

Paleomagnetic constraints on the timing and distribution of Cenozoic rotations in Central and Eastern Anatolia

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Supplementary information

1 Paleomagnetism

Paleomagnetic data files compatible with Paleomagnetism.org (Koymans et al., 2016) used in this paper. Paleomagnetic demagnetization files are provided in a folder with .dir files, and contain demagnetization diagrams and our interpretations, viewable in the interpretation portal of paleomagnetism.org. The folder with .pmag files contains the statistical parameters of sites and localities discussed in this paper and are provided as separate files for the Ulukışla, Sivas, and Tauride basins. In addition, we provide a file with parametrically sampled literature data, compiled (van der Voo, 1968; Orbay and Bayburdi, 1979; Sanbudak et al., 1989; Baydemir, 1990; Channell et al., 1996; Platzman et al., 1998; Tatar et al., 2000; Piper et al., 2002; Gürsoy et al., 2003; Kissel et al., 2003; Meijers et al., 2010; Gürsoy et al., 2011; Lucifora et al., 2012; Lefebvre et al., 2013; Piper et al., 2013; Çinku et al., 2016; Hisarlı et al., 2016).

2 Biostratigraphy

Detailed biostratigraphic constraints obtained from calcareous nannofossils are provided for the Berendi locality in the Central Taurides.

2.1 Method

Biostratigraphic sampling was performed in several key localities where uncertainties existed based on available geological maps (MTA, 2002) and complement those reported in (Güler et al., 2016). The biostratigraphic age attribution is based on the standard zonation of Martini (1971; NP-Zones) and that of Agnini et al. (2014; CNP/CNE-Zones). Calcareous nannofossils have been studied from standard smear slides prepared following the method described in Bown, (1998) using a light polarized microscope at 1250x magnification. The abundance of nannofossils has been evaluated along four transvers of the slides (i.e. 800 field of views, FOWs).

2.2 Results

Generally calcareous nannofossils resulted few and were moderately to poorly preserved with secondary overgrowth. Hence, not all the specimens could be identified at the species level. For the Berendi locality mapped as Miocene (MTA, 2002) we obtained new ages, detailed below.

Site BR2: Rare to very rare poorly preserved nannofossils. The presence of *Discoaster* sp. in the sample indicates at least the NP7/CNP9 zones, i.e. the early Thanetian. This age attribution is further supported by the occurrence of *Zygrabolithus bijugatus*.

Site BR3: At least Thanetian NP7/CNP9 zones based on the presence of rare *Discoaster* spp.

Site BR4: This section may be dated as Ypresian based on the co-occurrence of *T. orthostylus* and *D. lodoensis* (lower portion of the NP12/CNE4 zones) and the absence of *Reticulofenestra*, and *Dictyococcites* which appeared in the upper part of these zones (Agnini et al., 2014).

Site BR6: This site may be assigned to the lower portion of the NP12/CNE4 zones based on the co-occurrence of *T. orthostylus* and *D. lodoensis* and the absence of *Reticulofenestra* and *Dictyococcites* which appears in the upper part of these zones.

Site YL1: Rare and poorly preserved nannofossils, suggesting the Ypresian NP11/CNE3 zones for the occurrence of rare *Toweius gammation* (= *Girgisia gammation*) (Agnini et al., 2014).

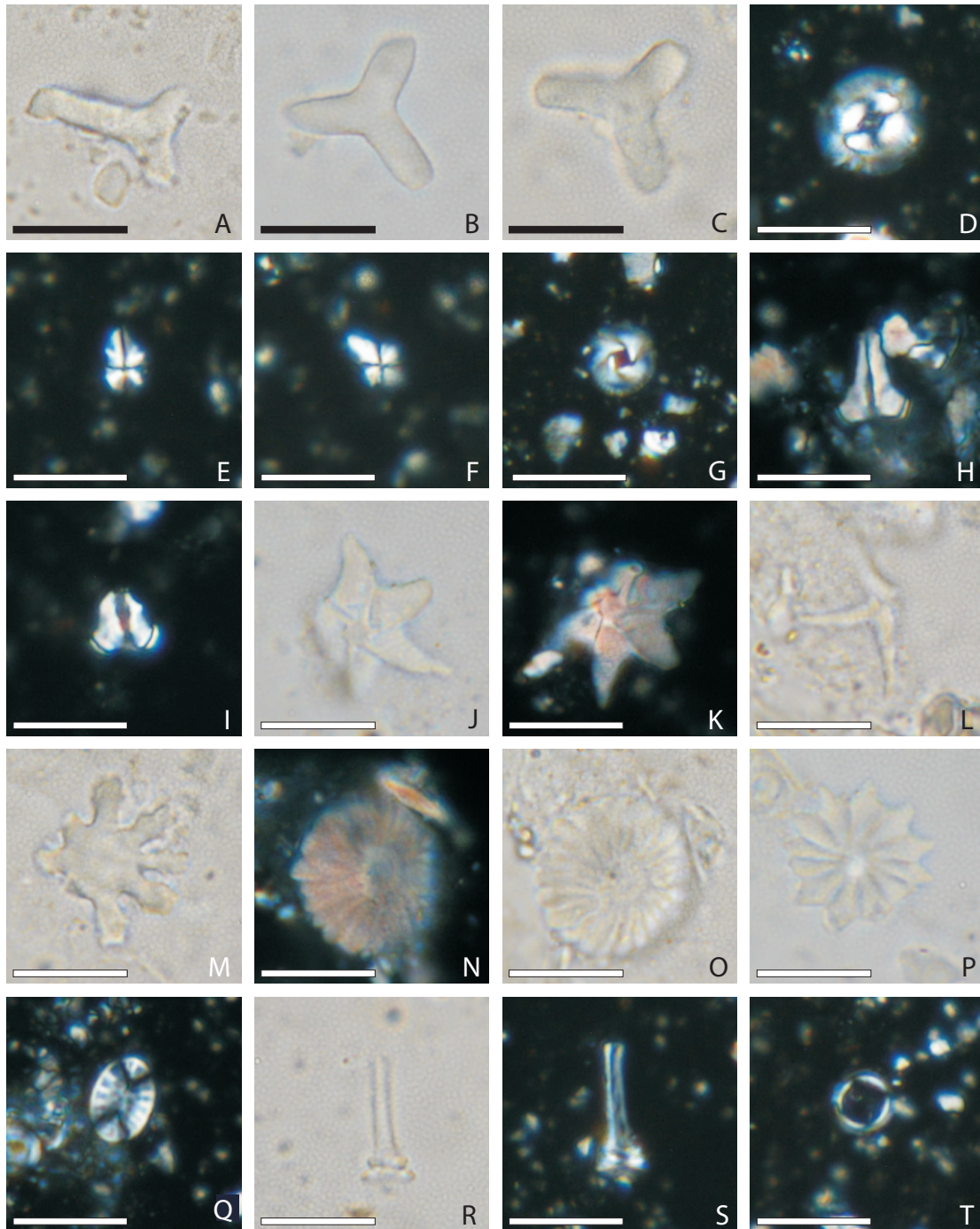


Figure DR1 Plane and cross-polarized light microphotographs of selected calcareous nannofossils: Scale bar = 10 μ m. A, B, C. *Tribrachiatus orthostylus* Shamrai, 1963, sample BR4-03A (A), BR4-05 (B,C). D. *Coccolithus pelagicus* (Wallich, 1871) Schiller, 1930, sample BR4-03A. E, F. *Sphenolithus radians* Deflandre in Grassé, 1952, sample BR4-03A. G. *Toweius gammatum* (Bramlette & Sullivan, 1961) Romein, 1979, sample BR4-03A. H, I. *Zygrabliothus bijugatus* (Deflandre in Deflandre and Fert, 1954) Deflandre, 1959, sample BR4-05 (H), BR4-03A (I). J, K, L. *Discoaster lodoensis* Bramlette & Riedel, 1954, sample BR4-05 (J,K), BR4-03A (L). M. *Discoaster binodosus* Martini, 1958, sample BR4-05. N, O. *Discoaster multiradiatus* Bramlette & Riedel, 1954, sample BR4-05. P. *Discoaster barbadiensis* Tan, 1927, sample BR4-05. Q. *Pontosphaera pectinata* (Bramlette & Sullivan, 1961) Sherwood, 1974, sample BR4-05. R, S. *Blackites inflatus* group, sample BR4-05. T. *Umbilicosphaera bramlettei* (Hay & Towe, 1962) Bown et al., 2007, BR4-03A.

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