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MEDIA RELEASE

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Uncovering the meteor's effect on the Earth and life:

International expedition to the Chicxulub impact crater, Yucatán, Mexico

An international team of scientists is about to begin an expedition 30 kilometres off the coast of the Yucatán Peninsula, Mexico. During the eight-week expedition onboard the Liftboat *Myrtle*, the team will collect cores of rocks from the Chicxulub impact crater, the best-preserved large impact crater on Earth, and the only one with an intact topographic peak ring – a ring of hills that stand above the otherwise flat crater floor. The Chicxulub impact structure formed when a large asteroid hit the Earth around 66 million years ago, which is linked to the end-Cretaceous mass extinction, widely renowned for its association with the demise of the dinosaurs.

Led by Co-Chief Scientists Sean Gulick, University of Texas at Austin in the United States and Joanna Morgan, Imperial College London, United Kingdom, and co-ordinated in Mexico by Jaime Urrutia-Fucugauchi from the National Autonomous University of Mexico (UNAM), the team will collect cores from a single drill site at a water depth of 17 metres. The plan is to collect cores as deep as 1500 metres below the seafloor to recover rocks from above and into the Chicxulub impact crater.

“Peak rings are a common feature of large craters”, said Gulick, a marine geoscientist “But there is no consensus on their formation. This expedition will help us to understand how the asteroid impact temporarily changed the rocks behaviour allowing them to flow large distances and form features such as a peak ring”.

“We will also study the possibility that asteroid impacts may be beneficial to some forms of life as there is a hypothesis that impact craters could have sustained biospheres in the early Earth’ said Morgan, also a marine

geoscientist. “We are also interested in the changes that occurred before and after the impact and how life recovered in the ocean”

“We are also interested in the changes that took place across what’s known as the Paleocene-Eocene Thermal Maximum, which occurred 10 million years after the impact event” said Ligia Perez-Cruz, a geoscientist at UNAM.

Overall the expedition aims to study

- The rocks that form the peak ring. For example, are they from the Earth’s upper mid or lower crust?
- Habitability: Was there intense hydrothermal activity in the rocks that form the peak ring and how long did it last? What microbiological life colonized the peak ring? Was it diverse and/or exotic, and was it shaped by the post-impact hydrothermal system?
- Recovery of life: After the impact, how long did it take for the ocean to return to normal conditions? Did diversity gradually recover, or did the whole assemblage return simultaneously once the environment stabilised? What is the relationship between the survivors of the impact event and newly evolved taxa.

The expedition is conducted by the European Consortium for Ocean Research Drilling (ECORD) as part of the International Ocean Discovery Program (IODP). The expedition is also supported by the International Continental Scientific Drilling Programme (ICDP). The expedition would not have been possible without the support and assistance of the Yucatán Government, Mexican federal government agencies and scientists from the National Autonomous University of Mexico (UNAM) and the Centro de Investigación Científica de Yucatán (CICY).

More information:

About the expedition - <http://www.eso.ecord.org/expeditions/364/364.php>

About the research programme – www.iodp.org

About the European part of the programme – www.ecord.org

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