

AGeS Lab Spotlight

Dr. James Metcalf

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Q: Tell us about yourself.

I am the manager of the CU TRaIL (University of Colorado Thermochronology Research and Instrumentation Laboratory). *See* <http://cutrail.org>.

Q: What geochronologic/thermochronologic methods do you use?

Our lab primarily performs (U-Th-Sm)/He dating of minerals including apatite, zircon, titanite, and many others. We perform both conventional (whole grain) analyses and are also developing in situ (laser ablation) techniques. Our lab has also recently become capable of LA-ICP-MS U-Pb dating of minerals.

Q: What kinds of projects has your lab supported through the AGeS program and what can future collaborators look forward to when working in your lab?

The TRaIL lab has supported numerous (U-Th)/He based studies over the years including experimental technique development using Sr isotopes and (U-Th)/He thermochronology to better understand detrital data, dating the timing and rates of canyon incision and landscape development, and dating the evolution of a fold and thrust belt in the Himalaya.

Q: What is one piece of advice you would give AGeS applicants who are interested in working in your lab?

Talk to us! (U-Th)/He studies are particularly sensitive to sampling strategy and mineral separation and sample preparation so it is crucial to understand those things prior to collecting samples. Our lab has decades of experience designing and carrying out (U-Th)/He based research and loves to share our expertise!

Q: Describe your research outside of the AGeS program.

Through the TRaIL I've helped mentor dozens of undergraduate research projects, both through CU as well as the RESESS program. The TRaIL has developed an undergraduate research grant program, called TUnDRA to help fund these projects and routinely funds RESESS and other undergraduate projects. As a lab we've also organized multiple free- or low-cost thermochronology workshops

Q: What are your hobbies outside of work?

Outside of work I like exploring Colorado with my wife, cycling, baking, watching Liverpool win soccer games, and going on adventures with my dogs.

Q: What inspired you to get into the earth sciences?

I always wanted a career that helped me understand the natural world around me. As a kid though I didn't really know much about earth science but loved biology – especially field biology. When I got to Beloit College I took an earth history class and was immediately hooked. In college I got to go on amazing field trips all over the country and became fascinated learning about all of the processes that went into forming landscapes and all of the tools geologists had to understand the immense spatial and temporal scales at work in our planet. I've been fortunate to be able to turn that interest into a rewarding career.