

## DAVID ROLAND MARCHANT

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### EDUCATION

1994 PhD The University of Edinburgh, Scotland, UK, Geomorphology  
1990 MS The University of Maine, Geological Sciences  
1984 BS Tufts University, Geology and Archaeology

### PROFESSIONAL EXPERIENCE

2013-present Associate Chair, Earth & Environment, Boston University  
2010-present Professor, Earth & Environment, Boston University  
2005-2013 Director of Undergraduate Studies, Department of Earth Sciences, Boston University  
2002-2010 Associate Professor, Earth Sciences, Boston University  
1997-2002 Assistant Professor, Earth Sciences, Boston University  
1995-1996 Research Assistant Professor, Earth Sciences, Boston University  
1994-1995 Post-Doctoral Research Associate, Institute for Quaternary Studies, University of Maine  
1990-1993 Ph.D. Candidate, University of Edinburgh, Scotland  
1988-1990 Research Assistant, Institute for Quaternary Studies, University of Maine  
1985-1987 Teaching Assistant, Department of Geology, University of Maine  
1984-1985 Geologist, Maine Geological Survey  
1982-1984 Teaching Assistant, Tufts University

### ACADEMIC AWARDS

2004 Metcalf Award and Medal for Excellence in Teaching. *Boston University's highest teaching award.*  
2001 Dean's Award for Teaching Excellence, *Boston University College of Arts and Sciences.*  
1999 W.S. Bruce Medal. International award for "Outstanding contribution to the field of Earth Science especially in relation to work on the East Antarctic Ice Sheet." Medal awarded once every five years for Polar Research (Geological, Biological, Ocean Sciences, etc) by Fellows of the Royal Society of Edinburgh, the Royal Physical Society, and the Royal Scottish Geographical Society.  
1995 Marchant Glacier, Antarctica. (78°36'S, 163°19'). Nominated and approved by the United States Geological Survey, United States Board on Geographic Names.  
1990-1993 Lamb-Mickeljohn Bursary Prize, Edinburgh University, Scotland.  
1990-1993 Overseas Research Scholarship, Edinburgh University, Scotland.  
1987-1988 Trustee Tuition Scholarship, University of Maine.  
1983-1984 Robert L. Nichols Scholarship Prize, Tufts University.  
1983-1984 Olmstead Fellowship, Tufts University.

### TEACHING RECORD

Course Number	Name	Year	Contact Hours	Number of Students	Teaching Fellows
<b>2013-2014</b>					
ES 101	The Dynamic Earth	Fall 13	4	94	S. Mu, S. Farron, E. Stewart
ES 333	Earth Surface Processes	Spring 14	4	21	D. Christ

**2012-2013(3)**

ES 534	Ice Age Systems	Fall 12	4	6	
ES 587	Earth Science Seminar	Fall 12	2	1	
ES 333	Earth Surface Processes	Spring 13	4	10	Tammy Vigotti

**2011-2012(4)**

ES 101	The Dynamic Earth	Fall 11	4	120	A. Hayden, S. Mu, M. Rad
ES 491	Directed Study	Fall 11	6	1	
ES 333	Earth Surface Processes	Spring 12	4	15	Giulio Mariotti
ES 588	Earth Science Seminar	Spring 12	2	1	

**2010-2011(3)**

ES 534	Ice Age Systems	Fall 10	4	10	
ES 333	Earth Surface Processes	Spring 10	4	15	Giulio Mariotti
ES 588	Earth Science Seminar	Spring 10	2	1	

**2009-2010(3)**

ES 101	The Dynamic Earth	Fall 09	4	112	Nora Sullivan and Ken Tagaki
ES 333	Earth Surface Processes	Spring 10	4	12	Jen Lamp
ES 588	Earth Science Seminar	Spring 10	2	5	

**2008-2009(3)**

ES 534	Ice-age systems	Fall 08	4	14	No TF
ES 333	Earth Surface Processes	Spring 09	4	10	Sean Mackay
ES 588	Earth Science Seminar	Spring 09	2	5	

**2007-2008(3)**

ES 101	The Dynamic Earth	Fall 07	4	121	Carol Wilson and Gordana Siftar
ES 333	Earth Surface Processes	Spring 08	4	23	Christine Harrington
ES 588	Earth Science Seminar	Spring 08	2	5	

**2006-2007(4)**

ES 534	Ice Age Systems	Fall 06	4	15	No TF
ES 401	Work for Distinction	Fall 06		1	
ES 333	Earth Surface Processes	Spring 07	4	18	Chris Hein
ES 402	Work for Distinction	Spring 07	4	1	

**2005-2006(3)**

ES 101	The Dynamic Earth	Fall 05	4	120	Eric Moore and Katherine Murphy
ES 830	Advanced Surface Proc.	Fall 05	4	3	No TF
ES 333	Earth Surface Processes	Spring 06	4	19	Chris Hein

**2004-2005(3)**

ES 534	Ice Age Systems	Fall 04	4	6	No TF
ES 830	Advanced Surface Proc.	Spring 05	2	5	No TF
ES 333	Earth Surface Processes	Spring 05	4	13	TF, P. Clay

**2003-2004(3)**

ES 101	The Dynamic Earth	Fall 03	4	119	TF, K Swanger and L. Lawrence
ES 830	Advanced Surface Proc.	Fall 03	4	2	No TF
ES 333	Earth Surface Processes	Spring 04	4	24	TF, K. Swanger

**2002-2003(3)**

ES 534	Ice Age Systems	Fall 02	4	14	No TF
ES 101	The Dynamic Earth	Spring 03	4	136	TF, J. Tomic, G. Rossi, E. Benjamin

ES 333	Earth Surfaces Processes	Spring 03	4	23	TF, A. Scribner
<b>2001-2002(3)</b>					
ES 101	The Dynamic Earth	Fall 01	4	43	TF, A. Dougherty
ES 491	Directed Study	Fall 01	4	1	Antarctic Geology
ES 101	The Dynamic Earth	Spring 02	4	70	TF, E. Miller, E. Himmelstoss
<b>2000-2001(4)</b>					
ES 333	Earth Surface Processes	Fall 00	4	14	No TF
ES 101	The Dynamic Earth	Spring 01	4	79	TF, E. Miller and E. Himmelstoss
ES 534	Ice-Age Systems	Spring 01	4	11	No TF
ES 588	Earth Science Seminar	Spring 01	2	5	No TF
<b>1999-2000(7)</b>					
ES 333	Earth Surface Processes	Fall 99	4	18	No TF
ES 303	Field Methods in ES	Fall 99	4	16	Co-taught with ES Faculty (20%)
ES 401	Senior Independ Work	Fall 99	4	1	Work For Distinction, Glacial Geology
ES 533	Quant Geomorphology	Spring 00	4	7	No TF
ES 351	Paleocean & Paleoclim	Spring 00	4	25	Co-taught with Murray (50%)
ES 402	Senior Independ Work	Spring 00	4	1	Work For Distinction, Glacial Geology
ES 500	Field Camp, Ireland	Sum 1 00	8	24	Taught with Simpson and Coleman (25%)
<b>1998-1999(7)</b>					
ES 333	Earth Surface Processes	Fall 98	4	28	No TF
ES 303	Field Methods in ES	Fall 98	4	17	Leader and Co-instructor (25%); ES Faculty
ES 107	Environ Geology I	Fall 98	4	2	MET College
ES 101	The Dynamic Earth	Spring 99	4	52	TF, K. Kyrk
ES 534	Ice-Age Systems	Spring 99	4	10	No TF
ES 588	Earth Science Seminar	Spring 99	2	10	Co-taught with D. Coleman
ES 500	Field Camp, Ireland	Sum 1 99	8	24	Taught with Simpson and Coleman (25%)
<b>1997-1998(7)</b>					
ES 101	The Dynamic Earth	Fall 97	4	56	TF, K. Yarincik
ES 333	Earth Surface Processes	Fall 97	4	17	No TF
ES 491	Directed Study	Fall 97	4	1	Antarctic permafrost
ES 351	Paleocean & Paleoclim.	Spring 98	4	28	Co-taught with Murray (50%)
ES 533	Quant Geomorphology	Spring 98	4	4	No TF
ES 500	Field Camp, Ireland	Sum 1 98	8	24	Co-Taught with Simpson and Coleman (25%)
ES 105	Environ Geology II	Sum 2 98	4	14	Co-taught with Coleman (50%)
<b>1996-1997(2)</b>					
ES 431/631	Earth Surface Processes	Fall 96	4	11/1	No TF
ES 533	Quant Geomorphology	Spring 97	4	5	No TF
<b>1995-1996 (3)</b>					
ES 431/631	Earth Surface Processes	Fall 95	4	11/4	TF, A. Tary
ES 101	The Dynamic Earth	Spring 96	4	62	TF, H. Crider
ES 101S	Physical Geology	Sum 1 96	4	35	TF, C. Kuo

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**Financial Support for Students**

2014-	Craig Einstien	Undergraduate Researcher, Experimental Permafrost Lab	\$5000
2013-	Andrew Christ	Graduate Research Fellow (NSF)	\$30,000
2012	Claire McKinley	Funding for BUGS Spring field trip to Joshua Tree National Park, CA	\$1500
2012	Sabrina Mullen	Undergraduate Researcher, Experimental Permafrost Lab	\$5000
2011-	Alistair Hayden	Graduate Research Fellow (NSF) <b>Awarded NSF Graduate Fellowship (2012-2015)</b>	\$30,000
2011	David Mayer	Stipend for Cyrosphere Research, Siberia	\$2000
2011	Rachel Watsky	Undergraduate Researcher, Experimental Permafrost Lab	\$5000
2009-	Jen Lamp	Graduate Research Fellow, PhD (NASA/NSF) <b>Awarded NSF Graduate Fellowship (2010-2013)</b>	\$60,000
2008-	Sean Mackay	Graduate Research Fellow, PhD (NSF/NASA) <b>Awarded NSF Graduate Fellowship (2009-2012)</b>	\$60,000
2005-2007	David Shean	Research Fellow (NSF/NASA)	\$50,000
2006-2007	Dan Douglass	Research Associate (NSF)	\$15,000
2002-2008	Adam Lewis	Graduate Research Fellow, PhD and Post-Doc (NSF)	\$152,000
2003-2008	Kate Swanger	Graduate Research Fellow, PhD support (NSF) <b>Awarded NSF Graduate Fellowship (2005-2008)</b>	\$22,500
2003-2008	Doug Kowalewski	Graduate Research Fellow, PhD, 2 yrs support (NSF) <b>Awarded NSF Graduate Fellowship (2005-2008)</b>	\$22,750
2002-2003	Emily Klingler	Undergraduate Field Assistant in Antarctica (NSF)	\$3,600
2002-2003	Sarah Burns	Undergraduate Field Assistant in Antarctica (NSF)	\$3,600
2002-2003	Shelly Johnston	Graduate Assistant, computer modeling (NSF)	\$300
2001-2002	Erika Miller	Summer Stipend, MA (NSF)	\$3,000
2000-2001	Jane Willenbring	Graduate Research Fellow, MA (NSF)	\$17,250
2000-2001	Lesley Patrick	Undergraduate Research stipend (UROP)	\$3,000
2000-2001	Eric Moore	Graduate Research Fellow, MA, (NSF)	\$17,250
1998-1999	Eric Moore	Undergraduate Research stipend, BA (NSF & UROP)	\$1,750
1998-1999	Beth Hartman	Graduate Research Fellow, MA. (NSF)	\$14,500
1998-1999	Jill Parrett	Undergraduate Research stipend (NSF)	\$500

**UNDERGRADUATE ADVISING**

2005-2013	Director of Undergraduate Studies in Earth Sciences
1999-present	Advisor for undergraduate students majoring in Earth Sciences

**Selected undergraduate research projects and undergraduate Works for Distinction:**

2011	Michael Dyonisius, BA. Field research in Antarctica, Dry Valleys
2010	Greg K. Wissink, BA. Field research in Antarctica, Dry Valleys
2008	Andrew M. Knott, BA. Field research in Antarctica, Beacon Valley
2007	David P. Mayer, BA with Distinction. Thesis: <i>Evidence for glaciation on Mars: Eastern Hellas Basin.</i>
2002	Sarah A. Burns, BA. Field research in Antarctica, Olympus Range

- 2002 Emily E. Klingler, BA. Field research in Antarctica, Asgard Range
- 2000 Lesley N. Patrick, UROP-funded project. Project entitled, *Sedimentology of Antarctic tills: implication for thermal regime of ancient glaciers and late Cenozoic Antarctic paleoclimate.*
- 2000 Nicholas E. Harmon, BA with Distinction. Thesis: *Glaciotectonics and sediment deposition along Late Wisconsin moraines in eastern New England.*
- 1998 Eric J. Moore. UROP-funded project. Project entitled, *The development of patterned ground in Beacon Valley, Antarctica.*

## GRADUATE ADVISING

### Current Graduate Students

- 2013- Andrew J. Christ, PhD candidate.
- 2011- Alistair T. Hayden, MA/PhD candidate (Awarded an NSF Graduate Fellowship, 4/13/13; Fulbright in Finland, AY 2013).
- 2009- Jennifer L. Lamp, PhD candidate (Awarded an NSF Graduate Fellowship, 5/10).
- 2008- Sean E. Mackay, PhD candidate (Awarded an NSF Graduate Fellowship, 5/09).

### Former Graduate Students

- 2007-2009 Christine M. Harrington, MA (co-advised with Sergio Fagherazzi). *Numerical modeling of the hydrology of a subglacial bedrock channel.*
- 2004-2009 Doug E. Kowalewski, PhD. *Vapor diffusion through sublimation till: implications for preservation of ancient glacier ice in the McMurdo Dry Valleys, Antarctica.* Awarded NSF Graduate Fellowship, Fall 2005; Awarded Dean's Prize, Science and Technology competition, Spring 2005. Updates: NSF Post-Doctoral Fellow, University of Massachusetts, R. Deconto, Advisor; currently, Assistant Professor Worcester State University.
- 2004-2009 Kate M. Swanger, PhD. *Glacial and periglacial geomorphology of the McMurdo Dry Valleys, Antarctica.* Awarded NSF Graduate Fellowship, Fall 2005; Awarded Best Departmental Presentation in Earth Sciences, 2005. Updates: Boyce Post-Doctoral Fellow, Colgate University 2009-2011; currently, Assistant Professor University of Massachusetts.
- 2001-2005 Adam R. Lewis, PhD. *Periglacial geomorphology and rates of landscape evolution in the western Dry Valleys region of Antarctica.* Recipient of Boston University Presidential University Graduate Fellowship; Recipient of Deans Award for BU Science Day, 2001; Recipient of Department and College-level Teaching Awards, 2001 and 2002; Recipient of Department Award for Best Student Presentation: 2001, 2002. Byrd Postdoctoral Fellow, Ohio State University; currently, Assistant Professor North Dakota State University.
- 2000-2002 Erika C. Miller, MA. *Sedimentation in a former glacial lake along the southern margin of the Laurentide Ice Sheet, Concord, Massachusetts.*
- 1999-2001 Jane K. Willenbring (Staiger), MA. *The glacial history of Vernier Valley, Antarctica: implications for Plio-Pleistocene paleoclimate and ice sheet stability.* Currently, Assistant Professor University of Pennsylvania.
- 1999-2001 Eric J. Moore, MA. *Age and paleoclimate significance of modern and relict rock glaciers in upper Beacon Valley, Antarctica.* Currently, Consultant, Environmental Resources Management (ERM),

Boston MA.

1996-1998 Beth N. Hartman, MA. *Miocene paleoclimate and ice-sheet dynamics as recorded in central Taylor Valley, Antarctica*. Recipient of Boston University Presidential University Graduate Fellowship.

### **Co-Advisor of Graduate Students at Other Institutions**

2009-2013 PhD, Mark Salvatore, Brown University.  
 2007-2011 PhD, Samuel Schon, Brown University.  
 2005-2010 PhD, Gareth Morgan, Brown University.  
 2005-2010 PhD, Joseph Levy, Brown University.  
 2003-2005 MS, David Shean, Brown University.  
 2003-2005 MS, Rebecca Parsons, Brown University.  
 2002-2005 PhD, Helen Margerison, The University of Edinburgh, Scotland.  
 2004-2005 PhD, Katherine Fishbaugh, Brown University.  
 2002-2004 MS, Brett Van den Heuval, University of Maine.  
 1999-2000 MS, Adam Lewis, University of Maine.  
 1993-1994 MS, Tina Dochat, University of Maine.

### **FIELD EXPEDITIONS**

- 2013 Cosmogenic-nuclide dating: multi-nuclide analyses of alpine moraines in the McMurdo region. Field mapping and sampling clasts for cosmogenic-nuclide dating on Mount Discovery: reconstruction expansion of the West Antarctic Ice Sheet in McMurdo Sound, Antarctica [Funding: National Science Foundation, Earth Sciences, Polar Programs].
- 2012 Ground-Penetrating Radar (GPR) surveys of Friedman and Mullins Glaciers, Antarctica. Acquisition of gigapan imagery for use in remote sensing and digital image analysis laboratory. Collection of thermal data for studies of physical weathering and development of cosmogenic-nuclide exposure-age studies, Mudrey Cirque, Antarctica. [Funding: National Science Foundation, Earth Sciences, Polar Programs].
- 2011 Collection of tundra fossils in western Dry Valleys region; ground-penetrating radar studies of buried ice in the Quartermain Mountains and Asgard Range. [Funding: National Science Foundation, Earth Sciences, Polar Programs].
- 2010 Collection of geophysical and meteorological data in regions with buried, glacier ice in the western Dry Valleys region. Examine the role of thermal fracture on rock breakdown, with implications for cosmogenic nuclide dating and surface weathering on Mars. Continue acquisition of meteorological data for data entry in energy balance models for microclimate zones in the Transantarctic Mountains [Funding: National Science Foundation, Earth Sciences, Polar Programs].
- 2008 Collection of ancient atmospheric gasses from >20 m depth in the Mullins Valley debris-covered glacier. Examination of ancient lacustrine sediments and collection of fossiliferous material from the Friis Hills, Asgard Range, and the foothills of the Royal Society Range, McMurdo Dry Valleys. Continue geomorphic investigations concerning the origin and development of gullies as potential analogs for Martian gullies on crater-interior walls and sublimation polygons in Beacon Valley as analogs for polygons at the Phoenix Lander site [Funding: National Science Foundation, Earth Sciences, Polar Programs and NASA Mars Fundamental Research Program].

- 2006 Determining the age, origin, and climatic significance of buried ice in Beacon Valley; electro-mechanical drilling into debris-covered glaciers; sublimation polygons as analogs for patterned ground on Mars; gully systems in upper Wright Valley as analogs for active Martian gully systems; mapping pre-Pliocene glacial strata with in-situ plant fossils; Late Cenozoic climate evolution of the Dry Valleys region [Funding: National Science Foundation, Earth Sciences, Polar Programs and NASA Mars Fundamental Research Program].
- 2004 Determining the age, origin, and climatic significance of buried ice in Beacon Valley; electro-mechanical drilling into debris-covered glaciers; sublimation polygons as analogs for patterned ground on Mars; sample collection of biomarkers in soil, paleosols, rocks, and buried ice. [Funding: National Science Foundation, Earth Sciences, Polar Programs and NASA Mars Fundamental Research Program].
- 2002 Geochemical analyses of Dry Valleys soils; Dry Valleys landforms as analogs for Martian terrain; Glacial history and landscape evolution of the western Asgard Range; Ice-core analyses of ancient rock glaciers in Beacon Valley. [Funding: National Science Foundation, Geology and Geophysics, Polar Programs].
- 2000 Glacial-geologic mapping of western Olympus Range, Antarctica. Identification of Miocene-age lakes; collection of cosmogenic samples (He-3, Ne-21) for exposure-age analyses. [Funding: National Science Foundation, Geology and Geophysics, Polar Programs].
- 1999 Geomorphic analyses of Mid-Miocene erosion surface, Werner Mountains, Antarctica. Sample collection for cosmogenic exposure-age dating and  $^{40}\text{Ar}/^{39}\text{Ar}$  analyses [Funding: National Science Foundation, Geology and Geophysics, Polar Programs].
- 1998 Glacial-geologic mapping and sampling of Miocene-age glacier ice in Beacon Valley, Antarctica; micro-morphology of ice-cored glacial deposits; sediment-heat-ice transfer systems [Funding: National Science Foundation Geology and Geophysics, Polar Programs].
- 1998 Glacial-geologic mapping of Late Quaternary glacial deposits in northern Labrador. Determining rates of landscape change beneath cold-based ice sheets [Funding: Swedish National Research Council].
- 1997 Glacial-geologic mapping of Miocene-age deposits in the Dry Valleys region, Antarctica. Determining weathering rates in a hyper-arid cold polar desert. Tectonic uplift inferred from displacement of  $^{40}\text{Ar}/^{39}\text{Ar}$ -dated moraines and glaciolacustrine deposits [Funding: National Science Foundation, Geology and Geophysics, Polar Programs].
- 1996 Baffin Island glacial-geologic and geomorphic reconnaissance studies. The analyses of large-scale, glacial erosional and geomorphic features associated with the York Delta, Meta Incognita Peninsula, Baffin Island [Funding: Stockholm University & Swedish National Research Council].
- 1996 Geomorphic mapping in northern Dry Valleys region, Antarctica. The tempo of geomorphic change during Miocene time. Chronology from  $^{40}\text{Ar}/^{39}\text{Ar}$  analyses of in-situ volcanic deposits. Tectonic and climatic geomorphology [Funding: National Science Foundation, Geology and Geophysics, Polar Programs].
- 1995 Landscape analyses (including glacial and volcanic landforms) of the Royal Society Range, Antarctica. Determination of the uplift and subsidence history of the Royal Society Range in the Transantarctic Mountains [Funding: National Science Foundation, Glaciology, Polar Programs].
- 1995 Stratigraphy, geomorphology, and chronology of glaciolacustrine, proglacial, and subglacial deposits associated with late Wisconsin glaciers of the southern Andes, Lake District, Chile. Abrupt Climate

- Change Consortium [Funding: National Oceanic and Atmospheric Administration].
- 1994 Isotopic dating and mapping of Late Quaternary glacial deposits and geomorphology in the McMurdo Sound region, Antarctica. Quaternary landscape evolution [Funding: National Science Foundation, Glaciology, Polar Programs].
- 1993 Geomorphic and glacial geologic mapping of pre-late Wisconsin moraines and erosional forms in the central Swedish Mountains. Preservation potential of ancient surficial deposits beneath cold-based ice [Funding: Stockholm University & Swedish National Research Council].
- 1993 Geomorphic analyses and isotopic dating of Late Wisconsin beach deposits on Ross Island, Antarctica. Production of local sea-level curves and determination of ice-shelf recession in the Ross Embayment [Funding: National Science Foundation, Glaciology, Polar Programs].
- 1993 Glacial geologic and geomorphic mapping of pre-Late Wisconsin deposits in the Chilean Lake District [Funding: National Oceanic and Atmospheric Administration].
- 1992 Landscape evolution of the central Transantarctic Mountains during Pliocene time. Data input for models describing the timing and rate of uplift of the central Transantarctic Mountains [Funding: National Science Foundation, Glaciology, Polar Programs].
- 1991 Comparison of temperate-style glacial deposits of New Zealand with those of Antarctica [Funding: University of Maine].
- 1991 Geomorphic evolution of block-faulted mountains in the western Dry Valleys region, Antarctica [Funding: National Science Foundation, Glaciology, Polar Programs].
- 1990 Slope stability in a hyper-arid desert, Arena Valley, Antarctica [Funding: National Science Foundation, Glaciology, Polar Programs].
- 1990 Reconnaissance mapping of glacial deposits and volcanic ashes in glacial and non-glacial deposits, Iceland [Funding: University of Edinburgh].
- 1990 Geomorphic studies of periglacial landforms in northern Sweden, Tarfalla Research Station [Funding: Stockholm University & Swedish National Research Council].
- 1989 Geomorphic analyses of alpine moraines associated with cold-based glaciers, Wright Valley, Antarctica [Funding: National Science Foundation, Glaciology, Polar Programs].
- 1988 Stratigraphy and morphology of Pliocene sediments alongside Taylor Glacier, Antarctica. Climatic Geomorphology [Funding: National Science Foundation, Glaciology, Polar Programs].
- 1987 Landscape evolution and glacial history of Quartermain Mountains, Antarctica [Funding: National Science Foundation, Glaciology, Polar Programs].
- 1986 Glacial history of Arena Valley, Antarctica [Funding: National Science Foundation, Glaciology, Polar Programs].
- 1985 Mapping and interpretation of bedrock structural trends in northern Maine [Funding: Maine Geological Survey].



## SELECTED INVITED LECTURES

### INTERNATIONAL

#### Australia

*Late Quaternary glaciation in southern Victoria Land, Antarctica.* International conference on Antarctic Ice-Margin Evolution (ANTIME) Hobart, Tasmania. Selected as a United States representative for Antarctic Glacial Geology. July 6-11, 1997.

#### England

*Late Tertiary glacial-geologic and geomorphic records from the Dry Valleys region, Antarctica.* Late Cenozoic Glaciations, September 18, 1992, Burlington House, London.

#### France

*SALE over Geological Time: An Agent of Geomorphological Change.* Keynote Speaker. Subglacial Antarctic Lake Environments (SALE) in the International Polar Year (IPY) 2007-2008. Grenoble, France. April 24-26, 2006.

#### New Zealand

*The Dry Valleys of Antarctica: buried ice, climate change, and morphoclimate zones.* Victoria University of Wellington, Wellington New Zealand. November 2, 2004.

#### Scotland

*Landscape evolution of Antarctica.* The University of Edinburgh, School for Geosciences. October 2, 2000. W.S. Bruce Medal Lecture.

#### Spain

*The terrestrial record for climate change, Transantarctic Mountains, southern Victoria Land.* Invited lecture to the First Antarctic Climate Evolution (ACE) Symposium, Granada Spain, September 9, 2009.

#### Sweden

*The case for the stability of the East Antarctic Ice Sheet: volcanic-ash dating in the Dry Valleys.* VEGA Medal Lecture, 26 April, 1993, Stockholm.

#### The Netherlands

*Landscape evolution of the Dry Valleys, Antarctica.* LIRA Workshop on Landscape Evolution of the Ross Sea Region, 28 September - 2 October, 1992, Haarlem.

### UNITED STATES AND CANADA

*Research in the Dry Valleys of Antarctica: Implications for climate change, ice-sheet stability, and glaciation on Mars.* Department of Geology Lecture Series, Middlebury College. October 18, 2013.

*Digital Mapping in Antarctica: A new paradigm for detecting global change.* University of Minnesota, Polar Geospatial Center, October 22, 2012

*Late Cenozoic climate and vegetation history of Antarctica: implications for cold-desert geomorphology and glaciation on Mars.* Department of Geological Sciences Colloquium Seminar Series, University of North Carolina, Chapel Hill. November 10, 2011.

- Research in the Dry Valleys of Antarctica: implications for climate change & fossil extinction, ice-sheet stability, and glaciation on Mars.* Department of Geography Colloquium Seminar Series, Clark University, February 17, 2011.
- Research in the Dry Valleys of Antarctica: Implications for climate change, fossil extinction, ice-sheet stability, and glaciation on Mars.* National Research Council, Space Studies Board – Committee on the origin and evolution of life. National Academy Building, Johnson Center, Woods Hole, MA. October 14, 2010.
- From Antarctica to Mars: tales of ice ages and climate change.* GK-12 Teacher Workshop: GLACIER. Photonics Building, Boston University, August 3, 2010.
- Application of Antarctic sedimentary research toward understanding landscape evolution and climate change on Mars.* Department of Geology and Geophysics, Louisiana State University, November 10, 2009.
- Sedimentary research in ancient and modern environments: implications for climate change, fossil extinction, and landscape evolution.* Department of Geology and Geophysics, Louisiana State University, November 9, 2009.
- Research in the Dry Valleys of Antarctica: implications for climate change & fossil extinction, ice-sheet stability, and glaciation on Mars.* Department of Earth Sciences, Boston University, October 15, 2009.
- Antarctic landscape evolution: implications for glacial cycles on Mars.* Princeton University Seminar Series, March 30, 2009.
- The glacial deposits of the northern mid-latitudes: remnants of large-scale plateau glaciation. Invited Talk at 40<sup>th</sup> Lunar and Planetary Society Conference,* Houston TX, March 22, 2009.
- Old Antarctic ice, permafrost, and fossils: analogs for Mars.* Bentley College, Fall Colloquium Series. September 23, 2008.
- Landscapes within Antarctica's polar deserts: clues to changing climates on Earth and Mars.* Advances in Earth and Space Science, Earth Science Teachers (NESTA) National Conference, Boston, MA. March 29, 2008.
- Kilometer-thick ice-sheets in the northern mid-latitudes in the Amazonian: analogs from the East Antarctic ice sheet and the Dry Valleys.* 39<sup>th</sup> Lunar and Planetary Society Conference, Houston TX, March 14, 2008.
- Distribution of gullies in the Mars-like Antarctic Dry Valleys: relationship to microclimate zonation.* Workshop on Martian Gullies: Theories and Tests. Lunar and Planetary Institute, Houston, TX February 4-5, 2008.
- The geomorphic and potential climatic impact of subglacial lake outbursts.* Invited talk, American Geophysical Union Fall Meeting, December 12, 2007.
- Antarctic Dry Valley microclimate zonation and implications for Phoenix IPY activities.* Brown University, Providence RI, November 19, 2007.
- Antarctic Dry Valleys: Lessons for climate change on Earth and Mars.* Association of Engineering Geologists, Boston, MA, November 15, 2007.
- Late Cenozoic Global Change: multiple records from the Dry Valleys region of Antarctica.* Department of Geological Sciences Seminar Series. University of Delaware, April 19, 2007.
- Geological evidence for ice ages on Mars: insights from the Dry Valleys of Antarctica. Keynote Address:* Syracuse University Earth Science Symposium, Spring 2007. Syracuse, New York, March 2, 2007.
- Geomorphic Processes and Cold-Based Glaciers in the Antarctic Dry Valleys: Implications for Glaciation and Climate Change on Mars.* Invited talk, American Geophysical Union Fall Meeting, 2005.
- Late Cenozoic Antarctic climate: a perspective from the terrestrial record in the Dry Valleys.* Wilbert Lecture Series, Department of Geology and Geophysics, Louisiana State University, Baton Rouge, LA. November 11, 2005.

- McMurdo terrestrial events and chronologies for Late Cenozoic glaciations.* 2<sup>nd</sup> International Conference on Late Cenozoic change, McMurdo Sound, ANDRILL symposium and workshop. Denver, CO April 1-3, 2005.
- Equilibrium landforms in the Dry Valleys of Antarctica: implications for landscape evolution and climate change on Mars.* 36<sup>th</sup> Lunar and Planetary Society Conference, #1421, Houston TX March 18<sup>th</sup> 2005 and Vernadsky Institute Microsymposium 41, Climate change in Mars History, Houston TX, March 13, 2005.
- Paleoclimate thresholds in the Antarctic Dry Valleys: Modern microenvironments and Neogene/Holocene sedimentary records.* Brown University, Department of Geological Sciences Colloquium Series. Providence RI. September 16, 2004.
- Late Cenozoic Antarctic climate: new insights from buried glaciers.* University of Wisconsin Ice Core Drilling Support (ICDS), Madison, WI, May 18, 2004.
- Microclimate zones of Antarctica: Martian analogs? 39<sup>th</sup> Brown-Vernadski Microsymposium: Geologic evidence for recent climate change on Mars.* March 14, 2004, Houston, TX. Lunar and Planetary Institute.
- Microclimate zones in the Dry Valleys of Antarctica: implications for landscape evolution and climate change on Mars.* 35<sup>th</sup> Lunar and Planetary Society Conference, Houston TX, March 18, 2004
- Prokaryotes in ancient ice: Part I: Origin and age of buried ice.* Institute for Marine and Coastal Sciences, Rutgers University. February 9, 2004.
- Buried ice in Antarctica: implications for the distribution, age, and origin of ice on Mars.* Third International Conference on Mars Polar Science and Exploration, Alberta Canada. October 15, 2003.
- Cenozoic climate and landscape evolution of Antarctica.* NSF, Office of Polar Programs, Arlington, VA. April 17, 2003.
- Cold-based glaciers of Antarctica: Implications for ice on Mars.* NASA, Mars Program, Washington DC, April 17, 2003.
- Cold-based glaciers in the Western Dry Valleys of Antarctica: terrestrial landforms and Martian Analogs.* 34<sup>th</sup> Lunar and Planetary Conference, Houston TX, March 19, 2003.
- Landscape evolution of Antarctica: implications for Late Cenozoic climate change, atmospheric evolution, and buried ice on Mars.* Five College Seminar Series, Hampshire College. March 5, 2003.
- The glacial history of Antarctica: implications for landscape and atmospheric evolution and buried ice on Mars.* Rutgers University Geology Colloquium Series. January 29, 2003.
- Paralyzed landscapes of southern Victoria Land: climate and ice sheet stability since the middle Miocene.* Invited lecture at Geological Society of America, Denver CO. October 28, 2002.
- Drop moraines, sublimation till, and debris-covered glaciers: cold-based glaciation of western Arsia Mons.* Invited lecture at Geological Society of America, Denver CO. October 28, 2002.
- Late Cenozoic climate change of Antarctica: Terrestrial evidence from the Dry Valleys.* Rice University, Departmental Seminar Series. September 18, 2002.
- Late Cenozoic Antarctic paleoclimate change: new evidence from surficial ashfall deposits and cosmogenic exposure-age studies.* Brown University Colloquium Series. October 26, 2000
- Patterned-ground development in Antarctica.* Brown University, October 26, 2000.
- A geomorphic model for the preservation of Miocene glacier ice in Beacon Valley, Antarctica and Cenozoic landscape evolution of Antarctica.* The Johns Hopkins University, Baltimore, MD. April 6, 2000.
- Late Cenozoic Antarctic paleoclimate.* INSTAAR, Arctic and Alpine Research, University of Colorado, Boulder Co.

April 28 & 29, 1998.

*Antarctic meltdown? Terrestrial evidence for ice-sheet stability from the Dry Valleys region, Antarctica.* Wellesley College. February 24, 1997.

*Pliocene paleoclimate of the Dry Valleys region, Antarctica.* Pliocene Antarctic Glaciation, April 19-21, 1995, Woods Hole Oceanographic Institution (WHOI), Woods Hole, MA.

*Miocene and Pliocene paleoclimate of the Dry Valleys region: a geomorphological approach.* Conference on Pliocene High-Latitude Climate Records, July 26-28, 1994, USGS. Herndon, VA.

## SELECTED SERVICE TO THE EARTH SCIENCES COMMUNITY

### Geological Society of America (International Journal)

2010-present Editorial Board

2007-2009 Editorial Board

### Antarctic Science (International Journal)

2013-2014 Guest Editor, Special Issue for Antarctic Geomorphology

2006-present Editorial Board

### National Science Foundation

2013 NSF Review Panel, Arlington Virginia.

2012-present Chair, NSF-Appointed Steering Committee for Activities in Antarctica and the Arctic: International Review of US Polar Geospatial Center.

2011 Member of NSF-Appointed Steering Committee: Geospatial Activities in Antarctica and the Arctic: Review of US Polar Geospatial Center.

2011 Member of NSF Panel Review Committee: USGS Antarctic Geoscience Activities: International Scope, SCAR Engagement, and Assessment of USGS Geospatial Operations.

2004 Invited Presentation, NSF Polar Programs/ Press Release: *Cenozoic climate and landscape evolution of Antarctica*, Arlington, VA. April 17, 2004.

2002 NSF Antarctic Geology and Geophysics Review Panel, Arlington Virginia, September 23-25

2002-2005 McMurdo Area Users Committee (MAUC), Raytheon Polar Services

1997 NSF Review Panel, Arlington, Virginia.

1996 NSF Review Panel, Arlington, Virginia.

1996 NSF Review Panel, Arlington, Virginia.

1996 United States Representative for Dry Valleys Antarctic Field Research: Science Liaison for Dr. Jack Gibbons, President Clinton's Science Advisor.

1994-present Review proposals for NSF Antarctic Geology and Geophysics, Glaciology, Biology and Medicine, Environmental Research, Earth Systems History, Paleoclimate Program, Arctic Sciences, Antarctic Organisms and Ecology.

### NASA

2007 Co-convener, AGU Fall Meeting, "Recent Climate Change on Mars: Insights from Terrestrial Analogs", San Francisco, CA. December 12, 2007.

2007 Co-convener, Phoenix Earth/Mars Polar Workshop, Brown University, Nov. 19-20, 2007.

2003 Invited Presentation, NASA Headquarters: *Cold-based glaciers of Antarctica: Implications for ice on Mars*. NASA, Mars Program, Washington DC, April 17, 2003

2002-present Review proposals for Mars Participating Scientists Programs; Mars Fundamental Research Program.

**NATO**

1996 Review proposals for International Scientific Exchange Program.

**New Zealand Research Council**

1995- Review proposals for New Zealand Antarctic Research Series and New Zealand Antarctic Research Program.

**NERC**

1996- present Reviewed proposals for UK National Research Council

**Boston University**

2014 Provosts Academic Program Review, College of Communication, faculty collaborator

2013 Invited Speaker, Boston University Admissions: BU Students in Antarctica

2013 Provosts Academic Program Review, Archaeology Department, CAS internal committee member

2012 CAS Task Force on the status of Research Faculty in the College of Arts & Sciences.

2012 CAS College Teaching Prize Committee. Evaluated nominations and recommended winners for the Neu, Gitner, and Wisnecki Awards. April 18, 2012.

2011-2012 College of Arts and Sciences Academic Promotion and Tenure Committee, charged with evaluating all tenure and promotion candidates in the College of Arts and Sciences in 2011-2012.

2011 CAS College Teaching Prize Committee. Evaluated nominations and recommended winners for the Neu, Gitner, and Wisnecki Awards. April 8, 2011.

2010 CAS Freshman Friday Lecture. Parents and Students, CAS Auditorium: *BU students in Antarctica*, April 23, 2010.

2010 CAS Feld Professorship Advisory Committee.

2008 Deans Lecture, College of Arts and Sciences Leadership Advisory Board, October 23, 2008.

2008 University-wide Metcalf Awards Selection Committee.

2005-2013 Director of Undergraduate Studies, Earth Sciences.

2002-2005 Director of Graduate Admissions, Earth Sciences.

2005-2006 University Promotion and Tenure Committee, charged with evaluating all candidates for tenure and promotion at Boston University in 2005/6.

2005 Invited Lecture, Faculty Representative at Boston University's Office of Undergraduate Admissions Counselors meeting. Along with BU President Dr. Robert Brown and Dean of Students, Dr. Kenneth Elmore, presented an overview of Research for Undergraduates, October 28, 2005.

2005 Invited Lecture, College of Arts and Sciences Spring Open House Faculty Panel, *Research and Education at Boston University*, April 29, 2005.

2005 Invited Lecture, College of Arts and Sciences Center for Excellence in Teaching. *Lectures by Award Winning Faculty*. April 5, 2005.

2004-2006 UROP Faculty Advisory Committee.

2004-2005 College of Arts and Sciences Academic Promotion and Tenure Committee, charged with evaluating all tenure and promotion candidates in the College of Arts and Sciences in 2004/5.

2004 Invited lecture, College of Arts and Sciences Spring Open House Faculty Panel, *Research and Education at Boston University*, April 16, 2004.

2003-2004 College of Arts and Sciences Academic Promotion and Tenure Committee, charged with evaluating all tenure and promotion candidates in the College of Arts and Sciences in 2003/4.

1997-2011 Faculty participant in University Summer Undergraduate Advising, Major Choices Advising Program, Freshman Friday science tours, Open House Undergraduate Recruitment.

1997-2001 College of Arts and Sciences Natural Science Curriculum Committee.

## EXTERNAL FUNDING

All dollar amounts are funds awarded to Boston University; \$5.8 million total; \$2.8 million as lead PI.

### PENDING AWARDS

#### Howard Hughes Medical Institute, Professors Competition

2014-2019	<i>Integrating science, education, and communication in the undergraduate experience at Boston University.</i> Principle Investigator.	<b>\$1,000,000</b>
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### ACTIVE AWARDS

#### National Science Foundation, Antarctic Earth Sciences

2013-2016	<i>Collaborative Research: West Antarctic Ice Sheet stability, alpine glaciation, and climate variability: a terrestrial perspective from cosmogenic-nuclide dating in McMurdo Sound.</i> Principle Investigator (PLR-1246316).	<b>\$249,151</b>
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2012-2015	<i>Geomorphic investigations of Northern Victoria Land, Antarctica</i> Principle Investigator (ANT-1144224).	<b>\$118,412</b>
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2011-2014	<i>Collaborative Research: Multi-nuclide approach to systematically evaluate the scatter in surface exposure ages in Antarctica and to develop consistent alpine glacier chronologies.</i> Principle Investigator (ANT-1043724).	<b>\$47,582</b>
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2010-2014	<i>Quantifying surface processes above buried ice in Antarctica: Implications for terrestrial climate change and glaciation on Mars.</i> Principle Investigator (ANT-0944702).	<b>\$115,623</b>
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2009-2014	<i>Collaborative Research: Integrating geomorphological and paleoecological studies to reconstruct Neogene environments of the Transantarctic Mountains.</i> (ANT 0739700) Principal Investigator (Co-I, Allan Ashworth)	<b>\$210,758</b>
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<b>National Science Foundation, Division of Graduate Education</b>	<b>\$2,844,110</b>
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2010-2015	<i>NSFGK-12 Graduate STEM Fellows in K-12 Education GLACIER-Global Change Initiative: Education and Research</i> Co-PI along with B. Anderson, R. Kaufmann, L. Kaufmann, N. Phillips R. Primack, S. Ray, C. Schaaf, and M. Ruane. PI, Suchi Gopal.
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### COMPLETED AWARDS

#### NASA, Mars Fundamental Research Program

2006-2010	<i>Microclimate zones in the Dry Valleys of Antarctica: implications for landscape evolution on Mars</i> (NNX06AE32G). Principle Investigator.	<b>\$409,467</b>
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**National Science Foundation, Antarctic Earth Sciences**

2007-2008	<i>Supplement to: Collaborative Research: The age, origin, and climatic significance of buried ice in the western Dry Valleys region, Antarctica</i> (ANT-0749709)	<b>\$52,087</b>
2007-2010	<i>Collaborative Research: Dating and paleoenvironmental studies of buried ice, Antarctica.</i> Principle Investigator (Co-PI, Michael Bender) (ANT-0636705)	<b>\$69,973</b>
2005-2009	<i>Collaborative Research: Deducing late Neogene Antarctic climate from fossil-rich lacustrine deposits in the Dry Valleys region.</i> Principle Investigator (OPP-0440711)	<b>\$262,570</b>
2004-2008	<i>Collaborative Research: The age, origin, and climatic significance of buried ice in the western Dry Valleys region, Antarctica.</i> Principle Investigator. (Co-I, Joerg Schaefer) (OPP-0338291).	<b>\$471,757</b>
2002-2005	<i>Collaborative Research: Multiple isotope analyses of soil sulfate and nitrate in the Antarctic Dry Valleys.</i> Principal Investigator. (Co-I Huiming Bao) (OPP-0125330).	<b>\$67,423</b>
1999-2004	<i>East Antarctic Ice Sheet response to middle Miocene global change.</i> (OPP-9811877) Principal Investigator.	<b>\$211,498</b>
1996-1999	<i>Tephrochronology applied to Late Cenozoic paleoclimate and geomorphic evolution of the central Transantarctic Mountains.</i> (OPP-9614027) Principal Investigator.	<b>\$149,771</b>

**National Science Foundation, Major Research Instrumentation**

2000-2002	<i>Acquisition of near-surface geophysical and sampling equipment for earth surface processes and Quaternary stratigraphy research.</i> (EAR-0079588) Co-PI with D.M. FitzGerald, G. Abers, and P. Goldberg.	<b>\$115,874</b>
1997-1999	<i>Acquisition and upgrade of an inductively coupled plasma emission (ICP-ES) laboratory of geological, oceanographic and environmental chemical research.</i> Co-PI with R.W. Murray, D.S. Coleman, T. Kusky, and C. Simpson.	<b>\$100,000</b>

**National Science Foundation, Antarctic Glaciology**

1997-1999	<i>The origin of a polar ice sheet in East Antarctica</i> (G.H. Denton, PI).	<i>Research Associate</i>
1994-1996	<i>Landscape analyses applied to Pliocene ice-sheet sensitivity and evolution of the Transantarctic Mountain</i> (G.H. Denton, PI).	<i>Research Associate</i>

**National Science Foundation, Office of Climate Dynamics**

1994-1997 *Reconstructing the paleoclimate record of abrupt climate change, Chilean Andes* (G.H. Denton, PI). Research Associate

**National Science Foundation, Antarctic Biology and Medicine**

1999-2005 *The role of natural legacy on ecosystem structure and function in a polar desert: The McMurdo Dry Valley LTER.* Research Associate

**OUTREACH: RESEARCH FEATURED IN THE FOLLOWING****National and International Periodicals and Press Releases**

- 2013 *Discover Magazine*: Cover Story: Dispatches from Antarctica's Dry Valleys, July/August issue, 2013.  
<http://discovermagazine.com/2013/julyaug/14-dry-valleys-diary#>  
<http://discovermagazine.com/2013/julyaug/14b-antarctica-sidebars#>  
<http://discovermagazine.com/2013/julyaug/14c-dry-valleys-video#>
- 2012 [Antarctica: An intimate portrait of the world's most mysterious continent](#), chapter 3 Mars on Earth. Gabrielle Walker. Bloomsbury Press ISBN 9781408811108
- 2012 Our Amazing Planet. [The Secret to Packing for an Antarctic Expedition](#). Published online February 17, 2012.
- 2010 National Ice Core Laboratory *In Depth*, vol. 5 (1), Spring 2010. Cover Story: PolarTREC teacher joins hunt for old ice in Antarctica <http://nicl-smo.unh.edu/indepth/index.html>
- 2008 *Nature Geoscience* 1 (10), 646. News and Views: Palaeontology: A long-lost tundra. doi:10.1038/ngeo319
- 2008 *Science News*. Time to Chill: New fossil finds from an ancient lake indicate when Antarctica dipped below freezing. [http://www.sciencenews.org/view/generic/id/34865/title/Time\\_to\\_chill](http://www.sciencenews.org/view/generic/id/34865/title/Time_to_chill)
- 2008 *Science Daily* (<http://www.sciencedaily.com/releases/2008/08/080828171703.htm>). Antarctic Research Helps Shed Light On Climate Change On Mars. August 30, 2008.
- 2008 *The New York Times*. (<http://www.nytimes.com/2008/08/05/science/05obstundra.html?ref=science>). Fossils add more proof of a global climate shift. Published August, 5, 2008.
- 2008 *NSF Press Release* ([http://www.nsf.gov/news/news\\_summ.jsp?cntn\\_id=111913&org=olpa&from=news](http://www.nsf.gov/news/news_summ.jsp?cntn_id=111913&org=olpa&from=news)) Antarctic Fossils Paint a Picture of a Much Warmer Continent. Press Release 08-134.
- 2008 *Science Magazine*. Freeze-dried findings support a tale of two ancient climates. *Science* 230, 1152-1154. <http://www.sciencemag.org/cgi/content/full/320/5880/1152>
- 2007 *BBC News*: Ancient microbes from glacier ice revived in lab. August 7, 2007 (Report on research published in *Proceedings of the National Academy of Sciences*, v. 105, no.33, 13455-13460). <http://news.bbc.co.uk/1/hi/sci/tech/6935146.stm>
- 2006 *New Scientist Magazine*: Hidden Antarctica: Terra incognita. November 29, 2006 <http://environment.newscientist.com/channel/earth/mg19225801.700-hidden-antarctica-terra-incognita.html;jsessionid=FIKAKMBJGOEK>
- 2006 *Science Magazine* online: The Labyrinth: (<http://sciencenow.sciencemag.org/science-shots/index.dtl?page=072006>) July 6, 2006.
- 2005 *Geotimes*, v. 50(5), p. 34-35. Tracking ice in the Antarctic (May, 2005 issue).
- 2005 *Science*, v. 308, p.192. Ski Mars, While There's Still Time, LPSC meeting review by R. Kerr (<http://www.sciencemag.org/cgi/content/full/308/5719/192a>).
- 2005 *LA Weekly: Ice*. March 11-17 issue. (<http://www.laweekly.com/ink/05/16/features-wertheim.php>).
- 2003 *Nature* 426, 779-780, News and Views: *Icy Martian Mysteries*. (<http://www.nature.com/cgi->



- taf/DynaPage.taf?file=/nature/journal/v426/n6968/full/426779a\_fs.html).
- 2003 *NASA Press Release* ([http://www.nasa.gov/home/hqnews/2003/dec/HQ\\_03415\\_ice\\_age.html](http://www.nasa.gov/home/hqnews/2003/dec/HQ_03415_ice_age.html)): Mars may be emerging from an ice age.
- 2003 *NSF Press Release* (<http://www.nsf.gov/od/lpa/news/03/pr03149.htm>): Landscapes on buried glaciers in Antarctica's Dry Valleys help decipher recent ice ages on Mars.
- 2003 *Science News*, Cover Story: Patterns from nowhere: natural forces bring order to untouched ground. May 17, 2003. Vol 163, 314-316 (<http://www.sciencenews.org/articles/20030517/bob10.asp>)
- 2003 *TIME Magazine*, Cracking the Ice, February 3, 50-55.
- 2003 *The New York Times*, Science Tuesday, Cover Story: Finding Martian Landscapes Here on Earth, January 28, 2003.
- 1998 *National Geographic*, Timeless valleys of the Antarctic desert. October, 121-135.
- 1997 *Popular Science*, Antarctic Meltdown? Controversial new evidence for a changing climate. February, 38-43.
- 1996 *Discover Magazine*, Breakthroughs: The world's oldest ice. February 23-24.
- 1995 *Scientific American*, The big thaw: stability of the Antarctic ice remains unclear. November 18-20.
- 1995 *Earth Magazine*, The icy secrets of Antarctica. November, 36-45.

## Television and Video

- 2010 NOVA, *Secrets Beneath the Ice*, December 28, 2010.
- 2008 NSF Video: *David Marchant discusses the discovery of fossils in Antarctica's McMurdo Dry Valleys*: [http://www.nsf.gov/news/news\\_videos.jsp?cntn\\_id=111913&media\\_id=62713&org=NSF](http://www.nsf.gov/news/news_videos.jsp?cntn_id=111913&media_id=62713&org=NSF)
- 2003 *CNN international*, Antarctic Dry Valleys, LIVE January 31, 2003.
- 1997 *Discovery Channel*, Science in Cold Climates, first aired July 1997.
- 1996 NOVA, Antarctica, first aired May 1996.

## Boston University Periodicals and Boston University Press Releases

- 2014 "That's so BU". Research experience for undergraduate fieldwork in Antarctica featured in recruiting video for accepted students in CAS (BU Yield Program): shown at CAS recruiting events across the country and in BU's new center for undergraduate Admissions, Bay State Rd.
- 2011 *BU Today*: CAS Provides Climate Change Primer to Eighth Graders. <http://www.bu.edu/today/node/13147>
- 2009 *Arts and Sciences Magazine*, Cover Story, *BU (Extreme) South: Geomorphologist David Marchant unearths Antarctica's green past*. ([http://www.bu.edu/cas/magazine/spring09/magazine\\_Spring09.pdf](http://www.bu.edu/cas/magazine/spring09/magazine_Spring09.pdf))
- 2008 *BU Today*. University Headlines: *Camping out on the frozen continent: CAS Professor and students on expedition to Antarctica's frigid mountains* (<http://www.bu.edu/today/node/7606>).
- 2008 *Boston University Press Release*. (<http://www.bu.edu/phpbin/news/releases/display.php?id=1656>). Antarctic research helps shed light on climate change on Mars. August 28, 2009.
- 2008 *Boston University Press Release*. (<http://www.bu.edu/phpbin/news/releases/display.php?id=1644>). Rare Antarctic fossils in mountain lake area reveal extinction of tundra before full polar-climate arrived: *Freeze-dried terrestrial vegetation and insects help to reveal the ecological legacy of a unique global climate transition*.
- 2007 *BU Today*. University Headlines: *Heating Up Science with the World's Oldest Ice: CAS Prof's Antarctic ice samples reveal ancient microbes, new answers*. [http://www.bu.edu/phpbin/news-cms/news/index.php?dept=4&id=47908&template=4&from\\_email=true](http://www.bu.edu/phpbin/news-cms/news/index.php?dept=4&id=47908&template=4&from_email=true)
- 2004 *Bostonia Magazine*, summer 2004: (<http://www.bu.edu/alumni/bostonia/2004/summer/metcalf/>).
- 2004 *Boston University Press Release*: (<http://www.bu.edu/phpbin/news/releases/display.php?id=717>). <http://www.bu.edu/provost/resources/awards/metcalf/awardees/david-marchant.html> *Boston University Recognizes Four Professors May 16 for Excellence in Teaching*. May 16, 2004.

- 2004 *Boston University Bridge*: Marchant, Temkin, and Warren recognized for devotion to students. May 28, 2004.
- 2004 *Boston University Bridge*: Research Briefs: *Martian ice age*. January 9, 2004
- 2003 *Boston University Press Release*: (<http://www.bu.edu/phpbin/news/releases/display.php?id=491>). *Boston University researcher overturns long-held theories on geology of Antarctica's Dry Valley valleys*. February 20, 2003.
- 2003 *Boston University Bridge*. Research Briefs: *New York Times and TIME: BU prof's Antarctic study hot topic*. January 31, 2003.
- 2003 *Boston University Bridge*. In *Antarctica CAS Prof sees Mars*, January 24, Cover Story.  
<http://www.bu.edu/bridge/archive/2003/01-24/antarctic.htm>
- 2003 *Research at Boston University 2003. Moving toward sustainability*. P 19.
- 2001 *Boston University Arts & Sciences, Fall 2001 And the Award Goes to...* p. 11.  
<http://www.bu.edu/alumni/cas/magazine/archives/2001/fall/award/index.html>
- 2001 *Research at Boston University. Fall 2001*, p. 18-19.
- 2001 *Bostonia Magazine. An Antarctic Rosetta Stone: Unearthing the secrets of world climate history*. Winter (4), 22-25. <http://www.bu.edu/alumni/bostonia/2000/winter/antarctic/>
- 2001 *Boston University Bridge*. Research Briefs. *Icy Adventures*. April 5, 2001.  
<http://www.bu.edu/phpbin/researchbriefs/display.php?id=353>
- 2001 *Boston University Bridge*. Research Briefs. *The Middle Miocene Mystery*. September 21, 2001.  
<http://www.bu.edu/phpbin/researchbriefs/display.php?id=284>
- 1999 *The Science Coalition*, Boston University. *Global Meltdown?* Fall, 1999.  
<http://www.bu.edu/research/spotlight/1998/meltdown.html>

## PUBLICATIONS IN PEER-REVIEWED JOURNALS

**Google Scholar** citation statistics (2-26-14): Sum of times cited, 4973; h-index, 38; i10-index, 76.

**Web of Science** citation statistics (2-26-14): Sum of times cited, 2966; average per item, 40; h-index, 31.

\*\*Boston University student advisee; \*co-advisee.

### In Review

Yau, A.M., Bender, M.L., Marchant, D.R., and Mackay\*\*, S.L. Geochemical analyses of gas within an ancient debris-covered glacier, Antarctica. *Journal of Glaciology*, in review.

### In Press

Head, J.W., and Marchant, D.R. 2014. The climate history of early Mars: Insights from the Antartic McMurdo Dry Valleys hydrologic system. *Antarctic Science*, in press.

### Published

2014

Kadish, S.J., Head, J.W., Fastook, J.L., Marchant, D.R. Middle to Late Amazonian tropical mountain glaciers on Mars: The ages of the Tharsis Montes fan-shaped deposits. *Planetary and Space Science*, v. 91, p 52-59.  
<http://dx.doi.org/10.1016/j.pss.2013.12.005>

Fastook, J.L., Head, J.W., and Marchant, D.R. Formation of Lobate Debris Aprons on Mars: Assessment of Regional Ice Sheet Collapse and Debris-cover Armoring. *Icarus*, v. 228, p 54-63.

<http://dx.doi.org/10.1016/j.icarus.2013.09.025>

2013

82. Salvatore, M.R., Mustard, J.F., Head, J.W., Cooper, R.F., Marchant, D.R., and Wyatt, M.B. 2013. Development of Alteration Rinds by Oxidative Weathering Processes in Beacon Valley, Antarctica, and Implications for Mars. *Geochimica et Cosmochimica Acta* 115, 137-16. DOI: 10.1016/j.gca.2013.04.002.
81. Levy, J.S., Fountain, A., Dickson, J., Head, J.W., Okal, M., and Marchant, D.R. Accelerated thermokarst formation in the McMurdo Dry Valleys, Antarctica. *Nature Scientific Reports* 3, article no. 2269. DOI: 10.1038/srep02269
80. Dickson, J.L., Head, J.W., Levy, J.S., and Marchant, D.R. 2013. Don Juan Pond, Antarctica: Near-surface CaCl<sub>2</sub>-brine feeding Earth's most saline lake and implications for Mars. *Nature Scientific Reports* 3, Article no. 1166. DOI: 10.1038/srep01166.
79. Marchant, D.R., \*\*Mackay, S.L., \*\*Lamp, J.L., \*\*Hayden, A.T., and Head, J.W. 2013. Geomorphic processes and landforms in the Dry Valleys of southern Victoria Land: implications for evaluating climate change and ice-sheet stability. In Hambrey, M.J., Barker, P.F., Barrett, P.J., Bowman, V., Davies, B., Smellie, J.L., & Tranter, M., eds., Antarctic Palaeoenvironments and earth-surface processes. *Geological Society of London* No. 381. <http://dx.doi.org/10.1144/SP381.10>.
78. Salvatore, M.R., Mustard, J.F., Head, J.W., Marchant, D.R., and Wyatt, M.B. 2013. Characterization of spectral and geochemical variability within the Ferrar Dolerite of the McMurdo Dry Valleys, Antarctica: Weathering, alteration, and magmatic processes. *Antarctic Science*, 1-20. doi:10.1017/S0954102013000254

2012

77. \*\*Kowalewski, D.E., Marchant, D.R., Head, J.W., and Jackson, D.W., 2012. A 2D model for characterizing first-order variability in sublimation of buried glacier ice, Antarctica: assessing the influence of polygon troughs, desert pavements, and shallow-subsurface salts. *Permafrost and Periglacial Processes* 23, 1-14. DOI: 10.1002/ppp.731
76. Fastook, J.L., Head, J.W., Marchant, D.R., Forget, F., and Madeleine, J-B., 2012. Early Mars climate near the Noachian-Hesperian boundary: independent evidence for cold conditions from basal melting of the south polar ice sheet (Dorsa Argentea Formation) and implications for valley network formation. *Icarus* 219, 25-40. doi:10.1016/j.icarus.2012.02.013

75. Dickson, J.L., Head, J.W., Levy, J.S., and Marchant, D.R. 2012. Don Juan Pond, Antarctica: near-surface CaCl<sub>2</sub>-brine feeding Earth's most saline lake and implications for Mars. *Nature Scientific Reports* 3, no. 1166. Doi:10.1038/srep01166

2011

74. \*\*Swanger, K.E., Marchant, D.E., Schaefer, J.M., Winckler, G., and Head, J.W. Elevated East Antarctic outlet glaciers during warmer-than-present climates in southern Victoria Land. *Global and Planetary Change* 79, 61-72. DOI: 10.1016/j.gloplacha.2011.07.012

73. Head, J.W., Kreslavsky, M.A., and Marchant, D.R. 2011. Pitted rock surfaces on Mars: a mechanism of formation by transient melting of snow and ice. *Journal of Geophysical Research* 116, E09007. DOI: 10.1029/2011JE003826
72. Fastook, J.L., Head, J.W., Forget, F., Madeline J-B., and Marchant, D.R. 2011. Evidence for Amazonian Northern Mid-Latitude Regional Glacial Landsystems on Mars: Glacial Flow Models Using GCM-Driven Climate Results and Comparisons to Geological Observations. *Icarus* 216, 23-39 DOI: 10.1016/j.icarus.2011.07.018
71. Marchant, D.R., Jamieson, S.S.R., and Sugden, D.E. 2011. The geomorphic signature of massive subglacial floods in Victoria Land, Antarctica. In Antarctic Subglacial Aquatic Environments, Martin J. Siegert, Mahlon C. Kennicutt II, and Robert A. Bindschadler, Editors. *Geophysical Monograph Series*, Volume 192, pp. 11-127.
70. \*Levy, J.S., Head, J.W., and Marchant, D.R. 2011. Gullies, polygons, and mantles in Martian permafrost environments: cold desert landform and sedimentary processes during recent Martian geological history. *Geological Society of London*, special publication, 354, 167-182.
69. \*\*Kowalewski, D.E., Marchant, D.R., Swanger, K.M., and Head, J.W., 2011. Modeling vapor diffusion within cold and dry supraglacial tills of Antarctica: Implications for the preservation of ancient ice. *Geomorphology*, 126, 159-173.
68. Morgan, G.A., Head, J.W., and Marchant, D.R., 2011. Preservation of Late Amazonian Mars Ice and Water-related Deposits in a Unique Crater Environment in Noachis Terra: Age Relationships between Lobate Debris Tongues and Gullies. *Icarus* 211, 347-365.
- 2010
67. \*Levy, J.S., Head, J.W., and Marchant, D.R., 2010. Concentric crater fill in the northern mid-latitudes of Mars: formation processes and relationships to similar landforms of glacial origin. *Icarus*, 309, 390-404.
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