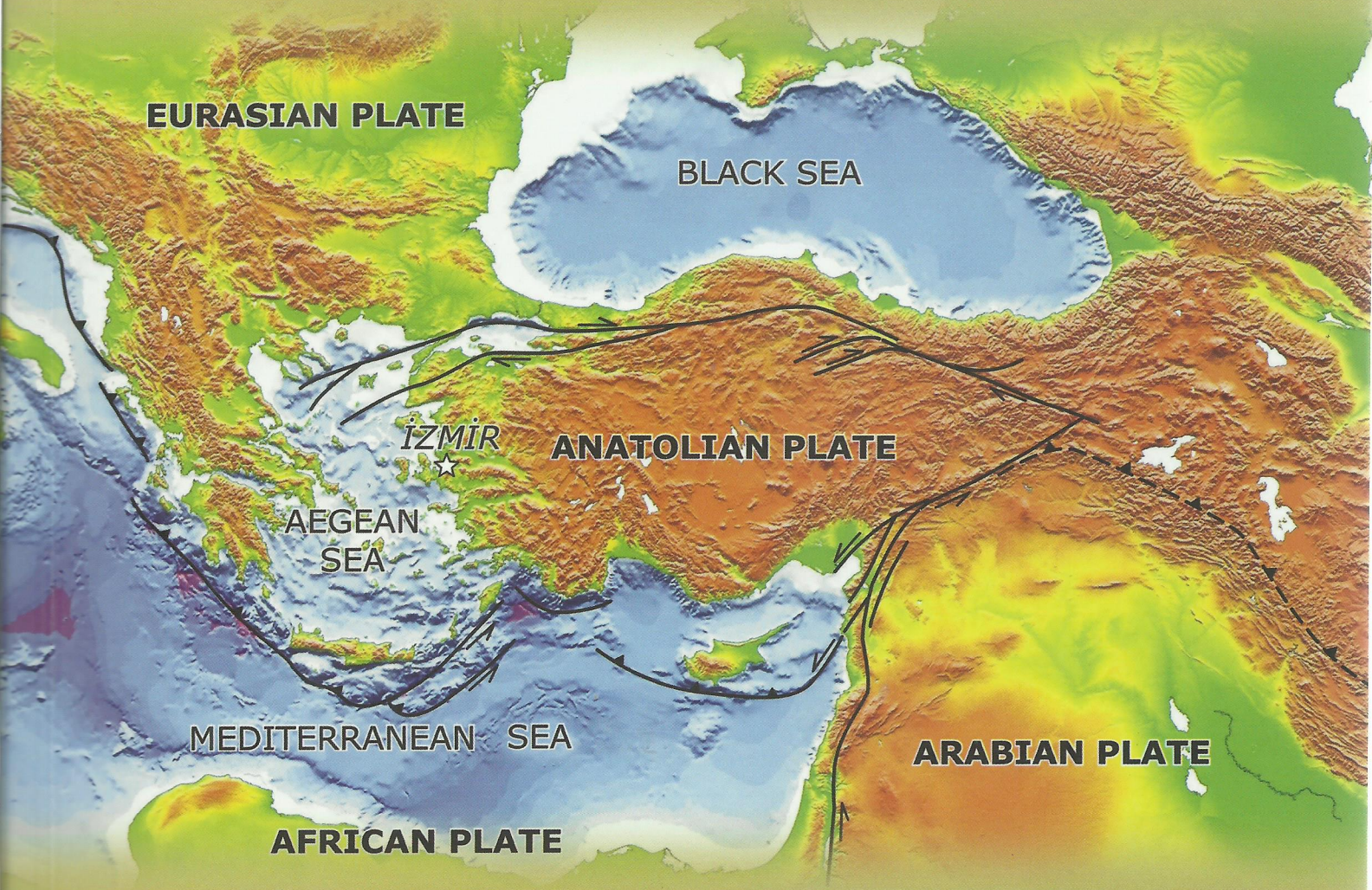
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ABSTRACTS

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Petrographical and Geochemical Investigation of Bozcaada Eolinite: Significance on the Pleistocene Coastal Dynamics of the Depositional Records

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Pleistocene – Holocene eolinites observed along the southern coast of Bozcaada, mainly on-shore and partly off-shore, have some important records of depositional features reflecting the geologic/morphologic developments of the island during the Quaternary period. Moreover, eolinites are important for the paleogeographical and morphotectonic character of Bozcaada coast. Therefore, in this research; facies properties of eolinites in two localities namely Zunguma Cape and Yaylıca Bay have been studied in order to understand of Late Pleistocene geological evolution of Bozcaada. Eolinite deposits in Zunguma Cape is up to 5 meter-thick while the maximum thickness of Yaylıca eolinite less than 1.5 meter. Six samples from two different localities of the Zunguma Eolinite and 7 samples from 6 different localities of the Yaylıca Eolinite outcrops have been taken during field studies. Analytical and petrographical investigations such as; SEM, EDX, XRD, Stable Isotope Analyses and also thin-section studies on all eolinite samples have been performed.

Cross-bedded eolinites occurring on both two regions include poorly-sorted, mostly metamorphic polygenic grains. Based on petrographic investigation; there are some fossil shells and ooids between the grains based on petrographical investigations. SEM, EDX analysis have been performed to reveal inter-grains microtextural pattern and quantitative element content of eolinite deposits. These analyses show that grains are covered by micritic envelope indicating an inter-tidal environment. Element abundance of the micritic envelope ranges as O>Ca>C>Cl>Fe>Si>Mg>Al>Na in decreasing order in the Zunguma Cape and O>Ca>C>Fe>Si>Mg>Na>Cl>Al>K in the Yaylıca eolinite deposits.

According to element weight ratio (%wt) estimations, the mean values of $\%MgCO_3$ are 4.98 and 4.82 for Zunguma and Yaylıca eolinite deposits respectively, which indicate the cement of high Mg calcite. Hovewer, meniscus cement developed over the micritic envelopes show that cementing processes developed under the meteoric conditions dominated by the terrestrial effects. According to XRD analyses, the mineral compositions of eolinite deposits are composed of calcite, quartz and dolomite. Stable isotope analyses on cements in Zunguma Cape deposits are decreasing from lower levels to higher level, on the first point as 1.76, 0.04-1.13 for ^{13}C, 1.44,- 0.51, -2.16 for ^{18}O; wheres increasing on the second point as -5.99, -4.34, -4.98 for ^{13}C, -4.53, -4.68, -4.92 for ^{18}O. On the other hand, in the Yaylıca deposits it has the rations of ^{13}C ranging from -0.21 to -4.42. When evoluated these results from Zunguma Cape eolinite together with OSL age data, eolinite forming resulted from the diagenesis of Late Pleistocene coast dune deposits on the southern coasts of Bozcaada, and also show that the cement originated from carbonates transported from the shallow shelf plain by the effect of drowning sea level in the last ice age.

Keywords: Eolinite; coast; stable isotopes; Bozcaada

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