

## LATE CRETACEOUS TO EOCENE GEOLOGICAL EVOLUTION MODEL OF THE NORTHERN ISTRIA BASIN, W BLACK SEA

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### **ABSTRACT**

One of the most investigated areas in the Romanian offshore of the western Black Sea is Istria Basin, where most of the renowned hydrocarbon-bearing deposits are explored and exploited in the last 40 years. In this paper we present an integrated geological interpretation of core data, well logs and seismic 2D lines. Our model is focused on the Late Cretaceous-Eocene interval, representing one of the most investigated intervals in the area.

Data (lithology-sedimentology, biostratigraphy and well logs) from 19 drillings have been interpreted. From these, 15 wells are in the Lebăda structures (East and West) and 4 wells are situated in the Sinoe structure. Additionally, 9 seismic lines (2D), which intersected the above-mentioned structures, have been interpreted.

For achieving the geological model, we reinterpreted the existing biostratigraphic and lithologic data. Thus, accurate ages for the Upper Cretaceous-Eocene deposits have been assigned. We pointed out all Upper Cretaceous stages, from the Cenomanian up to the Maastrichtian, while the Eocene is represented by the Ypresian, Lutetian Bartonian stages, all of them showing variable thicknesses and spatial distribution.

Based on calcareous nannofossils and planktonic foraminifera biostratigraphy, the Upper Cretaceous sediments were encountered in 12 wells, while the Eocene deposits were traversed by 13 wells, but several wells crossed both intervals.

Our model renders a geological evolution image for the hydrocarbon bearing Upper Cretaceous and Eocene deposits from the northern edge of Istria Basin. This work confirmed the existence of a widespread unconformity between the Cretaceous and Paleogene. Younger unconformities were identified at the base of the Eocene series and within the Upper Eocene-Lower Oligocene (between the Bartonian and Rupelian stages). All of the abovementioned unconformities are related with tectonic evolution of the area, with the transition from extensional to compressional related deformation.