

## On the Lithology of Paleocene-Lower Eocene Deposits of the Achara-Trialeti Fold Zone: The Lesser Caucasus

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**Abstract :** The Caucasus is a link of the Alpine-Himalayan fold belt and involves the Greater Caucasus and the Lesser Caucasus fold systems and the Intermountain area. The study object is located within the northernmost part of the Lesser Caucasus orogen, in the eastern part of Achara-Trialeti fold -thrust belt. This area was rather well surveyed in 70th of the twentieth century in terms of oil-and-gas potential, but to our best knowledge, detailed sedimentological studies have not been conducted so far. In order to fill this gap, the authors of the present thesis started research in this direction. One of the objects selected for the research was the deposits of the Kavtura river valley situated on the northern slope of the Trialeti ridge. Paleocene-Lower Eocene deposits known in scientific literature as 'Borjomi Flysch' (Turbidites) are exposed in the mentioned area. During the research, the following methodologies were applied: selection of key cross sections, a collection of rock samples, microscopic description of thin sections, mineralogical and petrological analysis of material and identification of trace fossils. The study of Paleocene-Lower Eocene deposits starts with Kavtura river valley in the east, where they are well characterized by microfauna. The cross-section of the deposits starts with Danian variegated marlstone conformably overlain by the alternation of thick and thin-bedded sandstones (thickness 40-50 cm). They are continued with interbedded of thin-bedded sandstones and shales(thickness 4-5 m). On the sole surface of sandstones ichnogenera 'Helmintopsis' and 'Scolicia' are recorded and within the bed -'Chondrites' is found. Towards the Riverhead, there is a 1-2 m gap in sedimentation; then again the Paleocene-Lower Eocene sediments crop out. They starting with alternation of grey-green medium-grained sandstones and shales enclosing dark color plant detritus. They are overlain by the interbedded of calcareous sandstones and marls, where the thickness of sandstones is variable (20-70 cm). Ichnogenus - 'Scolicia' is found here. Upwards the above-mentioned deposits pass into Middle Eocenian volcanogenic-sedimentary suits. In the Kavtura river valley, the thickness of the Paleocene-Lower Eocene deposits is 300-400 m. In the process of research, the following activities are conducted: the facial analysis of host rocks, correlation of the study section with other cross sections and interpretation of depositional environment of the area. In the area the authors have found and described ichnogenera; their preliminary determination have shown that they belong to pre-depositional ('Helmintopsis') and post-depositional ('Chondrites') forms. As known, during the Cretaceous-Paleogene time, the Achara-Trialeti fold-thrust belt extensional basin was the accumulation area with great thicknesses (from shallow to deep marine sediments). It is confirmed once more by the authors investigations preliminary results of paleoichnological studies inclusive.

**Keywords :** flysch deposits, lithology, The Lesser Caucasus, trace fossils

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