

THE CHICXULUB SUEVITE: CLUES TO THE CRETACEOUS-TERTIARY BOUNDARY EVENT.

CLAEYS PHILIPPE., Institut fuer Mineralogie, Museum fuer Naturkunde, Berlin D-10099 Germany (philippe.claeys@rz.hu-berlin.de)

Three subunits can be distinguished in the Chicxulub suevite: 1) a fine-grained carbonate-rich suevite breccia with formerly molten carbonate material, 2) a coarse-grained polymict suevite breccia with shocked basement and carbonate clasts, 3) a typical, matrix-supported suevite with abundant melt fragments. The Chicxulub suevite is strongly influenced by the upper part of the Yucatan target rock. The presence of characteristic feathery textured calcite indicates the existence of formerly pure carbonate melt which recrystallized under extremely rapid cooling conditions, with quenching rates up to 400 degrees per second. Detailed investigation of the available material indicates that molten carbonates represent between 10 to 15 % of the fragments. This leads to the conclusion, that not all the carbonate material was vaporized upon impact. In all the thin sections investigated the proportion of evaporite clast to carbonate clast is less than 1: 10. This indicates that the Cretaceous target rock lithology of the Yucatan platform is less evaporite-rich than the 30 to 50 % evaporite previously suggested. A 10 % volume of evaporite agrees with isotopic and trace element data obtained on the Chicxulub impact glass by other authors. The amount of CO₂ and S components produced in the impact is therefore lower than currently estimated. This should be taken into account when evaluating the global effect of the Chicxulub impact on the biosphere.