

The geological evolution of the Vienna basin and interpretation of seismic profiles across the western margin of the basin

Abstract

The Vienna basin represents an example of a Neogene pull-apart basin developed between two orogenic systems – the Eastern Alps and West Carpathians. Their different Miocene geodynamic played the key role in opening of the basin. The pull-apart mechanism was significantly influenced by a rotation in the Middle Miocene. This thesis summarize the geodynamic development of the basin with regard to Tertiary evolution of the wider Carpathian - Pannonian area and paleomagnetic description of a rotation of ALCAPA unit. The Lower Miocene basin is superimposed on stack of nappes of the Alpine - Carpathian thrust belt. It was formed as a piggy-back basin on the top of overthrust nappes. During the Karpathian, a new tectonic settings was established, due to the change of geodynamics within the Alpine – Carpathian area. In the Badenian, the important NE – SW trending faults were developed. The Steinberg and Schrattenberg synsedimentary faults considerably participated in the formation of the west margin of the Vienna basin, and controlled a deposition of the Neogene sedimentary fill, reaching a maximum thickness of 5500 m. In my undergraduate thesis, I target the local development of the western margin within the Czech part of the basin and describe the faults system. By processing 2D seismic profiles covering the area between Velké Bílovice and Czech border (southwards of Břeclav), I present my interpretation of the course of Steinberg and Schrattenberg fault systems and their tectonic echo in the wave field of the seismic profiles. The interpretation was carried out using the software Petrel.