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ABSTRACTS

Özetler

Editors

Prof. Dr. h. c. Ibrahim ATALAY - Prof. Dr. Recep EFE

Cement Fabrics, OSL Age and Subsurface Nature of Beachrock, Lake Iznik, NW Turkey

Erdal ÖZTURA - Ahmet Evren ERGINAL - Yunus Levent EKINCI - Nafiye GÜNEÇ KIYAK - Alper DEMIRCI - Muhammed Zeynel ÖZTÜRK - Mustafa AVCIOĞLU

(EÖ - YLE - AD - MZÖ - MA) Çanakkale Onsekiz Mart University, Çanakkale - TURKEY
(AEE) Ardahan University, Ardahan - TURKEY
(NGK) Işık University, İstanbul - TURKEY

Since beachrock is mostly indicative for intertidal cementation of loose beach materials through the precipitated calcium carbonate, thickness and subsurface extension of the cemented slabs have a privilege importance to highlight its relation to sea-level changes especially during the Holocene. Until recently most of publications have been depending upon interpretation of the emerged beds of beachrock regardless of the nature of buried beds.

In this study, however, we present new data regarding subsurface geometry, cementation characteristics and optical ages of beachrock lying on the southern shoreline of Lake İznik, NW Turkey. Similar to cemented beach deposits on sea coasts, both exposed and buried beds of beachrock in such a freshwater environment may have significant implications with regard to lake-level changes and climatic changes during the formation of beachrocks. We first examined micro-fabrics within beachrock on the basis of scanning electron microscopy (SEM) analyses of consecutive cements that bind the grains. A total of eleven samples of beachrock were dated using optical luminescence dating. Then, ERT survey was performed to image subsurface extension of buried beds. To determine its extent and thickness as well as contact relation with the underlying lake sediments, three ERT profiles oriented perpendicular to coastline were measured using dipole-dipole electrode configuration with electrodes spaced every 1 m. A total of 11 depth levels were measured via GF ARES multi-electrode resistivity-meter system.

Our results reveal that beachrock contains abundant calcium carbonate which occurs as void fills and meniscus bridges. Aragonite is the predominant component. Beds slightly (5-10º) dipping toward the lake have a maximum thickness of 1-1.5 m and they are characterized with high resistivity values. The thickness increases landward (southward) and the tomograms pointed to the boundary of beachrock being at 22 m-23 m backshore. OSL ages of samples range between 1470±200 and 7406±952, suggesting that cementation period spans from early to late Holocene. Much of beds seems to have cemented during the climatic maximum when lake level was at least 1m lower than present.

Keywords: *Beachrock, OSL Age, Resistivity, Iznik Lake.*