

# A paleomagnetic record of the last 640 kyr from an eastern Mediterranean core and dating of geomagnetic excursions in the Brunhes

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Core KC01 (25.93 m long) was taken from a small ridge on the lower slope of the southern Calabrian Ridge (Pisano Plateau, 36deg15.25'N, 17deg44.34'E, 3643m water depth) during cruise MD69 of the French R/V Marion Dufresne in June-July 1991. The sediment consists of hemipelagic sediments with intercalated sapropel and tephra layers. They form an alternation of grey, greenish, olive-coloured, yellowish, white and beige shades. Sapropel layers are black to dark green. Paleomagnetic samples (6.4 cm<sup>3</sup> cube) were taken from the half split cores and measurements of natural remanent magnetization was conducted at Utrecht University with DC SQUID magnetometer (2G Enterprises model 740-R). Stepwise alternating field demagnetization was done at 8-11 steps up to 60-80 mT on each sample. Anisotropy of magnetic susceptibility was measured with Kappabridge (AGICO model KLY-3). Anisotropy of magnetic susceptibility (AMS) shows that above 12.5 m, inclination of Kmin axes are scattering between zero and 90 degrees with average values of about 20 degrees. Shape parameter (T) also shows scattering between -1 and 1 with average value of -0.1 above 11.4 m. The lack of sedimentary fabric and the presence of Kmin axis close to the vertical direction indicate that the sediments of upper part of KC01 was vertically stretched, due to piston coring process.

Core KC01B (37.04 m long) was also taken as a companion core from the same locality as KC01 and was subjected to magnetostratigraphic work (Langereis et al., 1997). Langereis et al. (1997) established an age model based on the matching of (ghost-) sapropels with insolation minima. They applied the 65degN summer insolation calculated from the astronomical solution La90 (Laskar 1990; Laskar et al., 1993) as target curve and included a time lag of 3-kyr - based on the age difference between the radiocarbon dated midpoint of S1 at 8.5 ka and the insolation maximum at 11.5 ka following the method by Lourens et al. (1996). Lourens (2004) modified astronomical chronology established by Langereis et al. (1997) and investigated the sapropel chronology on KC01B and KC01 based on high resolution color correlation with ODP Site 964, which is 1 km away, and constructed age models, which gives better estimate for these two cores. Langereis et al. (1997) reported four excursions (CR0, CR1, CR2, CR3) with ages of 261, 318, 515, and 573 ka based on the chronology of sapropels on Core KC01B. Lourens (2004) revised the chronology of Core KC01B and redated the excursions as 260, 319, 543, and 593 ka. In this study these four excursion records were reconfirmed and dated as 258-263, 313-319, 541-542, 592-594 ka based on the chronology of Lourens (2004). Also Iceland Basin and Jamaica excursions were found at ages of 193-194 and 212-213 ka. These two excursion are recorded in the zone where iron precipitated due to migration of iron just above sapropel recognized as in the decomposition of acquisition curves of isothermal remanent magnetization. This means that the horizons of Iceland Basin and Jamaica excursions are older than the real age of the events.