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CURRICULUM VITAE

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Education: A.B. Wittenberg University, 1974  
M.A. Bowling Green State University, 1975  
Ph.D. University of Oklahoma, 1979

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Awards: 2011 Professor of the Year, Awarded by Order of Omega Greek Honorary Society

Professional Positions:

1979-1981 Research Fellow, Center for Agricultural Meteorology and Climatology, University of Nebraska-Lincoln

1979-1984 Assistant Professor, Department of Geography, University of Nebraska-Lincoln

1985-1986 Visiting Assistant Professor, Department of Geography, Arizona State University

1985-1987 Research Associate, Laboratory of Climatology and Department of Geography, Arizona State University

1987-1988 Assistant Professor, Department of Geography, and Assistant Director, Laboratory of Climatology, Arizona State University

1988-1989 Assistant Professor, Department of Geography, and Director, Laboratory of Climatology, Arizona State University

- 1989-1998 Associate Professor, Department of Geography, and Director, Office of Climatology, Arizona State University
- 1998-2004 Professor, Department of Geography, and Director, Office of Climatology, Arizona State University
- 2004- Professor, School of Geographical Sciences & Urban Planning, and Director and/or Associate Director, Masters of Advanced Study, Geographic Information Systems Program

Books:

- 1992 Robert C. Balling, Jr. *The Heated Debate: Greenhouse Predictions Versus Climate Reality*. San Francisco, California: Pacific Research Institute for Public Policy, xxxvi + 195 pp.
- 1994 Martin A.J. Williams and Robert C. Balling, Jr., *Interactions of Desertification and Climate*. Geneva, Switzerland: World Meteorological Organization and United Nations Environment Programme, 230 pp.
- 1995 Hassan A. Nasrallah and Robert C. Balling, Jr., *The Heated Debate: Greenhouse Predictions Versus Climate Reality (Middle Eastern Edition)*. San Francisco, California: Pacific Research Institute for Public Policy, xxxiv + 194 pp. (Available in Arabic and English).
- 1996 Martin A.J. Williams and Robert C. Balling, Jr., *Interactions of Desertification and Climate*. London, England: Edward Arnold Press, xiv + 270 pp.
- 2000 Patrick J. Michaels and Robert C. Balling, Jr., *The Satanic Gases: Clearing The Air About Global Warming*. Washington, D.C.: Cato Institute, xii + 234 pp.
- 2009 Patrick J. Michaels and Robert C. Balling, Jr., *Climate of Extremes: Global Warming Science They Don't Want You To Know*. Washington, D.C.: Cato Institute, xiii + 267 pp.

Refereed Journal Articles (*student authors are italicized*):

- 1980 Robert C. Balling, Jr. and Carroll E. Reynolds. "Evaluating Odor Reduction Technologies: Model." *Journal of the Environmental Engineering Division of the American Society for Civil Engineers*, Vol. 106, No. EE5, pp. 901-906.
- 1980 Robert C. Balling, Jr. "Regional Patterns Associated with Climate Change." *National Weather Digest*, Vol. 5, No. 2, pp. 13-16.

- 1980 Robert C. Balling, Jr. and Carroll E. Reynolds. "A Model for Evaluating the Dispersion of Wastewater Plant Odors." *Journal Water Pollution Control Federation*, Vol. 52, No. 10, pp. 2589-2593.
- 1980 Robert C. Balling, Jr. "Classification and Regionalization of Climatic Change." *Great Plains - Rocky Mountain Geographical Journal*, Vol. 9, pp. 1-8.
- 1980 Robert C. Balling, Jr. and Carroll E. Reynolds. "The Diurnal Flux in the Dispersion of Sewage Plant Odors." *Water, Air and Soil Pollution*, Vol. 14, pp. 323-329.
- 1981 Robert C. Balling, Jr. and Carroll E. Reynolds. "Reply." *Water, Air and Soil Pollution*, Vol. 16, pp. 379-380.
- 1981 Merlin P. Lawson, Robert C. Balling, Jr., Donald C. Rundquist, and Albert J. Peters. "Spatial Analysis of Secular Temperature Variations." *Journal of Climatology*, Vol. 1, No. 4, pp. 325-332.
- 1982 Robert C. Balling, Jr. and Merlin P. Lawson. "Twentieth Century Changes in Winter Climatic Regions." *Climatic Change*, Vol. 4, No. 1, pp. 57-69.
- 1982 Merlin P. Lawson, Karl C. Kuivinen, and Robert C. Balling, Jr. "Analysis of the Climatic Signal in the South Dome, Greenland Ice Core." *Climatic Change*, Vol. 4, No. 4, pp. 375-384.
- 1983 Robert C. Balling, Jr. and Michael J. Vojtesak. "Solar Climates of the United States Based on Long-Term Monthly Averaged Daily Insolation Values." *Solar Energy*, Vol. 31, No. 3, pp. 283-291.
- 1983 Robert C. Balling, Jr. "Harmonic Analysis of Monthly Insolation Levels in the United States." *Solar Energy*, Vol. 31, No. 3, pp. 293-298.
- 1983 Robert C. Balling, Jr. and Randall S. Cerveny. "Spatial and Temporal Variations in Long-Term Normal Percent Possible Solar Radiation Levels in the United States." *Journal of Climate and Applied Meteorology*, Vol. 22, No. 10, pp. 1726-1732.
- 1984 Randall S. Cerveny and Robert C. Balling, Jr. "CONSTABLE: A Simple One-Dimensional Climate Model for Climatologists in Geography." *The Professional Geographer*, Vol. 36, No. 2, pp. 188-196.
- 1984 Robert C. Balling, Jr. and Randall S. Cerveny. "Analysis of Time and Space Variations in Long-Term Monthly Averaged Wind Speeds in the United States." *Wind Engineering*, Vol. 8, No. 1, pp. 1-8.
- 1984 Joachim A. Schumacher, Robert C. Balling, Jr., and Randall S. Cerveny. "Impacts of Nuclear War: Results from an Energy Balance Global Climate Model." *Physical Geography*, Vol. 5, No. 3, pp. 199-205.
- 1985 Randall S. Cerveny and Robert C. Balling, Jr. "Energy Balance Climate Modelling: An Alternative Dynamic Parameterization." *Journal of Climatology*, Vol. 5, No. 4, pp. 423-431.

- 1985 *Randall S. Cerveny, Joachim A. Schumacher, and Robert C. Balling, Jr. "CONSTABLE: A Global Climate Model for Classroom Use." Journal of Geography, Vol. 84, No. 4, pp. 165-168.*
- 1985 *Robert C. Balling, Jr. "Warm Season Nocturnal Precipitation in the Great Plains of the United States." Journal of Climate and Applied Meteorology, Vol. 24, No. 12, pp. 1383-1387.*
- 1986 *Robert C. Balling, Jr. and Sandra W. Brazel. "New' Weather in Phoenix? Myths and Realities." Weatherwise, Vol. 39, No. 2, pp. 86-90.*
- 1986 *Sandra W. Brazel and Robert C. Balling, Jr. "Temporal Analysis of Long-Term Atmospheric Moisture Levels in Phoenix, Arizona." Journal of Climate and Applied Meteorology, Vol. 25, No. 2, pp. 112-117.*
- 1986 *Robert C. Balling, Jr. and Sandra W. Brazel. "Temporal Analysis of Summertime Weather Stress Levels in Phoenix, Arizona." Archives for Meteorology, Geophysics, and Biometeorology. Series B. Theoretical and Applied Climatology, Vol. 36, No. 3-4, pp. 331-342.*
- 1987 *Robert C. Balling, Jr. and Sandra W. Brazel. "Diurnal Variations in Arizona Monsoon Precipitation." Monthly Weather Review, Vol. 115, No. 1, pp. 342-346.*
- 1987 *Robert C. Balling, Jr. and Randall S. Cerveny. "Long-Term Associations Between Wind Speeds and the Heat Island of Phoenix, Arizona." Journal of Climate and Applied Meteorology, Vol. 26, No. 6, pp. 712-716.*
- 1987 *Royal Norman, Jr. and Robert C. Balling, Jr. "Tornadoes - Live at Five!" Weatherwise, Vol. 40, No. 1, pp. 36-37.*
- 1987 *Robert C. Balling, Jr. and Sandra W. Brazel. "Temporal Variations in Tucson, Arizona Summertime Atmospheric Moisture, Temperature, and Weather Stress Levels." Journal of Climate and Applied Meteorology, Vol. 26, No. 8, pp. 995-999.*
- 1987 *Robert C. Balling, Jr. and Sandra W. Brazel. "Recent Changes in Phoenix, Arizona Summertime Diurnal Precipitation Patterns." Theoretical and Applied Climatology, Vol. 38, pp. 50-54.*
- 1987 *Robert C. Balling, Jr. and Sandra W. Brazel. "Time and Space Characteristics of the Phoenix Urban Heat Island." Journal of the Arizona-Nevada Academy of Science, Vol. 21, No. 2, pp. 75-81.*
- 1987 *Robert C. Balling, Jr. and Sandra W. Brazel. "The Impact of Rapid Urbanization on Pan Evaporation in Phoenix, Arizona." Journal of Climatology, Vol. 7, No. 6, pp. 593-597.*
- 1988 *Robert C. Balling, Jr. and Joe L. Sutherland. "Diurnal and Seasonal Wind Direction Patterns within the Mountain-Valley Terrain Near Glen Canyon Dam, Arizona." Journal of Applied Meteorology, Vol. 27, No. 5, pp. 594-598.*
- 1988 *Robert C. Balling, Jr. and Randall S. Cerveny. "Reply." Journal of Applied Meteorology, Vol. 27, No. 7, p. 881.*

- 1988 Robert C. Balling, Jr. "The Climatic Impact of a Sonoran Vegetation Discontinuity." *Climatic Change*, Vol 13, No. 1, pp. 99-109.
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- 1988 Robert C. Balling, Jr. and Sandra W. Brazel. "High-Resolution Surface Temperature Patterns in a Complex Urban Terrain." *Photogrammetric Engineering and Remote Sensing*, Vol. 54, No. 9, pp. 1289-1293.
- 1989 Robert C. Balling, Jr. "The Impact of Summer Rainfall on the Temperature Gradient along the United States-Mexico Border." *Journal of Applied Meteorology*, Vol. 28, No. 4, pp. 304-308.
- 1989 Robert C. Balling, Jr. and Sherwood B. Idso. "Historical Temperature Trends in the United States and the Effect of Urban Population Growth." *Journal of Geophysical Research*, Vol. 94, No. D3, pp. 3359-3363.
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- 1990 Robert C. Balling, Jr. and Sherwood B. Idso. "One Hundred Years of Global Warming." *Environmental Conservation*, Vol. 17, No. 2, p. 165.
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- 1990 Robert C. Balling, Jr. and Sherwood B. Idso. "Effects of Greenhouse Warming on Maximum Summer Temperatures." *Agricultural and Forest Meteorology*, Vol. 53, No. 1-2, pp. 143-147.
- 1991 Robert C. Balling, Jr. and *Nina K. Lolk*. "A Developing Cool Island in the Desert? The Case of Palm Springs, California." *Journal of the Arizona-Nevada Academy of Sciences*, Vol. 23, No. 2, pp. 93-96.
- 1991 Robert C. Balling, Jr. and *Hassan A. Nasrallah*. "The Impact of Rapid Urbanisation on Summer Weather Stress in Kuwait City." *Journal of Arid Environments*, Vol. 21, No. 3, pp. 261-265.
- 1991 Robert C. Balling, Jr. "Impact of Desertification on Regional and Global Warming." *Bulletin of the American Meteorological Society*, Vol. 72, No. 2, pp. 232-234.
- 1991 Sherwood B. Idso and Robert C. Balling, Jr. "Recent Trends in United States Precipitation." *Environmental Conservation*, Vol. 18, No. 1, pp. 71-73.
- 1991 Sherwood B. Idso and Robert C. Balling, Jr. "Surface Air Temperature Response to Increasing Global Industrial Productivity Trends: A Beneficial Greenhouse Effect?" *Theoretical and Applied Climatology*, Vol. 44, No. 1, pp. 37-41.
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- 1991 Robert C. Balling, Jr. "Comments on 'The Potential Impacts of Climate Change on the Great Lakes.'" *Bulletin of the American Meteorology Society*, Vol. 72, No. 6, pp. 833-834.
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- 1992 Randall S. Cerveny and Robert C. Balling, Jr. "The Impact of Snow Cover on Diurnal Temperature Range." *Geophysical Research Letters*, Vol. 19, No. 8, pp. 797-800.
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- 1992 John A. Harrington, Jr., Randall S. Cerveny, and Robert C. Balling, Jr. "Impact of the Southern Oscillation on the North American Southwest Monsoon." *Physical Geography*, Vol. 13, No. 4, pp. 318-330.
- 1992 Sherwood B. Idso and Robert C. Balling, Jr. "United States Drought Trends of the Past Century." *Agricultural and Forest Meteorology*, Vol. 60, pp. 279-284.
- 1992 Robert C. Balling, Jr. and Sherwood B. Idso. "Anthropo-Generated Climate Change in Europe." *Environmental Conservation*, Vol. 19, No. 4, pp. 349-353.
- 1993 Robert C. Balling, Jr. "Global Temperature Data." *Research & Exploration*, Vol. 9, No. 2, pp. 201-207.
- 1993 Hassan A. Nasrallah and Robert C. Balling, Jr. "Spatial and Temporal Analysis of Middle Eastern Temperature Changes." *Climatic Change*, Vol. 25, No. 2, pp. 153-161.
- 1993 Hassan A. Nasrallah and Robert C. Balling, Jr. "Analysis of Recent Climatic Changes in the Arabian Gulf Region." *Environmental Conservation*, Vol. 20, No. 3, pp. 223-226.
- 1994 Thomas S. King and Robert C. Balling, Jr. "Diurnal Variations in Arizona Monsoon Lightning Data." *Monthly Weather Review*, Vol. 122, No. 7, pp. 1659-1664.
- 1994 Hassan A. Nasrallah and Robert C. Balling, Jr. "The Effect of Overgrazing on Historical Temperature Trends." *Agricultural and Forest Meteorology*, Vol. 71, pp. 425-430.

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- 1995 Robert C. Balling, Jr. "Analysis of German Climatic Variations During the Period of Instrumental Record." *Geophysical Research Letters*, Vol. 22, No. 3, pp. 223-226.
- 1995 Robert C. Balling, Jr. and Randall S. Cerveny. "Influence of Lunar Phase on Daily Global Temperatures." *Science*, Vol. 267, pp. 1481-1483.
- 1995 Robert C. Balling, Jr. and Warwick S. Hughes. "Comments on "Detecting Climate Change Concurrent with Deforestation in the Amazon Basin: Which Way Has It Gone?" *Bulletin of the American Meteorological Society*, Vol. 76, No. 4, 9. 559.
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- 1995 Robert C. Balling, Jr. and Randall S. Cerveny. "Impact of Lunar Phase on Global and Latitudinal Tropospheric Temperatures." *Geophysical Research Letters*, Vol. 22, No. 23, pp. 3199-3201.
- 1995 Martin A.J. Williams and Robert C. Balling, Jr. "Interactions of Desertification and Climate: An Overview." *Desertification Control Bulletin*, No. 26, pp. 8-16.
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- 1995 Robert C. Balling, Jr. "Soaring Temperatures in Ghana?" *Environmental Conservation*, Vol. 22, No. 4, p. 370.
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- 2004 Robert C. Balling, Jr. and *Shouraseni Sen Roy*. "A Spatial Entropy Analysis of Temperature Trends in the United States." *Geophysical Research Letters*, Vol. 31, No. 9, 10.1029/2004GL019630.
- 2004 *Brenda Koerner*, *Elizabeth Wentz*, and Robert Balling. "Projected Carbon Dioxide Levels for the Year 2020 in Phoenix, Arizona." *Environmental Management*, Vol. 33, Supplement 1, pp. S222-S228.

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- 2006 Shade T. Shuttters and Robert C. Balling, Jr. "Weekly Periodicity of Environmental Variables in Phoenix, Arizona." *Atmospheric Environment (Impact Factor=2.549)*, Vol. 40, pp. 304-310.
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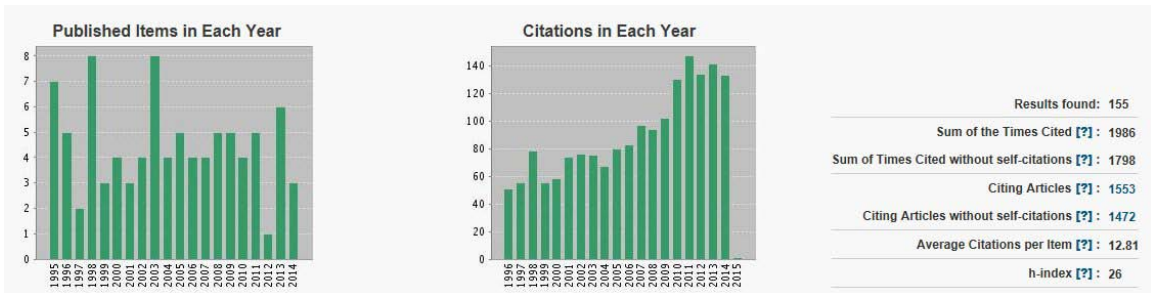
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Graphics from Web of Science advanced search for “Balling RC\*” (updated December 31, 2014)

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- 1984 Robert C. Balling, Jr. "Classification in Climatology." in *Spatial Statistics and Models*, Gary L. Gaile and Cort J. Willmott, editors. D. Reidel Publishing Company, pp. 81-108.
- 1988 Robert C. Balling, Jr. and Sandra W. Brazel. "The Phoenix Urban Heat Island." *Metro Arizona*, Charles Sargent, editor, Biffington Books, pp. 162-163.
- 1987 Robert C. Balling, Jr., Randall S. Cerveny and Kenneth F. Dewey. "Winds and Wind Systems." *The Encyclopedia of Climatology*, John E. Oliver and Rhodes W. Fairbridge, eds., New York: Van Nostrand Reinhold Company, pp. 933-941.
- 1992 Robert C. Balling, Jr. "The Urban Heat Island: Contaminant to the Global Temperature Record?" Chapter Twelve in *Global Climate Change: Implications, Challenges and Mitigation Measures*, Edited by S.K. Majumdar, L.S. Kalkstein, B.M. Yarnal, E.W. Miller, and L.M. Rosenfeld. Easton, Pennsylvania: The Pennsylvania Academy of Science, pp. 179-188.
- 1993 Patrick J. Michaels and Robert C. Balling, Jr. "Climate History During the Recent Greenhouse Enhancement." Chapter 13 in *A Global Warming Forum: Scientific, Economic, and Legal Overview*, Richard A Geyer (editor). New York: CRC Press Inc., pp. 297-315.
- 1994 Robert C. Balling, Jr. "Global Warming: The Gore Vision Versus Climate Reality." *Environmental Gore: A Constructive Response to Earth in the Balance*, John A. Baden, (editor). San Francisco: Pacific Research Institute for Public Policy, pp. 109-122.
- 1995 Robert C. Balling, Jr. "Global Warming: Messy Models, Decent Data, and Pointless Policy." *The True State of the Planet*, Ronald Bailey, editor. Washington, D.C.: The Free Press, pp. 83-107.
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- 1995 Hassan A. Nasrallah and Robert C. Balling, Jr. "Impact of Desertification on Temperature Trends in the Middle East." *Desertification in Developed Countries*, David A. Mouat and Charles F. Hutchinson, editors, Dordrecht, Netherlands: Kluwer Academic Publishers, pp. 265-271.
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- 1996 Robert C. Balling, Jr. "Do Sulphates Cool the Global Warming Debate?" *The Global Warming Debate*, John Emsley, editor, London, England: Bourne Press Limited, pp. 106-112.
- 1996 Robert C. Balling, Jr. "Case Study: The Uncertain Greenhouse Effect." A Section for *Introduction to Physical Geography* by Ralph C. Scott. New York, New York: West Educational Publishing Company, pp. 73-75.
- 1997 Robert C. Balling, Jr. "The Spin on Greenhouse Hurricanes." *Global Warming: The Science and the Politics*, Laura Jones, editor, Vancouver, British Columbia, The Fraser Institute pp. 123-139.

- 1997 Robert C. Balling, Jr. "Climate Model Simulations Verses Climate Reality: The Heated Debate Continues." *Climate Change—Challenging the Conventional Wisdom*, Julian Morris, editor, London, England: The Institute for Economic Affairs, pp. 39-51.
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- 1999 Robert C. Balling, Jr. "Urban Climate." *The Encyclopedia of Environmental Science*, David E. Alexander and Rhodes W. Fairbridge, editors. Dordrecht: Kluwer Academic Publishers, pp. 642-644.
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- 2000 Robert C. Balling, Jr. "Epiclimate." *The Dictionary of Physical Geography*, David S.G. Thomas and Andrew Goudie, editors, Oxford, England: Blackwell Publishers, p. 178.
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- 2001 Robert C. Balling, Jr. "Climate Impacts of Land Degradation in the World's Drylands." *Our Fragile World: Challenges and Opportunities for Sustainable Development*, M.K. Tolba (Editor), Oxford, United Kingdom: Eolss Publishers Co. Ltd., pp. 245-251.
- 2002 Robert C. Balling, Jr. "A Climate of Uncertainty in the Greenhouse Century." Chapter 9 in *Sustainable Development: Promoting Progress or Perpetuating Poverty*. Julian Morris, pp. 145-158.
- 2005 Robert C. Balling, Jr. and Randall S. Cerveny. "Winds and Wind Systems." *The Encyclopedia of World Climatology*. John E. Oliver, editor. Dordrecht, Netherlands: Springer, pp. 813-819.
- 2005 Robert C. Balling, Jr. "Interactions of Desertification and Climate in Africa." Chapter 4 in *Climate Change and Africa*. Pak Sum Low, editor. Cambridge, UK: Cambridge University Press, pp. 41-49.
- 2005 Robert C. Balling, Jr. "Observational Surface Temperature Records Versus Model Predictions." Chapter 3 in *Shattered Consensus: The True State of Global Warming*. Patrick J. Michaels, editor. Lanham, Maryland: Rowman and Littlefield Publishers, Inc., pp. 50-71.

## Sponsored Projects:

- 1979 "A Preliminary Assessment of the Relationship Between Climate and Cattle Performance in the State of Nebraska," Summer Research Faculty Fellowship, Nebraska Agricultural Experiment Station, \$6,200.
- 1980 "Development of Cattle Performance - Climate Models for Nebraska," Summer Research Faculty Fellowship, Nebraska Agricultural Experiment Station, \$5,700.
- 1981 "Refinement and Verification of Cattle Performance Models Based on Selected Climatic Variables," with G. LeRoy Hahn, Summer Research Faculty Fellowship, Nebraska Agricultural Experiment Station, \$6,100.
- 1983 "Interaction Between Surface Water Area and Ground Water Level: A Digital Landsat Approach to the Sandhills Model," with Merlin P. Lawson and Donald C. Rundquist. Water Resources Center, University of Nebraska, \$19,980.
- 1983 "Analysis of Great Plains Diurnal Precipitation Patterns," with Merlin P. Lawson, University of Nebraska Research Council, \$1,165.
- 1984 "Thermal-Infrared Remote Sensing of Near Surface Moisture: A Case Study in the Nebraska Sandhills," with Donald C. Rundquist, Merlin P. Lawson, and Lloyd P. Queen, United States Office of Water Research and Technology, \$18,533.
- 1984-1985 "Analysis of Long-Term (30-Year) Summertime Diurnal Precipitation Patterns in the Central United States," United States Department of Commerce, National Oceanic and Atmospheric Administration, \$13,589.
- 1985 "Improved Precipitation Forecasting in the Salt and Verde River Basin," with Anthony J. Brazel, Salt River Project, \$14,311.
- 1985-1986 "Evaluation of the Salt River Project's St. Johns and Page Solar Data Bases," with Anthony J. Brazel, Salt River Project, \$4,410.
- 1985-1986 "Analysis of the Time and Space Dimensions of the Urban Heat Island in Metropolitan Phoenix, Arizona," with Anthony J. Brazel, Salt River Project, \$15,000.
- 1986-1987 "Analysis of the Impacts of Land-Use on the Metropolitan Phoenix, Arizona Temperature Patterns," with Anthony J. Brazel, Salt River Project, \$19,918.
- 1986-1987 "Improvements upon Salt River Project's Winter and Spring Runoff Models," with Anthony J. Brazel, Salt River Project, \$18,498.
- 1987 "Analysis of Selected 'SCENES' Data from the Glen Canyon Measurement Program," with Anthony J. Brazel, Salt River Project, \$13,965.
- 1987 "Analysis of the Relationship Between Wind Direction Readings at Winslow and St. Johns, Arizona," with Anthony J. Brazel and Randall S. Cervený, Salt River Project, \$6,982.
- 1987 "Weather Impacts on Municipal Water Demand Patterns and Implications for Conservation Programs: The Climatological Analyses," with Anthony J. Brazel, Arizona Department of Water Resources, \$6,600.
- 1987-1988 "Phoenix Heat Island Climate Monitoring Program," with Anthony J. Brazel, Salt River Project, \$66,278.

- 1987-1988 "Late Quaternary Paleohydrology of the Eastern Mojave River Drainage, Southern California," with Stephen G. Wells, Roger Y. Anderson, Leslie D. McFadden, Peter F. Lagasse, and James Scholl, United States Geological Survey and the New Mexico Water Resources Research Institute (awarded to the University of New Mexico), \$143,696.
- 1987-1989 "Land Surface Parameter Variability and Climate in Southwestern North America," with Anthony J. Brazel, National Aeronautics and Space Administration, Jet Propulsion Laboratory, \$127,731.
- 1987-1988 "Selected Wind Speed and Temperature Probabilities in Phoenix, Arizona." with Randall S. Cerveny. Salt River Project, \$4,998.
- 1987-1988 "Analysis of High-Resolution Nighttime Thermal Patterns in the Phoenix Metropolitan Area." with Anthony J. Brazel. Salt River Project, \$17,960.
- 1988 "A Synoptic Typing for Northern Arizona: The Development and Utility of a Three-Dimensional Model to Evaluate Variations in Visibility." with Laurence S. Kalkstein, Salt River Project (awarded to the University of Delaware), \$19,971.
- 1988 "Analysis of Weather Normalization Procedures for a Water Demand Model in Phoenix, Arizona." with Randall S. Cerveny, Salt River Project, \$4,924.
- 1989 "Development of Weather Normalization Schemes for Use in SRP's Water Demand Model." with Randall S. Cerveny, Salt River Project, \$20,103 (Tasks One, Two, Three).
- 1989 "Analysis of Surface and Air Temperature Relationships in Phoenix, Arizona." with Anthony J. Brazel and Tomas A. Miller, Salt River Project, \$10,833.
- 1989 "Analysis of Seasonal Mean Temperatures and Extreme Value Distributions in Phoenix." Salt River Project, \$3,988.
- 1989 "Meteorological Monitoring for SRP's Fence Lake, New Mexico Coal Mine." with Tomas A. Miller, Salt River Project, \$7,966.
- 1989 "Climatic Data for Electrical Load Modeling." with Herbert J. Verville, Arizona Corporation Commission, \$9,594.
- 1989 "Personnel Requirements for Support of the Developing 'PRISMS' Meteorological Network." with Anthony J. Brazel and Tomas A. Miller, Arizona Department of Environmental Quality, \$18,001.
- 1989 "Meteorological Monitoring at the Fence Lake Coal Mine Site." with Tomas A. Miller, Applied Environmental Consultants, \$17,588.
- 1989 "Analysis of Hurricane Activity During Warm and Cold Years: Search for a Greenhouse Signal." with Randall S. Cerveny and Sherwood B. Idso, Cyprus Minerals Company, \$19,822.
- 1989 "Evaluation of Projected Increases in Precipitation from Cloud Seeding on the Salt and Verde Watersheds utilizing Suspension Criteria." Salt River Project, \$17,490.
- 1989 "Analysis of the Time and Space Characteristics of Extreme Rainfall Events in the Gila River Basin." Flood Control District of Maricopa County, Arizona, \$28,563.
- 1989 "Likely Effects of Greenhouse Warming on Maximum Summer Temperatures." with Sherwood B. Idso. Cyprus Minerals Company, \$12,442.

- 1990 "How Changes in Cloud Cover Moderate Greenhouse Warming." with Sherwood B. Idso. Cyprus Minerals Company, \$13,430.
- 1990 "Holocene and Modern Geomorphic Response to Wildfires and Climate Change in Northeastern Yellowstone National Park." Stephen G. Wells, Grant A. Meyer, and as collaborators, Robert C. Balling, Jr. and Kenneth L. Pierce, National Science Foundation (#EAR 9005058), \$71,640.
- 1990 "Measurement and Analysis of Power-Line-Height Summertime Winds and Temperature Patterns." with Tomas A. Miller. Arizona Public Service Company, \$4,656.
- 1990 "Meteorological Monitoring at the Fence Lake Coal Mine Site." with Tomas A. Miller and Herbert J. Verville. Applied Environmental Consultants, \$12,952.
- 1990 "The CO<sub>2</sub> Greenhouse Effect and U.S. Precipitation Trends: Is There a "Super Dust Bowl" in our Future?" with Sherwood B. Idso. Cyprus Minerals Company, \$13,430.
- 1990 "Greenhouse Cooling" with Sherwood B. Idso. Cyprus Minerals Company, \$13,430.
- 1991 "Personnel Support for Hydrological Research." with Herbert J. Verville and Randy Sedlacek. Phoenix Water and Wastewater Department, \$50,576.
- 1991 "Implications of Potential Northern Hemispheric Warming for British Frontal Storms." with Randall S. Cerveny and Sherwood B. Idso. British Coal Corporation, \$29,712.
- 1991 "Analysis of British Temperature and Precipitation Records: Search for the Greenhouse Signal." Robert C. Balling, Jr. and Sherwood B. Idso. British Coal Corporation, \$34,057.
- 1991 "Wind Tests for PRISMS Equipment." Robert C. Balling, Jr. and Herbert J. Verville. Salt River Project, \$1,429.
- 1992 "Analysis of European Temperature and Precipitation Records: Continued Search for the Greenhouse Signal." Robert C. Balling, Jr. and Sherwood B. Idso. British Coal Corporation, \$39,775.
- 1992 "Microclimatic Survey of PRISMS Sites." Anthony J. Brazel and Robert C. Balling, Jr. Salt River Project, \$10,025.
- 1992 "Analysis of Australian Temperature Variations During the Period of Instrumental Record." Robert C. Balling, Jr. Funded by Kenneth J. Barr, \$4,904.
- 1992 "Effects of Atmospheric CO<sub>2</sub> Enrichment on Global Carbon Cycling." Robert C. Balling, Jr. The Waters Foundation, \$36,525.
- 1992 "Meteorological Monitoring at the Fence Lake Coal Mine Site: 1992-93." Herbert J. Verville and Robert C. Balling, Jr. Applied Environmental Consultants, \$13,604.
- 1993 "Effects of Atmospheric CO<sub>2</sub> Enrichment on Global Carbon Cycling." Robert C. Balling, Jr. The Waters Foundation, \$40,000.
- 1993 "Analysis of German Temperature and Precipitation Records: A Search for CO<sub>2</sub> and SO<sub>2</sub> Signals." Robert C. Balling, Jr. Gesamtverband des Deutschen Steinkohlen-bergbaus (German Coal Mining Association), \$39,980.

- 1994 "Development of Long-Range Statistical Forecast Guidance for Arizona Monsoon Precipitation." Robert C. Balling, Jr., Anthony J. Brazel, and Randall S. Cerveny. Western Region Climate Center/National Oceanic and Atmospheric Administration, \$10,633.
- 1994 "Hydrologic, Geomorphic, and Chronologic Record of Paleofloods, Lake-Building Events, and Climate Change During the Late Quaternary: Analysis of Integrated Fluvial/Pluvial Lake Systems in the Semiarid to Hyperarid Amargosa River Watershed, California and Nevada." S.G. Wells, D.E. Anderson, R.C. Balling, Jr., A.J.T. Jull, C.D. Harrington, and J. Poths. National Science Foundation, \$180,000.
- 1995 "Analysis of Global-Scale Trends in the Diurnal Temperature Range." R.C. Balling, Jr. Gesamtverband des Deutschen Steinkohlenbergbaus, \$41,800.
- 1995 "Preparation of Verde Watershed Climatic Data for Internet Users." R.C. Balling, Jr. United States Department of Agriculture, Natural Resources Conservation Services, \$2,000.
- 1995 "Development and Analysis of Long-Term Historical European Temperature Records." R.C. Balling, Jr., R.S. Vose, and G.-R. Weber. Gesamtverband des Deutschen Steinkohlenbergbaus, \$48,820.
- 1996 "Identification and Analysis of Historical Temperature Records from Southern Africa." Russell S. Vose and Robert C. Balling, Jr. National Oceanic and Atmospheric Administration and Department of Energy, \$21,510.
- 1996 "Changing Land Use Patterns along the United States-Mexican Border: Effects on Ecosystem Structure and Climate Feedbacks." J.M. Klopatek, R.C. Balling, Jr., A.J. Brazel, J. Franklin, and C.J. Watts. Southwest Center for Environmental Research and Policy (SCERP), \$118,327.
- 1996 "Biological Benefits of Earth's Rising Atmospheric CO<sub>2</sub> Concentration Inferred from Climatic Analyses of North American Growing Season Durations and Rates of Initial Spring Warming." Robert C. Balling, Jr. and Craig D. Idso. Cyprus Amax Minerals Company, \$23,647.
- 1997 "Digital Image Processing of Glass Weathering." Ronald I. Dorn and Robert C. Balling, Jr. Sandia National Laboratories, \$20,000.
- 1998 "Is the Recent Phase Shift of the Atmosphere's Seasonal CO<sub>2</sub> Cycle Due to Global Warming or the Aerial Fertilization Effect of Atmospheric CO<sub>2</sub> Enrichment." Robert C. Balling, Jr. and Craig D. Idso. Cyprus Amax Minerals Company, \$29,832.
- 1998 "Historical Records of Climate in the Valley." R.C. Balling, Jr. (Team Leader). CAP LTER Pilot Project.
- 1998 "Land Use Change along the United States-Mexican Border: Ecosystem Effects and Climate Feedbacks." J.M. Klopatek, R.C. Balling, Jr., A.J. Brazel, J. Franklin, and C.J. Watts. Southwest Center for Environmental Research and Policy (SCERP), \$58,897.
- 1998 "Edna Bailey Susman Fund Environmental Internships." Robert C. Balling, Jr., The Edna Bailey Sussman Fund, \$17,420.
- 1998 "Evaluation of Schumann Resonance as an Additional Method for Accurately Measuring Global Temperatures." Robert C. Balling, Jr., Exxon Corporation, \$49,535.
- 1998 "Establishment and Operationalization of a Climate Data Task Force." Robert C. Balling, Jr. and Russell S. Vose, The Greening Earth Society, \$89,212.

- 1999 “Dynamics of an Urban Carbon Dioxide Dome.” Robert C. Balling, Jr., Thomas A. Day, H.J.S. Fernando, Patricia Gober, Timothy D Hogan, Jeffrey M. Klopatek, and Elizabeth A. Wentz, National Science Foundation, \$498,367.
- 1999 “Temperature and Wind Speed Probabilities in the Phoenix Metropolitan Area.” Nancy J. Selover and Robert C. Balling, Jr., Salt River Project, \$10,663.
- 2000 “Establishment and Operationalization of a Climate Data Task Force.” Robert C. Balling, Jr. and Russell S. Vose, The Greening Earth Society, \$89,212..
- 1999 “The 2000 United States Historical Climate Network Update: What Changed?” Robert C. Balling, Jr. and Craig D. Idso, ExxonMobil Foundation, \$49,500.
- 2002 “Atmospheric, Hydroclimatic, and Anthropogenic Causes of Fugitive Dust in the Nogales, Arizona/Sonora Airshed.” Andrew W. Ellis and Robert C. Balling, Jr., Southwest Center for Environmental Research and Policy (SCERP), \$57,044.
- 2002 “Analysis of Historical Patterns in Hurricane Intensification, Length of the Hurricane Season, and Geographic Position of Hurricanes.” Robert C. Balling, Jr. and Randall S. Cerveny. American Petroleum Institute, \$38,166.
- 2004- “Decision Center for a Desert City: The Science and Policy of Climate Uncertainty.” Patricia A. Gober and Charles L. Redman, Principal Investigators; Robert C. Balling, Jr. as Climate Science Knowledge and Engagement Team’s Co-Leader. National Science Foundation, \$6,900,000 (my recognition is \$374,897).
- 2006 “Spatial Analysis and Integrated Visualization of Factors Contributing to the Transmission of West Nile Virus in Arizona.” R.F. Shangraw, Timothy Lant, Robert Balling, and Anshuman Razdan. Arizona Department of Health Services, \$49,929 (my recognition is \$9,986).
- 2007 “Implementing the Hydroclimatic Index in Short and Long Term Drought Forecasting within the Colorado River Basin.” Andrew W. Ellis and Robert C. Balling, Jr. United States Department of the Interior, Bureau of Reclamation, \$24,863 (my recognition is \$1,244).
- 2008 “Spatial and Temporal Analysis of Climatological Variations in Isentropic Surfaces.” Randall S. Cerveny, Robert C. Balling, Jr., and Andrew W. Ellis. National Science Foundation (Geography and Regional Science Program and the Climate and Large-Scale Dynamics Program), \$99,425 (my recognition is \$33,142).



### Consulting Contracts:

- 1986 "Analysis of 1984 Precipitation Patterns in Paradise Valley, Arizona." Evans, Kitchel, and Jenckes Professional Corporation, Phoenix, Arizona.
- 1986 "Assessment of Meteorological Impacts on Visibility in the Four Corners Area." Applied Environmental Consultants, Inc., Tempe, Arizona.
- 1986-1990 "Temporal Analysis of Precipitation Regimes in West-Central New Mexico." United States Department of Justice, Washington, D.C.
- 1986-1988 "Development of Operational Evapotranspiration Models for Turf Grass Surfaces." with Kenneth B. Christley, Rain Bird Sprinkler Manufacturing Corporation, Glendora, California.
- 1986-1987 "Examination of the 10 August 1981 Mesoscale Convective System of Northwestern Arizona." Evans, Kitchel, and Jenckes Professional Corporation, Phoenix, Arizona.
- 1986-1990 "Frost and Freeze Risk Assessment of the 4-K Jojoba Ranch." 4-K Jojoba Ranch, Stanfield, Arizona.
- 1987 "Assessment of Solar Radiation Characteristics for 3 June 1985." Law Offices of Mallin and Brown, Phoenix, Arizona.
- 1987 "Characterization of the 8 August 1983 Convective Storm in Southwestern Arizona." Water Resources Associates, Inc., Phoenix, Arizona.
- 1987 "Characterization of the 28 August 1986 Convective Storm in Glendale, Arizona." Law Offices of Killian, Legg, Nicholas, Fischer, Wirken, Cook, and Pew, Mesa, Arizona.
- 1987 "The 1984 Summer Monsoon Intensity of Hayden, Arizona." Law Offices of Bonnett, Fairbourn, and Friedman, Phoenix, Arizona.
- 1987 "Meteorological Conditions on 23 February 1983 for the Chino Valley, Arizona." Law Offices of Bonnett, Fairbourn, and Friedman, Phoenix, Arizona.
- 1987 "Determination of the Sun's Position on the Morning of 14 March 1987 at the Intersection of Lone Mountain and Scottsdale Roads." William M. Spence, Ltd., Phoenix, Arizona.
- 1987-1988 "Climatic Analysis of the October 1983 Flood in Tucson, Arizona." Office of the Pima County Attorney, Civil Division, Tucson, Arizona.
- 1988 "Characterization of a March 1983 Cyclonic Storm in Phoenix." Law Offices of Renaud, Cook, Videan, Geiger, and Drury, Phoenix, Arizona.
- 1988-1989 "Climatic Change in the Platte River Watershed." Attorney General's Office, State of Wyoming, Cheyenne, Wyoming.
- 1988 "Climatic Analysis of the October 1983 Flood in Tucson, Arizona." Office of the Pima County Attorney, Civil Division, Tucson, Arizona.

- 1989 "Reconstruction of Winter Conditions in Northeastern Arizona." Attorney General's Office, State of Arizona, Phoenix, Arizona.
- 1989 "Analysis of Convective Storm Patterns near Apache Junction, Arizona." United States Department of Justice, Washington, D.C.
- 1989 "A Critical Review of Black and Veatch's 'CO<sub>2</sub> Emissions and the Greenhouse Effect.'" Black and Veatch, Kansas City, Missouri.
- 1989 "Analysis of Peak Wind Gusts during March in Phoenix, Arizona." Langerman, Begam, Lewis, and Marks Professional Association, Phoenix, Arizona.
- 1990 "Analysis of the Atmospheric Modeling Component of the Army's Plan to Dispose Chemical Munitions." Centers for Disease Control, Atlanta, Georgia.
- 1990 "Climatological Monitoring in Kuwait." Kuwait Institute for Scientific Research, Kuwait City, Kuwait.
- 1992 "Analysis of Recent Precipitation Patterns in the Lake Pleasant, Arizona Area." Ebasco Constructors, Inc., Phoenix, Arizona.
- 1993-1994 "Assessment of the Interactions of Desertification and Climate." United Nations Intergovernmental Negotiating Committee for a Convention to Combat Desertification, Geneva, Switzerland.
- 1993-1994 "Interactions of Desertification and Climate." United Nations Environment Program and the World Meteorological Organization, Nairobi, Kenya and Geneva, Switzerland.
- 1994 "Analysis of Precipitation Patterns in Central Arizona in December, 1992 and January, 1993." Law Offices of Myers and Jenkins, Phoenix, Arizona.
- 1995 "Analysis of a Flooding Event in Scottsdale, Arizona." Murphy Law Office, Scottsdale, Arizona.
- 1995 "Analysis of Meteorological Conditions near Redrock, Arizona." Law Offices of Gordon Cook, Tucson, Arizona.
- 1995 "Assessment of Global Warming Effects of Externality Taxes in Minnesota." Western Fuels, Inc., Washington, D.C.
- 1995 "Further Analysis of Soil Moisture Patterns in the Lake Pleasant, Arizona Area." Raytheon, Phoenix, Arizona.
- 1995 "The Greenhouse Effect and Its Implications to Power Plant Development in Washington." KVA Resources Incorporated, Spokane Washington.
- 1995 "The Greenhouse Effect and Its Implications to Power Plant Development in Oregon." Ida-West Energy Company, Boise, Idaho.
- 2001 "Assessment of Research Activities Related to Brazilian Hydrometeorology." Program for Research and Operation of the Integrated Hydrometeorological System for São Paulo State, São Paulo, Brazil.
- 2002 "Assessment of Potential Changes in Climatic Normals in the Greater Cincinnati Area." McNees, Wallace, and Nurick LLC, Columbus, Ohio.

## Papers Presented:

- 1977 "Analysis of Continentality Patterns in the United States." with Maurice R. Hackett. 73rd Annual Meeting of the Association of American Geographers, Salt Lake City, Utah, April.
- 1978 "An Anomaly in the Pattern of Acidic Precipitation." 74th Annual Meeting of the Association of American Geographers, New Orleans, Louisiana, April.
- 1980 "The Sensitivity of Surface Climatic Elements to an Atmospheric Circulation Change." 76th Annual Meeting of the Association of American Geographers, Louisville, Kentucky, April.
- 1981 "Climatic Effects on Feedlot Cattle: Growth and Death Losses." with G. LeRoy Hahn. American Meteorological Society's Fifth Conference on Biometeorology, Anaheim, California, March.
- 1981 "Reconstructing the Climatic Past." 26th Nebraska Conference on Hydrology, Kearney, Nebraska, October.
- 1982 "A Climatology of Diurnal Precipitation Patterns in the Great Plains." 78th Annual Meeting of the Association of American Geographers, San Antonio, Texas, April.
- 1982 "Harmonic Analysis of Monthly Insolation Levels in the United States." Annual Meeting of the Great Plains - Rocky Mountain Division of the Association of American Geographers, Laramie, Wyoming, September.
- 1983 "Spatial and Temporal Structures in Monthly Insolation Levels." 79th Annual Meeting of the Association of American Geographers, Denver, Colorado, April.
- 1983 "A Three-Dimensional Approach to the Study of Diurnal Precipitation Patterns in the American Plains." Second International Meeting on Statistical Climatology, Lisbon, Portugal, September.
- 1984 "Intermonthly Patterns in Great Plains Nocturnal Rainfall." 80th Annual Meeting of the Association of American Geographers, Washington, D.C., April.
- 1984 "Numerical Experiments with the Global Energy Balance Model CONSTABLE." with Randall S. Cerveny. 15th Annual Pittsburgh Conference on Modeling and Simulation, Pittsburgh, Pennsylvania, April.
- 1985 "CONSTABLE as a Classroom Climate Model." with Randall S. Cerveny. 81st Annual Meeting of the Association of American Geographers, Detroit, Michigan, April.
- 1985 "Impacts of Nuclear War: Results from an Energy Balance Global Climate Model." with Joachim A. Schumacher and Randall S. Cerveny. 28th Annual Meeting of the Arizona - Nevada Academy of Science, Las Vegas, Nevada, April.
- 1985 "Warm Season Nocturnal Precipitation in the North American Great Plains." American Meteorological Society's Fourth Conference on Applied Climatology, Scottsdale, Arizona, May.
- 1985 "Diurnal Patterns in Warm Season Precipitation Frequencies in the Central United States." National Oceanic and Atmospheric Administration Environmental Research Laboratory, Boulder, Colorado, September.
- 1986 "Operational Evapotranspiration Models for Golf Course Managers." with Kenneth B. Christley. 57th International Golf Course Conference, Golf Course Superintendent's Association of America, San Francisco, California, January.
- 1986 "Human Comfort and Summertime Weather Stress in a Desert Environment." with Sandra W. Brazel. Invited Lecture Series, United States Military Academy, West Point, New York, March.

- 1986 "PALMER: A Model for Simulating Evapotranspiration from Golf Courses in Arid Lands." 17th Annual Pittsburgh Conference on Modeling and Simulation, Pittsburgh, Pennsylvania, April.
- 1986 "Temporal Trends in Phoenix Moisture, Temperature, and Discomfort Levels." with Sandra W. Brazel. 29th Annual Meeting of the Arizona-Nevada Academy of Science, Glendale, Arizona, April.
- 1986 "PALMER: A Model for Estimating Evapotranspiration from Golf Courses in Arid Regions." 82nd Annual Meeting of the Association of American Geographers, Minneapolis-St. Paul, Minnesota, May.
- 1986 "Error Measures for Evaluating the Representativeness of Divisional Climatic Data." with Anthony J. Brazel. Third International Meeting on Statistical Climatology, Vienna, Austria, June.
- 1987 "Climatological Procedures for Assessing the Frost Hazard." Jojoba Cultural Practices Symposium, Riverside, California, April.
- 1987 "Long Term Patterns of Urban Haze and Smoke in Phoenix." with Anthony J. Brazel and Sandra J. Brazel. 30th Annual Meeting of the Arizona-Nevada Academy of Science, Flagstaff, Arizona, April.
- 1987 "Cold Air Ponding over Jojoba Fields due to Canal Construction." with Melvin G. Marcus. 30th Annual Meeting of the Arizona-Nevada Academy of Science, Flagstaff, Arizona, April.
- 1987 "Development of an Aeration Basin Odor Scrubber: Applied Modeling for Reducing Odors from Wastewater Treatment Facilities." with Carroll E. Reynolds. 18th Annual Pittsburgh Conference on Modeling and Simulation, Pittsburgh, Pennsylvania, April.
- 1987 "Diurnal Variations in the Warm Season Precipitation Frequencies of the Central United States." 83rd Annual Meeting of the Association of American Geographers, Portland, Oregon, April.
- 1987 "The Phoenix Summer Midnight Rain Phenomenon." with Anthony J. Brazel. 83rd Annual Meeting of the Association of American Geographers, Portland, Oregon, April.
- 1987 "The Arizona Tornado of November 18, 1986." with Royal Norman, Jr. Second Annual Arizona Severe Weather Symposium, Phoenix, Arizona, June.
- 1987 "Seasonality of Winds Above the Ground at a Site of Complex Terrain." with Joe L. Sutherland. American Meteorological Society's Fourth Conference on Mountain Meteorology, Seattle, Washington, August.
- 1987 "Historic Rainfall Patterns and Arroyo Activity within the Zuni River Drainage Basin, New Mexico." with Stephen G. Wells. Fall Meeting of the American Geophysical Union, San Francisco, California, December.
- 1988 "Arroyo Cutting and Flood Events in the American Southwest: Role of Historic Climatic Patterns, Atmospheric Circulation Patterns, and Volcanic Activity." with Stephen G. Wells and Randall S. Cerveny. 84th Annual Meeting of the Cordolellerian Section, Geological Society of America, Las Vegas, Nevada, March.
- 1988 "Time-Domain Modeling of Great Salt Lake Water Levels." 19th Annual Pittsburgh Conference on Modeling and Simulation, Pittsburgh, Pennsylvania, May.
- 1988 "The Climatic Impact of a Sonoran Vegetation Discontinuity." with Anthony J. Brazel. 26th International Geographical Union Congress, Sydney, Australia, August.

- 1988 "Large-Scale "Anomalous" Northern Pacific Storm Patterns Recorded in the Mojave River Hydrologic System." with Yehouda Enzel, Daniel R. Cayan, Stephen G. Wells, Roger Y. Anderson, and William J. Brown. Fall Meeting of the American Geophysical Union, San Francisco, California, December.
- 1989 "Assessment of Recent Great Salt Lake Climatic Conditions using a Box-Jenkins Model." Fourth International Meeting on Statistical Climatology, Rotorua, New Zealand, March.
- 1989 "Palm Springs: The Cool Island of the Desert." with Nina K. Lolk. 33rd Annual Meeting of the Arizona-Nevada Academy of Science, Las Vegas, Nevada, April.
- 1989 "Tempe, Arizona Climate Change: Searching for a Clean Urban Climate Signal." with Sandra W. Brazel. 33rd Annual Meeting of the Arizona-Nevada Academy of Science, Las Vegas, Nevada, April.
- 1989 "Using Remotely Sensed Data to Monitor Land Surface Climatology Variations in a Semi-Arid Grassland." with Lee F. Johnson, Nevin A. Bryant, Anthony J. Brazel, and Charles F. Hutchinson. 12th Canadian Symposium on Remote Sensing and International Geoscience and Remote Sensing Symposium, Vancouver, British Columbia, Canada, July.
- 1989 "Greenhouse Warming: Is There Another Side to the Story?" 15th Annual Energy Conference, Western Fuels Association, Denver, Colorado, July.
- 1989 "Climatic Impacts of Differential Overgrazing along the Arizona/Sonora Border." with Tomas A. Miller. Annual Meeting of the Association of Pacific Coast Geographers, Fairbanks, Alaska, September.
- 1989 "Modern Arroyo Processes and Holocene Valley Floor Evolution in the Semiarid Southwestern USA: Role of Climatic Change." with Stephen G. Wells. Second International Conference on Geomorphology, Symposium S-9: Floodplain Evolution, Gottingen, Federal Republic of Germany, September.
- 1989 "The Greenhouse Effect and 100 Years of Temperature Records: The Mismatch of the Century?" Annual Meeting of Basin Electric Company, Bismarck, North Dakota, November.
- 1989 "Confusing Signals in Global Climate Change." with Randall S. Cerveny. Annual Meeting of the National Science Teachers Association, Phoenix, Arizona, December.
- 1989 "Greenhouse Warming: Where is the Evidence?" National Association of Manufacturers and Florida Power and Light Company Meeting on Global Climate, Miami, Florida, December.
- 1990 "Greenhouse Warming: A Different Perspective." The Arizona Senate, Phoenix, Arizona, April
- 1990 "Box-Jenkins Modelling of Great Salt Lake Water Levels." 86th Annual Meeting of the Association of American Geographers, Toronto, Ontario, Canada, April.
- 1990 "The Greenhouse Effect: The Other Consensus." Watt Committee on Energy Invited Lecture, British Coal Association, London, England, September.
- 1990 "A Rational View of the Greenhouse World." Mid-Continent Area Power Pool's Conference on Megatrends '90, Bloomington, Minnesota, September.
- 1990 "A Rational View of the Greenhouse World." Political Economy Research Center's Tenth Annual National Conference for Journalists, Big Sky, Montana, September.

- 1990 "Desertification and Global Temperature Trends." Arizona State University's Laboratory of Climatology Conference (Towards a Balanced View of Global Change: Development of a Research Agenda), Phoenix, Arizona, October.
- 1990 "Desertification and Global Warming." University of Virginia, Department of Environmental Sciences Seminar Series, Charlottesville, Virginia, November.
- 1990 "Global Warming: The Other Consensus." Edison Electric Institute's Conference on Emerging Environmental Issues, Tucson, Arizona, December.
- 1990 "Will Global Warming be the Limit?." Political Economy Research Center's Sixth Annual Seminar for Congressional Staff Members, Big Sky, Montana, December.
- 1990 "A Rational View of Global Warming." Montana State University, Center for High Elevation Studies Seminar Series, Bozeman, Montana, December.
- 1991 "Global Climatic Change: A New Vision for the 1990s." with Hugh W. Ellsaesser, Patrick J. Michaels, S. Fred Singer, and Gerd R. Weber. National Press Club, Washington, D.C., February.
- 1991 "Global Warming - Beyond the Buzzwords." The Hazlett A. Cochran Journalism Seminar, University of Denver, Denver, Colorado, February.
- 1991 "Greenhouse: The Other Consensus." Mining Association of British Columbia Symposium, Vancouver, British Columbia, Canada, February.
- 1991 "Investigation of Fire-Climate-Alluvial System Linkages in Yellowstone National Park." with Grant A. Meyer and Stephen G. Wells. Eighth Annual Pacific Climate Workshop, Pacific Grove, California, March.
- 1991 "The Greenhouse Effect and the New Ecology." Symposium of the Greater Phoenix United Nations Chapter, Phoenix, Arizona, April.
- 1991 "Impact of Desertification on Global Warming." 87th Annual Meeting of the Association of American Geographers, Miami, Florida, April.
- 1991 "Carbon Dioxide and Hurricanes." with Randall S. Cerveny and Sherwood B. Idso. 87th Annual Meeting of the Association of American Geographers, Miami, Florida, April.
- 1991 "The Greenhouse Effect: Can Public Perception be Changed?" Annual Meeting of the Barry Goldwater Institute for Public Policy Research, Mesa, Arizona, April.
- 1991 "The Greenhouse Effect and the Financial Challenge of the 1990s." Annual Meeting of the Canadian Financial Executives Institute, Kananaskis, Alberta, Canada, May.
- 1991 "Desertification Effects on Global Temperatures." IPCC Scientific Supplement Meeting, Asheville, North Carolina, August.
- 1991 "An Alternative View of Global Warming." Annual Conference of the National Council of State Garden Clubs, Inc., New Orleans, Louisiana, September.
- 1991 "Global Warming - When Theory Overshadows the Data." CEO Conference on Global Warming, Minneapolis-St. Paul, Minnesota, October.
- 1991 "The Impact of Desertification on Global Warming." University of Melbourne's International Conference on the Physical Causes of Drought and Desertification, Melbourne, Australia, December.

- 1991 "Global Warming: Measuring the Heat." Tasman Institute Seminar Series, Melbourne, Australia, December.
- 1991 "An Alternate View of the Global Warming Issue." Centre for Resource and Environmental Studies, Australia National University, Canberra, Australia, December.
- 1992 "A New Consensus on Global Warming." Edison Electric Institute's Governmental Affairs Conference, Marco Island, Florida, January.
- 1992 "CO<sub>2</sub>, Externalities, Global Warming, and the Regulators." with Fredrick D. Palmer, Patrick J. Michaels, and Mark P. Mills. CEO/Executive Conference on Global Warming, Phoenix, Arizona, January.
- 1992 "Is the Planet Really Warming?" Climate Change Coalition's United Nations Program, New York, New York, February.
- 1992 "Effects of Late Holocene Climate Change on Forest Fires and Related Alluvial Activity in Yellowstone National Park." with Grant A. Meyer, Stephen G. Wells, and A.J. Timothy Jull. PACLIM '92, Monterrey, California, April.
- 1992 "Heated Debate: The Other Side of the Greenhouse Issue." Arizona State University's Fourth Annual National Issues Conference (Insuring Tomorrow), Tempe, Arizona, April.
- 1992 "An Introduction to *The Heated Debate*." Tasman Institute Seminar Series, Melbourne, Australia, May.
- 1992 "The Greenhouse Effect: A Different Perspective for Australian Policymakers." Australian House of Representatives Standing Committee on the Environment, Canberra, Australia, May.
- 1992 "A Different View of Global Warming." Australian Centre for Independent Studies Seminar Series, Sydney, Australia, May.
- 1992 "Global Warming or a Lot of Hot Air?" Political Economic Research Center's Seminar Series on Free Market Environmentalism, Bozeman, Montana, July.
- 1992 "The Politics of Global Warming." American Farm Bureau Federation's Commodity and Marketing Personnel Conference, Cedar, Michigan, July.
- 1992 "Global Warming and Environmental Externalities: The Science, the Cost and the Economic Impacts." 19th Annual Meeting of the American Legislative Exchange Council, Colorado Springs, Colorado, August.
- 1992 "Greenhouse Effect: The Other Consensus." The Foundation for Research on Economics and the Environment, Big Sky, Montana, August.
- 1992 "Building Responsible Greenhouse Policy." The Foundation for Research on Economics and the Environment, Big Sky, Montana, August.
- 1992 "Global Warming: The Other Consensus." Air and Waste Management Association (Grand Canyon Sectional Meeting), Phoenix, Arizona, September.
- 1992 "Global Climate Change?" 39th Annual Area Power Conference, Duluth, Minnesota, October.
- 1992 "Desertification and Its Impact on Global Temperatures." United Nations Expert Meeting on Desertification, Land Degradation, and the Global Environmental Facility, Nairobi, Kenya, October.

- 1992 "Greenhouse Effect: Act Now or Act Later?" A Debate with Bruce Babbitt, Harvard Issues Forum, Phoenix, Arizona, November.
- 1993 "A Different Vision of Global Warming." State of Vermont Public Service Board, Montpelier, Vermont, February.
- 1993 "Where's the Warming: An Alternative View of Global Warming." Northern Arizona University's Insuring Tomorrow Conference, Flagstaff, Arizona, February.
- 1993 "Recent Scientific Developments on Global Warming." Edison Electric Institute's Environment and Energy Committee Meeting, Scottsdale, Arizona, February.
- 1993 "The Debate: Is Global Warming a Real Threat?" Association of American Railroad's Legislative Conference, La Quinta, California, February.
- 1993 "Global Warming: The Other Consensus." Keynote Address for the Utility Coal Conference, St. Louis, Missouri, February.
- 1993 "An Alternative View of Global Warming." The Wharton School of the University of Pennsylvania, Philadelphia, Pennsylvania, February.
- 1993 "An Alternative View of Global Warming." The Amos Tuck School of Business Administration, Dartmouth College, Hanover, New Hampshire, March.
- 1993 "An Update on the Greenhouse Debate." Annual Meeting of the National Coal Association, Phoenix, Arizona, March.
- 1993 "Greenhouse Predictions Versus Climate Reality." Monthly Meeting of Western Industrial Nevada (WIN), Reno, Nevada, March.
- 1993 "Desertification and Global Climate Change." Second Meeting of the United Nations International Panel of Experts on Desertification, Geneva, Switzerland, April.
- 1993 "The Heated Debate: Greenhouse Predictions and Climate Reality." Environmental Seminar Series, Rhode Island College, Providence, Rhode Island, April.
- 1993 "Doomsayers and the Global Warming Debate." The American Forum in Hollywood, Hollywood, California, May.
- 1993 "Interactions between Climate and Desertification." United Nations Intergovernmental Negotiating Committee for the Elaboration of an International Convention to Combat Desertification, Nairobi, Kenya, May.
- 1993 "Interpreting the Global Temperature Record." European Academy for Environmental Affairs, Mannheim, Germany, June.
- 1993 "Interactions between Climate and Desertification." Third Meeting of the United Nations International Panel of Experts on Desertification, Geneva, Switzerland, August.
- 1993 "Fire, Climate, and Alluvial Systems in Yellowstone: 10,000 Years of Landscape Change." with Grant A. Meyer, Stephen G. Wells, and A.J. Timothy Jull. Second Biennial Scientific Conference on the Greater Yellowstone Ecosystem, Yellowstone National Park, Wyoming, September.
- 1993 "The Desertification Warming Signal: More Problems for Global Warming." University of Arizona Environmental Change Seminar Series, Tucson, Arizona, September.



- 1993 "Global Warming: The Other Consensus." New Mexico Oil and Gas Association 65th Annual Meeting, Sante Fe, New Mexico, October.
- 1993 "Desertification and Climate Interactions." with Martin A.J. Williams. Meeting of the World Meteorological Organization's International Panel of Experts, Geneva, Switzerland, November.
- 1993 "Desertification and Climate Interactions." with Martin A.J. Williams. Fourth Meeting of the United Nations International Panel of Experts on Desertification, Geneva, Switzerland, November.
- 1993 "Greenhouse Predictions Verses Climate Reality." Special Address to the Swiss Association of Energy Economics, Zürich, Switzerland, December.
- 1994 "Climate Change and Desertification: The Lessons from the United States-Mexico Border." Seminar Series on Transborder Ecosystems, University of California-Davis, Davis, California, January.
- 1994 "Global Warming: The Other Consensus." Arizona State University Department of Geology Seminar Series, Tempe, Arizona, February.
- 1994 "Global Warming: How Sure Are We?" The Institute of Economic Affairs Conference on Markets and the Environment, London, England, March.
- 1994 "Sulphate and Desertification Signals in Middle Eastern Temperature Records." with Hassan A. Nasrallah. Air and Waste Management Association's International Specialty Conference on Global Climate Change, Phoenix, Arizona, April.
- 1994 "Investigation of Fire-Climate-Alluvial System Linkages in Yellowstone National Park." with Diana Elder Anderson and Stephen G. Wells. Eleventh Annual Pacific Climate Workshop, Pacific Grove, California, April.
- 1994 "Impact of Desertification on Global Warming." University of Wisconsin Department of Geography Seminar Series, Madison, Wisconsin, April.
- 1994 "Global Warming: The Other Consensus." Glenn T. Trewartha Memorial Lecture, University of Wisconsin, Madison, Wisconsin, April.
- 1994 "Global Warming: The Other Consensus." Illinois Farm Bureau Annual Meeting, Decatur, Illinois, August.
- 1994 "Global Warming: Act Now, Act Later, or Don't Act at All?" Illinois Farm Bureau Annual Meeting, Decatur, Illinois, August.
- 1994 "The Heated Debate: Some Facts about Global Warming." California Agricultural Aircraft Association Annual Meeting, San Diego, California, August.
- 1994 "The Heated Debate: Greenhouse Predictions vs. Climate Reality." 12th Annual Meeting, Doctors for Disaster Preparedness, Tucson, Arizona, August.
- 1994 "Global Temperature Records: Where is the Warming?" The Dixy Lee Ray Memorial Symposium on Science-Based Environmental Management, Seattle, Washington, August.
- 1994 "The Impact of Desertification on Global Warming." U.S. Water Conservation Laboratory Seminar Series, Phoenix, Arizona, September.
- 1994 "Impact of Desertification on Temperature Trends in the Middle East." with H.A. Nasrallah. International Symposium and Workshop on Desertification in Developed Countries, Tucson, Arizona, October.

- 1994 "Global Warming: Are We Barking Up the Wrong Tree?" American Council for Capital Formation Conference on United States Environmental Policies, Washington, D.C., November.
- 1994 "Global Warming: A Heated Debate." Phoenix Menza Regional Gathering, Phoenix, Arizona, November.
- 1994 "Global Warming: Messy Models, Descent Data, and Pointless Policy." Competitive Enterprise Institute Book Launch at the National Press Club, Washington, D.C., December.
- 1994 "Water Resources Datasets in the Drylands of North America." Seventh Meeting of the United Nations International Panel of Experts on Desertification, Geneva, Switzerland, December.
- 1995 "Recent Developments in the Global Warming Debate." United Nations Correspondents Association, New York, New York, February.
- 1995 "Application of Air Quality Models for Problem-Solving in Urban Environments." Second Seminar on Environmental Impact Assessment and Management, Department of Environmental Health, College of Health Sciences, University of Kuwait, Kuwait City, Kuwait, April.
- 1995 "Global Warming and the Gulf Area: Time for a Reappraisal?" College of Health Sciences, University of Kuwait Environmental Seminar Series, Kuwait City, Kuwait, May.
- 1995 "Interactions of Desertification and Climate." Second Seminar on Environmental Impact Assessment and Management, Department of Environmental Health, College of Health Sciences, University of Kuwait, Kuwait City, Kuwait, May.
- 1995 "The Latest Climate Model Outputs: Is the Great Debate Over?" Western Fuels Association Twentieth Annual Energy Conference, Baton Rouge, Louisiana, July.
- 1995 "Global Warming: The Other Consensus." University of South Carolina Department of Geography Colloquium Series, Columbia, South Carolina, October.
- 1995 "Recent Trends in Global Warming: Public Opinion and the Facts." New York Times Roundtable Discussion on the Greenhouse Effect, New York, New York, October.
- 1995 "Global Warming—The Heated Debate." San Jose State University Environmental Studies Seminar Series, San Jose, California, November.
- 1995 "Desertification as a Cause of Global Warming." Bowling Green State University Department of Geography Seminar Series, Bowling Green, Ohio, December.
- 1995 "Greenhouse Warming: The Heated Debate." Bowling Green State University College of Arts and Sciences Lecture Series, Bowling Green, Ohio, December.
- 1995 "How Much Global Warming, When?" Federation of American Scientists and World Bank Climate Change Colloquium Hearings, Warrenton, Virginia, December.
- 1996 "Global Warming: Is There a Climate Mandate for Action?" Trigen Corporation Annual Meeting, Tulsa, Oklahoma, February.
- 1996 "Climate Changes in Insurance." Independent Reinsurance Underwriters Association's Broker/Underwriter Conferences, La Jolla, California, February.
- 1996 "Critical Questions in the Greenhouse Debate." Congressional Hearing of the United States House of Representatives Committee on Science, Washington, D.C., March.

- 1996 "Is Global Warming Inevitable?" Environmental Conservation Organization's National Conference on Agenda 21's Impact on America, Kansas City, Missouri, March.
- 1996 "Evaluating the Framework Convention on Climate Change." Environmental Conservation Organization's National Conference on Agenda 21's Impact on America, Kansas City, Missouri, March.
- 1996 "An Update on the Global Warming Debate." Tucson Electric Power Company Quarterly Management Meeting, Tucson, Arizona, April.
- 1996 "The Heated Debate Continues." Renewing America, Scottsdale, Arizona, July.
- 1996 "Interactions of Desertification and Climate." South African Weather Bureau Seminar Series, Pretoria, South Africa, August.
- 1996 "Late Holocene Hydroclimatology of the Amargosa River: Geomorphic Sensitivity of an Arid Watershed to Low Amplitude Climatic Change." with D.E. Anderson, S.G. Wells, and R. Vose. Second International Meeting on Global Continental Palaeohydrology, Toledo, Spain, September.
- 1996 "Global Warming: The Heated Debate." Third Annual Arizona GeoFest Conference, Mesa, Arizona, October.
- 1996 "Science and the Global Warming Debate." Cyprus AMAX Minerals Company Environmental Training Workshop, Tucson, Arizona, October.
- 1996 "Global Warming: Science Verses Perception." Norwegian Petroleum Association Press Seminar, Oslo, Norway, November.
- 1996 "Global Warming: A Heated Debate?" Texas Renewables Association Annual Meeting, Austin, Texas, November.
- 1997 "Interactions of Desertification and Climate." University of Arizona Department of Geography Seminar Series, Tucson, Arizona, February.
- 1997 "Identification and Analysis of Historical Temperature Records from Southern Africa." Fifth International Conference on Southern Hemisphere Meteorology and Oceanography, Pretoria, South Africa, April.
- 1997 "Identification and Analysis of Historical Temperature Records from Southern Africa." with R. Vose. 93rd Annual Meeting of the Association of American Geographers, Fort Worth, Texas, April.
- 1997 "Inadvertent Modification of Atlantic Rainfall and Tropical Cyclones by North American Pollution." with R.S. Cerveny. 93rd Annual Meeting of the Association of American Geographers, Fort Worth, Texas, April.
- 1997 "Polar Temperature Sensitivity to Lunar Forcing." with J.A. Shaffer and R.S. Cerveny. 93rd Annual Meeting of the Association of American Geographers, Fort Worth, Texas, April.
- 1997 "The Spin on Greenhouse Hurricanes." Employers Reinsurance Corporation Seminar on Global Climatic Change, Coral Gables, Florida, April.
- 1997 "The Latest on the Greenhouse Debate." Seventh Annual Meeting of the Alliance for America, Washington, D.C., June.
- 1997 "The New Consensus on Global Warming." Congressional Briefing Sponsored by the National Center for Policy Analysis, Washington, D.C., June.

- 1997 "A Fresh Look at the Global Warming Debate." People for the West Town Hall Meeting, Denver, Colorado, June.
- 1997 "The Science of Global Warming: No Climate Mandate for Action?" Citizens for a Sound Economy Foundation Seminar, Boston, Massachusetts, June.
- 1997 "The Science of Global Warming: No Climate Mandate for Action?" Citizens for a Sound Economy Foundation Media Seminar, Incline Village, Nevada, August.
- 1997 "Global Warming Update." Annual Meeting of the Association of American State Climatologists, Prescott, Arizona, August.
- 1997 "More Doubt about Global Warming." Cyprus Amax Minerals Partners for Progress Program, Colorado Springs, Colorado, September.
- 1997 "Global Warming: The Heated Debate Cooling Down?" Association of Canadian General Counsel, St. John's, Newfoundland, Canada, September.
- 1997 "Impacts of Land Degradation on the Temperature Records of Northwest Sonora." with Mark L. Hildebrandt, Jeffrey M. Klopatek, Cherie K. Mortiz, and Christopher J. Watts. American Meteorological Society's 10th Conference on Applied Climatology, Reno, Nevada, October.
- 1997 "Identification and Analysis of Historical Temperature Records from Southern Africa." with Russell S. Vose and Johan Koch American Meteorological Society's 10th Conference on Applied Climatology, Reno, Nevada, October.
- 1997 "The Spin on Greenhouse Hurricanes." The Fraser Institute's Conference on the Science and Politics of Global Warming, Vancouver, British Columbia, Canada, October.
- 1997 "An Update on the Heated Debate." The Fraser Institute's Conference on the Science and Politics of Global Warming, Vancouver, British Columbia, Canada, October.
- 1997 "A Climate of Doubt About Global Warming." Society for Environmental Truth's Symposium on Global Warming, Tucson, Arizona, November.
- 1997 "Climate Change—Science, Impact and Current International Negotiations." The Council of State Governments' 1997 Annual Meeting and State Leadership Forum, Honolulu, Hawaii, December.
- 1998 "Analysis of Trends in the Variability of Daily and Monthly Historical Temperature Measurements." 78th Annual Meeting of the American Meteorological Society, Phoenix, Arizona, January.
- 1998 "Inadvertent Modification of Atlantic Rainfall and Tropical Cyclones by North American Pollution." with R.S. Cerveny. 78th Annual Meeting of the American Meteorological Society, Phoenix, Arizona, January.
- 1998 "Why All the Fuss About Global Warming." Political Economic Research Center Seminar Series, Montana State University, Bozeman, Montana, February.
- 1998 "Interactions of Desertification and Climate". Desert Research Institute and University of Nevada-Reno (Geology 702Z), Reno, Nevada, March.
- 1998 "An Update on the Global Warming Debate." Society of Petroleum Engineers Gas Technology Symposium, Calgary, Alberta, Canada, March.

- 1998 "Surface Fluxes at the Surface-Atmosphere Boundary in a Complex Terrain Urban Environment: Observational Results." with M. Hildebrandt, I.M. Oroud, and H.J.S. Fernando. Fourteenth Arizona Fluid Mechanics Conference, Tempe, Arizona, March.
- 1998 "Possible Tradeoffs in Health Consequences of Aircraft Emission Regulations." with Robert E. Davis. 1998 Conference on the Atmospheric Effects of Aviation, Virginia Beach, Virginia, April.
- 1998 "The Other Facts about Global Warming." The Business Council Seminar on Global Climate Change, Williamsburg, Virginia, May.
- 1998 "The Truth About Global Warming." Minnesota News Council, Minneapolis, Minnesota, April.
- 1998 "An Update from the Global Warming Trenches." Wise Use Leadership Conference, Sparks, Nevada, April.
- 1998 "The Relationship Between Near-Surface Air Temperature over Land and the Annual Amplitude of the Atmosphere's CO<sub>2</sub> Cycle." with Craig D. Idso and Sherwood B. Idso. 42nd Annual Meeting of the Arizona-Nevada Academy of Sciences, Peoria, Arizona, April.
- 1998 "Another View of Global Warming Science." Meeting of The Business Council, Williamsburgh, Virginia, May.
- 1998 "An Update on the Global Warming Debate." Annual Meeting of the American Standard Companies, Scottsdale, Arizona, May.
- 1998 "Climate Change Issues and Your Business." Newsmaker Forum, Billings, Montana, June.
- 1998 "An Update on the Global Warming Debate." Montana Chamber of Commerce Annual Business Week Program, Bozeman, Montana, June.
- 1998 "Global Warming: Junk Science and the Media." Pacific Research Institute for Public Policy, Alexander Valley, California, June.
- 1998 "Are There Trends in Your Climatic Future?" SunCor Development Company's Project Manager Meeting, Sedona, Arizona, July.
- 1998 "A Climate of Doubt About Global Warming." The Eagle Forum Leadership Conference, Arlington, Virginia, September.
- 1998 "A Climate of Doubt About Global Warming." United States Environmental Protection Agency Regional Conference on Global Warming, Phoenix, Arizona, September.
- 1998 "What Happened to Global Warming?" Environmental Lecture Series, Glendale Community College, Glendale, Arizona, September.
- 1998 "A Climate of Doubt About Global Warming." West Texas Geological Society Meeting, Midland, Texas, October.
- 1998 "Global Warming and the Greenhouse Effect." Atlantic Richfield Corporation's Civic Action Program, Midland, Texas, October.
- 1998 "Spatial and Temporal Characteristics of the Urban CO<sub>2</sub> Dome over Phoenix, Arizona." with Craig D. Idso, Sherwood B. Idso, Keith E. Idso, and Talbot Brooks. *American Meteorological Society's Second Symposium on Urban Environments*, Albuquerque, New Mexico, November.
- 1998 "A Climate of Doubt About Global Warming." United States Water Conservation Laboratory Colloquium Series, Phoenix, Arizona, November.

- 1998 "A Climate of Doubt About Global Warming." International Research Institute for Climate Prediction, Lamont-Doherty Earth Observatory, Columbia University, Palisades, New York, November.
- 1998 "Our Greener Future: A Gift from the Industrial Revolution." Annual Meeting of Basin Electric Power Cooperative, Bismarck, North Dakota, November.
- 1998 "Global Warming: The View from Science." UCLA Center for International Relations Colloquium on Health, the Environment, and Development, Westwood, California, November.
- 1998 "A Climate of Doubt About Global Warming." 89th Annual Meeting of the Pacific Logging Congress, Las Vegas, Nevada, December.
- 1999 "A Climate of Doubt About Global Warming." World Presidents' Organization, Calgary, Alberta, Canada, January.
- 1999 "A Climate of Doubt About Global Warming." Rocky Mountain Ramble, Casa Grande, Arizona, February.
- 1999 "A Climate of Doubt About Global Warming." Annual Meeting of the Proctor Financial Insurance Corporation, Scottsdale, Arizona, March.
- 1999 "Trends in Spatial and Temporal Climate Variance over the Past Century." with Robert G. Quayle. United Nations Intergovernmental Panel on Climate Change Chapter 2 Experts Meeting on Trends in Climate Extremes, Asheville, North Carolina, March.
- 1999 "Analysis of Spatial and Temporal Variance in Historical Temperature Records." 95th Annual Meeting of the Association of American Geographers, Honolulu, Hawaii, March.
- 1999 "Recent Temperature Trends in South Africa." with R.S. Vose. 95th Annual Meeting of the Association of American Geographers, Honolulu, Hawaii, March.
- 1999 "Identification of Anthropogenic Weekly Cycles in Northwest Atlantic Pollution, Precipitation, and Tropical Cyclones." with R.S. Cerveny. 95th Annual Meeting of the Association of American Geographers, Honolulu, Hawaii, March.
- 1999 "A Climate of Doubt About Global Warming." American Association of Petroleum Geologists (invited address for the Committee on Resource Evaluation), San Antonio, Texas, April.
- 1999 "More Scientific Uncertainty in the Greenhouse." Annual Meeting of the Greening Earth Society, Arlington, Virginia, May.
- 1999 "More Scientific Uncertainty in the Greenhouse." National Rural Electric Cooperative Association Climate Change Task Force Meeting, Washington, DC, May.
- 1999 "The Unheard Side of the Global Warming Story." 49th Annual Meeting of the Central Electric Power Cooperative, Jefferson City, Missouri, July.
- 1999 "An Update on the Global Warming Controversy." Annual Board Meeting of Associated Electric Cooperative, Inc., Springfield, Missouri, July.
- 1999 "An Update on Greenhouse Research Directives." Western Fuels Association's Annual Energy Conference, Vail, Colorado, July.
- 1999 "Assessment of the Uncertainties of Predicted Global Climate Change Modeling." Second Dixie Lee Ray Memorial Symposium, Washington, DC, August.

- 1999 “An Update on the Science Uncertainties in Global Warming.” Meeting of the National Consumer Coalition, Washington, DC, September.
- 1999 “A Climate of Doubt about Global Warming.” 43rd Annual Meeting of the Coal Association of Canada, Banff, Alberta, September.
- 1999 “A Climate of Doubt About Global Warming.” University of Notre Dame Department of Civil Engineering and Geological Sciences, South Bend, Indiana, October.
- 1999 “A Climate of Doubt About Global Warming.” Case Western Reserve University Department of Geological Sciences, Cleveland, Ohio, October.
- 1999 “A Climate of Doubt About Global Warming.” Joint Meeting of the Appalachian/Ohio Geological Societies, Marietta, Ohio, October.
- 1999 “A Climate of Doubt About Global Warming.” University of Pittsburgh Department of Geological and Planetary Sciences, Pittsburgh, Pennsylvania, October.
- 1999 “A Climate of Doubt About Global Warming.” Michigan Basin Geological Society, Lansing, Michigan, October.
- 1999 “A Climate of Doubt About Global Warming.” University of Northern Iowa Department of Earth Sciences, Cedar Falls, Iowa, October.
- 1999 Desertification and Climate Change: Analyses of the Arizona/Sonora Border Region. with Jeffrey M. Klopatek. 15th International Congress of Biometeorology & International Conference on Urban Climatology, Sydney, Australia, November.
- 1999 Trends in Weather-Adjusted Human Mortality in U.S. Cities. with Robert E. Davis, Paul C. Knappenberger, Patrick J. Michaels, and Wendy M. Novicoff. 15th International Congress of Biometeorology & International Conference on Urban Climatology, Sydney, Australia, November.
- 1999 Greenhouse Warming in Cold, Dry Anticyclones. with Patrick J. Michaels, Paul C. Knappenberger, and Robert E. Davis. 15th International Congress of Biometeorology & International Conference on Urban Climatology, Sydney, Australia, November.
- 2000 “A Climate of Doubt About Global Warming.” Fort Smith Geological Society, Fort Smith, Arkansas, January.
- 2000 “A Climate of Doubt About Global Warming.” Department of Geological Sciences, University of Alabama, Tuscaloosa, Alabama, January.
- 2000 “A Climate of Doubt About Global Warming.” Graham Geological Society, Graham, Texas, January.
- 2000 “A Climate of Doubt About Global Warming.” Department of Geosciences, Western Michigan University, Kalamazoo, Michigan, January.
- 2000 “An Update on the Global Warming Debate.” Annual Meeting of the Coteau Properties Company, Phoenix, Arizona, January.
- 2000 “Global Warming: The Other Consensus.” New Zealand National Institute for Water and Atmospheric Research. Wellington, New Zealand, February.
- 2000 “A Climate of Doubt About Global Warming.” New Zealand Business Roundtable. Wellington, New Zealand, February.

- 2000 “CO<sub>2</sub>, Greenhouse Effect and All That.” AGCON 2000: Meeting of the Australian Association of Agricultural Consultants, Perth, Australia, February.
- 2000 “Carbon Credits: A New Business Asset.” AGCON 2000: Meeting of the Australian Association of Agricultural Consultants, Perth, Australia, February.
- 2000 “The State of the Global Warming Debate in the US.” Australian Institute of Public Affairs, Melbourne, Australia, February.
- 2000 “A Climate of Doubt About Global Warming.” Department of Geology and Geophysics, University of Calgary, Calgary, Alberta, Canada, March.
- 2000 “A Climate of Doubt About Global Warming.” Canadian Society of Petroleum Geologists, Calgary, Alberta, Canada, March.
- 2000 “A Climate of Doubt About Global Warming.” Northern California Geological Society, Orinda, California, March.
- 2000 “A Climate of Doubt About Global Warming.” Department of Geology, Colorado School of Mines, Golden, Colorado, March.
- 2000 “A Climate of Doubt About Global Warming.” Rocky Mountain Association of Petroleum Geologists, Denver, Colorado, March.
- 2000 “A Climate of Doubt About Global Warming.” Utah Geological Association. Salt Lake City, Utah, March.
- 2000 “A Climate of Doubt About Global Warming.” Tulsa Geological Society, Tulsa, Oklahoma, March.
- 2000 “A Climate of Doubt About Global Warming.” Montana Geological Society, Billings, Montana, March.
- 2000 “A Climate of Doubt About Global Warming.” Four Corners Geological Society and Department of Geology. Fort Lewis College, Durango, Colorado, March.
- 2000 “A Climate of Doubt About Global Warming.” Department of Earth Resources, Colorado State University, Fort Collins, Colorado, March.
- 2000 “A Climate of Doubt About Global Warming.” Gas Technology Symposium, Society of Petroleum Engineers and the Canadian Energy Research Institute, Calgary, Alberta, Canada, April.
- 2000 “A Climate of Doubt About Global Warming.” 2000 American Association of Petroleum Geologists’ Annual Convention, New Orleans, Louisiana, April.
- 2000 “Weekly Cycles in Regional Pollution, Temperature, Precipitation and Tropical Cyclone Activity.” with Randall S. Cervený. International Scientific Meeting on Detection and Modelling of Recent Climate Change and its Effects on a Regional Scale, Tarragona, Spain, May.
- 2000 “A Climate of Doubt About Global Warming.” Annual In-Service Training Seminar, Michigan Department of Environmental Quality, Midland, Michigan, June..
- 2000 “A Climate of Doubt About Global Warming.” 38<sup>th</sup> Annual Meeting of the Associated Electric Cooperative, Inc., Saint Louis, Missouri, June.



- 2000 "An Update on the Climate Data Task Force." 26<sup>th</sup> Annual Energy Conference of the Western Fuels Association, Vail, Colorado, August.
- 2000 "A Climate of Doubt About Global Warming." Annual Meeting, 2000: Independent Petroleum Association of New Mexico, Ruidoso, New Mexico, August.
- 2000 "An Intensive Study of the Strength and Stability of the Urban CO<sub>2</sub> Dome of Phoenix, Arizona." with C.D. Idso and S.B. Idso. American Meteorological Society's Third Symposium on the Urban Environment, Davis, California, August.
- 2000 "Temporal Patterns in Near-Surface CO<sub>2</sub> Concentrations in the Phoenix Urban CO<sub>2</sub> Dome over Contrasting Vegetation Types." with T.A. Day, E.C. Mueller, and F.S. Xiong. American Meteorological Society's Third Symposium on the Urban Environment, Davis, California, August.
- 2000 "A Climate of Doubt About Global Warming." Fourth International Conference on Environmetrics and Chemometrics, Las Vegas, Nevada, September.
- 2000 "Global Warming: Fact or Fiction." Seventeenth Annual Union Pacific Energy Conference, Omaha, Nebraska, September.
- 2000 "A Climate of Doubt About Global Warming." National Mining Association Expo 200, Las Vegas, Nevada, October.
- 2000 "A Climate of Doubt About Global Warming." 38th Annual Meeting of the Permian Basin Petroleum Association, Midland, Texas, October.
- 2001 "A Climate of Doubt About Global Warming." Coalition of Arizona / New Mexico Counties for Stable Economic Growth, Benson, Arizona, March.
- 2001 "A Climate of Doubt About Global Warming." Mylar Giri Memorial Lecture, Pennsylvania State University-Hazleton, Hazleton, Pennsylvania, April.
- 2001 "A Climate of Doubt About Global Warming." Goldwater Institute Lecture Series, Phoenix, Arizona, October.
- 2001 "A Climate of Doubt About Global Warming." Arizona Council on Economic Education Meeting on Energy for the 21<sup>st</sup> Century, Tempe, Arizona, November.
- 2002 "A Climate of Doubt About Global Warming." Embry-Riddle Aeronautical University, Prescott, Arizona, February.
- 2002 "A Climate of Doubt About Global Warming." Association of Canadian General Counsel, Las Vegas, Nevada, May.
- 2002 "A Climate of Doubt About Global Warming." 105th Annual Conference of the National Association of Water Companies, Scottsdale, Arizona, October.
- 2002 "A Climate of Doubt About Global Warming." Science Lecture Series at Mesa Community College, Red Mountain Campus, Mesa, Arizona, October.
- 2002 "Dynamics of the Phoenix Atmospheric CO<sub>2</sub> Dome." 15<sup>th</sup> Conference on Biometeorology and Aerobiology Joint with the 16<sup>th</sup> International Congress on Biometeorology, Kansas City, Missouri, November.
- 2003 "Projected Carbon Dioxide (CO<sub>2</sub>) for the Year 2020 in Phoenix, Arizona." with Elizabeth Wentz and Brenda Koerner. 99th Annual Meeting of the Association of American Geographers, New Orleans, Louisiana, March.

- 2003 “Truths and Myths about Global Warming.” Crop Insurance Research Bureau Annual Meeting, Rio Rico, Arizona, February.
- 2003 “What Educators Should Know About Global Warming”. Plenary Session of the Association of Private Enterprise Education, Las Vegas, Nevada, April.
- 2003 “A Climate of Doubt About Global Warming.” 21<sup>st</sup> Annual Meeting, Doctors for Disaster Preparedness, Phoenix, Arizona, July.
- 2003 “A Climate of Doubt About Global Warming.” 21<sup>st</sup> University of Arizona Atmospheric Science Seminar Series, Tucson, Arizona, September.
- 2003 “A Climate of Doubt About Global Warming.” Department of Economics and the Civil Society Institute, Santa Clara University, Santa Clara, California, October.
- 2003 “A Climate of Doubt About Global Warming.” The Smith Center for Private Enterprise and the School of Business and Economics, California State University, Hayward, California, October.
- 2003 “A Climate of Doubt About Global Warming.” David S. Saurman Provocative Lecture Series, Department of Economics, San Jose State University, San Jose, California, November.
- 2003 “The Effect of Land Degradation on the Surface Radiation Balance Along the United States – Mexico Border.” With Mark L. Hildebrandt. 26<sup>th</sup> Annual Applied Geography Conference, Colorado Springs, Colorado, November.
- 2003 “The State of the Science.” Cato Institute Conference on Global Warming: The State of the Debate, Washington, DC, December.
- 2004 “A Climate of Doubt About Global Warming.” The Discussion Club of St. Louis, St. Louis, Missouri, February.
- 2005 “A Climate of Doubt About Global Warming.” Nevada Petroleum Association, Reno, Nevada, January.
- 2005 “A Climate of Doubt About Global Warming.” Environmental Professionals of Arizona 2005 Gatekeeper Regulatory Roundup, Scottsdale, Arizona, February.
- 2005 “A Debate on Global Warming.” Plenary Event of the National Debate Tournament, Gonzaga University, Spokane, Washington, March.
- 2005 “Assessment of Professional Degree Programs in GIS”. 2005 Annual Meeting of the Association of American Geographers, Denver, Colorado, April.
- 2006 “An Update on the Greenhouse Debate and Implications to Legislative Action in North Carolina.” General Assembly of North Carolina, Legislative Commission on Global Climate Change, Raleigh, North Carolina, March.
- 2006 “A Climate of Doubt About Slowing Global Warming.” John Locke Foundation Seminar Series, Raleigh, North Carolina, March.
- 2006 “Simulating the Potential Impacts of Regional Climate Change on Water Supply from the Salt and Verde Watersheds.” with Andrew Ellis. DCDC Symposium on “The Impact of Climate on Water Supply Reliability”, Tempe, Arizona, September.
- 2006 “Analysis of Drought Determinants for the Colorado River Basin.” 69<sup>th</sup> Annual Meeting of the Association of Pacific Coast Geographers, Eugene, Oregon, September.

- 2006 "Potential Impacts of Climate Change on Central Arizona Watersheds." with Andrew W Ellis 69<sup>th</sup> Annual Meeting of the Association of Pacific Coast Geographers, Eugene, Oregon, September.
- 2006 "The Potential Impacts of Climate Change on Arizona Watersheds." With Andrew W. Ellis. Geological Society of America Specialty Meeting "Managing Drought and Water Scarcity in Vulnerable Environments: Creating a Roadmap for Change in the United States", Boulder/Longmont, Colorado, September.
- 2006 "A Climate of Doubt About Global Warming." Department of Geosciences, Mississippi State University, Starkville, Mississippi, November.
- 2006 "Climate Change 2050: Impacts on the Salt and Verde Watersheds." Colorado River Water User's Association, Las Vegas, Nevada, December.
- 2007 "Climate Change 2050: Impacts on the Salt and Verde Watersheds." Family Farm Alliance Annual Meeting, Las Vegas, Nevada, February.
- 2007 "A Climate of Doubt About Global Warming." Political Engagement Project, Ferris State University, Big Rapids, Michigan, March.
- 2007 "Impacts of Potential Climate Change on the Phoenix, Arizona Water Supply". with Andrew Ellis, Timothy Hawkins, and Patricia Gober. 2007 Annual Meeting of the Association of American Geographers, San Francisco, California, April.
- 2007 "A Climate of Doubt About Global Warming." Northwest Public Power Association's 67<sup>th</sup> Annual Conference and Membership Meeting. Spokane, Washington, May.
- 2007 "A Climate of Doubt About Global Warming." Annual Meeting, 2007: Independent Petroleum Association of New Mexico, Ruidoso, New Mexico, August.
- 2007 "A Climate of Doubt About Global Warming." Pacific Oil Conference. Reno, Nevada, September.
- 2007 "A Climate of Doubt About Global Warming." Pacific Oil Conference. Reno, Nevada, September.
- 2007 "The Professional Master's of Advanced Study in Geographic Information Systems (MAS-GIS) at Arizona State University." with Chris Lukinbeal. 70<sup>th</sup> Association of Pacific Coast Geographers Annual Meeting. Long Beach, California, October.
- 2007 "A Climate of Doubt About Global Warming." The Law Society Debating Series, University College – Dublin, Dublin, Ireland, November.
- 2008 "The Increase in Global Temperature: What It Does and Does Not Tell Us." The 2008 International Conference on Climate Change (sponsored by the Heartland Institute), New York City, New York, March.
- 2008 "A Climate of Doubt About Global Warming." Thirty-Third Annual Conference of the Association of Private Enterprise Education. Las Vegas, Nevada, April.
- 2008 "Impacts of Potential Climate Change on the Phoenix, Arizona Water Supply". with David M. Brommer and Randall S. Cerveney. 2008 Annual Meeting of the Association of American Geographers, Boston, Massachusetts, April.
- 2008 "Sensitivity of Residential Water Consumption to Variations in Climate: An Intra-Urban Analysis of Phoenix, Arizona." with Patricia Gober, and Nancy Jones. 18<sup>th</sup> International Congress of Biometeorology, Tokyo, Japan, September.

- 2008 “The Professional Master’s of Advanced Study in GIS (MAS-GIS) at Arizona State University.” with Chris Lukinbeal. Arizona Geographic Information Council’s Geospatial Education and Training Symposium, Prescott, Arizona.
- 2008 “Climatological Isentropic Analysis as a Drought Detection/Monitoring Tool” with R.S. Cerveny, M. Pace, K. Debiasse, and A.W. Ellis. 33rd Annual Climate Diagnostics and Prediction Workshop/CLIVAR Drought Workshop, Lincoln NE, October.
- 2008 “A Climate of Doubt About Global Warming.” 2008 American Agri-Women Annual Meeting, San Antonio, Texas, November.
- 2008 “A Climate of Doubt About Global Warming.” Leadership Conference of the Fund for American Studies, Scottsdale, Arizona, November.
- 2009 “An Anthropogenic Signal in Phoenix, Arizona Winter Precipitation .” with Bohumil M. Svoma. Eighth Symposium on the Urban Environment and 89th American Meteorological Society Annual Meeting, Phoenix, Arizona, January.
- 2009 “Climatological Isentropic Analysis as a Drought Detection/Monitoring Tool” with R.S. Cerveny, A.W. Ellis, K. Debiasse, and M. Pace. 2009 Annual Meeting of the Association of American Geographers, Las Vegas, Nevada, March.
- 2009 “An Anthropogenic Signal in Phoenix, Arizona Winter Precipitation” with B.M. Svoma. 2009 Annual Meeting of the Association of American Geographers, Las Vegas, Nevada, March.
- 2009 “A Climate of Doubt About Global Warming.” Colloquium Series, Department of Geography, Texas State University, September.
- 2010 “Revitalization of Namias’s Climatological Isentropic Analysis: Detection and Evaluation of Monsoonal, Severe Storm, Drought, and Flood Events.” with Randall S. Cerveny, *Kimberly DeBiase*, *Matthew B. Pace*, Andrew W. Ellis. 22nd Conference on Climate Variability and Change, AMS 90th Annual Meeting of the American Meteorological Society, Atlanta, Georgia, January.
- 2012 “Seasonality and Trends in European Red Dust/ "Blood" Rain Events” with J.R. White and R.S. Cerveny. 2012 Annual Meeting of the Association of American Geographers, New York, New York, February.
- 2014 “A Climate of Doubt About Global Warming.” Colloquium Series, Department of Geography and Environmental Engineering, United States Military Academy, West Point, New York, March.
- 2014 “Challenges Associated with Projecting Urbanization-Induced Heat-Related Mortality in Greater Phoenix.” with D.M. Hondula and M. Georgescu. 2014 Annual Meeting of the Association of American Geographers, Tampa Bay, Florida, April.
- 2014 “Challenges Associated with Projecting Urbanization-Induced Heat-Related Mortality in Greater Phoenix.” with D.M. Hondula and M. Georgescu. 26<sup>th</sup> Annual International Society for Environmental Epidemiology Conference, Seattle, Washington, August.

Committee Involvement:

1987-1988	Affirmative Action	1987-1988	Seminar Series
1987-1988	Geomorphology Search	1987-1990	Publicat. (Chrmn)
1987-1988	Master of Arts	1988-1989	Personnel
1988-1989	Ten Year Review	1989-1990	Executive
1989-1990	Long Range Planning	1990-1991	Personnel (Chrmn)
1990-1991	Chair Search	1990-1991	Human Search
1991-1993	Personnel	1991-1992	Ph.D.
1992-1995	Master of Arts	1993-1994	Publications
1993-1994	Academic Professional Search	1993-1994	Human Search
1993-1994	Computer	1994-1995	Publications
1994-1996	Personnel	1994-1999	Academic Senate
1995-1997	Univ. Services & Facilities	1995-1996	Ph.D.
1995-1998	Publications	1996-1997	Graduate
1996-1997	GIS Search	1997	Senate Tellers
1997-1998	Ph.D.	1997-2001	Colloquium Series
1997-1998	Hydroclimatol. Search (Chair)	1998-2000	Personnel
1998-1999	Publications	1998-2000	Clean Campus
1999-2000	Executive	2000-2001	Graduate Recruit.
2002-2003	Hydrology Search	2002-2004	Executive
2001-2004	Graduate Recruit. (Chairman)	2003-2004	CLAS Senate
2005	IT Analyst Search (Chairman)	2006-2007	Personnel
2008-2010	University P&T (Co-Chair, 2009)	2012-2013	Scholarship (Chair)
2012-2014	University Senate		

**Participation in ASU Graduate Committees**  
1987-2011

Year Finished	Student	Degree	Committee Role
1987	Tomas Miller	M.A.	Member
1988	Ibrahim Oroud	Ph.D.	Member
1988	Hassan Nasrallah	Ph.D.	Member
1990	Matthew Stoll	M.A.	Chairman
1990	Bruce Gwilliam	M.A.	Member
1990	David Stahle	Ph.D.	Member
1990	Fred Chambers	Ph.D.	Member
1991	Michael McGlade	M.A.	Member
1991	Randolph Sedlacek	M.A.	Chairman
1992	Peter Combs	M.A.	Chairman
1993	Mark Hubble	M.A.	Member
1993	Bruce Gwilliam	Ph.D.	Chairman
1994	Thomas King	M.A.	Chairman
1995	Brenda Ostrom	M.S.	Member
1995	Peter Combs	Ph.D.	Member
1995	Linda O'Hirok	Ph.D.	Member
1997	Donald Friend	Ph.D.	Member
1997	Karl Birkeland	Ph.D.	Member
1998	Ko Nishimura	M.A.	Chairman
1998	Diane Douglas	Ph.D.	Member
1998	Craig Idso	Ph.D.	Chairman
1999	Robert Malin	M.S.	Member
1999	Steve Gordon	Ph.D.	Member
1999	Mark Hildebrandt	Ph.D.	Chairman
1999	Leslie Waite	M.A.	Member
1999	Wendy Thomas	M.A.	Member
2000	Mark Fonstad	Ph.D.	Member
2000	Jennifer Johnson	M.A.	Member
2000	Niccole Cerveny	M.A.	Member
2001	Timothy Hawkins	M.A.	Member
2001	Mike Applegarth	Ph.D.	Member
2001	John Shaffer	Ph.D.	Member
2002	Evan Palmer	M.A.	Member
2002	Karen Blevins	M.A.	Member
2003	Kevin Green	M.A.	Member
2003	Greg Goodrich	M.A.	Chairman
2003	Brian Ochs	M.A.	Member
2003	Jennifer Johnson	Ph.D.	Member
2004	Russ Vose	Ph.D.	Member

2004	Timothy Hawkins	Ph.D.	Member
2004	Valerie Meyers	M.A.	Member
2004	Adam Kalkstein	M.A.	Chairman
2004	Erin Saffell	Ph.D.	Member
2005	Shouraseni Sen Roy	Ph.D.	Chairman
2005	Greg Goodrich	Ph.D.	Chairman
2005	Wynette Arviso	MAS-GIS	Chairman
2005	Greg Beard	MAS-GIS	Chairman
2005	Sophi Beym	MAS-GIS	Chairman
2005	Dan Burk	MAS-GIS	Chairman
2005	Chris Christensen	MAS-GIS	Chairman
2005	Tim Colman	MAS-GIS	Chairman
2005	David Dodds	MAS-GIS	Chairman
2005	Shawny Ekadis	MAS-GIS	Chairman
2005	Brent Figura	MAS-GIS	Chairman
2005	Patrick Gorman	MAS-GIS	Chairman
2005	Julie Heckler	MAS-GIS	Chairman
2005	Tim Johnson	MAS-GIS	Chairman
2005	Adam Kelker	MAS-GIS	Chairman
2005	Jeanette Kobbeman	MAS-GIS	Chairman
2005	Brent Kober	MAS-GIS	Chairman
2005	Zak Ricketts	MAS-GIS	Chairman
2005	Tom Tyndall	MAS-GIS	Chairman
2005	Cory Whittaker	MAS-GIS	Chairman
2005	Garrett Topham	MAS-GIS	Chairman
2005	Niccole Cerveny	Ph.D.	Member
2006	David Brommer	Ph.D.	Member
2006	Alan Church	M.A.	Member
2006	Shannon Gysberg	M.A.	Member
2006	Stacey Brandt	MAS-GIS	Chairman
2006	Jeff Brissette-Uurtamo	MAS-GIS	Chairman
2006	Benjamin Coker	MAS-GIS	Chairman
2006	Philip Gershkovich	MAS-GIS	Chairman
2006	Banchana Ghimire	MAS-GIS	Chairman
2006	Allison Glinka	MAS-GIS	Chairman
2006	Justin Goering	MAS-GIS	Chairman
2006	Joseph Gregory	MAS-GIS	Chairman
2006	Ruth Jensen	MAS-GIS	Chairman
2006	Todd Lovstrom	MAS-GIS	Chairman
2006	Michael Lu	MAS-GIS	Chairman
2006	Brian McGuire	MAS-GIS	Chairman
2006	Jason Ramsey	MAS-GIS	Chairman
2006	Chris Seck	MAS-GIS	Chairman
2006	Josh Statzer	MAS-GIS	Chairman
2006	Josh Stroessner	MAS-GIS	Chairman
2006	Michael Tschudi	MAS-GIS	Chairman
2006	Dianne Yunker	MAS-GIS	Chairman

2006	Jason Ross	M.A.	Member
2007	James Walker	M.A.	Member
2007	James Miller	Ph.D.	Member
2007	Paul Weser	Ph.D.	Member
2007	David Andes	MAS-GIS	Chairman
2007	Michael Aper	MAS-GIS	Chairman
2007	Robert Boos	MAS-GIS	Chairman
2007	Richard Buckmaster	MAS-GIS	Chairman
2007	Roxanne Cariadi	MAS-GIS	Chairman
2007	Timothy Donnelly	MAS-GIS	Chairman
2007	David Gans	MAS-GIS	Chairman
2007	Melissa Geraghty	MAS-GIS	Chairman
2007	Abeer Hamdan	MAS-GIS	Chairman
2007	Angela Williams-LaLonde	MAS-GIS	Chairman
2007	Clark Limoges	MAS-GIS	Chairman
2007	Karla Lu	MAS-GIS	Chairman
2007	Gad Pitaru	MAS-GIS	Chairman
2007	Jacqueline Pursell	MAS-GIS	Chairman
2007	James Redd	MAS-GIS	Chairman
2007	Paul Reed	MAS-GIS	Chairman
2007	Justin Rogers	MAS-GIS	Chairman
2007	Brian Rosenfield	MAS-GIS	Chairman
2007	Patrick Whiteford	MAS-GIS	Chairman
2007	Andrew Burnett	M.A.	Member
2008	Kimberly DeBiasse	M.A.	Member
2008	Dominic Campanaro	M.A.	Member
2008	Adam Kalkstein	Ph.D.	Chairman
2008	Eric Kenney	M.A.	Member
2008	Jesse Ballew	MAS-GIS	Chairman
2008	Preston Bigler	MAS-GIS	Chairman
2008	Matt Bullock	MAS-GIS	Chairman
2008	Robert Cowan	MAS-GIS	Chairman
2008	Dan Damian	MAS-GIS	Chairman
2008	Matt D'Anna	MAS-GIS	Chairman
2008	Jonathan Donie	MAS-GIS	Chairman
2008	William Horton	MAS-GIS	Chairman
2008	Thomas Jansen	MAS-GIS	Chairman
2008	Joseph Kliner	MAS-GIS	Chairman
2008	Roger Knouff	MAS-GIS	Chairman
2008	Brooke Saltzman	MAS-GIS	Chairman
2008	Glenn Schlottman	MAS-GIS	Chairman
2008	Ekta Shrestha	MAS-GIS	Chairman
2008	Sabita Tripathi	MAS-GIS	Chairman
2008	Theresa Wong	MAS-GIS	Chairman
2009	Paul Iniguez	M.A.	Member
2009	Bryan Paris	M.A.	Member
2009	Michael Santoro	M.A.	Member



2009	Aaron Abbott	MAS-GIS	Chairman
2009	Anish Adhikari	MAS-GIS	Chairman
2009	Ali Alameri	MAS-GIS	Chairman
2009	Abdulla Mohamed Al Marzouqi	MAS-GIS	Chairman
2009	Ahmed Bakhamis	MAS-GIS	Chairman
2009	Jess Biggs	MAS-GIS	Chairman
2009	Andrew Blasky	MAS-GIS	Chairman
2009	Stuart Bricker	MAS-GIS	Chairman
2009	Brock Boven	MAS-GIS	Chairman
2009	Breanna Buswell	MAS-GIS	Chairman
2009	Trent Button	MAS-GIS	Chairman
2009	Joseph Case	MAS-GIS	Chairman
2009	Hermes Cubaque	MAS-GIS	Chairman
2009	Phyllis Davis	MAS-GIS	Chairman
2009	Erika Green	MAS-GIS	Chairman
2009	Melinda Harrah	MAS-GIS	Chairman
2009	David Hawkins	MAS-GIS	Chairman
2009	Ichiro Inada	MAS-GIS	Chairman
2009	Denise Jenkins	MAS-GIS	Chairman
2009	Krista Johnson	MAS-GIS	Chairman
2009	Matthew Kenny	MAS-GIS	Chairman
2009	Chinmay Kurane	MAS-GIS	Chairman
2009	Sherry Lehmuth	MAS-GIS	Chairman
2009	Maura McAuslan	MAS-GIS	Chairman
2009	Isaac Montague	MAS-GIS	Chairman
2009	Constantinos Papantoniou	MAS-GIS	Chairman
2009	Eric Poirier	MAS-GIS	Chairman
2009	Nikolas Smilovsky	MAS-GIS	Chairman
2009	Jonathan Spiandorello	MAS-GIS	Chairman
2009	Jonathan Zimmer	MAS-GIS	Chairman
2010	Joseph Adams	MAS-GIS	Co-Chairman
2010	Muhammed Al-Awadhi	MAS-GIS	Co-Chairman
2010	Adel Al-Shomrany	MAS-GIS	Co-Chairman
2010	Tafeera Alsumaiti	MAS-GIS	Co-Chairman
2010	Scott Andreasen	MAS-GIS	Co-Chairman
2010	Joe Barnett	MAS-GIS	Co-Chairman
2010	Krysten Beard	MAS-GIS	Co-Chairman
2010	Jonathan Bodamer	MAS-GIS	Co-Chairman
2010	Keoni Carey	MAS-GIS	Co-Chairman
2010	Marissa Delgado	MAS-GIS	Co-Chairman
2010	Benjamin Errair	MAS-GIS	Co-Chairman
2010	Christian Fortunato	MAS-GIS	Co-Chairman
2010	Kimberly Hall	MAS-GIS	Co-Chairman
2010	Willis Jensen	MAS-GIS	Co-Chairman
2010	Sean Mayercek	MAS-GIS	Co-Chairman
2010	Kurt Mueller	MAS-GIS	Co-Chairman
2010	Darragh O'Keefe	MAS-GIS	Co-Chairman

2010	Chris Query	MAS-GIS	Co-Chairman
2010	Billy Ray	MAS-GIS	Co-Chairman
2010	Matthew Russo	MAS-GIS	Co-Chairman
2010	Beatrice Sabine	MAS-GIS	Co-Chairman
2010	John Scully	MAS-GIS	Chairman
2010	Amanda Slusser	MAS-GIS	Co-Chairman
2010	Clark Tallis	MAS-GIS	Co-Chairman
2010	Don Thorstenson	MAS-GIS	Co-Chairman
2010	Michael Vargas	MAS-GIS	Co-Chairman
2010	Derek Weatherly	MAS-GIS	Co-Chairman
2010	Andy Weflen	MAS-GIS	Co-Chairman
2010	Nicole Witmer	MAS-GIS	Co-Chairman
2010	Samantha Yates	MAS-GIS	Co-Chairman
2011	Bohumil Svoma	Ph.D.	Member
2011	Faraj Almarri	MAS-GIS	Chairman
2011	Saeed Almehairi	MAS-GIS	Chairman
2011	Turki AlShahrani	MAS-GIS	Chairman
2011	Eric Bregant	MAS-GIS	Chairman
2011	Andrew Burnes	MAS-GIS	Chairman
2011	Daniel Crothers	MAS-GIS	Chairman
2011	Dennis Dempsey	MAS-GIS	Chairman
2011	John Edmondson	MAS-GIS	Chairman
2011	Wenjian Fan	MAS-GIS	Chairman
2011	Armando Faustini	MAS-GIS	Chairman
2011	Hussein Hussein	MAS-GIS	Chairman
2011	Paul Johnson	MAS-GIS	Chairman
2011	Hongda Li	MAS-GIS	Chairman
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2011	Aaron Mattingly	MAS-GIS	Chairman
2011	Brent McFerren	MAS-GIS	Chairman
2011	Bradley McNeill	MAS-GIS	Chairman
2011	Shea Meyer	MAS-GIS	Chairman
2011	Audrey Navarro	MAS-GIS	Chairman
2011	Ryan Nosek	MAS-GIS	Chairman
2011	Maria Ochoa	MAS-GIS	Chairman
2011	William Oniszko	MAS-GIS	Chairman
2011	T.J. Peiffer	MAS-GIS	Chairman
2011	Dean Pokrajac	MAS-GIS	Chairman
2011	Adam Ricks	MAS-GIS	Chairman
2011	Kenna Schoenle	MAS-GIS	Chairman
2011	Kihwan Seo	MAS-GIS	Chairman
2011	Bharath Sollapuram	MAS-GIS	Chairman
2011	Dan Sturla	MAS-GIS	Chairman
2011	Edward Vergin	MAS-GIS	Chairman
2011	Debra Vian Brown	MAS-GIS	Chairman
2011	Zac Vineyard	MAS-GIS	Chairman
2011	Brandon Wait	MAS-GIS	Chairman

2011	Timothy Wilcoxon	MAS-GIS	Chairman
2012	Ayumi Bailey	MAS-GIS	Chairman
2012	Cameron Boehm	MAS-GIS	Chairman
2012	Seth Carney	MAS-GIS	Chairman
2012	Brian Collyer	MAS-GIS	Chairman
2012	Teresa Drury	MAS-GIS	Chairman
2012	Rudo Duncan	MAS-GIS	Chairman
2012	Mark Easterling	MAS-GIS	Chairman
2012	Todd Elliot	MAS-GIS	Chairman
2012	Joshua Fife	MAS-GIS	Chairman
2012	Matthew Garcia	MAS-GIS	Chairman
2012	Kenneth Gaub	MAS-GIS	Chairman
2012	Trista Hahn	MAS-GIS	Chairman
2012	Aubrey Hallmark	MAS-GIS	Chairman
2012	Natasha Harley	MAS-GIS	Chairman
2012	Raquel Haro	MAS-GIS	Chairman
2012	Aaron Haslam	MAS-GIS	Chairman
2012	Rebekah Hauck	MAS-GIS	Chairman
2012	Ryan Henderson	MAS-GIS	Chairman
2012	Chris Joannes	MAS-GIS	Chairman
2012	Jesse King	MAS-GIS	Chairman
2012	Marvis Kisakye	MAS-GIS	Chairman
2012	Jennifer Learned	MAS-GIS	Chairman
2012	Eric Marshall	MAS-GIS	Chairman
2012	Myrna Miller	MAS-GIS	Chairman
2012	Mridul Mittal	MAS-GIS	Chairman
2012	Raiza Negron	MAS-GIS	Chairman
2012	Ryan Neuhaus	MAS-GIS	Chairman
2012	Jeffrey Niemann	MAS-GIS	Chairman
2012	Kristina Perikly	MAS-GIS	Chairman
2012	Carl Poston	MAS-GIS	Chairman
2012	Qinyi Qian	MAS-GIS	Chairman
2012	Trenton Rawlinson	MAS-GIS	Chairman
2012	Brian Reed	MAS-GIS	Chairman
2012	Shay Richardson	MAS-GIS	Chairman
2012	John Ritter	MAS-GIS	Chairman
2012	Eric Ruberson	MAS-GIS	Chairman
2012	Adam Schorger	MAS-GIS	Chairman
2012	Amanda Stanko	MAS-GIS	Chairman
2012	Jeff Sturla	MAS-GIS	Chairman
2012	Emily Thibault	MAS-GIS	Chairman
2012	Fasil Tiru	MAS-GIS	Chairman
2012	Chrystine Trooien	MAS-GIS	Chairman
2012	Taylor Ward	MAS-GIS	Chairman
2012	Tony Williams	MAS-GIS	Chairman
2012	Danielle Williamson	MAS-GIS	Chairman
2012	Vern Wolfley	MAS-GIS	Chairman

2012	Zhe Yang	MAS-GIS	Chairman
2012	Semih Yildiz	MAS-GIS	Chairman
2012	Lauren Griswold	M.A	Member
2013	Bajad Al-Hajri	MAS-GIS	Chairman
2013	Jaber Alajmi	MAS-GIS	Chairman
2013	Saad Alasiri	MAS-GIS	Chairman
2013	Sami Alfozan	MAS-GIS	Chairman
2013	Zachary Aguayo	MAS-GIS	Chairman
2013	Michael Akey	MAS-GIS	Chairman
2013	Brian Bajuscak	MAS-GIS	Chairman
2013	Brad Bohall	MAS-GIS	Chairman
2013	Linda Boyd	MAS-GIS	Chairman
2013	Tana-Chy Bruhns	MAS-GIS	Chairman
2013	Rodney Carlson	MAS-GIS	Chairman
2013	Paul Carriere	MAS-GIS	Chairman
2013	Debra Crouse	MAS-GIS	Chairman
2013	Erik Davidson	MAS-GIS	Chairman
2013	Jeremy Dorn	MAS-GIS	Chairman
2013	Diana Fischer	MAS-GIS	Chairman
2013	Jeffrey Gray	MAS-GIS	Chairman
2013	George Green	MAS-GIS	Chairman
2013	Mark Griffin	MAS-GIS	Chairman
2013	Amanda Hannen	MAS-GIS	Chairman
2013	Nicholas Hunsaker	MAS-GIS	Chairman
2013	Gregory Hunt	MAS-GIS	Chairman
2013	Loc Huynh	MAS-GIS	Chairman
2013	Daniel James	MAS-GIS	Chairman
2013	Ajsa Jusic	MAS-GIS	Chairman
2013	Zachery Levesque	MAS-GIS	Chairman
2013	Hao Liu	MAS-GIS	Chairman
2013	Xiaoyu Liu	MAS-GIS	Chairman
2013	Rueben Malin	MAS-GIS	Chairman
2013	Christopher Miller	MAS-GIS	Chairman
2013	Catrina Morgan	MAS-GIS	Chairman
2013	Madison Pike	MAS-GIS	Chairman
2013	Courtney Riggs	MAS-GIS	Chairman
2013	Brian Rubin	MAS-GIS	Chairman
2013	Jessica Rupp	MAS-GIS	Chairman
2013	Julian Sodari	MAS-GIS	Chairman
2013	Clayton Spedding	MAS-GIS	Chairman
2013	Matthew Thomas	MAS-GIS	Chairman
2013	Daniel Tilley	MAS-GIS	Chairman
2013	Sravani Vadlamani	MAS-GIS	Chairman
2013	Allan Vinluan	MAS-GIS	Chairman
2013	Abeer Alharbi	MAS-GIS	Chairman
2013	Fatimah Khuraidah	MAS-GIS	Chairman
2013	Michael Samples	MAS-GIS	Chairman

2014	Lucille Aubrecht	MAS-GIS	Chairman
2014	Donna Bortfeld	MAS-GIS	Chairman
2014	Marisol Cortez	MAS-GIS	Chairman
2014	Jonathan Davis	MAS-GIS	Chairman
2014	Robert Edmonson	MAS-GIS	Chairman
2014	Kristian Ekenes	MAS-GIS	Chairman
2014	Chris Ferguson	MAS-GIS	Chairman
2014	Amanda GaNung	MAS-GIS	Chairman
2014	Padric Hall	MAS-GIS	Chairman
2014	Benjamin Hammer	MAS-GIS	Chairman
2014	Greg Harmon	MAS-GIS	Chairman
2014	Greg Helton	MAS-GIS	Chairman
2014	Adrian Henham	MAS-GIS	Chairman
2014	Steven Larsen	MAS-GIS	Chairman
2014	Seth Lewis	MAS-GIS	Chairman
2014	Seth Loht	MAS-GIS	Chairman
2014	Mircea Maierean	MAS-GIS	Chairman
2014	Melissa McGehee	MAS-GIS	Chairman
2014	David McQuillan	MAS-GIS	Chairman
2014	Bryнна Miller	MAS-GIS	Chairman
2014	Matt Monson	MAS-GIS	Chairman
2014	Cameron Morton	MAS-GIS	Chairman
2014	Tracie Mulvin	MAS-GIS	Chairman
2014	Brain Napolitano	MAS-GIS	Chairman
2014	John Papagegiou	MAS-GIS	Chairman
2014	Kathryn Pole	MAS-GIS	Chairman
2014	Natalie Kay Romine	MAS-GIS	Chairman
2014	Austin Smith	MAS-GIS	Chairman
2014	Inho Song	MAS-GIS	Chairman
2014	Paulo Vandenberg	MAS-GIS	Chairman
2014	Ariane Wieboldt Vidal	MAS-GIS	Chairman
2014	Holly Winscott	MAS-GIS	Chairman
2014	Jingya Zhang	MAS-GIS	Chairman
2014	Tian Zhang	MAS-GIS	Chairman

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## Teaching Evaluation Summary

1988-2013

Since Fall, 1988, I have been using essentially the same instrument to evaluate the different courses taught. Question #9 of that evaluation form asks "In general, the instructor taught this course effectively." Students can respond as "Strongly Agree" (1), "Agree" (2), "Neutral" (3), "Disagree" (4), or "Strongly Disagree" (5). The class average and the number of respondents, N, are given below:

Semester	Course	Score	N
Fall, 1988	GPH 111 - Intro. Physical Geogr.	1.47	106
Spring, 1989	GPH 591 - Adv. Spatial Stat.	1.09	11
Fall, 1989	GPH 111 - Intro. Physical Geogr.	1.35	74
Spring, 1990	GPH 213 - Intro. Meteorol. II	1.27	15
Fall, 1990	GPH 111 - Intro. Physical Geogr.	1.36	107
Spring, 1991	GPH 412 - Physical Climatology	1.28	18
Fall, 1991	GPH 111 - Intro. Physical Geogr.	1.42	88
Spring, 1992	GPH 591 - Adv. Spatial Stat.	1.40	10
Fall, 1992	GPH 111 - Intro. Physical Geogr.	1.25	89
Spring, 1993	GPH 412 - Physical Climatology	1.33	15
Fall, 1993	GPH 111 - Intro. Physical Geogr.	1.35	111
Spring, 1994	GPH 111 - Intro. Physical Geogr.	1.28	88
Spring, 1994	GPH 591 - Adv. Spatial Stat.	1.33	9
Fall, 1994	GPH 412 - Physical Climatology	1.29	7
Spring, 1995	GPH 111 - Intro. Physical Geogr.	1.48	117
Fall, 1995	GPH 591 - Adv. Spatial Stat.	1.33	12
Spring, 1996	GPH 111 - Intro. Physical Geogr.	1.51	81
Fall, 1996	GPH 412 - Physical Climatology	1.14	14
Spring, 1997	GPH 591 - Adv. Spatial Stat.	1.14	7
Fall, 1997	GPH 111 - Intro. Physical Geogr.	1.45	109
Fall, 1997	GPH 412 - Physical Climatology	1.29	7
Spring, 1998	GPH 111 - Intro. Physical Geogr.	1.47	141
Fall, 1998	GPH 591 - Adv. Spatial Stat.	1.09	11
Fall, 1999	GPH 111 - Intro. Physical Geogr.	1.24	95
Spring, 2000	GPH 591 - Adv. Spatial Stat.	1.64	11
Fall, 2000	GPH 111 - Intro. Physical Geogr.	1.52	85
Fall, 2001	GPH 111 - Intro. Physical Geogr.	1.59	67
Spring, 2002	GPH 596 - Adv. Spatial Stat.	1.50	8
Fall, 2002	GPH 111 - Intro. Physical Geogr.	1.55	85
Spring, 2003	GPH 412 - Physical Climatology	1.00	4
Fall, 2003	GPH 111 - Intro. Physical Geogr.	1.39	70
Spring, 2004	GPH 596 - Adv. Spatial. Stat.	1.19	16
Fall, 2004	GPH 111 - Intro. Physical Geogr.	1.33	58
Fall, 2004	GPH 591 - Climate Change Seminar	1.00	4

Fall, 2004	GPH 603 – Spatial Stat. (MAS-GIS)	1.78	18
Spring, 2005	GPH 213 – Intro. Climatology	1.05	19
Spring, 2005	GPH 412 – Physical Climatology	1.50	6
Fall, 2005	GPH 603 – Spatial Stat. (MAS-GIS)	1.33	15
Fall, 2005	GPH 111 – Intro. Physical Geogr.	1.44	62
Fall, 2005	GPH 212 – Intro. Meteorology	1.54	28
Spring, 2006	GPH 213 - Intro. Climatology	1.42	26
Spring, 2006	GPH 596 – Adv. Spatial. Stat.	1.38	8
Fall, 2006	GPH 111 – Intro. Physical Geogr.	1.25	65
Fall, 2006	GPH 412 – Physical Climatology	1.60	10
Fall, 2006	GPH 603 - Spatial Stat. (MAS-GIS)	1.59	17
Spring, 2007	GPH 111 – Intro. Physical Geogr.	1.39	74
Spring, 2007	GPH 494 – Regional Climatology	1.17	6
Fall, 2007	GPH 603 - Spatial Stat. (MAS-GIS)	1.25	16
Fall, 2007	GPH 596 – Adv. Spatial. Stat.	1.58	12
Fall, 2007	GPH 111 – Intro. Physical Geogr.	1.65	72
Spring, 2008	GPH 494 – Regional Climatology	1.25	4
Fall, 2008	GPH 111 – Intro. Physical Geogr.	1.43	112
Fall, 2008	GPH 412 – Physical Climatology	1.40	10
Fall, 2008	GPH 603 - Spatial Stat. (MAS-GIS)	1.72	29
Spring, 2009	GPH 213 – Intro. Climatology	1.77	53
Spring, 2009	GPH 111 – Intro. Physical Geogr.	2.01	107
Fall, 2009	GPH 603 - Spatial Stat. (MAS-GIS)	1.48	28
Fall, 2009	GPH 111 – Intro. Physical Geogr.	1.23	80
Spring, 2010	GPH 111 – Intro. Physical Geogr.	1.40	73
Spring, 2010	GPH 412 – Physical Meteorology	1.20	25
Fall, 2010	GPH 603 - Spatial Stat. (MAS-GIS)	1.68	31
Fall, 2010	GPH 111 – Intro. Physical Geogr.	1.43	70
Spring, 2011	GPH 111 – Intro. Physical Geogr.	1.60	121/203
Spring, 2011	GPH 494 – Regional Climatology	1.00	2/8
Fall, 2011	GPH 603 - Spatial Stat. (MAS-GIS)	1.90	21/54
Fall, 2011	GPH 111 – Intro. Physical Geogr.	1.70	83/180
Spring, 2012	GPH 111 – Intro. Physical Geogr.	1.80	90/204
Spring, 2012	GPH 412/591 – Physical Meteorology	1.50	???
Fall, 2012	GPH 603 - Spatial Stat. (MAS-GIS)	1.60	18/41
Fall, 2012	GPH 111 – Intro. Physical Geogr.	1.90	113/191
Spring, 2013	GPH 111 – Intro. Physical Geogr.	1.80	89/171
Spring, 2013	GPH 498/598 – Regional Climatology	1.00	4/5
Fall, 2013	GPH 603 - Spatial Stat. (MAS-GIS)	1.00	5/38
Fall, 2013	GPH 111 – Intro. Physical Geogr.	1.50	50/138
Spring, 2014	GPH 111 – Intro. Physical Geogr.	2.00	65/196
Spring, 2014	GPH 412 – Physical Meteorology	2.70	2/12