



Biostratigraphy, Sedimentology and Paleogeography of the Miocene-Oligocene section, South-Eastern Edge of the Greater Caucasus

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Miocene-Oligocene deposits are widely distributed within the boundaries of the South-Eastern edge of the Greater Caucasus, both as geological outcrops as well as well drilling penetrations. There are about 26 Oligocene-Miocene sections in the Shamakha-Gobustan hydrocarbon province that been studied by local geoscientists. However, they are represented mostly just partly, and do not include all stratigraphic subdivisions of Miocene-Oligocene, which is related to poor exposure in the area. The only complete section, without depositional breaks can be seen on the eastern slope of Islamdag mountain, within the boundaries of Central Gobustan. This section includes outcropping rocks representing the whole stratigraphic age, starting with Meotian (Upper Miocene) and up to Rupelian (Lower Oligocene). This section was described for the first time by V.V. Weber in 1931, and later in 1949 by I.P. Zhabrev and A.G. Afandiyev. They established marker bed in this section, at the boundary of Upper and Lower Miocene, represented by coloured marls (Weber). There were no more studies done on that section after that.

Detailed study of the mentioned outcrop has been carried out by the authors in summer of 2018. Total thickness of the section is about 600m. In total 113 samples were taken, described, field radioactivity of samples was measured. Integral radioactivity of sampled rocks varies in a wide range – from 0.5 to 42cpm, and changes observed are fully depend on the variation of stratigraphic subdivisions of Miocene-Oligocene section in the area study.

At the next stage, macro and micro-biostratigraphic investigations of collected samples were carried out. Presence of the fish casts and leaf prints was established in some samples. Fragments of Pelecypoda sp., Gasyropoda sp., Otolites sp., fish remains (teeth, vertebra), as well as Spaniodontella sp., Spirialis chokrakensis and Spirialis tarchanensis, impressions of soft bodies of the invertebrate animals, sea urchin, insect and tadpole were also found. Microfauna of rocks was also studied. These investigations, together with the field radiometry allowed detailed sectional layering in accordance with the Stratigraphic code of Azerbaijan (1998): Rupelian (Lower Oligocene), Chattian stage (Upper Oligocene), Caucasus (Lower Miocene), Sakaraul (Lower Miocene), Kotsakhur (Lower Miocene), Tarkhan (Lower Miocene), Chokrak (Upper Miocene), Karagan (Middle Miocene), Konkian (Middle Miocene), Lower Sarmatian (Middle Miocene), Middle Sarmatian (Upper Miocene), Upper Sarmatian (Upper Miocene), Lower Meotian (Upper Miocene), Middle Meotian (Upper Miocene) and Upper Meotian (Upper Miocene).

Analysis of collected biostratigraphy data together with the data from the previous studies allows to conclude that during Miocene-Oligocene, as well as Oligocene-Lower Miocene (Maykop) time the territory of Central Gobustan, represented paleo-basin, which remained within the limits of shelf zone.