Palaeomagnetic dating of a Quaternary sediment core from the Tyrrhenian Sea

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Abstract: We present a magnetostratigraphy of the NEXTDATA C5 core, collected in the Tyrrhenian Sea near the mouth of the Volturno River. This seven-metre core, retrieved in January 2013 during a cruise aboard the R/V *Urania,* offers a high-resolution record of environmental change and competing terrestrial and marine influences during the Holocene and latest Pleistocene. Tephrostratigraphy has provided an initial constraint on the age of these sediments; we present a more detailed stratigraphy constructed using records of the inclination geomagnetic palaeosecular variation (PSV) and relative palaeointensity (RPI). Our measured results from the core are compared with those derived from other Tyrrhenian cores (e.g. Iorio et al., 2013), regional reference stacks (e.g. Kovacheva et al., 1998), and high-resolution geomagnetic field models (e.g. Pavón-Carrasco et al., 2014). We demonstrate the use of automated correlation techniques for the construction of our age models from palaeosecular reference curves, in particular the applicability of the Match program (Lisiecki and Lisiecki, 2002) (originally designed for oxygen isotope stratigraphy) to PSV and RPI dating. We also compare the results produced using Match with those produced using a novel automated correlation technique based on simulated annealing (Lurcock et al., 2012).

Keywords: paleosecular variation; relative paleointensity; magnetostratigraphy; Tyrrhenian Sea; sedimentary paleomagnetism

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