Investigation of Shallow Gas Accumulations, Gas Seeps and Pockmarks in Gulf of İzmir Using Acoustic Methods

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Sediment deposition is one of the major elements to form today's morpholgy and structure of Gulf of İzmir and this sediment deposition is controlled by Gediz River. High sedimentation rate allows organic material buried to form gassy structures in Gediz delta and its surroundings. In order to determine these gassy structures together with tectonics and sedimentary structure of Gulf of İzmir, some different high resolution acoustic data were collected by R/V K.Piri Reis of Dokuz Eylul University. These different data are interpreted together to understand the relationship between them. In this study, 317,5 km2 multibeam bathymetry, 1515 km Chirp subbottom profiler data and 18 km2 side-scan sonar data were collected. In NE, the edge of Gediz Delta and NW side of the gulf are the areas where shallow gas accumulations are presented. Large scale shallow gas accumulations were also observed on the high resolution seismic data as acoustically transparent zones with very sharp vertical lateral boundaries. This area is the ancient delta of Gediz River and mainly consists of very well bended terrigenous sediments which produce possibly biogenic gas in shallow sediments. Also many active and inactive pockmarks and gas seeps are observed bear the fault planes. The gassy structures and their relations to the faulting is also discussed.

Keywords: *Marine geophysics, high resolution acoustic methods, shallow gas accumulation, fluid/gas seeps, pockmark*