

CHICXULUB IMPACT EJECTA STRATIGRAPHY

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The Chicxulub ejecta become more and more complex, when moving in towards the crater from (global) distal sites to the direct surroundings of the crater. The distal sites are characterized by 1-2 mm thick lamina, enriched in pge elements, microkrystites and shocked minerals, often diagenetically altered to smectite or goethite. This lamina is occurs on top of homogenous top Maastrichtian sediments, showing no progressive trend in facies of paleoenvironment. The lamina is covered by a thin dark layer (P0 zone) marking the environmental crisis following the impact event. A thin, dual, 1-2cm thick ejecta layer marks sites at intermediate distances (-2500 - 4000km). Likewise these are underlain by non-changing top Cretaceous sequences, and overlain by a 'crisis' layer. Proximal sites 2500km invariably comprise 1 to 11m thick complex clastic deposits, mixtures of proximal ejecta (tektites) and locally derived material, transported by gravity flows, landslides and tsunami waves. These deposits are wedged between homogenous hemipelagic Maastrichtian sequences, and dark marls of the P0 zone. The clastic deposits show often a complex structure, consisting of multiple, amalgamated, channeled often-graded layers of sand. The coarser basal layers are rich in ejecta (e.g. tektites), the middle units are rippled sandstone layers, consisting of locally and distal derived biogenic and lithic clastic debris. The top units consist of fine grained sandstone ripples, alternating with Ir and spinel rich thin silt layers. In southern Yucatan and Belize, the outermost ejecta blanket deposits are found, resting on Maastrichtian platform carbonates, and overlain by Paleocene lagoonal deposits.