



Multichannel seismic surveying on Lake Balaton, Hungary, providing insights into high-resolution basin stratigraphy and neotectonic habitat

Zs. Tóth (1), P. Szafián (2), G. Bada (2), G. Göncz (3), and V. Spiess (4)

(1) Eötvös Loránd University, Budapest, Hungary (zsuzsanna.toth@gmail.com), (2) TXM Oil and Gas Ltd., Budapest, Hungary, (3) MOL Plc., Budapest, Hungary, (4) University of Bremen, Bremen, Germany

We present the results of multichannel seismic measurements carried out on Lake Balaton in the Pannonian basin. In total, 145 km of 2D seismic data were acquired providing a detailed image of the subsurface with ca. 10 m resolution down to the depth of 150-200 m, covering the entire eastern part of the lake. Due to the experimental nature of the seismic acquisition – marine type equipments used in a shallow, lacustrine environment – data processing required extensive and thorough testing of processes and parameters. Multichannel data were complemented with single channel seismic profiles with ultrahigh resolution, though with more shallow penetration. The combined seismic data sets enabled us to i) image the detailed architecture of the prograding delta system filling up the Pannonian basin during late Miocene times, and ii) to reconstruct the neotectonic habitat of the region by the detailed mapping of post-Miocene deformation features (faults and folds). The outcome of our study confirms on one hand that active deformation is affecting the central part of the Pannonian basin. On the other hand, stratigraphic interpretation of seismic data revealed the importance of source-sink relations in the Pannonian sequence of clastic sediments in a prograding delta system. All these features are highlighted by a number of well selected seismic profiles.

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