Geophysical Research Abstracts
Vol. 12, EGU2010-10097, 2010
EGU General Assembly 2010

Miocene deformation of the central Vienna Basin (Austria-Slovakia)

András Zámolyi (1,2), Eun Young Lee (1), Andreas Beidinger (1), Maria Hoprich (1), Philipp Strauss (3), and Kurt Decker (1)

(1) Dept. of Geodynamics and Sedimentology, Center for Earth Sciences, University Vienna, Austria (andras@zamolyi.info), (2) Dept. of Geophysics and Space Sciences, Eötvös University, Budapest, Hungary, (3) OMV Exploration & Production GmbH, Vienna

The project KARPATIAN TECTONICS SLOVAKIA aims at the creation of a comprehensive geologic model of the structural evolution of the Vienna Basin area before the onset of major subsidence related to pull-apart deformation, i.e., during the Lower Miocene. Seismic data acquired by OMV from the central Vienna Basin and from the region east fo the Drösing depression, as well as outcrop data provide the basis for structural geologic interpretation of the entire central Vienna Basin. In this study, we focus on the complex structural evolution that can be mapped from these seismic datasets complementing the deformation geometry and history of the region east of the Spannberg ridge.

The structural inventory found in the central Vienna Basin consist of (i) ENE and WSW dipping normal faults, (ii) SE- to ESE-dipping thrust faults, (iii) NW - SE-striking sinistral strike-slip faults (Hölzel et al., in press). These structural features can be found above the nappes of the Austroalpine Calcareous Alps, the nappes of the Tirolic and Bajuvaric superunits. In this study, we can complement the structures from East to West as follows: (1) The continution of the Lassee negative flower structure reaches up along the Lab fault system to the Laksary elevation. Here, it widens and branches off into at least two major branches engulfing the Laksary elevation. (2) N – S striking strike-slip faults penetrating the accoustic basement as well as Karpatian strata possibly form a continuing system that branches off of the Zwerndorf transform fault system. (3) In the center of the Gajary depression, normal faults offset the accoustic basement above sediments of the Upper Cretaceous Gosau Group. These features can be dated by Karpatian growth strata. However, the normal faults were not always active at the same time as indicated by the geometry of the sedimentary strata bounded by the normal faults. (4) At the western boundary of the Gajary depression, smaller scale normal faults deform the Aderklaa Conglomerate (Top Karpatian). (5) NW – SE trending grabens in the basement and Karpatian strata occur in the center and SE corner of the Gajary depression. (6) The entire Karpatian sedimentary stack including the Top Karpatian is tilted towards the West forming the central part of the Levare depression to the North of the Gajary depression.

Hölzel, M., Decker, K., Zámolyi, A., Strauss, P., Wagreich, M. (in press): Lower Miocene structural evolution of the central Vienna Basin (Austria). Marine and Petroleum Geology