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Source / Izvornik: **Abstracts book / 36th International Meeting of Sedimentology, 2023, 87 - 87**

Conference paper / Rad u zborniku

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

Permanent link / Trajna poveznica: <https://urn.nsk.hr/urn:nbn:hr:169:356904>

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Download date / Datum preuzimanja: **2024-07-23**



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ABSTRACTS BOOK



12-16 June 2023, DUBROVNIK, CROATIA

36th International Meeting of Sedimentology
June 12–16, 2023, Dubrovnik, Croatia

ABSTRACTS BOOK



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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 3. Deep-marine carbonate depositional systems

General Session

Oral presentation

Restricted to open-marine Middle Triassic basins of the Dinarides and their radiolarian faunas

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Late Anisian rifting resulted in a complex horst-and-graben paleotopography of the Adriatic continental margin. The most deeply subsided basins (e.g. Budva, Bosnian and Slovenian basins) remained sites of pelagic sedimentation until the latest Cretaceous. Shallower basins formed on structural highs, which were internally differentiated into several fault blocks. These shallow basins were short lived, limited to the interval between the Late Anisian to Ladinian or earliest Carnian, when they were completely filled in so that sedimentation of platform carbonates was again established in a wider area. The High Karst Zone in the External Dinarides preserves two types of sequences from this short pelagic episode. Both are characterized by micritic limestone and chert, generally include pyroclastic rocks (Pietra Verde), and locally contain carbonate breccia and calcarenite. The most obvious difference is the color of the rocks. The successions in the center of the High Karst Zone are dark grey to black due to the presence of organic matter, which may have been related to stratified water column and/or poor open-marine connections in a restricted intra-platform basin. In contrast, the pelagic limestone and chert at the margins of the High Karst swell are light to vivid red, in places greenish or light grey to pink. This latter lithology is comparable with the Buchenstein Formation of the Southern Alps. We investigated radiolarians from several Buchenstein type sections and from one organic-matter-rich section located at Mt. Svilaja in Dalmatia. The radiolarian assemblages of the Buchenstein type sections contain up to 80 genera and include multicyrtd nassellarians that are generally regarded as deeper-dwelling morphotypes and are also common in the sedimentary cover of Triassic ophiolites. The radiolarian assemblage of Mt. Svilaja consists of only 20 genera. Spumellarians and entactinarians are abundant but nassellarians account for only 5% and are represented exclusively by monocyrtds. A similar assemblage was described from the San Giorgio Dolomite in the westernmost part of the Southern Alps. Such impoverished assemblages with high predominance of surface-dwelling taxa are apparently characteristic of restricted oxygen-deficient basins that were separated from the open ocean by topographic barriers.