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EU GeoCapacity – Towards a Europe-wide GIS of CO_2 Emittants and Storage Sites (WILLSCHER et al., 2008) – discussions

Das EU-Projekt GeoCapacity – ein europaweites GIS mit CO_2-Emittenden und -Speichermöglichkeiten (WILLSCHER et al., 2008) – Diskussion

EU GeoCapacity – opracowanie GIS'u o europejskim zasięgu w zakresie emitentów i miejsc składowania CO_2 (WILLSCHER et al., 2008) – dyskusja

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In their paper (Z. geol. Wiss., **36**, 4/5: 303–320), Birgit Willscher, Franz May, Radosław Tarkowski, Barbara Uliasz-Misiak and Adam Wójcicki gave an outline of Carbon Capture and Storage (CCS) perspectives in Germany and Poland, largely based on geological outline of Permian and Mesozoic strata in Germany and Poland. Properties of geological formations occurring in the areas of future storage sites are of particular importance, as the whole perspective of CCS method depends mostly on geological conditions.

However, in general geological description of selected Palaeozoic and Mesozoic sequences of Poland we found some erroneous information, which need to be corrected. Some of these mistakes can be potentially misleading for readers and, in result, they can provoke negative opinions about the CCS method. To avoid possible future misunderstandings, we would like to point out the following corrections and amendments:

1. Upper Rotliegend in Poland is developed in **fluvial** and aeolian facies. Grey and white wave-reworked sandstones of coastal (foreshore-shoreface) origin occur only at the very top of the Rotliegend (p. 305).
2. Aeolian (and coastal) sandstones of the Upper Rotliegend, sealed by evaporites and fine clastic sediments, occur widely in northern Germany and in Poland. If they are regarded (correctly) as potential storage formation in northern Germany, the same regards Poland (p. 305).
3. Stuttgart Formation (Schilfsandstein) is the main sandstone horizon of Upper Triassic not only in Germany, but also in Poland – similarly, Schilfsandstein can provide good storage potential also in Poland (p. 305).
4. Pliensbachian – Lower Toarcian reservoir-seal couplet) is probably the best storage system in the Polish Mesozoic basin. Therefore, correct information on this particularly important series should be provided. Unfortunately, it is not the case. First of all, the sentence that the sandstone aquifers (generally of good porosity and permeability) "are separated by **discontinuous** series of low permeable sediments (claystones, mudstones, fine-grained sandstones)" (p. 306) is **incorrect**. For example, the Lower Toarcian Ciechocinek Formation (of thickness ranging from 30 m in the peripheries of the basin to more than 100 m in the depocentre), built mostly of greenish mudstones of lagoonal/restricted marine origin, is amazingly **continuous** all over the Polish Basin, providing excellent seal properties. This formation is of a widest spatial extent and lithological unification among all the Jurassic formations in Poland. Moreover, stratigraphic data prove isochroneity of this formation – bit ironically, its origin was associated with one of the most violent carbon cycle disturbances and resulting greenhouse episodes in the whole Phanerozoic! Local (and rare) losses of integrity of this formation can be caused only by disjunctive tectonics or penecontemporaneous erosion. Claiming that the most promising seal is generally discontinuous may provoke negative reactions over the whole storage concept. Other mudstone-clayey formations of Lower Jurassic can also show considerable thickness and regional extent (like the Lower Pliensbachian Łobez Fm and its heterolithic counterpart – Gielniów Fm.). Detailed studies on the Lower Jurassic of Poland were published in a number