A POSSIBLE IMPACT STRUCTURE IN SOUTHERN MONGOLIA: INDICATION OF PRESERVED FLUIDIZED EJECTA BLANKET?

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A hypothesized impact crater (43°37'N, 98°22'E, GPS coordinates 43°38'41.1''N, 98°22'08.5''E) in southern Mongolia was identified in the transition zone between the Gobi Desert and the Altai Mountain Range. The basin fills are Mesozoic, mostly Cretaceous in age, but thin Quaternary alluvial materials overlie the Mesozoic sequence. The crater is located in the middle of an east-west trending basin about 10-20 km wide. The basin is tilted slightly toward the south. The crater must be younger than Cretaceous, and its preservation indicates an age as young as Quaternary. The crater is relatively well-preserved with a raised rim outlining its circular shape. The rim to rim distance is about 3.6 km. The rim lacks its northwestern segment, and it is fluvially dissected radially. The area inside the rim is filled with fluvial sediments, which were deposited from north to south. On the eastern side of the structure, we observed a raised outer rim, about 1 to 2 km outside the inner rim. This outer rim is lower than the inner rim in height. The area between the inner and outer rims is covered with desert pavement, and this area gently dips down and outward. We are in the process of analyzing samples from the crater in order to confirm or reject the impact hypothesis. The outer rim is possibly a rampart (fluidized ejecta blanket), which is commonly observed with Martian craters. The rampart implies that the impact occurred in a ground water or ice zone.