GREGORY A. DE WET

CURRICULUM VITAE

PhD Candidate
Department of Geosciences
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EDUCATION/ACADEMIC EXPERIENCE

University of Massachusetts, Amherst — Expected Completion: May 2017
Ph.D in Paleoclimatology
Supervisors: Dr. Raymond Bradley, Dr. Isla Castañeda
Research highlights:
• Application of a wide range of proxies to lacustrine sedimentary archives from the Arctic spanning the Quaternary.
• Produced the highest resolution paleotemperature record to date spanning "super-interglacial" Marine Isotope Stage 31 using brGDGTs (bacterial membrane lipids) from Lake El'gygytgyn, NE Russia published in *EPSL*.
• Pioneering research in SW Greenland and Faroe Islands pairing paleoclimate and human occupancy reconstructions using organic biomarkers (in prep).
• Developing/improving methodology for use of Fourier Transform Infrared (FTIR) spectroscopy to determine biogenic silica and organic matter content of lake sediments from the Arctic (in prep).

University of Bergen, Norway — January-June 2015
Fulbright Research Scholarship (part of Ph.D research)
Supervisor: Dr. Jostein Bakke
• High resolution paleoevnironmental reconstruction from proglacial Lake Gjøavatnet, NW Svalbard (under review in *QSR*).

University of Massachusetts, Amherst — 2011-2013
M.Sc. in Geosciences
Supervisor: Dr. Raymond Bradley
• Holocene paleoenvironmental reconstruction from Nanerersarpik Lake in SE Greenland. First use of FTIR spectroscopy to determine biogenic silica, organic carbon content on Greenland lake sediments (in prep).

Bates College — 2007-2011
B.Sc. in Geology
Supervisor: Dr. Michael Retelle
• Honors thesis title: Analysis of sediment trap yields in glacier-fed Linnévatnet, Svalbard: calibrating watershed and lacustrine processes for paleoclimate analysis

RESEARCH INTERESTS

My primary research focus is reconstructing paleoenvironments from high latitude sites using lake sediments. I use a wide range of proxies, ranging from traditional sedimentological techniques to novel organic biomarkers. My recent research has focused on pairing paleoclimate reconstructions with records of human presence in a landscape to discern how human populations (such as the Norse in Greenland) have responded to shifts in climate. Broadly I am interested in Arctic climate change and how the high latitudes affect global climate.

TEACHING & MENTORING EXPERIENCE

Co-advised undergraduate honors thesis of Geoffrey Small, UMass Amherst — From 2016
First signs of human occupancy of the Faroe Islands based on organic biomarkers from lake sediments
Multiple hours per week mentoring Geoff, encompassing sample work-up and analysis in the biogeochemistry lab to proposal and thesis writing.

Co-advised undergraduate honors thesis of Thomas Barasso, UMass Amherst — 2015 - 2016
Greenland Viking Collapse: an Organic Geochemical Exposition
Multiple hours per week mentoring Tom, encompassing sample work-up and analysis in the biogeochemistry lab, thesis writing, presentation skills.

Mentored/Supervised undergraduate Annie Kandel, Bates College — 2016
Organic carbon content of Greenland lake sediments, FTIRS analysis of Alaskan lake sediments
Directly supervised Annie in the Hartshorn Quaternary lab, laboratory training and data analysis

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Co-lecturer Geo-Sci 658 Paleoclimatology — 2016
Will give multiple lectures on climate change, paleoclimatology, paleolimnology

Guest lecturer in Introduction to Oceanography, UMass Amherst 2016
Arctic Climate Change

Guest lecturer in Geov 326 - Quaternary Environment, Process, and Devleopment, University of Bergen 2015
Paleoclimate Reconstructions from Lake Sediments - the story from Lake El'gygytgyn

Teaching assistant for field component of NSF Svalbard Research Experience for Undergraduates 2013
Spent 3 weeks in the field with students, helping them choose projects for senior theses and carry out fieldwork

PUBLICATIONS

Published/ In Review

de Wet, G., Castañeda, I., DeConto, R., Brigham-Grette, J. (2016) A high-resolution mid-Pleistocene temperature record from Artic Lake El'gygytgyn: a 50 kyr super interglacial from MIS 33 to MIS 31? *Earth and Planetary Science Letters* 436: 56-63

de Wet, G., Bradley, R., Balascio, N., D'Andrea, W., Gjerde, M., Perren, B., Bakke, J. Holocene Climate Change Reconstructed from Proglacial Gjoavatnet, Amsterdamoya, Svalbard (under review, *Quaternary Science Reviews*)

Rainsley, E. Turney, C., Golledge, N., Wilmhurst, J., McGlone, M., Hogg, A., Thomas, Z., Flett, V., Palmer, J., Richard, T., **de Wet, G.**, Hutchinson, D., Lipson, M., Fenwick, P., Hines, B., Binetti, U., Fogwill, C. Limited Glaciation of New Zealand subantarctic islands during the Last Glacial Maximum. (under review, *Quaternary Research*)

In Preparation

de Wet, G., Davin, S., Giguere, S., Seaman, S., Dyer, D., Bradley, R. Confirmation of the use of FTIR spectroscopy to determine biogenic silica and organic matter content of Arctic lake sediments: A powerful tool for high-resolution paleoclimate reconstructions (In prep).

de Wet, G., Barasso, T., Bradley, R., Castañeda, I. A novel human occupancy and paleoclimate reconstruction from Eriksvatnet, SW Greenland (In prep.)

de Wet, G., Castañeda, I., Balascio, N., D'Andrea, W., Bradley, R. Evidence for early human occupation of the Faroe Islands from lacustrine biomarkers (In prep).

RESEARCH AWARDS/SCHOLARSHIPS

2015

NSF Doctoral Dissertation Research Improvement Grant $15,901
Reconstruction of Environmental Conditions and Human Occupancy Associated with Semi-Polar Settlements

Geological Society of America Student Research Grant $1,800
Did the Little Ice Age cause the demise of the Norse in Greenland?

Joseph Hartshorn Memorial Scholarship $400
Searching for Vikings in the shadow of an ice sheet

2014

Fulbright Research Scholarship to University of Bergen, Norway
Worked with Dr. Jostein Bakke on proglacial lake Gjøavatnet, Northwest Svalbard (publication under review in *QSR*)

Arctic Field Grant (Norwegian Research Council) $4,970
Glacier and paleoenvironmental reconstructions from lakes in Northwest Svalbard

Arctic Institute of North America Grant-in-aid Scholarship $1,000
Did the Little Ice Age bring about the demise of Norse settlers in Greenland? Biomarker analysis from Lake Igaliku

Experiment.com Crowd-Funded Research Grant $9,800
Vikings in Greenland: climate and land use impacts

2013

Leo M. Hall Memorial Scholarship $400
Field mapping and sampling of four lakes in Southeast Greenland

2012

American Quaternary Association Travel Grant $250

PROFESSIONAL SERVICES

Invited Reviewer

- *Journal of Paleolimnology*
- *Organic Geochemistry*

Chaired Sessions

Emerging Techniques and Applications in Paleolimnology (co-chaired with Dr. Isla Castañeda) March 2014
NEGSA, Lancaster PA

Professional Affiliations

American Geophysical Union Since 2012
Geological Society of America Since 2010
European Association of Organic Geochemists Since 2014

INVITED TALKS/PRESENTATIONS

What can biomarkers tell us? From a super interglacial in Siberia to first appearance of humans in the North Atlantic 2016
SUNY Binghampton, Binghampton NY

Invited speaker at panel on applying for dissertation research funding 2015, 2016
UMass Amherst

Biomarkers in Arctic lakes: from a superinterglacial to a failed Viking settlement 2015
Franklin & Marshall College, Lancaster PA

Arctic Paleotemperatures from brached GDGTs, Lake El'gygytgyn, NE Russia 2014
Gordon Organic Geochemistry Research Seminar, Holderness, NH

CONTRIBUTED TALKS/PRESENTATIONS

A high-resolution mid-Pleistocene temperature record from Arctic Lake El'gygytgyn: a 50 kyr super interglacial from MIS 33 to MIS 31? 2016
NEGSA, Albany NY

Marine Isotope Stage 31 in the continental Arctic: a 50,000 long interglacial in Siberia prior to the mid-Pleistocene transition? 2015
Arctic Workshop, Bergen, Norway

Confirmation of the use of FTIR Spectroscopy to Determine Biogenic Silica and Organic Matter Content of Arctic Lake Sediments: A powerful tool for high-resolution paleoclimate reconstructions 2014
NEGSA, Lancaster, PA

Holocene Climate Variability Reconstructed from a Lake Record in SE Greenland 2013
Arctic Workshop, Amherst, MA

POSTER PRESENTATIONS

- **The Demise of the Norse in Greenland: What can Biomarkers Tell Us?** — September 2015
  International Meeting of Organic Geochemistry, Prague, Czech Republic
- **Arctic Paleotemperatures from branched GDGTs, Lake El'gygytgyn, NE Russia** — August 2014
  Gordon Organic Geochemistry Research Conference, Holderness, NH
- **brGDGTs from "Super-Interglacial" Marine Isotope Stage 31 at Lake El'gygytgyn, NE Russia** — May 2014
  GDGT Workshop, Royal Netherlands Institute for Sea Research (NIOZ), Netherlands
- **Confirmation of the use of FTIR Spectroscopy to Determine Biogenic Silica and Organic Matter Content of Arctic Lake Sediments: A powerful tool for high-resolution paleoclimate reconstructions** — March 2014
  Arctic Workshop, Boulder, CO
- **Using organic geochemical methods to investigate paleotemperature and paleoprecipitation during "super interglacials" from Lake El'gygytgyn sediments** — November 2013
  Graduate Climate Conference, Woods Hole Oceanographic Institute, MA
- **Abrupt Transitions in Climate throughout the Holocene from a Lake Sediment Record in SE Greenland** — December 2012
  AGU Fall Meeting, San Francisco, CA
- **Abrupt Transitions in Climate throughout the Holocene from a Lake Sediment Record in SE Greenland** — June 2012
  AMQUA Meeting, Duluth, MN
- **Analysis of Sediment Trap Yields in glacier fed Linnévatnet, Svalbard: calibrating watershed and lacustrine processes for paleoclimate analysis** — March 2011
  Arctic Workshop, Lewiston, ME
- **GIS and Groundwater Resources on Vinalhaven** — March 2010
  NEGSA, Portland, ME

FIELD EXPERIENCE

- **Lake coring + sediment trap deployment expedition to SW Greenland (2.5 weeks)** — **2016**
- **Lake coring expedition to Faroe Islands (3 weeks)** — **2015**
- **Lake coring expedition to NW Svalbard (3 weeks)** — **2014**
- **Led/planned expedition to Norse sites in SW Greenland to core lakes and sample catchment material (2 weeks)** — **2014**
- **Assistant scientist on Mawson Australasian Antarctic Expedition (4 weeks)** — **2013**
- **Teaching assistant for NSF Svalbard Research Experience for Undergraduates (REU), led by Drs. Al Werner and Mike Retelle (4 weeks)** — **2013**
- **Led/planned field mapping and catchment sampling expedition to SE Greenland (2 weeks)** — **2012**
- **Participant in NSF Svalbard Research Experience for Undergraduates (REU) (5 weeks)** — **2010**

OUTREACH AND MEDIA

Experiment.com Crowd-Funded Webpage (maintained with lab updates, etc.):
https://experiment.com/projects/vikings-in-greenland-climate-and-land-use-impacts

UMass Daily Collegian Article on including interview with de Wet on Norse in Greenland:
https://issuu.com/tsnowdailycollegian/docs/col_160419_a01/1

Boston Globe story on our research in SW Greenland: *http://www.bostonglobe.com/metro/2016/04/11/u-mass-team-study-why-vikings-left-greenland-settlements/bAjtoo5Y4ncsW12u30orXO/story.html*

CURRENT COLLABORATORS

- **Dr. Jostein Bakke, University of Bergen, Norway**
  Planning to return to Svalbard to core lakes in the northeastern part of the archipelago, may return to Bergen to set up FTIRS instrument in their EARTHLAB.
- **Dr. Nicholas Balascio, College of William & Mary**
  Collaborating on numerous projects in Greenland and the Faroe Islands
- **Dr. William D'Andrea, Lamont Dohery Earth Observatory, Columbia University**
  Also a collaborator on Greenland and Faroe Islands projects, I will spend time at his lab extracting ancient DNA from lake sediments

• **Dr. Bianca Perren, British Antarctic Survey, Cambridge University, UK**
Collaborator on lake sediments from Svalbard
• **Dr. John P. Smol, Queen's University, Montreal, Canada**
Collaborating on cores from SW Greenland near Norse sites, looking for ecological change in diatom species associated with human settlement.
• **Dr. Vincent Bichet (and colleagues), University of Franche Comté, Besançon, France**
Collaborating on Norse sites in SW Greenland, have visited their lab on multiple occasions to take samples, share data, present results.

ACADEMIC REFERENCES

Dr. Raymond Bradley, University Distinguished Professor, Director - Climate System Research Center (Ph.D, M.Sc. advisor)
University of Massachusetts, Amherst
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(413)-545-2120

Dr. Isla Castañeda, Assistant Professor (Ph.D advisor)
University of Massachusetts, Amherst
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(413) 577-1124

Dr. Michael Retelle, Professor (Undergraduate advisor)
Bates College, Lewiston ME
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