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**Factors affecting Reservoir Properties of the Upper Jurassic and the Lower Cretaceous
Carbonate Rocks in Central Part of Carpathian Foreland**

PIOTR GLINIAK¹, RAFAŁ LASKOWICZ¹, ANDRZEJ URBANIEC¹, PIOTR SUCH²,
GRZEGORZ LEŚNIAK²

1 – Polish Oil and Gas Co., Cracow

2 – Oil and Gas Institute, Cracow

The Upper Jurassic and the Lower Cretaceous reservoir rocks of central part of the Carpathian foreland consist mainly with organogenic build-ups and dolomites. The best reservoir properties were observed in bioherm type build-ups. During Late Oxfordian, Kimmeridgian and Tithonian conditions of sedimentation were changed. This change gave as a result reef type organogenic build ups. Also reef type sediments shows good reservoir properties.

The second type of reservoir rocks in this area are dolomites. Dolomitization zones occurs mainly in Upper Jurassic sediments near paleogene erosive troughs, dislocation zones and big organogenic build-ups, ie in places characterized by intensive migration of water. It was shown that occurrence of dolomites are connected with the diagenesis processes. Probably, dolomitization processes were connected with ion changes in mixing zones and flow of thermal water.

Reservoir properties of rocks were strongly modified by Karst phenomena. Broad Karst area containing roof part of Mesozoic sediments was formed in analyzed area as a result of erosion and diagenetic processes. The first cycle from Hauterivian to Albian/Cenomanian is connected with emerging rocks in this period. The second cycle, during paleogene was characterized by intensive, deep erosion. Intensive erosion was connected with formation of deep troughs in Mesozoic basement.

The Karst phenomena played role in distribution of hydrocarbons in Upper Jurassic – Lower Cretaceous zone affecting pore and fracture system, rising permeability and improved connectivity pore, vughs and fracture systems. Additionally, Karst phenomena affect migration of hydrocarbons by connecting fracture and fault systems.

The collection of rock samples from 24 boreholes was prepared to investigations. The authors have tried to choose samples from intervals in which influence of the Karst phenomena were observed. Finally, 140 samples were gathered.

Analyses of intergranular and fracture porosity and permeability were done for all samples. The results show large scale of differentiation of reservoir rocks: from pure fracture rocks, by mixed types (fracture – vuggy – porous) to porous ones. Range of experimental values of porosity and permeability is very large (Tab.1.)

Tab.1. Ranges of petrophysical parameters

Intergranular porosity (%)	Fracture porosity (%)	Intergranular permeability (mD)	Fracture permeability (mD)
0 – 24.82	0 – 12.1	0 – 271	0 - 208

The results were correlated with geological and lithofacial data on the base of structural map of analyzed area and 4 cross sections which covered all investigated area. The correlation allows:

- to find and describe regional trends in development of reservoir and filtration properties of rocks and estimate parameters of all types of reservoir rocks
- to extract the area of fracture and porosity domination in pore space
- to find the area of the best reservoir properties of rocks.

It was found that space distribution of reservoir properties is strongly determined by system of tectonic blocks.