



Characterization of the Sandy Deposits and Microbial Buildups of the Southern Marmara Shelf, Turkey

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The development stages of the sandy deposit are important components to identify the hydrodynamic effects on the sediment deposition at the shelf and coastal areas. The aggradational paleo-barrier islands in the southern Marmara shelf that determined from high resolution chirp seismic reflection profiles were formed on the boundary (SB) characterized by the lowstand stages of the global sea level. The unit was lost its growing activity at 55 ms, 60 ms depth in Erdek Bay, at 55 ms in Bandırma Bay, at 61 ms front of the Kocasu River. According to the global sea level curves, the unit was formed between 11,000-11,500 BP and 10,450-10,150 BP. The internal reflection character and the morphological geometry indicate the hydrodynamic balance between sediment transportation, marine intrusion and current systems in the study area. Bioherm structures were formed on the barrier islands and the some of the uppermost surfaces are reached to 2 ms below the sea floor. These structures are composing from organisms and the development stages depend on the various stress factors. Barrier islands provide nutritional source to the bioherms. Since these structures occur in a limited area, the development should be controlled by secondary factors. Biogenic gas that determined from seismic data by acoustic turbidity reflection characters, is closed to bioherm structures, probably plays the secondary role. Addition to this, during the development of bioherms Marmara Islands (Pasalımanı, Avşa, Marmara Islands) and İmralı Island were possibly control the current regime and the marine intrusion in the study area and provide a convenient environment to these structures evolution.

Keywords: barrier islands, bioherm, southern Marmara Sea, high resolution chirp seismic, global sea level