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Multi-Channel Seismic Survey in Gulf of Sigacik and Kusadasi (Western Turkey)

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Multi-Channel seismic reflection data were collected onboard K. Piri Reis, research vessel of Dokuz Eylül University, in Sigacik Gulf (Seferihisar-Izmir) and Kusadasi Gulf (Aydin) in August-2005. On 17 October 2005, a series of earthquakes occurred in the same area just two months after the cruise. Approximately 370 km of multi-channel seismic reflection data were acquired. The GI Gun (Generator-Injector Air gun) and 48 channel digital seismic streamer were used to produce and collect the seismic data. Data load, geometry load , band pass filter, water bottom time pick, water bottom top mute, bottom mute, true amplitude recovery, deconvolution before stack, stack, velocity analysis, radon velocity filter, time migration were applied for data processing. The multiples due to the shallow seafloor and basement reflector were eliminated as much as possible by radon velocity filter techniques. The Miocene age basement can easily be determined on seismic sections and the basement outcrops to the sea bottom. The epicenters of the earthquake series present at the same area with our seismic profiles. Earthquake series probably occurred on shear zone. One of the most important strike-slip faults occurred by means of this shear zone is the Tuzla Fault Zone and the component of this fault and other fault zones can be determined on seismic sections. It is also observed on seismic sections that there are many active faults which may be source of the some hot spots and gas chimneys. Multibeam Echosounder Survey, Side Scan Survey with Gravity Corer sampling and CTD studies have been planned to make a detailed map of active faults.