

LATISHA A. BRENGMAN

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COURSES

GEOL 2110 Earth History - *This course focuses on the complex interplay between life, tectonics and climate from the Precambrian to present. Topics of discussion and activities revolve around the history of planet Earth including the nature and preservation of the geologic record, the origin and evolution of life and how it is preserved in the fossil record, as well as the tectonic evolution of continents and ocean basins and how these events relate to climate change throughout geologic time. (Lecture M, W, F 9-9:50AM [ABAH 225], Lab M 1:00 – 2:50 pm [HH114]; Tu 10:00 – 11:50 am, 1:00 – 2:50 pm [HH114])*

GEOL 5095 Concepts of Geochemistry - *This course serves as an introduction to the broad topic of geochemistry. It is divided into two basic parts: (1) the geochemical structure of Earth both inside and out; and (2) practical applications for geochemistry and geochemical techniques. Discussion during the first part of the semester begins with a student-directed topical overview the discipline of geochemistry, which then serves as a framework to understand the geochemical evolution and structure of the internal and external components of Earth. Following this portion, we examine modern advances of analytical techniques and applications in geochemistry using real world examples from literature. (Lecture Tu / Th 8:00 am – 9:15 am [HH114])*

EDUCATION

Ph.D. (2015), University of Tennessee, Knoxville; major field: Earth and Planetary Sciences; Advisor: Dr. C. M. Fedo; Dissertation proposal title: *Geochemical and isotopic characteristics of Precambrian primary and secondary chert*. (GPA: 4.0) Degree conferred 8 May 2015.

B.A. (2009), Northwestern University; major field: Geology, with honors; Advisor Dr. M. T. Hurtgen; Honors Senior Thesis: *The sulfur isotope composition of 800 Ma Neoproterozoic seawater as recorded in the Bitter Springs Formation, Australia*; Degree conferred: 15 June 2009.

EXPERIENCE

2015- present: **Assistant Professor**, Department of Earth and Environmental Sciences, University of Minnesota – Duluth, MN

2015: **Internship**, Exxon Mobil, Houston, TX, May - August

2014: **Lecturer**, University of Tennessee, Knoxville, TN; Course: Introduction to Environmental Geology (GEOL 103), Summer Semester

2010 – 2015: **Graduate Student**, University of Tennessee, Knoxville, TN. Dissertation title: *Geochemical and isotopic characteristics of Precambrian primary and secondary chert*.

2013 - present: **Visiting Research Associate**, Department of Geosciences, Swedish Museum of Natural History, Stockholm, Sweden; Mentor: Dr. M. J. Whitehouse; Project: *High-resolution, in-situ silicon isotope analysis of silicified volcanic rocks and Archean banded iron formation via Secondary Isotope Mass Spectrometry (SIMS)*.

2013: **Visiting Research Associate**, The University of Western Ontario, Stable Isotope Geochemistry Lab, London, Ontario; Mentor: Dr. N. R. Banerjee; Project: *Bulk silicon isotope analysis of silicified volcanic rocks and Archean banded iron formation via Isotope Ratio Mass Spectrometry (IRMS)*.

2010 – 2015: **Graduate Teaching Assistant**, Laboratory Instructor, University of Tennessee, Knoxville, TN; Courses: Introduction to Physical Geology (101 – undergraduate); Sedimentology and Stratigraphy (340 – undergraduate); Siliciclastic Petrogenesis (545 – graduate).

2012: **Guest Lecturer**, University of Tennessee, Knoxville, TN; Course: Introduction to Environmental Geology (103), Professor Bill Deane.

2007 – 2009: **Undergraduate Research Assistant**, Geochemistry Lab, Northwestern University, Evanston, IL; Advisor: Dr. M. T. Hurtgen; Project: *Understanding the sulfur isotope composition ($\Delta^{34}\text{S}$, $\delta^{34}\text{S}_{\text{pyrite}}$, $\delta^{34}\text{S}_{\text{sulfate}}$) of pyrite and carbonate-associated sulfate in carbonate rocks from the early Neoproterozoic.*

PUBLICATIONS

Bregman, L. A., Fedo, C. M., (in review, *Geochimica et Cosmochimica Acta*). Development of a seawater-like geochemical signature by progressive alteration of volcanic rocks in the Archean (~2.7Ga) Abitibi Greenstone Belt, Canada.

Bregman L. A., Heins W.A., Matthews J.A., (2016). Dissolution and Transformation of Provenance Lithotypes during Initial Sediment Generation with Application to Play-Element Prediction. *ExxonMobil Upstream Research Company Research Application Report* URC.2016.046, 136 p.

Bregman, L.A., Fedo, C. M., and Whitehouse, M. J., (2016). Micro-scale silicon isotope heterogeneity observed in hydrothermal quartz precipitates from the > 3.7 Ga Isua Greenstone Belt, SW Greenland. *Terra Nova* 28.1: 70-75.

Bregman, L. A., Fedo, C. M., Whitehouse M. J. (in preparation). Silicon isotope evidence for continental emergence beginning at ~3 Ga. *Chemical Geology*, to be submitted November, 2016.

Bregman, L. A., Fedo, C. M., (in preparation). Tracking changes in silicon isotope composition, and major-, trace-, and rare earth elements from source to sink in the ~3 Ga Buhwa Greenstone Belt, Zimbabwe. *Earth and Planetary Science Letters*, to be submitted December, 2016.

Bregman, L. A., Fedo, C. M., Whitehouse M. J., (in preparation). Multi-method comparison of $\delta^{30}\text{Si}$ analyses of quartz crystals from chert, banded iron formation, and silicified volcanic rocks, *Chemical Geology*, to be submitted Spring, 2017.

ABSTRACTS

Bregman, L.A., Larson, P., Hanson, S. (2016) A textural and mineralogical investigation of early diagenetic reactions in the ~1.88 Ga Biwabik iron formation, MN. Geological Society of America, Abstracts with Programs. v. 48, n. 7.

Bregman, L.A., Fedo, C. M., Whitehouse, M. J. (2015) Micro-scale silicon isotope heterogeneity observed in hydrothermal quartz precipitates from the >3.7 Ga Isua Greenstone Belt, SW Greenland. Geological Society of America, Abstracts with Programs, Annual Meeting, Baltimore, MD, v. 47, n. 7, p.786.

Bregman, L. A., Fedo, C. M., Whitehouse, M. J. (2014) From source to sink: silicon isotope composition of bedrock, detrital quartz arenites, and siliceous precipitates from the ~3 Ga Buhwa Greenstone Belt, Zimbabwe. Geological Society of America, Abstracts with Programs, Annual Meeting, Vancouver, BC, v. 46, n. 6, p. 221.

Fedo, C. M., **Brengman, L. A.**, (2014) Revisiting the stratigraphic setting of the ~3 Ga Buhwa Greenstone Belt, Zimbabwe. Geological Society of America, Abstracts with Programs, Annual Meeting, Vancouver, BC, v. 46, n. 6, p. 221.

Prentice, A., Jabeen, I, Webb, E., Banerjee, N., Ali, A., **Brengman, L.**, Fedo, C. (2014). Dual Si and O Measurements Using IRMS-BrF₅ Fluorination. Goldschmidt Conference, Sacramento, C.A., p. 1988.

Brengman, L. A., Fedo, C. M., Whitehouse, M. J. (2013). Silicon isotope composition of Archean cherts from >3.7 Ga to 2.7 Ga determined by Secondary Ion Mass Spectrometry (SIMS). Geological Society of America, Abstracts with Programs, Annual Meeting, Charlotte, N.C., v. 44, n. 7, p. 36.

Brengman, L. A., Fedo, C.M. (2012). Origin of BIF-like jaspilite in the 2.72 Ga Hunter Mine Group, Abitibi Greenstone Belt, Quebec by metasomatic replacement of felsic volcanic rocks. Geological Society of America, Abstracts with Programs, Annual Meeting, Charlotte, N.C., v. 45, n. 7, p. 627.

SERVICE and LEADERSHIP

2015 – present: **Science Day coordinator**, University of Minnesota – Duluth, MN; Helped to organize Science and Engineering Day activities for local K-12 students.

2014 – 2015: **Darwin Day volunteer**, University of Tennessee, Knoxville, TN; Helped to organize Darwin Day events including workshops and seminars for middle and high school teachers focused on teaching evolution.

2010 – 2015: **McClung Museum volunteer**, University of Tennessee, Knoxville, TN; Led youth (K-8) tours through the campus museum geology exhibit.

2011 – 2013: **Sedimentology “Soft Rock” Brown Bag coordinator**, University of Tennessee, Knoxville, TN; Initiated and organized an informal, weekly, lunch-time speaker series promoting research discussion between professors, graduate students, and upper level undergraduates.

HONORS and AWARDS

2014, Graduate Student Association Travel Grant, University of Tennessee, \$175

2014, Chancellor's Citation for Extraordinary Professional Promise, University of Tennessee.

2014, Summer Graduate Research Assistantship, University of Tennessee, \$3600.

2014, Interdisciplinary Research Award, University of Tennessee, Earth and Planetary Sciences.

2014, Gordon Award for Professional Promise, University of Tennessee, Geology Club.

2013, Sedimentary Geology Division of GSA, Student Research Award, \$1000; Understanding the detailed record of seawater chemistry and alteration preserved in different chert types.

2013, Geological Society of America Student Grant, \$2125; Understanding the detailed record of seawater chemistry and alteration preserved in different chert types.

2013, Graduate Student Association Travel Grant, University of Tennessee, \$75.

2013, ExxonMobil Science Grant, \$5,000.

2012, Soft Rock Research award, University of Tennessee, Earth and Planetary Sciences.

2012, Coffee Cup Award, highest graduate student GPA, University of Tennessee, Earth and Planetary Sciences.

2011, Excellence in Teaching Award, University of Tennessee, Earth and Planetary Sciences.

2011, Gene Tipton Graduate Student Award from the Knoxville Gem and Mineral Society.

2011, 2012, 2014, 2015, Frank H. McClung Museum, Certificate of Appreciation in acknowledgement of volunteer service to the Museum, University of Tennessee

THESES

Brengman, L. A., 2015. Geochemical and isotopic characteristics of Precambrian primary and secondary chert, unpublished dissertation.

Brengman, L. A., 2009. The sulfur isotope composition of 800 Ma Neoproterozoic seawater as recorded in the Bitter Springs Formation, Australia, unpublished senior honors thesis.

PROFESSIONAL AFFILIATIONS

2014 – present, SEPM, Society for Sedimentary Geology, Member

2012 – present, Mineralogical Society of America, Member

2011 – present, Geological Society of America, Member