Morgan Cox

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Brief Summary

Understanding the early Earth, and the interplay of meteorite impact events on crustal evolution is complicated when the only geological evidence that remains are detrital zircon grains up to 4.4 billion years old. During the Hadean and early Archean, >2.5 billion years ago, Earth was heavily bombarded by meteorite impacts, yet to date, little physical evidence of early impacts has been discovered. By conducting large scale surveys designed to detect deformation recorded in the mineral zircon, I propose to develop a better understanding of the timing and spatial distribution of meteorite impact events on the early Earth. Such data is critically important for refining models of planet formation, as it provides ground-truth evidence for contemporary hypotheses about how the Earth formed.

Education: Curtin University - Applied Geology B.Sc. (Hons)

Research interests: impact cratering, shock metamorphism

Thesis title: A big data approach to survey geological deformation throughout Earth history

Supervisors: Dr. Aaron Cavosie and Prof. Phil Bland

Publications:

Cox, M. A., Cavosie, A. J. Erickson, T. M. , Timms, N. E., Bland, P. A. , Miljkovic, K., Ferrière, L. and Hess, B. (2019) Confirmation of an Upper Cretaceous Impact Crater in Western Australia: Shocked Quartz at the Yallalie Structure. Meteoritics & Planetary Science. In press.

Cox, M. A., Cavosie, A. J. Bland, P. A. , Miljkovic, K., and Wingate, M. T. D. (2018) Microstructural Dynamics of Central Uplifts Revealed: Reidite Off-set by Zircon Twins at the Woodleigh Impact Structure, Australia. Geology, 46(11), 983-986.