ARKHYS – THE FIRST METEORITE CRATER IN THE CAUCASUS. Hryanina L. P., Vityasev A. V.
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The Arkhys meteorite crater is a depression in the valley of the Large Zelenchuk river. The coordinates – 43°36´N and 46°19´E, primary D – about 2 km, visible depth from the foot to the top of socle rim is about 250 m. Crater was displaced along the latitude fault about 0.5 km to the East, and has raised on 15-20 m, Crater located in the imtermediate zone, between the crystalline rocks of the great Caucasus Ridge and the young monoclinel of the North Advance ridges. The region has a block structure. The Palaeozoic block on the left bank of the L. Zelenchuk consists of suites the large pebble conglomerates, chlorite slates and phillites (Pz_2) Among these there is a horizon of limestone. To the South of the latitudic fault (see Fig. 1) there is a great graben. It is made up of conglomerates and sandstones of C_3, red beds rocks of P_1, P-T-conglomerates, and slites of J_1. Great gabbrous intrusive there is on crater boundary on East [1].

Socle rim on the left bank has the lying synclinal. Autigenous and allogenous breccias were observed in heaps, brought by avalanches, which fall every spring from the ridges behind of rim on the left bank. Intrusive veins of allogonous breccias were observed in quartz-barite fragments. Numerous grains of quartz in allogenous breccias (thin sections) have planar features of the systems m,π,ω, and more rare – others.

Around the crater there are break valleys on the L. Zelenchuk and Kizgich rivers (Fig 1.). Artesian basin flows out through the fault behind the socol rim. (Fig. 1).

The gravity anomaly is –3-4 mGal in the center of the crater (preliminary calculation of Lobanov A.M.) Measurements were taken by N. G. Alekseeva with the “Hydrogen Geophysical Signalisator” (VSG-1), which measures the quantity of hydrogen in the soil level. The measurements testified peaks of hydrogen over the faults, and these peaks are more intensive over the deep of faults.

References: [1] In Russian 1962.

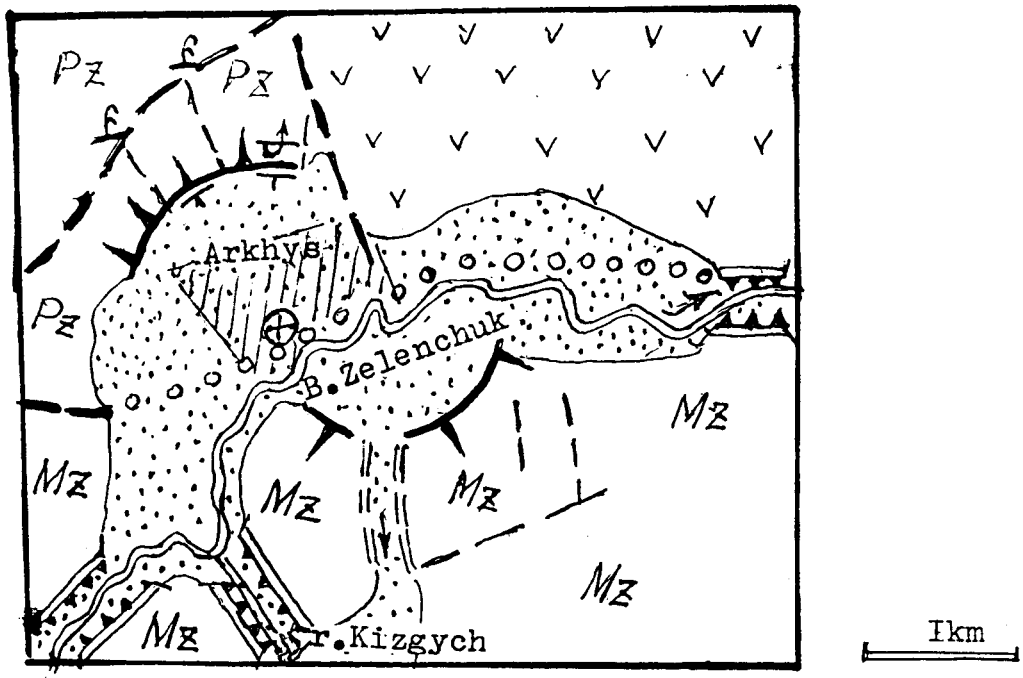

Fig. 1. Geological scheme of Arkhys meteorite crater regions [1]. 1 – Palaeozoic rocks, 2 – Mesozoic rocks, 3 – Young rocks, 4 – Gabbro, 5 – Visible foot of crater rim, 6 – Break valleys, 7 – Relict valley, 8 – Faults, 9 – Faults under young rocks, IO- Inclination and overturned beds, II – Epicentre of gravianomaly, I2 – Artesian springs.