



## **STRATIGRAPHY OF THE YAXCOPOIL-1 DRILL HOLE IN THE CHICXULUB IMPACT CRATER**

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The Yaxcopoil-1 hole was drilled in 2002 near the southern, inner rim of the Chicxulub crater, just outside the transient crater. The first 400m were not cored, but down-hole logging suspect an increase in clay at about 200 m depth, probably representing the transition from the middle? Eocene - Paleocene pelagic limestone-marl sequence to Miocene-Oligocene platform carbonates. Rhythmic bedding in deepwater limestone facies dominates most of the crater fill-sequence from 400m (middle Eocene NP16)-794m (lowermost Paleocene). Organic-rich laminated marls alternate with bioturbated micrites near the Paleocene-Eocene transition. Gravity flows (turbidites and conglomeratic mass flows) increase down hole from 680 to 794 m. At 794.11-794.80m the transition from lowermost Paleocene marls/micrite to redeposited suevite through a 65cm thick crossbedded interval was recovered completely. The crossbedded interval (794.11-794.85) is a calcareous sandstone with green altered glass fragments in certain laminae. This sandstone is overlain by a 2cm thick dark claylayer, (794.12-794.10), laminated and rich in dolomite rhombs. The clay is overlain by bioturbated pelagic marls. The uppermost 15m of the 100m thick (794-894m) variegated suevite are relatively fine-grained and may be redeposited by the resurgence of ocean water in the crater. From 894 to 1511m, a series of shattered platform limestones, dolomite and anhydrite (27%) was cored, representing the  $\Sigma$ mega-block $\checkmark$  zone. No biostratigraphic data were found yet that constrain the age of this interval. The 74cm crossbedded transition is (perhaps surprisingly) thin regarding the magnitude of the catastrophic resurgence. But that may be due to the position of Yax-1 on the slope near the crater rim, well above the crater floor. The basal black clay of the Paleocene is almost barren in planktic foraminifers, and is presumably correlatable to the P0 zone. A sample 5cm higher (794.07) yielded basal Paleocene G. eugubina zone faunas, such as Chiloguembelina

sp, *Gŝtria cretacea* and *P. eugubina*, and abundant calcareous dinoflagellates (*Thoracosphaera*). No Cretaceous planktic foraminifers were observed in that interval, except a few possible heterohelicids. The basal Paleocene in the Chicxulub crater is perhaps the best place to test the controversy of surviving vs. reworked species above the K/T boundary. As neither bottom, nor the rims of the crater are likely to contain any planktic forams, they cannot be reworked into the basal Paleocene. The absence of Cretaceous forms suggests there are few, if any, survivors, except for small unornamented, cosmopolitan forms (*Heterohelix*, *Globigerinelloides*, *Hedbergella*).