Croatia)

---

Ivkić Filipović, Ivona; Ilijanić, Nikolina; Miko, Slobodan; Hasan, Ozren; Barudžija, Uroš

Source / Izvornik: **Abstracts book / 36th International Meeting of Sedimentology, 2023, 40 - 40**

Conference paper / Rad u zborniku

Publication status / Verzija rada: **Published version / Objavljena verzija rada (izdavačev PDF)**

Permanent link / Trajna poveznica: <https://um.nsk.hr/um:nbn:hr:169:960459>

Rights / Prava: [In copyright](#) / [Zaštićeno autorskim pravom.](#)

Download date / Datum preuzimanja: **2024-07-24**



Repository / Repozitorij:

[Faculty of Mining, Geology and Petroleum Engineering Repository, University of Zagreb](#)





36<sup>TH</sup>



IAS

DU  
BROV  
NIK

MEETING OF SEDIMENTOLOGY

ABSTRACTS BOOK



12-16 June 2023, DUBROVNIK, CROATIA

**36<sup>th</sup> International Meeting of Sedimentology**  
**June 12–16, 2023, Dubrovnik, Croatia**

# ABSTRACTS BOOK





## Organized by:

Croatian Geological Society (HGD) and International Association of Sedimentologists (IAS)



## Organizing Committee

Lara Wacha, **chair**, *Croatian Geological Survey, Zagreb*  
Katarina Gobo, *University of Zagreb, Faculty of Science*  
Nikolina Ilijanić, *Croatian Geological Survey, Zagreb*  
Tvrtko Korbar, *Croatian Geological Survey, Zagreb*  
Marijan Kovačić, *University of Zagreb, Faculty of Science*  
Duje Kukoč, *Croatian Geological Survey, Zagreb*  
Borna Lužar-Oberiter, *University of Zagreb, Faculty of Science*  
Maja Martinuš, *University of Zagreb, Faculty of Science*  
Slobodan Miko, *Croatian Geological Survey, Zagreb*  
Davor Pavelić, *University of Zagreb, Faculty of Mining, Geology and Petroleum Engineering*  
Kristina Pikelj, *University of Zagreb, Faculty of Science*  
Igor Vlahović, *University of Zagreb, Faculty of Mining, Geology and Petroleum Engineering*

## Scientific Committee

Igor Vlahović, **president**, *University of Zagreb, Croatia*  
Nevena Andrić Tomašević, *Karlsruhe Institute of Technology, Germany*  
Bruno Campo, *University of Bologna, Italy*  
Sonia Campos Soto, *Complutense University of Madrid, Spain*  
Luca Caracciolo, *FAU Erlangen-Nürnberg, Germany*  
Blanka Cvetko Tešović, *University of Zagreb, Croatia*  
Shahin E. Dashtgard, *Simon Fraser University, Canada*  
Andrea Di Capua, *National Research Council – IGAG, Italy*  
Goran Durn, *University of Zagreb, Croatia*  
Gianluca Frija, *University of Ferrara, Italy*  
Massimiliano Ghinassi, *University of Padova, Italy*  
Luis Gibert Beotas, *University of Barcelona, Spain*  
Bosiljka Glumac, *Smith College, USA*  
Antun Husinec, *St. Lawrence University, USA*  
Stuart Jones, *Durham University, UK*  
Tvrtko Korbar, *Croatian Geological Survey, Croatia*  
Marijan Kovačić, *University of Zagreb, Croatia*  
Juan Carlos Laya, *Texas A&M University, USA*  
Marta Marchegiano, *University of Granada, Spain*  
Cole McCormick, *Pennsylvania State University, USA*  
Mardi McNeil, *Geoscience Australia, Australia*  
Theresa Nohl, *University of Vienna, Austria*  
Shuxin Pan, *PetroChina – NWGI, China*  
Guido Pastore, *University of Milano–Bicocca, Italy*  
Maximiliano Paz, *University of Saskatchewan, Canada*  
Daniel A. Petráš, *Czech Geological Survey, Czech Republic*  
Miquel Poyatos-Moré, *Universitat Autònoma of Barcelona, Spain*  
Joanna Pszonka, *Polish Academy of Sciences – MEERI, Poland*  
John J.G. Reijmer, *Vrije Universiteit Amsterdam, The Netherlands*  
Valentina Marzia Rossi, *National Research Council – IGG, Italy*  
Arnoud Sloopman, *Colorado School of Mines, USA*  
Miroslaw Slowakiewicz, *University of Warsaw, Poland*  
Thomas Steuber, *Khalifa University of Science and Technology, Abu Dhabi, UAE*  
Finn Surlyk, *University of Copenhagen, Denmark*  
Michal Šujan, *Comenius University in Bratislava, Slovakia*  
Romain Vaucher, *University of Geneva, Switzerland*  
Alan Vranjković, *INA Oil Company, Croatia*  
Lara Wacha, *Croatian Geological Survey, Croatia*  
Guodong Wang, *PetroChina, China*  
Pujun Wang, *Jilin University, China*  
Valentin Zuchuat, *RWTH Aachen University, Germany*  
Nadja Zupan Hajna, *Research Centre of the Slovenian Academy of Sciences and Arts, Slovenia*

**Publisher:** Croatian Geological Society (HGD)

**For the publisher:** Slobodan Miko

**Editors:** Igor Vlahović and Darko Matešić

**Language Editor:** Julie Robson (Scotland, United Kingdom)

**Digital layout:** Laser Plus d.o.o

**Cover design:** Ana Badrić

**eISBN:** 978-953-6907-79-3

**Theme 1. Continental carbonates, karst and cave deposits****General Session**

Poster presentation

## Naturally occurring botryoidal carbonates in a Holocene karst paleolake Prološko Blato (Dalmatia, Croatia).

Ivona Ivkić Filipović<sup>1</sup>, Nikolina Ilijanić<sup>1</sup>, Slobodan Miko<sup>1</sup>, Ozren Hasan<sup>1</sup>, Uroš Barudžija<sup>2</sup><sup>1</sup>Croatian Geological Survey, Department for Mineral Resources, Zagreb<sup>2</sup>Faculty of Mining, Geology, and Petroleum Engineering, 10000 Zagreb[iivkic@hgi-cgs.hr](mailto:iivkic@hgi-cgs.hr)

The Prološko Blato is a seasonal karst wetland in the NW part of the Imotsko polje (karst polje) in the Dalmatian hinterland. Ongoing paleolimnological research revealed the existence of Holocene paleolake sediments made of pale brown lacustrine carbonate, rich in gastropods and ostracods, that started to form at ca. 8000 cal yr BP. Multiproxy core analysis, including geochemical, sedimentological, and micropaleontological (ostracods), suggests a relatively shallow, oligotrophic lacustrine environment with continuous carbonate sedimentation until ca. 800 cal BP. Specific to this karstic paleolake is the occurrence of enigmatic botryoidal carbonates initially detected in coarser sieved fractions (>250 µm) during the ostracod analysis, and confirmed via SEM analysis. In micropaleontological slides, botryoidal grains occur as plate-like forms, flat on one side and botryoidal (spherical) on the other, implying their growth on a fixed substrate. SEM analysis revealed that botryoidal grains are made of acicular crystals, similar to the needle-like aragonite, exhibiting two distinctive spherulitic forms: a) spherules made of needles radially spreading from the central point outwards, and b) spherules made of needles radially arranged around a circular void. This potentially implies the same formation process, but different stages of development of needle-like crystals. Botryoidal carbonates are numerous in specific samples throughout the paleolake record, which could possibly be used as a proxy for paleoenvironmental interpretation. However, their origin (organic vs. inorganic, diagenetic) and environmental conditions necessary for their formation remain to be investigated.