INTERNAL STRATIGRAPHY OF THE CHICXULUB EJECTA BLANKET IN BELIZE, CENTRAL AMERICA.
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Introduction: Proximal ejecta from the Chicxulub impact structure located on the northern margin of the Yucatán Peninsula, México, crop out at several key sites in northern and central Belize, which range between 350-450 km from Chicxulub [1]. These ejecta rest disconformably upon latest Maastrichtian dolostones of the Barton Creek formation and upon paleosols developed atop the Barton Creek. The ejecta blanket consists of a basal fine-grained impactoclastic unit (1-2 m), which contains carbonate accretionary lapilli. In northern Belize, this unit is succeeded upward by a matrix-rich impactoclastic carbonate breccia (12-15 m). In central Belize, this carbonate breccia is absent and instead the ejecta facies overlying the basal fine-grained unit is composed of grain-supported impactoclastic conglomerates (2-5 m), which are composed of smooth and rounded carbonate pebbles. In Belize, a modern soil overlies the impactoclastic breccias and conglomerates, but in adjacent areas of México, lower Paleogene micritic limestones of the El Cayo Group disconformably overlie the impactoclastic breccia facies [1].

Basal fine-grained unit: The basal fine-grained unit is a clay and finely comminuted carbonate deposit with embedded accretionary lapilli. These lapilli range in size from a few millimeters to 2.5 cm. The basal fine-grained unit appears to be a single bed, which contains no obvious internal structure other than slickensides (where the bed is particularly rich in clay minerals). The upper contact with the overlying coarse facies is sharp [1, 2].

Impactoclastic breccia facies: In northern Belize, the impactoclastic carbonate breccia facies is a matrix-supported deposit, which displays thick, irregular sedimentation units that are internally graded. The matrix contains altered glass fragments and rare shocked grains [1]. Organization of clasts within these sedimentation units suggests internal turbulence and subsequent laminar flow [2]. Clasts in this breccia mainly ranged in size from 1-30 cm, but clasts up to 5 m and coated boulders up to 2 m were observed in this facies [2].

Impactoclastic conglomerate facies: In central Belize, the impactoclastic carbonate breccia facies is a clast-supported deposit, which displays imbrication (i.e., evidence of post-impact reworking). Clasts in this breccia mainly ranged in size from 1-15 cm. These clasts are remarkable in that they are all very smooth, some highly polished, and many contain impact pits. These impact pits are small crater-shaped depressions, ranging from a few millimeters to 2 cm in diameter [2].

Origins: The Belize impactoclastic deposits are interpreted as the remains of an immense carbonate ejecta blanket. The basal fine-grained impactoclastic unit appears to be a vapor plume deposit, whereas the overlying impactoclastic breccias show evidence of ballistic sedimentation and lateral flow processes. The conglomeratic deposits show evidence interpreted as high-energy interactions among constituent clasts and subsequent, post-impact reworking of fallen ejecta within the terrestrial realm.