



Seismic Evidence And Complex Trace Attributes Of Shallow Gas Structures In The Sea Of Marmara

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Analysis of multi-channel seismic reflection, sparker and chirp data from Marmara Sea observed various shallow gas indicators including seismic chimneys, bright spots, mud diapirs, pockmarks, and acoustic blanking related to gas accumulations along North Anatolian Fault (NAF) system which branches out towards the west into the in Marmara Sea. Middle branch of the (NAF) is the place where distinct amount of seismic activity has occurred and gas deposits have been observed. This study is also devoted to evaluate the gas related structures with seismic attributes of multichannel seismic reflection data which have been collected at South Marmara shelf.

The dataset was collected in September 2013 and July 2014 including nearly 1000 km high Resolution Multichannel Seismic and Chirp data and 967 km Sparker data in the frame of a bilateral TÜBİTAK Project onboard R/V K. Piri Reis. The streamer has 168 or 144 channel and group interval was 6.25 m. The source was 45+45 inch GI gun fired every 12.5 or 25 m producing high-resolution seismic signal between 10-250 Hz frequency bands. The Chirp data was collected with a transducer, which produced acoustic signal between 2.75-6.75 kHz. The source of sparker system was used to 1000 J.

The data have been processed using a conventional data processing flow. In addition attributes were applied to final migration sections and than was tried to find gas accumulations with Reflection strength section, instantaneous frequency section and apparent polarity. Reflection strength section has strong reflections (bright spot). Also instantaneous frequency section has low-frequency zone depending on absorption where gas accumulations are expected. Apparent polarity section has negative polarity anomaly due to low acoustic impedance where gas accumulations are expected in sediments. In addition, attributes were coincided with sparker and chirp data where expected shallow gas accumulations.