

PECULIARITIES CONCERNING THE K-T BOUNDARY IN NE BRAZIL: BIOTA EXTINCTION, MICROSPHERULES AND GEOCHEMICAL ANOMALIES

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There is a general problem in precise positioning of Cretaceous-Tertiary boundaries (KTB): many non-condensed sections show discrepancies between microfossil dating and positioning of the Ir-anomaly, as exemplified, for instance, in USA (Alabama, Brazos river) and Haiti (Beloc). Similarly puzzling data come from NE Brazilian sections of the Pernambuco Basin, specially the outcrops of the Poty Quarry. A conspicuous marker-bed, named « I », occurs at the topmost of a fining-upwards tsunami sequence; this bed also bears shocked quartz, microspherules, Ir- and TOC-anomalies and shows evidences of a biotic break characterized by major extinction. Surprisingly, a rare first occurrence of Danian planktonic foraminifera occurs beneath the base of the tsunami deposit at approximately 75-cm below the marker bed. Recent scanning electronic microscope and microprobe investigations on the composition and internal structure of the microspherules have indicated no direct evidence for an impact origin. Nevertheless, abnormally large and possibly diagenetic spherules, composed mainly by fluorite crystals, occur only in the bed « I », where it was also detected a significant F-anomaly. Based on the data above described at least two different scenarios may be suggested: (i) occurrence of a KTB impact with possible faunal contamination from burrowing in the sediments, or (ii) occurrence of a (local?) impact of Danian age. In both cases, a relation between F-anomaly and fluorine-release by impact(s) into a thick, F-bearing site should be considered.