



Microfacies of Middle Jurassic - Early Cretaceous Northern Caucasian carbonate platform from Uruk river region (Northern Ossetia)

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The Northern Caucasus Carbonate Platform is one example of the carbonate platforms developed through the Northern Peri-Tethys margin during Jurassic and Cretaceous times. The platform's age can be identified as Callovian - Valanginian, with the most carbonate production and diversity during Oxfordian-Berriasian. Its composition and features can be obtained by studying the outcrops of carbonate rocks along the Skalisty Ridge of the Northern Caucasus and along with river valleys that cut it. The thickness of carbonate deposits decreases from west to east, from the Mineralovodski uplift to Northern Ossetia and further to the east. Therefore, the Uruk River section is one of the most complete and detailed. The stratigraphy of the section was studied several times, although the section's sedimentology was never the aim of these studies. Facies interpretation and depositional environments of the Northern Caucasus carbonate platform can be found in previous research at a fairly general level. The microfacies analysis is widely used to reconstruct the facies settings of carbonate sedimentation. Our research is the first attempt to apply the microfacies method for the Jurassic-Cretaceous carbonate deposits of the Uruk river region.

The section is located between Kaluh and Upper Zadalesk villages (Digorsky District, Northern Ossetia) along the Chikola-Matsuta road. The overall thickness of the carbonate sediments here is more than 1 km. The deposits consist of various bedded and massive limestones and dolomites forming high cliffs of the Uruk river valley. They form a monocline with dip angles from 10° to 15-20° in the northern and northeastern dip. The alternation of the marls, clays, and different muddy and clayey limestones can be observed in the section's Berriasian part.

The most common microfacies types (MFT) were identified after studying 50 thin-sections. They are compared with the standard microfacies of the carbonate platform and ramp, as well as with the microfacies types identified for the adjacent carbonate platforms of the Northern Peri-Tethys with similar age. The MFTs are represented by layered mudstones and dolomites; oncoid and bioclastic floatstones; well to moderately sorted peloid and bioclastic grainstones and packstones; stromatolite bindstones and dolomites. Among the carbonate particles in grainstones and wackestones, various bioclasts are most common, including micritized shells of benthic foraminifera (including Milliolids), fragments of echinoderms, bivalve shells, and other benthic organisms. They have marine genesis and can form in the inner parts of the carbonate platform.

The formation of the dolomites and stromatolite bindstones is related to supratidal and intertidal environments. The formation of the other MFTs can be linked to the subtidal environments of the inner parts of the carbonate platform or the open-marine conditions in its outer part.

The obtained data is new for this section and must be compared with data observed in the other sections of the Northern Caucasian carbonate platform to establish its morphology.