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A Rock Magnetic Record of the Late Quaternary Palaeoceanography of the Eastern Arabian Sea

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Two sediment cores from the eastern Arabian Sea have documented prominent changes in their magnetic properties during the last 200 ka. The magnetic mineral concentration was high during glacial periods and low during interglacial periods. Marine isotopic stages (MIS) 2, 4 and 6 were marked by (magnetically) coarser magnetic minerals whereas relatively (magnetically) fine ferrimagnetic minerals were deposited during MIS 1, 3 and 5. Various magnetic parameters (XARM, SIRM and interparametric ratios) and Vibrating Sample Magnetometer (VSM) data suggest that the sediment is dominated by magnetically 'soft' minerals like magnetite and titanomagnetite. Magnetically fine grained magnetic minerals, derived from the chemical weathering of rocks in the Indian subcontinent, accumulated during interglacial periods, indicating a hot and humid climate. Conversely, (magnetically) coarse magnetic minerals, derived from the subaerially exposed continental shelf and / or from the deserts of northwestern India, were deposited in the eastern Arabian Sea due to the prevailing dry and strong NE winds during glacial periods. The power spectrum, from univariate spectral analysis of magnetic parameters, is concentrated around 41 ka, implying the control of the earth's obliquity cycle on the terrigenous supply to the eastern Arabian Sea. Paleoclimate, Rock Magnetism, Oxygen isotopes, Orbital parameters, Arabian Sea, India