



Stratigraphic sequence of the Lake Iznik, Turkey

K. Ozturk and B. Alpar

Istanbul University, Institute of Marine Sciences and Management, Vefa, 34116 Istanbul, Turkey

Lake Iznik with its 313 km² areal coverage is the biggest lake in southern Marmara region to the eastern part of the Gemlik Gulf, irrigating about 12,000 ha agricultural area. The maximum depth of this fresh water lake is about 73 m. The lake is situated on the highly active North Anatolian fault zone. Such a strategic position makes the sedimentary and tectonic processes in the lake explanatory for many geological problems. In order to understand the tectonic and sedimentary evolution in Lake Iznik, we carried out a seismic cruise using a special sparker source designed for this quasi-fresh lake. Sedimentary deposits up to 50 m below the lake bed are determined after conventional data processing (trim-statics, filtering and multiple suppression. The seismic data indicate thick deposits probably made up of Quaternary and Pliocene fluvio-lacustrine sediments. Sites closer to sediment sources have more coarse-grained materials than sites in the center of the basin. This overall appearance indicates high sedimentation rates mainly along the rims. Two main seismic units separated by an enhanced reflector can be outlined for the lake. This reflector represents a major unconformity or an eroded surface placed below 30-35 m water depth and extending down to the central part of the lake. The lower unit (underlying acoustic turbidity, Pliocene) is made up of acoustically reflective strata, mainly dipping basinward. These fluvio-lacustrine sediments form the acoustical basement of the shallow seismic sections. The upper unit (Pleistocene-Holocene) is at least 30 m thick towards the central basin. It is composed of parallel to sub-parallel reflectors, which are gently inclined basinward. The lower unit sometimes outcrops on the lake bed for shallow areas (<30-35 m water depth).