Controls on Cementation in a Chalk Reservoir

In this study, we identify different controls on cementation in a chalk reservoir. Biot’s coefficient, a measure of cementation, stiffness and strength in porous rocks, is calculated from logging data (bulk density and sonic P-wave velocity). We show that Biot’s coefficient is correlated to the water saturation of the Kraka reservoir and is partly controlled by its stratigraphic sub-units. While the direct causal relationship between Biot’s coefficient and water saturation cannot be extended for Biot’s coefficient and porosity, a correlation is also identified between the two, implying that some degree of pore filling cementation occurred in Kraka (Alam, 2010). Lack of correlation between Biot’s coefficient and Gamma Ray (GR) indicates that the small amount of clay present is generally located in the pore space, thus not contributing to frame stiffness. While there was no compositional control on cementation via clay, we could infer that stratigraphy impacts on the diagenetic process.

General information
Publication status: Published
Organisations: Department of Civil Engineering, Section for Geotechnics and Geology, Center for Energy Resources Engineering, Centre for oil and gas – DTU, Schlumberger Norge AS, Danish Hydrocarbon Research and Technology Centre
Number of pages: 5
Publication date: 2017

Host publication information
Title of host publication: Proceedings of the 79th EAGE Conference and Exhibition 2017
Publisher: European Association of Geoscientists and Engineers
DOI: 10.3997/2214-4609.20170940
Source: PublicationPreSubmission
Source-ID: 140684875
Research output: Chapter in Book/Report/Conference proceeding > Article in proceedings – Annual report year: 2017 > Research > peer-review