

2004-

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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.

Refereed Journal Articles:

- 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.

- 1988 Anthony J. Brazel, Sandra W. Brazel, and Robert C. Balling, Jr. "Recent Changes in Smoke/Haze Events in Phoenix, Arizona." *Theoretical and Applied Climatology*, Vol 39, No. 2, pp. 108-113.
- 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.
- 1989 Robert C. Balling, Jr. and Sandra W. Brazel. "High-Resolution Nighttime Temperature Patterns in Phoenix." *Journal of the Arizona-Nevada Academy of Sciences*, Vol. 23, pp. 49-53.
- 1989 Hassan A. Nasrallah, Anthony J. Brazel, and Robert C. Balling, Jr. "Analysis of the Kuwait City, Kuwait Urban Heat Island." *International Journal of Climatology*, Vol. 10, No. 4, pp. 401-405.
- 1990 Randall S. Cerveny and Robert C. Balling, Jr. "Inhomogeneities in the Long-Term United States' Sunshine Record." *Journal of Climate*, Vol. 3, No. 9, pp. 1045-1048.
- 1990 Robert C. Balling, Jr., and Sherwood B. Idso. "Confusing Signals in the Climatic Record." *Atmospheric Environment*, Vol. 24A, No. 7, pp. 1975-1977.
- 1990 Robert C. Balling, Jr. and Sherwood B. Idso. "One Hundred Years of Global Warming." *Environmental Conservation*, Vol. 17, No. 2, p. 165.
- 1990 Robert C. Balling, Jr. and Stephen G. Wells. "Historical Rainfall Patterns and Arroyo Activity within the Zuni River Drainage Basin, New Mexico." *Annals of the Association of American Geographers*, Vol. 80, No. 4, pp. 603-617.
- 1990 Robert C. Balling, Jr., Jon A. Skindlov, and Daniel H. Phillips. "The Impact of Increasing Summer Mean Temperatures on Extreme Maximum and Minimum Temperatures in Phoenix, Arizona." *Journal of Climate*, Vol. 3, No. 12, pp. 1491-1494.
- 1990 Sherwood B. Idso, Robert C. Balling, Jr., and Randall S. Cerveny. "Carbon Dioxide and Hurricanes: Implications of Northern Hemispheric Warming for Atlantic/Caribbean Storms." *Meteorology and Atmospheric Physics*, Vol. 42, No. 3-4, pp. 259-263.

- 1990 Nevin A. Bryant, Lee F. Johnson, Anthony J. Brazel, Robert C. Balling, Jr., Charles F. Hutchinson, and Louisa Beck. "Measuring the Effect of Overgrazing in the Sonoran Desert." *Climatic Change*, Vol. 17, Nos. 2-3, pp. 243-264.
- 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.
- 1991 Sherwood B. Idso and Robert C. Balling, Jr. "Evaluating the Climatic Effect of Doubling Atmospheric CO₂ Via an Analysis of Earth's Historical Temperature Record." *Science of the Total Environment*, Vol. 106, No. 3, pp. 239-242.
- 1991 Robert C. Balling, Jr. and Sherwood B. Idso. "Decreasing Diurnal Temperature Range: CO₂ Greenhouse Effect or SO₂ Energy Balance Effect?" *Atmospheric Research*, Vol. 26, No. 5, pp. 455-459.
- 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.
- 1991 Robert C. Balling, Jr., Randall S. Cerveney, Tomas A. Miller, and Sherwood B. Idso. "Greenhouse Warming May Moderate British Storminess." *Meteorology and Atmospheric Physics*, Vol. 46, No. 3-4, pp. 181-184.
- 1991 Robert C. Balling, Jr. and Sherwood B. Idso. "Sulfate Aerosols of the Stratosphere and Troposphere: Combined Effects on Surface Air Temperature." *Theoretical and Applied Climatology*, Vol. 44, No. 3-4, pp. 239-241.

- 1991 Sherwood B. Idso, Robert C. Balling, Jr., and Randall S. Cerveny. "Reply to Comments of Kerry A. Emanuel on 'Carbon Dioxide and Hurricanes: Implications of Northern Hemispheric Warming for Atlantic/Caribbean Storms.'" *Meteorology and Atmospheric Physics*, Vol. 47, No. 1, pp. 85-86.
- 1992 Sherwood B. Idso and Robert C. Balling, Jr. "US Temperature/Precipitation Relationships: Implications for Future "Greenhouse" Climates." *Agricultural and Forest Meteorology*, Vol. 58, No. 1-2, pp. 143-147.
- 1992 Robert C. Balling, Jr., Grant A. Meyer, and Stephen G. Wells. "Relation of Surface Climate and Burn Area in Yellowstone National Park." *Agricultural and Forest Meteorology*, Volume 60, pp. 285-293.
- 1992 Grant A. Meyer, Stephen G. Wells, Robert C. Balling, Jr., and A.J. Timothy Jull. "Response of Alluvial Systems to Fire and Climate Change in Yellowstone National Park." *Nature*, Vol. 357 (14 May), pp. 147-150.
- 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.
- 1992 Robert C. Balling, Jr., Grant A. Meyer, and Stephen G. Wells. "Climate Change in Yellowstone National Park: Is the Drought-Related Risk of Wildfires Increasing?" *Climatic Change*, Vol. 22, No. 1, pp. 35-45.
- 1992 Robert C. Balling, Jr. and Sherwood B. Idso. "Climatic Change in Britain: Is SO₂ More Significant than CO₂?" *Theoretical and Applied Climatology*, Vol. 45, No. 4, pp. 251-256.
- 1992 Robert C. Balling, Jr., Sherwood B. Idso, and Warwick S. Hughes. "Long-Term and Recent Anomalous Temperature Changes in Australia." *Geophysical Research Letters*, Vol. 19, No. 23, pp. 2317-2320.
- 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.
- 1994 Robert C. Balling, Jr. "Greenhouse Gas and Sulfate Aerosol Experiments Using a Simple Global-Energy-Balance Model." *Physical Geography*, Vol. 15, No. 4, pp. 299-209.
- 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.
- 1995 Robert C. Balling, Jr. and Randall S. Cerveny. "Lunar Phase Influence on Global Temperatures." *Science*, Vol. 269, pp. 1284-1285.
- 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.
- 1995 Hassan A. Nasrallah and Robert C. Balling, Jr. "Impact of Desertification on Temperature Trends in the Middle East." *Environmental Monitoring and Assessment*, Vol. 37, pp. 265-271.
- 1995 Robert C. Balling, Jr. "Soaring Temperatures in Ghana?" *Environmental Conservation*, Vol. 22, No. 4, p. 370.

- 1996 Robert C. Balling, Jr. and John R. Christy. "Analysis of Satellite-Based Estimates of Tropospheric Diurnal Temperature Range." *Journal of Geophysical Research*, Vol. 101, pp. 12,827-12,832.
- 1996 Robert C. Balling, Jr. "An Update on the Global Warming Debate." *Journal of Reinsurance*, Vol. 3, No. 3, pp. 27-35.
- 1996 Randolph S. Sedlacek and Robert C. Balling, Jr. "Impact of El Niño/Southern Oscillation Events on Arizona Snowfall." *Journal of the Arizona-Nevada Academy of Science*, Vol. 29, No. 2, pp. 118-123.
- 1996 Hassan A. Nasrallah and Robert C. Balling, Jr. "Analysis of Recent Climatic Changes in the Arabian Peninsula Region." *Theoretical and Applied Climatology*, Vol. 53, pp. 245-252.
- 1996 Warwick S. Hughes and Robert C. Balling, Jr. "Urban Influences on South African Temperature Trends." *International Journal of Climatology*, Vol. 16, No. 8, pp. 935-940.
- 1996 Robert C. Balling, Jr. "Geographic Analysis of Differences in Trends Between Near-Surface and Satellite-Based Temperature Measurements." *Geophysical Research Letters*, Vol. 23, No. 21, pp. 2939-2941.
- 1996 Robert C. Balling, Jr. "Century-Long Variations in United States Drought Severity." *Agricultural and Forest Meteorology*, Vol. 82, pp. 293-299.
- 1997 John A. Shaffer, Randall S. Cerveny, and Robert C. Balling, Jr. "Polar Temperature Sensitivity to Lunar Forcing." *Geophysical Research Letters*, Vol. 24, No. 1, pp. 29-32.
- 1998 Robert C. Balling, Jr., Patrick J. Michaels, and Paul C. Knappenberger. "Analysis of Winter and Summer Warming Rates in Gridded Temperature Time Series." *Climate Research*, Vol. 9, No. 3, pp. 175-181.
- 1998 Patrick J. Michaels, Robert C. Balling, Jr., Russell S. Vose, and Paul C. Knappenberger. "Analysis of Trends in the Variability of Daily and Monthly Historical Temperature Measurements." *Climate Research*, Vol. 10, No. 1, 27-33.
- 1998 Randall S. Cerveny and Robert C. Balling, Jr. "Weekly Cycles of Air Pollutants, Precipitation and Tropical Cyclones in the Coastal N.W. Atlantic Region." *Nature*, Vol. 394, No. 6693, pp. 561-563.
- 1998 Robert C. Balling, Jr. "Analysis of Daily and Monthly Spatial Variance Components in Historical Temperature Records." *Physical Geography*, Vol. 18, No. 6, pp. 544-552.

- 1998 Robert C. Balling, Jr., Mark L. Hildebrandt, Jeffrey M. Klopatek, Cherie K. Mortiz, and Christopher J. Watts. "Impacts of Land Degradation on Historical Temperature Records from the Sonoran Desert." *Climatic Change*, Vol. 40, No. 3-4, pp. 669-681.
- 1998 Craig D. Idso, Sherwood B. Idso, and Robert C. Balling, Jr. "The Urban CO₂ Dome of Phoenix, Arizona." *Physical Geography*, Vol. 19, No. 2, pp. 95-108.
- 1998 Robert C. Balling, Jr., Russ S. Vose, and Gerd-Rainer Weber. "Analysis of Long-Term European Temperature Records: 1751-1995." *Climate Research*, Vol. 10, No. 3, pp. 193-200.
- 1999 Craig D. Idso, Sherwood B. Idso, and Robert C. Balling, Jr. "The Relationship Between Near-Surface Air Temperature over Land and the Annual Amplitude of the Atmosphere's Seasonal CO₂ Cycle." *Environmental and Experimental Botany*, Vol. 41, No. 1, pp. 31-37.
- 1999 Randall S. Cerveny and Robert C. Balling, Jr. "Lunar Influence on Diurnal Temperature Range." *Geophysical Research Letters*, Vol. 26, No. 11, pp. 1605-1608.
- 1999 Robert C. Balling, Jr., Darlene A. Periconi, Sallie L. Baliunas, and Randall S. Cerveny. "Large Asymmetrical Temperature Trends at Mount Wilson, California." *Geophysical Research Letters*, Vol. 26, No. 17, pp. 2753-2756.
- 1999 Patrick J. Michaels, Paul C. Knappenberger, Robert C. Balling, Jr., and Robert E. Davis. "Observed Warming in Cold Anticyclones." *Climate Research*, Vol. 14, pp. 1-6.
- 2000 Robert C. Balling, Jr. "The Geographer's Niche in the Greenhouse Millennium." *Annals of the Association of American Geographers*, Vol. 90, No. 1, pp. 114-122.
- 2000 Craig D. Idso, Sherwood B. Idso, Bruce A. Kimball, Hyoung-Shin Park, J. Kenneth Hooper, Robert C. Balling, Jr. Ultra-enhanced spring branch growth in CO₂-enriched trees: Can it alter the phase of the atmosphere's seasonal CO₂ cycle? *Environmental and Experimental Botany*, Vol. 43, No. 2, pp. 91-100.
- 2000 Robert C. Balling, Jr. and Mark Hildebrandt. "Evaluation of the linkage between Schumann Resonance peak frequency values and global and regional temperatures." *Climate Research*, Vol. 16, No. 1, pp. 31-36.
- 2000 Robert C. Balling, Jr. and Randall S. Cerveny. "The Climate Riddle of The Lost Squadron." *Weatherwise*, Vol. 53, No. 6, pp. 21-25.
- 2000 Robert C. Balling, Jr. and Randall S. Cerveny. "The Rescue of the Lost Squadron Crewmen." *Weatherwise*, Vol. 53, No. 6, p. 22.

- 2001 Craig D. Idso, Sherwood B. Idso, and Robert C. Balling, Jr. "An Intensive Two-Week Study of an Urban CO₂ Dome." *Atmospheric Research*, Vol. 35, No. 6, pp. 995-1000.
- 2001 Hassan A. Nasrallah, Robert C. Balling, Jr., Nancy J. Selover, and Russell S. Vose. "Development of a Seasonal Forecast Model for Kuwait Winter Precipitation" *Journal of Arid Environments*, Vol. 48, No. 2, pp. 233-242.
- 2001 Robert C. Balling, Jr., Randall S. Cerveny, and Craig D. Idso. "Does the Urban CO₂ Dome of Phoenix, Arizona Contribute to Its Heat Island?" *Geophysical Research Letters*, Vol. 28, No. 24, pp. 4599-4602.
- 2001 Randall S. Cerveny, Darlene A. Periconi, Sallie L. Baliunas, and Robert C. Balling, Jr. "Between the Stars: The Weather and Climate of the Mount Wilson Observatory: Past, Present, and Future" *Weatherwise*, Vol. 54, No. 5, pp. 28-33.
- 2002 Elizabeth A. Wentz, Patricia Gober, Robert C. Balling, Jr., and Thomas Day. "Spatial Patterns and Determinants of Atmospheric Carbon Dioxide Concentrations in an Urban Environment." *Annals of the Association of American Geographers*, Vol. 92, No. 1, pp. 15-28.
- 2002 Sherwood B. Idso, Craig D. Idso, and Robert C. Balling Jr., "Seasonal and Diurnal Variations of Near-Surface Atmospheric CO₂ Concentration within a Residential Sector of the Urban CO₂ Dome of Phoenix, Arizona, USA." *Atmospheric Environment*, Vol. 36, No. 10, pp. 1655-1660.
- 2002 Robert C. Balling, Jr. and Craig D. Idso. "Analysis of Adjustments to the United States Historical Climatology Network (USHCN) Temperature Database." *Geophysical Research Letters*, Vol. 29, No. 10, pp. 25:1-3.
- 2002 Taly D. Drezner and Robert C. Balling, Jr. "El Niño and Climatic Control of Saguaro Cacti Regeneration in the Sonoran Desert." *Physical Geography*, Vol. 21, No. 6, pp. 465-475 (actually published in August, 2003).
- 2003 Hassan A. Nasrallah, Robert C. Balling, Jr., Shaker Mohammed Madi, and Lamya Al-Ansari. "Temporal Variations in Atmospheric CO₂ Concentrations in Kuwait City, Kuwait with Comparisons to Phoenix, Arizona, USA." *Environmental Pollution*, Vol. 121, 301-305.
- 2003 Robert C. Balling, Jr. and Randall S. Cerveny. "Compilation and Discussion of Trends in Severe Storms in the United States: Popular Perception v. Climate Reality." *Natural Hazards*, Vol. 29, No. 2, pp. 103-112.
- 2003 Robert C. Balling, Jr. and Randall S. Cerveny. "Analysis of Radiosonde-Based Lapse Rates and the Difference Between Near-Surface and Satellite-Based Lower-Tropospheric Air Temperatures over the Central United States." *Geophysical Research Letters*, Vol. 30, No. 7, 10.1029/2002GL016693.

- 2003 David M. Brommer, Robert C. Balling, Jr., and Randall S. Cerveny. "Local and Regional Discriminators of Mesoscale Convective Vortex Development in Arizona." *Monthly Weather Review*, Vol. 131, No. 8, Part 2, pp. 1939-1943.
- 2003 Robert C. Balling, Jr. and Randall S. Cerveny. "Vertical Dimensions of Seasonal Trends in the Diurnal Temperature Range Across the Central United States." *Geophysical Research Letters*, Vol. 30, No. 17, 10.1029/2003GL017776.
- 2003 Robert C. Balling, Jr. and Randall S. Cerveny. "Cosmic Ray Flux Impact on Clouds? An Analysis of Radiosonde, Cloud Cover, and Surface Temperature Records from the United States." *Theoretical and Applied Climatology*, Vol 75, No. 3-4, pp. 225-231.
- 2003 Shouraseni Sen Roy, Gregory B. Goodrich, and Robert C. Balling, Jr. "Influence of El Niño/Southern Oscillation, Pacific Decadal Oscillation, and Local Sea Surface Temperature Anomalies on Peak Season Monsoon Precipitation in India." *Climate Research*, Vol. 25, pp. 171-178.
- 2003 Robert C. Balling, Jr. and Randall S. Cerveny. "Analysis of the Duration, Seasonal Timing, and Location of North Atlantic Tropical Cyclones: 1950-2002." *Geophysical Research Letters*, Vol. 30, No. 24, 10.1029/2003GL018404.
- 2004 Shouraseni Sen Roy and Robert C. Balling, Jr. "Trends in Extreme Daily Precipitation Indices in India." *International Journal of Climatology*, Vol. 24, No. 4, pp. 457-466.
- 2004 Adam J. Kalkstein and Robert C. Balling, Jr. "Impact of Unusually Clear Weather on United States Daily Temperature Range Following 9/11/2001." *Climate Research*, Vol. 26, No. 1, pp. 1-4.
- 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.
- 2004 Shouraseni Sen Roy and Robert C. Balling, Jr. "Analysis of Hawaiian Diurnal Rainfall Patterns." *Theoretical and Applied Climatology*, Vol. 79, No. 3-4, pp. 209-214.
- 2005 Shouraseni Sen Roy and Robert C. Balling, Jr. "Analysis of Diurnal Patterns in Winter Precipitation across the Conterminous United States." *Monthly Weather Review*, Vol. 133, No. 3, pp. 707-711.

- 2005 Randall S. Cerveny and Robert C. Balling, Jr. "Variations in the Diurnal Character of Tropical Cyclone Wind Speeds." *Geophysical Research Letters*, Vol. 32, No. 6, L06706.
- 2005 Robert C. Balling, Jr. and Shouraseni Sen Roy "Analysis of Spatial Patterns Underlying the Linkage between Solar Irradiance and Near-Surface Air Temperatures." *Geophysical Research Letters*, Vol. 32, No. 11, L11702.
- 2005 Shouraseni Sen Roy and Robert C. Balling, Jr. "Analysis of Trends in Maximum and Minimum Temperature, Diurnal Temperature Range, and Cloud Cover over India." *Geophysical Research Letters*, Vol. 32, No. 12, L12702.
- 2005 Shouraseni Sen Roy and Robert C. Balling, Jr. "Harmonic and Simple Kriging Analyses of Diurnal Precipitation Patterns in Puerto Rico." *Caribbean Journal of Science*, Vol. 41, No. 2, pp. 181-188.
- 2006 Shade T. Shuttters and Robert C. Balling, Jr. "Weekly Periodicity of Environmental Variables in Phoenix, Arizona." *Atmospheric Environment (Impact Factor=1.56)*, Vol. 40, pp. 304-310.
- 2006 Andrew W. Ellis, David M. Brommer, and Robert C. Balling, Jr. "Climatic Conditions Linked To High PM₁₀ Concentration In A Bi-National Airshed: Nogales (Arizona, USA and Sonora, Mexico)." *Climate Research (Impact Factor=0.96)*, Vol. 30, pp. 113-124.
- 2006 Shouraseni Sen Roy and Robert C. Balling, Jr. "Analysis of Spatial Patterns of Trends in the Frequency and Intensity of Indian Precipitation." *Mausam (Impact Factor n.a.)*, Vol. 57, No. 3, pp. 431-436.
- 2006 Robert C. Balling, Jr. and Randall S. Cerveny. "Analysis of Tropical Cyclone Intensification Trends and Variability in the North Atlantic Basin over the Period 1970-2003." *Meteorology and Atmospheric Physics (Impact Factor=0.62)*, Vol. 93. No. 1-2, pp. 45-51..
- 2006 Carol M. Atkinson-Palombo, James A. Miller, and Robert C. Balling, Jr. "Quantifying the Ozone "Weekend Effect" at Various Locations in Phoenix, Arizona." *Atmospheric Environment (Impact Factor=1.56)*, Vol. 40, pp. 7644-7658.
- 2007 Robert C. Balling, Jr. and Gregory B. Goodrich. "Analysis of Drought Determinants for the Colorado River Basin." *Climatic Change (Impact Factor=1.63)*, Vol. 82, No. 1-2, pp. 179-194.
- 2007 Shouraseni Sen Roy and Robert C. Balling, Jr. "Diurnal Variations in Summer Season Precipitation in India." *International Journal of Climatology (Impact Factor=1.14)*, Vol. 27, pp. 969-976.

- 2007 Robert C. Balling, Jr. and Patricia Gober. "Climate Variability and Residential Water Use in Phoenix, Arizona." *Journal of Applied Meteorology and Climatology (Impact Factor=1.16)*, Vol. 46, No. 7, pp. 1130-1137.
- 2007 David M. Brommer, Randall S. Cerveny, and Robert C. Balling, Jr. "Characteristics of Long-Duration Precipitation Events across the United States." *Geophysical Research Letters (Impact Factor=2.43)*, Vol. 34, L22712, doi:10.1029/2007GL031808.
- 2008 Jason S. Walker, Robert C. Balling, Jr. John M. Briggs, Madhusudan Katti, Paige S. Warren, and Elizabeth A. Wentz. "Birds of a Feather: Interpolating Distribution Patterns of Urban Birds". *Computers, Environment and Urban Systems (Impact Factor=0.12)*, Vol. 32, pp. 19-28.
- 2008 Seung-Jae Lee, Robert C. Balling, Jr., and Patricia Gober. "Bayesian Maximum Entropy Mapping and the Soft Data Problem in Urban Climate Research." *Annals, Association of American Geographers (Impact Factor=2.14)*, in press (June issue).
- 2008 Taly D. Drezner and Robert C. Balling, Jr. "Keystone Species (*Carnegiea gigantea*) Population Cycles are Linked to Worldwide Volcanism." *Journal of Vegetation Science (Impact Factor=1.67)*, in press.
- 2008 Andrew W. Ellis, Timothy W. Hawkins, Robert C. Balling, Jr., and Patricia Gober. "Estimating Future Runoff Levels for a Semi-Arid Fluvial System in Central Arizona." *Climate Research (Impact Factor=1.16)*, in press.
- 2008 Ana Rosa Peralta-Hernandez, Robert C. Balling, Jr., and Luis R. Barba-Martinez. "Analysis of Near-Surface Diurnal Temperature Variations and Trends in Southern Mexico." *International Journal of Climatology (Impact Factor=1.14)*, under review (submitted 10/15/07; revision submitted ???).
- 2008 R.C. Balling, Jr., P. Gober, and N. Jones. "Sensitivity of Residential Water Consumption to Variations in Weather and Climate: An Intra-Urban Analysis of Phoenix, Arizona." *Water Resources Research (Impact Factor=1.64)*, under review (submitted 12/1/07).
- 2008 Ana Rosa Peralta-Hernandez, Robert C. Balling, Jr., and Luis R. Barba-Martinez. "Analysis of Extreme Daily Rainfall Events in Southern Mexico." *Atmosfera (Impact Factor=0.30)*, under review (submitted 12/14/07).
- 2008 Bohumil M. Svoma and Robert C. Balling, Jr. "An Anthropogenic Signal in Phoenix, Arizona Winter Precipitation." *Atmospheric Research (Impact Factor=0.80)*, under review (submitted 2/15/08).

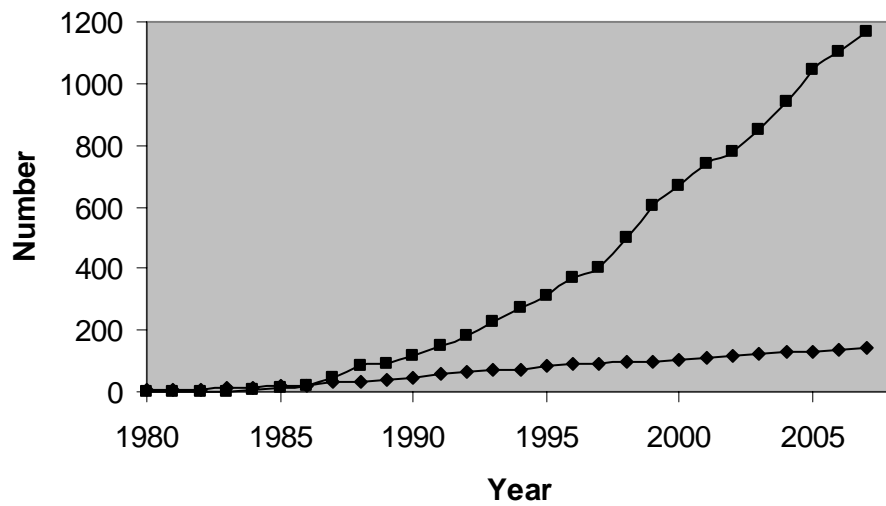


Figure shows the cumulative number of refereed journal articles (141) and the cumulative number of citations (1,169) to those articles (updated December 31, 2007)

Book Chapters and Sections:

- 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.
- 1995 Robert C. Balling, Jr. "Global Carbon Dioxide Reductions—Domestic and International Consequences. Commentary." *Strategies for Improving Environmental Quality and Increasing Economic Growth*, Charls E. Walker, Mark A. Bloomfield, and Margo Thorning, editors, Washington, D.C.: American Council for Capital Formation, pp. 52-57.
- 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.
- 1996 Robert C. Balling, Jr. "Seasons." *Encyclopedia of Climate and Weather*, Stephen H. Schneider, ed., Oxford, England: Oxford University Press, pp. 678-681.

- 1996 Robert C. Balling, Jr. "Normal Weather: A Twenty-First-Century Trend." *America Beyond 2001*, David L. Bender and Bruno Leone, editors, San Diego, California: Greenhaven Press, Inc., pp. 227-237.
- 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.
- 1998 Robert C. Balling, Jr. "The Spin on Greenhouse Hurricanes." *Global Warming: The Continuing Debate*, Roger Bate, editor, Cambridge, England: Optichrome Limited, pp. 102-117.
- 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.
- 1999 Robert C. Balling, Jr. "The Global Temperature Data." *International Environmental Law and World Order*, Lakshman D. Guruswamy, Burns H. Weston, Sir Geoffrey W.R. Palmer, , and Jonathan C. Carlson, editors, St. Paul, Minnesota: West Group, pp. 1139-1144.
- 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.
- 2000 Robert C. Balling, Jr. "Fourier Analysis." *The Dictionary of Physical Geography*, David S.G. Thomas and Andrew Goudie, editors, Oxford, England: Blackwell Publishers, p. 210.
- 2000 Robert C. Balling, Jr. "IPCC." *The Dictionary of Physical Geography*, David S.G. Thomas, editor, Oxford, England: Blackwell Publishers, p. 274.
- 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.

Reports and Miscellaneous Publications:

- 1975 Robert C. Balling, Jr. "Analysis of the Relationship between pH Variation in the Precipitation of Toledo, Ohio and Atmospheric Sulfur Dioxide Concentration." M.A. Thesis, Department of Geography, Bowling Green State University, Bowling Green, Ohio.
- 1979 Robert C. Balling, Jr. "Regional Winter Climatic Variations Associated with Atmospheric Circulation Change in the Coterminous United States: 1939-1965." Ph.D. Thesis, Department of Geography, University of Oklahoma, Norman, Oklahoma.
- 1979 Robert C. Balling, Jr. "The Effect of Weather and Climate upon Cattle Performance in Nebraska." *Progress Report 79-2*, Center for Agricultural Meteorology and Climatology, University of Nebraska-Lincoln, 43 p.
- 1980 Robert C. Balling, Jr. "An Assessment of the Impact of Weather Conditions on Feedlot Cattle Performance." *Progress Report 80-3*, Center for Agricultural Meteorology and Climatology, University of Nebraska-Lincoln, 26 p.
- 1981 Robert C. Balling, Jr. and G. LeRoy Hahn. "Climatic Effects on Feedlot Cattle: Growth and Death Losses." *Proceedings of the American Meteorological Society's Fifteenth Conference on Biometeorology*, Paper No. 49, pp. 86-89.
- 1982 Robert C. Balling, Jr. "Weight Gain and Mortality in Feedlot Cattle as Influenced by Weather Conditions: Refinement and Verification of Statistical Models." *Progress Report 82-1*, Center for Agricultural Meteorology and Climatology, University of Nebraska-Lincoln, 46 p.
- 1983 Robert C. Balling, Jr. "A Three-Dimensional Approach to the Study of Diurnal Precipitation Patterns in the American Plains." *Proceedings of the Second International Meeting on Statistical Climatology*, pp. 5.4.1-5.4.5.
- 1983 Randall S. Cerveny and Robert C. Balling, Jr. "A Reference Manual for the Global Climate Model CONSTABLE." *Occasional Papers No. 6*, Department of Geography, University of Nebraska-Lincoln, 105 p.
- 1984 Randall S. Cerveny and Robert C. Balling, Jr. "Numerical Experiments with the Global Energy Balance Model CONSTABLE." *Modeling and Simulation, Part I: Geography - Regional Science*, Vol. 15, Proceedings of the Fifteenth Annual Pittsburgh Conference, pp. 321-326.
- 1985 Merlin P. Lawson, Donald C. Rundquist, Robert C. Balling, Jr., Randall S. Cerveny, and Lloyd P. Queen. "Variability in the Surface Area of Sandhills Lakes and Its Relationship to Precipitation and Groundwater Level." *Occasional Papers No. 7*, Department of Geography, University of Nebraska-Lincoln, 46 p.
- 1986 Robert C. Balling, Jr. "Quantitative Precipitation Forecasting in the Salt and Verde River Basin." Salt River Project Summary Report, Phoenix, Arizona, 13 p.
- 1986 Robert C. Balling, Jr. "Diurnal Variations in Warm Season Precipitation Frequencies in the Central United States." National Oceanic and Atmospheric Administration Technical Memorandum ERL NSSL-99, National Severe Storms Laboratory, Norman, Oklahoma, 37 p.
- 1986 Robert C. Balling, Jr. and Kenneth E. Evans. "Evaluation of the Salt River Project's St. Johns and Page, Arizona Solar Data Bases." Salt River Project Summary Report, Research and Development Department, Phoenix, Arizona, 46 p.

- 1986 Robert C. Balling, Jr. "PALMER: A Model for Simulating Evapotranspiration from Golf Courses in Arid Lands." *Modeling and Simulation. Part 3: Computers, Vision Systems, Hydrology and Fluids*, Proceedings of the Seventeenth Annual Pittsburgh Conference, Vol. 17, pp. 1191-1194.
- 1986 Robert C. Balling, Jr. and Sandra W. Brazel. "Analysis of the Time and Space Dimensions of the Urban Heat Island in Metropolitan Phoenix, Arizona." Salt River Project Summary Report, 18 p.
- 1986 Anthony J. Brazel and Robert C. Balling, Jr. "Error Measures for Evaluating the Representativeness of Divisional Climatic Data." *Proceedings of the Third International Conference on Statistical Climatology*, pp. 515-520.
- 1986 Robert C. Balling, Jr. and Sandra W. Brazel. "The Myth of Increasing Moisture Levels in Phoenix." in "Climate of Phoenix, Arizona." National Oceanic and Atmospheric Administration Technical Memorandum NSS WR-177, Robert J. Schmidli, editor. National Weather Service Western Region Headquarters, Salt Lake City, Utah, pp. 30-31.
- 1987 Robert C. Balling, Jr. "Improvements upon Salt River Project's Winter and Spring Runoff Models." Salt River Project Summary Report, 19 p.
- 1987 Robert C. Balling, Jr. and Carroll E. Reynolds. "Development of an Aeration Basin Odor Scrubber: Applied Modeling for Reducing Odors from Wastewater Treatment Facilities." *Modeling and Simulation. Part 2. Electrical, Biomedical and Industrial Simulation*, Proceedings of the Eighteenth Annual Pittsburgh Conference, Vol. 18, pp. 387-391.
- 1987 Robert C. Balling, Jr. "Analysis of Zuni Indian Reservation Precipitation Patterns During the Period of Instrumental Record." United States Department of Justice, *Zuni Tribe of Indians v. United States*, 472 p.
- 1987 Robert C. Balling, Jr. "Analysis of Selected 'SCENES' Data from the Glen Canyon Measurement Program." Salt River Project Summary Report, 104 p.
- 1987 Robert C. Balling, Jr. and Joe L. Sutherland. "Seasonality of Winds Above the Ground at a Site of Complex Terrain." *Proceedings of the American Meteorological Society's Fourth Conference on Mountain Meteorology*, Paper No. 1.8, pp. 27-29.
- 1987 Robert C. Balling, Jr. and Sandra W. Brazel. "Land Use and the Surface Temperature Patterns in Phoenix, Arizona: Application of the AVHRR Satellite Sensor System." Salt River Project Summary Report, 21 p.
- 1987 Robert C. Balling, Jr. and Randall S. Cerveny. "Analysis of the Relationship Between Wind Direction Readings at Winslow and St. Johns, Arizona." Salt River Project Summary Report, 20 p.
- 1988 Robert C. Balling, Jr. "Time-Domain Modeling of Great Salt Lake Water Levels." *Modeling and Simulation. Part 4: Biomedical, Electronics, Hydrology, General*. Proceedings of the Nineteenth Annual Pittsburgh Conference, Vol. 19, pp. 1633-1636.
- 1988 Robert C. Balling, Jr. "Selected Wind Speed and Temperature Probabilities in Phoenix, Arizona." Salt River Project Summary Report, 17 p.
- 1988 Robert C. Balling, Jr. and Sandra W. Brazel. "Analysis of Nighttime Surface Temperature Patterns in Phoenix: Application of the AVHRR Satellite-Based Thermal Sensor System." Salt River Project Summary Report, 23 pp.
- 1988 Robert C. Balling, Jr. and Randall S. Cerveny. "Analysis of Weather Normalization Procedures for a Water Demand Model in Phoenix, Arizona." Salt River Project Summary Report, 47 pp.

- 1988 Robert C. Balling, Jr. "Analysis of Historical Climatic Variations within the Platte River System." Office of the Attorney General, State of Wyoming, 63 pp.
- 1989 Robert C. Balling, Jr. "Assessment of Recent Great Salt Lake Climatic Conditions using a Box-Jenkins Model." *Proceedings* of the Fourth International Conference on Statistical Climatology, pp. 230-232.
- 1989 Yehouda Enzel, R. Daniel Cayan, Robert C. Balling, Jr., Stephen G. Wells, Roger Y. Anderson, and William J. Brown. "Large-Scale Anomalous Northern Pacific Storm Patterns Recorded in the Mojave River Hydrological System." *Eos, Transactions, American Geophysical Union*, Vol. 69, No. 44, p. 1220.
- 1989 Lee F. Johnson, Nevin A. Bryant, Anthony J. Brazel, Charles F. Hutchinson, and Robert C. Balling. "Using Remotely Sensed Data to Monitor Land Surface Climatology Variations in a Semi-Arid Grassland." *Proceedings* of the Institute of Electrical and Electronic Engineers' International Geoscience and Remote Sensing Symposium, Volume 1, pp. 184-187.
- 1989 Robert C. Balling, Jr. "Analysis of Seasonal Mean Temperatures and Extreme Value Distributions in Phoenix." Salt River Project Summary Report, 26 pp.
- 1989 Robert C. Balling, Jr. "Analysis of Recent Precipitation Changes in the Apache Junction, Arizona Area." United States Department of Justice Letter Report, 32 pp.
- 1990 Robert C. Balling, Jr. "Greenhouse Warming: Skepticism Could Prevail." *Forum for Applied Research and Public Policy*, Vol 5., No. 2, p. 101.
- 1990 Anthony J. Brazel and Robert C. Balling, Jr. "Land Surface Parameter Variability and Climate in Southwestern United States." Jet Propulsion Laboratory Final Report (Contract #957872), 47 pp.
- 1990 Robert C. Balling, Jr. "Greenhouse Warming: Challenge of the Empiricists." *CO₂ / Climate Dialogue*, Vol. 3, No. 1, Laboratory of Climatology, Arizona State University, 20 pp.
- 1990 Robert C. Balling, Jr. "Testing the Greenhouse Gospel." *World Climate Change Report*, Vol. 1, No. 6, pp. 30-31.
- 1990 Robert C. Balling, Jr., Tomas A. Miller, and Herbert J. Verville. "Analysis of Time and Space Characteristics of Extreme Rainfall Events in the Gila River Basin." Final Report, Flood Control District of Maricopa County, 66 pp.
- 1990 Robert C. Balling, Jr. and Herbert J. Verville. "Evaluation of Projected Increases in Precipitation from Cloud Seeding on the Salt and Verde Watersheds Utilizing Suspension Criteria." Salt River Project Summary Report, 12 pp.
- 1990 Robert C. Balling, Jr. "Analysis of Meteorological/ Climatological Data Requirements for Expanding Agricultural Programs in Kuwait." Report to the Kuwait Institute for Scientific Research, 33 pp.
- 1990 Robert C. Balling, Jr. and Tomas A. Miller. "Analysis of Historical Climate Records of the Upper Green River / Yampa River Basins." Report for Resource Consultants, Inc., Fort Collins, Colorado, 16 pp.
- 1990 Robert C. Balling, Jr. "How I Became a Greenhouse Skeptic." *Petroleum Review*, Vol. 44, No. 526, pp. 578-580.
- 1991 Robert C. Balling, Jr. and Patrick J. Michaels (editors). *Global Climatic Change: A New Vision for the 1990s* (Proceedings of a Laboratory of Climatology Research Symposium). Volume 1. Proposal Abstracts, 28 pp.

- 1991 Robert C. Balling, Jr. and Patrick J. Michaels (editors). *Global Climatic Change: A New Vision for the 1990s* (Proceedings of a Laboratory of Climatology Research Symposium). Volume 2. Extended Project Descriptions, 88 pp.
- 1991 Robert C. Balling, Jr. "Interpreting the Global Temperature Effect." *Proceedings of the Cato Conference Global Environmental Crises: Science or Politics?* Washington, D.C.: Cato Institute, 11 pp.
- 1991 Robert C. Balling, Jr. "Analysis of Recent Precipitation Changes in the Apache Junction, Arizona Area: Update Through 1990." United States Department of Justice Letter Report, 32 pp.
- 1991 Robert C. Balling, Jr. and Tomas A. Miller. "Historical Climate Patterns in the Platte River Basin of Western Nebraska and Eastern Wyoming." James M. Montgomery Consulting Engineers, Inc., Laramie, Wyoming, 53 pp.
- 1992 Robert C. Balling, Jr. "Analysis of Recent Precipitation Patterns in the Lake Pleasant, Arizona Area." Ebasco Constructors, Inc., Phoenix, Arizona, 10 pp.
- 1992 B.M. Chhabra, G.V. Gruza, R. Heim, R. Heino, P. Jones, B. Kininmonth, V. Kousky, L. Molion, L. Ogallo, J. Peterson, D. Phillips, G. Rosenhagen, X. Qun, M. Crowe, H. Tuomenvirta, R.C. Balling, M. Conte, H. Diaz, J. Eischeid, P.Ya. Groisman, F. Quinn, and R. Raddatz. *The Global Climate System: Climate System Monitoring*. World Meteorological Organization, World Climate Data and Monitoring Programme, Geneva, Switzerland, 110 pp.
- 1992 Robert C. Balling, Jr. "A Climate of Doubt About Global Warming." Invited Contribution for *The Wall Street Journal*, April 22.
- 1992 C.K. Folland, T.R. Karl, N. Nicholls, B.S. Nyenzi, K. Ya Vinnikov (Lead Authors); J.K. Angell, R.C. Balling, R.G. Barry, M. Chelliah, L. Chen, J.R. Christy, G.R. Demarée, H. Diaz, Y. Ding, W.P. Elliott, H. Flohn, E. Friis-Christensen, C. Fu, P. Ya Groisman, W. Haeberli, J. Hansen, P.D. Jones, D.J. Karoly, K. Labitzke, K. Lassen, P.J. Michaels, A.H. Oort, R.W. Reynolds, A. Robock, C.F. Ropelewski, M.J. Salinger, R.W. Spencer, A.E. Strong, K.E. Trenberth, S. Tudhope, S-W. Wang, M.N. Ward, T.M.L. Wigley, H. Wilson, F.B. Wood. "Observed Climate Variability and Change." Section C of *Climate Change 1992: The Supplementary Report to The IPCC Scientific Assessment*. (J.T. Houghton, B.A. Callander, and S.K. Varney, editors). Cambridge, England: World Meteorological Organization and the United Nations Environment Programme, pp. 135-170.
- 1993 Robert C. Balling, Jr. "Interactions of Desertification and Climate: Some Key Concepts." Report to the United Nations International Panel of Experts on Desertification, Geneva, Switzerland, 39 pp.
- 1993 Robert C. Balling, Jr. "Interpretation weltweiter Temperaturaufzeichnungen." *Globale Erwärmung—Tatsache Oder Behauptung?* Symposium der Europäischen Akademie für Umweltfragen, pp. 52-70.
- 1994 Hassan A. Nasrallah and Robert C. Balling, Jr. "Analysis of Recent Climatic Changes in the Arabian Peninsula Region." A Final Report Prepared for the Kuwait Foundation for the Advancement of Sciences, 190 pp.
- 1994 Robert C. Balling, Jr. "Analysis of German Climatic Variations during the Period of Instrumental Record." Gesamtverband des Deutschen Steinkohlenbergbaus, 61 pp.
- 1994 Robert C. Balling, Jr. "Interpreting the Global Temperature Record." *Economic Affairs*, Vol. 14, No. 3, pp. 18-21.

- 1994 Hassan A. Nasrallah and Robert C. Balling, Jr. "Sulphate and Desertification Signals in Middle Eastern Temperature Records." *Proceedings of the Air and Waste Management Association International Specialty Conference on Global Climate Change*, pp. 327-329.
- 1995 Robert C. Balling, Jr. "Keep Cool About Global Warming." Invited Contribution for *The Wall Street Journal*, October 16.
- 1995 Robert C. Balling, Jr., Anthony J. Brazil, Nancy J. Selover, and Randall S. Cerveny. "Development of Long-Range Statistical Forecast Guidance for Arizona Monsoon Precipitation." A Report for the Western Region Climate Center, 165 pp.
- 1996 P. Bullock, H. Le Houérou, M.T. Hoffman, M. Rounsevell, J. Sehgal, G. Várallyay, A. Aïdoud, R. Balling, C. Long-Jun, K. Goulding, L.N. Harsh, N. Kharin, J. Labraga, R. Lal, S. Milton, H. Muturi, F. Nachtergaele, A. Palmer, D. Powlson, J. Puigdefabregas, J. Rogasik, M. Rostagno, P. Roux, D. Sauerbeck, W. Sombroek, C. Valentin, W. Lixian, and M. Yoshino. "Land Degradation and Desertification." Chapter 4 in *Climate Change 1995: Impacts, Adaptations and Mitigation of Climate Change: Scientific-Technical Analyses*. Contribution of Working Group II to the Second Assessment Report of the Intergovernmental Panel on Climate Change. (R.T. Watson, M.C. Zinyowera, and R.H. Moss, editors). Cambridge, England: Cambridge University Press, pp. 171-189.
- 1996 N. Nicholls, G.V. Gruza, J. Jouzel, T.R. Karl, L.A. Ogallo, D.E. Parker (Lead Authors), J.R. Christy, J. Eischeid, P.Ya. Groisman, M. Hulme, P.D. Jones, R.W. Knight (Key Contributors), J.K. Angell, S. Anjian, P.A. Arkin, R.C. Balling, M. Yu. Bardin, R.G. Barry, W. BoMin, R.S. Bradley, K.R. Briffa, A.M. Carleton, D.R. Cayan, F.H.S. Chiew, J.A. Church, E.R. Cook, T.J. Crowley, R.E. Davis, N.M. Datsenko, B. Dey, H.F. Diaz, Y. Ding, W. Drosowsky, M.L. Duarte, J.C. Duplessy, D.R. Easterling, W.P. Elliott, B. Findlay, H. Flohn, C.K. Folland, R. Franke, P. Frich, D.J. Gaffen, V. Ya. Georgievsky, B.M. Ginsburg, V.S. Golubev, J. Gould, N. E. Graham, D. Gullet, S. Hastenrath, A. Henderson-Sellers, M. Hoelzle, W.D. Hogg, G.J. Holland, L.C. Hopkins, N.N. Ivachtchenko, D. Karoly, R.W. Katz, W. Kininmonth, N.K. Kononova, L.B. Korovkina, G. Kukla, C.W. Landsea, S. Levitus, T.J. Lewis, H.F. Lins, J.M. Lough, T.A. McMahon, L. Malone, J.A. Marengo, E. Mekis, A. Meshcherskya, P.J. Michaels, E. Mosley-Thompson, S.E. Nicholson, J. Oerlemans, G. Ohring, G.B. Pant, T.C. Peterson, N. Plummer, F.H. Quinn, E.Ya. Ran'kova, V.N. Razuvaev, E.B. Rocheva, C.F. Ropelewski, K. Rupa Kumar, M.J. Salinger, B. Santer, H. Schmidt, E. Semenyuk, I.A. Shiklomanov, M. Shinoda, I.I. Soldatova, D.M. Sonechkin, R.W. Spencer, N. Speranskaya, A. Sun, K.E. Trenberth, C. Tsay, J.E. Walsh, B. Wang, K. Wang, M.N. Ward, S.G. Warren, Q. Xu, T. Yasunari (Contributors). "Observed Climate Variability and Change." Chapter Three of *Climate Change 1995: The Science of Climate Change* (Houghton, J.T., Meira Filho, L.G., Callander, B.A., Harris, N., Kattenberg, A., and Maskell, K., editors). Cambridge, England: World Meteorological Organization and the United Nations Environment Programme, pp. 133-192.
- 1996 Robert C. Balling, Jr. "Model Predictions and Observed Temperatures: Is the Gap Closing?" *State of the Climate Report*, pp. 25-28.
- 1996 Robert C. Balling, Jr. "Bombshell Lands in the Climate Change Arena." *ECOal*, Vol. 18, pp. 1-2.
- 1997 Robert C. Balling, Jr. "European Temperature Records Since 1751: Where's the Greenhouse Signal?" *State of the Climate Report*, pp. 25-28.
- 1997 Robert C. Balling, Jr. "Calmer Weather: The Spin on Greenhouse Hurricanes." Environmental Studies Program Paper Series, Competitive Enterprise Institute, 17 pp.
- 1997 Robert C. Balling, Jr., Mark L. Hildebrandt, Jeffrey M. Klopatek, Cherie K. Mortiz, and Christopher J. Watts. "Impacts of Land Degradation on the Temperature Records of Northwest

- Sonora." *Proceedings of the American Meteorological Society's 10th Conference on Applied Climatology*, pp. 248-252.
- 1997 Russell S. Vose, Robert C. Balling, Jr. and Johan Koch. "Identification and Analysis of Historical Temperature Records from Southern Africa." *Proceedings of the American Meteorological Society's 10th Conference on Applied Climatology*, pp. 432-435.
- 1998 Robert C. Balling, Jr. "Analysis of Trends in the Variability of Daily and Monthly Historical Temperature Measurements." *Proceedings of the American Meteorological Society's 9th Symposium on Global Change Studies*, pp. 117-120.
- 1998 Randall S. Cerveny and Robert C. Balling, Jr. "Inadvertent Modification of Atlantic Rainfall and Tropical Cyclones by North American Pollution." *Proceedings of the American Meteorological Society's 9th Symposium on Global Change Studies*, pp. 229-232.
- 1998 Robert C. Balling, Jr. "Historical Climate Patterns in the North Platte River Basin of Western Nebraska and Eastern Wyoming: Updated Analyses." Office of the Attorney General, Water and Natural Resources Division, Cheyenne, Wyoming, 13 pp.
- 1998 Jeffrey M. Klopatek, Robert C. Balling, Jr., Anthony W. Brazel, Janet Franklin, and Christopher J. Watts. "Land-Use Change Along the United States-Mexican Border: Ecosystem Effects and Climate Feedbacks." Report to the United States Environmental Protection Agency/Southwest Center for Environmental Research and Policy, 36 pp.
- 1998 Craig D. Idso, Sherwood B. Idso, Keith E. Idso, Talbot Brooks, and Robert C. Balling, Jr. "Spatial and Temporal Characteristics of the Urban CO₂ Dome over Phoenix, Arizona." *Proceedings of the American Meteorological Society's Second Symposium on Urban Environments*, pp. 46-48.
- 1998 Mark L. Hildebrandt and Robert C. Balling, Jr. "Climate Variability at the World's Windiest Weather Station." *Windswept: The Quarterly Bulletin of the Mount Washington Observatory*, Vol. 39, No. 4, pp. 34-40.
- 1999 Randall S. Cerveny and Robert C. Balling, Jr. "Identification of Anthropogenic Weekly Cycles in Northwest Atlantic Pollution, Precipitation and Tropical Cyclones." *Preprints of the American Meteorological Society's 23rd Conference on Hurricanes and Tropical Meteorology*, pp. 1085-1088.
- 1999 Robert C. Balling, Jr. and Jeffrey M. Klopatek. Desertification and Climate Change: Analyses of the Arizona/Sonora Border Region. *Proceedings of the 15th International Congress of Biometeorology & International Conference on Urban Climatology*, Sydney, Australia, ICB8.1.
- 1999 Robert E. Davis, Paul C. Knappenberger, Patrick J. Michaels, Wendy M. Novicoff, and Robert C. Balling, Jr. Decadal Changes in Weather/Human Mortality Relationships in U.S. Cities. *Proceedings of the 15th International Congress of Biometeorology & International Conference on Urban Climatology*, Sydney, Australia, COMB4.3.
- 1999 Patrick J. Michaels, Paul C. Knappenberger, Robert C. Balling, Jr., and Robert E. Davis. Greenhouse Warming in Cold, Dry Anticyclones. *Proceedings of the 15th International Congress of Biometeorology & International Conference on Urban Climatology*, Sydney, Australia, ICB22.2.
- 1999 Patrick J. Michaels and Robert C. Balling, Jr. Global Warming: The Political Science of Exaggeration. *Prometheus*, Winter Issue, pp. 84-91.
- 1999 Nancy J. Selover and Robert C. Balling, Jr. "Temperature and Wind Speed Probabilities in the Phoenix Metropolitan Area." Salt River Project Summary Report, 4 p.

- 1999 Craig D. Idso, Sherwood B. Idso, and Robert C. Balling, Jr. "An Intensive Study of the Strength and Stability of the Urban CO₂ Dome of Phoenix, Arizona." *Proceedings of the American Meteorological Society's Third Symposium on the Urban Environment*, Davis, California, 18.10.
- 2000 Thomas A. Day, Erin C. Mueller, Fusheng S. Xiong, and Robert C. Balling, Jr. "Temporal Patterns in Near-Surface CO₂ Concentrations in the Phoenix Urban CO₂ Dome over Contrasting Vegetation Types" *Proceedings of the American Meteorological Society's Third Symposium on the Urban Environment*, Davis, California, 18.11.
- 2000 Hassan. A. Nasrallah and Robert C. Balling, Jr. "Analysis of Global Precipitation Patterns." *Journal of King Abdulaziz University: Meteorology, Environment and Arid Land Agricultural Sciences*, in press.
- 2000 Robert Balling, Michael C. MacCracken, Patrick Michaels, and Alan Robock. "Assessment of Uncertainties of Predicted Global Climate Change Modeling: Panel 1." *Technology*, Vol. 78, pp. 231-255.
- 2001 Folland, C.K., Karl, T.R. (Co-Ordinating Lead Authors), Christy, J.R., Clarke, G.V., Jouzel, J., Mann, M.E., Oerlemans, J., Salinger, M.J., Wang (Lead Authors), S.-W., Bates, J., Crowe, M., Frich, P., Groisman, P., Hurrell, J., Jones, P., Parker, D., Peterson, T., Robinson, D., Walsh, J., Abbott, M., Alexander, L., Alexandersson, H., Allan, R., Alley, R., Ambenje, P., Arkin, P., Bajuk, L., Balling, R., Bardin, M.Y., Bradley, R., Brazdil, R., Briffa, K.R., Brooks, H., Brown, R.D., Brown, S., Brunet-India, M., Cane, M., Changnon, D., Changnon, S., Cole, J., Collins, D., Cook, E., Dai, A., Douglas, A., Douglas, B., Duplessy, J.C., Easterling, D., Englehart, P., Eskridge, R.E., Detheridge, D., Fisher, D., Gaffen, D., Gallo, K., Genikhovich, E., Gong, D., Cutman, G., Haeberli, W., Haigh, J., Hansen, J., Hardy, D., Harrison, S., Heino, R., Hennessy, K., Hogg, W., Huang, S., Hughes, K., Hughes, M.K., Hulme, M., Iskenderian, H., Johannessen, O.M., Kaiser, D., Karoly, D., Kley, D., Knight, R., Kumar, K.R., Kunkel, K., Lal, M., Landsea, C., Lawrimore, J., Lean, J., Leovy, C., Lins, H., Livezey, R., Lugina, K.M., Macadam, I., Majorowicz, J.A., Manighetti, B., Marengo, J., Mekis, E., Miles, M.W., Moberg, A., Mokov, I., Morgan, V., Mysak, L., New, M., Norris, J., Ogallo, L., Overpeck, J., Owen, T., Paillard, D., Palmer, T., Parkinson, C., Pfister, C.R., Plummer, N., Pollack, H., Prentice, C., Quayle, R., Rankova, E.Y., Rayner, N., Razuvaev, V.N., Ren, G., Renwick, J., Reynolds, R., Rind, D., Robock, A., Rosen, R., Rosner, S., Ross, R., Rothrock, D., Russell, J.J., Sereze, M., Skinner, W.R., Slack, J., Smith, D.M., Stahle, D., Stendel, M., Sterin, A., Stocker, T., Sun, B., Swail, V., Thapliyal, V., Thompson, L., Thompson, W.J., Timmermann, A., Toumi, R., Trenberth, K., Tuomenvirta, H., van Ommen, T., Vaughan, D., Vinnikov, K.Y., von Grafenstein, U., von Storch, H., Vuille, M., Wadhams, P., Wallace, J.M., Warren, S., White, W., Xie, P., Zhai, P. (Contributing Authors). "Observed Climate Variability and Change." Chapter Two of *Climate Change 2001: The Scientific Basis*. (Houghton, J.T., Y. Ding, D.J. Griggs, M. Noguer, P.J. van der Linden, X. Dai, K. Maskell, and C.A. Johnson, editors). Cambridge, England: World Meteorological Organization and the United Nations Environment Programme, pp. 99-181.
- 2003 Mark L. Hildebrandt and Robert C. Balling, Jr. "The Effect of Land Degradation on the Surface Radiation Balance Along the United States-Mexico Border." *Papers of the Applied Geography Conferences*, (Graham A. Tobin and Burrell E. Montz, eds.), Vol. 26, 327-332.

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. Cerveny, 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 CO₂ 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 CO₂ 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 CO₂ 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 CO₂ and SO₂ Signals. Robert C. Balling, Jr. Gesamtverband des Deutschen Steinkohlen-bergbaus (German Coal Mining Association), \$39,980.
- 1993 "Analysis of Recent Climatic Changes in the Arabian Peninsula Region." Hassan A. Nasrallah and Robert C. Balling, Jr. Kuwait Foundation for the Advancement of Sciences, \$48,993.
- 1994 "Development of Long-Range Statistical Forecast Guidance for Arizona Monsoon Precipitation." Robert C. Balling, Jr., Anthony J. Brazel, and Randall S. Cervený. 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 CO₂ 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 CO₂ Cycle Due to Global Warming or the Aerial Fertilization Effect of Atmospheric CO₂ 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 'CO₂ 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 Potental 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 Cordillerian 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 "CO₂, 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 CO₂ 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 CO₂ 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 “CO₂, 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. Cerveny. 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." 38th Annual Meeting of the Associated Electric Cooperative, Inc., Saint Louis, Missouri, June.
- 2000 "An Update on the Climate Data Task Force." 26th 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 CO₂ 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 CO₂ Concentrations in the Phoenix Urban CO₂ 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 21st 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 CO₂ Dome." 15th Conference on Biometeorology and Aerobiology Joint with the 16th International Congress on Biometeorology, Kansas City, Missouri, November.
- 2003 "Projected Carbon Dioxide (CO₂) 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." 21st Annual Meeting, Doctors for Disaster Preparedness, Phoenix, Arizona, July.
- 2003 "A Climate of Doubt About Global Warming." 21st 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. 26th 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.” 69th 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 69th 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 67th 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. 70th 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.

Professional Service:

- 1979-1982 Climatology Feature Editor, *National Weather Digest*
- 1982 Session Chair, 78th Annual Meeting of the Association of American Geographers (San Antonio Meetings)
- 1982 Organizer and Chair, Climatology Session, Annual Meeting of the Association of American Geographer's Great Plains - Rocky Mountain Division (Laramie Meetings)
- 1982-1983 Program Committee, 79th Annual Meeting of the Association of American Geographers (Denver Meetings)
- 1983 Session Chair, 79th Annual Meeting of the Association of American Geographers (Denver Meetings)
- 1986 Organizer and Chair, Special Session, 82nd Annual Meeting of the Association of American Geographers (Minneapolis-St. Paul Meetings)
- 1986-1989 President, Central Arizona Chapter of the American Meteorological Society
- 1987 Organizer, Special Session, 83rd Annual Meeting of the Association of American Geographers (Portland Meetings)
- 1986-1989 Executive Committee, Climate Specialty Group, Association of American Geographers
- 1987-1988 Program Committee and Local Arrangements Committee, 84th Annual Meeting of the Association of American Geographers (Phoenix Meetings)
- 1990 Organizer and Local Host, "Towards a Balanced View of Global Change: Development of a Research Agenda." (Held in Phoenix)
- 1991 Organizer, Special Session, 87th Annual Meeting of the Association of American Geographers (Miami Meetings)
- 1991- Contributing Member of the United Nations Intergovernmental Panel on Climate Change
- 1992-2004 Member of the Academic Advisory, Goldwater Institute
- 1993-1994 Member of the United Nations International Panel of Experts on Desertification

- 1993 Committee Member for the National Oceanic and Atmospheric Administration's External Review Team (Reno, Nevada)
- 1993-1994 Member of the Technical Program Committee for the Air and Waste Management Association International Specialty Conference on Global Climate Change
- 1994-1995 Governor-Appointed Member of the Arizona Environmental Education Curriculum Review Committee
- 1995- Member of the Committee of the European Science and Environment Forum
- 1995- Member of the National Association of State Universities and Land-Grant Colleges Board on Oceans and Atmosphere (BOA)
- 1999 Senior Climate Consultant for National Geographic Society's *7th Edition Atlas of the World*
- 1999- Associate Editor, *Journal of Arid Environments*
- 2000-2004 American Meteorological Society's Committee on Biometeorology and Aerobiology
- 2001-2002 Program Committee, 16th International Congress of Biometeorology and the 15th American Meteorological Society's Conference on Biometeorology and Aerobiology
- 1999- Review Editor, *Climate Research*
- 2004- Senior Fellow, Goldwater Institute

Reviewer
for:

American Geophysical Union Monograph Series
Annals - Association of American Geographers
Applied Geography Conferences
Atmospheric Environment
Atmospheric Research
Bulletin of the American Meteorological Society
Climate Research
Climatic Change
Energy and Environment Journal
Environmental Management
Geophysical Research Letters
Great Plains Research
Great Plains - Rocky Mountain Geographical Journal
International Journal of Climatology
International Journal of Geographical Information Science

Israel Science Foundation
John Wiley & Sons, Inc.
Journal of the American Planning Association
Journal of Applied Meteorology
Journal of Arid Environments
Journal of Biogeography
Journal of Climate
Journal of Climate and Applied Meteorology
Journal of Climatology
Journal of Environmental Management
Journal of Geography
Journal of Hydrology
Journal of Regional Science
McGraw-Hill
Monthly Weather Review
National Geographic Society
National Science Foundation
National Weather Digest
Philippine Agricultural Scientist
Physical Geography
The Professional Geographer
Theoretical and Applied Climatology
Transactions of the Nebraska Academy of Science
Urban Atmosphere
Urban Environment
Water, Air and Soil Pollution
Water Resources Bulletin

Professional Memberships:

Association of American Geographers
American Meteorological Society
National Geographic Society
Gamma Theta Upsilon, Geography Honorary
Saint George Geographical Society
Arizona-Nevada Academy of Science
Central Arizona Chapter - American Meteorological Society
American Association of State Climatologists
Air and Waste Management Association

Book

Reviewer: *Climatic History and the Modern World*, by H.H. Lamb —*Economic Geography*, Vol. 60, No. 4, October, 1984, pp. 359-360.

Human Intervention in the Climatology of Arid Lands, by D.R. Haragan (editor) — *Climatic Change*, Vol. 25., No. 1, 1993, pp. 91-92.

Policy Making in an Era of Global Environmental Change, by R.E. Munn, J.W.M. la Rivière, and N. van Lookeren Campagne (editors) – *Annals of the Association of American Geographers*, Vol. 88, No. 1, 1998, pp. 166-167.

Hard Choices: Climate Change in Canada, by H. Coward and A.J. Weaver (editors) -- *Annals of the Association of American Geographers*, Vol. 95, No. 3, 2005, pp. 712-713.

Local Service at Nebraska

- 1979-1984 Chief Undergraduate Advisor
- 1979-1984 Coordinator for Department's Internship Program
- 1980-1982 Design and Produce Department's Graduate Poster
- 1980-1982 Member of Dean's Task Force on Career Advising
- 1982-1984 Organizer, Founder, and Faculty Advisor for University of Nebraska-Lincoln Student Chapter of the American Meteorological Society
- 1982-1984 Member of the University Marshall Corps
- 1980 Developed New Courses: Physical Climatology, Geography: Regions and Concepts

Seminars and Public Talks (outside the Department):

- 1980 Center for Agricultural Meteorology and Climatology, University of Nebraska-Lincoln
- 1980 Northwest Missouri State University
- 1980 Department of Life Sciences, University of Nebraska-Lincoln
- 1981 Omaha-Offutt Local Chapter of the American Meteorological Society
- 1982 College of Architecture, University of Nebraska-Lincoln
- 1982 Center for Agricultural Meteorology and Climatology, University of Nebraska-Lincoln
- 1982 Southeast High School, Lincoln, Nebraska
- 1982 Featured in five different one minute television promotions for the University of Nebraska-Lincoln
- 1983 Lincoln-Lancaster County Health Department
- 1983 Department of Life Sciences, University of Nebraska-Lincoln
- 1984 Seritoma Club of Lincoln, Nebraska

Local Service at Arizona State:

Seminars, Public Talks, National Media:

- 1985 Optimist Club of Tempe
- 1985 Geography Department Seminar Series
- 1985 Central Arizona Chapter, American Meteorological Society
- 1985 Psychology Department Seminar Series
- 1985 Central Arizona Chapter, American Institute of Industrial Engineers
- 1985 "The Myth of Increasing Moisture Levels in Phoenix." with Sandra W. Brazel. *Arizona Climate Summary*, Vol 11, No. 9, pp. 2-3.
- 1985 Arizona Council for Engineering and Scientific Associations
- 1985 Central Arizona Chapter, American Meteorological Society
- 1986 Featured on the weather page of *USA Today*
- 1986 "More Changes in Phoenix Weather?" with Sandra W. Brazel. *Arizona Climate Summary*, Vol. 12, No. 9, p. 2.
- 1986 Coalition for World Peace, ASU
- 1986 Scottsdale North Rotary
- 1986 Liberal Arts 294 - Nuclear Arms Race (one week)
- 1986 United States Water Conservation Laboratory
- 1986 "Changes in Phoenix Weather Stress." with Sandra W. Brazel. *Arizona Climate Summary*, Vol. 12, No. 11, p. 2.
- 1986 Life Science 358 - Contemporary Environmental Issues
- 1986 "Phoenix Open Weather: The Stormy Myth and the Desert Reality." Prepared for and presented to The Phoenix Thunderbirds
- 1987 Civil Engineering Honorary
- 1987 Phoenix Solar Oasis Project, School of Architecture
- 1987 Liberal Arts 294 - Nuclear Arms Race (one week)
- 1987 American Meteorological Society's Judge, 34th Annual Central Arizona Regional Science and Engineering Fair
- 1987 "Phoenix Tornadoes of the Past." *Arizona Climate Summary*, Vol. 13, No. 6, p. 2
- 1987 Kiwanis Club of Carefree
- 1987 Geography Department Seminar Series
- 1987 Liberal Arts 294 - Nuclear Arms Race
- 1987 Work appeared in *Sports Illustrated*
- 1988 Appeared nationally on CBS Radio Network
- 1988 Friendship Village Kiwanis Club
- 1988 Research appeared in *Popular Science*, *Washington Insight*
- 1989 Research appeared in *Omni Magazine*, *Runner's World*
- 1989 Syndicated Realty Investments
- 1990 University Lecture Series, Grand Canyon University
- 1990 City of Phoenix, Northwest Parks and Recreation District
- 1990 Science, Technology, and Society Project
- 1990 Research in *U.S. News and World Report*
- 1990 Appeared in British T.V. documentary -- The Greenhouse Conspiracy
- 1991 Kiwanis Club of Ahwatukee

1991 Appeared throughout a two-hour Discovery Channel program entitled "Global Warming: Too Hot to Handle"

1991 Baseline Rotary - Mesa

1992 Central Arizona American Meteorological Society

1993 Valley of the Sun Kiwanis Club

1993 NAU Nature of Ecology Class

1993 North Scottsdale Rotary

1993 Spirit of the Senses

1993 ASU Department of Physics and Astronomy Colloquium

1994 ASU Department of Geology Seminar Series

1994 United States Water Conservation Laboratory

1995 Paradise Valley Rotary

1995 Spirit of the Senses

1996 Engineers Club of the Sun City Area

1996 Environmental Chemistry

1997 Environmental Chemistry

1997 Jacobson School

1997 Planning and Landscape Architecture (PUP 572) Class

1997 Environmental Resources Class (Soils 130)

1997 Fluid Dynamics Colloquium Series

1997 Sun Cities Food and Agriculture Group

1998 The Order of Daedalians

1998 Environmental Chemistry

1998 Architecture and Environ. Design Energy & Climate Seminar

1998 Spirit of the Senses

1998 Architecture and Environ. Design Energy & Climate Seminar

1999 Advanced Climate Change Seminar

1999 Environmental Chemistry (CHM-302)

1999 Introduction to Physical Geography (GPH-111)

1999 Fluid Dynamics Colloquium Series

1999 Environmental Law

1999 North Scottsdale Rotary

2000 OASIS

2000 Spirit of the Senses

2000 Environmental Chemistry

2000 LTER All Scientist Meeting

2000 Fluid Dynamics Colloquium

2000 Life Sciences Environmental Science Class

2000 Biltmore Kiwanis Club

2001 Environmental Chemistry

2001 Central Arizona American Meteorological Society

1999 Free Enterprise (ECN 591)

2000 Environmental Chemistry (Chem 501)

2002 Spirit of the Senses

2002 ASU's President's Community Enrichment Program

2003 Global Change Biology (BIO 591)

2004 Scottsdale Sunrise Rotary

2004 Arizona Debate Institute

2005	Environmental Economics
2005	Spirit of the Senses
2008	Amer. Instit. Chem. Engineers, AZ Chapter

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

Participation in ASU Graduate Committees
1987-2007

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
	Adam Kalkstein	Ph.D.	Chairman
	Darlene Jenkins	MAS-GIS	Chairman
	Eric Kenney	Ph.D.	Member
	Karen Blevins	Ph.D.	Member
	Bryan Paris	M.A.	Member
	Paul Iniguez	M.A.	Member
	Kimberly DeBiasse	M.A.	Member
	Dominic Campanaro	M.A.	Member

Teaching Evaluation Summary

1988-2007

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
