

The Cenozoic Petroleum potential in the Danish North Sea

A new study including: Facies analysis based on 3D seismic data, improved reservoir characteristics and improved biostratigraphy.

Cenozoic petroleum systems in the North Sea have been recognized for decades. Current oil production from Paleocene and Eocene sandstones in the Siri fairway proves hydrocarbon accumulations. The current production of shallow gas in Dutch Sector and the new finding of oil in the "Little John" structure, Danish sector, have increased the interest for hydrocarbon exploration in the younger Tertiary succession of the North Sea Basin.

The reservoirs for these hydrocarbon accumulations are mainly fluvio-deltaic systems and associated turbidite deposits. Furthermore, submarine dunes migrated from the Eridanos delta system, located in the southern North Sea, may also constitute potential source for reservoir rocks in the Danish sector.

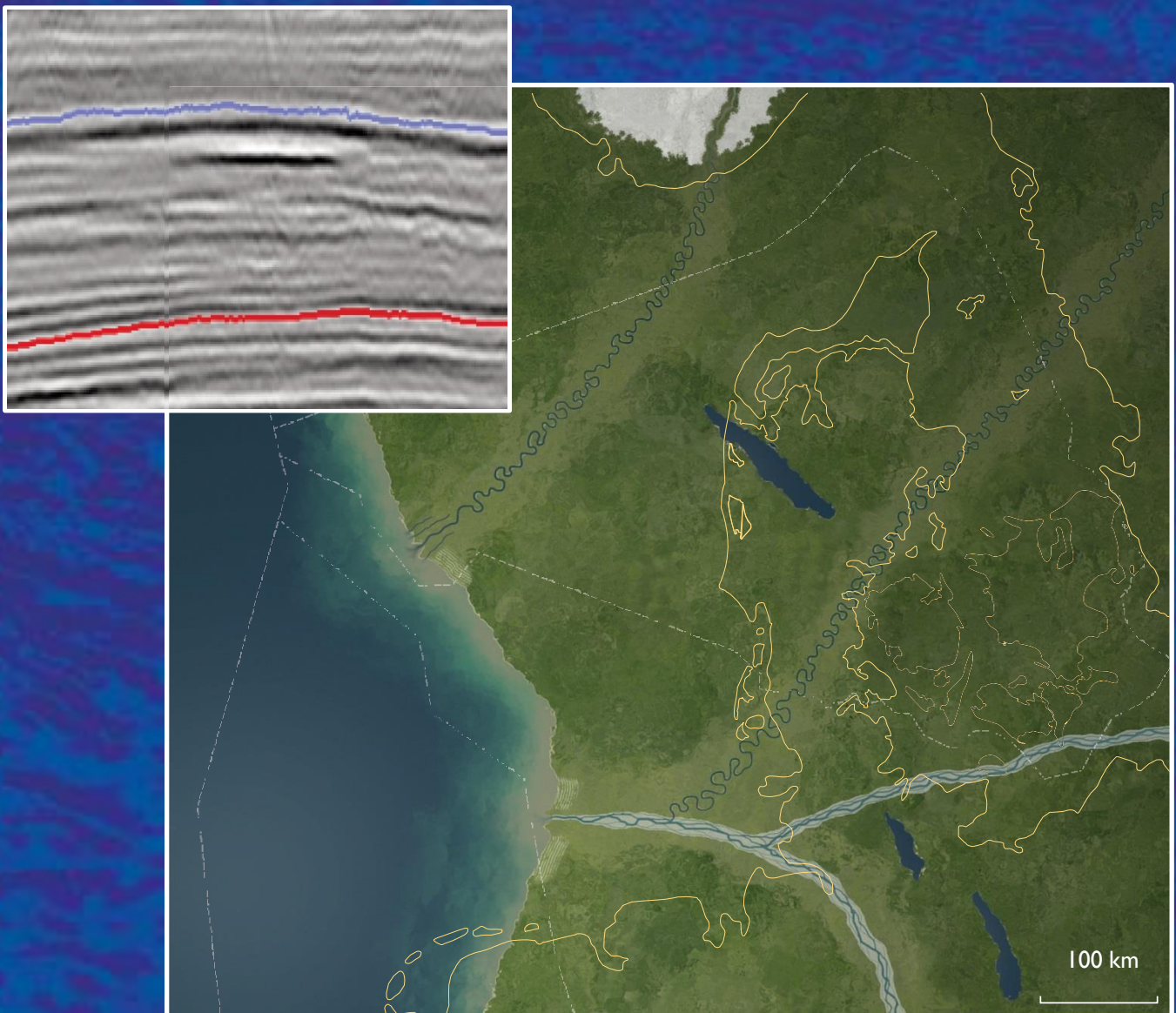


The recently completed Miocene Project (onshore) and related studies have developed a robust stratigraphic framework and palyno/bio facies model for the younger Tertiary succession and demonstrated the important relationship between climate change and deposition of high quality reservoir sand.

To date, 12 regional maps have been made for the Cenozoic succession. However, the knowledge about sand-rich sections, distribution and quality within the North Sea area is poorly understood and thus a key issue in the new study. Therefore, detailed petrophysics, seismic facies analysis based on 3D surveys, palynostratigraphy, and palyno/bio facies will be performed.

Aims

- Establish a consistent lithological description of selected North Sea wells including sand/mud ratios and porosity/permeability estimates of sand units.
- Provide detailed mapping of sand-rich units and detailed facies and attribute analyses of these units in the Central Graben area based on 3D seismic data.
- Biostratigraphic analysis, mainly based on the distribution of dinoflagellate cysts in Luna-1 and previously studied wells (Tove-1, Lone-1, R-1 and S-1), will form the basis for the regional correlations between key wells.
- Based on palyno/bio facies and seismic facies study a detailed depositional model will be established in order to provide a predictive model for sand reservoirs and migration routes.
- Present a synthesis of the Cenozoic succession covering depositional models, distribution of potential reservoir sands and trapping types.
- A thoroughly investigation of hydrocarbon traces in the Cenozoic succession.



More information

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