



## **Petrological and geochemical characterization of the carbonate sequence overlying the impact breccias in the Chicxulub crater**

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Chicxulub crater located in the Yucatan Peninsula, Mexico. Is a complex multi-ring structure with a diameter of 180 to 200 km. Chicxulub is buried beneath a carbonate and evaporitic Cenozoic sequence and represents the youngest and best-preserved large impact structure documented on Earth.

The aim of this study is to document the petrologic and geochemical characteristics of a 30 m carbonate sequence overlying the impact breccia deposits and to make a paleoenvironmental interpretation from samples obtained from UNAM-5 drill hole (20°23 N, 89°39 W) 112 km of the center of the structure. In the petrographic study we observe three textural changes interpreted as shallow platform conditions. We documented the constant increment of the detritic material and at the same time a decrement in organic matter and the presence of diagenetic processes that continue until 10 m after over the impact breccia (from 332 to 322 m depth). Results correlate with the increment of MgO and SiO<sub>2</sub> by means of FRX. The Sr isotopic measurements give a 63.66 Ma age for one sample from 330 m depth.

The clastic material indicates conditions near the coast, such as general shallow conditions, although in this case possibly there is influence by clastic reworked material occasioned by impact breccias material.

Results show that there were shallow conditions for a large period of time associated with tectonic uplift of the carbonate platform in the Yucatan Peninsula, which con-

tinues till present. We observed the presence of anhydrite in the sequence, which is a clear evidence of shallow platform conditions.