extensional system caused by Carpathian collision formed. Towards the NW extensional features are replaced by strike-slip related basement pop-up structures (e.g. Ryszkowa Wola High; Fig. 1). Basement wrenching resulted from the Miocene reactivation of inherited Mesozoic fault zones, obliquely oriented in respect to the advancing Carpathians. Localised basement uplift led to formation of complex fault zones within the Miocene sedimentary infill.

Mid-Polish Trough (MPT) developed along the NW-SE trending Tornquist – Teisseyre Zone from Permian to Cretaceous times and was filled with several kilometres of sediments including thick Zechstein evaporites. MPT was inverted in Late Cretaceous – Palaeocene times, at which time its axial part was eroded (see Krzywiec, 2002 for recent overview and

References


Role of the SW Margin of the East European Craton During the Mid-Polish Trough Mesozoic Development and Inversion – Integration of Seismic and Potential Field Data

Piotr KRZYWIEC and Stanislaw WYBRANIEC
Polish Geological Institute, ul. Rakowiecka 4, 00-975 Warsaw, Poland
detailed references). MPT is located along the SW margin of the East European Craton (EEC), hence it could be expected that this prominent crustal boundary played important role during MPT’s evolution. In order to investigate this role results of interpretation of 13 regional petroleum seismic profiles have been integrated with various gravity and magnetic maps of

Fig. 1. Location of the main tectonic zones (dashed white lines) along the NE margin of the East European Craton related to the development and inversion of the Mid-Polish Trough. Dashed black lines – other tectonic zones identified within the MPT’s pre-Zechstein basement. Thin black lines – regional seismic profiles (fragments) located above the EEC’s SW margin.
Poland. Interpretation of seismic data was focused on identification of potential sub-Zechstein fault zones responsible for MPT’s subsidence and inversion. Low quality of seismic data related to strong seismic energy attenuation by the Zechstein evaporates did not allow to directly identify such fault zone. In order to locate them a model of decoupled basin’s evolution with regional decoupling level related to the Zechstein evaporates has been adopted. Sub-Zechstein fault zones were located using mainly location of the zones characterised by significant thickness variations of the Mesozoic successions. Reconstructed profiles for end of Zechstein, end of Triassic and (for majority of the profiles) end of Jurassic have been also constructed (Fig. 2) in order to visualise role of the sub-Zechstein fault zones. Correlation of identified fault zones with gravity and magnetic data (Fig. 2) proved that NE MPT’s boundary in Mesozoic times was strictly controlled by the EEC’s SW margin defined by potential fields.

Results presented in this paper have been obtained within the PGI’s research project No 6.20.9416.00.0 co-ordinated by Prof. C Królikowski and supported by the State Committee for Scientific Research (KBN).

References