

**AAPG International Conference  
Barcelona, Spain  
September 21-24, 2003**

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**Role of Structural Decoupling in Carboniferous Evolution of the Lublin Trough (SE Poland)**

The Lublin Trough (LT) forms a narrow depocenter striking in SE - NW direction along the SW edge of the East European Craton. Its substrate is composed of relatively undeformed Vendian, Lower Palaeozoic and Lower-Middle Devonian deposits, mostly clastics. Present-day NE and SW boundaries of the LT are distinct structural zones.

The basin-fill comprises various epicontinental deposits, up to 4 km thick, ranging from deeper shelf marly facies (mostly Upper Devonian), to shallow-water carbonate ramp (upper Lower Carboniferous) to marginal marine and coal-bearing alluvial systems (Upper Carboniferous). Structural development of the basin comprises several stages: (1) establishment of the depocenter in the Frasnian in a presumably extensional regime, (2) latest Devonian/earliest Carboniferous compression and uplift, (3) re-establishment of tectonic subsidence in the Late Visean, (4) compression and structural inversion after Westphalian C(?D).

Seismic data from the NE border of the LT show presence of structures (so-called Kock Fault Zone) characterised by chaotic internal seismic fabric. Overall geometry of these structures suggest that they could be partly formed during the post-Westphalian C diapirism of Silurian graptolitic shales. Seismic reflection data together with grav-mag data and deep seismic refraction data allow to interpret these structures as being developed above deep-seated fault zone.

Seismic data from central part of the LT show evidence for local decoupling most probably related to mid-Devonian evaporates. Slightly deformed Lower Devonian and older rocks are superimposed by complex compressional structures built of the Upper Devonian and Carboniferous strata, and forming several actual and potential petroleum traps.