Ichnological - Sedimentological Studies of Upper Cretaceous Sediments of the River Aragvi Basin: Preliminary Results

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During 2018 field work several cross-sections of upper Cretaceous formations of the river Aragvi basin were studied aiming sedimentological investigations and detection of trace fossils occurences.

The study area is located within northern part of the Zhinvali-Gombori structural-morfological unit of the Southern Slope zone of the Great Caucasus fold-thrust belt. According to Ar. Tsagareli (1954), N.Mrevlishvili (1997) and the authors personal observations data the general cross-section of the upper Cretaceous flysch sediments of the study area is as follows: the oldest formation is the Ukugmarti suite, which conformably overlays the lower Cretaceous (Albian) Navtiskhevi suite and is made up by conglomerates, tuff-sandstones, polimict sandstones, marly shales and marls. The Ukugmarti suite covers lower Cenomanian and the lower part of the middle Cenomanian stages. In the way-up succession the Ukugmarti suite is overlain by the Ananuri suite, which is subdivided into three parts. The lower part is built up by 4-45 meters thick package of cherty shales, sandstones and gritstones and corresponds to upper part of middle Cenomanian and upper Cenomanian. Common to the suite black sillicites (4-55 m.) occupy the middle part of the suite and together with overlain package of cherty limestones, marls and sandstones (6-35 m.) correspond to lower Turonian.The upper Turonian Margalitiskide suite conformably continues the Ananuri suite and is constituted by the characteristic red and pinkish limestones, marls and gritstones alternation. In the way-up succession they grade into alternation of yellowish- white lithographic lamestones and marls – the Eshmakiskhevi suite. The latter has variable thickness (30-350) and is dated as Coniacian-Santonian. Campanian 25-40 meters thick calcareous rocks form Jorchi suite and are represented by alternation of granular limestones and varicolored (red and green) marls. Maastrichtian Sabue suite (25-200 m.) is the end member of the Upper Cretaceous cross-section which overlies the Jorchi suite or older rocks with unconformity and is built up by limestones, sandy limestones, calcareous sandstones, micro-conglomerates and breccias.

Mentioned above sediments, due to their composition and provenance of the material have all typical to flysch features and accordingly form together with lower Cretaceous sediments entire calcareous-clastic flysch formation within the eastern part of the Great Caucasus backarc basin (Eastern (Chiauri-Dibrar) Flysch Basin).

Within the river Aragvi basin trace fossils have been detected in the cross-sections of the Jakha – Tsikhisdziri area and Zhinvali-Tianeti road. Trace fossils are related to the Campanian Jorchi and Maastrichtian Sabue suites.

Preliminarily defined by the authors ichnocomplex in Upper Cretaceous deposits of the river Aragvi basin: Chondrites intricatus (Brongniart), Ch. targionii (Brongniart), Ch. affinis (Brongniart), Halopoa imbricata Torell, Helminthopsis isp., Megagrapton isp., Ophiomorpha annulata (Książkiewicz), Oph. rudis (Książkiewicz), Planolites isp, Protopaleodictyon isp., Scolicia strozzii (Savi & Meneghini), Spirorhaphe isp.,Thalassinoides isp., Trichichnus linearis Frey, Zoophycos isp. - refers to deep sea *Nereites* ichnofacies.

According to Santonian-Maastrichtian facies distribution and paleogeographic map (Tsagareli A.,1954, fig.33) during the Late Senonian northern part of Zhinvali-Gombori structural-morfological unit represented deep marine depositional environment emerged with turbidite accumulation. The preliminary results of our paleoichnological studies completely match with this assumption.