# GEO MED 2010



# The 2nd International Geography Symposium

June 2-5, 2010 Kemer-Antalya, Turkey

# ABSTRACTS

# Depositional Characteristics and Subsurface Geometry of the Bozcaada Coastal Eolianite Using ERI and Geomorphological Data

**Yunus Levent EKINCI - Alper DEMİRCI - A. Evren ERGINAL - Mustafa AVCIOĞLU - Taylan Özgür ERGEN**

**Çanakkale Onsekiz Mart University, Turkey**

In this study, two-dimensional (2D) electrical resistivity imaging (ERI) survey in conjunction with bedding measurements was carried out to shed light on the depositional characteristics and the subsurface geometry of the carbonate eolianite on the south coast of the Bozcaada Island, Northwest Turkey. Bedding measurements carried out at 117 different parts of the cross-bedded sequence showed that eolian sand accumulation was predominantly due to southwesterly and northeasterly winds. Totally 266 apparent resistivity data were gathered along a 102-m long survey line by using Wenner-Schlumberger electrode configuration. Measurements were performed up to 14 data levels with an electrode spacing of 3 m. The apparent resistivities were then inverted to generate a true resistivity distribution image of the subsurface. The SW-NE trending 2D resistivity image displayed a depth range of ~17 m and showed a strong resistivity contrast between the underlying clay-rich Miocene marine deposits and the eolianite. The eolianite unit was distinctly identified in the inverse model section with very high resistivities in proportion to the underlying Miocene formations, defined by very low resistivities and increasing clay contents towards seaward. The eolianite with weathered cavities having different sizes was found to have a thickness of ~4-7 m, which thickens towards to end of the survey line, i.e. leeward. These results suggest that eolian wind-blown sand transport occurred on an approximately horizontal surface of the basement unit, marked by an abrupt transition between them. Thus, ERI is an efficient tool both in understanding subsurface and internal structure of carbonate-cemented fossil eolian sand dunes and its contact relations with the underlying older units.

**Keywords:** *Eolianite, ERI, Bedding Measurements, Depositional Characteristics, Subsurface Geometry, Weathered Cavities, Bozcaada.*