BJORN OLOF GRIGHOLM

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EDUCATION

University of Maine, Orono, ME May 2016
Ph.D. Earth and Climate Sciences
Dissertation: *Late Holocene Asian Climate and Environmental Variability Derived from an Asian Ice Core Array*
Advisor: Dr. Paul A. Mayewski

University of Maine, Orono, ME December 2007
M.S. Quaternary and Climate Studies
Thesis: *Climate Investigations Using Glaciochemical Records from a Tibetan Ice Core and a Fresh Snow Reconnaissance Study from Tierra del Fuego*
Advisor: Dr. Paul A. Mayewski

University of Connecticut, Storrs, CT December 2001
B.S. Geology and Geophysics
Advisor: Dr. Anthony R. Philpotts

University of Otago, Dunedin, NZ Spring 2001
Butler University Study Abroad Program

RESEARCH INTERESTS

Abrupt Climate Change / Glaciochemistry / Atmospheric Circulation / Atmospheric Dust Concentrations / Anthropogenic Pollutants / Climate Forcing Mechanisms / Climate Modeling / Climate Change Adaptation and Mitigation Policy / Data Visualization / Immersive Educational technologies (Virtual Reality) / Traditional and Multimedia Educational Outreach

PROFESSIONAL EXPERIENCE

Climate Change Institute (CCI), University of Maine, Orono, ME November 2016-Present
Research Assistant Professor

World Ocean Observatory (W2O), Sedgwick, ME June 2016-Present
World Ocean Aquarium Platform Developer
Creation, design and development of Unity 5-based immersive, interactive educational tool. In addition to the traditional offerings of a physical aquarium, this virtual aquarium platform allows the viewer to experience species not tangible in current aquaria as well as climate data visualizations.

Climate Change Institute (CCI), University of Maine, Orono, ME 2008-2012/2014-2015
Graduate Research Assistant (PhD)
Investigated a spatial-temporal array of ice cores in central Asia. Lead and participated in CCI research expeditions to Asia, South America, Europe and Antarctica, including the collection, processing, analysis (major ions, trace elements, stable isotopes and radionuclides) and interpretation of ice core records to reconstruct past climate and environmental variability. Prepared and submitted research proposals and grants and authored and co-authored subsequent peer-reviewed scientific publications.

Union of Concerned Scientists (UCS), Berkeley, CA and Cambridge, MA June - September 2014
Climate Impacts Intern (Researcher and Multimedia Producer)

Researcher for the UCS 2014 Climate Impact Report - *Encroaching Tides: How Sea Level Rise and Tidal Flooding Threaten U.S. East and Gulf Coast Communities over the Next 30 Years*. Creator and developer of UCS multimedia materials (infographics/animations/film) to accompany the Climate Impact report.

Climate Change Institute (CCI) and School of Policy and International Affairs (SPIA),
University of Maine, Orono, ME 2012 - 2014

National Science Foundation Adaptation to Abrupt Climate Change-
Integrative Graduate Education and Research Traineeship (NSF A2C2-IGERT) Fellow

Expanded field of knowledge concerning the dynamics of climate change to incorporate human dimensions such as climate change adaptation and mitigation policy. Prepared and submitted research proposals and grants. Developed relationship with Union of Concerned Scientists. Co-created interdisciplinary research collaborative immersion project: *Assessing Climate Science Education in Maine Middle and High Schools*, which included the conduction of a statewide survey of middle and high school teachers to assess the prevalence of climate science in the classroom and subsequent teacher training resources and workshop, *Climate science in the classroom,* to integrate concepts of abrupt climate change directly into Maine classrooms.

Climate Change Institute (CCI), University of Maine, Orono, ME 2005 - 2007

Graduate Research Assistant (MS)

Investigated glaciochemical records in central Asia (Tanggula Shan) and South America (Cordillera Darwin). Participated in CCI research expeditions to Asia and South America, including the collection, processing, analysis (major ions, trace elements, stable isotopes and radionuclides) and interpretation of ice core records to reconstruct past climate and environmental variability. Established an ice core processing lab at Cold and Arid Regions Environmental and Engineering Research Institute in Lanzhou, China. Prepared and submitted research grants and authored and co-authored subsequent peer-reviewed scientific publications.

Department of Geology, University of Connecticut, Storrs, CT January 2002

Field Assistant

Assisted in geologic/GPS mapping and sample collection within selected regions of the Zhongyang Range, Taiwan as part of an investigation to measure regional uplifting in Southern Taiwan.

Department of Geology, University of Connecticut, Storrs, CT July 1999 – December 1999

Undergraduate Research Assistant

Assisted in field mapping, sample collection/preparation, and conducted petrographic and geochemical analysis of basaltic magma as part of a study to investigate plagioclase phenocryst assemblages within the Holyoke Flood Basalt (Hartford Basin) and the Palisades Sill.

FIELD/LOGISTICAL EXPERIENCE

Member of thirteen international expeditions. Experienced in all stages of ice core retrieval including expedition planning and preparation (site location, transport, scientific equipment, food and shipping), field work (assisting in ice core drilling, ice core handling and processing, surface snow/snow pit sampling, cold-laboratory construction, GPR and GPS surveying and installation of weather stations).

SCIENTIFIC EXPEDITIONS

Mårma Glacier, Sweden [Co-leader] (University of Maine): Ice core collection	2015
Tupungatito Glacier, Chile (University of Maine): Ice core collection	2013
Multiple Glaciers, South Georgia Island (University of Maine): Ice core collection	2012
Coropuna Glacier, Peru [Co-leader] (University of Maine): Ice core collection	2012
Tupungatito Glacier, Chile (University of Maine): Ice core collection	2012
Coropuna Glacier, Peru [Co-leader] (University of Maine): Ice core collection	2011
Tupungatito Glacier, Chile (University of Maine): Ice core collection and GPR/GPS surveying	2011
Tupungatito Glacier, Chile (University of Maine): Ice core collection and GPR/GPS surveying	2010
Fedchenko Glacier, Tajikistan (University of Maine): Ice core collection	2009

Marinelli Glacier, Chile (University of Maine): Ice core collection and GPR/GPS surveying	2006
Guoqu Glacier, China (University of Maine): Ice core collection	2005
Fedchenko Glacier, Tajikistan (University of Maine): Ice core collection and weather station installation	2005
Zhongyang Range, Taiwan (University of Connecticut): Geologic and GPS surveying	2002

TEACHING, MENTORING and Advising EXPERIENCE

University of Maine, Orono, ME Summer 2015

Workshop Instructor

Led *Climate Science in the Classroom: Teacher Workshop* with >20 Maine high school and middle school teachers in attendance. Co-designed curriculum and created educational resources based on results of state statewide survey focused on implementing climate concepts and data into Maine classrooms. This included a guided exercise *Climate Variability in Maine and Beyond*, instruction on how to utilize climate data with an emphasis on the Climate Change Institute's Climate Reanalyzer, presentations by leading experts from the Climate Change Institute (CCI), sessions discussing implementation of Next Generation Science Standards led by Maine Math Science Alliance (MMSA) and classroom activities by the Maine Energy Education Program (MEEP).

University of Maine, Orono, ME Fall 2013

Graduate Seminar Instructor

Co-developed, coordinated, and led graduate seminar series INT-500 - *Abrupt Climate Change,* focusing on the dynamics of abrupt climate change across disciplines. Organized roster of guest lecturers, led discussion groups, and responsible for assignment development, evaluation and grading.

University of Maine, Orono, ME Fall 2009

Graduate Seminar Instructor

Co-developed, coordinated, and led graduate seminar series INT-500 - *Visiting Speaker Seminar Series – Abrupt Climate Change*, focusing on the dynamics of abrupt climate change across disciplines. Lectured, facilitated visiting speakers and led discussion group.

University of Maine, Orono, ME

Invited Lectures

SMT-504 *Integrated Approaches in Earth Science Education II* Fall 2013
Lecture Topic: Implementation of Climate Data in the Classroom

ERS-542 *Climate and the Earth's System* Fall 2012
Lecture Topic: Interannual and Decadal Climate Variability

ERS-121 *Humans and Global Change* Fall 2011
Lecture Topic: Viking Expansion and the Medieval Warm Period
Lecture Topic: Climate Dynamics of the Little Ice Age

ERS-542 *Climate and the Earth's System* Fall 2010
Lecture Topic: Research applications of NOAA HYSPLIT Model and NCEP/NCAR Reanalysis

University of Maine, Orono, ME 2006-2015

Mentor

Mentored undergraduate and graduate students in ice core laboratory techniques.

University of Maine, Orono, ME Fall 2014 – Spring 2015

Mentor

Mentored undergraduate student Nathan Dunn (Computing and Information Science) on current best practices for ice core time series analysis for his Capstone project- *Pattern Recognition and Matching in Ice Core Data.*

University of Maine, Orono, ME Fall 2014 – Spring 2015

Mentor

Mentored undergraduate student Chelsea Ogun (Economics) with data analysis and poster development as she assisted in IGERT Collaborative Immersion Project- *Promoting and Advancing Climate Education in Maine Middle and High Schools*.

University of Maine, Orono, ME Summer 2012

Advisor

Advised Master's student Raymond Perry (Spatial Information Science and Engineering) in the creation of a Unity3d-based virtual reality model - *Data Visualization of the Earth's Radiation Balance.*

University of Maine, Orono, ME Summer 2012

Mentor

Mentored undergraduate Matt Koehler (Earth and Climate Sciences) in field research methods in preparation for Coropuna glacier expedition.

Additional Teaching Experience

English Teacher at Shajing Middle and High school, Shajing, Guandong, China September 2002-March 2003
English Teacher at Guocheng Middle School, Yiyang, Jiangxi, China July-August 2002
Instructor for Mad Science®, K-5th Grade, Northampton, MA February – June 2002
Substitute Teacher at Parish Hill Middle and High School, Chaplin, CT January - June 2002

EDUCATIONAL OUTREACH

Climate Variability in Maine and Beyond 2015

Developed *Climate Science Workshop* materials for middle and high school teaching module utilizing Climate Change Institute's Climate Reanalyzer.

K-12 Outreach 2005–2014

Presented numerous presentations to students on ice core research and climate science at the Climate Change Institute, including *Science Day*, an annual open house event inviting Maine students, as well as in local Maine schools and community centers.

Union of Concerned Scientists Climate Impact Reports 2014

Created and developed multimedia materials (infographics/animations/films) in conjunction with Union of Concerned Scientists Climate Impact Reports, *Encroaching Tides: How Sea Level Rise and Tidal Flooding Threaten U.S. East and Gulf Coast Communities over the Next 30 Years* and *Rocky Mountain Forests at Risk*.

NSF A2C2 IGERT Video & Poster Competition 2013

Produced, filmed and edited an informational video highlighting the ecological and environmental science research efforts of IGERT fellow Maureen Correll.

Kuli South Georgia Expedition 2012

Filmed and edited a short documentary film about the Climate Change Institute's ice core expedition to South Georgia Island featuring the experiences of climate scientists in the field.

Youth Climate Report 2012

Produced, filmed and edited an interview with Dr. Paul Mayewski, as part of a feature length documentary presented to delegates at *Rio+20*, United Nations Conference on Sustainable Development in Rio de Janeiro, Brazil.

Data Visualization of the Earth's Radiation Balance 2012

Advised MSc student, Raymond Perry, in the creation of an Unity3d based virtual reality 3D model, in collaboration with the Climate Change Institute and the Virtual Environments and Multimodal Interaction (VEMI) Lab.

Garrand-Andes Expedition 2011
Filmed and edited a short documentary film about the Climate Change Institute's ice core expedition to the central Andes in South America featuring the experiences of climate scientists in the field.

Ice Core Perspectives 2011
Designed and created an educational website for the Climate Change Institute, intended to introduce ice cores and climate science to the public in an approachable way.

10Green 2011
Member of a team representing the Climate Change Institute and the Computer Science department at the University of Maine, working to design an air quality assessment website and mobile application in collaboration with Portland based advertising agency, Garrand.

Climate Change and Ice Core Research 2011
Presentation to EnCorps STEM (Science Technology Engineering and Math) Teachers Program members focusing on climate change and ice core research.

An Introduction to Global Climate Change 2008
Lead author of an educational brochure produced by the Climate Change Institute, highlighting the fundamentals of climate change directed to the public.

Expedition Blogging 2005-2013
Blog featuring detailed accounts of the Climate Change Institute's Ice Core Expeditions for the Climate Change Institute's website and the *Adventures in Climate Change* science blog.

UNIVERSITY AND PROFESSIONAL SERVICE

Panelist 2013
Panelist for Q&A following Earth Day screening of documentary film *Thin Ice* (Simon Lamb and David Sington) which revealed an insider's view of how scientist's study climate change.

University of Maine Sustainability Alliance Member 2005-2007
Participated in detailed greenhouse gas inventory for the University of Maine from 1990-2006.

AWARDS AND FELLOWSHIPS

Best PhD presentation, School of Earth and Climate Science Brown Bag seminar, 2014
University of Maine Orono, ME

NSF A2C2-IGERT Fellowship, Climate Change Institute, 2012
University of Maine, Orono, ME

1st Place, Physical Sciences and Technology Poster Session, Graduate Student Exposition, 2012
University of Maine, Orono, ME

Honorable Mention, Poster Competition, CC21 (Climate Change 21- Choices for the 21st Century), 2008
Interactive Public Forum and Environmental Festival, University of Maine, Orono, ME

Butler University Study Abroad Scholarship, Indianapolis, IN 2001

New England Scholar, University of Connecticut 1999

PROFESSIONAL DEVELOPMENT

Introduction to Remote Sensing for Air Quality Applications: Applied Remote Sensing Training (ARSET), NASA, Webinar	July-August 2016
Fundamentals of Sustainability Workshop, Orono, ME	June 2016
Annual UCAR Members Meeting, Boulder, CO	October 2015
Camden International Film Festival: Sustainable Maine Engagement Summit	September 2015
Climate Solutions Summit, Augusta, ME	March 2014
National Science Teachers Association (NSTA) Virtual Conference: Next Generation Science Standards (NGSS) Practices in Action, Webinar	March 2014
Environmental Security Scenarios – Geoengineering Webinar, Security and Sustainability Forum, moderated by Dr. Elizabeth Chalecki, Webinar	February 2014
Complex Physical, Biological and Social System Modeling Courses, New England Complex Systems Institute, MIT, Cambridge, MA	June 2013
Central Asia Deep Ice-Coring Project (CADIP) Workshop, Santa Barbara, CA	June 2011
Hybrid Single Particle Lagrangian Integrated Trajectory Model (HYSPLIT) Workshop, National Oceanic and Atmospheric Administration (NOAA), Washington D.C.	June 2010
Virtual Institute - Polar to Tropical Connections (PTC) Workshop, Climate Change Institute, Castine, ME	June 2010
Central Asia Deep Ice-Coring Project (CADIP) Workshop, San Francisco, CA	December 2008
International Trans Antarctic Scientific Expedition (ITASE) Synthesis Workshop, Climate Change Institute, Castine, ME	September 2008

PEER-REVIEWED PUBLICATIONS

Grigholm, B., Mayewski, P.A., Aizen, V., Kreutz, K., Aizen, E., Kang, S., K.A., Handley, M.J. and Sneed, S.B., (2017). A twentieth century major soluble ion record of dust and anthropogenic pollutants from Inilchek glacier, Tien Shan. *Journal of Geophysical Research Atmospheres,* 122, doi:10.1002/2016JD025407.

Kaspari, S., Jenkins, M., Kang, S., **Grigholm, B.**, Mayewski, P.A., (2016). Tibetan Plateau Geladaindong black carbon ice core record (1843–1982): Recent increases due to higher emissions and lower snow accumulation. *Advances in Climate Change Research, 7(3),* doi: 10.1016/j.accre.2016.07.002

Zhang, Y., Kang, S., Zhang, Q., Gao, T., Guo, J., **Grigholm, B.**, Huang, J., Sillanpää, M., Li, X., Du, W. and Li, Y., (2016). Chemical Records in Snowpits from High Altitude Glaciers in the Tibetan Plateau and Its Surroundings. *PloS one*, *11*(5), p.e0155232.

Aizen, E.M., Aizen, V.B., Takeuchi, N., Joswiak, D.R., Fujita, K., Nikitin, S.A., **Grigholm, B.**, Zapf, A., Mayewski, P.A., Schwikowski, M. and Nakawo. M., (2016). Abrupt and moderate climate changes at mid-latitudes of Asia during the Holocene. *Journal of Glaciology, FirstView, 1–29.*

Mayewski, P.A., Kuli A., Casassa, G., Arévalo. M., Dixon, D.A., **Grigholm, B**., Handley., M.J., Hoffmann, H., Introne, D.S., Kuli, A.G., Potocki, M., and Sneed, S.B., (2016). Initial reconnaissance for a South Georgia ice core. *Journal of Glaciology*, *FirstView*, 1 - 8, doi: 10.1017/jog.2016.9.

Grigholm, B., Mayewski, P.A., Aizen, V., Kreutz, K., Wake, C.P., Aizen, E., Kang, S., Maasch, K.A., Handley, M.J. and Sneed, S.B., (2016). Mid-twentieth century increases in anthropogenic Pb, Cd and Cu in central Asia set in hemispheric perspective using Tien Shan ice core. *Atmospheric Environment*, 131*,* 17–28, doi:10.1016/j.atmosenv.2016.01.030

Zhang, Y., Kang, S., **Grigholm, B**., Zhang, Y., Kaspari, S., Morgenstern, U., Ren, J., Qin, D., Mayewski, P.A., Zhang, Q. and Cong, Z., (2015). Twentieth-century warming preserved in a Geladaindong mountain ice core, central Tibetan Plateau. *Annals of Glaciology*, doi: 10.3189/2016AoG71A001.

Zhang, Y., Kang, S., Zhang, Q., **Grigholm, B**., Kaspari, S., You, Q., Qin, D., Mayewski, P.A., Cong, Z., Huang, J. and Sillanpää, M., (2015). A 500 year atmospheric dust deposition retrieved from a Mt. Geladaindong ice core in the central Tibetan Plateau. *Atmospheric Research*, 166, 1-9, doi:10.1016/j.atmosres.2015.06.007

Kang, S., Wang, F., Morgenstern, U., Zhang, Y., **Grigholm, B**., Kaspari, S., Schwikowski, M., Ren, J., Yao, T., Qin, D. and Mayewski, P.A., (2015). Dramatic loss of glacier accumulation area on the Tibetan Plateau revealed by ice core tritium and mercury records. *The Cryosphere*, *9*(3), 1213-1222, doi:10.5194/tc-9-1213-2015.

Grigholm, B., Mayewski, P.A., Kang, S., Zhang, Y., Morgenstern, U., Schwikowski, M., Kaspari, S., Aizen, V., Aizen, E., Takeuchi, N. and Maasch, K.A., (2015). Twentieth century dust lows and the weakening of the westerly winds over the Tibetan Plateau. *Geophysical Research Letters*, *42*(7), 2434-2441, doi**:** 10.1002/2015GL063217.

Jenkins, M., Kaspari, S., Kang, S., **Grigholm, B**., and Mayewski, P.A., (2013). Black carbon concentrations from a Tibetan Plateau ice core spanning 1843–1982: recent increases due to emissions and glacier melt. *The Cryosphere Discussions*, *7*(5), 4855-4880, doi: 10.5194/tcd-7-4855-2013.

Mayewski, P.A., Maasch, K.A., Dixon, D., Sneed, S.B., Oglesby, R., Korotkikh, E., Potocki, M., **Grigholm B.**, Kreutz, K., Kurbatov, A.V., Spaulding, N., Stager, J.C., Taylor, K.C., Steig, E.J., White, J., Bertler, N.A.N., Goodwin, I., Simões, J.C., Jaña, R., Kraus, S. and Fastook, J. (2012). West Antarctica's sensitivity to natural and human forced climate change over the Holocene. *Journal of Quaternary Science*, 28(1),40-48.

Kang, S., Zhang, Y., Zhang,Y., **Grigholm, B.**, Kaspari, S., Qin, D., Ren, J. and Mayewski, P.A. (2010). Variability of atmospheric dust loading over the central Tibetan Plateau based on ice core glaciochemistry. *Atmospheric Environment*, 44, 25, 2980-2989.

Grigholm, B., Mayewski, P. A., Kang, S., Zhang, Y., Kaspari, S., Sneed, S. B. and Zhang, Q. (2009). Atmospheric soluble dust records from a Tibetan ice core: Possible climate proxies and teleconnection with the Pacific Decadal Oscillation. *Journal of Geophysical Research*, 114, D20118, doi:10.1029/2008JD011242.

Grigholm, B., Mayewski, P.A., Kurbatov, A.V., Casassa, G., Contreras Staeding, A., Handley, M., Sneed, S.B. and Introne, D.S. (2009). Chemical composition of fresh snow from Marinelli Glacier, Tierra del Fuego, Chile. *Journal of Glaciology*, 55, 193, 769-776(8).

Aizen, V.B., Mayewski, P. A., Aizen, E. M., Joswiak, D. R., Surazakov, A. B., Kaspari, S., **Grigholm, B.**, Krachler, M., Handley, M. and Alexander, F. (2009). Stable-isotope and trace element time series from Fedchenko glacier (Pamirs) snow/firn cores. *Journal of Glaciology*, 55, 190, 275-291(17).

Wang, Y., Hou, S., **Grigholm, B.** and Song, L. (2009). An improved method for modeling spatial distribution of δD in surface snow over Antarctic ice sheet. *Chinese Geographical Science*, 19, 2, 120-125, doi: 10.1007/s11769-009-0120-2.

Zhang, Y., Kang, S., Qin, D., **Grigholm, B.** and Mayewski, P.A. (2007). Changes in annual accumulation retrieved from Geladaindong ice core and its relationship to atmospheric circulation over the Tibetan Plateau. *Chinese Science Bulletin 2007*, 52(23) 3261-3266, doi: 10.1007/s11434-007-0439-y.

Kang, S., Zhang, Y., Qin, D., Ren, J., Zhang, Q., **Grigholm, B.** and Mayewski, P.A. (2007). Recent temperature increase recorded in an ice core in the source region of Yangtze River. *Chinese Science Bulletin*, 52, 6, 825-831, doi: 10.1007/s11434-007-0140-1.

Zhang, Y., Kang. S., Qin, D., Ren, J., Zhang, Y., **Grigholm, B**. and Mayewski, P.A. (2007). Seasonal air temperature variations retrieved from a Geladaindong ice core. *Tibetan Plateau Journal of Geographical Sciences,* 17, 4, 431-441, doi: 10.1007/s11442-007-0431-0.

Zhang, Y., Kang, S., Qin, D., **Grigholm, B.** and Mayewski, P.A. (2007). Changes in annual accumulation retrieved from Geladaindong ice core and its relationship to atmospheric circulation over the Tibetan Plateau. *Chinese Science Bulletin*, 52, 23, 3261-3266, doi: 10.1007/s11434-007-0439-y.

MANUSCRIPTS IN PREPARATION

Grigholm, B., Mayewski, P.A., Aizen, V., Kreutz, K., and Handley, M.J., Natural and anthropogenic sources of bismuth in the central Tien Shan over the twentieth century.

Kireta, A., Tiesl, M. and **Grigholm, B.** Climate Change Education in Maine middle and high school classrooms.

OTHER PUBLICATIONS

Grigholm, B., Kireta, A., Teisl, M. (2016), January 07). "What Maine Youth Are Learning in School about Climate Change." *Bangor Daily News*. N.p., 07 Jan. 2016. Web.

Grigholm, B., (2016). Late Holocene Asian Climate and Environmental Variability Derived from an Asian Ice Core Array. PhD Dissertation, University of Maine.

Grigholm, B., Dixon, D., Korotkikh, E., Spaulding, N., Palacz, A., Potocki, M., Brothers, L., Maasch, K., and Mayewski, P. (2008). An Introduction to Global Climate Change, University of Maine Climate Change Institute. White Paper.

Grigholm, B., (2007). Climate Investigations Using Glaciochemical Records from a Tibetan Ice Core and a Fresh Snow Reconnaissance Study from Tierra del Fuego, Master's Thesis, University of Maine.

CONFERENCE ABSTRACTS AND PRESENTATIONS

Grigholm B., and Fitzpatrick., M., *Visualizing Climate Impacts.* Dec. 10th, 2014 Union of Concerned Scientists, Cambridge, MA

Fitzpatrick, M.F. and **Grigholm, B**., *Enhancing Communication of Climate Impacts Assessments: Examples of Local Stories, Animations and Video.* Abstract #ED21E-03 presented at 2014 Fall Meeting, AGU, San Francisco, Calif., 15-19 Dec.

Grigholm, B., Mayewski, P.A., Aizen, V., Kreutz, K., Wake, C., Aizen, E. 22nd Annual Harold W. Borns Jr. Symposium, Climate Change Institute, University of Maine, Orono, ME. April 23rd 2014. *20th Century Atmospheric Dust Lows and the Weakening of the Westerly Winds over the Tibetan Plateau*

Grigholm, B., Mayewski, P.A., Aizen, V., Kreutz, K., Wake, C., Aizen, E. 21st Annual Harold W. Borns Jr. Symposium, Climate Change Institute, University of Maine, Orono, ME. April 23rd 2013. *20th Century Trends in Anthropogenic Pollutants over Central Asia Derived from Asian Ice Core Array.*

Grigholm, B., Mayewski, P.A., Aizen, V., Kreutz, K., Wake, C., Aizen, E. 20th Annual Harold W. Borns Jr. Symposium, Climate Change Institute, University of Maine, Orono, ME. April 23rd 2012. *~500-years of Regional Atmospheric Dust Variability Captured in High Resolution Asian Ice Core Array.*

Zamora, R., Uribe, J., Casassa, G., Potocki, M., **Grigholm, B.** and Mayewski, P.A. *Radar surveys of ice thickness and snow stratigraphy at Tupungatito Glacier, a high altitude glacier site in the central Chilean Andes*, WCRP OSC Climate Research in Service to Society, Denver, 2011; C11-M128A.

Jenkins, M., Kaspari, S., Kang, S., **Grigholm, B.**, Mayewski, P. A., *Black Carbon Concentrations from ~1850-1980 from a High-Resolution Ice Core from Geladandong, Central Tibetan Plateau.* Abstract #C53A-0650 presented at 2011 Fall Meeting, AGU, San Francisco, Calif., 13-17 Dec.

Grigholm, B., Mayewski, P.A., Aizen, V., Kreutz, K., Wake, C. and Aizen, E. 4th CADIP Workshop, Santa Barbara, June 6-8th 2011. *Evidence for 20th Century Rises in Anthropogenic Nitrate and Lead from Inilchek Glacier, Tien Shan, Central Asia.*

Grigholm, B., Mayewski, P.A., Aizen, V., Kang, S., Aizen, E., Kreutz, K.J., Kaspari, S., Fujita, K., Takeuchi, N., Wake, C.P., and Kurbatov, A. 4th CADIP Workshop, Santa Barbara, June 6-8th 2011. *Late Holocene Atmospheric Dust over Asia.*

Grigholm, B., Mayewski, P.A., Aizen, V., Kreutz, K., Wake, C. and Aizen, E. 19th Annual Harold W. Borns Jr. Symposium, Climate Change Institute, University of Maine, Orono, ME. April 8th, 2011, *Evidence for 20th Century Rises in Anthropogenic Nitrate and Lead from Inilchek Glacier*, Tien Shan, Central Asia.

Aizen, V. B., Aizen, E., Surazakov, A., Takeuchi, N., Fujita, K., Mayewski, P. A. and **Grigholm, B.** (2010). *Central Asia Cryosphere Dynamics: retrospective analysis, contemporary status, and prediction.* (Invited) Abstract #GC34C-01, presented at 2010 Fall Meeting, AGU, San Francisco, Calif., 13-17 Dec.

Aizen, E., Aizen, V. B., Takeuchi, N., Mayewski, P. A., **Grigholm, B.**, Fujita, K., Joswiak, D., (2010). *Central Asia Climate Change: Altai, Tien Shan And Pamir Ice Cores Contemporary And Paleo-Reconstruction.* Abstract #GC41A-0877 01, presented at 2010 Fall Meeting, AGU, San Francisco, Calif., 13-17 Dec.

Grigholm, B., Mayewski, P. A., Aizen, V. B., Kang, S., Aizen, E., Kreutz, K. J., Kaspari, S., Fujita, K., Takeuchi, N., Wake, C. P., and Kurbatov, A. (2010). *Asian Ice Core Array (AICA): Late Holocene Atmospheric Dust Reconstruction over Asia*. Abstract #GC41A-0885, presented at 2010 Fall Meeting, AGU, San Francisco, Calif., 13-17 Dec.

Rowe, C. M., Maasch, K. A., Oglesby, R. J., Mawalagedera, R., **Grigholm, B.** and Erickson, D. J. (2010). *Resolving the Effects of Complex Topography on Regional Climate and Climate Change: The Need for Very High Spatial Resolution*. Abstract #GC43C-0992, presented at 2010 Fall Meeting, AGU, San Francisco, Calif., 13-17 Dec.

Grigholm, B., Mayewski, P.A., Aizen, V., Kang, S., Kreutz, K.J. and Maasch, K.A. 18th Annual Harold W. Borns Jr. Symposium, Climate Change Institute, University of Maine, Orono, ME. May 6th, 2010. *AICA: Asian Ice Core Array Climate and Environmental Reconstruction of Asia.*

Grigholm, B., Mayewski, P.A., Aizen, V., Kang, S., Aizen, E., Kreutz, K.J., Kaspari, S., Fujita, K., Takeuchi, N., Wake, C.P. and Kurbatov, A. INT - 500 Seminar, Climate Change Institute, University of Maine, Orono, ME, October 14th 2009. *Climate and Environmental Reconstruction in central Asia*.

Grigholm, B., Mayewski, P.A., Maasch, K.A., Oglesby, R.J. and Hays, C.J. 17th Annual Harold W. Borns Jr. Symposium, Climate Change Institute, University of Maine, Orono, ME. May 6th 2009. *Evaluation of high-resolution regional climate model (WRF) in Asia.*

Grigholm, B., Mayewski, P.A., Aizen, V., Kang, S., Kaspari, S. and Maasch, K.A. (2008). *Asian Ice Core Array (AICA): Climate and Environmental Reconstruction of Asia*, *Eos Trans. AGU*, 89(53), Fall Meet. Suppl., Abstract #GC41A-0702.

Grigholm, B., Mayewski, P.A., Aizen, V., Kang, S. and Kaspari, S. 3rd CADIP Workshop, San Francisco, December 13th 2008. *Asian Ice Core Array (AICA): Ice Core Status.*

Grigholm, B., Mayewski, P.A., Aizen, V., Kreutz, K.J., Wake, C., Kang, S., Kaspari, S., Sneed, S. and Handley, M. 16th Annual Harold W. Borns Jr. Symposium, Climate Change Institute, University of Maine, Orono, ME. May 11-12th 2008. *Spatial Variability of Atmospheric Dust and Potential Signatures of Anthropogenic Pollutants from Central Asian Ice Core and Snowpits.*

Kaspari, S., Schwikowski, M., Mayewski, P.A., Kang, S., and **Grigholm, B.**, (2008). *Carbonaceous Particle and Dust Concentrations Since the Pre-Industrial Era from Asian Ice Cores. Eos Trans. AGU*, 89(53), Fall Meet. Suppl., Abstract #C41C-0529.

Grigholm, B., Mayewski, P.A., Kaspari, S., Handley, M., Kang, S., Kaspari, S., Sneed, S., Handley, M., Qinghua, Q., Zhang, Y., Zhang, Q., Cong, Z. and Chen, F. 15th Annual Harold W. Borns Jr. Symposium, Climate Change Institute, University of Maine, Orono, ME. May 11-12th 2007. *Mt. Geladaindong Dust Record: Relationships between Local and Regional Atmospheric Dust Loading, Circulation, and the PDO.*

Grigholm, B., Mayewski, P.A., Kaspari, S., Sneed, S., Handley, M., Aizen, V., Kang, S., Aizen, E., Joswiak, D., Surazakov, A., Marshall, J., Brander, R. and Krachler, M. 14th Annual Harold W. Borns Jr. Symposium, Climate Change Institute, University of Maine, Orono, ME. May 11-12th 2006. *Seasonal Stable Isotope and Trace Element Records from Fedchenko Glacier, Central Asia.*

MANUSCRIPT REVIEW

Reviewed manuscripts for publications in *Journal of Geophysical Research* and *Journal of Glaciology*

FUNDING

2014 NSF A2C2-IGERT Internship Proposal: *Public Educational Outreach for Union of Concerned Scientists (UCS) Climate and Energy Program (C&E) Climate Impacts Projects*. **B. Grigholm** and M. Fitzpatrick. - $5,500.

2013 NSF A2C2-IGERT Collaborative Immersion Project: *Assessing Climate Science Education in Maine High Schools.* **B. Grigholm** and A. Kireta - $10,122.

2013 Graduate Student Government Degree Related Grant: Travel to attend *Complex Physical, Biological and Social System Modeling Courses* at New England Complex Systems Institute, MIT, Cambridge, MA. - $637.50.

2011 Dan and Betty Churchill Exploration Fund: Reconnaissance Research on Coropuna Glacier, Peru, **B. Grigholm** and M. Potocki. - $5,600.

2005 Dan and Betty Churchill Exploration Fund: Reconnaissance Research in the Pamir Mountains, Tajikistan. S. Kaspari and **B. Grigholm**. - $8,190.

SOFTWARE

Certified in: ArcView GIS
Trained in: Weather Research and Forecasting Model (WRF), NOAA HYSPLIT Model, QGIS, p301
Additional Applications: Matlab, Grapher, Surfer, Qualtrics, Google Earth Pro, Blender, Unity 5, Adobe Photoshop, Adobe Illustrator, Adobe Premiere, Adobe AfterEffects, Adobe Flash, WordPress, Microsoft Office
Programming Languages: Program R, Python including arcpy, JavaScript, C#
Social Media: Instagram, Facebook, Linkedin, Twitter

MEDIA COVERAGE

2016 Bangor Daily News, "Glacial ice indicates humans have altered atmosphere in Central Asia," May 31

2016 Beth Staples, University of Maine News, "Grigholm: Ice cores indicate increases in atmospheric heavy metals," May 31

2015 Amanda Clark, University of Maine News, Expanding the dialogue: Climate science in the classroom, October 22

2014 Interviewed by M. Sanjayan on expedition in Central Andes for Showtime's, "Years of Living Dangerously"

2013 University of Maine News, "UMaine Students Compete in IGERT Video, Poster Contest," May 22

2012 Jessica Bloch, University of Maine News, "Climate Change Institute Researchers Heading to South Georgia Island," October 9

2012 Nick McCrea, Bangor Daily News, "Glacier inside volcano could help UMaine researchers learn more about climate change," March 30

2012 Jessica Bloch, University of Maine College of Natural Sciences, Forestry, and Agriculture–Research & Development, "Website Picks up UMaine Climate Change Blog," February 21

2011 Paul A. Mayewski and Michael Morrison, *Journey into Climate: Adventure, The Golden Age of Climate Research, and the Unmasking of Human Innocence (*photograph featured).

PROFESSIONAL ASSOCIATIONS

American Association for the Advancement of Science
American Geophysical Union
CAMEL Climate Change Education
International Glaciological Society
Phi Kappa Phi, National Honor Society
Polar to Tropical Connections Institute

Relevant Graduate Coursework (GPA 3.92/4.0)

Isotope Geology / Glaciology / Introduction to Climatology and Meteorology / Quaternary Environments and Climatic Change / Quaternary Stratigraphy / Glaciers and our Landscape / Climate, Culture and the Biosphere / Climate Modeling / Human Dimensions of Climate Change/Resource Management and Cross-cultural Perspective / Cyberinfrastructure for Climate Change / Research Methods / Introduction to Numerical Data Analysis / Topics in Scientific Computation: Simulation and Modeling / International environmental economics and policy / Environmental Security

CITIZENSHIP

United States and Sweden

LANGUAGES

English (Native/Fluent), Swedish (Native/Fluent)