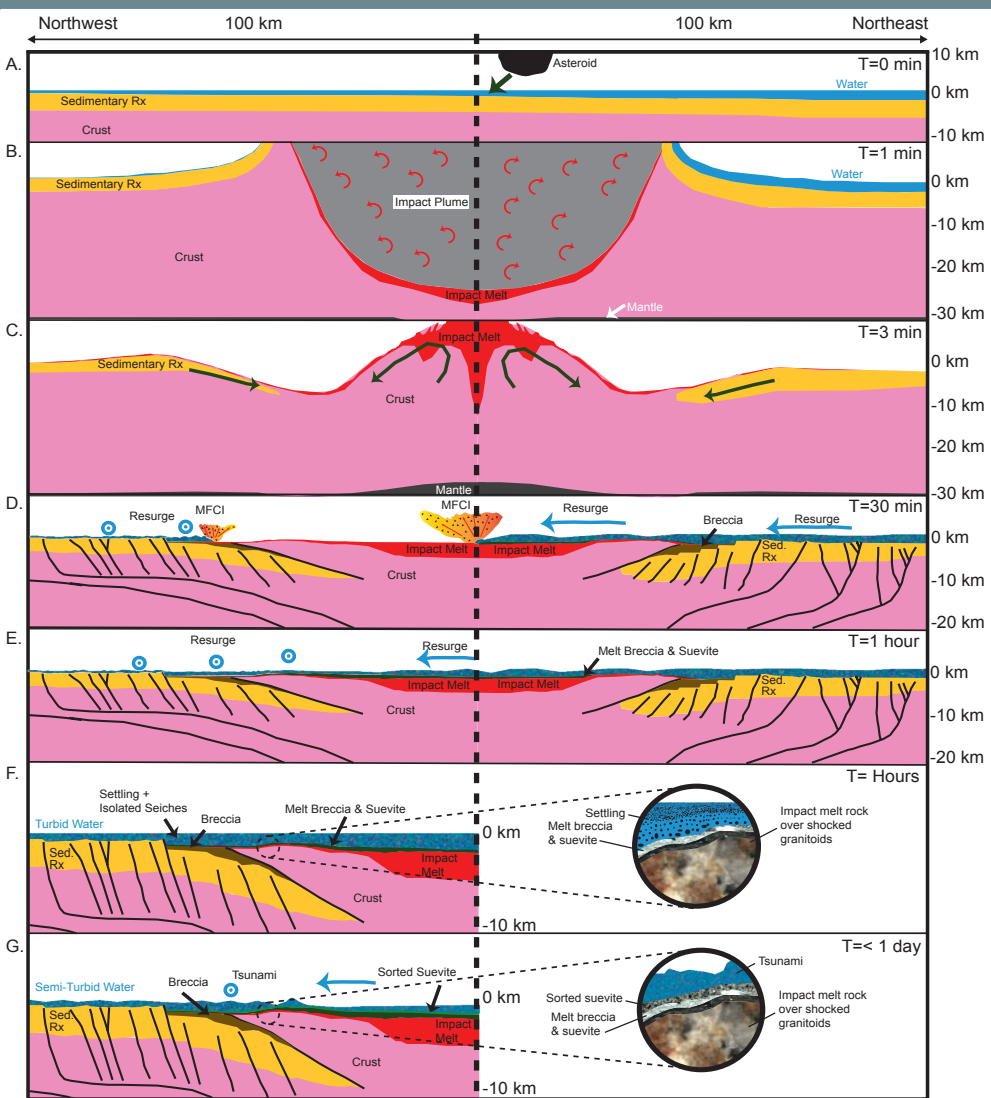


The First Day of the Cenozoic

The beginning of a new world



There are today about 200 known impact craters on Earth. Some of the craters are important to scientists in that they allow us to understand one of the most fundamental geological processes in the Solar System, other craters are also important because they teach us something about the life on our planet, for instance how fragile it can be. One them is the Chicxulub impact crater at the Yucatán peninsula in México.

The impact occurred in the sea that evolved into what we now see as the Gulf of Mexico. The crater is today buried below hundreds of meters of sediments that have accumulated through the millions of years that have passed since it was formed. Chicxulub is the only impact event so far known to have caused one of the five big mass-extinctions of life.

The nearly continuous marine sedimentation of the Chicxulub area offers to scientists a kind of “history book” written by Earth itself. It begins by describing the world as it was before the impact event, a world often referred to as the “age of the dinosaurs”. Then the next “pages” (i.e. the next layers) tell a tale of destruction...

One topic of particular interest is the interpretation of the impact-related sedimentation, based on the existing knowledge of these processes in other craters formed in marine environments. As the depth of the sea varied over the Chicxulub impact site, on one side it was 2000m deep, the deposits can now tell about the tremendous transport energies from the resurging water. This flood was nearly instantaneous (less than an hour) and much greater than any other catastrophic flooding known on Earth. The sediments also indicate an amount of sulfur released from the target materials to the atmosphere sufficient to create a global, several years long, dark, freeze house.

All this and much more can be read from the sediments laid down during the first day of the Cenozoic, the first day of a new age dominated by mammals and eventually by our own species.

The figure to the left illustrates the Chicxulub impact event and the associated sedimentary processes analyzed in this study (From Gulick et al. 2019)