

Oxygen dynamics in marine sediments: From microbial to global Scale

RONNIE N GLUD¹²³

¹University of Southern Denmark

²Scottish Association of Marine Science

³University of Aarhus

Oxygen availability and dynamic are key factors regulating the biological and biogeochemical functioning of marine sediments. On microscale in has in recent years become evident that marine sediments are much more dynamic than previously anticipated. Micro scale topography, particulate sedimentation, short and long term changes in hydrodynamic are all factors that induce temporal and spatial variations in the oxygen distribution. Furthermore, macro and meio fauna activity constantly affect the distribution of microbial microniches. The intense dynamic affect the microbial interactions and ecology, putting high demands on metabolic versatility and/or mobility of microbes in a constantly changing environment. Also on meso- and regional scale the awareness on the importance of spatial and temporal dynamics is increasing. The benthic seascape and its interaction with large scale hydrodynamic features lead to highly uneven deposition of organic material and thereby in large scale distribution of benthic communities and biogeochemical process rates. The presentation will – on the basis of a number of case studies, using state of the art technology – discuss and challenge our conceptual understanding on benthic O₂ dynamics and sediment functioning.

Hydrogeochemical and Isotopic Investigation around the Manisa

GÜLER GÖÇMEZ¹ AND ERKAN HAFIZOĞLU²

¹Selcuk University, Geological Engineering Department, Konya, Turkey

(correspondence: gulergoçmez@selcuk.edu.tr)

²Celal Bayar Universty Vocational High School (ehafizoğlu@hotmail.com)

Investigated area, include Manisa country, Saruhanlı district on northeast of Manisa, Karaoğlanlı district on southeast Muradiye on north and Akgedik on west. Study area contains approximately 350 km² area.

The basement of the investigation area is made up Upper Cretaceous-Paleocene aged Bornova melange which contains metasandstone, metamudstone and this units lateral and vertical transition gray coloured micritic limestones, white coloured tuff. This basement is overlaid unconformably by lower Miocene aged. Yeniköy formation including red coloured conglomerate gravelly sandstone and sandstone. This formation is overlaid conformably by Lower-Middle Miocene aged Zeytindağ formation, which contains conglomerate, sandstone, claystone, marl, shale, limestone of clay, tuff. Zeytindağ formation is overlaid unconformably by Upper Miocene aged Yamanlar volcanites that is made up andesite, dacite gravel blocks and agglomerates. Yamanlar volcanites is overlaid unconformably by Upper Miocene – Pliocene aged Aliğa formation which consist of sometimes tuff alloyed, claystone, siltstone, white - yellow coloured lacustrine limestones. All these formations are unformably is overlaid by Quaternary aged the Alluvium and slope deposits.

Investigation area, to be found in the very important structure İzmir Ankara suture zone, paleotectonic era geography of the Anatolia. According the Schoeller diagram of waters of wells in study area lines combining the anions and rations are approximately parallel. Most ions in waters Ca, Mg and HCO₃. Statics level in the drill wells is 0,26-93,5 meters. Dynamics levels 1,22-94 meters and debit is in between 15-95 lt/sn. According to physicochemical analysis of the wells in investigation area drillings which have close value run from the same area. According to isotope analysis results of the waters in this drilling. ¹⁸O values are (-6,46)-(-7,84), ²H values are (-34,95)- (-45,41) and ³H values are 0,90-3,55 . In isotopic studies, points belong to waters were nearly parallel and close to meteoric water line. So the waters have meteoric origin