Kilian **Ashley**

PhD Candidate, Geochemistry · Dept. of Earth Sciences

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Education

University of Southern California — *Los Angeles, California*

Doctor of Philosophy in Earth Sciences (In progress) — *Aug 2020 - Present*

The University of Arizona — *Tucson, Arizona*

Master of Science in Hydrology and Atmospheric Science — *Aug 2015 - Dec 2017*

The University of Texas at Austin — *Austin, Texas*

Bachelor of Science in Human Pathology and Immunity — *Aug 2009 - May 2013*

Skills

- **Instruments** — Mass Spectrometry, Raman, XRD, XRF, SEM, ICP-OES, Fluorescence Microscopy and all basic chemistry applications
- **Software** — ArcMap and ArcGIS, Python and Jupyter Notebooks, MATLAB, R, Adobe Illustrator, Photoshop, LaTex, and MS Suite
- **General** — Demonstrated skillset in problem solving, maintaining and repairing analytical equipment, communicating scientific topics and discoveries to diverse audiences, and ability to build and maintain cross-disciplinary teams

Experience

University of Southern California — *Los Angeles, California*

Graduate Student Researcher — *August 2020 - Present*

- Founded the USC CO2 Removal Graduate Student Working Group to advise the Kuwaiti delegation at COP 29 and create novel CDR approaches
- Investigated and quantified the flux of carbon dioxide from urban hardscape surfaces across the US
- Identified a novel carbon cycling mechanism in concrete using ring-down mass spectrometry
- Evaluated the role of in-situ aerobic microorganisms in the oxidation of petrogenic organic carbon
- Collaborated with the USGS to quantify in-situ rate of microbial methanogenesis in a subsurface shale deposit

Natural History Museum of LA County — *Los Angeles, California*

Graduate Student in Residence - Mineral Science Research — *June 2022 - Present*

- Used a Raman microspectrometer to evaluate thermal maturity of organic molecules contained in oil-bearing shales

University of Southern California — *Los Angeles, California*

Teaching Assistant — *August 2020 - Present*

- Taught six undergraduate courses (ENST 150 - Environmental Issues in Society, GEOL 105 - Planet Earth, GEOL 150 - Climate Change, GEOL 241 - Energy Systems, GEOL 107 - Oceanography, and GEOL 460 - Geochemistry)

Massachusetts Institute of Technology — *Boston, Massachusetts*

Research Assistant — *March 2018 - February 2019*

- Collaborated to design and build an oxygen sensor capable of real time oxygen concentration measurement on a nanobar scale
- Built experimental apparatus to measure effects of oxygen starvation on methane clumped isotopes during aerobic methanotrophy

University of Arizona — *Tucson, Arizona*

Graduate Student Researcher — *August 2015 - December 2017*

- Quantified the effects of stimulated methanogenesis by using a deuterated water tracer in benchtop and field-scale stimulations

Publications & Abstracts

Barnhart, E. P.; Ruppert, L.; Hiebert, R.; Smith, H.; Schweitzer, H.; Clark, A.; Weeks, E.; Orem, W.; Varonka, M.; Platt, G.; Shelton, J.; Davis, K. J.; Hyatt, R.; McIntosh, J.; **Ashley, K.**; Ono, S.; Martini, A.; Hackley, K.; Gerlach, R.; Spangler, L.; Phillips, A.; Cunningham, A.; & Fields, M. (2022) In Situ Enhancement and Isotopic Labeling of Biogenic Coalbed Methane. Environ. Sci. Technol. 2022, 56, 5, 3225–3233

Ashley, K. Davis, K. J.; Martini, A.; Vinson, D. S.; Gerlach, R.; Fields, M. W.; & McIntosh, J. (2021) Deuterium as a quantitative tracer of enhanced microbial methane production. Fuel 289, https://doi.org/10.1016/j.fuel.2020.119959.

Ashley, K. Berelson, W.; LaRowe, D; & West, A.J. (2024) Source or Sink? Evaluating CO2 Fluxes From Urban Hardscape Surfaces, *Goldschmidt Geochemistry Conference*, Chicago, IL