# STRONG MEDIEVAL EARTHQUAKE IN THE NORTHERN ISSYK-KUL LAKE REGION (TIEN SHAN): RESULTS OF PALEOSEISMOLOGICAL AND ARCHEOSEISMOLOGICAL STUDIES

**A.M. Korzhenkov[1, 2], E.V. Deev[3, 4], D.V. Luzhanskii[2], S.V. Abdieva[2], A.R. Agatova[5, 6], J.V. Mazeika[7], M.Yu. Men'shikov[8], E.A. Rogozhin[1], S.N. Rodina[1], M.V. Rodkin[9], A.A. Sorokin[1], A.B. Fortuna[10], T.A. Charimov[10], J. Shen[11], A.S. Yudakhin[2]**

[1] Schmidt Institute of Physics of the Earth, Russian Academy of Sciences, Moscow, Russia
[2] El'tsyn Kyrgyz-Russian Slavic University, Bishkek, Kyrgyzstan
[3] Trofimuk Institute of Oil and Gas Geology and Geophysics, Siberian Branch of the Russian Academy of Sciences, Novosibirsk, Russia
[4] Novosibirsk State University, Novosibirsk, Russia
[5] Institute of Geology and Mineralogy Siberian Branch of the Russian Academy of Sciences, Novosibirsk, Russia
[6] Ural Federal University named after the first President of Russia B.N. Yeltsin, Ekaterinburg, Russia
[7] State Scientific Research Institute «Nature Research Center», Vilnius, Lithuania
[8] LLC «Capital Archaeological Bureau», Moscow, Russia
[9] Institute of Earthquake Prognosis' Theory and Mathematical Geophysics, Russian Academy of Sciences, Moscow, Russia
[10] Institute of Seismology, National Academy of Sciences of Kyrgyz Republic, Bishkek, Kyrgyzstan
[11] Institute of Catastrophes Prevention, Beijing, China

**Abstract.** A number of archeological monuments in the Northern Issyk-Kul lake region (the Tien Shan) in Chet-Koysuu and Chon-Koysuu river basins had been studied. All monuments were undergone by significant seismogenic deformations and destructions. A cromlech (VII century BC – VIII century AD) was displaced by sinistral strike-slip fault. A kurgan (VII–XIII centuries AD) was deformed in a front of the reversed fault scarp. A fortress (XIV–XV centuries AD) has submerged under the lake water during the catastrophic subsidence of the coastal belt. We have identified a zone of the seismogenic rupture. It is located along the Kultor border fault, which divides the Issyk-Kul depression and its mountain surrounding – Kungey Ala-Too Range. During the earthquake there was formed a seismogenic reverse fault scarp. A magnitude of displacement along the rupture was 1.6 m that corresponds to an earthquake with $M_S \geq 7$ and seismic intensity oscillations of $I_0 \geq$ IX. Charging by numerous radiocarbon datings of submerged wood, which were used during building of the fortress (end of XIV – beginning of XV centuries AD). The earthquake has occurred in XVI century AD, which could cause to declination of Mogol civilization in the northern Issyk-Kul lake region.

*Keywords:* archeoseismology, paleoseismology, seismic fault scarps, megaliths, kurgans, submerged cities, ancient earthquakes, medieval centuries, the Issyk-Kul lake, the Kungey Ala-Too range, the Tien Shan.