Geophysical Research Abstracts
Vol. 16, EGU2014-688, 2014
EGU General Assembly 2014

METEORITE IMPACT LAKES: DIFFICULTIES OF THE EVIDENCE FOR ORIGIN

Tatyana Sapelko, Mikhail Naumenko, and Denis Kuznetsov
Institute of Limnology of Russian Academy of Sciences, St.Petersburg, Russia (tsapelko@mail.ru)

In addition to volcanic and tectonic activity on the border of the Late Pleistocene and Holocene occurred and other disastrous events that are reflected in the history of the lakes. The recognition of meteorite impact crater lakes is impeded by difficulties in finding evidence of an impact origin. Such lakes have been recognized (Hartung and Koeberl, 1994) by their circular shape, their occurrence outside of areas where other mechanisms for circular depression formation are readily apparent, and the preservation of meteorite or ejected glass fragments (Cohen. 2003).
Meteorite impact Lake appeared not only in early periods (like Lake El'gygytgyn and Lake Yanisyarvi in Russia), but in the Late Pleistocene and Holocene as well. One of these lakes is located in the Nizhny Novgorod region of Russia. Svetloyar (56º49' N; 45º05'E; 109 m a.s.l.) – lake with a small area of 0.15 km2 and a great depth of the lake up to 35 m., a circular shape, surrounded on three sides by hills , reaching 15 m above the lake level. On the lake we have carried out paleolimnological and hydrological investigations.Interdisciplinary researches included sedimentological, geochemical, pollen, diatom, radiocarbon and other analyses of lake sediments. Based on field measurements, we created a digital morphometric model of the bottom depths and slopes of the lake. Using the all results we are reconstruct the Lake's history and climatic changes. We establish a long hiatus after the disappearance of large lake on the border of the late Pleistocene and Holocene. For comparison we were have studied three of the morphometric similar lakes in the Nizhny Novgorod region. According to preliminary data the history of any of these lakes is not similar the Lake Svetloyar history. We discuss our results and have compared with data on the meteorite Lake Kaali , Estonia (Rasmussen et al., 2000; Raukas et.al,1995; 2002; Veski et.al, 2001, 2002, 2004).