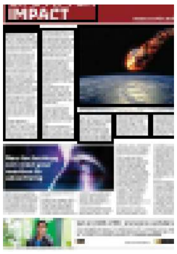

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LIFE AFTER IMPACT

Anita Shore

Sixty-six million years ago, an asteroid the size of a small city hurtled towards Earth. With a force of 100 million megatons of TNT, it crashed into Earth with devastating consequences, wiping out the dinosaurs and more than 50 per cent of living species.

Curtin Geomicrobiologist and ancient DNA expert Associate Professor Marco Coolen, and molecular fossil and mass extinction event expert Professor Kliti Grice, are discovering exactly what happened to life on Earth after the asteroid struck.

Together with scientists from around the world, the pair has collected core rock samples from the Chicxulub impact crater, which lies buried beneath layers of sediment and limestone off the Yukatán Peninsula in Mexico.

Widely thought to be the exact spot where the 10 km-wide lethal asteroid struck, the scientists have drilled 1,500 metres down through layers of rock below the seabed to get samples from the crater's 'peak ring', a circle of hills that stand above the crater floor.

"Through analysing the molecular remains of life found in this crater, we hope to obtain evidence of the resurgence and evolution of marine and terrestrial life following the asteroid impact in the Gulf of Mexico," Associate Professor Coolen says.

The operation is a significant step towards understanding how life on Earth adapted and recovered from the cataclysmic event.

"This international research effort will yield critical insights into how this major mass extinction event impacted the evolution of life on a planetary scale," says Professor Kliti Grice, who is leading part of the project.

She says the team has combined geological, biological and geochemical tools to study the environmental change that resulted from the impact, including the sharp rise in carbon dioxide levels, due to the global firestorm and dust clouds that blocked sunlight for many years afterwards.

"This end-Cretaceous event is closely related to the rise of our current carbon dioxide concentrations, which saw the levels rise at least four times more than present levels," says Professor Grice.

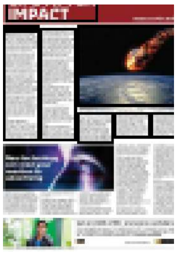
"It is estimated that close to the impact, greater than 50 per cent of species became extinct, including calcifying plankton whereas non-calcifying organisms recovered from the event."

Samples recovered from the expedition have been frozen and shipped to Curtin for further analysis by the WA-Organic and Isotope Geochemistry team and the John de Laeter Centre, where they could also shed light on how life starts and colonises a planet.

"Other extinctions are associated solely with voluminous volcanic activity, which affected the biogeochemical cycles and microbial communities in the ancient seas," says Associate Professor Jourdan, a geologist and expert on argon dating and the causes of mass extinctions.

"One of the main research areas that we will look at is the extent of a hydrothermal system associated with the impact, and the advantages for the colonisation of life right after a major impact. This can have implications on how early life can colonise a planet after its formation."

The project is funded by the International Ocean Discovery Program and the International Continental Scientific Drilling Program. It has been supported by the Australian Research Council $10 million infrastructure program led by the Australia-New Zealand IODP Consortium.



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