

Magnetic properties of marine sediments from the Bengal Fan: record of climatic changes during Holocene and turbiditic activity from the Gange-Brahmapoutre system

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Abstract: We present here the first results of a multi parameter study based in rock magnetic, anisotropy of magnetic susceptibility (ASM) and geochemical properties (XRF and CaCO₃ content) performed in core MD12-3417. This core is situated in the active channel-levee of the middle Bengal Fan. . This site is characterized by very strong sedimentations rates, as based on C-14 dating, the core covers the last 9800 years in 39 meters of sediment. This core yields a unique Holocene record of continental sediments exported by the Himalayan erosion.

The sediments are composed of gray to olive gray clays with rock magnetic and geochemical properties showing an important shift around 7000 years. Before 7000 years, the record is characterized by several sandy silty turbidite layers characterized by strong susceptibility values, high Zr/Al ratios and high ASM lineation values. After 7000 years, the sediments are characterized by an increase in fine magnetite concentration and a decrease in the number of turbidite layers. This shift is associated with a decrease of wet conditions over the Himalayan region as inferred by a compilation of several climatic proxies (Herzschuh, 2006) and therefore it probably indicates a summer monsoon weakening associated to a decrease in summer insolation.

Keywords: Monsoon, turbidite, Holocene, marine sediments