

# INTEGRATED INTERPRETATION OF HIGH SENSITIVITY MARINE MAGNETIC DATA AND MARINE SEISMIC DATA IN IZMIT BAY, TURKEY

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In this study, we have compared high resolution marine magnetometer data and marine seismic data. In this way, we have aimed to create the model map of active tectonic structures in Izmit Bay that located in the east of the Marmara Sea. Izmit Gulf, has attracted the attention of local and international researchers after the earthquake of 17 August 1999. From that time until today, there have been several geological and geophysical studies. Mainly shallow marine seismic studies have been carried out in the region. However, there is no high resolution marine magnetic data history of national or international literature. After the earthquake in Golcuk, the deep seismic reflection data on a total of 64 lines were collected by research vessel MTA Seismic 1 in September, 1999. In this study, only 10 of these lines that NS direction have been used. Air gun was used as the energy source. Seismic lines has 1 ms sampling interval and 1,5 s record length. About 1000 km in length data has been collected with SeaSpy Marine Magnetometer which belongs to Istanbul University Institute of Marine Sciences and Management in Izmit Bay. The collected raw data has been converted to Excel format. Firstly, noise generated by human-induced structure are fixed as observational. Then, the daily change occurring in the magnetic field is corrected. Daily data has been taken on the basis of minutes from Iznik station which belonging to Bogazici University Kandilli Observatory and Earthquake Research Institute. Correction of the measured values has been performed by application that we made. Modeling has been performed by Geosoft Oasis Montaj application by using this data. Two fault map is created by using high resolution marine seismic data and marine magnetic data. These two maps are verifying each other greatly. North Anatolian Fault; passing within 750 m of the Hersek nose at West of Izmit Bay. In middle of Izmit Bay, NAF protect distance from shoreline from offshore of Karamursel to offshore of Degirmendere. In the East of Izmit Bay; NAF passing through Golcuk and Derince and lies on the eastern basin.

Keywords: Izmit Bay, High Resolution Marine Magnetics, North Anatolian Fault