Calcareous nannofossil assemblages at the Cretaceous-Paleogene transition at Lali section, SW Iran

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Calcareous nannofossil assemblages were investigated at the Lali section in the Zagros Basin in Iran. The studied interval is one of the best outcrops where the Cretaceous-Paleogene (K/Pg) boundary can be investigated. The K/Pg lies at the upper part of the Gurpi Formation (Darvishzadeh et al., 2007). The studied interval extends from Zones CC25b/UC20aTP to NP3/NTp5A. Latest Maastrichtian assemblages are abundant and diverse, and no decrease was observed towards the boundary. Dominant species of the Maastrichtian were Watznaueria barnesiae, Micula decussata, Micula murus, Cribrosphaerella ehrenbergii, Cyclagelosphaera reinhardtii, Prediscosphaera cretacea, Lithraphidites spp., and Retecapsa spp. At the K/Pg boundary, a decrease in the abundance of Cretaceous species and an increase in the abundance of Thoracosphaera operculata were recorded, along with the appearance of Paleocene species. The relative abundance of T. operculata is approximately 48% at the K/Pg boundary, which is reduced to 7% towards the top of the studied interval. A high abundance of T. operculata at the K/Pg boundary interval has been reported from other parts of the world (Tantawy, 2003; Bemaola & Monechi, 2007). Above the K/Pg boundary in the Danian sediments, Cretaceous species were observed along with the new Paleocene species. It must be mentioned that the relative abundance of the Cretaceous species decreased from the K/Pg boundary upward: A. cymbiformis (from 2% to 0%), Eiffellithus spp. (from 2% to 0%), W. barnesiae (from 11% to 1%), Retecapsa spp. (from 6% to 1%), M. decussata (from 7% to 0%), C. ehrenbergii (from 5% to 1%), and P. cretacea (from 4% to 1%).

The Cretaceous species that are recorded continuously and with good preservation in the Danian sediments can be considered as true survivors, while the ones that are not observed continuously in the Danian sediments can be considered as reworked.

References
