The Paleocene/Eocene boundary in a high-frequency turbiditic setting (Gosau Group, Austria)

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The Paleocene/Eocene-boundary section of the Zwieselalm Formation (Upper Gosau Subgroup at Gams (Austria) exposes 122 m of turbidite-dominated psammitic to pelitic deposits. Occasionally, thin layers and concretions occur consisting essentially of early diagenetic siderite. The Paleocene/Eocene- boundary at the base of the section is characterized by a negative excursion of carbon isotope values (CIE), the occurrences of the dinoflagellate cyst Apectodinium augustum and the calcareous nannoplankton species Discoaster araneus and Rhomboaster spp. Foraminiferal assemblages are predominantly allochthonous, and indicate deposition below the calcite compensation depth in the lower to middle part of the section.

A clear trend of carbon isotope values was recognized in the section. The lower part is characterized by values around 0.5 ‰ VPDB. A gap with virtually no carbonate occurs up to ca. 45 m. The following ca. 40 m-thick interval is characterized by slightly negative values around -2 ‰.After another gap due to a covered section interval, above 90 m, values increase again to ca. 0.5 ‰.Based on these data and the extended stratigraphic range of marker species we speculate that the CIE of the PETM is represented by a strongly expanded section of at least 35 meters and present between 45.7 and 80 m. As no isotope data are available from the 33 m-thick interval below 45.7 m due to the lack of carbonate and a covered section interval, the CIE may well comprise an interval thicker than 35 m. High sediment accumulation rates of ca. 20 cm/kyr are calculated.