

**JULIA KELSON**  
Curriculum Vitae  
jrkelson@uw.edu

## EDUCATION

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**University of Washington**, Seattle WA, Earth & Space Sciences, PhD, June 2019  
**Dartmouth College**, Hanover NH, BA in Earth Sciences (Magna Cum Laude), June 2012

## RESEARCH & PROFESSIONAL EXPERIENCE

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**NSF EAR Postdoctoral Fellow**, University of Michigan, 2019-present  
Terrestrial paleoclimate and clumped isotope geochemistry.

**NSF Fellow and Research Assistant**, University of Washington, 2013-2019  
Terrestrial paleoclimate and clumped isotope geochemistry.

**NSF Graduate Research Intern**, US Geological Survey, Portland OR, May-July 2017  
Identifying phosphorous-rich sediment sources in the Sprague River, OR

**Staff Geologist, ENGEO Incorporated**, San Ramon CA, 2012 -2013  
Geologic mapping, drilling, and characterization of natural hazards

**High Honors Senior Thesis**, Dartmouth College, Hanover NH, 2012  
'Temporal and Spatial Snow Accumulation Patterns near Summit, Greenland.'

## PEER-REVIEWED PUBLICATIONS

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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. Effects of Improved  $^{17}\text{O}$  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 ( $\Delta_{47}$ ) 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  $^{17}\text{O}$  correction affects clumped isotope ( $\Delta 47$ ) values of  $\text{CO}_2$  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., Burgener, L.K., Petersen, S.V., Breecker, D.O., Gallagher, T.J., and Hoke, G. Seasonality of soil carbonate accumulation and the interpretation of terrestrial paleoclimate records: insights from a synthesis of modern-Holocene clumped isotope data. *Quaternary Science Reviews* (in review).

Schenk, Liam N., Harden, Tessa, **Kelson, Julia**. Differentiating sediment sources in the Sprague River basin, Oregon, using sediment fingerprinting techniques. United States Geological Survey Open File Report (OFR) (in review at USGS).

**Kelson, J.R.**, Huntington, K.W., Breecker, D.O., Gallagher, T. Formation of soil carbonates by Storm Events predicted by HYDRUS. In preparation for submission to *Earth and Planetary Science Letters*.

#### RESEARCH GRANTS

**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 Support Fund**, Departmental Research Grant, 2018 (\$2050)

*Soil respiration and atmospheric  $\text{CO}_2$  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 Fellow**, Awarded Spring 2015 (\$138,000)

**Bourgeois Graduate Student Support Fund**, Departmental Research Grant, 2015 (\$2386)  
*Early Eocene stratigraphy and climate in Big Bend National Park, Texas, USA*

**Geological Society of America Research Grant**, 2014 and 2015 (\$1800)  
*Uplift of the Altiplano constrained by carbonate clumped isotope paleothermometry*  
*Fluid migration in a geothermal basin from carbonate clumped isotope thermometry*

**Northern Studies Internship Grant**, Dartmouth College, 2011 (\$3500)  
*Snow depths and densities in NH and VT: internship with the USGS in Burlington, VT.*

#### AWARDS

Johnston Award for Research Excellence, UW Earth & Space Sciences, 2019  
Best Geochemistry Talk, UW ESS Research Gala, 2019  
Best Storyteller/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  
University of Washington Top Scholar Research Fellowship, (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-reviewed papers for Nature, Nature Communications, Geology**

**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 EXPERIENCE & UNDERGRADUATE MENTORING

**Teaching Assistant**, University of Washington, 2013-present.  
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

### **Mentoring Undergraduate Research**

Nicole Saredine (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):

*Grain size estimates of synthetic carbonate samples using SEM imagery*

Rebecca Smith (2014):

*Synthetic carbonate precipitation experiments*

**Guest Lecture, 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, led excursions in Rome, and performed administrative tasks for an undergraduate language immersion program.

### EDUCATIONAL OUTREACH

**Speaker, Seattle Town Hall Talk**, June 1, 2016.

Public presentation on my paleoclimate research and modern climate change.

**Curriculum Developer and Instructor, UW IsoLab Paleoclimate Field Trip**, 2014-2017

Planned & executed a field trip for 120 high school students to visit IsoLab. Field trip occurred three consecutive years.

**Volunteer, Rockin' Out, University of Washington**, 2013-present

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.

### CONFERENCE PRESENTATIONS

**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  $\Delta_{47}$  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  $^{17}\text{O}$  Abundance Correction Affects  $\Delta_{47}$  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. 10<sup>th</sup> 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. 4<sup>th</sup> International Workshop on Clumped Isotopes, ETH Zürich, Switzerland, 24-27 Aug. 2014. (*Oral presentation*).