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Characterization of ~248 million years old vertebrate burrows using a non-penetrating imaging technique: photogrammetry

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Ichnology is the study of traces made by organisms in sediments. Among others, trace fossils may indicate the environmental conditions that influenced the behaviour of the organisms that created the traces. For this reason, some ichnofossils are useful in understanding the survival strategies of organisms after global biological crises such as the mass extinction event that occurred ~252 million years ago.

Accurate description of trace fossil characteristics (e.g., 3D morphology) is crucial in the identification of the potential trace makers. 3D imaging techniques of ichnofossils allow for more quantitative morphological descriptions unhindered by the limitations of conventional measurement techniques and vocabulary. Due to the lack of penetrating radiation facilities at the time of the study, the morphology of some Early Triassic (~248 Ma old) vertebrate burrows was digitized and analysed using photogrammetry, which is a non-penetrative, low-cost, unspecialised and ubiquitous imaging technique. Photogrammetry also assisted in generating 3D digital copies of the burrows that have been subsequently utilized for ichnotaxonomic analysis and comparative ichnological studies of these biogenic 3D objects.

Submit a paper for peer review (SA Journal of Science)? (Yes / No / Maybe)

Maybe

Primary authors: Dr BORDY, Emese M. (Department of Geological Sciences, University of Cape Town, Private Bag X3, Rondebosch, 7701, Cape Town, South Africa); Mr KRUMMECK, William D. (Department of Geological Sciences, University of Cape Town, Private Bag X3, Rondebosch, 7701, Cape Town, South Africa)

Presenter: Mr KRUMMECK, William D. (Department of Geological Sciences, University of Cape Town, Private Bag X3, Rondebosch, 7701, Cape Town, South Africa)

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