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Brief Summary

Zircon is used often in geochemistry and geochronology studies; hence it is very important to understand the processes that may modify its composition. Still, the composition of zircon can be modified by several processes changing the reliability of the geochemical data. Radiation damage and plastic deformation are processes believed to influence element mobility. However, technical limitations have made it difficult to determine the processes by which these changes take place. This research combines APM in conjunction with SEM, SIMS, TEM, EBSD, and TKD to understand the processes of trace element modification in a suite of zircons. The aim of this research is to develop a framework for element mobility in zircons to understand the geochemical alteration.

Education: MS at Univ. of Puerto Rico, Mayaguez; BS at Univ. of Puerto Rico, Rio Piedras

Research interests: geochemistry & geochronology, APM, impact and tectonic deformation

Thesis title: Compositional modification of zircon at the nanoscale: Insights from APM

Supervisors: Prof. Steven Reddy, Dr. David Saxey, Dr. William Rickard, Dr. Denis Fougerouse

Publications:

Montalvo, S.D., Cavosie, A.J., Erickson, T.M., and Talavera, C., 2017, Fluvial transport of impact evidence from cratonic interior to passive margin: Vredefort-derived shocked zircon on the Atlantic coast of South Africa; American Mineralogist, v. 102, p. 813-823.

Cavosie, A.J., Erickson, T.M., Timms, N.E., Reddy, S.M., Talavera, C., **Montalvo, S.D.**, Pincus, M.R., Gibbon, R.J., and Moser, D., 2015, A terrestrial perspective on using ex situ shocked zircons to date lunar impacts; Geology, v. 43, no. 11, p. 999-1002.