

NEW DATA ON CHICXULUB CRATER CORES

W. Stinnesbeck (1), G. Keller (2), T. Adatte (3), D. Stüben (4)

(1) Geologisches Institut, Universität Karlsruhe, Germany, (2) Department of Geosciences, Princeton University, USA, (3) Geological Institute, University of Neuchâtel, Switzerland, (4) Institut für Mineralogie und Geochemie, Universität Karlsruhe, Germany
(wolfgang.stinnesbeck@bio-geo.uni-karlsruhe.de)

We examined the lithology, stratigraphy and mineralogy of the CSDP well Yaxcopoil-1, which was drilled on the southern inner flank of the Chicxulub impact crater, approximately 60 km from its center, and of UNAM-cores 5, 6 and 7 drilled outside the crater. An organic-rich marly limestone near the base of the Yaxcopoil-1 hole (1495m to 1452m) was deposited in an open marine shelf environment during the latest Cenomanian (uppermost *Rotalipora cushmani* zone). The overlying sequence of limestones, dolomites and anhydrites (1495m to 894m) indicates deposition in various carbonate platform environments (e.g., sabkhas, lagoons). Breccia units within this sequence are intraformational in origin (e.g., dissolution of evaporites) and dykes are rare. A 100m thick suevite breccia (894-794m) identifies the Chicxulub impact event. Above the suevite breccia is a dolomitized and micritic limestone with planktic foraminiferal assemblages indicative of *Plummerita hantkeninoides* zone CF1, which spans the last 300 ky of the Maastrichtian. There is no evidence that these sediments represent crater infill due to megablocks sliding into crater. An erosional surface 50 cm above the breccia/dolomite contact marks the K/T boundary and a hiatus. Limestones above this contact contain the first Tertiary planktic foraminifera indicative of an upper *P. eugubina* zone P1a(2) age. Another hiatus 7 cm upsection separates zone P1a(2) and hemipelagic limestones of planktic foraminiferal Zone P1c. Paleocene Zone P1c to P3b assemblages are present from a depth of 794.04m up to 775m. A similarly condensed post-impact sequence is recognized at UNAM-5. Major disturbances of strata by the impact appear to have been confined to less than 60 km from the proposed impact center. Our data suggests that the Chicxulub impact is about 120 km in diameter and predates the K/T boundary impact and mass extinction by about 300 ky.