

Curriculum Vitae

Bryan G. Mark

Contact Details

Department of Geography
The Ohio State University
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Education

Ph.D. 2001, *Syracuse University*, Department of Earth Sciences, Syracuse, NY, USA
M.A. 1995, *The Ohio State University*, Department of Geography, Columbus, OH, USA
B.A. 1992, *Brown University*, Department of History, Providence, RI, USA

Positions

2004- Assistant Professor, The Ohio State University, Department of Geography.
2001-2003 Postdoctoral Research Fellow, Max Planck Institute for Biogeochemistry, Jena, Germany, in collaboration with Glasgow University, Department of Geography and Geomatics, Glasgow, U.K.
1996-2001 University Fellow, Research Associate and Teaching Assistant, Syracuse University, Department of Earth Sciences.

Teaching and Research Interests

Climatology, global change, mountain geography, Quaternary environmental reconstruction, tropical glaciers, the Andes, hydrology, water resources and geo-spatial modeling. Technical expertise with GPS mapping, GIS, satellite remote sensing, computer database construction and model development for Earth Science applications. Experience in compiling paleoenvironmental data to evaluate climate model simulations and organizing international collaborative research.

Vocational vision: To educate environmental understanding and stewardship through transdisciplinary research of Earth systems.

Publications

† indicates student author

Chapters in Edited Books

- 2006 Mark, B. G. Quantifying the significance of recent glacier recession in the Cordillera Blanca, Perú: a case study of hydrological impact and climatic control. In: Knight, P. (ed) 'Glacier Science and Environmental Change', Blackwell Publishing, ISBN 9781405100182.
- 2006 Mark, B.G. Tracing Andean glaciers over space and time: some lessons and transdisciplinary implications. In: Price, M.F. (ed) 'Global Change in Mountain Regions', Sapiens Publishing, pp. 76-78.
- 2006 Mark, B.G., J.M. McKenzie, and J. Gomez. Changes to water resources in a tropical mountain watershed: a hydrochemical assessment of glacier meltwater impact to streamflow. In: Price, M.F. (ed) 'Global Change in Mountain Regions', Sapiens Publishing, pp. 107-109.
- 2005 Mark, B. G. and G. O. Seltzer, 2005. Glacier recession in the Peruvian Andes: Climatic forcing, hydrologic impact and comparative rates over time. Invited contribution to: Huber, U.M., Bugmann, H.K.M., and Reasoner, M.A. (eds) 'Global Change and Mountain Regions: An Overview of Current Knowledge,' pp. 205-214, Springer.
- 2004 Mark, B. G., G. O. Seltzer, and D. T. Rodbell, 2004: Late Quaternary Glaciations of Ecuador, Peru and Bolivia. In: Ehlers, J. & Gibbard, P.L. (eds) 'Quaternary Glaciations - Extent and Chronology, Part III: South America, Asia, Africa, Australasia, Antarctica.' Developments in Quaternary Science, Vol. 2, pp. 151-163, Elsevier.

Bulletins and Technical Reports

- 2008 Bury, J., A. French[†], J. McKenzie, B. Mark. Adapting to Uncertain Futures: A Report on New Glacier Recession and Livelihood Vulnerability Research in the Peruvian Andes. Mountain Research and Development, 28(3/4): 332-333.
- 2007 Vuille, M. with contributions from (alphabetically): R. S. Bradley, B. Francou, G. Kaser, and B. G. Mark). Climate Change in the tropical Andes—Impacts and consequences for glaciation and water resources. Part I: The scientific basis. A report for CONAM (Consejo Nacional del Ambiente, Peru) and the World Bank.

Peer-reviewed Journal Articles

- 2009 Rodbell, D.T., J.A. Smith and B.G. Mark. Glaciation in the Andes during the Late Glacial and Holocene. *Quaternary Science Reviews*, forthcoming.
- 2008 Rodbell, D.T., G.O. Seltzer, B.G. Mark, J.A. Smith and M.B. Abbott. Clastic sediment flux to tropical Andean lakes: Records of glaciation and soil erosion. *Quaternary Science Reviews* **27**, 1612-1626.

- 2008 Mark, B.G. and H.A. Osmaston. Quaternary glaciation in Africa: key chronologies and climatic implications. *Journal of Quaternary Science* **23**(6-7), 589-608.
- 2008 Smith, J.A., B.G. Mark and D.T. Rodbell. The timing and magnitude of mountain glaciation in the tropical Andes. *Journal of Quaternary Science* **23**(6-7), 609-634.
- 2008 Vuille, M., B. Francou, P. Wagnon, I. Juen, G. Kaser, B.G. Mark, and R.S. Bradley. Climate change and tropical Andean glaciers – Past, present and future. *Earth Science Reviews* **89**, 79-96.
- 2008 Mark, B.G. Tracing Andean glaciers over space and time: some lessons and transdisciplinary implications. *Global and Planetary Change* **60**, 101–114.
- 2007 Mark, B.G. and J.M. McKenzie, 2007. Tracing increasing tropical Andean glacier melt with stable isotopes in water. *Environmental Science and Technology* **40**(20), 6955-6960.
- 2005 Mark, B. G. and K. F. Helmens, 2005. Reconstruction of glacier equilibrium-line altitudes for the Last Glacial Maximum on the High Plain of Bogotá, Eastern Cordillera, Colombia: climatic and topographic implications. *Journal of Quaternary Science* **20** (7-8), 789-800.
- 2005 Mark, B. G., J. M. McKenzie, and J. Gomez, 2005. Hydrochemical evaluation of changing glacier meltwater contribution to stream discharge: Callejon de Huaylas, Peru. *Hydrological Sciences Journal* **50**(6), 975-987.
- 2005 Mark, B. G., S. P. Harrison, Spessa, A., M. New, D. J. A. Evans and K.F. Helmens, 2005. Tropical snowline changes at the LGM: a global assessment. *Quaternary International* **138-139**, 168-201.
- 2005 Benn, D. I., L.A. Owen, H. A. Osmaston, G. O. Seltzer, S. C. Porter and B. G. Mark, 2005. Reconstruction of equilibrium line altitudes for tropical and subtropical glaciers. *Quaternary International* **138-139**, 8-21.
- 2005 Mark, B. G and G. O. Seltzer, 2005. Recent glacier recession in the Cordillera Blanca, Perú (AD 1962-1999): spatial distribution of mass loss and climatic forcing. *Quaternary Science Reviews* **24**, 2265-2280.
- 2003 Mark, B. G. and G. O. Seltzer, 2003. Tropical glacial meltwater contribution to stream discharge: a case study in the Cordillera Blanca, Perú. *Journal of Glaciology* **49** (165), 271-281.
- 2003 Abbott, M. B., B. B. Wolfe, A. P. Wolfe, G. O. Seltzer, R. Aravena, B. G. Mark, P. J. Polissar, D. T. Rodbell, H. D. Rowe and M. Vuille, 2003. Holocene Paleohydrology and glacial history of the Central Andes using multiproxy lake sediment studies. *Palaeogeography, Palaeoclimatology, Palaeoecology*, **194**, 123-138.
- 2002 Mark, B. G., G. O. Seltzer, D. T. Rodbell, and A. Y. Goodman, 2002: Rates of deglaciation during the last glaciation and Holocene in the Cordillera Vilcanota-Quelccaya Ice Cap Region, SE Perú. *Quaternary Research*, **57** (3), 287-298.

- 2002 Mark, B. G., 2002: Observations of modern deglaciation and hydrology in the Cordillera Blanca. *Acta Montana*, Ser. A **19** (123), 23-36.
- 2001 Goodman, A. Y., G. O. Seltzer, D. T. Rodbell, and B. G. Mark, 2001: Subdivision of glacial deposits in Southeastern Perú based on pedogenic development and radiometric ages. *Quaternary Research*, **56** (1), 31-50.
- 1999 Van der Veen, C. J., E. Mosley-Thompson, A. J. Gow, and B. G. Mark, 1999: Accumulation at South Pole: comparison of two 900-year records. *Journal of Geophysical Research*, **104** (D24), 31,067-31,076.

Book Reviews

- 2002 Mark, B. G., 2002: Hot Ice: Glaciers in the tropics are making the press. *Hydrological Processes* **16**, 3297-3302.

Papers in proceedings

- 2006 Hellström, R. Å. and B. G. Mark. An Embedded Sensor Network for Measuring Hydrometeorological Variability within an Alpine Valley. Proceedings of the 63rd Eastern Snow Conference, Newark, Delaware, 8-10 June, 2006.

Articles (editor reviewed)

- 2008 Mark, B.G. A tribute to Henry Arthur Osmaston (1922-2006). *Journal of Quaternary Science* 23(6-7), 509-511.
- 2005 Mark, B. G., D. T. Rodbell, J. A. Smith and D. I. Siegel, 2005. In Memory of Dr. Geoffrey Owen Seltzer. *PAGES News* **13** (1), 5.
- 2005 Mark, B. G., D. T. Rodbell, J. Brigham-Grette and J. A. Smith, 2005. Dr. Geoffrey Owen Seltzer: In Memoriam. *Quaternary International* **138-139**, 1-4.
- 2001 Mark, B. G., 2001: Glacial Clues to Global Warming: Terrain Modeling and Geomorphology. *GPS World*, July 2001, 20-26.

Articles in Progress

Manuscripts Under Review

- Reinemann, S.A.[†], D.F. Porinchu, A.M. Bloom, B.G. Mark and J.E. Box. A Multi-proxy Paleolimnological Reconstruction of Holocene Climate Conditions in the Great Basin, United States. *Quaternary Research*, in review, submitted February 2009.
- McKenzie, J.M, B.G. Mark, L.G. Thompson, U. Schotterer, and P-N. Lin. A geochemical survey of Kilimanjaro springs: implications for water sources and ages. *Hydrogeology Journal*, in review, submitted February 2009.
- Porinchu, D., S. Reinemann[†], B. Mark, J. Box and N. Rolland. Application of a Midge-based Inference Model for Air Temperature Reveals Evidence of Late-20th Century Warming in Sub-alpine Lakes in the central Great Basin, United States. *Quaternary International*, in review, submitted December 2008.

- Hellström, R.A., B.G. Mark and D. Levia. Observations of Seasonal and Diurnal Hydrometeorological Variability Within a Tropical Alpine Valley: Implications for Evapotranspiration. *Boundary-Layer Meteorology*. Accepted with major revisions, November 2008.
- Hall[†], S.R., D.L. Farber, J.M. Ramage, D.T. Rodbell, R.C. Finkel, J.A. Smith, B.G. Mark and C. Kassel. Geochronology of LLGM through Holocene glaciations from the tropical Cordillera Huayhuash, Peru. *Quaternary Science Reviews*, accepted with major revisions.

Abstracts

- 2008 Mark, B.G., J.M. McKenzie, and M. Baraer[†]. Glacier volume loss and hydrologic transformation in the Cordillera Blanca, Peru. EOS Transactions of the American Geophysical Union, 89(53) Fall Meeting Supplement, Abstract C32B-02.
- 2008 Fortner, S.K., B.G. Mark, J.M. McKenzie, M. Baraer[†] and M.J. Shoenfelt[†]. Metal Concentrations and Hydrochemical Dynamics in a Tropical-Glacier Watershed. EOS Transactions of the American Geophysical Union, 89(53) Fall Meeting Supplement, Abstract C23A-0598.
- 2008 Fairman[†], J.G., U.S. Nair, S.A. Christopher, B.G. Mark and M.A. Plummer. Impact of Upwind Land Cover Change on Mount Kilimanjaro. EOS Transactions of the American Geophysical Union, 89(53) Fall Meeting Supplement, Abstract C23A-0599.
- 2007 Porinchu, D., S. Reinemann[†], A. Potito, K. Moser, G. MacDonald, J. Munroe, B. Mark and J. Box, 2007: Evidence of Regional Warming during the 20th Century in Alpine and Subalpine Lakes in the Western United States. EOS Transactions of the American Geophysical Union, 88(52) Fall Meeting Supplement, Abstract GC31C-06.
- 2007 Hellström, R. A. and B. G. Mark, 2007: Observing Seasonal and Diurnal Hydrometeorological Variability Within a Tropical Alpine Valley: Implications for Evapotranspiration. EOS Transactions of the American Geophysical Union, 88(52) Fall Meeting Supplement, Abstract GC41A-0108.
- 2007 Baraer[†], M., J.M. McKenzie, B.G. Mark and S. Palmer[†], 2007: An Integrated Hydrochemical and Hydrologic Approach to Modeling Runoff in Glacier-fed Basins, Cordillera Blanca, Peru. International Commission for Snow and Ice Hydrology Workshop: *Glaciers in Watershed and Global Hydrology*, Obergurgl, Austria, 27-31 August 2007.
- 2006 Mark, B. G. and J. M. McKenzie, 2006: Assessing the Impact of Retreating Glaciers on Dry-Season Discharge in a Tropical Andean Watershed. EOS Transactions of the American Geophysical Union, 87(52) Fall Meeting Supplement, Abstract GC32A-02.
- 2006 Hellström, R. A. and B. G. Mark, 2006: An Embedded Sensor Network for Measuring Elevation Effects on Temperature, Humidity, and Evapotranspiration Within a Tropical Alpine Valley. EOS Transactions of the American Geophysical Union, 87(52) Fall Meeting Supplement, Abstract C33C-1280.

- 2006 Rodbell, D. T., B. G. Mark and J. A. Smith, 2006: Clastic Sediment Flux to Tropical Andean Lakes: Records of Glaciation and Soil Erosion. EOS Transactions of the American Geophysical Union, 87(52) Fall Meeting Supplement, Abstract PP22A-03.
- 2006 Hall[†], S. R., J. M. Ramage, D. T. Rodbell, R. C. Finkel, J. A. Smith, B. G. Mark, D. L. Farber. Geochronology and Equilibrium Line Altitudes of LLGM through Holocene Glaciations from the Tropical Cordillera Huayhuash, Peru. EOS Transactions of the American Geophysical Union, 87(52) Fall Meeting Supplement, Abstract PP31C-1767.
- 2005 McKenzie, J.M. and B.G. Mark, 2005: Water Resources in a Peruvian Mountain Watershed: Hydrochemical Tracing of Groundwater and Glacier Meltwater Impact on Streamflow. EOS Transactions of the American Geophysical Union, Fall Meeting Supplement, Abstract H21A-1322.
- 2004 Mark, B.G., J.M. McKenzie and K.A. Welch, 2004: Impact of Retreating Glaciers in an Intermontane Andean Watershed: Hydrochemical Analysis From the Callejon de Huaylas, Perú. EOS Transactions of the American Geophysical Union 85(47), Fall Meeting Supplement, Abstract U53A-0703.
- 2004 Hall[†], S.R., D.L. Farber, D.T. Rodbell, R.C. Finkel, J.M. Ramage, J.A. Smith, B.G. Mark and G.O. Seltzer, 2004: Geochronology of tropical alpine glaciations from the Cordillera Huayhuash, Perú. EOS Transactions of the American Geophysical Union 85(47), Fall Meeting Supplement, Abstract PP23A-1400.
- 2004 Ramage, J.M., D.T. Rodbell, S. Hall[†], J.A. Smith, B.G. Mark, G.O. Seltzer, R. Finkel, D. Farber and S. Otto, 2004: Paleo-ELA depression and regional ELA gradients in the Cordillera Huayhuash, Perú. Geological Society of America Abstracts with Programs, Vol. 36, No. 5, p. 513.
- 2001 Mark, B. G., G. O. Seltzer and D. T. Rodbell. Late Glacial and Holocene Deglaciation in the Peruvian Andes: A review of timing, rates, and climatic conditions. Geological Society of America and Geological Society of London, Earth System Processes - Programmes with Abstracts, p. 59.
- 1999 Rodbell, D. T., P. J. Castiglia, B. G. Mark, G. O. Seltzer, A. Y. Goodman, C. M. Moy and M. B. Abbott. Late Quaternary glacial chronology of the Cordillera Vilcanota-Queelccaya Ice Cap region in Southeastern Peru based on lake sedimentology, radiocarbon dates, and soils. Abstracts with Programs - Geological Society of America. v. 31 no. 7, p. 56-57.
- 1999 Castiglia, P. J., B. G. Mark, C. M. Moy, D. T. Rodbell, J. G. Rosenbaum and G. O. Seltzer. Magnetic record of late Holocene glacier fluctuations recorded in a lake sediment core from the Cordillera Blanca, Peru. Abstracts with Programs - Geological Society of America. v. 31 no. 2, p. 9.
- 1998 Moy, C. M., D. T. Rodbell, P. J. Castiglia, G. O. Seltzer, B. G. Mark, M. B. Abbott and J. G. Rosenbaum. A lacustrine sedimentologic record of late Holocene glaciation in Peru. Abstracts with Programs - Geological Society of America, v. 30, n. 7, p. 115.

Courses Taught

- Geog H410 (OSU): Global Climate Change (2008: SP, AU; 2009)
- Geog 820.01 (OSU): Current Issues in Climate, Water & Carbon (2007: SP, AU)
- Geog 820.01 (OSU): Mountain Environments (2006)
- Geog 820.01 (OSU): Climate History: Physical and Human Dimensions (Team taught 2005)
- Geog 896 (OSU): Interdepartmental Seminar in Polar & Alpine Studies (2009)
- Geog 520 (OSU) – Climatology (2004, 2006, 2007)
- Geog 210 (OSU) – Physical Geography and Environmental Issues (2004, 2005, 2006, 2007, 2008)
- Geog 120 (OSU) – Earth Systems II: Atmospheric Environment (2007)
- Geol 242 (SU) – Environmental Geology (2001)
- Geol 101 (SU) – Physical Geology (1999)

Students Advised

Doctoral (advisor)

- Kyung In Huh (Geography) – Ohio State University
- Jeff LaFreniere (Geography, AU09 start) – Ohio State University

Doctoral (committee member)

- Lijia Wei (Atmospheric Sciences) – Ohio State University, Ph.D. 2008, “Statistical Analysis of the Atmospheric Sulfate History Recorded in Greenland Ice Cores”
- Sarah Fortner (Earth Sciences) – Ohio State University, Ph.D. 2008, “The geochemistry of glacier snow and melt: the Oregon Cascades and the Taylor Valley, Antarctica”
- Colby Smith (Geology) – University of Cincinnati, Ph.D. 2008, “A Comparison of Glacial Chronologies between the Eastern and Western Cordilleras, Bolivia”
- Natalie Kehrwald (Earth Sciences) – Ohio State University
- Christopher Beekman (Environmental Science Graduate Program) – Ohio State University
- Michel Baraer (Earth & Planetary Sciences) – McGill University
- Evan Waltetzko (Environmental Science Graduate Program) – Ohio State University
- Michael Davie (Atmospheric Sciences) – Ohio State University

Doctoral Exam (Graduate Faculty Representative)

- Jason Ash (Chemistry) – Ohio State University, Candidacy Exam 2004
- Brian Gibbons (Physics) – Ohio State University, Candidacy Exam 2005
- Juan Liu (Agricultural, Environmental and Developmental Economics) – Ohio State University, Ph.D. Defense 2006

Master's (advisor)

- Sarah Wright (Geography) – Ohio State University (co-advisor with Kendra McSweeney)
- Kristin Walls (Atmospheric Sciences) – Ohio State University
- Karin Bumbaco (Atmospheric Sciences) – Ohio State University, M.S., 2008, “Seasonal and diurnal variations in hydrometeorological variables in an Andean mountain environment and comparison to the NCEP/NCAR Reanalysis 1 Data”
- Jonathan Fairman, Jr. (Atmospheric Sciences) – Ohio State University, M.S. 2006, “Investigating paleoclimatic conditions in the tropical Andes using a 2D model of glacial mass energy balance and ice flow”

Master's (committee member)

- Scott Reinemann (Atmospheric Sciences) – Ohio State University, M.S. 2008, “A Chironomid-based paleolimnological study of recent and mid-Holocene changes in mean July air temperature in the Great Basin, Nevada, USA”
- Aron Buffen (Earth Sciences) – Ohio State University, M.S. 2008, “Abrupt Holocene climate change: evidence from a new suite of ice cores from Nevado Coropuna, southwestern Peru and recently exposed vegetation from the Quelccaya Ice Cap, southeastern Peru”
- Nathan Amador (Atmospheric Sciences) – Ohio State University
- Elizabeth Birkos (Earth Sciences) – Ohio State University
- Heather Fair (Environmental Graduate Program) – Ohio State University

Senior Thesis Defense (committee member)

- Jamey Stutz (Earth Sciences) – Ohio State University, 2008, “Establishing Local ELA and Landscape Analysis in Connection with Uplift and Climate: Muji Region, Western Tibetan Plateau”

Senior Honors Thesis Defense (Honors Faculty Representative)

- Adam David Dunkelberger (Chemistry) – Ohio State University, 2007, “Time-resolved electronic spectroscopy of 2,2'-Bisindene”

Research Funding

- 2009-2012 NSF #0819756, EAR – Geobiology and Low Temperature Geochemistry: *Collaborative Research: ETBC: Peatlands as Carbon and Water Sinks under Warm Climates in the Susitna Basin, South-Central Alaska*. PI: Zicheng Yu, Lehigh University. Co-PIs: Robert Booth, Joan Ramage, Lehigh University; B.G. Mark, OSU. 3 years, \$269,810.
- 2008-2009 NSF #0752175, Behavioral & Cognitive Sciences (BCS) – Geography and Regional Science: *Collaborative Proposal: Glacier Recession and Livelihood Vulnerability in the Peruvian Andes*. Co-PI: Jeffrey Bury, University of California, Santa Cruz. 2 years, \$112,054 (\$233,488 total).
- 2008 National Science Foundation (NSF) #0744166, Earth Sciences Division (EAR) – Instrumentation: *Acquisition of Automated Nutrient Analyzer*. Submitted 11 July 2007. PI: W. Berry Lyons, Ohio State University (OSU). Co-PIs: A.E. Carey, OSU; O.S. Costa; B.G. Mark; F.W. Schwartz (all OSU). \$64,800.
- 2007 OSU Climate, Water and Carbon TIE Seed grant: *Quantifying tropical Andean ice volume loss using satellite radar altimetry data and airborne laser swath mapping*. 1 year, \$40,000.
- 2006-2008 National Aeronautical and Space Administration (NASA) New Investigator Program (NIP): *Assessing the Volume and Topographic Context of Tropical Glacier Recession*. Submitted 30 August 2005. 3 years, \$357,572.
- 2007 Ohio EPA 319(h) Section and City of Columbus Capital Improvements Project No. 650706: *Lower Olentangy River Ecosystem Restoration Project*. OSU (multi-department) undergraduate research support, 1 year, \$20,000.
- 2007 Western National Parks Association, Co-PI: Contemporary Climate History and Climate Change Impacts in Great Basin National Park. 1 year, \$7,495 (\$7,518 matching from Ohio State University, Department of Geography).
- 2006 P-12 Scholars Grant, Office of University Outreach and Engagement, Ohio State University: *Science + Education = Science Education*. (In partnership with Carol Landis, Byrd Polar Research Center) 1 year, \$30,000.
- 2006 Office of International Affairs Faculty International Research Travel Grant, OSU, \$2,500 to develop inter-institutional collaborative agreement with INRENA, Perú.
- 2006 International Quaternary Association award for attending Tibet Workshop, Xining, China, \$2,100.
- 2006 Seed grant for Kilimanjaro field work, Department of Geography, \$7,500.

- 2005 SBS International Travel Grant, OSU, \$2000 to attend conference in Scotland.
- 2004 SBS International Travel Grant, OSU, \$2000 to attend conference in Perú.
- 2000 Geological Society of America Research Grant, \$900.
- 1999 Syracuse University Graduate School Research Grant, \$1,500.
- 1998 J. William Fulbright Foreign Scholarship Award, Perú (academic year 1997-98).
- 1997 Geological Society of America Research Grant, \$1,500.
- 1996 Syracuse University Graduate School Research Grant, \$1,500.
- 1996 Geological Society of America Research Grant, \$2,200.
- 1995 Syracuse University Graduate Fellowship (5 year tuition waiver and \$52,120 stipend).

Academic Awards and Honors

- 2008 Nominated for Outstanding Teaching Award, Arts and Sciences, Ohio State University
- 2007 Lawrence A. Brown Faculty Fellowship, Department of Geography, Ohio State University
- 2003 International Young Scientists' Global Change Conference, Trieste, Italy.
- 2000 John James Prucha Field Research Award, Department of Earth Sciences, Syracuse University
- 1999 Marjorie Hooker Award for outstanding thesis proposal, Department of Earth Sciences, Syracuse University
- 1997 Newton E. Chute Award for outstanding Geology graduate student, Department of Earth Sciences, Syracuse University
- 1995 Syracuse University Graduate Fellowship (1995-99), including Dean's Research Assistanceship (1995-96, 1997-98).

Research Papers and Posters(*) Presented at Professional Meetings

- 2009 Mark, B.G., J.M. McKenzie, and M. Baraer. Glacier Volume Loss and Hydrologic Transformation in the Tropical Peruvian Andes. Association of American Geographers Annual Meeting, Las Vegas, NV, 24-27 March, 2009.
- 2009 Huh, K.I. and B.G. Mark. Assessing the volume and topographic changes of tropical glaciers in Peruvian Andes. Association of American Geographers Annual Meeting, Las Vegas, NV, 24-27 March, 2009.
- 2009 Mark, B.G. Climate change and tropical Andean glaciers: Evaluating impacts to water resources. 8th Annual Ohio Latin Americanist Conference, Ohio University, Athens, OH, 27-28 February, 2009.

- 2008 Mark, B.G., J.M. McKenzie, and M. Baraer. Glacier volume loss and hydrologic transformation in the Cordillera Blanca, Peru. American Geophysical Union Fall Meeting, San Francisco, CA, 15-19 December, 2008. Abstract C32B-02.
- 2008 Mark, B.G. Tropical glacier environmental change: overview of research methods and future directions. Mountain Research Initiative Meetings, Berkeley, California, 14 December, 2008.
- 2008 *Fortner, S.K., B.G. Mark, J.M. McKenzie, M. Baraer and M.J. Shoenfelt. Metal Concentrations and Hydrochemical Dynamics in a Tropical-Glacier Watershed. American Geophysical Union Fall Meeting, San Francisco, CA, 15-19 December, 2008. Abstract C23A-0598.
- 2008 *Fairman, J.G., U.S. Nair, S.A. Christopher, B.G. Mark and M.A. Plummer. Impact of Upwind Land Cover Change on Mount Kilimanjaro. American Geophysical Union Fall Meeting, San Francisco, CA, 15-19 December, 2008. Abstract C23A-0599
- 2008 Baraer, M., J.M. McKenzie, B.G. Mark and J. Bury. Climate change related evolution of water resources in the Cordillera Blanca, Peru. EGU Topical Conference Series, 4th Alexander von Humboldt International Conference: *The Andes: Challenge for Geosciences*. Santiago de Chile, Chile, 24 – 28 November 2008.
- 2008 Baraer, M., J.M. McKenzie, B.G. Mark and S. Palmer. Utilisation de traceurs naturels pour la modélisation de bassins hydrologiques alimentés par des glaciers : Étude de cas dans la Cordillera Blanca, Pérou. Actes de colloque de l'Institut Hydro-Québec en environnement, développement et société (IHQEDS), Québec-city Canada, March 2008.
- 2008 Mark, B.G. Evaluating hydrologic changes from tropical Andean glacier melt using stable isotopes in water and digital terrain analyses. Association of American Geographers Annual Meeting, Boston, MA, 15-19 April, 2008.
- 2008 Bumbaco, K., B.G. Mark, R. Hellström. Impact of Elevation and Terrain on Air Temperature and Vapor Flux in an Alpine Valley, Peru. Association of American Geographers Annual Meeting, Boston, MA, 15-19 April, 2008.
- 2007 *Hellström, R. and B.G. Mark. Observing seasonal diurnal hydrometeorological variability within a tropical alpine valley: Implications for evapotranspiration. American Geophysical Union Fall Meeting, San Francisco, CA, 10-14 December, 2007.
- 2007 Porinchu, D.P., S. Reinemann, G. MacDonald, K. Moser, J. Munroe, J. Box and B.G. Mark. Evidence of regional warming during the 20th century in alpine and subalpine lakes in the Western United States. American Geophysical Union Fall Meeting, San Francisco, CA, 10-14 December, 2007.
- 2007 McKenzie, J.M. and B.G. Mark. A multi-year analysis of stable isotopes to trace glacier melt water in the Cordillera Blanca, Peru. Geological Society of America, Denver Annual Meeting, 28-31 October 2007, Session No. 42: Innovative Uses of Environmental Isotopes in Hydrology.

- 2007 *Baraer, M., J.M. McKenzie, B.G. Mark and S. Palmer. An Integrated Hydrochemical and Hydrologic Approach to Modeling Runoff in Glacier-fed Basins, Cordillera Blanca, Peru. International Commission for Snow and Ice Hydrology Workshop: *Glaciers in Watershed and Global Hydrology*, Obergurgl, Austria, 27-31 August 2007.
- 2006 Mark, B.G. African glacial chronology and climate controls. Timing and Nature of Mountain Glaciation, from High Asia to the World. INQUA Workshop, sponsored by: Working Groups on Timing and Nature of Mountain Glacier Advances, Quaternary Glaciations and Chronology in Monsoonal Asia; US National Science Foundation; National Science Foundation of China. Xining, China and Tibet, 13-22 September 2006. (Invited presentation).
- 2006 *Fairman, J., B. G. Mark, M. A. Plummer. Modeling the climatic controls and topographic form of modern and Late Pleistocene tropical Andean glaciers. International Symposium on Cryospheric Indicators of Global Climate Change, Cambridge, UK, 21-25 August 2006.
- 2006 Mark, B. G. Tropical LGM equilibrium-line altitude reconstructions: climatic and topographic implications from the High Plain of Bogotá region, Colombia. Association of American Geographers Annual Meeting, Chicago, IL, 7-11 March, 2006.
- 2006 Fairman, J., B. G. Mark, M. A. Plummer. Inverse Climate Modeling of Tropical Highlands at the Last Glacial Maximum by Use of a 2D Numerical Model of Snow/ice Energy Balance and Glacier Flow. Association of American Geographers Annual Meeting, Chicago, IL, 7-11 March, 2006.
- 2005 *McKenzie, J. M. and B. G. Mark. Water Resources in a Peruvian Mountain Watershed: Hydrochemical Tracing of Groundwater and Glacier Meltwater Impact on Streamflow. American Geophysical Union Fall Meeting, San Francisco, CA, 5-9 December, 2005.
- 2005 Mark, B. G. Tracing Andean glaciers over space and time: some lessons and transdisciplinary implications. Open Science Conference: Global Change in Mountain Regions, Perth, Scotland, UK 2-6 October, 2005.
- 2005 Mark, B. G., J. M. McKenzie, and J. Gomez. Changes to water resources in a tropical mountain watershed: a hydrochemical assessment of glacier meltwater impact to streamflow. Open Science Conference: Global Change in Mountain Regions, Perth, Scotland, UK 2-6 October, 2005.
- 2005 Mark, B. G., J. M. McKenzie and J. Gomez. Hydrochemical evaluation of changing glacier meltwater contribution to stream discharge, Callejon de Huaylas, Perú. Association of American Geographers Annual Meeting, Denver, CO, 5-10 April, 2005.
- 2005 *Mark, B. G. and J. M. McKenzie. Tropical Glaciers in a Changing Climate. MTNCLIM 2005: A Science Conference on Mountain Climates & Effects on Ecosystems, sponsored by Consortium for Integrated Climate Research in Western Mountains (CIRMOUNT), Chico Springs, Pray, MT, 1-4 March 2005.

- 2004 Mark, B. G. and G. O. Seltzer. Tropical glacier meltwater contribution to stream discharge: a case study in the Cordillera Blanca, Perú. Symposium on Recent Glacier Shrinkage and Consequences for Water Resources, sponsored by International Commission on Snow and Ice (ICSI), International Hydrological Association, Huaraz, Perú, 6-9 July, 2004.
- 2004 Mark, B. G., S. P. Harrison, A. Spessa, M. New and D. J. A. Evans. Snowline changes at the LGM: a global synthesis and evaluation. Association of American Geographers Annual Meeting, Philadelphia, PA, 14-19 March, 2004.
- 2004 *Mark, B. G., J. M. McKenzie and K. A. Welch. Impact of Retreating Glaciers in an Intermontane Andean Watershed: Hydrochemical Analysis From the Callejon de Huaylas, Perú. American Geophysical Union Fall Meeting, San Francisco, CA, 13-17 December, 2004.
- 2004 *Hall, S. R., D. L. Farber, D. T. Rodbell, R. C. Finkel, J. M. Ramage, J. A. Smith, B. G. Mark and G. O. Seltzer. Geochronology of tropical alpine glaciations from the Cordillera Huayhuash, Perú. American Geophysical Union Fall Meeting, San Francisco, CA, 13-17 December, 2004.
- 2004 Ramage, J. M., D. T. Rodbell, S. Hall, J. A. Smith, B. G. Mark, G. O. Seltzer, R. Finkel, D. Farber and S. Otto. Paleo-ELA depression and regional ELA gradients in the Cordillera Huayhuash, Perú. Annual Meeting of the Geological Society of America, Denver, CO, 7-10 November, 2004.
- 2003 Mark, B. G. and G. O. Seltzer. Tropical Peruvian glaciers in a changing climate: Forcing, rates of change and impact to water supply. The First International Young Scientists' Global Change Conference [competitively peer reviewed], Trieste, Italy, 16-19 November 2003.
- 2003 *Mark, B. G., S. P. Harrison, M. New, G. Bönisch and D. J. A. Evans. Snowline reconstructions during the Last Glacial Maximum: a palaeoenvironmental database and synthesis of tropical climate. International Quaternary Association (INQUA) Congress [posters only], Reno, Nevada, 23-30 July, 2003.
- 2003 *Mark, B. G., G. O. Seltzer and D. T. Rodbell. Late Quaternary Glaciations of Ecuador, Peru and Bolivia. International Quaternary Association (INQUA) Congress [posters only], Reno, Nevada, 23-30 July, 2003.
- 2002 Mark, B. G. Forcing mechanisms behind recent glacier recession in the Cordillera Blanca, Perú. International Glaciological Society British Branch Annual Meeting, Glasgow, UK, 4-5 September, 2002.
- 2002 Mark, B. G., S. P. Harrison, and D. J. A. Evans. The LGM Snowline Database Project. 4th Palaeoclimate Modelling Intercomparison Project (PMIP) International Meeting, Cambridge, UK, 22-26 June, 2002.
- 2001 Mark, B. G. Deglaciation in the Peruvian Andes: Comparing volumetric rates over time and evaluating hydrologic impact. 6th Scientific Assembly of the International Association of Hydrological Sciences: A New Hydrology for a Thirsty Planet, Maastricht, The Netherlands, 18-27 July, 2001.

- 2001 Mark, B. G., G. O. Seltzer and D. T. Rodbell. Late Glacial and Holocene Deglaciation in the Peruvian Andes: A review of timing, rates, and climatic conditions. Geological Society of America and Geological Society of London Earth Systems Processes Global Meeting, Edinburgh, Scotland, 24-28 June, 2001.
- 2000 *Mark, B. G. Modelling Peruvian Deglaciation. 4th International Conference on Integrating GIS and Environmental Modeling, Banff, Alberta, 2-8 September, 2000. <http://www.colorado.edu/research/cires/banff/upload/546>
- 2000 Mark, B. G. Deglaciation in the Nevado Queshque region, Cordillera Blanca, Peru: A comparison of modern volume loss to Late-Glacial and Holocene loss. 10th Peruvian Geologic Congress, Lima, Perú, 19-22 July, 2000.
- 2000 Mark, B. G., D. T. Rodbell, G. O. Seltzer, A. Y. Goodman, P. J. Castiglia, C. M. Moy and M. B. Abbott. Late Glacial glacial fluctuations of ice volume inferred from lake sedimentology, radiocarbon dates, soils, and terrain modeling in the Cordillera Vilcanota-Quelccaya Ice Cap region, SE Peru. 10th Peruvian Geologic Congress, Lima, Perú, 19-22 July, 2000.
- 1999 *Mark, B. G., P. Castiglia, C. M. Moy, A. Y. Goodman, D. T. Rodbell and G. O. Seltzer. Late-Glacial fluctuations of ice volume inferred from lake-sediment mineralogy and terrain modeling in the Cordillera Blanca, Peru. Spring Meeting of American Geophysical Union, Boston, MA, 31 May - 4 June, 1999.
- 1999 *Mark, B. G., D. T. Rodbell, G. O. Seltzer, A. Y. Goodman, P. J. Castiglia, C. M. Moy and M. B. Abbott. Late-Glacial fluctuations of ice volume inferred from lake-sedimentology, radiocarbon dates, soils and terrain modeling in the Cordillera Vilcanota-Quelccaya Ice Cap region, SE Peru. Fall Meeting of the American Geophysical Union, San Francisco, CA, 13-17 December, 1999.
- 1999 Rodbell, D. T., P. J. Castiglia, B. G. Mark, G. O. Seltzer, A. Y. Goodman, C. M. Moy and M. B. Abbott. Late Quaternary glacial chronology of the Cordillera Vilcanota-Quelccaya Ice Cap region in Southeastern Peru based on lake sedimentology, radiocarbon dates, and soils. Annual Meeting of the Geological Society of America, Denver, CO, 1999.
- 1999 *Castiglia, P. J., B. G. Mark, C. M. Moy, D. T. Rodbell, J. G. Rosenbaum and G. O. Seltzer. Magnetic record of late Holocene glacier fluctuations recorded in a lake sediment core from the Cordillera Blanca, Peru. Annual Meeting of the Geological Society of America, Denver, CO, 1999.
- 1998 *Moy, C. M., D. T. Rodbell, P. J. Castiglia, G. O. Seltzer, B. G. Mark, M. B. Abbott and J. G. Rosenbaum. A lacustrine sedimentologic record of late Holocene glaciation in Peru. Annual Meeting of the Geological Society of America, Toronto, ON, 1998.

Invited Presentations

- 2009 Miami University, Department of Geography, Oxford, OH.
- 2008 World Bank, Latin America Environment Department, Washington, D.C.
- 2008 Department of Geological Sciences, Ohio State University, Columbus, OH.
- 2008 Wagner School of Public Policy, New York University, New York, NY.

- 2008 Byrd Polar Research Center, Ohio State University, Columbus, OH.
- 2008 Universidad Nacional “Santiago Antúnez de Mayolo” (UNASAM), Huaraz, Peru.
- 2008 Peruvian Natural Resources Institute (INRENA), Lima, Peru.
- 2008 University of Cincinnati, Cincinnati, OH.
- 2007 Lehigh University, Bethlehem, PA.
- 2007 Union College, Schenectady, NY.
- 2006 City of Upper Arlington, Senior Center, Columbus, OH.
- 2005 Department of Geological Sciences, Ohio State University, Columbus, OH.
- 2005 Department of Geosciences, Montana State University, Bozeman, MT.
- 2004 Byrd Polar Research Center, Ohio State University, Columbus, OH.

Professional Service

1. Editorial Activities

Editorial Board Member

The Encyclopedia Environment and Society, a 4-volume reference work to be published in 2007 by Sage Publications, Inc.; serving as Editorial Advisory Board Member.

Journal Reviewer

Ambio
 Annals of Glaciology
 Arctic, Antarctic and Alpine Research
 Environmental Research Letters
 Geochemistry, Geophysics, Geosystems
 Geology
 Global and Planetary Change
 Hydrological Sciences Journal
 International Association of Hydrological Science Red Book
 Journal of Geophysical Research
 Journal of Glaciology
 Journal of Quaternary Science
 Nature Geosciences
 Palaeogeography, Palaeoclimatology, Palaeoecology
 Quaternary Research

Text Chapter Reviewer

John Wiley & Sons, Inc. Chapter 23, *Environmental Science: Earth as a Living System* (7th ed.). 2007.

John Wiley & Sons, Inc. Chapter 5, *Environmental Science: Earth as a Living System* (5th ed.). 2005.

Jones and Bartlett Publishers, Chapters 1-7, *Climatology* (manuscript). 2005.

2. Grant Proposal Assessor

National Science Foundation (NSF)

American Association for the Advancement of Science (AAAS)

U.S. Army Corps of Engineers, Engineer Research and Development Center (ERDC)

U.S. Civilian Research & Development Foundation (CRDF)

3. Other Service

- Personnel Committee (3-year elected term), Department of Geography, OSU (2008-2011).
- Graduate Studies Committee (3-year term), Environmental Studies Graduate Program, OSU (2007-2009).
- Judge in Denman Undergraduate Research Forum, Ohio State University (2006, 2007, 2008).
- Faculty judge in Maximus Competition of Undergraduate University Scholars, Ohio State University (2006, 2007, 2008).
- Member of International Activities workgroup in association with the Mountain Research Institute and CIRMOUNT-MNTCLIM (2005 – present).
- Organized and ran First International Snowline Workshop, Glasgow, U.K., 18-22 September, 2002.
- Delegate to The Mountain Ecosystems World Meeting, “Mountains Towards 2020: Water, Life and Production” in Huaraz, Peru, June 12-14, 2002, as part of UNESCO sponsored Year of the Mountains.
- Invited instructor-lecturer of glacial geology and climatology (in Spanish) for the International Course on Glaciology and Environmental Geology, Huaraz, Perú (2000, 2002).
- Invited Science Day 2000 representative to inform U.S. Congress of environmental science relevancy and research imperatives, Washington, D.C.

Professional Society Membership

- Association of American Geographers
- Geological Society of America
- American Geophysical Union
- International Glaciological Society
- International Association of Hydrological Sciences
- Consortium for Integrated Climate Research in Western Mountains (CIRMOUNT)
- Mountain Forum

Other Professional Activity

- INVITED Member of Board of Directors for Hope International Development Agency USA (2008 – present) <http://www.hope-international.com/>
- INVITED Member of International Advisory Committee on Climate Change for The Mountain Institute (2008 – present) <http://www.mountain.org/>

Recent Outreach and Engagement Activities

- 2009 INVITED Climate Change lectures with Lonnie Thompson and Leonid Polyak for Upper Arlington High School, January 22.
- 2009 INVITED Presentation on Peruvian research with Lonnie Thompson to OSU campus, emphasis on Peruvian nationals, January 21.
- 2008 INVITED presenter and discussant on panel, “Climate Change: What is the University’s Role in this Public Policy Debate?” at the Big 10 Government Affairs Conference hosted by OSU, October 21.
- 2008 Featured on student-run science web site, “What are tropical glaciers and why do they matter?” by Lindsey Konkel, 15 December:
<http://scienceline.org/2008/12/15/ask-konkel-tropical-glaciers-melting-andes-mountains-runoff-groundwater/>
- 2008 INVITED “Measuring Andean Glacier Changes: Evaluating Climate Change and Water Resources.” FIRST LEGO League Climate Connections Kickoff Sinclair Community College, Dayton, OH. 6 September 2008.
- 2008 Interviewed live on national Peruvian television news show, Canal Siete, describing research on glaciers and water resources to general public, in Spanish.
- 2008 INVITED talk on “Global Climate Change,” New Albany High School.
- 2006 INVITED talk “The diverse and beautiful land of Africa: A geographical review.” City of Upper Arlington, Senior Center, Ohio, USA, October 24.
- 2006 Interviewed live at Byrd Polar Research Center to explain climate change report on local television news with Chuck Gurney, meteorologist, WBNS-TV Channel 10, *10TV Eyewitness News This Morning*. November 2, 2006.