SHALLOW METHANE ACCUMULATIONS ON THE ROMANIAN CONTINENTAL SHELF OF THE BLACK SEA

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During Quaternary, successive sea level variations affected the present NW continental shelf of the Black Sea (the widest one in this basin) and potentially enabled the formation of deltas that subsequently were buried by newer or reworked sediments. In general the sea level variations are controlled by the climatic changes, subsidence and tectonics. At this level tectonics and the corresponding time frame, we think is more related to the post-glacial rebounding phenomena that affected the lithosphere after the successive glaciations that took place in Quaternary times.

Previous works showed there are methane accumulations in Pliocene sediments and we discovered some typical gas accumulations in Quaternary sediments.

These young sedimentary deposits organized as fluvial and delta bodies are not or very little deformed in comparison with the old counterparts; these sedimentary deposits could serve as valuable information for a better understanding of deltaic bodies and associated methane accumulations in general, even for much more older structures.

In our researches we mainly employed very high resolution seismics (chirp sub-bottom profiling and seismics with a sparker source) and we discovered typical fluvial and deltaic sedimentary bodies developed on several vertical horizons that have to be correlated with the regressive and transgressive tracts corresponding to the sea level variations. The Quaternary sea level variations produced successive sedimentary depositions characterized by specific seismo-acoustic facies.

Interesting seismic facies indicating gas accumulations (most probable biogenic methane) have been discovered. These accumulations are related to the vertical gas migration from deeper sediments, where the gas has been produced via microbiological degradation of the organic matter.

Further researches are needed in order to better quantify the sedimentary bodies that hosted the organic matter that has been decomposed and produced methane that migrated and accumulated in shallower sedimentary structures. The semi-regional geometry of the paleo-deltas has to be better mapped and interpreted in the local geological and paleo-geographic context.

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