
1. Circular depression Logancha is placed in the basin of Nizhnyaya Tunguska river in Krasnoyarsk province (65°30′N, 95°50′E). The terrain is composed of basalts and pyroclastic deposits belonging to the trap formation of the Lower Triassic age. These rocks have a thickness ~1 km and lie almost horizontally over the Upper Permian aleuropsammites with the layers of carbonaceous and clayish shales, lenses of coal and layers of limestones.

2. Structure Logancha is circular with diameter 20 km. Apparent (rim crest to bottom) depth of the crater is 500 m. Rolling plain of the bottom is composed of glacial deposits which age is 125,000 y that is upper limit of the structure age. Lower limit of the age ~200 my is determined from the trap age. Schematic map of the structure with the contour lines through 100 m is given on Fig.1. Small triangles on the scheme designates maximum elevations of the rim and the dashed line designates the approximate boundary of the structure. Drainage network is also shown on the scheme, "L" designates Logancha river.

3. At the centre of the structure there is an uplift composed of the Upper Permian sediments and lower parts of the trap formation. In contrast to the surrounding territory, where these rocks occurrence is subhorizontal, within the uplift they are faulted and dip at various directions at the angles as large as 30 to 80°. Probable diameter of the central uplift is ~4 km, height over the bottom of the depression 50-70 m, amplitude of the stratigraphical uplift is more than 0.5 km.

4. Shatter cones with the height up to 30-50 cm, vortex angle up to 40°(Fig.2a,b), angles of dip of the cones vary from 5 to 70°, on average 30°. Cross on the scheme designate an outcrop where shatter cones were observed in the bedrock basalts.

5. Authigene breccias and typical dipping and overlapping of the rock layers were revealed at the rare bedrock outcrops within the river valleys.

6. Ring-like magnetic anomaly with the lowered intensity of the magnetic field and smoothed gradients of the vertical component is characteristic for the structure.

7. The morphology of Logancha depression, a presence of central uplift and shatter cones within the uplift rocks are thought to be an indication on probable meteorite impact origin of the structure.

8. From the point of view of mechanics of crater formation a target of the Logancha area is very specific: 1 km-thickness layer of dense and cohesive Triassic basalts is underlyed by low-cohesive Permian sedimentary rocks. A specific of crater formation in such target has not been studied.

9. Low-angle inner slopes of the depression (5-7°) permit to suppose that the initial diameter of the crater was less than now-observed (20 km) and was increased due to erosion. A lower estimation of the initial diameter (14 km) can be obtained from the calculated size of the transient crater having H/D = 1/4 and a volume equal to the depression volume.

10. A discovery of shatter cones at the level of 30-50 m lower
than the uplift top indicates on the shock wave amplitude as low as 20 to 50 kbar[1,2] while the rocks of the top of the central uplift of meteorite craters are usually metamorphosed by more intensive shock waves (up to 200-300 kbar[3,4]) that give evidence on a certain erosion of the central uplift of Logancha structure.