Ellen W. Alexander

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Education

University of California, Los Angeles: Ph.D, March 2020
C.Phil, Geology, 2019; M.S., Geology, 2017
Department of Earth, Planetary, and Space Sciences

Wesleyan University: B.A., 2014
Earth & Environmental Sciences, with Departmental Honors

Research

Postdoctoral Associate: University of Colorado, Boulder **2020 – present**

NSF-funded investigation of crustal structure and hydration effects on uplift of Colorado Plateau using metamorphic petrology, thermobarometry, and isotope geochemistry. Supervisor: Kevin Mahan.

Science Mentor: Research Experience in Solid Earth Science for Students, UNAVCO **Summer 2020**

Project lead and mentor for two undergraduate interns conducting original research in geochemical modeling of trace elements in arc magma production.

Graduate Student Researcher: UCLA Dept. of Earth, Planetary, and Space Sciences **2015 – 2020**

Dissertation topic: Geochemical and thermobarometric tracers of crustal thickness in Southern Tibet throughout the India-Asia Collision. Advisor: T. Mark Harrison

Undergraduate Student Researcher, Wesleyan University Dept. of Earth & Environmental Sci. **2012 – 2014**

Thesis: Aqueous geochemistry of an active magmato-hydrothermal system: Copahue Volcano, Río Ágrio, and Lake Caviahue, Neuquén, Argentina. Advisor: Johan C. Varekamp

Teaching

Visiting Assistant Professsor, Colorado College Geology **March – April 2021**

Block visitor: Instructor of record for GY310 – Igneous Petrology

Teaching Assistant/Associate/Fellow, UCLA EPSS **2015 – 2020**

Laboratory Instructor, EPSS 103A: Igneous Petrology: Winter 2016, 2017, 2018, 2019, 2020

Thermodynamics and rheological properties of melts; eruption and emplacement of lavas and plutons; classification, petrography, geochemistry, and geochronology of igneous rocks; research design and methods; analytical techniques; geochemical modeling; scientific writing; oral presentation skills; peer instruction; field geology of volcanic and plutonic rocks.

Laboratory Instructor, EPSS 51: Mineralogy - Earth & Planetary Materials: Fall 2015, 2016, 2018, 2019

Mineral symmetry and crystallography; physical and chemical properties of minerals; mineral identification and classification; solid solutions; crystal form and habits; critical thinking methods for mineralogy, oral presentations.

Service

UNAVCO Research Experience in Solid Earth Science for Students **Summer 2020**
Science Mentor for undergraduate research interns

Graduate Student – Faculty Liaison, UCLA EPSS **2017 – 2019**

Earth, Planetary, and Space Sciences Student Organization, UCLA **2015 – 2019**
Treasurer (2015-2016), Vice President of Fundraising (2016-2017), President and Chair (2017-2019)

Referee for Earth and Planetary Science Letters **2016 – 2018**

Awards and Grants

Excellence in Teaching Award, UCLA EPSS; 2016, 2017, 2019
Mineralogy, Geochemistry, Petrology and Volcanology Division travel grant to attend GSA 2019, $500
2nd Place Talk, L.A. Basin Student Research Symposium, 2018
Fall Departmental Quarterly Fellowship, $7,500, UCLA EPSS, 2017
Honors in Earth & Environmental Sciences, Wesleyan University, 2014
Hughes Summer Fellowship, $2,500, Wesleyan University, 2013

Professional Development

Unlearning Racism in Geoscience (URGE): 16-week course whose primary objectives are to "(1) deepen the community's knowledge of the effects of racism on the participation and retention of Black, Brown, and Indigenous people in Geoscience, (2) draw on existing literature, expert opinions, and personal experiences to develop anti-racist policies and strategies, and (3) share, discuss, and modify anti-racist policies and strategies within a dynamic community network and on a national stage"; Spring 2021

Reclaiming STEM: one-day workshop on centering the voices of underrepresented and marginalized groups in STEM in the context of science communication and science policy, U.C. Irvine, September 2019.

Communicating Science Effectively in Today's World: one-day workshop on science communication and promotion, UCLA, June 2019.

UCLA SIMS Workshop February 2016; 2019*, 2020* (**presenter*)

Professional Society Memberships

Geological Society of America
American Geophysical Union
SACNAS
Association of Women Geoscientists
National Association of Geoscience Teachers

Invited Seminars

Geoclub, Caltech Division of Geological and Planetary Sciences, March 2019
Geocheminar, UCLA EPSS: May 2016, March 2017, November 2018

Publications

Alexander, E.W., 2014. Aqueous geochemistry of an active magmato-hydrothermal system: Copahue Volcano, Río Ágrio, and Lake Caviahue, Neuquén, Argentina. Undergraduate Honors Thesis, Wesleyan University.

Tang, F., Taylor, R., Einsle, J., Borlina, C., Fu, R., Weiss, B., Williams, H., Williams, W., Nagy, L., Midgley, P., Lima, E., Bell, E., Harrison, M., **Alexander, E.W.**, and Harrison, R., 2019. Secondary magnetite in ancient zircon precludes analysis of a Hadean geodynamo. Proceedings of the National Academy of Sciences, 116(2), pp.407-412.

Alexander, E.W., Wielicki, M.M., Harrison, T.M., DePaolo, D.J., Zhu, D.C., and Zhao, Z., 2019, Hf and Nd Isotopic Constraints on Pre- and Syn-collisional Crustal Thickening of Southern Tibet. JGR-Solid Earth, 124,pp.11,038-11,054, doi: 10.1029/2019JB017696.

Borlina, C., Weiss, B., Lima, E., Tang, F., Taylor, R., Einsle, J., Harrison, R., Fu, R., Bell, E., **Alexander, E.W.**, Kirkpatrick, H., Wielicki, M., Harrison, M., Ramezani, J., and Maloof, A., 2019. Re-evaluating the Evidence for a Hadean-Eoarchean Dynamo. Science Advances, 6(15), doi: 10.1126/sciadv.aav9634.

Keisling, B., Bryant, R., Golden, N., Stevens, L., and **Alexander, E.W.**, 2020. Does our Vision of Diversity Reduce Harm and Promote Justice? GSA Today: Groundwork, 30(10), doi: 10.1130/GSATG429GW.1

Alexander, E.W., Yamamoto-Hillman, C.A., and Harrison, T.M., 2020: Rapid crustal thickening in Southern Tibet began at 60 Ma. *Submitted September 2020*.

Alexander, E.W., 2020: Trace element "pseudobarometers" do not accurately depict crustal thickness in Southern Tibet. *In preparation.*

Conference Papers

Alexander, E.W., Kading, T., Rodriguez, A., Oonk, P.B. and Varekamp, J.C., 2013, October. Volcanic impacts on Lake Caviahue, Argentina. Geological Society of America Abstracts with Programs, v. 45, n. 7.

Weiss, B., Lima, E., **Alexander, E.W.**, Bell, E., Boehnke, P., Wielicki, M., Harrison, M., Fu, R., Kehayias, P., Glenn, D. and Walsworth, R., 2016, December. Paleomagnetism of Hadean and Archean Detrital Zircons from the Jack Hills, Western Australia. In AGU Fall Meeting Abstracts.

Alexander, E.W.*, Wielicki, M., Harrison, M., Lovera, O. and DePaolo, D., 2016, February. Accessing the Fourth Dimension In Orogenic Reconstruction Using Granitoid Thermobarometry. In AGU Fall Meeting Abstracts.

Borlina, C., Weiss, B., Lima, E., Fu, R., Bell, E., **Alexander, E.W.**, Kirkpatrick, H., Wielicki, M., Harrison, M., Ramezani, J. and Harrison, R., 2017, December. Paleomagnetism of Hadean to Neoarchean Detrital Zircons from the Jack Hills, Western Australia. In AGU Fall Meeting Abstracts.

Alexander, E.W., Harrison, M., Wielicki, M., Lovera, O., DePaolo, D. and Yamamoto-Hillman, C., 2017, December. Crustal Thickening History of Southern Tibet Revealed with Titanium-in-Quartz Barometry, Zircon Ti-thermometry, and Zircon U-Pb geochronology. In AGU Fall Meeting Abstracts.

Alexander, E.W., Varekamp, J., and Rodriguez, A., 2017, The chemical heartbeat of a magmato-hydrothermal system at Copahue Volcano, Argentina. IAVCEI Abstracts with Programs, submission # 1135

Alexander, E.W.*, Yamamoto-Hillman, C., and Harrison, M., 2019, August. TitaniQ Inclusions: Thermobarometry of Tibetan Lhasa Block Granitoid Zircons. Goldschmidt2019, Barcelona, Spain.

Alexander, E.W., Yamamoto-Hillman, C., Wielicki, M., and Harrison, M., 2019, September. Understanding oxygen isotopes of zircon inclusions: A case study of quartz inclusions in Tibetan granitoid zircons. Geological Society of America Abstracts with Programs, v. 51, n. 5

DePaolo, D., Harrison, M., Wielicki, M., Zhao, Z., Zhu, D.-C., and **Alexander, E.W.**, 2019, December. Granites, Rhyolites, Magma Generation, and Crustal Thickness in southern Tibet. In AGU Fall Meeting Abstracts

Alexander, E.W.* and Harrison, M., 2019, December. Do La/Yb and Sr/Y always reflect crustal thickness in magmatic rocks? In AGU Fall Meeting Abstracts.

*(*oral presentation)*