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New discovered Izmir and Busan Mud Volcanoes and Application of Seismic Attributes and AVO Analysis in the Easternmost Black Sea.

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Recently, the continental margins of Black Sea became important for its gas content. There are no scientific researches offshore Trabzon-Giresun area except the explorations of oil companies. This is the first survey that performed in that area. 1700 km high resolution multichannel seismic and chirp data simultaneously were collected onboard R/V K.Piri Reis . The seismic data reveal BSRs, bright spots and acoustic maskings especially on the eastern part of the survey area. The survey area in the Eastern Black Sea includes continental slope, apron and deep basin. Two mud volcanoes are discovered and named as Busan and Izmir. The observed fold belt is believed to be the main driving force for the growth of mud volcanoes.Faults are developed at the flanks of diapiric uplift.

Seismic attributes and AVO analysis are applied to 9 seismic sections which have probable gassy sediments and BSR zones. In the seismic

attribute analysis high amplitude horzions with reverse polarity are observed in instantaneous frequency, envelope and apparent polarity sections also with low frequency at instantaneous frequency sections. These analysis verify existence of gas accumulations in the sediments. AVO analysis and cross section drawing and Gradient analysis show Class 1 AVO anomaly and indicate gas in sediments.

Keywords: BSR, Bright spot, Mud volcano, Seismic Attributes, AVO