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Neusiedlersee/Fertö Tó area (Austria/Hungary): minimum estimates of former lake levels

E. Draganits (1), A. Zámolyi (2), S. Gier (2), B. Hodits (2), U. Exner (2), C. Janda (3) and B. Grasemann (2)

(1) Institute for Engineering Geology, Vienna University of Technology, Austria (Erich.Draganits@tuwien.ac.at), (2) Department of Geodynamics and Sedimentology, University of Vienna, Austria, (3) Geological Survey, Vienna, Austria

The Neusiedlersee (German) or Fertö tó (Hungarian) and the associated wetlands of the Waasen/Hanság at the Austrian/Hungarian border area represent a unique landscape and ecosystem in Central Europe. The most important hydrographic boundary conditions and their variation in time have been summarized by Draganits et al. (2006). The lake is characterized by pronounced lake-level variation - due to the flat landscape even small variations having impacts on large areas. Continuous measurements of the lake water level started in 1932; during this period, the minimum lake level was 114.50 m (measured in altitude above the Austrian zero-level at Trieste, Adriatic Sea, source: http://byc.at), the maximum value reached 116.08 m and the mean value was 115.30 m (source: http://byc.at). Today's (15-01-2007) lake level is 115.44 m above sea level. Different lake levels have important influences on the local micro climate, tourism and agriculture, raising the question of former lake levels. Recent low levels have also stimulated discussion about possibly lake scenarios in a global change setting. The formerly much larger extents of the lake are indicated by historical topographic maps and outcrops of lake deposits (Draganits et al. 2006), but precise altitudes of maximum lake levels are presently unconstrained. Outcrops are very rare, the best exposed sections can be found in construction pits. We have investigated lake mud in an artificial trench for a new sewage line, close to the football ground of Jois village. The c. 3.5 m long lithostratigraphic section started above the local ground water table with grayish, silty clays containing some badly preserved bivalves followed by some 1 m thick soil. The silty clays unequivocally represent lake sediments; the locality of the investigated section is situated close to the western termination of an extremely flat

area, directly west of the lake and in obvious geomorphologic relationship to the lake. We have used differential GPS to measure the altitude of the ground surface at the section locality, which is indicated best by triangulation point of the Federal Office of Metrology and Surveying, situated some 200 m away from the section towards the lake. The triangulation point indicates an altitude of 117.65 m for the ground surface there, which represents a close approximation for the altitude of lake deposits in this area. We therefore conclude that the altitude of 117.65 m represents a minimum altitude for at least episodic former lake levels of the Neusiedlersee, which is more than 2 m (!) above the present level.

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