Biggest extinction in history caused by climate-changing meteor
1 August 2013

The Chicxulub crater in Mexico, is 180km in diameter while the Araguainha is 40 kilometres across and was thought to be too small to have caused the chain reaction which brought about such mass extinction.

"I have been working with Fred Jourdan at Curtin University and UWA post-doctoral fellow Martin Schmieder to establish better ages for various impact structures in Australia and abroad. We were particularly interested in the Araguainha crater, since the original age determined in the 1990s was relatively close to the Permo-Triassic boundary. The refinements in geochronological techniques that we are applying are helping to reveal the true age of these structures," Dr Tohver said.

The results of an extensive geological survey of the Araguainha crater funded by UWA and the Australian Research Council and published in Palaeogeography, Palaeoclimatology, Palaeoecology, revealed that a sizeable amount of the rock is oil shale. The researchers calculated that the impact would have generated thousands of earthquakes of up to magnitude 9.9, significantly more powerful than the largest recorded by modern seismologists for hundreds of kilometres around, releasing huge amounts of oil and gas from the shattered rock.

Dr Tohver believes the explosion of methane released into the atmosphere would have resulted in instant global warming, making things too hot for much of the planet's animal life.

"Martin Schmieder and I are currently working on documenting some of the more extreme environmental effects of the impact, including giant tsunamis. In addition, ongoing work with Kliti Grice at Curtin University and her Ph.D. student Ines Melendez will be fundamental to documenting changes in the organic geochemistry of the target rocks," Dr Tohver said.
It's estimated more than 90 per cent of all marine species and about 70 per cent of land-based species disappeared in the Permian extinction.

More information:
www.sciencedirect.com/science/…
i/S0016703712001457

Provided by University of Western Australia

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.