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NOVEMBER 2022

Abstract Book

MedGU

Mediterranean Geosciences Union

Annual Meeting | Marrakech, 27–30 November 2022

Editors:

Attila Ciner, Haroun Chenchouni, Jesús Rodrigo-Comino, Deepak Singh Bisht, Jasper Knight, Maurizio Barbieri, Mourad Bezzeghoud, Ahmed Radwan, Zhihua Zhang, Zeynal Abiddin Ergüler, Mahesh Kumar Jat, Veysel Turan, Helder Chaminé, Matteo Gentilucci, Md Firoz Khan, Dionysia Panagoulia, Ilker Ugulu, Amjad Kallel, Roohollah Kalatehjari, Stefano Naitza, Zakaria Hamimi, Mingjie Chen, Arkoprovo Biswas, Federico Lucci, Ciro Cucciniello, Santanu Banerjee, Afroz Ahmad Shah, Carla Candeias, Vinciane Debaille, Hasnaa Chennaoui, Domenico M. Doronzo, El Hassane Chellai, Mehdi Eshagh, Imran Ali

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2nd Mediterranean Geosciences Union Annual Meeting (MedGu 2022)

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MedGU Mediterranean Geosciences Union
Annual Meeting | Marrakech, 27–30 November 2022
Springer | Publishing Partner

Middle Bathonian marginal-marine fine grained siliciclastic sequence of the central and south-eastern parts of the Russian Platform

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Abstract. The middle Bathonian silty-clayey deposits in European Russia are “sandwiched” between the Lower and Upper Bathonian marine strata dated by ammonites and belemnites. As was earlier recognized, the Late Bajocian-Bathonian marine transgression developed in the Russian Platform with the maximum flooding in the earliest Bathonian, and the major Middle-Upper Jurassic transgression was started in the latest Bathonian. Unlike these, the mid-Bathonian stratigraphical interval (30-50 m) is characterized by extremely scarce fauna, represented only by rare bivalves or agglutinated foraminifera, occurring on discrete levels. The authors studied in detail biostratigraphy and sedimentology of mid-Bathonian strata in two main outcrops, the first extending about 25 km in the southwest Tatarstan, and the second, located 130 km to the south in a large quarry (Samara region), as well as more southerly (in 250 km) in some quarries and two continuous drillcores in Saratov region. When mapping, the middle Bathonian is recognized due to specific, yellowish coloration of clays and the presence of pale, loose (“floury”) silty material, increased in abundance up the section. In the lower part it forms thin streaks in clays, followed by heterolithic silty-clay packages (1-2 m) alternating with structureless clays, and the thick (6-10 m) macroscopically homogenous siltstone crowns the middle Bathonian succession. To explain silt accumulation, non-marine aeolian processes have been proposed previously. Our research has revealed an accumulation of almost uniform silty-clayey lithofacies showing a similar upward-coarsening trend established in the sections over the vast area. These corroborates that the prolonged Late Bajocian-early Bathonian transgressive episode in the Russian Platform was followed by enforced middle Bathonian regression. However, sedimentological characteristics such as the diversity of wave ripple structures recognized within heteroliths and siltstones indicate shallow water depositional environment, with the sedimentation controlled mainly by hydrodynamics. The absence of bioturbation and only narrow intervals occupied by monospecific communities of burrowers (Rizocorallium commune or Diplocraterion parallelum), in addition to scarce fauna, indicate a stressful environment for biota. These conditions could be achieved within a large, semi-isolated basin located in a humid climatic zone, with a regular discharge of fluvial low-density suspension flows, where fresh water supply disturbed the salinity.

Keywords: Bathonian, Russian Platform, regression, marginal marine depositional systems, abnormal salinity, stressful environment for biota.