

How many petroleum systems within the Odessa shelf?

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Despite of 40 years of exploration efforts just 8 generally small gas and gas condensate fields were discovered in the Odessa shelf to date. Recent regional seismic data revealed that some well known structures like Golitsyno and Shmidta are indeed much bigger than it was previously thought, so the reserves of these fields seem surprisingly small. Some huge structures like Selskiy and Gamburceva were drilled with no success. These facts of case rise a question what do we know about petroleum system or systems across the Odessa gulf and their potential? The answer is unexpectedly simple, - almost nothing.

We believe that at least two petroleum systems developed in the Mesozoic and Cenozoic sedimentary basins within the Odessa shelf. For the first petroleum system most likely the source rocks are shales of the Lower Cretaceous (Albian). The main reservoir is shallow marine carbonates of Paleocene age. The main seal is Bachchisaray shales of Lower Eocene. Reservoir rocks for this system are also Upper Cretaceous chinks and Albian sandstones. For the second petroleum system the source rocks are shales of Oligocene – Lower Miocene (Maikop Formation) and of Upper Eocene. The main reservoirs are sandstones of Maykopian and overlying clastics of Middle Miocene. Intraformational shales play role of seals.

The elements of both petroleum systems are poorly studied. Source rocks extent and thickness, quantity, type and maturity of organic matter are not studied in any systematic way, so it is impossible to assess genetic potential of the systems. Despite the tectonic evolution of the Odessa shelf is quite good recognized to date the evolution of the petroleum systems is terra incognito. It is clear from above that after tens years of exploration the Odessa shelf looks like frontier area in terms of petroleum system study.