

Depositional Environment of the Oligocene and Miocene Rocks of the Bulgarian Black Sea Margin: A Comprehensive Model Based on Log, Seismic and Geochemical Data

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ABSTRACT

Although exploration interests within the Western Black Sea area have increased within the last few years and significant discoveries have been made, the sedimentary architecture of this margin has not been regionally described yet. 2D Seismic and well data from nine offshore wells were used to constrain depositional and erosional events along the Bulgarian shelf in the Kamchia depression. These events were dated via calcareous nannoplankton to constrain the ages of the individual layers. These datasets enabled a clear distinction of individual sedimentary systems, separated by erosional events. The results of the detailed biostratigraphic work as well as the seismic interpretation were correlated with log patterns in the nine selected offshore wells. A major Early Oligocene erosional canyon (most likely of late Solenovian age), can be mapped on seismic sections. The E-W trending axis of this canyon can be followed into the onshore area. However, biostratigraphic as well as well log data indicate the presence of an earlier canyon, which currently hidden on seismic by the major late Solenovian erosion. Log patterns were assigned to ages and subsequently to individual depositional environments. These log patterns were used to include selected onshore wells into this study and build up a regional model of deposition and erosion within the Kamchia depression on- and offshore Bulgaria. The results of this study increase understanding of the local depositional environments and give insights into the deepwater depositional system in the Western Black Sea. The results of this study are not only applicable to the Western Black Sea basin, but also help to better understand the relation of sedimentary deposition on the shelf and deep water depositional environments in other basins as well.