



Revised stratigraphy and tuning of the equatorial Atlantic Ceara Rise: Challenges and applications of astronomical time scales in the Miocene

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Sediments are widely used as geoarchives of past (climatic) changes. For the interpretation of any geological record a proper stratigraphy is crucial. Investigated records from ODP Leg 154 (sites 925-929) at Ceara Rise span the entire Neogene and “the entire sequence is characterized by rhythmic sedimentary cycles” as mentioned in the initial reports of ODP Leg 154. The Ceara Rise record has been exploited in various ways, as it provides such an excellent high resolution record of past climatic change (e.g. Pälike et al. 2006).

However, it became apparent that the ODP site 926 splice still contains some complications, which affect the orbital tuning and hence the paleoclimatic interpretation of the record. Because this record is of major importance for biostratigraphy and paleoclimatology, we attempted to solve these stratigraphic complications and establish a revised orbital tuning, using the La2004 solution (Laskar et al. 2004).

Employing the Ceara Rise record, we compare the revised cyclostratigraphy to the astronomical solution with varying values for tidal dissipation and dynamic ellipticity. This allows us to improve the tuned time scale by applying improved ages to the sedimentary cycles.

The research leading to these results has received funding from the [European Community's] Seventh Framework Programme ([FP7/2007-2013] under grant agreement n° [215458]. This research used data provided by IODP. Funding for this research was provided by NWO.