Gas and Gas Hydrate Accumulations on the Western Black Sea Continental Slope

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The investigation of possible gas and gas hydrate accumulations and determination of possible reservoirs in marine environments have both economical and strategical importance. Today, the Black Sea is an important area for hydrocarbon accumulations. Shelf and slopes with high sedimentation rates is considered as methane sources and gas seeps are observed around the basin. In order to investigate gas and gas hydrate accumulations in the Western Black Sea continental slope, approximately 355 km of high resolution multichannel seismic data was collected in 2008. The data was processed using conventional processing steps. Anomalous zones of gas accumulations were determined on the final migrated sections using seismic attribute analysis (instantaneous polarity, phase and frequency as well as reflection strength). In one limited area, a Bottom Simulated Reflection (BSR) indicating gas hydrate formations was also observed. Shallow gas accumulations have generally been observed below the ridge structures forming anticline-type formations. The accumulations are located generally 150-250 ms below the seabed, and the reflections from top of the gas reservoirs are distinguished by their distinctive negative polarity. Below these bright reflections is gassy sediments as semi-transparent dim zones. The instantaneous frequency sections show low frequency local anomalous zones, indicating a higher attenuation of seismic signal due to the gas accumulation.

Keywords: *Seismic attributes, BSR, Shallow gas accumulations, bright-spot, flat-spot.*