

# BETH E. CAISSIE

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## EDUCATIONAL HISTORY

### **Present—University of Massachusetts Amherst**

PhD in progress

M.Sc. Geology, 2006;

Thesis: Rising Temperatures, Shrinking Ice: The Deglaciation to Holocene Paleooceanography of Umnak Plateau, Bering Sea

Advisor: Dr. Julie Brigham-Grette

### **2003—University of Alaska Fairbanks**

B.Sc. Geology *Magna cum laude*

### **1997—Hampshire College, Amherst, Massachusetts**

B.A. Photography and Children's Writing

Thesis: "Looking for Bears," a photographically illustrated children's book about a young girl in Denali National Park

## EMPLOYMENT EXPERIENCE

- Sedimentologist**—member of the shipboard scientific party aboard the JOIDES Resolution for the Integrated Ocean Drilling Project's Expedition 323 to the Bering Sea *July – September 2009*
- STEM Polar Connections Staff**—Prepare polar- and climate-related curriculum activities for middle and high school teachers to use when teaching about the polar regions; communicate current polar research to teachers. *Spring 2008-Present*
- Teaching Associate**—Taught the large (300 students) Introductory Oceanography course UMass Amherst, Department of Geosciences *Spring 2008*
- Laboratory Instructor**—Taught the lab section of Geo 108, Oceanography Smith College, Northampton, MA *Spring 2007*
- Adjunct Lecturer**—Designed and taught Geo 104, Introduction to Oceanography lecture and lab Greenfield Community College, Greenfield, MA *Fall 2006, 2007, 2008*
- Communications Assistant**—website design and newsletter production UMass Department of Geosciences, Amherst, MA *September 2005-2007*
- Research Assistant**—working with Julie Brigham-Grette UMass Department of Geosciences, Amherst, MA *September 2003-Present*
- Micropaleontological Tech**—processed sediment; picked chironomid head capsules UMass Department of Geosciences, Amherst, MA *Summer 2006*
- Undergraduate Field & Research Assistant** *June 2002-November 2002*  
Institute of Arctic Biology, University of Alaska Fairbanks and Northeast Science Station, Cherskii, Siberia

## FELLOWSHIPS, SCHOLARSHIPS, AWARDS, AND ACADEMIC HONORS

- 2010 Post-Expedition Award for research related to IODP's, Exp. 323; (\$15,000) US Science Support Program
- 2007 Gloria Radke Memorial Award; (\$440) University of Massachusetts Amherst
- 2006 Geological Society of America, Quaternary Geology and Geomorphology Division, Arthur D. Howard Award
- 2006 Geological Society of America Research Grant; (\$2000)
- 2006 Leo M. Hall Memorial Award; (\$500) University of Massachusetts Amherst
- 2005 Elinor Fierman Memorial Award; (\$300) University of Massachusetts Amherst
- 2004 Elinor Fierman Memorial Award; (\$200) University of Massachusetts Amherst
- 2003 Outstanding Undergraduate; (\$500) University of Alaska Fairbanks Department of Geology and Geophysics
- 2003 Undergraduate Teaching Assistant (\$100) University of Alaska Fairbanks
- 2002 UAF Undergraduate Research Opportunities Program grant: *Sedimentological Evaluation of Siberian Soils* (\$1093)
- 2002 University Women's Association Scholarship (\$500)
- 2002 Alaska Geological Society Scholarship (\$500)

**FIELD WORK**

153 CUMULATIVE DAYS AT SEA

**2009 *Southern Bering Sea, aboard the JOIDES Resolution***

Staff sedimentologist on the Integrated Ocean Drilling Project's Expedition 323

**2008 *Bering and Chukchi Seas, aboard the Norseman II***

Lead for a team collecting sediment using the Van Veen grab as well as zooplankton and phytoplankton tows. Part of my responsibilities included packing and shipping all gear from Prudhoe Bay to Washington DC. I acted as a subcontractor for PI Jackie Grebmeier on this Shell Inc. cruise collecting baseline environmental data about walrus habitat.

**2006, 2007 *Bering Sea, aboard the USCGC Healy Ice Breaker***

Collected short sediment cores, Van Veen grabs, water samples, CTD data, and sea ice for my dissertation. Also assisted PI Jackie Grebmeier with sediment and water collection and sediment sieving to collect benthos.

**2003 *Mutnovsky and Gorely craters, near Petropavlovsk, Kamchatka***

Participated in a two week, international (Russian, American, Japanese) field course in volcanology.

**2003 *Denali National Park and Limestone Gap, Alaska***

Six week undergraduate geology field camp—mapped bedrock lithology and structure.

**2002 *Cherskii, Siberia***

One month assisting ecologists F. Stuart (Terry) Chapin III, Michelle Mack, and Edward (Ted) Schuur to sample sediment, soil horizons and leaf litter as part of their project looking at the relationship between the carbon cycle, climate change, and ecosystem disturbances such as fire.

**PEER REVIEWED PUBLICATIONS**

Caissie, B.E., Brigham-Grette, J., Lawrence, K.T., Herbert, T.D., and Cook, M.S. 2010. Last Glacial Maximum to Holocene Sea Surface Conditions at Umnak Plateau, Bering Sea as Inferred from Diatom, Alkenone, and Stable Isotope Records. *Paleoceanography*, 25, 2008PA001671.

**OTHER PUBLICATIONS**

Expedition 323 Scientists, 2010. Bering Sea paleoceanography: Pliocene–Pleistocene paleoceanography and climate history of the Bering Sea. IODP Prel. Rept., 323. doi:10.2204/iodp.pr.323.2010. [http://publications.iodp.org/preliminary\\_report/323/](http://publications.iodp.org/preliminary_report/323/)

**ABSTRACTS**

Caissie, B.E., Brigham-Grette, J. 2010. A quantitative sea-ice proxy based on diatom assemblages and morphological changes in the Bering Sea. *2010 Ocean Sciences Meeting*, Portland, Oregon, February 22-26. *Talk*.

Caissie, B.E., Brigham-Grette, J. 2008. Development of a Paleo-Ice Duration Proxy in the Bering Sea, Preliminary Results Based on Diatom Assemblages and Sediment Grain Size. *2008 Ocean Sciences Meeting*, Orlando Florida March 2-7. *Poster*.

Caissie, B.E., Brigham-Grette, J., Lawrence, K.T., Cook, M.S. 2006. Deglaciation to Holocene Sea-Ice History at Umnak Plateau, Bering Sea as Inferred from Diatom, Alkenone, and Stable Isotope Records. *GSA Abstracts with Programs*, 38(7). *Talk*.

Caissie, B.E., Brigham-Grette, J., Lawrence, K.T., Cook, M.S. 2006. Rising temperatures, shrinking ice: the deglaciation in the Bering Sea based on diatoms, alkenones, and oxygen isotopes. *Arctic Workshop*, Boulder, CO. *Talk*.

Caissie, B.E., Brigham-Grette, J., Driscoll, N.W., Cook, M.S., and Herbert, T.D. 2005. Deglacial to Holocene Sea-Ice History using Diatoms and Alkenones, Umnak Plateau, Bering Sea. *Bering Strait Workshop*, Fairbanks, Alaska and *Polar Marine Diatom Meeting*, Yamagata, Japan. *Poster*.

Caissie, B.E., Brigham-Grette, J., Driscoll, N.W., Cook, M.S., and Herbert, T.D. 2004. Deglaciation to Holocene sea-ice history using diatoms and alkenones, Umnak Plateau, Bering Sea. *Eos Trans. AGU*, 85(47), Fall Meet. Suppl., Abstract: PP21B-1382. *Poster*.

Caissie, B., 2003, Sedimentological Evaluation of Siberian Yedoma. Alaska Geological Society 2003 Geology Symposium. April 25-26, Proceedings Volume. p. 29. *Poster*.

**SYNERGISTIC ACTIVITIES**

- Designed middle and high-school curriculum modules about Arctic climate change for the STEM Polar Connections project. This included presenting our ideas at 3 week-long summer teacher workshops (2007-present)
- Presented hands-on, interactive lectures to pre-schoolers at the Girls' Club of Greenfield, MA; kindergarteners and 6th graders at Abby Kelley Foster Charter School, Worcester, MA; 7<sup>th</sup> and 8<sup>th</sup> graders at Amherst Middle School, Amherst, MA; and high school teachers in Greenfield, MA about sea ice in the Bering Sea (2008-2010).
- Compiled an illustrated diatom key to major Bering Sea diatom species. This guide will serve as either a teaching tool for undergraduate students or for individuals assisting with diatom counts. (2004)
- Secretary of University of Alaska Geosciences Club (2002-2003); University of Massachusetts Geology Graduate Student Fund (2005-2006)
- Workshops Attended: *Neogene Polar Marine Diatoms*, August 1-6, 2005, Yamagata, Japan; *US-ANDRILL Workshop*, March 31-April 3, 2005, Denver, CO; *The Bering Strait, Rapid Climate Change and Land Bridge Paleoecology*, June 20-22, 2005, Fairbanks, AK; *Arctic Climate and Terrestrial Ecosystems*, August 1-14, 2005, Fairbanks and Toolik Lake, AK.

**SOCIETY MEMBERSHIPS**

American Geophysical Union  
American Quaternary Association  
Arctic Institute of North America  
Geological Society of America  
IGBP/PAGES Past Global Change Project  
International Society for Diatom Research