Foraminifera as tool for biostratigraphic cross-correlation of major oilfields in the Vienna Basin

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The Miocene Vienna Basin is among Europe's largest onshore oil and gas fields. Due to the complex tectonic setting, however, an intra basin correlation of Miocene drillings within the Vienna Basin remained difficult.

This project aims at an updated biostratigraphic correlation of cores from four major oilfields (Rabensburg, Bad Pirawarth, Matzen and Aderklaa), which will be backed by north-south seismic cross-sections throughout the Vienna Basin

One of the main objectives is to obtain information about thickness and position of the supposed lower Miocene deposits and the stratigraphic content of middle Miocene deposits,that are varying considerably in thickness from well to well. The tectonic setting impedes with a straightforward correlation of single 3D seismic reflectors. To obtain a reliable correlation, biostratigraphic data have to be acquired.

Especially the interpretation and correlation of thickness and distribution of the various Miocene formations is challenging due to major canyon structures and other erosive features. These have been unknown from surface outcrops and, therefore, the existing lithostratigraphic schemes need a re-evaluation.

The main analyses are based on benthic and planktonic foraminifera to assign the deposits to regional biostratigraphic zones and to allow a correlation with international stages. In addition, palaeoecological data will be used to describe the palaeoenvironmental conditions and their changes through time.

Combined with core-log data, such as spontaneous potential, resistivity as well as modern 3D seismic data, information about palaeotopography and palaeogeography during deposition will be acquired. Furthermore, misinterpretations concerning the local stratigraphic setting should be resolved and a correct intra-basin correlation in respect to Ottnangian, Karpatian and Badenian units will be accomplished.

Therefore, the new biostratigraphic data and derived integrated stratigraphy will allow establishing of a modern lithostratigraphic scheme for all seismic units. As such, this integrated approach will provide a framework for a modern sequence stratigraphy of the Vienna Basin.