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# Integrated bio-magnetostratigraphy of ODP Site 709 (equatorial Indian Ocean).

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Over the last decade, calcareous nannofossil biostratigraphy of the lower Eocene-Oligocene sediments has shown great potential, through identification of several new nannofossil species and bioevents (e.g. Fornaciari et al., 2010; Bown and Dunkley Jones, 2012; Toffanin et al., 2013). These studies formed the basis for higher biostratigraphic resolution leading to definition of a new nannofossil biozonation (Agnini et al., 2014). In this study, we investigate the middle Eocene-lower Oligocene sediments from ODP Hole 709C (ODP Leg 115) by means of calcareous nannofossils and magnetostratigraphy.
Ocean Drilling Program (ODP) Site 709 was located in the equatorial Indian Ocean and biostratigraphy has been investigated in the nineties (Okada, 1990; Fornaciari et al., 1990) while paleomagnetic data from the Initial Report provided only a poorly constrained magnetostratigraphic interpretation, thus the cored succession was dated only by means of biostratigraphy.
Our goal is to test the reliability in the Indian Ocean of the biohorizons recently identified at Site 711 (Fioroni et al., in press), by means of high resolution sampling, new taxonomic updates, quantitative analyses on calcareous nannofossils allowed to increase the number of useful bioevents and to compare their reliability and synchroneity. The new magnetostratigraphic analyses and integrated stratigraphy allow also to achieve an accurate biochronology of the time interval spanning Chrons C20 (middle Eocene) and C12 (early Oligocene).
In addition, this equatorial site represents an opportunity to study the carbonate accumulation history and the large fluctuations of the carbonate compensation depth (CCD) during the Eocene (e.g. Pälike et al., 2012). The investigated interval encompasses the Middle Eocene Climatic Optimum (MECO), and the long cooling trend that leads to the Oligocene glacial state. By means of our new bio-magnetostratigraphic data and paleoecological results we provide further insights on nannofossil assemblage response to the paleoclimatic changes that led to the Oligocene glacial state.

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