JULIA R KELSON
Curriculum Vitae
March 2021
jrkelson@umich.edu

EDUCATION

University of Washington, Seattle WA, Earth & Space Sciences, PhD, June 2019
Supervisor: Kate Huntington

Dartmouth College, Hanover NH, BA in Earth Sciences (Magna Cum Laude), June 2012
Supervisor: Robert Hawley

RESEARCH & PROFESSIONAL EXPERIENCE

NSF Earth Sciences Postdoctoral Fellow, Univ of Michigan, Ann Arbor, MI, 2019-present
Supervisors: Sierra Petersen, Benjamin Passey, Naomi Levin

NSF Fellow and Research Assistant, University of Washington, Seattle, WA, 2013-2019

NSF Graduate Research Intern, US Geological Survey, Portland OR, May-July 2017

Staff Geologist, **ENGEO Incorporated,** San Ramon CA, 2012 –2013

High Honors Senior Thesis, Dartmouth College, Hanover NH, 2012

PEER-REVIEWED PUBLICATIONS

Anderson, N.T., **Kelson, J.R.**, Kele, S., Daeron, M., Bonifacie, M, Horita, J., Mackey, T.J., John, C.M., Kluge, T., Petschnig, P., Jost, A.B., Huntington, K.W., Bernasconi, S.M., Bergmann, K.D. (2021). A unified clumped isotope thermometer calibration (0.5-1100 °C) using carbonate-based standardization. *Geophysical Research Letters*. doi: 10.1029/2020GL092069

Kelson, J.R., Huntington, K.W., Breecker, D.O., Burgener, L.K., Gallagher, TJ., Hoke, G.D., and Petersen, S.V. (2020). A proxy for all seasons? A synthesis of clumped isotope data from Holocene soil carbonates. *Quaternary Science Reviews* 234. doi: 10.1016/j.quascirev.2020.106259.

Schenk, L.N., Harden, T.M., and **Kelson, J.R**. (2019). Differentiating sediment sources using sediment fingerprinting techniques, in the Sprague River Basin, south-central Oregon: U.S. Geological Survey Open-File Report 2019-1120. doi: 10.3133/ofr20191120.

Petersen S.V., Defliese W.F., Saenger C., Daëron M., John C.M., Bernasconi S.M., Colman A.S., Huntington K.W., **Kelson J.R**., and 21 others. (2019). Effects of Improved ^{17}O Correction on Inter-laboratory Clumped Isotopes Calibrations, Estimates of Mineral Specific Offsets, and Acid Fraction Factors. *Geochemistry, Geophysics, Geosystems* 20. doi: 10.1029/2018GC008127

Burgener, L., Hyland, E., Huntington, K. W., **Kelson, J.R.,** Sewall, J. O. (2019). Revisiting the Equable Climate Problem During the Late Cretaceous Greenhouse Using Paleosol Carbonate Clumped Isotope Temperatures from the Campanian Western Interior Basin. *Palaeogeography, Palaeoclimatology, Palaeoecology*, *516*, 244-267. doi: 10.1016/j.palaeo.2018.12.004

Kelson, J.R., Watford, D., Bataille, C., Huntington, K.W., Hyland, E., Bowen, G.J. (2018). Warm terrestrial subtropics during the Paleocene and Eocene: Carbonate clumped isotope (Δ_{47}) evidence from the Tornillo Basin, Texas (USA). *Paleoceanography and Paleoclimatology*, 33(11), 1230-1249. doi: 10.1029/2018PA003391

Kelson, J. R., Huntington, K. W., Schauer, A. J., Saenger, C., & Lechler, A. R. (2017). Toward a universal carbonate clumped isotope calibration: Diverse synthesis and preparatory methods suggest a single temperature relationship. *Geochimica et Cosmochimica Acta*, *197*, 104-131. doi: 10.1016/j.gca.2016.10.010

Schauer, A. J., **Kelson, J.,** Saenger, C., & Huntington, K. W. (2016). Choice of ^{17}O correction affects clumped isotope ($\Delta47$) values of CO_2 measured with mass spectrometry. *Rapid Communications in Mass Spectrometry*, *30*(24), 2607-2616. doi: 10.1002/rcm.7743

PUBLICATIONS IN REVIEW & IN PREP

Kelson, J.R., Huntington, K.W., Breecker, D.O., Gallagher, T.M., Hoke, G.D. The Sensitivity of the Preserved Isotope Geochemistry of Soil Carbonates to Rainfall, Plant Activity, and Dissolution in Numerical Modeling. *Earth and Planetary Science Letters* (in review).

Bernasconi, S.M., Daeron, M., Bergmann, K.D., Bonifacie, M., Meckler, A.N., and 55 coauthors including **Kelson, J.R.**, InterCarb: A community effort to improve inter-laboratory standardization of the carbonate clumped isotope thermometer using carbonate standards. *Geochemistry, Geophysics, Geosystems* (in revision). doi: 10.1002/essoar.10504430.4

Kelson, J.R., Petersen, S.V., Niemi, N., Passey, B.H. Ski to sea in the early Eocene California: clumped and triple oxygen isotopes in the Goler Formation. *In prep.*

Kelson, J.R., Huth. T.E., Levin, N., Passey, B.H. A global perspective on the triple oxygen isotope values of soil carbonates. *In prep.*

RESEARCH GRANTS (in USD)

NSF-EAR Postdoctoral Fellowship, Awarded February 2019 ($174,000).

Clumped and Triple Oxygen Isotopes of Terrestrial Carbonates: New Tools to Estimate Aridity and Precipitation in California During Past Greenhouse Climates

Inquisitive Graduate Student Fund, UW Departmental Research Grant, 2018 ($2050)

Soil respiration and atmospheric CO_2 in the early Paleogene: Exploring the role of soil carbon during ancient carbon cycle perturbations

NSF Graduate Research Internship Program, Additional Funding to GRF, 2017 ($5000)
Fingerprinting phosphorous-rich sediment sources in the Klamath River Basin, OR

Quaternary Research Center, University of Washington, Research Grant, 2016 ($6420)
Quantifying climate change during the PETM in continental North America

NSF Graduate Research Fellowship, Awarded Spring 2015 ($138,000)

Bourgeois Graduate Student Fund, UW Departmental Research Grant, 2015 ($2386)

Geological Society of America Research Grant, 2014 and 2015 ($1800)

Northern Studies Internship Grant, Dartmouth College, 2011 ($3500)

ACADEMIC HONORS AND AWARDS

Highlight in International Women's Day Issue for highly-cited, female-lead author, 2020
Johnston Award for Research Excellence, UW Earth & Space Sciences, 2019
Best Geochemistry Talk, UW ESS Research Gala, 2019
Best Paleoclimate Talk, UW ESS Research Gala, 2018
American Geophysical Union Outstanding Student Paper Award, 2015
College of the Environment Individual Student Travel Award, 2015 & 2018
Graduate School Fund for Excellence and Innovation Travel Award, 2015 & 2018
NSF Graduate Research Fellow Honorable Mention 2014 (Successful Award in 2015)
Univ. of Washington Top Scholar Research Fellowship, (1 quarter stipend & tuition), 2013
Rufus Choate Scholar (top 5% of graduating class, Dartmouth College), 2012
Earle Lenker Award for Excellence in Field Work, Dartmouth College, 2011

PROFESSIONAL SERVICE

Peer reviewer for more than a dozen publications in *Nature, Nature Communications, Nature Geoscience, Geochimica et Cosmochimica Acta, Geology, Rapid Communications in Mass Spectrometry, Paleoceanography and Paleoclimatology, ACS Earth and Space Chemistry*, proposal for *Hungary's National Research, Development and Innovation Office*

Judge for Outstanding Student Presentations, AGU Fall Meeting, December 2019

Board of Directors, Engage Science Communication, 2016-2018
UW graduate student-run organization that teaches science communication.

Graduate Student Representative to the Faculty, 2016-2018
Liaison between graduate students and the faculty; work to implement policies that improve the inclusivity and diversity of the department.

Organizer, UW Earth and Space Sciences Research Gala, 2015
Organized research gala for graduate and undergraduate students to present their research (talks and posters) to the department.

TEACHING AND MENTORING

Teaching Assistant, University of Washington, 2013-2019.
Physical Processes of the Earth (structural geology & geomorphology), Fall 2018
Geoscience Communication, Winter 2015 & 2014
Field Geology in Dillon, Montana, Summer 2014 & 2015
Physical Geology, Fall 2014 & Winter 2019

Participant, Course on College STEM Teaching for Postdoctoral Fellows
Course on learner-centered teaching at Univ. of Michigan, completed April 2020.

Mentor, Association for Women in Science (AWIS) Univ. Michigan, 2020-present
Peer mentoring circles for graduate students and postdocs in STEM.

Mentor for Undergraduate Research:
Margaret Rudnick (2020-present): *Numerical modeling of soil carbonate formation*

Ziwei Xiang (2019-2020): *Stable isotope composition of fossil shells from the Paleogene of the Eastern Pacific*

Shana Edouard (2019): *Synthetic calcite precipitation for laser spectroscopy*

Nicole Sarieddine (2017-2019):
Last Glacial Maximum temperatures estimated with carbonate clumped isotopes
Predicting soil carbonate formation with remotely sensed soil moisture data

Adrienne Scott and Paul Tosello (2014): *SEM-based grain size estimates of synthetic calcite precipitates*

Rebecca Smith (2014): *Synthetic carbonate precipitation experiments*

Guest Lecturer, Geoscience Communication (ESS 410), University of Washington, 2019

Guest Lecturer, Physical Geology (ESS 210), University of Washington, 2016

Italian Instructor, Dartmouth College, Hanover, NH, Winter & Spring 2012
Led Rassias-method drill sections, fast-paced grammar instruction.

Director's Assistant, Dartmouth College Off Campus Programs, Rome, Italy, Fall 2011
Instructed grammar and culture in Rome, performed administrative tasks for an undergraduate language immersion program.

EDUCATIONAL OUTREACH

Research Mentor, Headwaters Science Institute, 2020
Mentored high school student independent research, resulting in a paper submission to a young-scientist journal

Speaker, Headwaters Science Institute, Lunch with a Scientist, 2020-2021
Zoom presentations to middle and high school students.

Application Reviewer, Inspiring Girls Expeditions, 2018 & 2019

Speaker, Seattle Town Hall Talk, June 1, 2016.
Public presentation on paleoclimate research and modern climate change.

Curriculum Developer and Instructor, UW IsoLab Paleoclimate Field Trip, 2014-2017
Planned & executed field trips for 120 high school students to visit IsoLab.

Volunteer, Rockin' Out, University of Washington, 2013-2019
Participated in k-12 outreach activities: planning and executing field trips to local parks with schools and teaching geology in classrooms and at science nights.

INVITED TALKS

University of Michigan –Department Paleoclimate seminar, October 2019.

University of Texas at Austin – Water, Climate and Environment Seminar. "Clumped isotopes: certainties & uncertainties of thermometry and Eocene paleoclimate." Sept 2018.

University of Washington – Biology Department Paleo seminar, January 2018.

CONFERENCE PRESENTATIONS (first author only)

Kelson, J.R., et al., Using Triple Oxygen Isotopes of Pedogenic Carbonate to Identify Ancient Evaporation: First Steps from Modern Soils**.** In session: Novel and quantitative methods for reconstructing continental palaeoenvironments and palaeohydrology. Virtual European Geosciences Union, April 2021. ***(invited presentation).***

Kelson, J.R., Huntington, K.W., Breecker, D.O., Burgener, L.K., Gallagher, T.G., Hoke, G.D., Petersen, S.V. Advancing terrestrial paleoclimate with a process-based understanding of the seasonal bias of the clumped and stable isotopic composition of soil carbonates. Geological Society of America Connects Online, October 2020. doi: 10.1130/abs/2020AM-358636. ***(invited presentation).***

Kelson, J.R., Petersen, S.V., Niemi, N.A., Passey, B. H. Deltas in an estuary: clumped and triple oxygen isotope analyses reveal isotopically depleted headwaters in the early Eocene of Southern CA. Abstract 702522 at 2020 Fall Meeting, AGU, Online.

Kelson, J.R., Huth, T., Levin, N., Passey, B. (2020). Fingerprinting Soil Water Evaporation with Triple Oxygen Isotopes of Pedogenic Carbonates. Goldschmidt Virtual 2020, 21-26 Jun. https://jrkelson.github.io/project/goldschmidt_2020/

Kelson, J.R., Huntington, K.W., Gallagher, T.M., Breecker, D.O., Hoke, G.D., Burgener L.K. (2019). Season's greetings or annual averages from paleosol carbonates? Findings from numerical simulations of soil carbonate formation. Abstract PP44B-05 at 2019 Fall Meeting, AGU, San Francisco, 9-13 Dec. *(Oral presentation).*

Kelson, J.R., Huntington, K.W., Gallagher, T.M., Breecker, D.O., Hoke, G.D., Burgener L.K. (2019). They're Not Always Hot: Varied Seasonal Biases in $T\Delta_{47}$ of Soil Carbonates Explored Through Numerical Modeling. Presentation at the International Clumped Isotope Workshop, Long Beach Harbor, CA, 25-28 Jan. *(Oral presentation).*

Kelson, J.R., Huntington, K.W., Breecker, D.O., Hoke, G.J., Burgener, L., and Gallagher, T. (2018). A synthesis of existing clumped isotope data reveals varied seasonal biases in soil carbonate accumulation. Geological Society of America Annual Meeting, Indianapolis, IN., 4-7 Nov. *(Oral presentation).*

Kelson, J.R., Huntington, K.W., Hyland, E. G., Saenger, C. (2017). Hot Summers on Land in the Early Eocene Subtropics. GSA Annual Meeting, Seattle, WA, 22-25 Oct. *(Poster).*

Kelson, J.R., Schauer, A.J., Huntington, K.W., Saenger, C.S., Lechler, A.R. (2016). Choice of ^{17}O Abundance Correction Affects Δ_{47} and Thus Calibrations for Paleothermometry. Abstract V43B-3153 at 2016 Fall Meeting, AGU, San Francisco, 12-16 Dec. *(Poster).*

Kelson, J. R., Huntington, K.W., Hyland, E. (2016). Quantifying Climate Change During the Eocene in North America. 10th Annual Graduate Climate Conference, Pack Forest, WA., 28-30 Oct. *(Poster).*

Kelson, J. R., Huntington, K.W., Schauer, A.J., Saenger, C., Lechler, A.R. (2015). Reconciling Empirical Carbonate Clumped Isotope Calibrations: A Comparison of Calcite Precipitation and Acid Digestion Methods. Abstract PP23D-02 presented at 2015 Fall Meeting, AGU, San Francisco, 14-18 Dec. *(Oral presentation).*

Kelson, J.R., Lechler, A.R., Huntington, K.W., Schauer, A.J., Smith, R. (2014). Influence of dissolved inorganic carbon species equilibrium on clumped isotope values of synthetic calcite. 4th International Workshop on Clumped Isotopes, ETH Zürich, Switzerland, 24-27 Aug. 2014. *(Oral presentation).*