

Deposition of volcanoclastites in pelagic environment on rifted continental margin during the Middle Triassic

Kukoč, Duje; Smirčić, Duje; Slovenec, Damir; Belak, Mirko; Horvat, Marija; Grgasović, Tonći; Japundžić, Dražen; Šegvić, Branimir; Badurina, Luka; Vukovski, Matija

Source / Izvornik: **Abstracts book / 36th International Meeting of Sedimentology, 2023, 317 - 317**

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:169:052430>

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

Download date / Datum preuzimanja: **2024-07-06**



Repository / Repozitorij:

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





36TH



IAS

DU
BROV
NIK

MEETING OF SEDIMENTOLOGY

ABSTRACTS BOOK



12-16 June 2023, DUBROVNIK, CROATIA

36th 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*
Tvrтко 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 Frijia, *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*
Tvrтко 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 9. Volcaniclastic deposits**General Session**

Poster presentation

Deposition of volcaniclastites in pelagic environment on rifted continental margin during the Middle Triassic

Duje Kukoč¹, Duje Smirčić², Damir Slovenec¹, Mirko Belak¹, Marija Horvat¹, Tonći Grgasović¹, Dražen Japundžić³, Branimir Šegvić⁴, Luka Badurina⁴, Matija Vukovski¹

¹Croatian Geological Survey, Department of Geology, Zagreb, Croatia

²University of Zagreb, Faculty of Mining, Geology and Petroleum Engineering, Zagreb, Croatia

³Croatian Natural History Museum, Zagreb, Croatia

⁴Department of Geosciences, Texas Tech University, Lubbock, TX, USA

duje.kukoc@hgi-cgs.hr

The Middle Triassic volcano-sedimentary successions related to the opening of the Neotethys Ocean in NW Croatia were investigated for their age and facies interpretation. Stratigraphically stacked volcanic and volcaniclastic lithologies, ranging from basaltic to rhyolitic, are interlayered with pelagic sedimentary rocks in the studied sections. These successions were deposited on a passive continental margin with dynamics set by intense rift-related tectonic movements and volcanic activity. Following disintegration of stable shallow-marine environment newly formed lithospheric blocks gave rise to a complex pelagic depositional environment as extension progressed. Pelagic limestones and radiolarian cherts were deposited on drowned blocks with episodic intercalations of volcanic and pyroclastic deposits from the early Illyrian to possibly late Ladinian. Shallow-water carbonate environment still existed laterally as suggested by resedimented carbonate detritus. Deep-rooted normal faults created by extension provided paths for submarine basaltic extrusions. Magma quenched in contact with sea water creating basaltic hyaloclastites that were redeposited in deeper parts of the basin. Acidic volcaniclastics, commonly known as “pietra verde”, were produced by explosive volcanic eruptions, and deposited in pelagic environment by different gravitational mechanisms, including pyroclastic density currents. Variations in thickness of these deposits indicate different sedimentation mechanisms and reflect complex topography of the depositional environment. Water-settled air fall deposits produced thinner layers, while thicker layers indicate redeposition of material from topographic heights to more subsided parts. Unconsolidated pyroclastic detritus was partly reworked soon after deposition and redistributed gradually filling the basin. Medium- to fine-grade turbidite sedimentation is inferred for these deposits based on grain size, normal grading, horizontal lamination and mixing of volcanic and pelagic material. Presumed stratigraphic gaps in investigated successions, and possibly condensed sedimentation, can be explained by complex basin topography and prevailing sedimentation mechanisms, which resulted with sediment erosion and its subsequent redistribution.