

TECTONIC EVOLUTION OF THE ISSYK-KUL BASIN IN THE REGIONAL COMPRESSIONAL SETTING OF THE TIEN-SHAN (KYRGYSTAN)

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Lake Issyk-Kul is one of the largest and deepest lakes in the world. It fills a large continental tectonic depression in the Northern Tien-Shan mountain range of Kyrgyzstan. Its present day setting in the tectonically active region was investigated by on-shore and off-shore methods. The lake shores were analysed by remote sensing, structural geology, paleostress analysis, fault slip kinematics and radon activity measurements for determining active faults. Off-shore investigations concerned high-resolution seismic profiling and sedimentology. The basin started to form in the Miocene in transtensional conditions. A change in tectonic regime from a transtensional to transpressional setting since the Middle Pleistocene caused reactivations of pre-existing faults. The basin dimensions were significantly reduced during this process, while border faults migrated towards the inner part of the basin. Our recent observations do not confirm the commonly accepted contemporary ramp-basin tectonic model for the lake's evolution. We propose that under the present N-S compressional stress field, steeply dipping faults have been reactivated as reverse faults. Strike-slip faults are presently reactivated in a transpressive way. Within the lake basin, active anticlinal folding is observed on land and in the lake basin. Based on the continuation of these basin structures on-shore, it is assumed that the folding is related to transpressive movements.