

## Environmental rock-magnetism of pelagic clay from the South Pacific Ocean since the Pliocene

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We conducted a rock-magnetic study of pelagic clay in order to document variations of eolian dust input to the South Pacific Ocean since the Pliocene. The materials studied consist of four pelagic clay cores of about 10 meters long taken from the central to margin of the South Pacific Gyre. Three out of four cores were taken during IODP Expedition 329 at sites U1365, U1366 and U1367, and the other core was GH83-3 P398, within range from latitude 14-27°S and longitude 138-165°W.

We measured magnetic properties (magnetic susceptibility, NRM with stepwise alternating-field demagnetization, acquisition of ARM and IRM, low-temperature IRM) using discrete samples. In addition, magnetic hysteresis, IRM acquisition and first order reversal curve (FORC) measurements (Pike et al., 1999; Roberts et al. 2000) were conducted using an alternating gradient magnetometer (AGM) to characterize magnetic mineral assemblages in the samples. We estimated variations in the proportion of terrigenous to biogenic components.

The  $X_{ARM}/SIRM$  ratio and  $S_{-0.1T}$  (relative abundance of middle and high coercivity magnetic minerals) of the four pelagic clay cores decreased synchronously before Gauss-Matuyama boundary. The variation of  $X_{ARM}/SIRM$  ratio and  $S_{-0.1T}$  with time and region can be explained by that eolian dust has higher (lower) maghemite (magnetite) concentration than other sources of magnetic minerals.

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