

GEOLOGICAL STRUCTURES LOCATED WITHIN POLISH LOWLANDS' MESOZOIC FORMATIONS AND THEIR CO₂STORAGE CAPACITY

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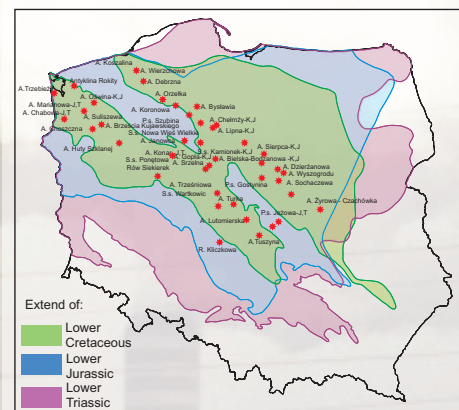
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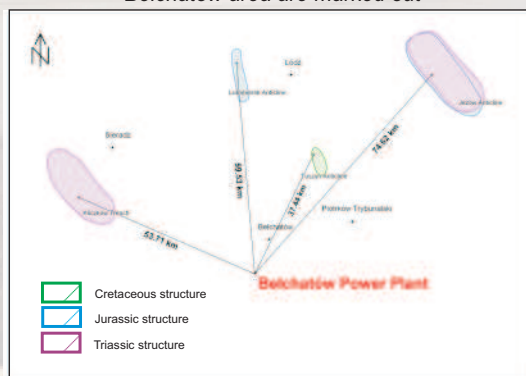
Poland on the European scale represents exceptionally favorable conditions for underground carbon dioxide storage. The latter arises from existence in Poland of thick (several kilometers of thickness) Permo-Mesozoic sedimentary rock complexes, where elevated (anticline) structures occur, combined with salinar tectonics. MEERI PAS performs (in the frames statutory activity and EU GeoCapacity project) research on recognition of possibilities to store carbon dioxide underground in Poland.

Recognition of geological structures for CO₂ storage within Mesozoic brine aquifers (Lower Cretaceous, Lower Jurassic, Lower and Upper Triassic) of Polish Lowlands was done. Basing on criteria issued in: *The best practice for CO₂ storage of saline aquifers*, 37 locations were chosen by MEERI PAS, combined with 48 structures suitable for underground carbon dioxide storage purposes. Eleven of them contain two reservoir horizons with the same location, 17 in a Lower Cretaceous, 18 Lower Jurassic, 13 in a Lower and in an Upper Triassic formations.

Location of geological structures suitable for underground CO₂ storage in Mesozoic deposits of Polish Lowland



Localisation of geological structures for CO₂ storage within brine aquifers of Lower Cretaceous, Lower Jurassic and Lower Triassic of Bełchatów area. Injection points and contours of these structures of Bełchatów area are marked out



Further works on the subject are being realized within the MEERI PAS statutory activities and the National Programme: **„Assessment of formations and structures for safe CO₂ geological storage, including monitoring plans”**, which is coordinated by the Polish Geological Institute and MEERI PAS is a consortium member.

Realization of the National Programme tasks will make it possible, among others, to select and characterize in detail the best structures in Poland (Bełchatów area, Mazovia area together with structures along the line Kozienice-Lublin, Wielkopolska and Kujawy area, Carpathian front and the Carpathian Foredeep area, NW Poland area).

Screening and a preliminary characterization of Mesozoic structures for CO₂ storage within the Bełchatów area has been already completed. For this area the following structures were selected: Jeżów-J anticline, Jeżów-T anticline, Lutomiersk anticline, Tuszyn anticline and Kliczków trough.

Total CO₂ storage capacity of the considered structures is 5006,5 Mt (3980,2 Mt volumetric capacity; 1026,3 Mt dissolution capacity). The aquifers of the considered structures are located within Lower Cretaceous, Lower Jurassic and Upper and Lower Triassic.

The selected and preliminary characterized structures will be the base for source-sink scenarios for Bełchatów power plant (the biggest power plant in Poland and Europe), particularly for the demo plant (a low-emission block) planned to be built there in the frames of EU Flagship programme.

CO₂ storage capacity of structures of Bełchatów area

