

## **Source Rocks in the Eastern Mediterranean Realm with Special Emphasis on Petroleum Generation Kinetics and Expulsion**

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### **Abstract**

The technological advancement of the last decade permitted exploration to move further into a new challenging frontier, the deep marine realm. One of these frontier areas is the east Mediterranean offshore, which recently became the subject of several exploration success stories that include some of the biggest gas accumulations in the world. Additional potential biogenic and thermogenic petroleum systems are inferred from seismic interpretation and basin modelling studies. One of the major concerns to exploration remains the presence of source rocks in the distal basinal areas where the hydrocarbon generation kitchens are expected to be.

In this talk we will present source rock data collected within the last few years from several organic matter rich intervals in the east Mediterranean and discuss their depositional environment and petroleum generation potential. A particular focus will be on the Upper Cretaceous (Campanian-Maastrichtian) source rocks of the east Mediterranean outcropping along the eastern margin of the Levant Basin onshore Lebanon. The Campanian-Maastrichtian rock succession has shown very good source rock properties in the onshore area with a varying kerogen type between Type II and Type IIS. This organofacies variation will be addressed in great detail highlighting the impact of an in depth source rock characterization on the assessment of hydrocarbon generation and the implications of kinetics variation within the same source rock on the oil and gas windows. Additionally, a depositional model of the Campanian-Maastrichtian source rocks is suggested using a compilation of sedimentologic, geochemical, and petrographic data, providing a tool for extrapolation of source rock properties away from the actual sampling sites.