Reconstruction of Sea Level Changes using Magnetic Susceptibility Variations in Southeastern Caspian Sea

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Abstract

Magnetic susceptibility is one of the most important tools for monitoring the sediment composition during environmental studies. In this research, in order to reconstruct the Caspian Sea level changes, magnetic susceptibility variations were used during the studies of 5 sedimentary cores (K1, K3, K5, K7, N1), collected from bottom sediments of Gorgan Bay. Samples were analyzed for grain size, total organic matter, carbonate content and magnetic susceptibility (MS). The results showed a close relationship between particle size distribution and MS magnitude due to variation in terrestrial influx, which was caused by sea-level fluctuations in different times. This process increases with rising particle size and magnitude of MS simultaneously with sea level fall and decreases during sea-level rise. Moreover, no relationship between magnitude of MS and carbonate content was observed. It could be concluded that using magnetic susceptibility curves with other data, such as geological and historical data, could be suitable for the reconstruction of marine environments, especially in the near shore coastal area.

Keywords: *Sediment core, Sea-level fluctuations, Magnetic Susceptibility, Gorgan Bay, Caspian Sea.*