



## **Deep formation waters of Western Europe, Russia and North America characterised by sodium, calcium, magnesium and chloride concentrations**

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Deep formation water can be classified according to depth, temperature, and salinity (e.g., Graf et al. 1966, Kharaka & Hanor 2007). Most of the deep formation waters contain dissolved solids in excess of sea water. The hydrogeochemical development of formation water has been discussed for a long time. It is widely accepted that deep aquifers are influenced by the meteoric cycle and geochemical processes within the crust (e.g., Hebig et al. 2012). Similar hydrogeochemical signatures are found in deep formation waters of all continents and can be explained by general geochemical processes within the deep reservoirs (e.g., Land 1995).

Therefore, data of deep formation waters from Western Europe, Russia, and North America are collected and classified by the major water components. The data are used to identify important hydrogeochemical processes (e.g., halite dissolution and albitisation) leading to different compositions of formation water. Two significant water types are identified: Na-Cl water and Na-Ca-Cl water. Based on the collected hydrogeochemical data, development trends are stated for the formation waters, and albitisation is favoured as the main process for calcium enrichment. Furthermore, differences of formation water according to stratigraphical units are shown for deep reservoirs of the North German Basin and the North Sea.

### References:

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