

## **Sedimentologic, stratigraphic and reservoir features of the rudist build-up in Late Cretaceous age of Akveren Formation, Western Black Sea, Kefken, Turkey**

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The Akveren formation was deposited in the platform edge and the deep marine environments during late Cretaceous-Paleocene age. It is in reefal facies near the Kefken town of Kocaeli city. Five separate reef cores, in a 20 square kilometer area, crop out.

The rudist reef in the Kefken area was developed as “pinnacle” reef on a volcanic high which is made up of pyroclastics. It has smooth morphology and a 14 m thick exposed reef core. The reefs observed in five different zones are comprising rudstones and grainstones in the shallow parts of the reef front facies. Clayey calcarenites, calcrudites and marls observed in the shallow parts of the reef front succession are the facies in response to transgressive periods. The reef crest, the reef flat and the shallow parts of reef front facies covering two square kilometer area has a 80 m thick sedimentary sequence of grainstone-dominated facies. The grainstones which are composed of mainly benthic foraminifers and red algae overlain by packstones and wackestones including mainly planktic foraminifers. The reef is covered by intercalation of clayey limestones (packstones/wackestone) and marls. The Kefken rudist reefs on land side, from the reef core to the land, are in rudstone, floatstone facies and in wackestone and mudstone facies deposited in the ponds of the reef flat. In the plug samples of grainstones, the average value of measured porosity is %15 and permeability 2,5 mD.

The grainstones deposited in the shallow parts of the land side and the basin of the reef as well as the bindstones occurred in the reef core are bearing reservoir characteristics. The deposits in mudstone/wackestone and marl facies covering the reefs are forming cap rock. The rudist reef formation on volcanic highs in offshore regions must be taken into account as possible potential in hydrocarbon exploration.