

CHRISTINE E. McMICHAEL

CONTACT INFORMATION

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EDUCATION

- 2004 **Ph.D.** (Geography) San Diego State University and University of California, Santa Barbara. Dissertation title: *Modeling the effects of fire on streamflow in a chaparral watershed.*
- 1995 **MA** (Geography) San Diego State University
- 1993 **BA** (Geography) San Diego State University
- 1990 **AA** (Economics) Santa Barbara City College

PROFESSIONAL EXPERIENCE

- Aug. 2003 - present **Assistant Professor of Geography**, Institute for Regional Analysis and Public Policy, Morehead State University (Graduate Faculty Member)
- Sept. 2000 - June 2003 **NASA Earth System Science Fellow**, Department of Geography, San Diego State University / University of California, Santa Barbara
- July 1999 - June 2003 **Ph.D. Teaching/Research Associate**, Department of Geography, San Diego State University / University of California, Santa Barbara; **SDSU Lecturer** (Fall 2002)
- June 1997 - June 1999 **California Sea Grant Trainee**, Department of Geography, San Diego State University
- Aug. 1995 - May 1997 **Ph.D. Teaching/Research Associate**, Department of Geography, San Diego State University / University of California, Santa Barbara; **SDSU Lecturer** (Spring, 1995, 1996, 1997, Fall 1996)
- Aug. 1993 – July 1995 **Graduate Research Assistant**, Department of Geography, San Diego State University

RESEARCH INTERESTS

Land Change Science; Remote Sensing; Watershed Monitoring and Modeling; Physical Geography

COURSES TAUGHT

Morehead State University: Remote Sensing of Environment; Physical Geography; Environmental Geography; Graduate Seminar in Regional Analysis; Seminar in Regional Analysis; Basic Computer Applications in Regional Analysis

San Diego State University: Introductory Remote Sensing of Environment; Principles of Physical Geography

FUNDED GRANTS, CONTRACTS and AWARDS

- 2008-13 **EPA-Kentucky Division of Water, Co-PI:** “Triplett Creek Watershed Plan”: \$625,850.
- 2007-09 **Kentucky Waterways Alliance, Co-PI:** “Dry Creek Watershed Plan”: \$39,000.
- 2007-08 **Kentucky Water Resources Research Institute, PI:** “Impacts of disturbance on streamflow and sediment yield in the Licking River Basin”: \$3,133.

- 2007 **AmericaView, Inc, Co-PI:** “StateView Program Development and Operations for the State of Kentucky”: \$84,000 (approved, funding pending).
MSU Internal Grant, Co-PI: "Assessing the relationships between environmental factors and human disease in Kentucky": \$4,995.
AmericaView Associate Grant: “Consortium Development Activities”: \$5,000
- 2006-07 **Kentucky Urban and Community Forestry Grant, Co-PI:** “Developing an inexpensive approach for mapping urban forest cover, change in cover and plantable area for small communities”: \$5,124.
- 2006 **AmericaView Associate Grant:** “Consortium Development Activities”: \$5,000
NOAA, Co-PI: “Kentucky Geodetic Consortia: Height Modernization Project”: \$448,291.
MSU Internal Grant, Co-PI: “Developing and Testing a Procedure for Estimating Impermeable Surface Area Using Panchromatic Aerial Photographs”: \$2,429.
MSU Internal Grant, Co-PI: “Remote Sensing of Watershed Condition: Triplett Creek, KY”: \$4,890.
AmericaView Affiliate Grant: “Consortium Development Activities”: \$4,000
- 2005 **Kentucky Space Grant Consortium, PI:** “Monitoring Forest Response to Ice Storm Damage Using Multi-temporal Satellite Imagery”: \$4,977
NOAA, Co-PI: “Kentucky Geodetic Consortia: Height Modernization Project”: \$443,546
- 2004 **Consortium of Appalachian Centers-Appalachian Regional Commission:** “Appalachian Teaching Project”: \$2,700
MSU Internal Grant, PI: “A Remote Sensing-based Assessment of Recent Ice Storm Damage in Eastern Kentucky Forests”: \$4,660
- 2003 **Consortium of Appalachian Centers-Appalachian Regional Commission:** “Appalachian Teaching Project”: \$2,700
- 2000-2003 **NASA Earth System Science Fellowship:** \$62,000
- 2000 **NSF Doctoral Dissertation Research Improvement Grant:** \$5,400
Phi Beta Kappa, Epsilon Association, Graduate Fellowship: \$3,000

REFEREED JOURNAL ARTICLES

- 2007 **McMichael, C.E., and Hope, A.S.,** Predicting streamflow response to fire-induced landcover change: implications of parameter uncertainty in the MIKE SHE model, *Journal of Environmental Management*, 84:245-256.
- 2006 **McMichael, C.E., Hope, A.S. and Loaiciga, H.A.** Distributed hydrological modelling in semi-arid shrublands: MIKE SHE model calibration and uncertainty estimation. *Journal of Hydrology*, 317:307-324.
- 2004 **McMichael, C.E., Hope, A.S., Roberts, D.A., and Anaya, M.** Post-fire recovery of leaf area index in California chaparral: a remote sensing – chronosequence approach. *International Journal of Remote Sensing*, 25(21):4743-4760.
Tague, C., McMichael, C., Hope, A., Choate, J. Application of the RHESSys model to a California semi-arid shrubland watershed. *Journal of the American Water Resources Association*, 40(3):575-589.
- 1999 **McMichael, C.E., Hope, A.S., Stow, D.A., Fleming, J.B., Vourlitis, G., and Oechel, W.C.** (1999). Estimating CO₂ exchange in two arctic tundra ecosystems using a spectral vegetation index. *International Journal of Remote Sensing*, 20(4):683-698.
- 1997 **McMichael, C.E., Hope, A.S., Stow, D.A., and Fleming, J.B.** (1997). The relationship between active layer depth and a spectral vegetation index in arctic tundra landscapes of the North Slope of Alaska. *International Journal of Remote Sensing*, 18(11):2371-2382.

OTHER REFEREED PUBLICATIONS

- 2006 **McMichael, C.** "Physical geography." Encyclopedia of Earth. Eds. Cutler J. Cleveland. (Washington, D.C.: Environmental Information Coalition, National Council for Science and the Environment). [Published September 21, 2006; Retrieved September 21, 2006]. <http://www.eoearth.org/article/Physical_geography>
- 2005 Bortolot, Z.J. and **McMichael, C.E.** Review of "Introductory Digital Image Processing: A Remote Sensing Perspective", Third Edition (John R. Jensen, Author; Prentice Hall, Publisher; ISBN: 0-13-145361-0). *Photogrammetric Engineering and Remote Sensing*, 71(8):895-896.
- 2004 Hope, A., Stein, A, and **McMichael, C.** Uncertainty in monthly river discharge predictions in a semi-arid shrubland catchment. *Hydrology: Science and Practice for the 21st Century, Volume I.* British Hydrological Society, pp. 284-290.

CONFERENCE PRESENTATIONS

- 2007 **McMichael, C.** and Smith, D. Links between watershed condition and aquatic communities in eastern Kentucky: a remote sensing-based assessment. Annual Meeting of the Applied Geography Conference, Indianapolis, Indiana.
McMichael, C., Johnson, R., Smith, D. and Moody, B. Influence of landscape condition on macroinvertebrate communities in eastern Kentucky: effects of spatial scale. Annual Meeting of the Kentucky Academy of Sciences, Louisville, Kentucky.
Moody, B., **McMichael, C.,** Johnson, R. and Smith, D. Influence of land cover/use on macroinvertebrate communities in eastern Kentucky: effects of spatial scale. Annual Meeting of the Kentucky Academy of Sciences, Louisville, Kentucky.
- 2006 **McMichael, C.** Assessing forest response to ice storm damage using multi-temporal Landsat imagery. Association of American Geographers 102nd Annual Meeting, Chicago, Illinois.
- 2005 **McMichael, C.** and Lewis, J. Changes in forest condition following the 2003 ice storm in eastern Kentucky. Second Appalachian Remote Sensing Conference, Morgantown, West Virginia.
McMichael, C. and Hope, A., Modeling the effects of fire size on streamflow in a California chaparral watershed. Association of American Geographers 101st Annual Meeting, Denver, Colorado.
McMichael, C. and Lewis, J. Detecting ice-storm damage using multi-temporal Landsat data. American Society for Photogrammetry and Remote Sensing, Baltimore, Maryland.
- 2004 **McMichael, C.** and Hope, A., Loaiciga, H. A. Uncertainty in leaf area index: effects on predictive uncertainty of the distributed MIKE SHE model. Association of American Geographers 100th Annual Meeting, Philadelphia, Pennsylvania.
Hope, A., Tague, C., **McMichael, C.,** Anaya, M., Choate, J. Uncertainty in modelling streamflow in semiarid shrublands: implications for predicting the effects of landcover change. 2nd International Symposium on Integrated Water Resource Management, Stellenbosch, South Africa, 22-24 January, 2003.
- 2003 **McMichael, C.** and Hope, A. The implications of equifinality for modeling the effects of fire on streamflow in semi-arid shrublands. Association of American Geographers 99th Annual Meeting, New Orleans, Louisiana.
- 2002 **McMichael, C.** and Hope, A. Uncertainty in estimating streamflow for a semi-arid shrubland basin using the distributed MIKE-SHE model., Fall Meeting of the American Geophysical Union, San Francisco, California.
McMichael, C., Anaya, M. and Hope, A. Characterizing the post-fire recovery of leaf area index in California chaparral: a remote sensing approach. Association of American Geographers 98th Annual Meeting, Los Angeles, California.

- 2001 **McMichael**, C.E., Hope, A.S. and Anaya, M. Modeling the impacts of post-fire succession on annual actual evapotranspiration in a shrubland watershed. Association of American Geographers 97th Annual Meeting, New York, New York.
- 1997 **McMichael**, C.E., Hope, A.S., Wright, R.D., and Sperling, R. Remote sensing-based estimates of annual actual evapotranspiration for shrubland watersheds in Mediterranean-type ecosystems. MEDECOS VIII: Conference on Mediterranean-type Ecosystems, San Diego, California.
- 1994 **McMichael**, C.E., Duburguet, D., and Hope, A.S. Grassland radiative and aerodynamic temperatures: effects of soil moisture. Association of American Geographers 90th Annual Meeting, San Francisco, California.

PUBLISHED ABSTRACTS

- 2007 **McMichael**, C. and Smith, D. Links between watershed condition and aquatic communities in eastern Kentucky: a remote sensing-based assessment. *Abstracts of the 30th Annual Applied Geography Conference*, Indianapolis, Indiana.
- 2006 **McMichael**, C. Assessing forest response to ice storm damage using multi-temporal Landsat imagery.. *AAG Annual Meeting Abstracts*, Association of American Geographers 102nd Annual Meeting, Chicago, Illinois.
- 2005 **McMichael**, C. and Lewis, J. Changes in forest condition following the 2003 ice storm in eastern Kentucky. *Abstracts*, Second Appalachian Remote Sensing Conference, Morgantown, West Virginia.
- McMichael**, C. and Hope, A., Modeling the effects of fire size on streamflow in a California chaparral watershed. *AAG Annual Meeting Abstracts*, Association of American Geographers 101st Annual Meeting, Denver, Colorado.
- McMichael**, C. and Lewis, J. Detecting ice-storm damage using multi-temporal Landsat data. *ASPRS Annual Conference Proceedings*, American Society for Photogrammetry and Remote Sensing, Baltimore, Maryland.
- Bortolot, Z., **McMichael**, C., and Prater, P. Assessing the spectral separability of five livestock species. *ASPRS Annual Conference Proceedings*, American Society for Photogrammetry and Remote Sensing, Baltimore, Maryland.
- Johnson, R.C., **McMichael**, C.E., Smith, D.P., and Allen, H.J., Using Landsat TM data to determine land cover of the Licking River watershed: an assessment of three classification algorithms. *Journal of the Kentucky Academy of Science* (in press), Kentucky Academy of Sciences 90th Annual Meeting, Murray, Kentucky.
- Johnson, R.C, Smith, D. and **McMichael**, C., Relative influence of catchment landscape indicators on macroinvertebrate communities in a minimally disturbed watershed: effects of spatial scale. *Abstracts*, North American Benthological Society Conference, New Orleans, LA
- Hope AS, Tague CL, **McMichael**, CE. Fire, land cover and climate change: impacts on river flows in shrubland catchments. In 'MEDECOS Conference'. Rhodes, Greece. (Eds Arianoutsou and Papanastasis) 9 pp. (Millpress)
- 2004 **McMichael**, C. and Hope, A., Loaiciga, H. A. Uncertainty in leaf area index: effects on predictive uncertainty of the distributed MIKE SHE model. *AAG Annual Meeting Abstracts*, Association of American Geographers 100th Annual Meeting, Philadelphia, Pennsylvania.
- 2003 **McMichael**, C. and Hope, A. The implications of equifinality for modeling the effects of fire on streamflow in semi-arid shrublands. *Abstracts, the Association of American Geographers 99th Annual Meeting*, New Orleans, Louisiana.
- Hope, A., Anaya, M., **McMichael**, C. and Tague, C. Analysis of post-fire recovery patterns in California shrublands using Thematic Mapper time series data. *Abstracts, the Association of American Geographers 99th Annual Meeting*, New Orleans, Louisiana.

- 2002 **McMichael**, C. and Hope, A. Uncertainty in estimating streamflow for a semi-arid shrubland basin using the distributed MIKE-SHE model. *Abstracts, Fall Meeting of the American Geophysical Union*, San Francisco, California.
McMichael, C., Anaya, M. and Hope, A. Characterizing the post-fire recovery of leaf area index in California chaparral: a remote sensing approach. *Abstracts, the Association of American Geographers 98th Annual Meeting*, Los Angeles, California.
Anaya, M., **McMichael**, C. and Hope, A. Characterizing herbaceous vegetation growth patterns in a California shrubland ecosystem using NOAA_AVHRR data. *Abstracts, the Association of American Geographers 98th Annual Meeting*, Los Angeles, California.
- 2001 **McMichael**, C.E., Hope, A.S. and Anaya, M. Modeling the impacts of post-fire succession on annual actual evapotranspiration in a shrubland watershed. *Abstracts, the Association of American Geographers 97th Annual Meeting*, New York, New York.
- 2000 Hope, A.S. and **McMichael**, C.E. Characterizing chaparral spatio-temporal growth patterns using time series satellite data. *Abstracts, MEDECOS IX: Conference on Mediterranean-type Ecosystems*, Stellenbosch, South Africa.
- 1997 **McMichael**, C.E., Hope, A.S., Wright, R.D., and Sperling, R. Remote sensing-based estimates of annual actual evapotranspiration for shrubland watersheds in Mediterranean-type ecosystems. *Abstracts, MEDECOS VIII: Conference on Mediterranean-type Ecosystems*, San Diego, California.
Hope, A., Garrison, C., Stow, D., **McMichael**, C., and Benkelman, C. A direct comparison of color infrared digital imagery collected using a three camera CCD system and a single camera over landscapes in southern California. *Abstracts, Third Airborne Remote Sensing Conference and Exhibition*, Copenhagen, Denmark.
- 1996 Hope, A.S., Stow, D.A., **McMichael**, C.E., and Boynton, W.L. Utility of the normalized difference vegetation index for modeling carbon fluxes over the North Slope of Alaska. *Abstracts, Fall Meeting of the American Geophysical Union*, San Francisco, California.
- 1995 Aguado, E., **McMichael**, C., and Reece, B. Rain and Snow Events in the Eastern Sierra Nevada.” *Abstracts, the Association of American Geographers 91st Annual Meeting*, Chicago, Illinois.
Hope, A.S., **McMichael**, C.E., Stow, D.A., Fleming, J.B., Vourlitis, G., Oechel, W.C., and Hastings, S.J. Direct estimates of CO₂ flux in arctic environments using a spectral vegetation index. *Abstracts, International Geoscience and Remote Sensing Symposium*, Firenze, Italy.
- 1994 **McMichael**, C.E., Duburguet, D., and Hope, A.S. Grassland radiative and aerodynamic temperatures: effects of soil moisture. *Abstracts, the Association of American Geographers 90th Annual Meeting*, San Francisco, California.
Duburguet, D.A., **McMichael**, C.E., and Hope, A.S. Grassland radiative and aerodynamic temperatures: effects of vegetation density. *Abstracts, the Association of American Geographers 90th Annual Meeting*, San Francisco, California.

OTHER PRESENTATIONS

- 2007 **Invited talk**: “Remote sensing: a different view of the world”, Northeast Chapter of the Kentucky Association of Professional Surveyors, Morehead.
Paper presentation: “This is KentuckyView”, presentation at the fall meeting of the AmericaView Remote Sensing Consortium, Fayetteville, Arkansas.
Workshops: “Mapping tree cover and impervious surfaces using aerial photographs”, Morehead, West Liberty and Mt. Sterling.
- 2006 **Paper presentation**: “KentuckyView”, Kentucky Academy of Sciences Annual Meeting, Morehead, KY. (McMichael, C. and Z. Bortolot)
Invited talk: “IRAPP – Geospatial Activities”, University of Kentucky Geospatial

- Science and Technologies Group. (McMichael, C., Z. Bortolot and T. Hare)
Panel session: “KentuckyView – the Commonwealth’s Remote Sensing Consortium”,
 Kentucky GIS Conference. (Bortolot, Z. and C. McMichael)
IRAPP Brown Bag Lecture: “Remote sensing of ice storm damage: Daniel Boone
 National Forest”
- 2005 **Invited talk:** Geography Awareness Week, Morehead State University. “A different
 view of the world: remote sensing of environment.”
- 2004 **Colloquium:** San Diego State University, Geography Department. “Modeling the effects
 of fire on streamflow in a chaparral watershed.”
- 2003 **Invited talk:** Miami University of Ohio, Geography Department. “Distributed
 hydrological modeling in California semi-arid shrublands: calibration and uncertainty
 estimation.”

PROFESSIONAL SERVICE ACTIVITIES

- **Director - KentuckyView Remote Sensing Consortium:** Institute for Regional Analysis
 and Public Policy, Morehead State University, Spring 2004 - present
- **Chair - Awards Committee:** Water Resources Specialty Group, Association of American
 Geographers, Spring 2005 - present
- **Member – Steering Committee:** Kentucky MESONET, Spring 2006 - present
- **Member – Technical Advisory Group:** Kentucky Watershed Modeling Information
 Portal, Spring 2006 – present
- **Member – Conference Planning Committee:** “Mapping and Monitoring Land Resource
 Changes: Bridging the Geospatial Technology Divide for Decision Making” (Kentucky,
 May 2008)
- **Journal Reviewer:** Advances in Water Resources, Journal of Hydrology, Applied
 Vegetation Science, Journal of the American Water Resources Association, Southern Rural
 Sociology Review
- **Textbook Reviewer:** Remote Sensing; Physical Geography
- **Session Chair:** Applied Geography Conference, October 2007.
- **Session Organizer and Chair:** Association of American Geographers, April 2007, March
 2008.

UNIVERSITY SERVICE ACTIVITIES

- **Graduate Faculty Member:** Fall 2004-present
- **Library Committee:** Fall 2007-present
- **Graduate Recruitment Committee Member:** Spring 2003 – Spring 2006
- **EarthFest Steering Committee Member:** Spring 2005
- **Freshmen Move-in Day:** Fall 2004, Fall 2005

INSTITUTE/DEPARTMENT SERVICE ACTIVITIES

- **Undergraduate Curriculum Committee, Chair:** Fall 2005-present
- **Space Science GIS-GPS grant:** Institute for Regional Analysis and Public Policy,
 Morehead State University, Fall 2003 – present
- **Student Life Committee, Chair:** Fall 2005 – present
- **Student Orientation, Advising and Registration (SOAR):** Spring 2006-present
- **MSU Open House:** Fall 2006-present
- **Remote Sensing guest lectures at MSU:** Fall 2005-present
- **Homeland Security Committee:** Institute for Regional Analysis and Public Policy,
 Morehead State University, Spring 2004 – present

- **Faculty Search Committee (Demographer):** Institute for Regional Analysis and Public Policy, Morehead State University, Spring 2005
- **Geospatial Technologies Committee:** Institute for Regional Analysis and Public Policy, Morehead State University, Fall 2005-present
- **HUD COPC grant – Leadership seminar:** Institute for Regional Analysis and Public Policy, Morehead State University, Fall 2003 – Spring 2006.
- **Staff Search Committee (Grants Manager):** Institute for Regional Analysis and Public Policy, Morehead State University, Fall 2003
- **Department Recruitment and Retention Committee:** Department of Geography, Government and History, Morehead State University, Fall 2004-present
- **Morehead State Geographical Society** (student club): Faculty participant, 2004-present.

GRADUATE STUDENT COMMITTEES

- **Jason Marion**, Environmental Science/IRAPP, Morehead State University, non-thesis committee member: “Analysis of Asiatic clam (*Corbicula fluminea*) valve-movement behavior in response to Licking River water quality” (August 2006).
- **Robert C. Johnson**, Environmental Science/IRAPP, Morehead State University, thesis committee member: “Landscape analysis of macroinvertebrate communities in the Triplett Creek watershed at multiple spatial scales” (May 2005).

COMMUNITY SERVICE ACTIVITIES

- **Morehead Woman’s Club** - Member: Fall 2004 – present
- **Rowan County Christmas** - Volunteer: 2004, 2005, 2007
- **Farmers Fire Department (HazMat)** - Women’s Auxiliary Volunteer: Fall 2006 – present
- **Save the Animals of Rowan, Inc.** - Committee Member: Spring 2006 - present
- **Rowan County Roadside Litter Abatement** - Advisory Group Member: Spring 2004 - Spring 2005.

PROFESSIONAL MEMBERSHIPS

- Association of American Geographers
- American Society for Photogrammetry and Remote Sensing
- American Water Resources Association
- American Geophysical Union
- Phi Beta Kappa
- Sigma Xi
- Kentucky Academy of Sciences

AWARDS AND HONORS

- Featured Author: Encyclopedia of Earth, <http://www.eoearth.org/> (September 21, 2006)
- McKnight Professional Paper Presentation Award (2000)
- California Sea Grant Traineeship (1997-1999)
- California Geographical Society D.W. Lantis Graduate Student Award (1994)
- William and Vivian Finch Award for Remote Sensing (1994)
- Graduate Equity Award (1994)
- University Scholar Award (1993-1994)
- California Geographical Society D.W. Lantis Undergraduate Student Award (1993)
- Phi Beta Kappa, Nu Chapter, Brian Billotte Memorial Scholarship (1993)
- Outstanding Graduating Senior – Department of Geography (1993)
- Lauren C. Post Memorial Scholarship (1992-1993)

- Santa Barbara Scholarship Foundation Undergraduate Scholarship (1988-89)
- Academic Achievement Award (1990)

CONTINUING EDUCATION WORKSHOPS

Spring 2007 Geospatial Tools for Natural Resource Management (University of Kentucky)

Spring 2006 Watershed Workshop (Morehead State University)

Spring 2005 Assessing the Accuracy of GIS Information Created from Remotely Sensed Data: Principles and Practices (American Society for Photogrammetry and Remote Sensing - Annual Meeting)

Fall 2004 Adapting GLOVIS for Sate Use; Introduction to LiDAR; High Resolution Applications; Digital Globe's and Quickbird's Imagery for use in Government and Commercial Applications (Annual AmericaView Remote Sensing Consortium Conference)