



Paleontological, sedimentological and geochemical events across the Paleocene/Eocene-boundary in the northwestern Tethyan realm (Eastern Alps, Austria)

H. Egger (1), C. Heilmann-Clausen (2), M. Homayoun (1), F. Rögl (3), B. Schmitz (4)

(1) Geological Survey of Austria, Neulinggasse 38, 1030 Wien, (2) Geologisk Institut, Aarhus Universitet, 8000 Aarhus C, Denmark, (3) Museum of Natural History, Burgring 7, 1014 Wien, Austria, (4) Department of Geology, University of Lund, Sölvegatan 12, 22362 Lund, Sweden (johann.egger@geologie.ac.at / +43-1-7125674-257)

In the area of Salzburg (Austria), within 3 thrust units of the Eastern Alps P/E-boundary sections of different facies have been investigated. The northernmost **Frauengrube-section** (Helvetic nappe) exposes a shallow water section from the southern shelf of the European Plate. A discontinuity between an Upper Thanetian (calcareous nannoplankton zone NP9) limestone with abundant coralline algae and a calcareous sandstone (NP11?) indicates a substantial break in sedimentation in the earliest Eocene, probably an effect of a sea-level fall.

Only about 6 km to the south of the Frauengrube-section, the 250m thick **Anthering-section** (Rhenodanubian Flysch nappe) exposes abyssal turbidite deposits comprising NP9 to NP11. This section records several of the P/E-boundary events, including the $\delta^{13}\text{C}$ isotope excursion. During this event a strong increase in the rate of hemipelagic sedimentation suggests enhanced continental run-off, probably an effect of both, a low sea-level and an increase in monsoonal activity. The increased influx of nutrients into the ocean caused acmes in the abundance of diatoms, radiolaria and dinoflagellates. The associated flux of organic carbon to the sea-floor led to oxygen deficient conditions indicated by the absence of agglutinated foraminifera faunas. However, in contrast to the calcareous benthic foraminifera assemblages there was no major extinction of agglutinated taxa across the P/E-boundary.

About 18km to the south of the Anthering-section, the 40m thick **Untersberg sec-**

tion (Northern Calcareous Alps) spans the upper part of calcareous nannoplankton zone NP9 and the lower part of zone NP10 (sub-zone NP10a). These are, respectively, planktonic foraminifera zone P5 and the lower part of zone P6 (sub-zone P6a). The section was deposited in a lower bathyal slope environment at a paleodepth of about 2000m. Within the dominantly marlstone sequence, a 5.5m thick intercalation of red and green shale and marly shale represents the CIE-interval. The CIE was associated with a shallowing of the calcite compensation depth by at least 1km. A 49% increase in detrital quartz and feldspar within the CIE-interval again suggests enhanced continental run-off. The increased terrestrially derived input is associated with abundant radiolarian casts indicating high primary productivity. The benthic foraminifera faunas of the samples rich in siliceous plankton are strongly dominated by *Glomospira* spp., *Nuttalides truempyii*, *Abyssamina poagi*, *Anomalinooides praeacutus*, *A. nobilis* and *Oridorsalis* spp.. We assume that the *Glomospira-Nuttalides* fauna consists of opportunistic species which quickly react to seasonally varying amounts of food. The calcareous nannoplankton assemblage of the CIE-interval is characterized by the first occurrences of the genus *Rhomboaster* and of *Discoaster araneus* and *Discoaster mahmoudii* whereas *Scapholithus apertus* became extinct at the P/E-boundary.