garnet-bearing metapelitic and metabasic samples from the localities Grögöd and Aubach, near Passau in Bavaria were sampled. The samples belong to the Kropfmühl Unit which is a part of the Variegated (Bunte) Series. Grögöd and Aubach are situated in the Bavarian Terrane, which was strongly overprinted during the Bavarian Phase (*LP-HT* regional metamorphism) at around 325 Ma. The metapelitic rocks in Grögöd contain the mineral assemblage garnet + sillimanite + plagioclase + quartz + biotite ± cordierite ± orthopyroxene ± amphibole (cummingtonite) and no evidence for high-*P* relicts (e.g., kyanite) were found. Multi-equilibrium thermobarometric calculations, using THERMOCALC v. 3.21 and Ti-Bt-thermometry of the metapelites yielded pressures ranging from 0.5-0.6 GPa and temperatures of 700-800 °C. The mineral assemblage of the associated metabasites is clinopyroxene + orthopyroxene + amphibole + biotite + plagioclase + sillimanite + ilmenite + quartz. Thermobarometry of these samples, using THERMOCALC v. 3.21 and Ti-in-biotite-thermometry yielded *P-T* conditions of 500-750 °C and 0.5-0.6 GPa. The granulites from Aubach contain the mineral assemblage garnet + biotite + muscovite + spinel (hercynite) + kyanite + sillimanite + andalusite + K-feldspar + plagioclase + rutile + ilmenite + quartz. Kyanite only occurs as relict phase and andalusite grew during later stages. Multi-equilibrium thermobarometric calculations, using THERMOCALC v. 3.21 yielded minimum pressures of 1.0-1.2 GPa at temperatures of ca. 800-900 °C for garnet core compositions in order to be consistent with kyanite stability. The results of the study show that the samples from Grögöd only represent a late-Variscan L*P*-H*T* metamorphism, since the *P-T* data are similar to the Sauwald area in Upper Austria and they do not show any evidence of H*P*-H*T* metamorphism. The presence of kyanite in the samples from Aubach indicate at least minimum pressures of 1.0-1.2 GPa at temperatures of 800-900 °C, which correlates well with the *P-T* data of the Gföhl Unit, indicating a possible southward continuation of this unit.

Finger, F. et al. (2007): Resolving the Variscan evolution of the Moldanubian sector of the Bohemian Massif: the significance of the Bavarian and the Moravo-Moldanubian tectono-metamorphic phases. - J. Geosci, **52**: 9-28.

## Beyond conventional 3-D seismic acquisition and processing techniques - a status report about imaging the deep Vienna Basin

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Imaging the deeper levels of the Vienna Basin is of great interest for OMV. Discoveries in the Cretaceous section of the Vienna Basin triggered a new phase of exploration, which requires re-thinking of concepts and strategies concerning seismic data processing and acquisition. So far, well-known and robust techniques have been applied successfully to record and process seismic data in the Neogene units of the Vienna Basin. However, new discoveries and future prospects are considerably deeper and within a highly complex structural setting. This environment challenges conventional processing routines and acquisition methodologies; it requires more sophisticated technology and techniques to enable confident and accurate structural imaging.

The choice of an efficient data processing sequence is a critical step on the way to successful imaging of deep structural features. The present study shows the result of different processing techniques in time including (i) pre-stack time migration (PSTM), (ii) pre-stack depth migration (PSDM) and (iii) common reflection surface (CRS) processing. PSTM was the preferred approach for the relatively shallow Neogene section, whereas PSDM and CRS processing yield improved images from the deeper Cretaceous section.

Comprehensive acquisition planning is also a critical success-factor for imaging a complex geological setting as the deep Vienna Basin. Therefore OMV has recorded two 2-D seismic lines across the basin to investigate (i) the advantage of long-offset data and (ii) dynamite versus vibrator source fidelity. Those test revealed that a strong seismic signal recorded at long-offset data is essential for the illumination of deeper targets. Unsurprising, this outcome supports the initial assumption that a new seismic data set would be required to unlock the potential of hydrocarbon reservoirs beneath the Neogene part of the basin.

Based on the results from above mentioned studies, a detailed acquisition design study has been initiated by OMV in close cooperation with TU Vienna. In the first part of the project a comprehensive structural/geophysical model has been designed, which includes seismic velocities and the preliminary understanding of geological structures in the basin. In the second part of the study this model is applied to determine several key parameters, like sampling interval, seismic resolution, maximum achievable frequency, migration apron and maximum offset. The further purpose of this model-based survey design was to illuminate and image the subsurface model in an optimum way by using ray tracing.

This basic work yields great insights into the complex of difficulties and will be the foundation for future studies. OMV will further pursue this challenge - most likely including recent developments in imaging (i.e. reverse time migration, waveform inversion), which have not been considered in this project yet.