

## Basement of the Carpathian foredeep at Pilzno (SE Poland) in seismic data

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The basement of the Miocene Carpathian foredeep basin near the town of Pilzno is represented by the Permo-Mesozoic sedimentary cover of the post-Variscan platform. 3D seismic data acquired in this area make possible a reliable interpretation to be done down to the base of the Jurassic carbonate platform. Deeper reflectors are rather chaotic and difficult for interpretation. The Upper Jurassic carbonate sequence is covered by Cretaceous sediments, both dipping to the SE at low angles. The combined thickness of these two units varies from ca 700 to 1 100 m, with reduced values occurring in the NW part of the area, where a structural high appears below the Jurassic sedimentary strata.

Three seismic facies can be identified within the Jurassic carbonate sequence. From the bottom to top these are: (1) lowermost (Lower Oxfordian) strata parallel to the top of the underlying basement, (2) onlapping facies, presumably related to a lower sea level, (3) uppermost sequence with downlap and toplap base and top contacts, respectively. These facies changes may have been due to a syndepositional activity of the structural high.

The Mesozoic succession is dissected by several NW–SE-striking, mostly normal, SW-throwing faults, defining a system of horsts and grabens. Antithetic faults occur both in their hangingwalls and footwalls. Throws on

the major faults reach up to 100 m. Most of the faults reach the base of overlying Miocene sediments at their tops and they do not continue upwards into the fill of the Carpathian foredeep.

In the southern part of the area, where Cretaceous to Paleogene flysch successions of the Outer Carpathians and folded Miocene sediments of the Carpathian foredeep margin are thrust upon undisturbed foredeep strata, the seismic features are of low quality, which precludes their reliable structural interpretation. In this area the reflectors in the foredeep's basement are deflected into an anticline which can be interpreted as a potential hydrocarbon trap. However, in the present author's interpretation, this feature is an artefact (pull up effect) caused by a salt pillow localized right above the "antiform." The salt increases the velocity of seismic waves in relation to that in the surrounding rocks. The presence of this feature allows us to trace the lateral extent of a tectonically thickened salt horizon. The seismic interpretation carried by the author has not confirmed the occurrence of reefs, which are common in adjacent areas within the Jurassic carbonate sequence.

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