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MEETING OF SEDIMENTOLOGY

ABSTRACTS BOOK



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

# ABSTRACTS BOOK



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



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**Theme 12. Stratigraphic markers and archives****Special Session 12.3.** The stratigraphic record of paleoenvironmental variation in epeiric basins

Oral presentation

## Large-scale reconstruction of the Early Cretaceous Neuquen Sea (SW Gondwana): unravelling key parameters for characterization and classification of epeiric seas

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Epeiric seas were common in deep times, but modern analogues are rare. Reconstruction of ancient examples is usually limited by available data, which also hampers the conceptualization of their variability and key controlling parameters. In this study we summarize and integrate a large stratigraphic dataset of a relatively small, semi-restricted Cretaceous epeiric sea in SW Gondwana to reconstruct oceanographic connection with adjacent ocean through time, areal distribution of sediments entering the marine basin, and sediment dispersal pathways within it. The Valanginian–Hauterivian study interval represents an exceptional record of continental and marine sediments deposited in the Neuquén Sea, semi-connected with the proto-Pacific Ocean across a volcanic arc. This interval is organized in three transgressive–regressive sequences (Lower, Middle, and Upper) defined by linked depositional systems, macrobenthic bioevents, and stratal patterns. Paleogeographic reconstructions show a consistent E–W proximal–distal depositional trend and a major fluvial system located in its SE apex. Dispersal pathways within the distal marine settings allow defining a non-uniform, along-depositional strike scenario, with a locus of siliciclastic deposition westwards of a major deltaic system and increasing carbonate contribution away from it. The degree of connection between the Neuquén Sea and the ocean varies over time with a probable peak near the base of Middle Sequence. Key attributes reconstructed for the Neuquén Sea, namely significant restriction, major sediment supply in one apex, and asymmetric distribution of sediments in the distal settings, are comparable with configurations observed in the present Persian Gulf and Adriatic Sea. Comparisons with ancient examples (e.g., Western Interior Sea or North American Seaway) suggest contrasting paleogeographic models, but at the same time reinforce the value of these key parameters to produce better discrimination between the possible spectrum of epeiric seas. In that sense, building classifications for epeiric seas based on these parameters (size, degree of ocean connection, sediment entry points, and sediment pathways), appears as the next challenge for better reconstructions of these environments worldwide.