

W. ANDREW MARCUS

CURRICULUM VITAE

Education

- 1987 Ph.D. in Geography, University of Colorado
Thesis topic: Spatial channel controls on suspended sediment and trace metal transport in streams
- 1983 M.A. in Geography, Arizona State University
Thesis topic: Dispersion of copper in ephemeral stream sediments
- 1978 B.S. in Geology, Stanford University, Graduated Phi Beta Kappa

Employment

- 2001-present Head (2008-present), Professor (2004-present) and Associate Professor (2001-2004), Department of Geography, University of Oregon. Conduct research and teach classes in hydrology, fluvial geomorphology, remote sensing, Yellowstone region.
- 1991-2001 Associate Professor (1995-2001), Head (1996-1999), and Assistant Professor (1991-1995) Department of Earth Sciences, Montana State University.
- 1992-1993 Acting Director, Mountain Research Center, Montana State University. Coordinated graduate program and research initiatives, participated in off-campus fund raising, administered budget and agenda.
- 1987-1991 Assistant Professor, Dept. Geography, University of Maryland at College Park. Conducted research and taught courses in environmental systems, geomorphology, field techniques, and water resources management.
- 1982-1989 Expert witness, Brown and Bain. Conducted historical and map research to delineate boundaries in the Navajo-Hopi boundary dispute, Arizona.
- 1986-87 Consultant, Environmental Resource Management. Reviewed Superfund remedial studies to insure that water quality issues were adequately addressed.
- 1983-86 Instructor of geographic skills and physical geography courses, Depart. Geography, University of Colorado.
- 1981-83 Consultant, Army Corps of Engineers. Delineated areas of flood and erosion danger

and projected potential economic impacts.

- 1982 Research Assistant, State University Laboratory of Climatology, Tempe, Arizona. Examined climatic and land use controls on dust storms in Arizona.
- 1982 Instructor, Air photo interpretation. Depart. Geography, Arizona State University.
- 1981 Consultant, Arizona Public Service, Phoenix, Arizona. Analyzed pollution impacts on visibility in the Painted Desert-Petrified Forest National Park, Arizona.
- 1979-81 Projects Manager, Arizona Environmental Consultants, Phoenix, Arizona. Prepared environmental impact statements, air quality reports, and proposals. Administered office budget, personnel, and public relations.
- 1980 Hydrologic Technician, National Forest Service, Tempe, Arizona. Analyzed climate, stream flow, sediment load, and vegetative data to assess controls on forest erosion.
- 1978-79 Geologic Consultant, Standard Metals Corp., Silverton, Colorado. Field mappings and analysis to determine factors leading to Lake Emma's catastrophic drainage.
- 1978 Field Assistant, Geologic investigation of the Salt River Mountains, Wyoming. Mapped geologic units and large and small scale structural features.
- 1976 Teaching Assistant, National Science Foundation Environmental Workshop for High School Seniors. Taught techniques for sampling and analysis of soil, water, and air quality.

Honors

- 2008 Durham University Distinguished International Fellow
- 2007-2012 Faculty of Excellence Award, University of Oregon
- 2001-2008 Rippey Teaching Fellow, University of Oregon
- 2006 Bray Fellowship, College of Arts and Sciences, University of Oregon
- 2005. The G.K. Gilbert Award for Excellence in Geomorphic Research. Awarded by the Geomorphology Specialty Group of the Association of American Geographers for: Fonstad, M. and Marcus, W.A., 2003, Self organized criticality in stream bank failure. *Annals of the Association of American Geographers* 93(2):281-296.
- 1989 Lilly Undergraduate Teaching Fellowship, University of Maryland

- 1989 University of Maryland College of Behavioral and Social Sciences Teaching Development Award
- 1986 University of Colorado Teaching Excellence Award

Research Activities

Edited Volumes

- James, L. Allan and Marcus, W. Andrew (eds.), 2006, 37th Binghamton Geomorphology Symposium - The Human Role in Changing Fluvial Systems. *Geomorphology* 79(1-2): 143-506.
- Jacquez, G.M., Marcus, W.A., Aspinall, R.J. (eds.), 2002, Special issue on Exposure Assessment Using High Spatial Resolution Hyperspectral (HSRH) Imagery. *Journal of Geographical Systems*, 4(1): 1-140.
- Marcus, W. Andrew, and Marcus, Melvin G. (eds.), 1996, *Barry C. Bishop Memorial Issue of Mountain Research and Development*, 16(3): 1-148.

Refereed Articles

- Blanton, P. and Marcus, W.A., 2009. Railroads, roads, and later disconnection in the river landscapes of the continental United States. *Geomorphology* 112: 212-227.
- Steingisser, A. and Marcus, W.A., 2009. Human Impacts on geyser basins. *Yellowstone Science* 17(1): 1-18.
- Marcus, W.A. and Fonstad, M.A., 2008, Optical remote mapping of rivers at sub-meter resolutions and watershed extents, *Earth Surface Processes and Landforms* 33(1): 4-24.
- Marcus, W.A., Meacham, J.E., Rodman, A. and Steingisser, Al., 2007, Visual Fields: *Atlas of Yellowstone* – preliminary work. *Cartographic Perspectives* 57: 86-87
- Strandhagen, E.R., Marcus, W.A., and Meacham, J.E., 2006. Views of the Rivers: Representing streamflow of the Greater Yellowstone Ecosystem. *Cartographic Perspectives* 55:54-49, 81-83.
- James, L.A. and Marcus, W.A., 2006, The human role in changing fluvial systems: Retrospect, inventory, prospect. *Geomorphology* 79(1-2): 152-171

- Hughes, M.L., McDowell, P.F., Marcus, W.A., 2006, Evaluating the accuracy of georectified aerial photographs: Implications for measuring channel migration. *Geomorphology* 76: 1-16.
- Fonstad, M. and Marcus, W.A., 2005, Remote sensing of stream depths with a hydraulically-assisted bathymetry (HAB) model. *Geomorphology* 72(1-4):107-120.
- Goovaerts, P., Jacquez, G.M., and Marcus, W.A., 2005, Geostatistical and local cluster analysis of high resolution hyperspectral imagery for detection of anomalies *Remote Sensing of Environment* 95:351-367.
- Legleiter, C.J., Roberts, D.A., Marcus, W.A., and Fonstad, M.A., 2004, Passive remote sensing of river channel morphology and in-stream habitat: Physical basis and feasibility. *Remote Sensing of Environment* 93:493-510.
- Marcus, W.A., Legleiter, C.J., Aspinall, R.J., Boardman, J.W., and Crabtree R.L., 2003, High spatial resolution, hyperspectral (HSRH) mapping of in-stream habitats, depths, and woody debris in mountain streams: *Geomorphology* 55(1-4):363-380.
- Fonstad, M. and Marcus, W.A., 2003, Self organized criticality in stream bank failure. *Annals of the Association of American Geographers* 93(2):281-296.
- Legleiter, C.J., Lawrence, R.L., Fonstad, M.A. Marcus. W.A., Aspinall, R.J., 2003, Fluvial response a decade after wildfire in the northern Yellowstone ecosystem: a spatially explicit analysis: *Geomorphology* 54(3-4):119-136.
- Marcus, W.A., Marston, R.A., Marcus, Colvard, Jr., C.R., and Gray, R.D., 2002, Mapping the spatial and temporal distributions of large woody debris in rivers of the Greater Yellowstone Ecosystem, U.S.A. *Geomorphology* 44(3-4):323-335.
- Marcus, W.A., 2002, Mapping of stream microhabitats with high spatial resolution hyperspectral imagery. *Journal of Geographical Systems* 4(1):113-126.
- Aspinall, R.J., Marcus, W.A., and Boardman, J.W., 2002, Considerations in collecting, processing, and analyzing high spatial resolution, hyperspectral data for environmental investigations. *Journal of Geographical Systems* 4(1):15-29.
- Jacquez, G.M., Marcus, W.A., Aspinall, R.J., Greiling, D., 2002, Exposure assessment using high spatial resolution hyperspectral (HSRH) imagery. *Journal of Geographical Systems* 4(1):1-14.
- Legleiter, C., Marcus, W.A., Lawrence, R., 2002, Effects of sensor resolution on mapping in-stream habitats. *Photogrammetric Engineering and Remote Sensing* 68(8):801-807.

- Marcus, W. Andrew, Meyer, G.A., Nimmo, D.R, 2001, Geomorphic control on long-term persistence of mining impacts, Soda Butte Creek, Yellowstone National Park. *Geology* 29(4):355-358.
- Gritzner, M., Marcus, W.A., Aspinall, R.J., and Custer, S., 2001, Assessing landslide potential using GIS, soil wetness modeling and topographic attributes, Payette River, Idaho. *Geomorphology* 37(1-2):149-166.
- Wright, A., Marcus, W. A., and Aspinall, R.J., 2000, Evaluation of multispectral, fine scale digital imagery as a tool for mapping stream morphology: *Geomorphology*, 33(1-2):107-120.
- Stoughton, J. and Marcus, W.A., 2000, Persistent impacts of trace metals from mining on floodplain grass communities along Soda Butte Creek, Yellowstone National Park: *Environmental Management*, 25(3):305-320.
- Marcus, W.A., Milner, G., and Maxwell, B., 1998, Spotted knapweed distribution in stock camps and trails of the Selway-Bitterroot Wilderness: *Great Basin Naturalist*, 58(2):156-166.
- Ladd, S., Marcus, W.A., and Cherry, S., 1998, Differences in trace metal concentrations among fluvial morphologic units and implications for sampling: *Environmental Geology and Water Sciences*, 36(3/4):259-270.
- McCarty, D.K, Moore, J.N., and Marcus, W.A., 1998, Mineralogy and trace element association in an acid mine drainage iron oxide precipitate: comparison of sequential extractions: *Applied Geochemistry*, 13:165-176.
- Marcus, W. A., 1996, Segment-scale patterns and hydraulics of trace metal concentrations in fine grained sediments of a cobble and boulder bed mountain stream, Southeast Alaska: *Mountain Research and Development*, 16(3):211-220.
- Marcus, W. A., and Marcus, M.G., 1996, Geographer, explorer, friend: the world's of Barry C. Bishop, 1932-1994: *Mountain Research and Development*, 16(3):193-198.
- Marcus, W. A., Ladd, S., Stock, J. and Stoughton, J., 1995, Pebble counts and the role of user-dependent bias in documenting sediment size distributions: *Water Resources Research*, 31(10):2625-2631.
- Marcus, W. Andrew, 1994, The lower Potomac estuary from tidewater to the Chesapeake Bay: past trends and future needs: *The Potomac Valley Chronicle*, 1(1):36-47.
- Marcus, W. A., Neilsen, C.C. and Cornwell, J., 1993, Sediment budget analysis of heavy metal inputs to a Chesapeake Bay estuary: *Environmental Geology and Water Sciences*, 22(1):1-9.

- Marcus, W.A., Roberts, K., Harvey, L., and Tackman, G., 1992, An evaluation of methods for estimating Manning's n in small mountain streams: *Mountain Research and Development*, 12(3):227-239.
- Houlahan J., Marcus, W. A., and Shirmohammadi, A., 1992, Estimating Maryland's Critical Area Act's impact on future nonpoint loading along the Rhode River estuary: *Water Resources Bulletin*, 28(3):553-567.
- Marcus, W. A., 1991, Managing contaminated sediments in aquatic environments: identification, regulation and mitigation: *Environmental Law Reporter*, 21(1):10020-10032.
- Marcus, W. A. and Kearney, M.S., 1991, Coastal and upland sediment sources in a Chesapeake Bay estuary: *Annals of the Association of American Geographers*, 81(3):408-424.
- Marcus, W. A., 1989a. Lag-time routing of suspended sediment concentrations during unsteady flow: *Bulletin of the Geological Society of America*, 101(644-651).
- Marcus, W. A., 1989b, Dilution mixing estimates of trace metal concentrations in suspended sediments: *Environmental Geology and Water Sciences*, 14(3):213-219.
- Marcus, W. A., 1989c, Regulating contaminated sediments in aquatic environments: a hydrologic perspective: *Environmental Management*, 13(6):703-713.
- Marcus, W. A., 1987. Copper dispersion in ephemeral stream sediments: *Earth Surface Processes and Landforms*, 12(3):217-228.

Refereed Book Chapters

- Marcus, W.A., Aspinall, R.J., Marston, R.A., 2004, , GIS and Surface Hydrology: In Schroder, Jr., J.F. and Bishop M.P. (ed.), *Geographic Information Science and Mountain Geomorphology*, Chichester, UK, Praxis Scientific Publishing, p. 343-379.
- Marcus, Melvin G. and Marcus, W. Andrew, 1983. Deglaciation and early Holocene history of the Lake Emma cirque basin, San Juan Mountains, Colorado: In Schroeder-Lanz, H. (ed.), *Late- and post-glacial oscillations of glaciers: glacial and periglacial forms*, Rotterdam, A.A. Balkema, p. 357-370.

Encyclopedia entries

- Marcus, W. Andrew, *In Press*. Marcus, Melvin G.. *Encyclopedia of Geography*. SAGE Reference Publication.

Marcus, W. Andrew, 2004. Large woody debris: In Goudie, A (ed.), *Encyclopedia of Geomorphology*.

Marcus, W. Andrew, 2004. Hyperspectral remote sensing (Mapping): in Geller, E., (ed.), *McGraw-Hill Yearbook of Science and Technology 2004*, New York, McGraw-Hill Inc, 4 pp.

Marcus, W. Andrew, 1994, Stream patterns: In Parker, Sylbil, (ed.), *The 1995 McGraw-Hill Yearbook of Science and Technology*, New York, McGraw-Hill Inc. p. 400-403.

Marcus, W. Andrew, 1993, Heavy metals, environmental: In Parker, Sylbil, (ed.), *The 1994 McGraw-Hill Yearbook of Science and Technology*, New York, McGraw-Hill Inc., p. 199-202.

Miscellaneous

James, L.A. and Marcus, W.A. (eds.), 2006, Preface: The 2006 Binghamton Geomorphology Symposium on The Human Role in Changing Fluvial Systems. In, James, L.A. and Marcus, W.A. (eds.), *The Human Role in Changing Fluvial Systems*, *Geomorphology* 79(1-2): 144-147.

Marcus, W.A. and Phillips, J., 2006, Citation for Renwick et al. on their receipt of the G.K. Gilbert award. *Geomorphorum: Newsletter of the Geomorphology Specialty Group of the Association of American Geographers*. http://www.aag-gsg.org/geomorphorum/2006_1.pdf, 1:5-6.

Marcus, W. A., 2005, Comments on acceptance of the G.K. Gilbert Award. *Geomorphorum: Newsletter of the Geomorphology Specialty Group of the Association of American Geographers*. http://www.aag-gsg.org/geomorphorum/2005_1.pdf, 1: 8-9.

Marcus, Melvin G., and Marcus, W. Andrew, 1996, Preface, Barry C. Bishop Memorial Issue of *Mountain Research and Development: Mountain Research and Development*, 16(3):188-192.

Work in Review

Marcus, W.A., Rasmussen, J., Fonstad, M., *In Review* (2nd stage), Response of the fluvial wood system to fires and floods in northern Yellowstone. Submitted to the *Annals of the Association of American Geographers*.

Fonstad, M.A., Marcus, W.A., *In Review* (2nd stage), High resolution, basin extent observations and implications for understanding river form and process. Submitted to *Earth Surface Processes and Landforms*.

Work in Progress

Marcus, W.A., Meacham, James L., Rodman, Ann, Steingisser, Alethea, (editors) *In preparation* (with \$255,000 seed funding). *The Atlas of Yellowstone*, Oregon State University Press, pro-

jected length - 316 pp.

Marcus, W.A. and Fonstad, Mark A. (editors), *In preparation*. Special issue of *Earth Surface Processes and Landforms* on Remote Sensing of Rivers. As of 9/15/2009 seven papers have been accepted, two rejected, and seven remain in review.

Sproles, Eric, Marcus, W.A., *In preparation*. Integrating hydrologic and geomorphic processes into river restoration. Target journal: *Area*.

Marcus, W.A., Fonstad, M.A., Legleiter, C., *In preparation*. Optical imagery of rivers: Applications and limitations. Solicited chapter for: Carbonneau, P.E. and Peigay, H (eds.), *Remote Sensing of Rivers: Management and Applications*, John Wiley.

Walther, Suzanne C., Marcus, W.A., Fonstad, Mark A., *In preparation*. Evaluation of high resolution, true color, aerial imagery for mapping bathymetry in clear water rivers .

Unrefereed Manuals, Field Guides, and Proceedings

Goovaerts, P., Warner, A., Crabtree, B., Marcus, W.A. and G. Jacquez, 2003. Detection of local anomalies in high resolution hyperspectral imagery using geostatistical filtering and local spatial statistics. Proceedings of IEEE workshop on Advances in Techniques for Analysis of Remotely Sensed Data, NASA Goddard Visitor Center, Greenbelt MD, October 27-28, 2003, 10 pp.

Marston, R.A., Marcus, W.A., Gray, R.D., and Colvard, Jr., C.R., 1999, Mapping the spatial and temporal distributions of large woody debris in rivers of the Greater Yellowstone Ecosystem, U.S.A., IAG Yangtze Fluvial Convergence, Shanghai, China, , October 28 – November 6, 1999, East China Normal University, 13 pp.

Marcus, W. Andrew, Ladd, Scott, Crotteau, Michael, 1996, Channel morphology and copper concentrations in stream bed sediments: in Nelson, John D. et al. (eds.), *Tailings and Mine Waste '96*, Balkema Press, Rotterdam, p. 421-430.

Marcus, W. Andrew, Stoughton, Julie, Ladd, Scott, and Richards, David, 1995, Trace metal concentrations in sediments and their ecological impacts in Soda Butte Creek, Montana and Wyoming: in Meyer, Grant (ed.), *1995 Field Conference Guidebook, Friends of the Pleistocene - Rocky Mountain Cell: Late Pleistocene-Holocene Evolution of the Northeastern Yellowstone Landscape*, Middlebury College, VT, 9 pp.

Wilson, John P., Ashley, Joseph M., Hansen, Katherine J., and Marcus, W. Andrew, 1992, *Physical Geography Laboratory Manual*, Kendall Hunt Publishing Company, Dubuque, Iowa, 160 p.

Marcus, W. Andrew, 1991, An overview of approaches used for identifying contaminated sediments: in *Managing Contaminated Sediments -- Preparing for the New Standards*, New York, New York,

Executive Enterprises, Inc., Section 1, 12 p. outline.

Marcus, W. Andrew, 1988, Using maps and remote sensing imagery to teach high school geography: In Hill, A.D. (ed.), *Placing geography in the curriculum: ideas from the Western PLACE Conference*: Boulder, Colorado, Center for Geographic Education, p. 15-23.

Marcus, W. Andrew and Klinger, Lee F., 1988, Prairie, ponderosa, ptarmigan and peaks: a mountain geography field trip: In Hill, A.D. (ed.), *Placing geography in the curriculum: ideas from the Western PLACE Conference*: Boulder, Colorado, Center for Geographic Education, p. 15-23.

Marcus, Melvin G. and Marcus, W. Andrew, 1982. Air pollution assessment in the United States: An Arizona case study: In *Proceedings of the 11th New Zealand Geography Conference*: New Zealand Geographical Society, Wellington, p. 193-198.

Unrefereed Research Reports

Patten, D., Lawrence, R., Minshall, W., Marcus, W.A , 2004, Developing effective ecological indicators for watershed analysis. Final Report to the Environmental Protection Agency, EPA EPA Assistance #: R 827638-01-0, 214 p.

Patten, D., Lawrence, R., Marcus, W.A., and Minshall, W., 2001, Developing effective ecological indicators for watershed analysis. Annual Report to the Environmental Protection Agency, EPA Grant Number R827638-01-0, 41 p.

Marcus, W. Andrew, et al., 2001, Validation of High-Resolution Hyperspectral Data for Stream and Riparian Habitat Analysis. Annual Report (Phase 2) to NASA EOCAP Program, Stennis Space Flight Center, Mississippi, 127 p. plus figures.

Patten, D., Lawrence, R., Marcus, W.A., and Minshall, W., 2000, Developing effective ecological indicators for watershed analysis. Annual report to the Environmental Protection Agency, EPA Grant Number R827638, 8 p.

Crabtree, R., Aspinall, R., Boardman, J., Despain, D., Marcus, W.A., Minshall, G.W., and Peel, J., 1999, Validation of high-resolution hyperspectral data for stream and riparian analysis. Annual Report (Phase I) to NASA EOCAP Program, Stennis Space Center, Mississippi, 48 pp.

Marcus, W. Andrew and Kearney, Michael S., 1989, Sediment sources, storage, and flux rates in the upper South River estuary, Maryland. Final report to the Maryland Water Resources Research Program of the U.S. Geological Survey, College Park, Maryland, 4 pp.

Marcus, W. Andrew, 1987. Spatial channel controls on suspended sediment and trace metal transport in streams. Ph.D. dissertation, Department of Geography, University of Colorado, Boulder, 212 pp.

- Marcus, W. Andrew, 1986. Reconstruction of boundaries of certain areas near Tuba City, Arizona, from legal descriptions stated in historical documents. Prepared for Brown and Bain, Phoenix, Arizona, 41 pp.
- Marcus, W. Andrew, 1983. Copper dispersion in ephemeral stream sediments, Queen Creek, Arizona. Master's thesis, Department of Geography, Arizona State University, Tempe, 125 pp.
- Marcus, W. Andrew and Thanukos, Louis, 1981. Visibility in the Painted Desert-Petrified Forest National Park 1977. Funded by Arizona Public Service, prepared for the Arizona Transmission and Power Facilities Siting Commission, 75 pp.
- Marcus, W. Andrew, 1981. Noise analysis, Peppertree Ranch environmental impact statement, Tucson, Arizona. Department of Housing and Urban Development, Los Angeles Office, 17 pp.
- Marcus, W. Andrew and Brazel, Anthony B., 1980. Air quality analysis, Midvale Park environmental impact and statement, Tucson, Arizona, Department of Housing and Urban Development Los Angeles Office, 35 pp.
- Marcus, W. Andrew et al. (Co-author and editor), 1979. Environmental impact report for the Provident Oil Refinery, Mobile, Arizona. Prepared for the U.S. Environmental Protection Agency, Region IX, and the Arizona Department of Health Services, Phoenix, Arizona, 125 pp. plus appendices.
- Marcus, W. Andrew et al. (Co-author and editor), 1979. Prevention of significant deterioration permit application for the Provident Oil Refinery, Mobile, Arizona. Prepared for the U.S. Environmental Protection Agency, Region IX, and the Arizona Department of Health Services, Phoenix, Arizona, 200 pp.
- Marcus, Melvin G. and Marcus, W. Andrew, 1979. Lake Emma drainage report, San Juan Mountains, Colorado. Prepared for Standard Metals Corporation, Silverton, Colorado, 100 pp.
- Marcus, W. Andrew, 1978. Lithologic analysis of the San Carlos Tufa, San Carlos Indian Reservation, Arizona. Prepared for the Bureau of Business and Economic Research, Arizona State University, Tempe, 8 pp.

Book and Software Reviews

- Marcus, W. Andrew, 1990, Review of "Experimental Fluvial Geomorphology," by Stanley A. Schumm, M. Paul Mosley and William E. Weaver, John Wiley, New York, 413 p.: In *Geomorphology*, v. 3, n. 1, p. 96-97.
- Marcus, W. Andrew, 1990, Software review of "HYDRODATA -- U.S.G.S. Daily Values (Version

2.0)," produced by EarthInfo, Inc., Boulder, Colorado: In *The Professional Geographer*, v. 42, n. 3, p. 388-389.

Marcus, W. Andrew, 1990, Software review of "CLIMATEDATA -- Summary of the Day (Version 1.10)," produced by EarthInfo, Inc., Boulder, Colorado: In *The Professional Geographer*, v. 42, n. 3, p. 387-388.

Marcus, W. Andrew, 1985. Review of "Environmental Consultation," by C. Wesley Morse, Praeger, New York, 194 p.: In *Environmental Professional*, v. 6, n. 3-4, p. 320-321.

Marcus, W. Andrew, 1983. Review of "Analyzing Natural Systems: Analysis for Regional Residuals - Environmental Quality Management," by Daniel J. Basta and Blair T. Bower, Resources for the Future, Inc., Washington, D.C., 546 p.: In *Environmental Professional*, v. 5, n. 3-4, p. 329-331.

Invited Talks and Panels (on-campus talks not included)

Marcus, W.A., 2008. Remote sensing of river habitat: Approaches, limitations, and future directions. University of Birmingham, England, June 4, 2008.

Marcus, W.A., 2008. Continuous, high resolution, remote mapping of rivers and implications for data exploration, modeling and management Department of Physical Geography, J.W. Goethe-University Frankfurt am Main, Frankfurt, Germany, May 28, 2008.

Marcus, W.A., 2008. Seeking to understand complex behavior of rivers: Three stories from Yellowstone. Department of Geography, Bonn University, Germany. May 27, 2008.

Marcus, W. A., 2008. Remote Sensing of Rivers, 2008: What have we accomplished? How should we proceed? International Workshop on Remote Sensing of Rivers, University of Durham , England, May 6, 2008.

Marcus, W.A., 2008. Remote sensing of rivers and role of the geographer. Brigham Young University, Provo, Utah, Feb 1, 2008. Also gave three guest lectures in: a) Remote Sensing class Remote Sensing – 1000 ways to go wrong; b) Landscape Ecology class: Rethinking how we think about rivers – some simple questions to ponder; c) Cartography class: The Atlas of Yellowstone project.

Marcus, W. A., Walther, S., Fonstad, M.A., 2008. Remote mapping of the McKenzie River channel at cm resolution and watershed extents. EWEB Workshop on research and management activities on the McKenzie River, Oregon. Eugene Water and Electric Board, Eugene, Oregon, Jan 29, 2008.

Marcus, W.A., Meacham, J., Rodman, A., Steingisser, A, 2007. The Atlas of Yellowstone. Forty 90 by 33 inch panel posters displayed at the E.S.R.I. Users Conference, San Diego, CA as the

primary National Park Service exhibit in the Hall of Conservation.

- Marcus, W. A., 2006. Potential for optical remote sensing of rivers. Delivered to Sky Research, Ashland, OR, September 12, 2006.
- Marcus, W.A., Fonstad, MA., Legleiter, C.J., 2005, Optical remote sensing of stream habitat and hydrology: Potential applications and obstacles. Keynote address at the Geosolar International workshop on Geomatics and Fish Habitat Modelling in Rivers and Estuaries, Quebec City, November 17-18 2005.
- Marcus, W.A., 2001-2004 (multiple talks). Hyperspatial, hyperspectral remote sensing of streams; is it all hype? First delivered for Annual Hammond Lecture to the Department of Geography, University of Tennessee, April 7, Knoxville, TN. Subsequent invited talks and variations on it have been delivered to the Department of Geology, University of Oregon (Oct 31,2002); the Department of Geography, Portland State University (Nov 14, 2002); the Department of Biological Sciences, Idaho State University (April, 2003). EPA at Oregon State University (2004).
- Marcus, W.A., 2004. Mentoring early career geographers: issues and strategies. Panel discussion at the Annual Meetings of the AAG, March 14-19, 2004, Philadelphia, PA.
- Marcus, W.A., 2003. Natural resources and remote sensing: Applications and ethical dilemmas resulting from high spatial resolution. Keynote talk delivered to the openings session of the Association of Pacific Coast Geographers, Portland, OR, September 17, 2003. Also delivered to U.S. EPA at Corvallis, OR, Nov, 2003.
- Marcus, W.A., 2003, Application of high spatial resolution hyperspectral imagery to riparian mapping in Yellowstone National Park. A training workshop held for resource managers at Idaho National Environmental Energy Labs, April 14, Idaho Falls, Idaho.
- Marcus, W.A., Legleiter, C., Aspinall, R.J., and Boardman, J., 2001, High spatial resolution hyperspectral mapping of in-stream habitat, depth, and woody debris in the third to fifth order mountain streams. Binghamton Symposium on Mountain Geomorphology – Integrating Earth Systems, Oct 20, talk prepared by W.A. Marcus, delivered by C. Legleiter.
- Marcus, W. Andrew, 2000, High spatial resolution hyperspectral mapping of streams: problems and opportunities. Invited talk delivered to the Department of Geology, Oklahoma State University, December 7, 2000, Stillwater, Oklahoma.
- Marcus, W. Andrew and Peterson, Chuck, 2000, Detecting amphibian habitats and areas of metal accumulation with high spatial resolution hyperspectral imagery. BioMedware workshop on “Exposure Assessment Using High Spatial Resolution Hyperspectral Data”, August 15-16, Ann Arbor, MI.

- Aspinall, Richard and Marcus, W. Andrew, 2000, Overview of high spatial resolution hyperspectral imagery. BioMedware workshop on "Exposure Assessment Using High Spatial Resolution Hyperspectral Data", August 15-16, Ann Arbor, MI.
- Marcus, W. Andrew, 1998, Invited panelist, Geography and Geographers in Multidisciplinary Settings: Experience and Prospects. 94th Annual Meeting of the Association of American Geographers, March 28, 1998, Boston, MA.
- Marcus, W. Andrew, McCarthy, D, Cherry, S., Ladd, S., Stoughton, J., and Richards, D., 1997, Morphologic controls on multiscale distributions of mining-derived trace metals in riparian sediments, resultant biotic impacts, and implications for monitoring and remediation: Invited talk to 18th Annual Meeting, Society of Wetland Scientists, June 1-6, 1997, Bozeman, MT.
- Marcus, W. Andrew, 1997, Challenges and opportunities for geography in a joint department: Invited talk to the Chair's Luncheon at the 93rd Annual Meeting of the Association of American Geographers, April 5, 1997, Fort Worth, TX.
- Marcus, W. Andrew, 1996, Where do we go from here? Conference on Know Your Watershed: Gallatin, October 11-12, 1996, Bozeman, MT.
- Marcus, W. Andrew, 1996, Trace minerals and persistent impacts of mining in Soda Butte Creek. Invited talk at Yellowstone National Park Headquarters, March 20, 1996, Mammoth Hot Springs, WY.
- Marcus, W. Andrew, Stoughton, J., Ladd, S.C., Richards, D., and Crotteau, M., 1996, Research on trace metal concentrations in sediments and their impacts in Soda Butte Creek, Montana and Wyoming. Invited talk to Regional Office of the National Park Service, January 17, 1996, Fort Collins, CO.
- Marcus, W. Andrew, 1996, Persistent impacts of mining in Yellowstone National Park. Invited talk to the Mountain Research Center, Montana State University, February 15, 1996, Bozeman, MT.
- Marcus, W. Andrew, Ladd, S.C., Crotteau, M., Richards, D., Stoughton, J., and Zuwerink, P., 1995, Research on trace metal concentrations in sediments and their impacts in Soda Butte Creek, Montana and Wyoming. Second Interagency Meeting on Soda Butte Creek Watershed, September 12-13, Yellowstone National Park, Mammoth, Wyoming.
- Marcus, W. Andrew, 1994, Heavy metals in stream sediments: a geomorphic perspective. Seminar at the Department of Geology, University of Montana, Missoula, Montana.
- Marcus, W. Andrew, 1992, Panel Discussant, Geographers as hydrologists: are we guilty of dilettantism? 88th Annual Meetings of the Association of American Geographers, San Diego, CA.

- Marcus, W. Andrew, 1991, Deriving sediment management standards: regulatory and scientific dilemmas: Conference on Managing Contaminated Sediments -- Preparing for New Standards, Washington, D.C.
- Marcus, W. Andrew, 1991, Sediment runoff and nonpoint source pollution in the Chesapeake Bay. 1991 Meeting of the Mid-Atlantic Division of the Association of American Geographers, College Park, MD.
- Marcus, W. Andrew, 1989. An overview of the lower Potomac basin: tidewater to the Chesapeake Bay. Potomac River Basin Consortium, April, Washington, D.C.
- Marcus, W. Andrew, 1988. Regulating contaminated sediments: criteria, implementation and mitigation. Coastal and Environmental Policy Program Symposium on Controlling Toxics in the Chesapeake Bay, Baltimore, Maryland.

Contributed Talks & Posters

- Chin, A., Doyle, M, Graf, W.L., Harden, C.P., Magilligan, F.J., Marcus, W.A., Marston, R.A., McDowell, P.F., 2009. Integrated human-landscape systems. Annual Meetings of the AAG, March 22-28, 2009, Las Vegas, NV.
- Fonstad, M.A., Marcus, W.A., 2009. Hyperscale tests of fluvial frameworks. Annual Meetings of the AAG, March 22-28, 2009, Las Vegas, NV.
- Walther, Suzanne, C., Marcus, W.A., Fonstad, M., 2009. Evaluating the HAB-2 bathymetric mapping model for different river characteristics on the McKenzie River, Oregon. Annual Meetings of the AAG, March 22-28, 2009, Las Vegas, NV.
- Fonstad, M.A., Marcus, W. A., Carbonneau, P., 2008. From organism ecohydraulics to population ecohydraulics : Making Riverscapes a practical reality. Conference on Ecohydraulics at scales relevant to organisms, British Hydrological Society , Loughborough University, Loughborough, England, June 5, 2008.
- Marcus, W. A. and Fonstad, M.A., 2008. Creating the International Network of River Observatory Scientists (INROS). European Geosciences Union, Vienna, Austria, April 7-13, 2008.
- Marcus, W. A. and Fonstad, M.A., 2008. Making remote sensing of rivers accessible to river scientists and managers: The remote sensing of rivers on-line tutorial project (Poster). European Geosciences Union, Vienna, Austria, April 7-13, 2008.
- Marcus, W.A. and Fonstad, M.A., 2007. Optical remote mapping of rivers at sub-meter resolutions and watershed extents: Obstacles and opportunities. British Society of Geomorphologists

Annual Conference 2007, Birmingham, England, July 3-6, 2007.

- Hughes, M.L., McDowell, P.F., Marcus, W.A., 2007, Complexity in channel response to floods, Umatilla River, Oregon. (Poster). 38th Binghamton Geomorphology Symposium – Complexity in Geomorphology, Duke University, Durham, North Carolina, Oct 4-7, 2007.
- Hughes, M.L., McDowell, P.F., Marcus, W.A., 2007, Lateral movement and planform adjustment of the Umatilla River during and between two sequential flood events. Annual Meetings of the AAG, April 16-21, 2007, San Francisco, CA.
- Marcus, W.A., and James, L.A., 2006. The human role in changing fluvial systems: Retrospect, inventory, prospect. 37th Binghamton Geomorphology Symposium - The Human Role in Changing Fluvial Systems. University of South Carolina, Oct 19-22, 2006.
- Meacham, J.E., Steingisser, A.Y., Marcus, W.A., Rodman, A., 2006, From Glaciers to Geysers: The Creation of the *Atlas of Yellowstone*, 26th Annual Meeting of the North American Cartographic Information Society, Madison, Wisconsin.
- Meacham, J.E., Steingisse, A.Y., Marcus, W.A., Rodman, A., 2006, From Glaciers to Geysers: The Creation of the *Atlas of Yellowstone*, 26th Annual Meeting of the North American Cartographic Information Society, Madison, Wisconsin.
- Hughes, M.L., McDowell, P.F., Marcus, W.A., 2006, Mapping River-Channel Structures: Methodology, Issues, and Applications (Poster). 37th Binghamton Geomorphology Symposium - The Human Role in Changing Fluvial Systems. University of South Carolina, Oct 19-22, 2006.
- Strandhagen, E., Marcus, W.A., Meacham, J.E., 2006, Views of the Rivers: Visualizing Temporal Detail in Multi-Decadal Records of Regulated and Non-Regulated Streamflows (Poster). 37th Binghamton Geomorphology Symposium - The Human Role in Changing Fluvial Systems. University of South Carolina, Oct 19-22, 2006.
- Marcus, W.A., Meacham, J.E., Rodman, A., 2006. Creating an Atlas of Yellowstone (Poster). Annual Meetings of the AAG, March 8-12, 2006, Chicago, IL.
- Hughes, M.L., McDowell, P. F., and Marcus, W.A., 2006. Planform channel change of the upper Umatilla River during flood versus interflood periods. Annual Meetings of the AAG, March 8-12, 2006, Chicago, IL.
- McDowell, P. F., Hughes, M.L., and Marcus, W.A., 2006. Spatial patterns of channel change on the Umatilla River, Oregon. Annual Meetings of the AAG, March 8-12, 2006, Chicago, IL.
- Goovaerts, P., Jacquez, G.M. and Marcus, 2005, W.A., Geostatistical and local cluster analysis of

- high resolution hyperspectral imagery for detection of patches of disturbed soils. ESA-INTECOL Joint Meeting, May, 2005, Montreal, CA.
- Groshong, L., Marcus, W.A., 2004, Mapping riparian vegetation in Yellowstone's northern range using high spatial resolution imagery. Annual Meetings of the AAG, March 14-19, 2004, Philadelphia, PA.
- Hughes, M.L., McDowell, P.F., Marcus, W.A., 2004, Methodology for reconstruction and measurement of historical river change in GIS. Annual Meetings of the AAG, March 14-19, 2004, Philadelphia, PA.
- Jacquez, G., Marcus, W.A., Goovaerts, P., Crabtree, R., Warner, A., 2004, Detection of local anomalies in high resolution hyperspectral imagery using geostatistical filtering and local spatial statistics. Annual Meetings of the AAG, March 14-19, 2004, Philadelphia, PA.
- McDowell, P.F., Hughes, M.L., Marcus, W.A., 2004, Comparison of Geomorphic Change in Two Flood Events on the Umatilla River, Oregon.. Annual Meetings of the AAG, March 14-19, 2004, Philadelphia, PA.
- McDowell, P.F., Hughes, M.L., Marcus, W.A., 2003, Channel change during the 1965 flood on the Umatilla River, northeastern Oregon. Poster delivered at the 3rd International Paleoflood Workshop, Hood River, OR, Aug 1-7, 2003.
- Goovaerts, P., Warner, A., Crabtree, R., Marcus, W.A., Jacquez, G.M., 2003 (*Abstract accepted*), Detection of local anomalies in high resolution hyperspectral imagery using geostatistical filtering and local spatial statistics. 2003 10th IEEE International Conference on Image Processing, Sept 14-17, 2003.
- Marcus, W.A. and Fonstad, 2003, Remote sensing of stream depths in mountain streams. Annual Meetings of the AAG, March 5-8, 2003, New Orleans, LA.
- Fonstad, M. and Marcus, W.A., 2003, A new method for high resolution, remote mapping of stream habitats across watersheds. Annual Meetings of the AAG, March 5-8, 2003, New Orleans, LA.
- Fonstad, M. and Marcus, W.A., 2002, Criticality, prediction, and management of riverbank failure at the watershed scale. Annual Meetings of the AAG, March 19-23, 2002, Los Angeles, CA.
- Fonstad, M. and Marcus, W.A. 2001, Self-organized criticality as a general principle of riverbank failure and sediment mobility. AGU Annual Convention Paper Session December 14, 2001, San Francisco, CA.

- Fonstad, M. and Marcus, W.A. 2001, A general theory of riverbank instability. GSA Annual Convention Paper, November 6, 2001, Boston, MA.
- Marcus, W.A., Legleiter, C., Rasmussen, J., Ahl, R., and Halligan, K. 2001, Evaluation of high spatial resolution hyperspectral imagery for stream mapping. Annual Meetings of the Association of American Geographers, February 28-March 2, 2001, New York City, New York.
- Marcus, W.A., Legleiter, C., Rasmussen, J., and Halligan, K. 2000, The potential for fine spatial resolution hyperspectral imagery for mapping stream morphology and depth. Annual Meetings of the Great Plains-Rocky Mountain Division of the Association of American Geographers, September 29-30, 2000, Provo, Utah.
- Despain D.G., Aspinall R.J., Marcus W.A., Boardman J.W., Crabtree, R.L., 2000, Preliminary findings from the application of remote sensing using high resolution hyperspectral and other sensors for stream and riparian vegetation. Presented at the Seventh Yellowstone Interagency Science Conference, Yellowstone National Park, WY, September 14, 2000.
- Marston, R.A., Marcus, W.A., Gray, R.D., and Colvard, Jr. C.R., 1999, Mapping the spatial and temporal distributions of large wood debris in rivers of the Greater Yellowstone Ecosystem, U.S.A., IAG Yangtze Fluvial Conference, October 28 – November 6, 1999, East China Normal University, Shanghai, China.
- Marcus, W.A., Meyer, G.A., Nimmo, D., Richards, D., and Stoughton, J., 1999, Geomorphic Controls on the Persistence of Mining Impacts in the Riparian Zone of Soda Butte Creek, MT and WY. 95th Annual Meeting of the Association of American Geographers, 1999, Honolulu, Hawaii.
- Marcus, W. Andrew, McCarthy, Douglas, Ladd, Scott, and Cherry, Steven 1997, Morphologic controls on multiscale distribution of trace metals in bed sediments: 93rd Annual Meeting of the Association of American Geographers, April 2-5, 1997, Fort Worth, TX.
- Colvard, Charles, Marcus, W. Andrew, and Minshall, Wayne, Use of multiscale imagery to map large woody debris in our first national park: 93rd Annual Meeting of the Association of American Geographers, April 2-5, 1997, Fort Worth, TX.
- Marcus, W. Andrew, McCarty, Douglas, Cherry, Steven, and Richards, David, 1996, Mapping channel changes and documenting metal distributions, sources and impacts in sediments: results of three years of research: Third Interagency Conference on Soda Butte Creek Watershed, Yellowstone National Park, Mammoth, Wyoming, September 10-11, 1996.
- Marcus, W. Andrew, Ladd, Scott C., and Crotteau, Michael, 1996, Channel morphology and copper concentrations in stream bed sediments: Tailings and Mine Waste '96 Conference, Fort Collins, CO, January 16-19, 1996.

- Marcus, W. Andrew, and Ladd, Scott, 1995, Reach scale spatial variability of trace metal concentrations in channel bed sediments, Soda Butte Creek, Montana. Annual Meetings of the Rocky Mountain Section of the Geological Society of America, Bozeman, Montana.
- Marcus, W. Andrew, 1995, Panel moderator, Unifying ecological and socioeconomic principles in ecosystem management. Principles of Ecosystem Management in the Northern Rockies: Integrating Forest, Agriculture and Wilderness Landscapes, Montana State University, Bozeman, MT.
- Marcus, W. Andrew, 1995, Relation of hydraulics and trace metal concentrations in sediments in a step-pool stream. 91st Annual Meetings of the Association of American Geographers, Chicago, Illinois.
- Marcus, W. Andrew, 1994, Evaluation of the consistency of Wolman pebble counts. 90th Annual Meetings of the Association of American Geographers, San Francisco, California.
- Marcus, W. Andrew, 1994, The role of user-dependent bias in documenting stream sediment sizes and estimating stream roughness. The 3rd Biennial University of Southern California Catalina Island Workshop, Sampling Considerations and Constraints in Field Geomorphology, Catalina Island, California.
- Milner, Gary, Marcus, W.A., Hansen, K.H., Maxwell, B.D., and Fay, P.K., 1994, The relationship between impact levels in stock camps and the abundance of spotted knapweed in the Selway-Bitterroot Wilderness on the Bitterroot National Forest in Idaho and Montana. 47th Meeting, Western Society of Weed Science, Coeur D'Alene, Idaho.
- Marcus, W. Andrew, and Goward, Samuel N., 1992, Response of monthly discharge to regional variations in vegetation cover in the Chesapeake watershed. 88th Annual Meetings of the Association of American Geographers, San Diego, California.
- Marcus, W. Andrew, 1991, Estimating Manning's roughness coefficient in mountain streams. 1991 Annual Meetings of the Great Plains-Rocky Mountain Division of the Association of American Geographers, Laramie, Wyoming.
- Marcus, W. Andrew, 1991, Vegetation, precipitation, runoff and sediment yields in the Chesapeake watershed. 87th Annual Meeting, Association of American Geographers, Miami, Florida.
- Marcus, W. Andrew and Kearney, Michael S., 1990, Sediment sources in the upper South River estuary, Maryland. 86th Annual Meeting, Association of American Geographers, Toronto, Ontario.
- Marcus, W. Andrew, 1988, Dilution mixing estimates of trace metal concentrations in suspended sediments. 84th Annual Meeting, Association of American Geographers, Phoenix, Arizona.

Marcus, W. Andrew, 1987, Using maps and remote sensing imagery to teach high school geography. The Western PLACE conference, Boulder, Colorado.

Marcus, W. Andrew, 1987, Suspended sediment transfer and storage in stream channels. 83rd Annual Meeting, Association of American Geographers, Portland, Oregon.

Marcus, W. Andrew, 1986. Regulating stream sediments: a hydrologic perspective. 9th Annual Applied Geography Conference, West Point, New York.

Marcus, W. Andrew, 1986. Storage and transport of suspended sediments in a mountain stream. 82nd Annual Meeting, Association of American Geographers, Minneapolis, Minnesota.

Marcus, W. Andrew, 1985. Heavy metals in stream sediments: past research and future priorities. 81st Annual Meeting, Association of American Geographers, Detroit, Michigan.

Marcus, W. Andrew, 1983. Downstream dispersion of copper in stream channel sediments. 79th Annual Meeting, Association of American Geographers, Denver, Colorado.

Marcus, W. Andrew, 1982. Early Holocene history of the Lake Emma cirque basin, San Juan Mountains, Colorado. 78th Annual Meeting, Association of American Geographers, San Antonio, Texas.

External Contracts and Grants

Dates Awarded	Title of Proposal	Funding Source	Award
2009-2011 A. Lobben, W.A. Marcus, M. Young	Exploiting the power of GIS to enhance spatial thinking in STEM areas	National Institutes of Health	\$1,000,000
2008-2010, W.A. Marcus, J. Meacham, J. Gary	Developing an <i>Atlas of Yellowstone</i>	Montana State University, Bozeman, MT	\$100,000
2008. W.A. Marcus	Depth analysis using aerial imagery, McKenzie River, OR	Eugene Water and Electric Board	\$2,500
2005-2007- W.A. Marcus and J. Meacham	Developing an <i>Atlas of Yellowstone</i>	Yellowstone Park Foundation (funds from Canon, U.S.A.)	\$90,000
2002 – 2007, P. McDowell, W.A. Marcus	Floods and Human Response: Implications for Geomorphic Adjustment and Fish Habitat in the Interior Pacific Northwest	National Science Foundation through University of Oregon	\$148,502
2002 – 2005, W.A. Marcus	Developing effective ecological indicators for watershed analysis – continuation grant	U.S. Environmental Protection Agency through University of Oregon (subcontract to Montana State University)	\$107,718

1999 – 2002, D. Patten, R. Lawrence, W.A. Marcus, W. Minshall	Developing effective ecological indicators for watershed analysis	U.S. Environmental Protection Agency through Yellowstone Ecosystem Studies	\$868,242
1996-1997, W.A. Marcus and J. Boice	Analysis of required sample size and spacing for stream monitoring	U.S. Forest Service through Montana State University	\$3,000
1998-2001, R. Crabtree, R. Aspinall, J. Boardman, W.A. Marcus, W. Minshall	Evaluation of high resolution hyperspectral imagery for landscape mapping	National Aeronautics and Space Administration through Yellowstone Ecosystem Studies	\$546,000
1997-1998, W.A. Marcus	Supplemental Grant: Heavy metals in stream sediments: local variability and hydraulic controls	National Geographic Society through Montana State University	\$4,950
1996-1997, W.A. Marcus and S. Myers	Fire and clear-cut impacts on stream stability in the West Yellowstone region	Cinnabar Foundation through Montana State University	\$2,000
1996-1997, W.A. Marcus and C. Moore	Snow in fire suppressed lodgepole forest	U.S. Forest Service through Montana State University	\$4,000
1995-1996, W.A. Marcus and M.G. Marcus	Barry C. Bishop memorial issue of Mountain Research and Development	National Geographic Society through Montana State University	\$10,000
1994-1997, W.A. Marcus and N. Khandaker	Heavy metal variability in stream sediments: local variability and its relation to hydraulic controls	National Science Foundation through Montana State University	\$95,000
1994 – W.A. Marcus	Research experiences for undergraduates a proposal to support Michael Crotteau	National Science Foundation through Montana State University	\$5,000
1994-1996, W.A. Marcus and N. Khandaker	Heavy metal variability in stream sediments: local variability and its relation to hydraulic controls	National Geographic Society through Montana State University	\$13,800
1994 – W.A. Marcus	Streams: lifelines of the water shed	Yellowstone Ecosystem Studies, Bozeman, MT through Montana State University	\$450 plus 54 days labor and logistics
1994-1995, J. Stoughton and W.A. Marcus	The effects of heavy metals in soils along the floodplains of Soda Butte Creek, MT and WY	The Cinnabar Foundation through Montana State University	\$1,500
1993-1995, W.A. Marcus	Heavy metal variability in variability and its relation to hydraulic controls	MONTS Program through Montana State University	\$30,000
1993-1995, W.A. Marcus, C. Freese, A. Han-	Yellowstone Area Biodiversity, Riparian	The Pew Charitable Trusts Foundation through Montana	\$40,000

sen, and S. Neel	Habitat, and Wilderness	State University	
1993 – W.A. Marcus	Watershed disturbance and particulate fluxes in Soda Butte Creek, Montana and Wyoming	The Yellowstone Project (a nonprofit business), Bozeman, MT through Montana State University	\$12,100 plus logistics
1988-1990, W.A. Marcus and M. Kearney	Sediment Sources, Storage and Flux Rates in the Upper South River, Maryland	Maryland Water Resources Research Center through University of Maryland	\$19,980
1986 – W.A. Marcus	Diurnal and Seasonal Fluctuations in Suspended Sediment and Heavy Metal Loads in Left Hand Creek and the White River, Colorado	Sigma Xi, The Scientific Research Society through University of Colorado	\$550
1986 – W.A. Marcus	Diurnal and Seasonal Fluctuations in Suspended Sediment and Heavy Metal Loads in Left Hand Creek and the White River, Colorado	Association of American Geographers through University of Colorado	\$300
1982 – W.A. Marcus	Early Holocene History of the Lake Emma Cirque Basin, Colorado	Sigma Xi, The Scientific Research Society, through Arizona State University	\$200

Teaching Activities

Courses Taught

(thesis, independent study, internship, and supervised readings not included)

Courses at University of Oregon (quarter system)

Only includes groups meeting as a class. Does *not* include supervised readings, thesis, etc.

Course	Title	Credits & times taught
Geography 141	The Natural Environment	4 (6 times)
Geography 199	College Connections (freshman seminar)	1 (7)
CAS 220	College Science Scholars Circle	1 (once)
Geography 4/518	Fundamentals of remote sensing	4 (6)
Geography 4/525	Hydrology and Surface Water Resources	4 (4)
Geography 607	Seminar; Human Impacts to the Fluvial System	4 (once)
Geography 607	Seminar: Scientific Nature of Geomorphology	4 (once)
Geography 607	Seminar: Dams and Dam Removal	4 (once)
Geography 607	Seminar: Coast Range Geomorphology	4 (once)
Geography 608	Graduate Research	1 (3)

Geography 609	Entering Graduate School	2 (3)
Geography 620	Practice and Theory of Geography	4 (2)
Geography 621	Geographic Research	3 (2)
Geography 631	Seminar: Remote Sensing of Rivers	3 (once)

Courses at Montana State University (semester system):

Earth Sciences 112	Physical geography
Geography 306	Geographic research methods
Geography 323	Western water policy
Earth Sciences 400	Seminar: Fractiles
Geography 410	Remote sensing
Geography 430	Mountain geography
Geography 489	Hyperspectral remote sensing
Earth Sciences 500	G.T.A. teaching
Earth Sciences 500	Fluvial research
Earth Sciences 502	Seminar: Fluvial geomorphology and watershed hydrology
Geography 580	Western water policy

Courses at University of Maryland (semester system):

Geography 201	Geography of environmental systems
Geography 211	Geography of environmental systems: laboratory
Geography 340	Geomorphology
Geography 448	Field and laboratory techniques in geography
Geography 478	Field survey and mapping for the handicapped
Geography 462	Water resources policy and planning

Courses at University of Colorado (semester system):

Geography 101	Environmental systems: climate and biogeography
Geography 102	Environmental systems: soils and geomorphology
Geography 211	Map skills
Geography 306	Air photo interpretation

Courses at Arizona State University (semester system):

Geography 310	Air photo interpretation
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Service Activities
(only major service obligations are listed)

Professional Service

- 2008-2009 NSF Review Panel, Geography and Regional Sciences
- 2008 Organizer and Chair, Special Session on Remote Sensing of Rivers, European Geosciences Union, Vienna, Austria. 38 papers submitted.
- 2005-Present Editorial Board, *Annals of the Association of American Geographers*.
- 2001-Present Editorial Board, *Geomorphology*.
- 2005 Nominating Committee, Association of American Geographers. Elected position.
- 2001 Organizer and Chair, Special Session on Remote Sensing of Fluvial Environments, 97th Annual meetings of the Association of American Geographers, New York, New York.
- 1999-2002 Member (1999-2002) and Chair (1999-2001), Publications Committee of the Association of American Geographers. Coordinated the search for six editorships in 1999-2000. Coordinated Publications Committee activities in making policy and procedural recommendations for journals and other AAG publications to the AAG Council. Appointed to position by AAG Council.
- 2000-2002 Honors Committee (2000-2002) and Honors Committee Chair (2001-2002), Association of American Geographers. Elected position.
- 1999-2002 Regional Councilor, Great Plains/Rocky Mountain Division of the Association of American Geographers. Represent an eight state region on the 16 member council of the Association of American Geographers. Elected position.
- 1996-1997 Chair, Great Plains/Rocky Mountain Regional Division of the Association of American Geographers. Organized 1997 annual regional meetings in Bozeman, MT, September 11-13, 1997.
- 1995-1996 Vice-Chair, Great Plains/Rocky Mountain Regional Division of the Association of American Geographers. Elected position.
- 1994 Chair, Session on Sediment Transport in Fluvial Geomorphology, 90th Annual Meetings of the Association of American Geographers, San Francisco, California.
- 1993-1994 Chair of the Geomorphology Specialty Group (420 members) of the Association of American Geographers. Elected position.

- 1993 Member, Program Committee, The Ecological Implications of Fire in Greater Yellowstone, The Second Biennial Scientific Conference on the Greater Yellowstone Ecosystem, Sept. 19-21, 1993, Mammoth Hots Springs, Wyoming.
- 1992-1993 Secretary-Treasurer of the Geomorphology Specialty Group(420 members, Association of American Geographers. Elected position.
- 1992 Chair, Session on Hydraulic Aspects of Fluvial Geomorphology, 88th Annual Meetings of the Association of American Geographers, San Diego, California.
- 1992 Chair, Session on Geomorphology and Quaternary Studies, 1991 Meetings of the Great Plains/Rocky Mountain Division of the Association of American Geographers, Laramie, Wyoming.
- 1991 Chair, Session on Fluvial Geomorphology, 87th Annual Meeting of the Association of American Geographers, Miami, Florida.
- 1989 Organizer and Chair, Session on Remote Sensing of Biophysical Processes, 85th Annual Meeting of the Association of American Geographers, Baltimore, Maryland

Reviewing Activities

Journals:

Annals of the Association of American Geographers
 Bioscience
 Bulletin of the Geological Society of America
 Earth Surface Processes and Landforms
 Environmental Geology and Water Sciences
 Environmental Management
 Estuarine Shelf Science
 Fisheries Management
 Forest Ecology and Management
 Geomorphology
 International Journal of Remote Sensing
 Journal of the American Water Resources Association
 Journal of Geographical Systems
 Mountain Research and Development
 Science
 Water Resources Bulletin
 Water Resources Research

Proposals:

Association of American Geographers
GEOIDE (a Canadian program)
Geological Society of America
Guggenheim Fellowships
National Fish and Wildlife Foundation
National Geographic Society
National Science Foundation (multiple programs)

Promotion and Tenure, External Reviews: 9 cases

Departmental Review, External Reviewer: 1

Education Service

2009-present Member, Education Advisory Council, NatureBridge.

1996-2007 Vice Chair for Science and Education (1996-2002, 2004-2006), Chair of the Education Committee (1996-2002, 2004-2006), and Trustee (1996-2007), Yosemite National Institutes. Provide fiduciary and educational oversight for the programs and staff of the Yosemite National Institutes, which provide three to five day environmental education programs to 39,000 students per year at campuses in Yosemite National Park, Olympic National Park, and Golden Gate National Recreation Area.

2000-2006 Trustee, Olympic Park Institute. Provide fiduciary and educational oversight for the programs and staff of the Olympic Park Institute, which provides three to five day environmental education programs to 7,000 students per year at Olympic National Park

1996-2003 Chair (2002-2003), Vice Chair (1996-2002), and founding board member, Central Asia Institute. Provided fiduciary and program oversight for the Central Asia Institute, which supports community based education and health care efforts in Central Asia, with special focus on northern Pakistan and Afghanistan

1995-1996 Social Studies Curriculum Review Committee, Bozeman District Schools. Revised social studies curriculum for grades K-12 for entire Bozeman School District.

University service

Committee Service: University of Oregon

2009-2010 Dean's Advisory Council, College of Arts and Sciences.

2008-present Head, Department of Geography.

2007 & 2004-2005 President, University Senate (include ex officio status on Senate Budget Committee, Faculty Advisory Council, Provost's Advisory Council, many other committees)

2001-2008 Graduate Director, Department of Geography

2005-2007 Faculty Advisor Council

2002-2004, 2006 Graduate Admission Committee, Department of Geography

2006 Biogeography Search Committee, Department of Geography

2003-2004 Vice President, Faculty Senate and Chair, Committee on Committees

2002-2005 University Senate and member, Executive Committee of the Faculty Senate

2003 Chair, GIS Instructor Search Committee

2003 Personnel Committee, Department of Geography

2002 Salary review committee, Department of Geography

2002 Graduate Fellowships Coordinator

Administrative Service: Montana State University

1996-1999 Head, Department of Earth Sciences.

1992-1993 Acting Director, Yellowstone Center for Mountain Environments

Committee Service: Montana State University

1997-2000 Elected member, College of Letters and Science Promotion and Tenure Committee

1995-1996 Chair, Department of Earth Sciences Promotion and Tenure Committee.

1995 Chair, Search Committee for Sabbatical Replacements.

1995-1996 Member, Dean's Advisory Council.

1994-1995 Member, Coordinating Committee for conference on Principles of Ecosystem Management in the Northern Rockies: Integrating Forest, Agricultural and Wilderness Landscapes. June 22-25, 1995, Montana State University, Bozeman, MT.

- 1993-1996 Member, Graduate Studies Council.
- 1993-1996 Vice Chair, WINSM Task Force on the Environment.
- 1993 Member, Task Force for Yellowstone Center for Mountain Environments.
- 1992-1993 Member, Curricula Review Subcommittee of the Undergraduate Studies Council. Reviewed all submissions for the new undergraduate catalogue.
- 1992-1993 Member, Ad Hoc Committee on the Cooperative Park Service Unit
- 1992-1996 Faculty Advisor, Earth Sciences Student Association.
- 1992 In charge of field equipment purchases for Department of Earth Sciences.
- 1992 Member, Search Committee for Katherine Hansen sabbatical replacement.
- 1991-1993 Member, Executive Committee, Center for High Elevation Studies.
- 1991-1993 Member, Undergraduate Studies Council
- 1991-1993 Member, Committee for CORE Course Purchases, Department of Earth Sciences.

Committee Service: University of Maryland

- 1991 Member, Undergraduate Liaison Committee, Department of Geography.
- 1990 Member, Lilly Fellowship Selection Committee.
- 1989-1991 Councilor, Academic Council of the College of Behavioral and Social Sciences.
- 1988-1991 Member, Undergraduate Committee, Department of Geography.

Professional Organizations

American Geophysical Union
 Association of American Geographers
 British Society for Geomorphology
 North American Cartographic Information Society