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An organic-geochemical characterization of Barremian and Aptian sediments in NW Germany

Ulrich Berner and Matthias Heldt
Federal Institute for Geosciences and Natural Resources, Hannover, Germany, ulrich.berner@bgr.de

Within the Lower Saxony Basin of NW Germany sediments of the Lower Cretaceous have been show in published studies to contain abundant organic material. We present a geochemical high-resolution study on organic-rich Barremian and Aptian Paper Shales as well as the Aptian Fish Shale of the larger area. Our study aims at providing additional geochemical information to allow a better judgement on the hydrocarbon potential of the sediments.
The study comprises inorganic geochemistry, organic pyrolyses methods, organic geochemistry including biomarker and stable carbon isotope investigations to characterize palaeo-depositional and -environmental changes, which have significant influences on the production qualities of the Barremian and Aptian shale plays.
Our data shows the Paper Shales to consist of mostly organic rich clay stones deposited in a dysoxic to anoxic environment. The organic-rich Fish Shale contains however, somewhat higher carbonate contents and consists largely of marls, and was deposited predominantly under normal marine to dysoxic conditions. Generally, all sediments contain variable amounts of terrestrial and aquatic organic matter and are classified as oil to gas prone in the deeper and thermally mature parts of the NW German Basin.