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31 August 2017

UCT researchers use unique way to date rocks through geological ‘barcodes’

University of Cape Town geologists have for the first time used geological ‘barcodes’ to indirectly date rocks from the Karoo Basin. These ‘barcodes’ are the visible expression of reversals in polarity of the Earth’s magnetic field as recorded by rocks. This new research, published yesterday, 30 August, in *Gondwana Research*, deals with the magnetostratigraphy across the Triassic-Jurassic boundary in the main Karoo Basin.

The UCT geologists have been involved in recognising ancient reversals in the Earth’s magnetic field as it was some 200 million years ago. The study of the Earth’s magnetic field as recorded by certain rock types is called palaeomagnetism, and it relies on the ability of certain minerals (in the rocks) to retain the Earth’s magnetic signature during their formation. In studying the past magnetic field and the rate and duration of its reversals, researchers are able to get a snapshot of the movement of ancient continents and indirectly date the rocks.

Approximately two hundred million years ago, a unique package of sedimentary rocks called the Elliot Formation was deposited and form part of the fill in the main Karoo Basin in southern Africa. It is these rocks which the researchers indirectly dated using magnetostratigraphy which uses the principles of palaeomagnetism and stratigraphy. Ultimately defining a unique barcode for the Elliot Formation that allows the researchers to compare these rocks to others globally.

Dr Lara Sciscio from the UCT Department of Geological Science and her colleagues believe that studying these ancient rocks will unlock the secrets relating to the timing, occurrence and amplitude of the end-Triassic mass extinction, the third largest extinction the world has ever experienced, in southern Africa.

“This new evidence may bring into question the amplitude of the end-Triassic mass extinction on land in southern Africa,” said Dr Sciscio.

She added: “This [the end-Triassic mass extinction] is a globally recognised biotic crisis, but in order to study this event in southern Africa it is critical to provide a timeline that serves as a backbone for researchers to monitor changes in dinosaur abundance and diversity.”

The rocks of the Elliot Formation contain a wealth of fossil bone and even host the oldest dinosaur eggs as well as a multitude of fossilized trackways. These fossil discoveries are often unique to southern Africa and trackways can be observed at the Golden Gate National Park and Mafube Mountain Retreat (Free State).

Significantly, this new evidence highlights the importance of the southern African Elliot Formation in global research.

See the full article [here](#).

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Issued by: UCT Communication and Marketing Department

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