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RESEARCH INTERESTS

Mountain hydrology and biogeochemistry, climate impacts and water resources, climate applications.

EDUCATION

Ph.D. 1985 Environmental Engineering Science, California Institute of Technology
M.S. 1984 Social Science, California Institute of Technology
M.S. 1975 Civil Engineering, University of California, Berkeley
B.S. 1974 Civil Engineering, Purdue University

EMPLOYMENT

2003-present: Sierra Nevada Research Institute, University of California, Merced (Director 2008-2013, Acting Director 2007-08, member 2003-07).
2003-present: School of Engineering, University of California, Merced (Distinguished Professor 2015-present, Professor 2003-15, founding faculty member).
1984-2003: Department of Hydrology and Water Resources, University of Arizona, (Assistant Professor 1984-1989, Associate Professor 1989-1995, Professor 1995-2004).
1980-84: Graduate Research Assistant, California Institute of Technology.
1975-80: Project Manager and Project Engineer, Brown and Caldwell, Pasadena, California

REGISTRATION

Civil Engineer 27677, California

OTHER APPOINTMENTS

2013-present: Adjunct Professor, Civil and Environmental Engineering, University of California, Berkeley.
2012-present. Researcher and water initiative co-leader, Center for Information Technology Research in the Interest of Society, UC Berkeley
2004-present. Member, Hydrology Graduate Group, University of California, Davis.
2008-2013: Natural Reserve System Campus Director and Yosemite Field Station Campus Director, University of California, Merced.
2000-2003: Deputy Director (co-leader), NSF Science and Technology Center for the Sustainability of Semi-Arid Hydrology and Riparian Areas, University of Arizona

2000-2003: Member, Committee on Remote Sensing and Spatial Analysis, University of Arizona.
1999-2003: Director, Regional Earth Science Applications Center, University of Arizona
1998-2003: Lead Investigator, Climate Assessment for the Southwest Project, University of Arizona.
1997-1999: Director, Institute for the Study of Planet Earth, University of Arizona
1994-2003: Member, Interdisciplinary Committee for Global Change, University of Arizona. Chair, 1994-1997.
1994-2000: Investigator, Center for Toxicology, University of Arizona.
1994-1995: Visiting Fellow, Udall Center for Studies in Public Policy, University of Arizona.
1989-93: Associate Researcher, Department of Geography, University of California, Santa Barbara.

PROFESSIONAL SOCIETIES

American Geophysical Union (Fellow), American Society for the Advancement of Science (Fellow), American Meteorological Society (Fellow), American Society of Civil Engineers, American Chemical Society, Association of Environmental Engineering Professors.

PROFESSIONAL ACTIVITIES

2007-2010. Member, science leadership team, WATERS Network.
2006-2012. Member, Board of Directors, Great Valley Center, Modesto, CA.
2004-2007. Member, Committee on Integrated Hydrologic Observations, Water Science and Technology Board, National Research Council.
2003-2010. Member, National Advisory Board, Long Term Ecological Research (LTER) Network.
2003-2007: Member, Committee on Metrics for Global Change Research, National Research Council.
2002-2006: Member, Committee on Geophysical and Environmental Data, National Research Council.
2001-2008: Member Representative, Consortium of Universities for the Advancement of Hydrologic Science, Inc. 2006-2008: Chair Hydrologic Measurement Facility Oversight Committee. 2005-2006: Member, Science Agenda Team. 2001-2004: Member, Board of Directors. 2001-2003: Member, Executive Committee. 2000-2001: Chair, steering committee to form consortium and PI on grant that funded the consortium.
2000-2011: Steering Committee Chair and Science Coordination Office Director, Summit Greenland Environmental Observatory.

1999-2000, Chair, Steering Committee, Southwest Regional Assessment, U.C. Global Change Research Program; Member, Regional Assessment Team.

2000-2002: Member, Advisory Committee, Geosciences Directorate, National Science Foundation.

2000-2002, Steering Committee, Eos, Transactions, American Geophysical Union. Hydrology Editor, 1997-2001.

1999-2002: Member, Committee on Hydrologic Sciences, National Research Council.

1999-2001: Chair, Ice Core Working Group. Member, 1997-1999.

1999-2000: Member, Water Cycle Study Group, U.S. Global Change Research Program.

1994-1996: Hydrology section secretary, American Geophysical Union.

1992-1996: Associate editor, Water Resources Research.

1992-1996: Member, Committee on Glaciology, National Research Council.

1991-1996: U.S. representative, International Commission on Water Quality, International Association of Hydrologic Sciences.

1991-1995: Chair, Snow-Atmosphere Chemical Exchange Working Group, International Commission for Snow and Ice.

1990-1993: Fall meeting program chair, Hydrology Section, American Geophysical Union.

1987-1990: Steering Committee, Snow Chemistry Working Group, International Commission for Snow and Ice.

1985-1990: Water Quality Committee, Hydrology Section, American Geophysical Union.

1989-1991: Coagulation Research Committee, American Water Works Association.

PUBLICATIONS

Peer-reviewed journals

144. B. Harrison, R.C. Bales, Skill Assessment of Water Supply Outlooks in the Colorado River Basin, *Hydrology*, 2,112-131; doi:10.3390/hydrology2030112, 2015.
143. AA Harpold, NP Molotch, KN Musselman, RC Bales, PB Kirchner, M. Litvak, P. D. Brooks. Soil moisture response to snowmelt timing in mixed-conifer subalpine forests. *Hydrological Processes*, 29,12,2782-2798, doi:10.1002/hyp.10400, 2015.
142. M.L. Goulden, R.C., Bales. Mountain runoff vulnerability to increased evapotranspiration with vegetation expansion. *Proceedings of the National Academy of Sciences*, doi: 10.1073/pnas.1319316111, 2014.
141. R.C. Bales, R. Rice, S.B. Roy. Estimated Loss of Snowpack Storage in the Eastern Sierra Nevada with Climate Warming. *J. Water Resour. Plann. Manage*, DOI: 10.1061/(ASCE)WR.1943-5452.0000453, 2014.
140. J.R. McConnell, O.J. Maselli. M., Sigl, P. Vallelonga, T. Neumann, H. Anchutz, R.C. Bales, M.A.J. Curran, S.B. Das, R. Edwards, S. Kipfstuhl, L. Layman, E.R. Thomas. Antarctic-wide array of high-resolution ice core records reveals pervasive lead pollution began in 1889 and persists today. *Nature*, doi:10.1038/srep05848, 2014.
139. S.E. Martin, M.H. Conklin, R.C. Bales. Seasonal accumulation and depletion of local sediment stores of four headwater catchments. *Water*, 6,7,2144-2163, doi:10.3390/w6072144, 2014.
138. P.B. Kirchner, R.C. Bales, N.P. Molotch, J. Flanagan, Q. Guo. LiDAR measurement of seasonal snow accumulation along an elevation gradient in the southern Sierra Nevada, California. *Hydrology and Earth System Sciences Discussions*, 11(5), 5327-5365, doi:10.5194/hessd-11-5327-2014, 2014.
137. A.A. Harpold, Q. Guo, N. Molotch, P.D. Brooks, R.C. Bales, J.C., Fernandez-Diaz, K.N. Musselman, T.L. Swetnam, P. Kirchner, M.W. Meadows, J. Flanagan, R. Lucas, R. LiDAR-derived snowpack data sets from mixed conifer forests across the Western United States. *Water Resources Research*, 50(3), 2749-2755, DOI: 10.1002/2013WR013935, 2014.
136. S. Masclin, M.M. Frey, W.F. Rogge, R.C. Bales. Atmospheric nitric oxide and ozone at the WAIS Divide deep coring site: a discussion of local sources and transport in West Antarctica, *Atmos. Chem. Physics*, 13:8857-8877 DOI: 10.5194/acp-13-8857-2013, 2013.
135. S.C. Welch, B. Kerkez, R.C. Bales, S.D. Glaser, K. Rittger, R.R. Rice, Sensor placement strategies for snow water equivalent (SWE) estimation in the American River basin, *Wat. Resour. Res.*, 49, , doi: 10.1002/wrcr.20100, 2013.
134. J. W. Hopmans, R.C. Bales, A. T. O'Geen, M. Meadows, P. C. Hartsough, P. Kirchner, C. T. Hunsaker, D. Beaudette, Response to comment on "Soil moisture response to snowmelt and rainfall in a Sierra Nevada mixed-conifer forest", *Vadose Zone J.* doi: 10.2136/vzj2012.0004r, 2012.
133. E. Trujillo, N.P. Molotch, M.L. Goulden, A.E. Kelly, R.C. Bales, Elevation-dependent influence of snow accumulation on forest greening, *Nature Geoscience*, doi: 10.1038/NGEO1571, 2012.
132. B. Kerkez, S.D. Glaser, R.C. Bales, M.W. Meadows, Design and performance of a wireless sensor network for catchment-scale snow and soil moisture measurements, *Wat. Resour. Res.*, 48, doi: 10.1029/2011WR011214, 2012.
131. M.L. Goulden, R.G. Anderson, R.C. Bales, A.E. Kelly, M. Meadows, G.C. Winston, Evapotranspiration along an elevation gradient in California's Sierra Nevada, 117, doi: 10.1029/2012JG002027, 2012.
130. K.N. Muselman, N.P. Molotch, S.A. Marguilis, P.B. Kirchner, R.C. Bales, Influence of canopy structure and direct beam solar irradiance on snowmelt rates in a mixed conifer forest, 161, doi: 10.1016/j.agrformet.2012.03.011, 2012.

129. C. T. Hunsaker, T. Whitaker, R.C. Bales, Water yield and runoff timing across the rain-snow transition in California's southern Sierra Nevada, *J. Amer. Wat. Resour. Assn.*, 48, doi: 10.1111/j.1752-1688.2012.00641.x, 2012.
128. S.R. Fassnacht, R.C. Bales, K.A. Dressler, D.M. Hultstrand Temporal inconsistencies in coarse-scale snow water equivalent patterns: Colorado river basin elementary-topography regressions, *Pirineos.Revista de Ecología de Montaña*, 167, 167-186., doi: 10.3989/Pirineos.2011.166008, 2012.
127. E. Hanna, P. Huybrechts, J. Cappelen, K. Steffen, R.C. Bales, E. Burgess, J. R. McConnell, J. P. Steffensen, M. Van den Broeke, L. Wake, G. Bigg, M. Griffiths, D. Savas, Greenland Ice Sheet surface mass balance 1870 to 2010 based on Twentieth Century Reanalysis, and links with global climate forcing, *JGR Atmospheres*, D24121, doi:10.1029/2011JD016387, 2011
126. R. Rice, R.C. Bales, T. H. Painter, J. Dozier, Snow water equivalent along elevation gradients in the Merced and Tuolumne River basins of the Sierra Nevada, *Wat. Resour. Res.*, 47, doi: 10.1029/2010WR009278, 2011.
125. R.C. Bales, J. W. Hopmans, A. T. O'Geen, M. Meadows, P. C. Hartsough, P. Kirchner, C. T. Hunsaker, D. Beaudette, Soil moisture response to snowmelt and rainfall in a Sierra Nevada mixed-conifer forest, *Vadose Zone J.*, 10, doi: 10.2136/vzj2011.0001, 2011.
124. F. Liu, C. Hunsaker, R. Bales, Controls of streamflow generation in small catchments across the snow-rain transition in the Southern Sierra Nevada, California, *Hydrological Processes*, doi: 10.1002/hyp.9304, 2012.
123. E. W. Burgess, R. R. Forster, J. E. Box, E. M. Thompson, D. H. Bromwich, R.C. Bales, and L. C. Smith, A spatially calibrated model of annual accumulation rate on the Greenland Ice Sheet (1958-2007), *J. Geophys. Res.*, doi:10.1029/2009JF001293, 2010.
122. R. Rice R.C. Bales, Embedded sensor network design for snow cover measurements around snow pillow and snow course sites in the Sierra Nevada of California, *Wat. Resour. Res.*, 46, W03537, doi:10.1029/2008WR007318, 2010.
121. J. Ettema, M. R. van den Broeke, E. van Meijgaard, W. J. van de Berg, J. L. Bamber, J. E. Box, R.C. Bales, Higher surface mass balance of the Greenland ice sheet revealed by high-resolution climate modeling, *Geophys. Res. Lett.*, 36, L12501, doi: 10.1029/2009GL038110, 2009.
120. M. Frey, M. Hutterli, G. Chen, S. Sjostedt, J. Burkhart, D. Friel, and R. Bales, Contrasting atmospheric boundary layer chemistry of methylhydroperoxide (CH₃OOH) and hydrogen peroxide (H₂O₂) above polar snow., *Atmos. Chem. Phys.*, 9, 3261-3276, 2009.
119. R.C. Bales, D. Shen, G. Du, Q. Guo, J.R. McConnell, J. Burkhart, V.B. Spikes, E. Hanna, J. Cappelen, Annual accumulation for Greenland updated using ice core data developed during 2000-2006 and analysis of daily coastal meteorological data, *J. Geophys. Res.*, 114, D06116, doi:10.1029/2008JD011208, 2009.
118. J.F. Burkhart, R.C. Bales, J.R. McConnell, M.A. Hutterli, M. Frey, Geographic variability of nitrate deposition and preservation over the Greenland Ice Sheet, *J. Geophys. Res.*, 114: D6, D06301, doi.org/10.1029/2008JD010600, 2009.
117. F. Liu, R.C. Bales, M.H. Conklin, M.E. Conrad, Streamflow generation from snowmelt in semi-arid, seasonally snow-covered, forested catchments, Valles Caldera, New Mexico, *Wat. Resour. Res.*, 44, W12443, doi:10.1029/2007WR006728, 2008.
116. J.R. Banta, J.R. McConnell, M. Frey, R.C. Bales and K. Taylor, Spatial and temporal variability in snow accumulation at WAIS Divide over recent centuries, *J. Geophys. Res.*, 113, D23102, doi:10.1029/2008JD010235, 2008.
115. F. Liu, R. Parmenter, P. D. Brooks, M. H. Conklin, R.C. Bales, Seasonal and interannual variation of streamflow pathways and biogeochemical implications in semi-arid, forested catchments in Valles Caldera, New Mexico, *Ecohydrology*, 1, 239-252, 2008.
114. S.A. Anderson, R.C. Bales, C.J. Duffy, Critical Zone Observatories: Building a network to advance interdisciplinary study of Earth surface processes, *Mineralog. Mag.*, 72(1), pp 7-10, 2008.
113. R.C. Bales, K.A. Dressler, B. Imam, S. R. Fassnacht, D. Lampkin, Fractional snow cover in the Colorado and Rio Grande basins, 1995-2002, *Wat. Resour. Res.*, 44, W01425, doi:10.1029/2006WR005377, 2008.
112. T. Meixner, A. K. Huth, P. D. Brooks, M. H. Conklin, N. B. Grimm, R.C. Bales, P. A. Haas, and J. R. Petti, Influence of shifting flow paths on nitrogen concentrations during, *J. Geophys. Res.*, 112, G03S03, doi:10.1029/2006JG000266,, 2007.
111. M.A. Hutterli, T. Crueger, H. Fischer, K.K. Andersen, C.C. Raible, T.F. Stocker, M.L. Siggaard-Anderson, J.R. McConnell, R.C. Bales, J.F. Burkhart, The Influence of regional circulation patterns on wet and dry mineral dust and sea salt deposition over Greenland, *Clim. Dynam.*, 28:635-647, DOI 10.1007/s00382-006-0211-z, 2007.
110. C. Brown-Mitic, W. J. Shuttleworth, R.C. Harlow, J. Petti, E. Burke and R. Bales, Seasonal Water Dynamics Of A Sky Island Subalpine Forest In Semi-Arid Southwestern United States, *J. Arid Environ.*, 69:2:237-258, 2007.
109. J.F. Burkhart, R.C. Bales, J.R. McConnell, M.A. Hutterli, Influence of North Atlantic Oscillation on anthropogenic transport recorded in northwest greenland ice cores, *J. Geophys. Res.*, 111:D22, D223092006

108. K.A. Dressler, S.R. Fassnacht, and R.C. Bales, A comparison of snow telemetry (SNOTEL) and snowcourses measurements in the Colorado River Basin, *J. Hydrometeorol.*, 7:4:705-712, 2006
107. M.M. Frey, R.C. Bales, J.R. McConnell, Climate sensitivity of the century-scale hydrogen peroxide (H₂O₂) record preserved in 23 ice cores from West Antarctica, *J. Geophys. Res.*, 111: D21, D21301, doi:10.1029/2005JD006816, 2006
106. R.C. Bales, N.P. Molotch, T.H. Painter, M.D. Dettinger, R. Rice, and J. Dozier, Mountain hydrology of the western United States, *Water Resour. Res.*, 42:W08432, DOI:10.1029/2005WR004387, 2006
105. N.P. Molotch, R.C. Bales, SNOTEL representativeness in the Rio Grande headwaters on the basis of physiographics and remotely sensed snow cover persistence, *Hydrological Processes*, 20:4:723-739, 2006.
104. N.P. Molotch, R.C. Bales, Comparison of ground-based and airborne snow surface albedo parameterizations in an alpine watershed: Impact on snowpack mass balance, *Water Resour. Res.*, 42, W05410, 2006.
103. K. Dressler, G. Leavesley, R. Bales, S. Fassnacht, Evaluation of Gridded Snow Water Equivalent and Satellite Snow Cover Products for Mountain Basins in a Hydrologic Model, *Hydrol. Proc.*, 20:4:673-688, 2006
102. N.P. Molotch, R.C. Bales, Scaling snow observations from the point to the grid element: Implications for observation network design, *Water Resour. Res.*, 41:11, 2005
101. Frey, M., R.W. Stewart, J.R. McConnell and R.C. Bales, Atmospheric hydroperoxides in West Antarctica: Links to stratospheric ozone and atmospheric oxidation capacity, *J. Geophys. Res.*, 110:D23301, 2005
100. N.P. Molotch, R.C. Bales, M. Colee, J. Dozier, Estimating the spatial distribution of snow water equivalent in an alpine basin using binary regression tree models: the impact of digital elevation data and independent variable selection, *Hydrol. Proc.* 19:7:1459-1479, 2005
99. J.C. Morrill, R.C. Bales, M.H. Conklin, Estimating stream temperature from air temperature: implications for future water quality. *J. Environ. Engr.*, 131:1, 139-146, 2005
98. D.D. Davis, F. Eisle, J. Crawford, G. Huey, D. Tanner, S. Slusher, L. Maudlin, . Oncley, D. Lenschow, S. Semmer, R. Shetter, B. Lefer, R. Arimoto, A. Hogan, P. Grube, M. Lazzara, A. Brandy, D. Thornton, H. Berresheim, H. Bingemer, M. Hutterli, J. McConnell, R.C. Bales, J. Dibb, M. Buhr, P. McMurry, A. S. Swanson, D. Blake. An overview of ISCAT 2000. *Atmospheric Environment*, 38(32), 5363-5373, DOI: 10.1016/j.atmosenv.2004.05.037, 2004.
97. R.C. Bales, D.M. Liverman, B.J. Morehouse. Integrated assessment as a step toward reducing climate vulnerability in the southwestern United States, *Bull. Am. Met. Society*, 85 (11): 1727,2004.
96. J.F. Burkhart, M.H. Hutterli, R.C. Bales J.R. McConnell, Seasonal accumulation timing and preservation of nitrate in firn at Summit, Greenland, *J. Geophys. Res.*, D19302, 2004
95. M.A. Hutterli, J.R. McConnell, G. Chen, R.C. Bales, D.D. Davis, D.H. Lenschow, Formaldehyde and hydrogen peroxide in air, snow and interstitial air at South Pole, *Atmos. Environ.* 38:5439-5450, 2004.
94. T. Meixner, J.R. Shaw, R.C. Bales, Temporal and spatial variability of cation and silica export in an alpine watershed, Emerald Lake, California. *Hydrol. Proc.* 18(10): 1759-1776, 2004.
93. N.P. Molotch, S.R. Fassnacht, R.C. Bales, S.R. Helfrich, Estimating the distribution of snow water equivalent and snow extent beneath cloud cover in the Salt-Verde River basin, Arizona. *Hydrol. Proc.* 18(9): 1595-1611, 2004.
92. A.K. Huth, A. Leydecker, J.O. Sickman, R.C. Bales, A two-component hydrograph separation for three high-elevation catchments in the Sierra Nevada, California, *Hydrol. Proc.* 18 (9):1721-1733, 2004.
91. N.P. Molotch, T.H. Painter, R.C. Bales, J. Dozier, Incorporating remotely-sensed snow albedo into a spatially-distributed snowmelt model, *Geophys. Res. Lett.* 31(3): Art. No. L03501, 2004.
90. H.W. Jacobi, R.C. Bales, R.E. Honrath, M.C. Peterson, J. E. Dibb, A.L. Swanson, M. R. Albert, Reactive trace gases measured in the interstitial air of surface snow at Summit, Greenland, *Atmos. Environ.*, 38: 1687-97, 2004.
89. K.J. Franz, H.C. Hartmann, S. Sorooshian, R.C. Bales, Verification of National Weather Service Ensemble Streamflow Predictions for Water Supply Forecasting in the Colorado River Basin, *J. Hydrometeorology*, 4(6): 1105-1118, 2003.
88. T. Meixner, C. Gutmann, R.C. Bales, A. Leydecker, J. Sickman, J. Melack, J. McConnell, Multidecadal hydrochemical response of a Sierra Nevada watershed: sensitivity to weathering rate and changes in deposition, *J. Hydrology*, 272-285, 2003.
87. S.R. Fassnacht, K.A. Dressler, R.C. Bales, Snow water equivalent interpolation for the Colorado River Basin from snow telemetry (SNOTEL) data, *Water Resour. Res.*, 39(8): 1208-1217, 2003.
86. J.A. Rohrbough, D.R. Davis, R.C. Bales, Spatial variability of snow chemistry in an alpine snowpack, southern Wyoming, *Water Resour. Res.*, 39(7): 1190-1201,2003.
85. M.A. Hutterli, J.R. McConnell, R.C. Bales, R.W. Stewart, Sensitivity of hydrogen peroxide (H₂O₂) and formaldehyde (HCHO) preservation in snow to changing environmental conditions: Implications for ice core records, *J. Geophys. Res.*, 108(D1): 4023-4031, 2003.
84. T. Meixner, R.C. Bales, Hydrochemical modeling of coupled C and N cycling in high-elevation catchments: Importance of snow cover, *Biogeochemistry*, 62(3): 289-308, 2003.
83. T.M. Dassau, A.L. Sumner, S.L. Koenger, P.B. Shepson, J. Yang, R.E. Honrath, N.J. Cullen, K.

- Steffen, H.W. Jacobi, M. Frey, R.C. Bales, Investigation of the role of the snowpack on atmospheric formaldehyde chemistry at Summit, Greenland, *J. Geophys. Res.*, 107(D19): 4394-4407, 2002.
82. S. Sorooshian, R. Bales, H. Gupta, G. Woodard, J. Washburne, A brief history and mission of SAHRA: A National Science Foundation Science and Technology Center on 'Sustainability of semi-arid hydrology and riparian areas', *Hydrol. Proc.*, 16(16): 3293-3295, 2002.
 81. R. Bales, Climate assessment for the Southwest-Preface, *Climate Res.*, 21(3): 1, 2002
 80. H.C. Hartmann, R. Bales, S. Sorooshian, Weather, climate, and hydrologic forecasting for the US Southwest: a survey, *J. Climate*, 21(3): 239-258, 2002.
 79. T. Meixner, L.A. Bastidas, H.V. Gupta, R.C. Bales, Multicriteria parameter estimation for models of stream chemical composition, *Water Resour. Res.*, 38(3): 1027-1035, 2002.
 78. M.A. Hutterli, R.C. Bales, J.R. McConnell, R.W. Stewart, HCHO in Antarctic snow: Preservation in ice cores and air-snow exchange, *Geophys. Res. Lett.*, 29(12): 1587 & 29(8):1235, 2002.
 77. H.W. Jacobi, M.M. Frey, M.A. Hutterli, R.C. Bales, O. Schrems, N.J. Cullen, K. Steffen, C. Koehler, Measurements of hydrogen peroxide and formaldehyde exchange between the atmosphere and surface snow at Summit, Greenland, *Atmos. Environ.*, 36(15-16): 2619-2628, 2002.
 76. J.F. Burkhart, M.A. Hutterli, R.C. Bales, Partitioning of formaldehyde between air and ice at -35 degrees C to -5 degrees C, *Atmos. Environ.*, 36(13): 2157-2163, 2002.
 75. H.C. Hartmann, T.C. Pagano, S. Sorooshian, R. Bales, Confidence builders – Evaluating seasonal climate forecasts from user perspectives, *Bull. Am. Met. Society*, 83(5): 683-699, 2002.
 74. R.C. Bales, J.R. McConnell, E. Mosley-Thompson, and B. Csatho, Accumulation over the Greenland ice sheet from historical and recent records. *J. Geophys Res.*, 106(D24) 33,813-26, 2001.
 73. J.R. McConnell, G. Lamorey, E. Hanna, E. Mosley-Thompson, R.C. Bales, D. Belle-Oudry and J.D. Kyne. Annual Net Snow Accumulation over Southern Greenland from 1975 to 1998. *J. Geophys. Res.*, 106(D24) 33,827-38, 2001.
 72. E. Mosley-Thompson, J.R. McConnell, R.C. Bales, Z. Li, P.-N. Lin, K. Steffen, L.G. Thompson, R. Edwards and D. Bathke, Local to regional-scale variability of Greenland accumulation from PARCA cores. *J. Geophys Res.*, 106(D24) 33,839-52, 2001.
 71. C.M. Brown-Mitic, I.J. MacPherson, P.H. Schuepp, B. Nagarajan, P.M.K. Yau, and R.C. Bales, Aircraft observations of surface-atmosphere exchange during and after snow melt for different arctic environments: MAGS 1999. *Hydro. Proc.*, 15, 3585-3602, 2001.
 70. M.A. Hutterli, J.R. McConnell, R.W. Stewart, H.-W. Jacobi, and R.C. Bales, Impact of Temperature-Driven Cycling of Hydrogen Peroxide (H₂O₂) Between Air and Snow on the Planetary Boundary Layer. *J. Geophys. Res.*, 106(D14), 15,395-404, 2001.
 69. R.C. Bales, J.R. McConnell, E. Mosley-Thompson and G. Lamorey, Accumulation Map for the Greenland Ice Sheet: 1971-1990. *Geophys. Res. Lett.*, 28(15): 2967-70, 2001.
 68. R.C. Bales, E. Mosley-Thompson and J.R. McConnell, Variability of accumulation in northwest Greenland over the past 250 years. *Geophys. Res. Lett.*, 28: 2679-82, 2001.
 67. J.R. McConnell, R.J. Arthern, E. Mosley-Thompson, C.H. Davis, R.C. Bales, R. Thomas, J.F. Burkhart, and J.D. Kyne, Changes in Greenland ice sheet elevation attributed primarily to snow accumulation variability. *Nature*, 406: 877-879, 2000 & 410:240, 2002.
 66. J. Choi, M.H. Conklin, R.C. Bales, and R.A. Sommerfeld, Experimental Investigation of SO₂ Uptake in Snow. *Atmos. Environ.*, 34: 793-801, 2000.
 65. J.R. McConnell, E. Mosley-Thompson, D.H. Bromwich, R.C. Bales, and J.D. Kyne, Interannual variations of snow accumulation on the Greenland Ice Sheet (1985-1996): new observations versus model predictions. *J. Geophys. Res.*, 105(D3), 4039-46, 2000.
 64. T. Meixner, R.C. Bales, M. W. Williams, J. S. Baron and D. H. Campbell, Stream chemistry modeling of two watersheds in the Front Range, Colorado. *Water Resour. Res.*, 36: 77-87, 2000.
 63. Seth, R.C. Bales, and R. E. Dickinson, A framework for the study of seasonal snow hydrology and its interannual variability in the alpine regions of the Southwest. *J. Geophys. Res.*, 104(D18): 22,117-35, 1999..
 62. J.M. Jin, X. Gao, Z.-L. Yang, R.C. Bales, S. Sorooshian, and R. E. Dickinson, Comparative analyses of physically based snowmelt models for climate simulations. *J. Climate*, 12: 2643-2657, 1999.
 61. Z.-L. Yang, R.E. Dickinson, A. Hahmann, G.-Y. Niu, M. Shaikh X. Gao, R.C. Bales, S. Sorooshian and J. Jin, Simulation of snow mass and extent in general circulation models. *Hydrol. Proc.*, 13: 2097-2113, 1999.
 60. D.G. Jewett, B.E. Logan, R.G. Arnold, and R.C. Bales, Transport of *Pseudomonas fluorescens* strain P17 through quartz and sand columns as a function of water content. *J. Contaminant Hydrol.*, 36: 73-89, 1999.
 59. J. Jin, X. Gao, R.C. Bales, S. Sorooshian, R.E. Dickinson, S.-F. Sun, and G.-X. Wu, Comparative analyses of physically based snowmelt models for climate simulations. *J. Climate*, 12: 2643-2657, 1999.
 58. M.A. Hutterli, R. Röthlisberger, and R.C. Bales, Atmosphere-to-snow-to-firn transfer studies of HCHO at Summit, Greenland. *Geophys. Res. Lett.*, 26: 1691-94, 1999.
 57. T. Meixner, H.V. Gupta, L.A. Bastidas, and R.C.

- Bales, Sensitivity analysis using mass flux and concentration. *Hydrol. Proc.*, 13: 2233-44, 1999.
56. M. Anklin, R.C. Bales, E. Mosley-Thompson, and K. Steffen, Annual accumulation at two sites in northwest Greenland during recent centuries. *J. Geophys. Res.*, 103(D22): 28,775-83, 1998.
 55. D. W. Cline, R.C. Bales, and J. Dozier, Estimating the spatial distribution of snow in mountain basins using remote sensing and energy balance modeling. *Water Resour. Res.*, 34: 1275-85, 1998.
 54. D. Cline, K. Elder, and R. Bales, Scale effects in a distributed snow water equivalence and snowmelt model for mountain basin. *Hydrol. Proc.*, 12: 1527-1536, 1998.
 53. R. Harrington and R.C. Bales, Interannual, seasonal, and spatial patterns of meltwater and solute fluxes in a seasonal snowpack, *Water Resour. Res.*, 34(4), 823-831, 1998.
 52. R. Harrington and R.C. Bales, Modeling ionic solute transport in melting snow. *Water Resour. Res.*, 34(7), 1727-1736, 1998.
 51. J. R. McConnell, R.C. Bales, R. W. Stewart, A. M. Thompson, M. R. Albert, and R. Ramos, Physically based modeling of atmosphere-to-snow-to-firn transfer of H₂O₂ at South Pole. *J. Geophys. Res.*, 103(D9), 10,561-70, 1998.
 50. T. Meixner, A. D. Brown, and R.C. Bales, Importance of biogeochemical processes in modeling stream chemistry in two watersheds in the Sierra Nevada, California. *Water Resour. Res.*, 34: 3121-33, 1998.
 49. M. Anklin and R.C. Bales. Recent increase in H₂O₂ concentration at Summit, Greenland. *J. Geophys. Res.*, 102(D15): 19,099-104, 1997.
 48. J.R. McConnell, R.C. Bales, and D.R. Davis. Recent intra-annual snow accumulation at South Pole: Implications for ice core interpretation. *J. Geophys. Res.*, 102(D18): 21947-21954, 1997.
 47. J.R. McConnell, J.R. Winterle, R.C. Bales, A. M. Thompson, and R.W. Stewart, Physically based inversion of surface snow concentrations of H₂O₂ to atmospheric concentrations at South Pole. *Geophys. Res. Lett.*, 24(4): 441-4, 1997.
 46. J.R. McConnell, R.C. Bales, J.R. Winterle, H. Kuhns, and C.R. Stearns, A lumped parameter model for the atmosphere-to-snow transfer function for hydrogen peroxide. *J. Geophys. Res.*, 102(C12): 26,809-18, 1997.
 45. R.C. Bales, S. Li, T.-C.J. Yeh, M.W. Lenczewski, and C.P. Gerba, Bacteriophage and microsphere transport in saturated porous media: Forced-gradient experiment at Borden, Ontario. *Water Resour. Res.*, 33(4): 639-648, 1997.
 44. R.F. Harrington, R.C. Bales, and P. Wagnon, Variability of melt-water and solute fluxes from homogeneous melting snow at the laboratory scale, *Hydrol. Proc.*, 10(7): 945-953, 1996.
 43. R.A. Wolford, R.C. Bales, and S. Sorooshian, Development of a hydrochemical model for seasonally snow-covered alpine water-sheds: application to Emerald Lake Water-shed, Sierra Nevada, California. *Water Resour. Res.*, 32(4):1061-1074, 1996.
 42. J.E. Dibb, R.W. Talbot, S.I. Whitlow, M.C. Shipham, J. Winterle, J. McConnell, and R. Bales, Biomass burning signatures in the atmosphere and snow at Summit, Greenland: An event on 5 August 1994. *Atmos..Environ.*, 30(4):553-561, 1996.
 41. R.A. Wolford, and R.C. Bales, Hydrochemical modeling of Emerald Lake watershed, Sierra Nevada, California: Sensitivity of stream chemistry to changes in fluxes and model parameters. *Limnol. Oceanog.*, 41(5): 947-954, 1996.
 40. R.C. Bales, J.R. McConnell, M.V. Losleben, M.H. Conklin, K. Fuhrer, A. Neftel, J.E. Dibb, J.D.W. Kahl, and C.R. Stearns, Diel variations of H₂O₂ in Greenland: A discussion of the cause and effect relationship. *J. Geophys. Res.*, 100(D9):18661-18668, 1995.
 39. M.J. Gross, O. Albinger, D.G. Jewett, B.E. Logan, R.D. Bales, and R.G. Arnold, Measurement of bacterial collision efficiencies in porous media. *Water Res.*, 29(4): 1151-1158, 1995.
 38. R.C. Bales, S. Li, K.M. Maguire, M.T. Yahya, C.P. Gerba, and R.W. Harvey, Virus and bacteria transport in a sandy aquifer, Cape Cod, MA. *Ground Water*, 33(4):653-661, 1995.
 37. R.C. Bales and R.F. Harrington, Recent progress in snow hydrology. *Rev. Geophys.*, *Supplement*, U.S. National Report to International Union of Geodesy and Geophysics 1991-1994:1011-1020, 1995.
 36. D.G. Jewett, T.A. Hilbert, B.E. Logan, R.G. Arnold, and R.C. Bales, Bacterial transport in laboratory columns and filters: Influence of ionic strength and pH on collision efficiency. *Water Res.*, 29(7): 1673-1680, 1995.
 35. D.R. McCaulou, R.C. Bales, and R.G. Arnold, Effect of temperature-controlled motility on transport of bacteria and microspheres through saturated sediment. *Water Resour. Res.*, 31(2): 271-280, 1995.
 34. R.C. Bales, M. Losleben, J. McConnell, K. Fuhrer, and A. Neftel, H₂O₂ in snow, air and open pore space in firn at Summit, Greenland. *Geophys. Res. Lett.*, 22(10):1261-1264, 1995.
 33. M.W. Williams, R.C. Bales, A.D. Brown, and J. M. Melack, Fluxes and transformation of nitrogen in a high-elevation catchment, Sierra Nevada. *Biogeochemistry*, 28:1-31, 1995.
 32. R.A. Matzner and R.C. Bales, Dependence of acridine adsorption on ligand hydration enthalpy. *J. Coll. Interface Sci.*, 168: 61-66, 1994.
 31. R.A. Matzner, R.C. Bales, and J.E. Pemberton, *In Situ* raman spectroscopy of aza-arene absorbed at the aqueous/silica interface. *Appl. Spectroscopy*, 48(9): 1043-1053, 1994.
 30. R.A. Matzner and R.C. Bales, Transport of acridine in saturated porous media. *Chemosphere*, 29(8):1775-1773, 1994.
 29. R.A. Sommerfeld, R.C. Bales, and A. Mast, Spatial statistics of snowmelt flow: Data from lysimeters

- and aerial photos. *Geophys. Res. Lett.*, 21(25):2821-2824, 1994.
28. D.R. McCaulou, R.C. Bales, and J.F. McCarthy, Use of short pulse experiments to study bacteria transport through porous media. *J. Contaminant Hydrol.*, 15:1-14, 1994.
 27. J.G. Jewett, R.C. Bales, B.E. Logan, and R.G. Arnold, Comment on Application of clean-bed filtration theory to bacterial deposition in porous media. *Environ. Sci. Technol.*, 27:984-985, 1993.
 26. M.H. Conklin, A. Sigg, A. Neftel, and R.C. Bales, Atmosphere-snow transfer function for H₂O₂: Microphysical considerations. *J. Geophys. Res.*, 98(D10):18,367-18,376, 1993.
 25. M.H. Conklin and R.C. Bales, SO₂ uptake on ice spheres: liquid nature of ice-air interface. *J. Geophys. Res.*, 98:16851-16855, 1993.
 24. T. Kinoshita, R.C. Bales, M.T. Yahya, and C. P. Gerba, Effect of pH on bacteriophage transport through sandy soils. *J. Contaminant Hydrol.*, 15:55-70, 1993.
 23. T. Kinoshita, R.C. Bales, M. Yahya, and C. P. Gerba, Bacteria transport in porous media: retention of Bacillus and Pseudomonas on silica surfaces. *Water Res.*, 27(8): 1295-1301, 1993.
 22. R.C. Bales, R.E. Davis, and M.W. Williams, Tracer release in melting snow: diurnal and seasonal patterns. *Hydrol. Proc.*, 7:389-401, 1993.
 21. L. McKay, J. Cherry, R.C. Bales, M. Yahya, and C. P. Gerba, A field example of bacteriophage as tracers of fracture flow. *Environ. Sci. Technol.*, 27(6): 1075-1079, 1993.
 20. R.C. Bales, S. Li, K. Maguire, M. Yahya, and C. P. Gerba, MS-2 phage and poliovirus transport through porous media: sorbent hydrophobicity and chemical perturbations. *Water Resour. Res.*, 29:957-963, 1993.
 19. M. Yahya, L. Galsiomes, C. P. Gerba, and R.C. Bales, Survival of bacteriophages MS-2 and PRD-1 in ground water. *Water Sci. Technol.*, 27(3-4): 409-412, 1993.
 18. R.C. Bales, M. W. Williams, and R. A. Wolford, Discussion on 'Acidification potential of snow-packs in Sierra Nevada'. *J. Environ. Engr.*, 119: 399-401, 1993.
 17. Z. K. Chowdhury, G. L. Amy, and R.C. Bales, Incorporation of submicron colloids into larger floc: observations in conventional water-treatment plants. *J. Environ. Engr.*, 119(1): 192-199, 1993.
 16. R.C. Bales, S. R. Hinkle, T. W. Kroeger, K. Stocking, and C. P. Gerba, Bacteriophage adsorption during transport through porous media: chemical perturbations and reversibility. *Environ. Sci. Technol.*, 25:2088-2095, 1991.
 15. Z. K. Chowdhury, G. L. Amy, and R.C. Bales, Coagulation of submicron particles in water treatment by incorporation into aluminum-hydroxide floc. *Environ. Sci. Technol.*, 25: 1766-1773, 1991.
 14. R.C. Bales and J. E. Szecsody, Temperature effects on chlorinated-benzene sorption to hydrophobic surfaces. *Chemosphere*, 22:1141-1151, 1991.
 13. R.C. Bales, R. E. Sommerfeld, and D. G. Kebler, Ionic tracer movement through a Wyoming snowpack. *Atmos. Environ.*, 24A(11): 2749-2758, 1990.
 12. R.C. Bales, R. E. Davis, D. A. Stanley, Ion elution through shallow homogeneous snow, *Water Resour. Res.*, 25(8), 1869-1877, 1989
 11. M. P. Valdez, G. A. Dawson, and R.C. Bales, Sulfur dioxide incorporation into ice depositing from the vapor. *J. Geophys. Res.*, 94 (D1):1095-1103, 1989.
 10. R.C. Bales, C. P. Gerba, G. H. Grondin, and S. L. Jensen, Bacteriophage transport in sandy soil and fractured tuff. *Appl. Environ. Microbiol.*, 55:2061-67, 1989.
 09. J. E. Szecsody and R.C. Bales, Sorption kinetics of low-molecular-weight hydrophobic organic compounds on surface-modified silica. *J. Contaminant Hydrol.*, 4:181-203, 1989.
 08. D. G. Kebler, R.C. Bales, and G. L. Amy, Coagulation of submicron colloids by supramicron silica particles. *Water Sci. Technol.*, 21:519-528, 1989.
 07. K. L. McClellan, N. S. Buras, and R.C. Bales, Biodegradation of trichloroethylene by bacteria indigenous to a contaminated site. *J. Environ. Sci. Health*, A24:561- 570, 1989.
 06. M. P. Valdez, R.C. Bales, D. A. Stanley, and G. A. Dawson, Gaseous deposition to snow: I. experimental study of SO₂ and NO₂ deposition. *J. Geophys. Res.*, 92(D8):9779-9789, 1987.
 05. R.C. Bales, M. P. Valdez, and G. A. Dawson, Gaseous deposition to snow: II. Physical- chemical model for SO₂ deposition. *J. Geophys. Res.*, 92(D8): 9789-9799, 1987.
 04. R.C. Bales, Surface chemistry in water treatment: the solid-liquid interface. *J. Amer. Water Works Assn.*, 78(11): 59- 66, 1986.
 03. R.C. Bales and J. J. Morgan, Dissolution kinetics of chrysotile at pH's 7 to 10. *Geochimica et Cosmoch. Acta*, 49: 2281-2288, 1985.
 02. R.C. Bales and J. J. Morgan, Surface charge and adsorption properties of chrysotile asbestos in natural waters. *Environ. Sci. Tech.*, 19:1213-1219, 1985.
 01. R.C. Bales, S. B. Hayward, and D. D. Newkirk, Chrysotile asbestos in California surface waters: from upstream rivers through water treatment. *J. Amer. Water Works Assn.*, 76: 66-74, 1984.
- Books**
- E. Wolff and R. Bales, editors. *Chemical Exchange between the Atmosphere and Polar Snow*. Springer-Verlag, 1996. 675 pp.
- Recent research and technical reports**
14. R.C. Bales, R. York. Scott River Water Yield Enhancement Study Phase I Report. Scott River Watershed Cooperative Planning Group, 2014.
 13. Q. Guo, J. Zhu, R. Ray and R. Bales. Vulnerability of Giant Sequoia to Moisture Stress in a Changing Climate: A pilot study of potential moisture proxies.

- Natural Resource Report NPS/SEKI/ NRR—2013/XXX, 2013.
12. R. Rice and R.C. Bales. An Assessment of Snowcover in Major River Basins of Sierra Nevada Network Parks and Potential Approaches for Long-term Monitoring. Natural Resource Technical Report NPS/SEKI/NRTR—2013/800, 2013.
 11. R. Rice and R.C. Bales. A natural resource condition assessment for Sequoia and Kings Canyon National Parks: Appendix 7a – Water Quantity: rain, snow, and temperature. Natural Resource Report. NPS/SEKI/NRR—2013/665.7a. National Park Service. Fort Collins, Colorado. Published Report-2195540, 2013.
 10. M.H. Conklin, R.C. Bales, R. Ray, S. Martin, P. Saksa, P. Womble. *Sierra Nevada Adaptive Management Project Water-Team Field Activities, Methods and Results*. UC Merced, Sierra Nevada Research Institute, 2012.
 09. J. Chorover, F.N. Scatena, T. White, S. Anderson, A.K. Aufdenkampe, R.C. Bales, S. Brantley, G. Tucker. *Common Critical Zone Observatory (CZO) Infrastructure and Measurements*. National CZO Program, CZO Community, 2012.
 08. R.C. Bales, J.J. Battles, Y. Chen, M.H. Conklin, E. Holst, K.L. O'Hara, P. Saksa, W. Stewart, *Forests and Water in the Sierra Nevada: Sierra Nevada Watershed Ecosystem Enhancement Project*. Publisher - Copublished by Sierra Nevada Research Institute Report (UC Merced), Center for Forestry (UC Berkeley), Environmental Defense Fund, 2011.
 07. R.S. Anderson, S. Anderson, A.K. Aufdenkampe, R.C. Bales, S. Brantley, J. Chorover, C.J. Duffy, F.N. Scatena, D. Sparks, P.A. Troch, K. Yoo. *Future Directions for Critical Zone Observatory (CZO) Science*. National CZO Program, CZO Community, 2010.
 06. J. Dozier, J. B. Braden, R. P. Hooper, B. S. Minsker, J. L. Schnoor, R.C. Bales, M. H. Conklin, L. A. Derry, T. Harmon, A. Michalak, J. R. Mihelcic, J. Myers, S. L. Schneider, D. Tarboton, J. M. VanBriesen, and P. R. Wilcock. Living in the water environment: The WATERS Network Science Plan, *Report for Cooperative Agreement CBET-0838607*. Arlington VA; National Science Foundation; doi:10.4211/sciplan.waters.20090515, 2009.
 05. G.M. Hornberger, J.D. Alber, J. Bahr, R.C. Bales, K. Beven, E. Foufoula-Georgiou, G. Katul, J.L. Kinter III, R.D. Koster, D. P. Lettenmaier, D. McKnight, K. Miller, K. Mitchell, J.O. Roads, B.R. Scanlon, and E. Smith, *A Plan for a New Science Initiative on the Global Water Cycle*. US Global Water Cycle. US Global Change Research Program, Washington, DC, 2001.
 04. H.C. Hartmann, R. Bales, S. Sorooshian, *Weather, Climate and Hydrologic Forecasting for the Southwest U.S.*, CLIMAS Report CL2-99, Inst. for the Study of Planet Earth, Univ. Arizona, Oct 1999.
 03. Committee on Hydrologic Science (D. Entekhabi, M. Anderson, R. Avissar, R. Bales, E. Gorham, M. Parlange, C. Peters-Lidard K. Potter, E. Wood) National Research Council, *Hydrologic Science Priorities for the U.S. Global Change Research Program*, National Academy Press, Washington, DC, 1999.
 02. R. Merideth, D. Liverman, R. Bales, M. Patterson, eds., *Climate Variability and Change in the Southwest: Impacts, Information Needs, and Issues for Policymaking*, Udall Center for Studies in Public Policy, Univ. Arizona, Jul 1998.
 01. R. Bales, C. Gerba, S. Hinkle, T. Kroeger, S. Li, K. McGuire, K. Stocking, M. Yahya, *Surface Chemical Factors Affecting Transport of Biocolloids in Subsurface Porous Media*, Univ. Arizona, NTIS PB91-107326/AS, 197 pp, 1990.
- Book chapters**
18. W. Dietrich, L. Derry, K. Lohse, S. Anderson, A. Aufdenkampe, R. Bales, P. Kumar, D. Richter, B. McDowell. The Role of Critical Zone Observatories in Critical Zone Science. *Developments in Earth Surface Processes*, Vol. 19. <http://dx.doi.org/10.1016/B978-0-444-63369-9.00002-1>
 17. G.M. Stock, N. Sitar, J.W. Borchers, E.L. Harp, J.B. Snyder, B.D. Collins, R.C. Bales, G.F. Wieczorek. Evaluation of hypothesized water-system triggers for rock falls from. (pp. ISBN 978-0-415-62123-6, 1165-1171). CRC Press, 2012.
 16. R.C. Bales, M.H. Conklin, B. Kerkz, S. Glaser, J.W. Hopmans, C.T. Hunsaker, M. Meadows, P.C, Hartsough. Sampling Strategies in forest hydrology and biogeochemistry. *Forest Hydrology & Biogeochemistry*, D. Levia, D. Carlyle-Moses, T. Tanaka, eds. *Springer*, 2010.
 15. C. Brown-Mitic, S. Kaharabata, R.C. Bales. Priority parameters and their measurements. in *Environmental Monitoring, Encyclopedia of Environmental and Ecological Sciences, Engineering and Technology Resources The Encyclopedia of Life Support Systems (EOLSS)*,. H. I. Inyang and and J. L. Daniels, section eds. UNESCO-EOLSS Publisher Co., Baldwin House, Aldates, Oxford, UK, 2005.
 16. R.C. Bales and D. Cline. Snow Hydrology and Water Resources (Western U.S.). T.D. Potter and B. Colman, editors. *Handbook of Weather Climate and Water*. pp 443-460, Wiley-Interscience, Hoboken, NJ, 2003.
 14. R.C. Bales and J. Choi. Conceptual framework for interpretation of exchange processes. In E. Wolff and R. Bales, editors, *Chemical Exchange between the Atmosphere and Polar Snow*, NATO ASI Series, Vol. I 43, pp. 319-338. Springer- Verlag, Berlin Heidelberg, 1996.
 13. N. Ohte and R.C. Bales. Multi-dimensional parameter estimation of the integrated alpine hydro- chemical model using Monte-Carlo simulation. In K. A. Tonnessen, M. W. Williams, and M. Tranter, editors, *Biogeochemistry of Seasonally Snow-Covered Catchments*, pp. 175-183. IAHS-AIHS Publication 228, Wallingford, UK, 1995.

12. R. E. Davis, C. E. Petersen, and R.C. Bales. Ion flux through a shallow snowpack: effects of initial conditions and melt sequences. In K. A. Tonnessen, M. W. Williams, and M. Tranter, editors, *Biogeochemistry of Seasonally Snow-Covered Catchments*, pp. 115-126. IAHS- AIHS Publication 228, Wallingford, UK, 1995.
 11. R.F. Harrington, K. Elder, and R.C. Bales. distributed snowmelt modeling using a clustering algorithm. In K.A. Tonnessen, M.W. Williams, and M. Tranter, editors, *Biogeochemistry of Seasonally Snow-Covered Catchments*, pp. 167-174. IAHS- AIHS Publication 228, Wallingford, UK, 1995.
 10. R.C. Bales. Nitric acid in firn: discussion. In R. Delmas, editor, *Ice Core Studies of Global Biogeochemical Cycles*, pp. 241-245. NATO ASI Series I, Vol. 30, 1995.
 09. A. Neftel, R.C. Bales, and D. J. Jacob. H₂O₂ and HCHO in polar snow and their relation to atmospheric chemistry. In R. Delmas, editor, *Ice Core Studies of Global Biogeochemical Cycles*, NATO ASI Series, Vol. I 30, pp. 249-264. Springer-Verlag, Berlin Heidelberg, 1995.
 08. J.-L. Jaffrezo, J. E. Dibb, R.C. Bales, and A. Neftel. Current status of atmospheric studies at Summit (Greenland) and implications for future research. In R. Delmas, editor, *Ice Core Studies of Global Biogeochemical Cycles*, pp. 427-458. NATO ASI Series I, Vol. 30, 1995.
 07. R.C. Bales. Modeling biocolloid transport in porous media: chemical aspects and reversibility. In J. F. McCarthy and F. J. Wobber, editor, *Manipulation of Groundwater Colloids for Environmental Restoration*, pp. 81-85. Lewis Publishers, Boca Raton, FL, 1993.
 06. R.C. Bales. Snowmelt and the ionic pulse. In *The Encyclopedia of Earth Science*, volume 1, pp. 199-207. Academic Press, Orlando, FL, 1992.
 05. R.C. Bales. Modeling in-pack chemical transformations. In T. D. Davies, H. G. Jones, and M. Tranter, editors, *Processes of Chemical Change in Seasonal Snowcover*, NATO ARW Series, pp. 139-163. Springer-Verlag, 1991.
 04. R. A. Matzner, D. H. Hunter, and R.C. Bales. The effect of pH and anions on the solubility and sorption behavior of acridine. In R. Baker, editor, *Organic Substances and Sediments in Water*, ACS Symposium Series, pp. 365-381. American Chemical Society, Washington, D.C., 1991.
 03. R.C. Bales and J. E. Szecsody. Microscale processes in porous media: Transport of chlorinated benzenes in porous aggregates. In D. C. Melchior and R. L. Bassett, editors, *Chemical Modeling in Aqueous Systems II*, number 416 in ACS Symposium Series, pp. 526-538. American Chemical Society, Washington, D.C., 1990.
 02. G. A. Amy, M. R. Collins, J. C. Kuo, Z. K. Chowdhury, and R.C. Bales. The effects of humic substances on particle formation, growth, and removal during coagulation using aluminum sulfate. In *Influence of Aquatic Humic Substances on Fate and Treatment of Pollutants*, number 219 in Advances in Chemistry Series, pp. 443- 452. American Chemical Society, Washington, D.C., 1988.
 01. R.C. Bales, M. P. Valdez, G. A. Dawson, and D. A. Stanley. Physical and chemical factors controlling gaseous deposition of SO₂ gas to snow. In H. G. Jones and W. J. Orville-Thomas, editor, *Seasonal snowcovers: Physics, Chemistry, Hydrology*, pp. 289-297. Reidel, Amsterdam, 1987.
- News items**
06. R.C. Bales and J. E. Dibb. Year-round research gets boost at Summit of Greenland ice sheet. *Eos, Transactions*, 80(5):51, Feb. 2, 1999.
 05. W. Abdalati and R. Bales. Highlights of 1996 and 1997 Arctic Research: National Aeronautics and Space Administration. *Arctic Research of the United States*, 12:64-73, Spring/Summer 1998.
 04. W. Abdalati and R. Bales. Program for Arctic Regional Climate Assessment: Investigations of the Climate and State of Balance of the Greenland Ice Sheet. *Arctic Research of the United States*, 12:38-54, Fall/Winter 1998.
 03. R.C. Bales and E.W. Wolff. Interpreting natural climate signals in ice cores. *Eos, Transactions*, 76(47):482-483, November 21, 1995.
 02. R.C. Bales. Section concerns addressed at Spring Meeting. *Eos, Transactions*, 76(40) :396, Oct. 3, 1995.
 01. R.C. Bales. Section Activities Advanced at Spring Meeting. *Eos, Transactions*, 77(38):368, Sept. 17, 1996.
- Papers in conference proceedings**
38. B. Kerkez, S. D. Glaser, J. A. Dracup R.C. Bales. A Hybrid System Model of Seasonal Snowpack Water Balance. Proceedings, Hybrid Systems: Computation and Control, 13th Int. Conf., Stockholm, Sweden, 2010.
 37. R. Rice, R.C. Bales. Embedded sensor network design for spatial snowcover. In *Proceedings of the 76th Annual Western Snow Conference. 76th Western Snow Conference, 2008*.
 36. J. McConnell and R. Bales. Investigation of the chemical transfer processes between atmosphere and snow at South Pole, In Summary Report No. 27, 2002-2003, National Oceanic and Atmospheric Administration (NOAA) Climate Monitoring and Diagnostics Laboratory (CMDL), 2004.
 35. R.C. Bales, J.C. Morrill and M.H. Conklin, Using GLOBE Snow Data in Regional Studies in Proceedings of the 7th Annual GLOBE Conference, Chicago, Illinois, Jul 21-26, 2002.
 34. M.H. Conklin, A. Leonard, J.C. Morrill and R.C. Bales, Students and scientists investigate Agua Caliente Spring, Tucson, AZ, Proceedings of the 7th Annual GLOBE Conference, Chicago, Illinois, Jul 21-26, 2002.
 33. J.C. Morrill, R.C. Bales and M.H. Conklin, Estimating Future Stream Temperatures and Dissolved Oxygen Levels at GLOBE Sites,

- Proceedings of the 7th Annual GLOBE Conference, Chicago, Illinois, Jul 21-26, 2002.
32. J. McConnell and R. Bales. Investigation of the chemical transfer processes between atmosphere and snow at South Pole, In Summary Report No. 26, 2000-2001, National Oceanic and Atmospheric Administration (NOAA) Climate Monitoring and Diagnostics Laboratory (CMDL), 2002.
 31. M. H. Conklin, J. C. Morrill, R.C. Bales, J. Whittier and A. Leonard, Relating Surface Water Alkalinity and Regional Geology, Proceedings 6th Annual GLOBE Conference, Blaine, WA, Jul 2001.
 30. J. C. Morrill, M. H. Conklin, R.C. Bales, and J. Whittier, Surface water pH in GLOBE: Sensitivity of pH to Instrument Choice, Proceedings 6th Annual GLOBE Conference, Blaine, WA, Jul 2001.
 29. R.C. Bales and B.J. Morehouse. Climate Assessment for the Southwest Project: An integrated approach. 12th Symposium on Global Change and Climate Variations, American Meteorological Society, Albuquerque NM, 2001.
 28. B. Imam and R.C. Bales. Utilization of remote sensing information for water resource management in the Southwestern US. Proceedings of the *IEEE 2001 International Geoscience and Remote Sensing Symposium*, Sydney, Australia, 2001.
 27. S.R. Fassnacht, K. A. Dressler, D.J. Lampkin, S.R. Helfrich, R.C. Bales, and B. Imam. Comparing AVHRR and hydrologically modeled discontinuous alpine snow-covered area estimates. Proceedings of the *IEEE 2001 International Geoscience and Remote Sensing Symposium*, Sydney, Australia, 2001.
 26. S.R. Fassnacht, S.R. Helfrich, D.J. Lampkin, K.A. Dressler, R.C. Bales, E.B. Halper, D. Reigle, and B. Imam. Snowpack modeling of the Salt-Verde Basin with water management implications. Proc. 69th Western Snow Conference, Sun Valley, ID, 8 pp, 2001.
 25. B.J. Morehouse, M.F. Glueck, R.C. Bales, A.C. Comrie, R.H. Carter, P.R. Sheppard and G.M. Garfin. A vertically integrated assessment of climate impacts on water supply in Arizona. 12th Symposium on Global Change and Climate Variations, American Meteorological Society, Albuquerque NM, 2001.
 24. N.P. Molotch, T.H. Painter, M.T. Colee, C.W. Rosenthal, J. Dozier, R.C. Bales. Analysis of the spatial variability of snow cover depletion in an alpine watershed, Tokopah Basin, Sierra Nevada, California, U.S.A., Annual Meeting of the Western Snow Conference, 2001.
 23. R. Bales, M. Conklin, J. Morrill, Relating Air and Water Temperatures: Implications for Climate Variability and Change, Proceedings, 5th GLOBE Annual Meeting, Annapolis, MD, July 2000.
 22. S. Yool, D. Lampkin, A. White, S. Marsh, R. Davis, and R. Bales. Mapping snow covered area and vegetation in the Colorado Basin. ASPRS 2001.
 21. J. Clemmons, M. Conklin, and R. Bales. A comparative study of GLOBE and USGS water quality monitoring data. Volunteer Monitor Annual Meeting, Austin, TX, 2000.
 20. J. McConnell and R. Bales. Investigation of the transfer function between atmosphere and snow concentrations of hydrogen peroxide at South Pole, In Summary Report No. 25, 1998-1999, National Oceanic and Atmospheric Administration (NOAA) Climate Monitoring and Diagnostics Laboratory (CMDL), 2000.
 19. M. Conklin, R. Bales, J. Clemons, R. Brice, and D. Belle-Oudry. Strategies for Effective Water Quality Monitoring, Proceedings, 4th Annual GLOBE Meeting, Durham, NH, July 18-23, 1999.
 18. M. Conklin, R. Bales, J. Clemons, and R. Brice. Use of GLOBE Hydrology Data in Water Quality Assessments, Proceedings, 4th Annual GLOBE Meeting, Durham, NH, July 18-23, 1999.
 17. M. Conklin, R. Bales, J. Clemons, and R. Brice. Regional pH and Alkalinity Patterns in GLOBE Data, Proceedings, 4th Annual GLOBE Meeting, Durham, NH, July 18-23, 1999.
 16. Z.-L. Yang, G.-Y. Niu, R.E. Dickinson, and R.C. Bales, 1999: Modeling of snow processes in climate models. *LMSP Meeting*, Nov. 2-3, 1999.
 15. M.H. Conklin, A.M. Kramer, C.J. Peters, and R.C. Bales. GLOBE Water Quality Data in Context: A Comparative Study of GLOBE and Government Agency Temperature, pH and Alkalinity Data. Proceedings, 3rd GLOBE Annual Conference, August 2-7, 1998. Snowmass, CO.
 14. R.C. Bales, C.J. Peters, M.H. Conklin, S. Rosengreen. Assessing changes in surface water quality over time using globe transparency and dissolved oxygen data. Proceedings, 3rd GLOBE Annual Conference, August 2-7, 1998. Snowmass, CO.
 13. J.R. McConnell, R.C. Bales, Investigation of the Transfer Function Between Atmosphere and Snow Concentrations of Hydrogen Peroxide at South Pole, In Summary Report No. 24, 1996-1997, National Oceanic and Atmospheric Administration (NOAA) Climate Monitoring and Diagnostics Laboratory (CMDL), 1998.
 12. R.C. Bales. Stream response to snowmelt and rain. Proceedings, 2nd GLOBE Annual Meeting, July 21-24, 1997. Airlie, VA.
 11. R.C. Bales. Assessing water quality: When, why and where. Proceedings, 2nd GLOBE Annual Meeting, July 21- 24, 1997. Airlie, VA.
 10. J.R. McConnell and R.C. Bales. Investigation of the transfer function between snow and atmosphere concentrations of hydrogen peroxide at South Pole: A cooperative project with NOAA CMDL. In D. J. Hofmann, J. T. Peterson, and R. M. Rosson, editors, *Summary Report 1991 - 1995*, No. 23, pp. 132-133. National Oceanic and Atmospheric Administration (NOAA) Climate Monitoring and Diagnostics Laboratory (CMDL), 1996.
 09. R.H. Galarraga Sanchez and R.C. Bales. Metodo distributivo para la determinacion de deshielo en cuencas de montafia con cobertura nival

- estacional. In Colegio de Ingenieros Civiles del Guayas, editor, *XVII Congreso Latinoamericano de Hidraulica*, Guayaquil, Ecuador, Octubre 21- 25, 1996. Asociacion Internacional de Investigaciones Hidraulicas.
08. R.C. Bales, R. Galarraga-Sanchez, and K. Elder. Distributed approach to modeling snowmelt runoff in alpine catchments. In *Proc. of the Workshop on the Effects of Global Climate Change on Hydrology and Water Resources at the Catchment Scale*, pp. 207-217. Public Works Research Institute, Tsukuba, Japan, February 1992.
07. K. Elder, R.E. Davis, and R.C. Bales. Terrain classification of snow-covered watersheds. *Proceedings of the Eastern Snow Conference*, 48:39-49, 1991.
06. R.E. Davis and R.C. Bales. Recent developments in snow-chemistry research in the western U.S. In *Proceedings, 47th Eastern Snow Conference*, CRREL Special Report 90-44, pp. 99- 107, 1990.
05. C.P. Gerba and R.C. Bales. Virus transport in the subsurface. In C.B. Fliermans and T.C. Hazen, editors, *Proceedings of the First International Symposium on Microbiology of the Deep Sub-surface, Orlando, FL*, pp. 7:23-7:31. WSRC Information Services, Aiken, SC, January 15-19 1990.
04. R.C. Bales. Modeling surface-chemical reactions in recharge. In *Groundwater Recharge Processes in an Arid Environment*, pp. 1-5, Tucson, Arizona, 1989. Department of Hydrology and Water Resources, University of Arizona.
03. R.C. Bales. Surface chemistry in water treatment: the solid-liquid interface. In *Proceedings, American Water Works Association 1985 Annual Conference*, Washington, D.C., June 23-28, 1985.
02. R.C. Bales, I.J. Wright, and L.E. Larson. 5 MW Refuse-to-Electricity facility in the city of Santa Monica, California. In *Proceedings, BIO-ENERGY '80 World Congress and Exposition*. Atlanta, Georgia, April 21-24 1980.
01. R.C. Bales, E.M. Biederman, and G.A. Arant. Reclaimed-water distribution system planning - Walnut Valley, California. In *Proceedings, First Water Reuse Symposium*. American Water Works Association, Washington, D.C., March 25-29, 1979.
- Abstracts of conference papers at (inter)national science meetings**
244. M. Goulden, R.C. Bales. Mountain Runoff Vulnerability to Increased Evapotranspiration with Vegetation Expansion at the Southern Sierra Critical Zone Observatory. *2014 Fall Meeting, AGU, San Francisco, Calif., 9-13 Dec., Abstract H53K-04*, 2014.
243. R. Rice, R.C. Bales, D.G. Marks, M.H. Conklin, Z. Zhang, S.D. Glaser. Design, implementation and hydrologic evaluation of a snow-measurement network using wireless sensors in the American River basin of California. *2014 Fall Meeting, AGU, San Francisco, Calif., 9-13 Dec., Abstract C43D-0420*, 2014.
242. S. Martin, M.H. Conklin, R.C. Bales. Evaluation of High-Temporal-Resolution Bedload Sensors for Tracking Channel Bed Movement and Transport Thresholds in Forested Mountain Headwater Catchments. *2014 Fall Meeting, AGU, San Francisco, Calif., 9-13 Dec., Abstract H11B-0871*, 2014.
241. C. Oroza, Z. Zheng, S.D. Glaser, R.C. Bales, M.H. Conklin. Optimization of Sensor Placements Using Machine Learning and LIDAR data: a Case Study for a Snow Monitoring Network in the Sierra Nevada. *2014 Fall Meeting, AGU, San Francisco, Calif., 9-13 Dec., Abstract C43D-0412*, 2014.
240. D.E. Rheinheimer, R.C. Bales, J.R. Lund, J.H. Viers. Assessing the Value of Improved Hydrologic Forecasting for Hydropower in the Sierra Nevada at Multiple Spatial Scales. *2014 Fall Meeting, AGU, San Francisco, Calif., 9-13 Dec., Abstract H11F-0922*, 2014.
239. Z. Zheng, P.B. Kirchner, R.C. Bales, S.D. Glaser. Cross-sites analysis of snowpack depth from LiDAR in Southern Sierra Nevada. *2014 Fall Meeting, AGU, San Francisco, Calif., 9-13 Dec., Abstract C43D-0417*, 2014
238. M. Meadows, P. Hartsough, R. Bales, J. Hopmans, A. Malazian. Using large-scale, shallow soil water measurements to estimate deeper soil water storage in a mixed-conifer forest of the southern Sierra Nevada. Geological Society of America, Cordilleran Section meeting, Fresno, Calif., *Abstracts with Programs*. Vol. 45, No. 6, p.4, No 2-7. 2014.
237. S.D. Glaser, R.C. Bales, M.H. Conklin. Building an Intelligent Water Information System - American River Prototype. *2013 Fall Meeting, AGU, San Francisco, Calif., 9-13 Dec., Abstract H33H-1487*, 2013.
236. Z. Zhang, C. Oroza, S.D. Glaser, R.C. Bales, M.H. Conklin. Developing a robust wireless sensor network structure for environmental sensing. *2013 Fall Meeting, AGU, San Francisco, Calif., 9-13 Dec., Abstract C41B-0630*, 2013
235. P.B. Kirchner, R.C. Bales, T.H. Painter. Estimating forest snow accumulation with LiDAR derived canopy metrics, southern Sierra Nevada, California. *2013 Fall Meeting, AGU, San Francisco, Calif., 9-13 Dec., Abstract H13J-1507*, 2013.
234. P.c. Saksa, R.L. Ray, R.C. Bales, M.H. Conklin. Impacts of forest thinning and climate change on transpiration and runoff rates in Sierra Nevada mixed-conifer headwater catchments. *2013 Fall Meeting, AGU, San Francisco, Calif., 9-13 Dec., Abstract GC11B-0990*, 2013.
233. M.R. Pickard, R.C. Bales, R. Rice, E. Knapp. The impact of variable density forest thinning on snow-cover distribution patterns]. *2013 Fall Meeting, AGU, San Francisco, Calif., 9-13 Dec., Abstract C41B-0612*, 2013.
232. R.C. Bales, P.D. Brooks, N.P. Molotch. The strength of strategically placed in situ networks: The Critical Zone Observatory Program. *2013 Fall Meeting, AGU, San Francisco, Calif., 9-13 Dec.,*

- Abstract H53L-02*, 2013
231. M.W. Meadows, R.C. Bales, M.H. Conklin, M. Goulden, P.C. Hartsough, J.W. Hopmans, C.T. Hunsaker, R.G. Lucas, A.I. Malazian. Timber harvest effect on soil moisture in the southern Sierra Nevada: Is there a measurable impact? *2013 Fall Meeting, AGU, San Francisco, Calif., 9-13 Dec., Abstract H11B-1165*, 2013.
230. S. Martin, M.H. Conklin, R.C. Bales, P. Womble, T. Patel. Tracking channel bed resiliency in forested mountain headwater catchments using high-temporal-resolution bedload data. *2013 Fall Meeting, AGU, San Francisco, Calif., 9-13 Dec., Abstract EP43B-0854*, 2013.
229. B. Kerkez, Z. Zhang, C. Oroza, S.D. Glaser, R.C. Bales. Connecting the snowpack to the internet of things: an IPv6 architecture for providing real-time measurements of hydrologic systems. *2012 Fall Meeting, AGU, San Francisco, Calif., 3-7 Dec., Abstract C32B-07*, 2012.
228. J. Chorover, S.P. Anderson, R.C. Bales, C. Duffy, F.N. Scatena, D.L. Sparks, T.S. White. Critical Zone Observatories (CZOs): Integrating measurements and models of Earth surface processes to improve prediction of landscape structure, function and evolution. *2012 Fall Meeting, AGU, San Francisco, Calif., 3-7 Dec., Abstract GC54A-05*, 2012.
227. N.P. Molotch, K.N. Musselman, P.B. Kirchner, R.C. Bales, P.D. Brooks. Effects of forest structure on snow accumulation and melt derived from ecohydrological instrument clusters across the Western U.S.. *2012 Fall Meeting, AGU, San Francisco, Calif., 3-7 Dec., Abstract C33D-0684*.
226. R.L. Ray, P.C. Saksa, R.C. Bales, M.H. Conklin. Forest management effects on snow, runoff and evapotranspiration in Sierra Nevada mixed-conifer headwater catchments. *2012 Fall Meeting, AGU, San Francisco, Calif., 3-7 Dec., Abstract GC51F-05*, 2012.
225. M.W. Meadows, P.C. Hartsough, R.C. Bales, J.W. Hopmans, A.I. Malazian. Integrating soil water measurements from plot to catchment scale in a snow-dominated, mixed-conifer forest of the southern Sierra Nevada. *2012 Fall Meeting, AGU, San Francisco, Calif., 3-7 Dec., Abstract H31G-1198*, 2012.
224. P.C. Hartsough, E. Roudneva, A.I. Malazian, M.W. Meadows, R.C. Bales, J.W. Hopmans. Paired tree and soil instrumentation: what can we learn from two instrumented sites across various gradients in a forested catchment. *2012 Fall Meeting, AGU, San Francisco, Calif., 3-7 Dec., Abstract GC11A-0978H31G-1211*.
223. B. Kerkez, S. Welch, R.C. Bales, S.D. Glaser, K.E. Rittger, R.R. Rice. Sampling design and optimal sensor placement strategies for basin-scale SWE estimation. *2012 Fall Meeting, AGU, San Francisco, Calif., 3-7 Dec., Abstract C33C-0683*, 2012.
222. S. Martin, M.H. Conklin, R.C. Bales. Seasonal Accumulation and Depletion of Localized Sediment Stores of Four Headwater Catchments in the Sierra Nevada Mountains, California. *2012 Fall Meeting, AGU, San Francisco, Calif., 3-7 Dec., Abstract GC11A-0978*, 2012.
221. B.D. Harrison, R.C. Bales. Skill Analysis for Runoff Forecasts on the Western Slope of the Sierra Nevada. *2012 Fall Meeting, AGU, San Francisco, Calif., 3-7 Dec., Abstract H21C-1189*, 2012.
220. P.B. Kirchner, R.C. Bales, K.N. Musselman, N.P. Molotch. Under-canopy snow accumulation and ablation measured with airborne scanning LIDAR altimetry and in-situ instrumental measurements, southern Sierra Nevada, California. *2012 Fall Meeting, AGU, San Francisco, Calif., 3-7 Dec., Abstract C14B-08*, 2012.
219. A.E. Kelly, M. Goulden, R.C. Bales, M.W. Meadows, G. Winston. Water and energy gradients produce resilience and thresholds in ecosystem function in the western Sierra Nevada Mountains. *2012 Fall Meeting, AGU, San Francisco, Calif., 3-7 Dec., Abstract B51C-0559*, 2012.
218. R.C. Bales, The Southern Sierra CZO as a Template for the American River Hydrologic Observatory, CUAHSI Third Biennial Colloquium on Water Science and Engineering, Boulder, CO, 2012.
217. S.M. Masclin, M.M. Frey, W.F. Rogge, R.C. Bales, Estimation of nitrate photolysis in the snowpack of the WAIS-Divide site and its contribution to measured atmospheric nitric oxide budget, 242nd National Meeting of the American-Chemical-Society, 28 Aug-01 Sep, Denver, CO, 2011.
216. R. Rice, R.C. Bales, An Assessment of Snowcover in 6 Major River Basins of Sierra Nevada and Potential Approaches for Long-term Monitoring, presented at 2011 Fall Meeting, AGU, San Francisco, Calif., 5-9 Dec., *Abstract C33E-0689*, 2011.
215. Kerkez, B., Kelly, A., Lucas, R., Son, K., Glaser, S., Bales, R.C. Effects of evapotranspiration heterogeneity on catchment water balance in the Southern Sierra Nevada of California, presented at 2011 Fall Meeting, AGU, San Francisco, Calif., 5-9 Dec., *Abstract B41H-06*.
214. Welch, S., Kerkez, B., Glaser, S., Bales, R.C., Rice, R. Estimating Snow Water Equivalent over the American River in the Sierra Nevada Basin Using Wireless Sensor, presented at 2011 Fall Meeting, AGU, San Francisco, Calif., 5-9 Dec., *Abstract, IN32A-07*.
213. Saksa, P., Bales, R.C., R, R. Forest management for water: a hydro-ecological modeling exercise of headwater catchments in the mixed-conifer belt of the Sierra Nevada, presented at 2011 Fall Meeting, AGU, San Francisco, Calif., 5-9 Dec., *Abstract H51D-1230*.
212. Hanna, E., V, P., Cappelen, J., Steffen, K., Bales, R.C., Burgess, E., McConnell, J., Steffensen, J.-P., van den Broeke, M. R., Wake, L. M., Bigg, G. R., Griffiths, M., Savas, D. Greenland Ice Sheet

- surface mass balance 1870 to 2010 based on Twentieth century Reanalysis, and links with global climate forcing, presented at 2011 Fall Meeting, AGU, San Francisco, Calif., 5-9 Dec., *Abstract* C13B-0741
211. Kirchner, P., Bales, R.C., Flanagan, J., Musselman, K., Molotch, N. Mountain front precipitation accumulation over a 3300m elevation gradient from scanning LiDAR snow depth and in-situ instrumental measurements, southern Sierra Nevada, California, presented at 2011 Fall Meeting, AGU, San Francisco, Calif., 5-9 Dec., *Abstract* C23F-03
210. Musselman, K., Molotch, N., Margulis, S., Kirchner, P., Bales, R.C. Inter-annual snow accumulation and melt patterns in a sub-alpine mixed conifer forest: results from a distributed physically based snow model, presented at 2011 Fall Meeting, AGU, San Francisco, Calif., 5-9 Dec., *Abstract* C33D-0671.
209. Meadows, M., Hartsough, P., Kerkez, B., Bales, R.C., Kelly, A., Hopmans, J., Hedge, C., Goulden, M., Glaser, S. Comparing methods for quantifying soil moisture in the southern Sierra Nevada, California, presented at 2011 Fall Meeting, AGU, San Francisco, Calif., 5-9 Dec., *Abstract* H41D-1054.
207. Hartsough, P., Roudneva, E., Malazian, A., Meadows, M., Kelly, A., Bales, R.C., Goulden, M., Hopmans, J. Comparison of sap flux data from two instrumented tree species in a forested catchment with different levels of water stress, presented at 2011 Fall Meeting, AGU, San Francisco, Calif., 5-9 Dec., *Abstract* GC31A-1023.
206. Kelly, A., Goulden, M., Meadows, M., Bales, R.C., Winston, G. Water and carbon cycling along the Sierra Nevada climate gradient, presented at 2011 Fall Meeting, AGU, San Francisco, Calif., 5-9 Dec., *Abstract* B41A-0203.
205. K. N. Musselman, N. P. Molotch, S. A. Margulis, M. Lehning, P. B. Kirchner, R.C. Bales Simulating plot-scale variability of snowpack states in conifer forests using hemispherical photography and a process-based one-dimensional snow model, presented at 2010 Fall Meeting, AGU, San Francisco, Calif., 13-17 Dec., *Abstract* C33E-0590, 2010.
204. B. Kerkez, R. Rice, S. d. Glaser, R.C. Bales, P. C. Saksa, Design and development of a wireless sensor network to monitor snow depth in multiple catchments in the American River basin, California: hardware selection and sensor placement techniques, presented at 2010 Fall Meeting, AGU, San Francisco, Calif., 13-17 Dec., *Abstract* IN34A-07, 2010.
203. P. C. Saksa, R.C. Bales, M. H. Conklin, S. E. Martin, R. Rice, : Hydrologic monitoring in 1-km² headwater catchments in Sierra Nevada forests for predictive modeling of hydrologic response to forest treatments across 140-km² fireheds, presented at 2010 Fall Meeting, AGU, San Francisco, Calif., 13-17 Dec., *Abstract* C33B-0521, 2010.
202. R. Rice, R.C. Bales, P. B. Kirchner, P. C. Saksa, K. E. Rittger, T. H. Painter, J. Dozier, A Comparison of the Fractional MODIS and LANDSAT Thematic Mapper with Ground-Based Snow Surveys in the Sierra Nevada, presented at 2010 Fall Meeting, AGU, San Francisco, Calif., 13-17 Dec., *Abstract* C33E-0589, 2010.
201. P. B. Kirchner, R.C. Bales, R. Rice, K. N. Musselman, N. P. Molotch, Estimating under-canopy ablation in a subalpine red-fir forest, southern Sierra Nevada, California, presented at 2010 Fall Meeting, AGU, San Francisco, Calif., 13-17 Dec., *Abstract* C33E-0594, 2010.
200. R.C. Bales, R. Rice, X. Meng, Spatial distribution of snow water equivalent across the central and southern Sierra Nevada, presented at 2010 Fall Meeting, AGU, San Francisco, Calif., 13-17 Dec., *Abstract* C33E-0592, 2010.
199. M. W. Meadows, B. Kerkez, P. C. Hartsough, R. G. Lucas, R.C. Bales, J. W. Hopmans, S. D. Glaser, Comparing plot-scale sensor measurements to the watershed level: a comprehensive case study of snow depth and soil moisture in the southern Sierra Nevada, California, presented at 2010 Fall Meeting, AGU, San Francisco, Calif., 13-17 Dec., *Abstract* C13C-03, 2010.
198. P. Hartsough, A. Malazian, M. W. Meadows, K. Roudneva, J. Storch, R.C. Bales, J. W. Hopmans, Soil Moisture/ Tree Water Status Dynamics in Mid-Latitude Montane Forest, Southern Sierra Critical Zone Observatory, CA, presented at 2010 Fall Meeting, AGU, San Francisco, Calif., 13-17 Dec., *Abstract* H11G-0894, 2010.
197. S. Masclin, M. M. Frey, W. F. Rogge, R.C. Bales, NO_x emission from snowpack at the WAIS-Divide site and its impact on local tropospheric photochemistry, presented at 2010 Fall Meeting, AGU, San Francisco, Calif., 13-17 Dec., *Abstract* C33D-0577, 2010.
196. R. Rice, R.C. Bales, M. W. Meadows, B. Kerkez, S. D. Glaser, M. Anderson, D. G. Marks, A. Mazurkiewicz, J. Dozier, B. J. McGurk, Design and implementation of a snow measurement network using ground-based wireless networks and space-borne measurements in the American River Basin of California, *Eos Trans, AGU, 90(52) Fall Meet. Suppl.*, *Abstract* C33B-0508, Dec. 2009.
195. B. Kerkez, M. Meadows, S. D. Glaser, R.C. Bales, The Science of Wireless Sensor Networks: Improving engineered systems through scientific analysis, *Eos Trans, AGU, 90(52) Fall Meet. Suppl.*, *Abstract* IN13C-03, Dec. 2009.
194. K. N. Musselman, N. P. Molotch, S. A. Margulis, P. B. Kirchner, R.C. Bales, C23D-07 TI: A mechanistic approach for estimating snowpack dynamics in a conifer forest, *Eos Trans, AGU, 90(52) Fall Meet. Suppl.*, *Abstract* C23D-07, Dec. 2009.

193. M. W. Meadows, R.C. Bales, J. Hopmans, P. C. Hartsough, A. T. O'Geen, P. B. Kirchner, Soil moisture response to snowmelt and rainfall across elevation, aspect and canopy cover in the Southern Sierra Nevada, *Eos Trans, AGU*, 90(52) Fall Meet. Suppl., Abstract H33A-0856, Dec. 2009.
192. S. B. Roy, R.C. Bales, M. C. Costa-Cabral, L. Chen, E. P. Maurer, N. L. Miller, W. B. Mills, Climate Change and Adaptation Planning on the Los Angeles Aqueduct, *Eos Trans, AGU*, 90(52) Fall Meet. Suppl., Abstract U13B-0070, Dec. 2009.
191. P. B. Kirchner, R.C. Bales, K. N. Musselman, N. P. Molotch, Multi-scale observations and modeling of the snowpack in a forested Sierra Nevada catchment, *Eos Trans, AGU*, 90(52) Fall Meet. Suppl., Abstract C23D-08, Dec. 2009.
190. R.C. Bales, R. Rice, K. E. Rittger, T. H. Painter, Trends in Sierra Nevada snowmelt based on 10 years of MODIS fractional snow covered area data: the apparent and the missing, *Eos Trans, AGU*, 90(52) Fall Meet. Suppl., Abstract C23D-02, Dec. 2009.
189. F. Liu, C. t. Husaker, R.C. Bales, Controls of Stream Water Chemistry in Small Catchments Across Snow/Rain Transition in the Southern Sierra, California, *Eos Trans, AGU*, 90(52) Fall Meet. Suppl., Abstract H33H-0987, Dec. 2009.
188. R.C. Bales, C. T. Hunsaker, M. Meadows, B. Kerkez, S. D. Glaser, F. Liu, Water and geochemical responses to seasonal changes across the rain-snow transition in the Southern Sierra Nevada, *Eos Trans, AGU*, 90(52) Fall Meet. Suppl., Abstract B32A-06 Invited, Dec. 2009.
187. J. R. Banta, R.C. Bales, J. R. McConnell, L. Zhao, C. Moon, GC51A-0729
TI: Year-Round Major Ion Measurements at Greenland Environmental Observatory, Summit (GEOSummit), *Eos Trans, AGU*, 90(52) Fall Meet. Suppl., Abstract GC51A-0729, Dec. 2009.
186. S. E. Martin, C. T. Hunsaker, R.C. Bales, Sediment Sources in four Small Mountain Streams In the Central Sierra Nevada, California, *Eos Trans, AGU*, 90(52) Fall Meet. Suppl., Abstract EP53D-0649, Dec. 2009.
185. S. Masclin, M. M. Frey, W. F. Rogge, R.C. Bales, First measurements of Nitric Oxide (NO) at the WAIS Divide site in West Antarctica and implications for atmospheric oxidation, *Eos Trans, AGU*, 90(52) Fall Meet. Suppl., Abstract A31C-0124, Dec. 2009.
184. E. H. Bales, X. Meng, R.C. Bales, Snowmelt timing and duration in the Eastern Sierra Nevada based on 10 years of MODIS fractional snow-covered area data, *Eos Trans, AGU*, 90(52) Fall Meet. Suppl., Abstract C33B-0508, Dec. 2009.
183. P. C. Hartsough, A. Malazian, A. Tuli, T. Kamai, F. Kizito, R. Bales, A. Broad, J. Hopmans, Remote Environmental Monitoring of Hydrologic/ Biotic Interaction in a Mountain Environment, *Eos Trans, AGU*, 89(53) Fall Meet. Suppl., Abstract H51H-0974, Dec. 2008.
182. J. R. Banta, J. R. McConnell, T. Cahill, J. Burkhart, R. Bales, Greenland Environmental Observatory at Summit (GEOSummit): Year-Round Measurements and Results, *Eos Trans, AGU*, 89(53) Fall Meet. Suppl., Abstract A11A-0098, Dec. 2008.
181. J. Battles, R. Bales, M. Conklin, P. Saksa, S. Martin, Research design for hydrologic response to watershed treatments in the mixed conifer zone of California's Sierra Nevada, *Eos Trans, AGU*, 89(53) Fall Meet. Suppl., Abstract H13C-0934, Dec. 2008.
180. P. B. Kirchner, R.C. Bales, N. P. M. P. North, E. E. Small, Snowmelt infiltration and evapotranspiration in Red Fir forest ecosystems of the Sierra Nevada, *Eos Trans, AGU*, 89(53) Fall Meet. Suppl., Abstract C21C-0572, Dec. 2008.
179. C. T. Hunsaker, R.C. Bales, Water Yield and Runoff Timing Across the Rain-snow transition at the Kings River Experimental Watersheds in California's Southern Sierra Nevada, *Eos Trans, AGU*, 89(53) Fall Meet. Suppl., Abstract H13C-0933, Dec. 2008.
178. R. Bales, M. Meadows, J. Hopmans, P. Hartsough, P. Kirchner, Snow and Soil Moisture Response Across Elevation, Aspect and Canopy Variables in a Mixed-conifer Forest, Southern Sierra Nevada, *Eos Trans, AGU*, 89(53) Fall Meet. Suppl., Abstract C21A-0496, Dec. 2008.
177. R. Bales, R. Rice, Blended Satellite and Ground-Based Snow Products for Hydrologic Prediction in Mountain Basins, *Eos Trans, AGU*, 89(53) Fall Meet. Suppl., Abstract H31J-04 Invited, Dec. 2008.
176. R Knight, N. Crook, R.C. Bales, J.N. Moore, A. Papanicolaou, C. Welty. HMF-Geophysics: A Model for Collaborative Research in Hydrogeophysics [Abstract]. *Eos Trans. AGU*, 89(23), *Jt. Assem. Suppl.*, Abstract NS34A-07, 2008.
175. R. Banta, R. Bales, J. McConnell, J. Burkhart, GEOSummit Baseline Measurement Results and Long-Term Plans, NOAA Global Monitoring Division, May 2007.
174. R. Bales, Hydrologic observatory design in the Western U.S.: scaling measurements & modeling in the Sierra Nevada of California, European Geophysical Union Meeting, Vienna, April 2007.
173. R. Bales, J. Burkhart, T. Cahill, J. McConnell, R. Banta, Baseline measurements & results from the Greenland Summit Environmental Observatory, European Geophysical Union Vienna, April 2007.
172. R. Rice, R. Bales, T. Painter, J. Dozier, Snowcover along elevation gradients in the Upper Merced and Tuolumne River Basin of the Sierra Nevada of California from MODIS and blended ground data, Western Snow Conference, April 2007.
171. J. Dozier, J. Famigletti, R. Rice, N. Molotch, K. Rittger, T. Painter, R.C. Bales. Analysis of the Sierra Nevada Snowpack in the 21st Century. *Eos Trans. AGU*, 88(52), *Fall Meet. Suppl.*, Abstract C33A-01, 2007.

170. D. Shen, R.C. Bales, J. McConnell, J. Burkhart, Q. Guo. Annual accumulation for Greenland updated using ice core data developed during 2000-2006 and analysis of daily coastal data. *Eos Trans. AGU*, 88(52), Fall Meet. Suppl., Abstract C11A-0086, 2007.
169. S.R. Fassnacht, D. Hultstrand, R.C. Bales. Physiographic Variables to Describe Basin Scale Snow Water Equivalent. *Eos Trans. AGU*, 88(52), Fall Meet. Suppl., Abstract C21B-0456, 2007
168. F. Liu, Parmenter, R., Brooks, P., Conklin, M. H., Bales, R.C. Processes Controlling Stream Flow Chemistry in Semiarid, Forested Catchments, Valles Caldera, New Mexico. *Eos Trans. AGU*, 88(52), Fall Meet. Suppl., Abstract H51B-0463, 2007.
167. F. Kizito, Hopmans, J., Bales, R.C., Tuli, A., Kamai, T. Remote Environmental Monitoring With a Wireless Sensor Network System. *Eos Trans. AGU*, 88(52), Fall Meet. Suppl., Abstract H13A-0971, 2007
166. R.C. Bales, C. Hunsaker, M.H. Conklin, J. J. Kirchner, B. Boyer. Southern Sierra Critical Zone Observatory (CZO): hydrochemical characteristics, science and measurement strategy. *Eos Trans. AGU*, 88(52), Fall Meet. Suppl., Abstract H51K-02, 2007.
165. R.C. Bales, Boyer, B., Conklin, M., Goulden, M., Hopmans, J., Hunsaker, a., Johnson, D., Kirchner, J., Tague, C. Southern Sierra Critical Zone Observatory: integrating water cycle and biogeochemical processes across the rain-snow transition. *Eos Trans. AGU*, 88(52), Fall Meet. Suppl., Abstract H13A-0962, 2007.
164. J. Fisher, Meng, X., Rice, R., Butler, C., Molotch, N., Harmon, T. C., Bales, R.C. The Sierra Nevada-San Joaquin Hydrologic Observatory (SNSJHO): A WATERS Network Test Bed. *Eos Trans. AGU*, 88(52), Fall Meet. Suppl., Abstract H13A-0963, 2007.
163. D. Tarboton, Schnoor, J., Haas, C., Minsker, B., Bales, R.C., Hooper, R. The WATERS Network Conceptual Design. *Eos Trans. AGU*, 88(52), Fall Meet. Suppl., Abstract H13A-0955, 2007.
162. R. Banta, R.C. Bales, J. McConnell, J. Burkhart. GEOSummit Baseline Measurement Results and Long-Term Plans. *NOAA Global Monitoring Division*, 19, 2007.
161. Hartmann, H.C., Morrill, J.C., Bales, R., Baseline for Identifying Improvements in Hydrologic Forecasts: Assessment of Water Supply Outlooks for the Colorado River Basin, *Eos Trans. AGU*, 87(52), Fall Meet. Suppl., Abstract H53C-0649, December 2006.
160. Bouffon, T., Rice, R., Bales, R., Spatial properties of snow cover in the Upper Merced River Basin: implications for a distributed snow measurement network, *Eos Trans. AGU*, 87(52), Fall Meet. Suppl., Abstract C21C-1172, December 2006.
159. Brooks, P.D., Molotch, N., Musselman, K., Small, E., McConnell, J., Bales, R., Rinehart, A., The effects of forest vegetation on snow accumulation, ablation, and meltwater routing, Valles Celdera National Preserve, NM, *Eos Trans. AGU*, 87(52), Fall Meet. Suppl., Abstract C21C-1146, December 2006.
158. Bales, R., Rice, R., Snowcover along elevation gradients in the Upper Merced River Basin of the Sierra Nevada of California from MODIS and Blended Ground Data, *Eos Trans. AGU*, 87(52), Fall Meet. Suppl., Abstract C31C-02, December 2006.
157. M. Conklin, Bales, R., Boyer, E., Cayan, D., Dozier, J., Fogg, G., Harmon, T., Kirchner, J., Miller, N., Molotch, N., Redmond, K., Observatory Design in the Mountain West: Scaling Measurements and Modeling in the San Joaquin Valley and Sierra Nevada, *Eos Trans. AGU*, 87(52), Fall Meet. Suppl., Abstract H21F-1430, December 2006.
156. Rice, R., Bales, R., Painter, T.H., Estimating the spatial distribution of snow properties in Sierra Nevada, California basins using MODIS fractional snowcover products, *Eos Trans. AGU*, 87(52), Fall Meet. Suppl., Abstract C21A-1134, December 2006.
155. Liu, F., Conklin, M.H., Shaw, G., Bales, R.C., Conrad, M.E., Rice, R., Processes Controlling Baseflow and Climatic Warming Effects in Merced River, Sierra Nevada, California, *Eos Trans. AGU*, 87(52), Fall Meet. Suppl., Abstract H43E-0547, December 2006.
154. F. Liu, R. Bales, M. Williams, M. Conklin, Partitioning of meteoric sources for groundwater and implications for groundwater change with climatic warming in outhern Rocky Mountains, Consortium for Integrated Climate Research in Western Mountains, September 2006.
153. R. Rice, R. Bales, J. Dozier, T. Painter, Integration of the MODIS snow cover products into snowmelt runoff modeling, Western Snow Conference, Las Cruces, NM, April 2006.
152. Lin, H., Bales, R., Gochis, D., Hornbuckle, B., Johnson, B., Krajewski, W., McCray, J., McDonnell, J., Murray, K., Newman, B., Reed, P., Simpkins, B., Abyne, G., Wohl, E., Lall, U., Soils and the CUAHSI Vision and Beyond, *Eos Trans. AGU*, 86(52), Fall Meet. Suppl., Abstract H34D-03, December 2005.
151. Frey, M.M., Stewart, R.W., McConnell, J.R., Bales, R.C., 20th Century Trends in the H2O2 Ice Core Record From West Antarctica: Contributions From Accumulation Variability and Stratospheric Ozone Depletion, *Eos Trans. AGU*, 86(52), Fall Meet. Suppl., Abstract PP22B-07, December 2005.
150. Liu, F, Bales, R.C., Conklin, M.H., Kostrzewski, J.M., Stream flow generation in semi-arid, forested and seasonally snow-covered catchments, New Mexico, *Eos Trans. AGU*, 86(52), Fall Meet. Suppl., Abstract H23C-1438, December 2005.
149. Molotch, N.P., Bales, R.C., Local-scale controls on snow distribution in the Rio Grande headwaters: implications for evaluating spatially distributed snowpack estimates, *Eos Trans. AGU*, 86(52), Fall

- Meet. Suppl., Abstract H13H-1404, December 2005.
148. Rice, R., Bales, R., Delin, K., Jackson, S., Sensor Web technology: implications for a network design in an alpine environment of the Sierra Nevada Mountains of California, *Eos Trans. AGU*, 86(52), Fall Meet. Suppl., Abstract IN21B-1180, December 2005.
147. Bales, R.C., Molotch, N.P., Marks, D.G., Small, E.E., Integrated snow, soil and water-balance measurement strategy for multi-scale environmental observations in mountain, *Eos Trans. AGU*, 86(52), Fall Meet. Suppl., Abstract H34D-04, December 2005.
146. R. Bales, K. Steffen, A. Ohmura, D. Hoffmann, The role of long-term atmospheric measurements in Arctic research: The Greenland Summit Environmental Observatory, International Conference on Arctic Research Planning II, November 2005.
145. R. Bales, J. Dozier, J. Famiglietti, G. Fogg, J. Hopmans, J. Kirchner, T. Meixner, N. Molotch, K. Redmond, R. Rice, J. Warwick, Plan for a Sierra Nevada hydrologic observatory: Science aims, measurement priorities, research opportunities and expected impacts, Consortium for Integrated Climate Research in Western Mountains, September 2005.
144. R. Bales, Measurement strategies for advancing understanding and forecasting of Sierra Nevada water balance, California Energy Commission Climate Change Research Conference, September 2005.
143. R. Bales, K. Dressler, G. Leavesley, Evaluation of gridded snow water equivalent & satellite snowcover products for mountain basins in a hydrologic model, Western Snow Conference, April 2005.
142. T.A. Cahill, S.S Cliff, M.P Jimenez-Cruz, L. Portnoff, K. Perry, J. McConnell, J. Burkhart, R.C. Bales, Aerosol transport to the Greenland Summit Site, June, 2003 to August 2004, *Eos Trans. AGU*, 85, Fall Meet. Suppl., Abstract A11C-0074, 2004.
141. J.R. McConnell, P.R. Edwards, J.D. Kahl, J.F. Burkhart, R.C. Bales, Ultra-trace surface snow chemistry at Summit Greenland: July, 2003 to August 2004, *Eos Trans. AGU*, 85, Fall Meet. Suppl., Abstract A11C-0075, 2004.
140. M.M. Frey, R.W. Stewart, J.R. McConnell, R.C. Bales, First observations of atmospheric hydrogen peroxide (H_2O_2) and methylhydroperoxide (CH_3OOH) in West Antarctica: Comparison of experiment and model results, *Eos Trans. AGU*, 85, Fall Meet. Suppl., Abstract A21D-04, 2004.
139. C. Anastasio, E. Galbavy, M. Hutterli, D. Friel, R. Bales, Measurements of snow grain hydroxyl radical at Summit, Greenland, *Eos Trans. AGU*, 85, Fall Meet. Suppl., Abstract A22C-03, 2004.
138. M.A. Hutterli, J.F. Burkhart, D.K. Friel, M.M. Frey, M.R. Albert, B. Lefer, R.C. Bales, Photochemical $HCHO$ and H_2O_2 processing in snow at Summit, Greenland, and at South Pole, *Eos Trans. AGU*, 85, Fall Meet. Suppl., Abstract A22C-05, 2004.
137. K.A. Dressler, G. Leavesley, R. Bales, S. Fassnacht, Streamflow estimation from hydrologic model assimilation of remotely sensed snow information in snowmelt dominated basins, *Eos Trans. AGU*, 85, Fall Meet. Suppl., Abstract C31A-0288, 2004.
136. R. Rice, R.C. Bales, Catchment Scale Study of the spatial variability of snow depths: Implications for broader long term snow monitoring and measurement designs, *Eos Trans. AGU*, 85, Fall Meet. Suppl., Abstract C31A-0289, 2004.
135. P. Jacobson, N.P. Molotch, R.C. Bales, M.T. Colee, J. Dozier, A comparison of physically based and degree-day representations of snowpack / atmosphere turbulent fluxes in an alpine watershed, *Eos Trans. AGU*, 85, Fall Meet. Suppl., Abstract C31A-0304, 2004.
134. M.F. Glueck, R. Bales, A 700-Year regional history of Greenland Ice Sheet accumulation, *Eos Trans. AGU*, 85, Fall Meet. Suppl., Abstract C33A-0340, 2004.
133. T.H. Painter, R. Bales, Enhanced snow cover products from MODIS for the hydrologic sciences, *Eos Trans. AGU*, 85, Fall Meet. Suppl., Abstract H211-08, 2004.
132. R. Bales, J. Dozier, J. Famiglietti, G. Fogg, J. Hopmans, J. Kirchner, T. Meixner, N. Molotch, K. Redmond, R. Rice, J. Sickman, J. Warwick, Plan for a Sierra Nevada Hydrologic Observatory: Science aims, measurement priorities, research opportunities and expected impacts, *Eos Trans. AGU*, 85, Fall Meet. Suppl., Abstract H31C-0399, 2004.
131. R. Bales, J. Dozier, N. Molotch, T. Painter, R. Rice, Mountain hydrology of the semi-arid Western U.S.: Research needs, opportunities and challenges, *Eos Trans. AGU*, 85, Fall Meet. Suppl., Abstract U51A-04, 2004.
130. N.P. Molotch, R.C. Bales, Evaluation of the representativeness of automated snow water equivalent sensors in the Rio Grande headwaters using intensive field observations, remotely sensed snow cover data, and distributed snowmelt models, *Eos Trans. AGU*, 85, Fall Meet. Suppl., Abstract U53A-0701, 2004.
129. N.P. Molotch, T.H. Painter, R.C. Bales, Simulating snow / atmosphere energy exchange using semi-physical models and remotely sensed snow albedo data, *Eos Trans. AGU*, 85(28), West. Pac. Geophys. Meet. Suppl., Abstract H22A-04, 2004.
128. J.F. Burkhart, R.C. Bales, Station Report: GEOSummit, the Greenland Environmental Observatory, NOAA-CMDL Annual Meeting, Boulder, CO, May 26-27, 2004
127. R.C. Bales, Snow-atmosphere chemical exchange: lessons & challenges for ice-cores & atmospheric chemistry, EGU 1st General Assembly, Nice, France, Abstract EGU04-A-04490, April 2004.

126. M.A. Hutterli, J.F. Burkhart, D.K. Friel, M.M. Frey, R.C. Bales, M. Albert, B. Lefer, Photochemical HCHO and H₂O₂ Processing in Snow at Summit, Greenland, EGU 1st General Assembly, Nice, France, Abstract EGU04-A-05079, April 2004.
125. J.F. Burkhart, M.A. Hutterli, J.R. McConnell, R.C. Bales, Importance of accumulation timing in preservation of nitrate in firn at Summit, Greenland, EGU 1st General Assembly, Nice, France, Abstract EGU04-A-05344, April 2004.
124. M.F. Glueck, R.C. Bales, Multi-century Greenland Ice Sheet accumulation variability and the North Atlantic Oscillation, *Eos Trans. AGU*, 84(46), Fall Meet. Suppl., Abstract OS21B-1123, 2003.
123. J.F. Burkhart, R.C. Bales, J.R. McConnell, Core atmospheric measurements at the Summit, Greenland Environmental Observatory: GEOSummit, *Eos Trans. AGU*, 84(46), Fall Meet. Suppl., Abstract A31D-0081, 2003.
122. R.C. Bales, R. Brice, B. Imam, D. Lampkin, Seasonal and Interannual Variability in Colorado River and Rio Grande snowcover patterns: 1995-2002, *Eos Trans. AGU*, 84(46), Fall Meet. Suppl., Abstract C41B-0969, 2003.
121. R.C. Bales, Core Atmospheric Measurements at the Summit, Greenland Environmental Observatory, CMDL Annual Meeting, Boulder, CO May 2003.
120. Characterizing water, energy and CO₂ exchange for a sky island subalpine forest in the southwestern USA, *Eos Trans. EGU/AGU*, 84, Spring Meet. Suppl., Abstract EAE03-A-13011, 2003.
119. R. Bales, D. Brookshire, C. Brown, H. Gupta, J. Hogan, F. Phillips, S. Sorooshian, J. Villinski, J. Washburne, G. Woodard, Sustainability, hydrologic science and the balance between water supply and demand in the southwestern U.S., *Eos Trans. EGU/AGU*, 84, Spring Meet. Suppl., Abstract EAE03-A-07722, 2003.
118. M.M. Frey, J.R. McConnell, M.A. Hutterli, D. Belle-Oudry, R.C. Bales, Hydrogen peroxide and formaldehyde in snow and the atmosphere in West Antarctica: Implications for atmospheric boundary layer chemistry and interpretation of ice core records, *Eos Trans. EGU/AGU*, 84, Spring Meet. Suppl., Abstract EAE03-A-03165, 2003.
117. N.P. Molotch, T.H. Painter, R.C. Bales, J. Dozier, Accuracy assessment of a net radiation and temperature index snowmelt model using ground observations of snow water equivalent in an alpine basin, *Eos Trans. EGU/AGU*, 84, Spring Meet. Suppl., Abstract EAE03-A-12894, 2003.
116. C.M. Brown-Mitic, C. Harlow, J. Shuttleworth, R. Bales, Spatial variabilities in Sky Island subalpine hydro/micrometeorology, *Eos Trans. EGU/AGU*, 84, Spring Meet. Suppl., Abstract EAE03-A-02365, 2003.
115. R.C. Bales and D. M. Liverman, Reducing vulnerability to hydro-climatic variability through integrated assessment in the southwestern U.S., Symposium on Impacts of Water Variability: Benefits and Challenges, American Meteorological Society Annual Meeting, Long Beach, CA, Abstract 7.1, 2003.
114. H.C. Hartmann, T. C. Pagano, K. Franz, S. Sorooshian, R. Bales, Helping Water Resource Managers Understand Hydroclimatic Variability and Forecasts, Symposium on Impacts of Water Variability: Benefits and Challenges, American Meteorological Society Annual Meeting, Long Beach, CA, Abstract 7.3, 2003.
113. R.C. Bales, B. Imam, D. Lampkin, S.R. Helfrich, S.R. Fassnacht, Fractional snow cover in the Colorado River and Rio Grande basins, 1995-2002, 17th Conference on Hydrology, American Meteorological Society Annual Meeting, Long Beach, CA, Abstract J3.11, 2003.
112. R.C. Bales, Can science help achieve sustainability of water in the Southwestern U.S., In symposium: Does All Water Flow Towards Money in the West, 2003 Annual Meeting, Am. Assoc. Advancement Sci., Denver, CO, 2003.
111. M.A. Hutterli, J.R. McConnell, D. Belle-Oudry, R.C. Bales, J.F. Burkhart. Intertwined seasonalities: The key to reconstructing atmospheric formaldehyde (HCHO) and hydrogen peroxide (H₂O₂) from ice-core records. *Eos, Transactions*, 2002.
110. J.F. Burkhart, J.R. McConnell, R.C. Bales, M. Hutterli, Importance of accumulation timing in preservation of HNO₃ at Summit, Greenland, *Eos Trans. AGU*, 83(47), Fall Meet. Suppl., Abstract A72A-0148, 2002
109. N.P. Molotch, T.H. Painter, M.T. Colee, R.C. Bales, J. Dozier, Incorporating remotely sensed snow surface grain size into spatially distributed snowmelt modeling, *Eos Trans. AGU*, 83(47), Fall Meet. Suppl., Abstract H11D-0883, 2002.
108. A.K. Huth, P.A. Haas, P.D. Brooks, R.C. Bales, M.H. Conklin, Mixing model analysis of solute sources in a semi-arid stream, *Eos Trans. AGU*, 83(47), Fall Meet. Suppl., Abstract H11F-09, 2002.
107. H.C. Hartmann, T.C. Pagano, S. Sorooshian, R. Bales, Helping resource managers understand hydroclimatic variability and forecasts: A case study in research equity, *Eos Trans. AGU*, 83(47), Fall Meet. Suppl., Abstract H12G-11, 2002.
106. R. Bales, H. Hartmann, S. Sorooshian, Integrated assessment in support of water management in the Southwest, Mississippi River Climate and Hydrology Conference, American Meteorological Society, New Orleans, LA, 2002.
105. M.M. Frey, J.R. McConnell, M. Hutterli, R.C. Bales. Preservation of Hydrogen Peroxide and Formaldehyde in snow and firn in West Antarctica: Implications for a potential deep ice core record. *Eos Trans. AGU*, 83(19), Spring Meet. Suppl., Abstract A32B-03, 2002.
104. H.C. Hartmann, T.C. Pagano, K. Franz, S. Sorooshian and R. Bales. Evaluating the uncertainty of probabilistic predictions: Techniques, applications and implications. *Eos Trans. AGU*,

- 83(19), Spring Meet. Suppl., Abstract H42E-01, 2002.
103. J. McConnell, E. Mosley-Thompson, E. Hanna, D. Belle-Oudry, M. Hutterli, R. Bales, Impact of atmospheric circulation indices on the glaciochemical archive in Greenland, *EGS XXVII General Assembly, Nice, France*, Abstract EGS02-A-02610 April 2002.
 102. M. A. Hutterli, J.R. McConnell, J. Burkhart, D. Belle-Oudry, R.C. Bales, Atmospheric formaldehyde (HCHO) and hydrogen peroxide (H₂O₂) mixing ratios in the past 450 years inferred from Greenland firn records, *EGS XXVII General Assembly, Nice, France*, Abstract EGS02-A-04903 April 2002.
 101. H.W. Jacobi, O. Schrems, R.E. Honrath, M.C. Peterson, Y. Lu, J.E. Dibb, M.A. Arsenault, A.L. Swanson, N.J. Blake, R.C. Bales, Concentrations of reactive trace gases in the interstitial air of surface snow, *EGS XXVII General Assembly, Nice, France*, EGS02-A-02132, April, 2002.
 100. B.J. Morehouse, G.M. Garfin, M. Vasquez Leon, H. Hartmann, T. Pagano, K. Kolivras, F. Ni, T. Finan, D.M. Liverman, A. Comrie, R. Bales, S. Sorooshian, M.K. Hughes, J.T. Overpeck, D. Austin, D. Hadley, Structuring climate services through stakeholder-driven assessment, 3rd Symposium on Environmental Applications and 16th Conference on Probability and Statistics in the Atmospheric Sciences, American Meteorological Society Annual Meeting, Orlando, FL, Abstract J4.7, 2002.
 99. K.J. Franz, H.C. Hartmann, S. Sorooshian, R. Bales, Evaluation of Colorado River Basin Ensemble Streamflow Predictions, 16th Conference on Hydrology, American Meteorological Society Annual Meeting, Orlando, FL, Abstract J2.3, 2002.
 98. R.C. Bales. Research infrastructure for the advancement of hydrologic science: Planning highlights and update. *Eos, Transactions*, 82(47):S465, 2001.
 97. R.C. Bales, J.R. McConnell, M. Hutterli, J.D. Kyne and D. Belle-Oudry. Formaldehyde (HCHO) in shallow firn at South Pole. *Eos, Transactions*, 82(20):S235, 2001.
 96. M.A. Hutterli, J.R. McConnell, and R.C. Bales. Formaldehyde (HCHO) and Hydrogen Peroxide (H₂O₂) in air, snow and interstitial air at South Pole during ISCAT 2000. *Eos, Transactions*, 82(47):S113, 2001.
 95. B. Imam, R.C. Bales, S. Sorooshian, S.R. Fassnacht, S.R. Helfrich and D.J. Lampkin. Utility of fractional snow cover in water resources applications for semi-arid regions. *Eos, Transactions*, 82(20):S90, 2001.
 94. J.R. McConnell, G.W. Lamorey, E. Hanna, R.C. Bales, E. Mosley-Thompson and J.D. Kyne. Variability in net annual snow accumulation over Southern Greenland. *Eos, Transactions*, 82(20):S232, 2001.
 93. J.C. Morrill, R.C. Bales and M.H. Conklin. The relationship between air temperature and stream temperature. *Eos, Transactions*, 82(20):S179, 2001.
 92. E. Mosley-Thompson, J.R. McConnell, R.C. Bales, P. Lin, Z. Li and L.G. Thompson. High resolution climate histories from Greenland ice cores: Placing 20th Century changes in a longer perspective. *Eos, Transactions*, 82(47):S747, 2001.
 91. M.C. Conklin, J. Clemmons and R.C. Bales. Use of cooperative K-12 water quality data by scientists. *Eos, Transactions*, 82(20):S117, 2001.
 90. M.H. Conklin, J.C. Morrill, R.C. Bales, J. Whitter and R. Brice. Using volunteer data in scientific research: Combining GLOBE and USGS data to relate surface water alkalinity with regional geology. *Eos, Transactions*, 82(47):S234, 2001.
 89. M.M. Frey, J.R. McConnell, R.C. Bales, and M.A. Hutterli. Peroxides and formaldehyde in West Antarctica: Atmospheric and snow chemistry measurements along the ITASE traverse. *Eos, Transactions*, 82(20):S234, 2001.
 88. H.C. Hartmann, T.C. Pagano, R.C. Bales and S. Sorooshian. Stakeholder driven research: The CLIMAS Experience. *Eos, Transactions*, 82(20):S142, 2001.
 87. N.P. Molotch, S.R. Fassnacht, M.T. Colee, T. Bardsley and R.C. Bales. A comparison of spatial statistical techniques for the development of a validation data set for mesoscale modeling of snow water equivalence. *Eos, Transactions*, 82(47):S553, 2001.
 86. D.J. Lampkin, R.C. Bales, R.E. Davis. Comparison of Fraction Versus Binary Satellite-Derived Snow Cover Maps for the Colorado River Basin. *Eos Trans. AGU, 81(48), Fall Meet. Suppl., Abstract H52B-10, 2000.*
 85. S.R. Fassnacht, K. A. Dressler, and R.C. Bales. The use of physiographic parameters as indicators of the snowpack state for the Colorado River Basin. Proceedings of the 58th Annual Eastern Snow Conference, Ottawa, Ontario, Canada, 45-48, 2001.
 84. M.A. Hutterli, R.C. Bales, J.R. McConnell, R. W. Stewart and H.-W. Jacobi. Impact of Temperature-Driven Cycling of Hydrogen Peroxide Between the Air and Snow on the Planetary Boundary Layer. *Eos, Transactions*, 81(48):F139, 2000.
 83. H.-W. Jacobi, M.A. Hutterli, M.M. Frey, R.C. Bales, and O. Schrems. Are Photochemical Processes on the Snow Surface Important for the Exchange of H₂O₂ and HCHO Between the Atmosphere and Snow? *Eos, Transactions*, 81(48):F169, 2000.
 82. K.A. Dressler, S.R. Fassnacht, R.C. Bales, R.E. Davis, D. Lampkin and D.E. Myers. Geostatistical Interpolation of Point-Measured SWE in the Colorado River Basin. *Eos, Transactions*, 81(48):F397, 2000.
 81. R.C. Bales, J.R. McConnell and E. Mosley-Thompson. Accumulation Map for the Greenland Ice Sheet. *Eos, Transactions*, 81(48):F404, 2000.

80. F. Li, R.C. Bales, H.C. Hartmann, Z. L. Yang, J. Kim, N. L. Miller, and S. Sorooshian. Evaluating Seasonal Snow Simulations from a Regional Climate Model in the Western U.S. with High-Elevation Data Sets. *Eos, Transactions*, 81(48):F419, 2000.
79. A. Kramer-Huth, A. Leydecker, J.O. Sickman and R.C. Bales. A Two-Component Hydrograph Separation for Three Alpine Catchments in Sequoia National Park, California. *Eos, Transactions*, 81(48):F466, 2000.
78. S.R. Fassnacht, L.M. Cristel, R.C. Bales, S. Yool, K.A. Dressler and G.H. Leavesley. The Impact of Different Vegetation Representations on Hydrologic Modelling. *Eos, Transactions*, 81(48):F484, 2000.
77. T. Meixner and R.C. Bales. Integrated Hydrologic and Carbon-Nitrogen Modeling of an Alpine Ecosystem. *Eos, Transactions*, 81(48):F521, 2000.
76. C.K. Gutmann, T. Meixner and R.C. Bales. Multidecadal Hydrochemical Response of a Sierra Nevada Watershed: Sensitivity to Mineral Weathering Rate. *Eos, Transactions*, 81(48):F527, 2000.
75. P. Whitaker, H.C. Hartmann, R. Bales, and S. Sorooshian. Seasonal Water Supply Forecast Performance: Issues and Evaluations. *Eos, Transactions*, 81(19): S205, 2000.
74. H. Hartmann, T.C. Pagano, C. Brown, R. Bales and S. Sorooshian. Seasonal Climate Forecasts for Water Management: Applications and Evaluations. *Eos, Transactions*, 81(19):S206, 2000.
73. A. Seth, R.E. Dickinson R. Bales, Regional climate model simulation of cold season hydrology in alpine basins of the Southwest, 14th Conference on Hydrology, American Meteorological Society annual Meeting, Abstract P3.17, 2000.
72. M. Hutterli, J. McConnell, and R. Bales. Coupled air-to-snow transfer modeling of HCHO and H₂O₂. XXV General Assembly, Nice, France, April 2000.
71. E. Mosley-Thompson, J.R. McConnell, and R.C. Bales. Annual to Decadal-scale Climate Variability: What do Greenland Ice Cores Reveal? *Eos, Transactions*, 80(46):308, 1999.
70. M.A. Hutterli, J.R. McConnell, R.W. Stewart, R. Rothlisberger, and R.C. Bales. Modeling reversible atmosphere-to-snow transfer of HCHO in Antarctica *Eos, Transactions*, 80(46):F198, 1999.
69. J.R. McConnell, R.W. Stewart, M.A. Hutterli, and R.C. Bales. Modeling Reversible Atmosphere-to-Snow Transfer and Preservation of Hydrogen Peroxide in Antarctica. *Eos, Transactions*, 80(46):F192, 1999.
68. R.C. Bales, J.R. McConnell, D.H. Bromwich, E. Mosley-Thompson, J.D. Kyne. Comparisons of Modeled and Observed Inter-Annual Variability in Snow Accumulation in Greenland (1985-1996). *Eos, Transactions*, 80(46):308, 1999.
67. M.M. Frey and R.C. Bales. Impact of Solar Radiation and Temperature on Atmospheric H₂O₂ Variations in and Above Snow at Summit, Greenland, American Geophysical Union 1999 Fall Meeting, San Francisco, CA, December 1999.
66. J.F. Burkhart, M.A. Hutterli, and R.C. Bales. Laboratory Studies of Formaldehyde Degassing in Polar Firn. American Geophysical Union 1999 Fall Meeting, San Francisco, CA, December 1999.
65. T. Meixner, L.A. Bastidas, H.V. Gupta, and R.C. Bales. Multi-Response Data and Calibrating Models of Stream Chemistry. *Eos, Transactions*, 80(46):F407, 1999.
64. J.E. Dibb, M.A. Arsenault, R.E. Honrath, M. Peterson, J. Yang, N.J. Blake, A.L. Swanson, D.R. Blake, P. Shepson, A. Sumner, K. Ford, M. Frey, and R. Bales. Photochemistry in Snow: Recent Findings in Greenland and Michigan and Their Implications for Antarctic Tropospheric Chemistry. *Eos, Transactions*, 80(46):F191, 1999.
63. R.C. Bales, B. Morehouse, and D. Liverman. Climate Assessment Project for the Southwest. American Society of Civil Engineers 1999 Water Resources Planning & Management National Conference, Phoenix, AZ, June 1999.
62. H.C. Hartmann, R. Bales, and S. Sorooshian. Weather, Climate, and Hydrologic Forecasting for the Southwest U.S. American Society of Civil Engineers 1999 Water Resources Planning & Management National Conference, Phoenix, AZ, June 1999.
61. T. Meixner, L.A. Bastidas, H.V. Gupta, and R.C. Bales. Multi-criteria parameter sensitivity and estimation with the Alpine Hydrochemical Model. In *Limnology and Oceanography: Navigating into the Next Century*, page 122. American Society of Limnology and Oceanography, 1999.
60. B.D. Wolaver, R.C. Bales, J. McConnell, K. Elder, F. Escobar, Energy balance snowmelt modeling in the Echaurren Basin, Chilean Andes, Sixth International Conference on Southern Hemisphere Meteorology and Oceanography, American Meteorological Society, Abstract P3.17, 1999.
59. J.R. Winterle, R.C. Bales, and J.R. McConnell. Re-evaluation of the temperature-dependent air- to-ice partition coefficient for H₂O₂. *Eos, Transactions, American Geophysical Union*, 79(45): F96, 1998.
58. R.C. Bales and J. R. McConnell. Studies of atmosphere-snow transfer function for H₂O₂. *Eos, Transactions, American Geophysical Union*, 79(45):F94, 1998.
57. B.D. Wolaver, J.R. McConnell, R.C. Bales, K.J. Elder, and F. Escobar. Comparison of snow distribution methods in the Echaurren basin. *Eos, Transactions, American Geophysical Union*, 79(45):F272, 1998.
56. J.R. McConnell, R.C. Bales, and J.F. Burkhart. Year-around surface snow-measurements as a proxy for atmospheric H₂O₂ at Summit, Greenland. *Eos, Transactions, American Geophysical Union*, 79(45):F298, 1998.
55. T. Meixner, R.C. Bales, M.W. Williams, D.H. Campbell, and J. S. Baron. Flow routing in two watersheds in the Rocky Mountains, Colorado. *Eos, Transactions, American Geophysical Union*, 79(45):F318, 1998.

54. Z-L. Yang, A. Hahmann, R.E. Dickinson, and R.C. Bales. Modeling snow processes on GCM scales. *Eos, Transactions, American Geophysical Union*, 78(46):F204, 1997.
53. A.M. Kramer, R.C. Bales, and M.H. Conklin. GLOBE water quality data in context: A comparative study of volunteer and governmental agency databases. *Eos, Transactions American Geophysical Union*, 79(17):S106, 1998.
52. R.C. Bales and J.R. McConnell. Reducing uncertainty in accumulation trends from shallow cores on the Greenland Ice Sheet. *Eos, Transactions, American Geophysical Union*, 79(17):S79, 1998.
51. R.C. Bales, C.J. Peters, and M.H. Conklin. GLOBE water quality data after two years: An emerging international resource. *Eos, Transactions, American Geophysical Union*, 79(17): S106, 1998.
50. T. Meixner, L.A. Bastidas, H.V. Gupta, and R.C. Bales. Multiobjective sensitivity analysis for the Alpine Hydrochemical Model. *Eos, Transactions, American Geophysical Union*, 78(46): F195, 1997.
49. T. Meixner, A.D. Brown, and R.C. Bales. Modeling of biogeochemistry of two alpine watersheds in the Sierra Nevada, California. *Eos, Transactions, American Geophysical Union*, 78(17): S173-S174, 1997.
48. B.J. Cadle, K. Elder, and R.C. Bales. Spatial distribution of snow in a small headwater basin of the Chilean Andes. *Eos, Transactions, American Geophysical Union*, 78(46):F209, 1997.
47. R.C. Bales. Comparison of accumulation trends in recent centuries in northwest Greenland. *Eos, Transactions, American Geophysical Union*, 78(46):F8, 1997.
46. T. Meixner, R.C. Bales, and A. Brown. Nitrogen cycling in two watersheds in the Sierra Nevada, California. *Chapman Conference on Nitrogen Cycling in Forested Catchments*, in press, 1996.
45. D.W. Cline, R.C. Bales, and J. Dozier. Spatial and temporal characteristics of modeled snow distribution and snowmelt in mountain basins. *Eos, Transactions, American Geophysical Union*, 77(46):F175, 1996.
44. D.W. Cline, R.C. Bales, and J. Dozier. Estimating the spatial distribution of snow in mountain basins using remote sensing and energy balance modeling. *Eos, Transactions, American Geophysical Union*, 77(46):F219, 1996.
43. R. Harrington and R.C. Bales. Observations and modeling of meltwater and solute release in a seasonal snowpack. *Eos, Transactions, American Geophysical Union*, 77(46):F197, 1996.
42. D.G. Jewett, B.E. Logan, R.G. Arnold, and R.C. Bales. Bacterial transport through unsaturated quartz sand and the effects of ionic strength and surfactant addition. *Eos, Transactions, American Geophysical Union*, 77(46):F210, 1996.
41. M. Anklin and R.C. Bales. Hydrogen peroxide and ammonium in recent shallow cores from Greenland. *Eos, Transactions, American Geophysical Union*, 77(46):F427, 1996.
40. J.R. McConnell, A.M. Thompson, and R.C. Bales. Surface snow as a proxy for atmospheric hydrogen peroxide at South Pole. *Eos, Transactions, American Geophysical Union*, 77(17):S156, 1996.
39. M. Anklin, R.C. Bales, E. Mosley-Thompson, and K. Steffen. Variability of accumulation rates in two Greenland firn and ice cores using multiple independent parameters. *Eos, Transactions, American Geophysical Union*, 77(17):S150, 1996.
38. J.R. Winterle, J.R. McConnell, and R.C. Bales. Use of snow column experiments to obtain model parameters in the investigation of snow-atmosphere exchange of reversibly deposited chemical species. *Eos, Transactions, American Geophysical Union*, 77(17):S156, 1996.
37. D.E. Thresher, R.C. Bales, and K.K. Hirschboeck. Interactive computer exercises in a general education global change class. *Eos, Transactions, American Geophysical Union*, 76(46):F57, 1995.
36. D.G. Jewett, B.E. Logan, R.G. Arnold, and R.C. Bales. Bacterial transport through variably saturated quartz sand columns. *Geological Society of America*, 108th Annual Meeting, New Orleans, LA:A-103, 1995.
35. R.C. Bales, M.V. Losleben, M.H. Conklin, K. Fuhrer, and A. Neftel. Atmosphere-snow exchange of H₂O₂: transfer function for interpreting ice-core records. *Eos, Transactions, American Geophysical Union*, 74:89, 1993.
34. J. Dozier, K.A. Tonnessen, and R.C. Bales. Snow hydrology and hydrochemistry in mountainous basins. *Eos, Transactions, American Geophysical Union*, 74(43S):237, 1993.
33. R.F. Harrington and R.C. Bales. Spatial variability of snowmelt and ion release from a seasonal snowpack at Mammoth Mountain, California. *Eos, Transactions, American Geophysical Union*, 74(43S):248, 1993.
32. N. Ohte, R.C. Bales, and R.A. Wolford. Multi-parametric sensitivity analysis and optimization of the alpine hydrochemical model. *Eos, Transactions, American Geophysical Union*, 74(43S): 316-317, 1993.
31. R.C. Bales and D.R. McCaulou. Transport of a deep subsurface bacterium through saturated sediment - effects of temperature and motility. *American Society of Microbiology*, 1993.
30. R.A. Wolford and R.C. Bales. Integrated hydrochemical modeling of a sparsely forested alpine watershed. *Eos, Transactions, American Geophysical Union*, 73:192, 1992.
29. M.H. Conklin, R.C. Bales, A. Sigg, and A. Neftel. Atmosphere-snow transfer function for H₂O₂: Microphysical considerations. *Eos, Transactions, American Geophysical Union*, 73:91-92, 1992.
28. D.J. Moore, T.-C.J. Yeh, R.C. Bales, C.P. Gerba, and M.W. Lenczewski. Transport of MS-2 and PRD-1 viruses in a three-dimensional physical aquifer model. *Eos, Transactions, American Geophysical Union*, 73:165-166, 1992.
27. F.M. Laos, M.W. Williams, and R.C. Bales. Physico-chemical processes that determine the

- magnitude of the ionic pulse. *Eos, Transactions, American Geophysical Union*, 73:173, 1992.
26. D.G. Jewett, B.E. Logan, R.G. Arnold, and R.C. Bales. Error analysis of collision efficiency and quantification of column study results. *Eos, Transactions, American Geophysical Union*, 73: 166, 1992.
 25. R. Harrington and R.C. Bales. Laboratory experiments as a model for field-scale variability in water and solute release from melting snow. *Eos, Transactions, American Geophysical Union*, 73: 174, 1992.
 24. R.C. Bales and D.R. McCaulou. Retardation in biocolloid transport: attachment rates, detachment rates and equilibria. *Eos, Transactions, American Geophysical Union*, 73:163, 1992.
 23. J. Mas-Pla, T.-C.J. Yeh, R.C. Bales, J.F. Mc Carthy, and T.M. Williams. Natural organic matter transport simulation in a two-well tracer test. In *Abstracts, 68th Annual Meeting of the Southwestern and Rocky Mountain Division*. American Association for the Advancement of Science, Tucson, AZ, May 18-20.
 22. R.A. Wolford and R.C. Bales. Integrated hydrochemical modeling of an alpine watershed. In *68th Annual Meeting of the Southwestern and Rocky Mountain Division, American Association for the Advancement of Sci.*, Tucson, AZ, May 18-20 1992.
 21. B.E. Logan. Laboratory determination of quantitative descriptions of bacteria and microsphere transport through porous media. In *Abstracts, 68th Annual Meeting of the Southwestern and Rocky Mountain Division*. American Association for the Advancement of Science, Tucson, AZ, May 18-20 1992.
 20. T.L. Corley, B. Hong, M.H. Conklin, and R.C. Bales. Intrapphase and interphase mass transfer of volatile organic contaminants in different sorbent-water-air systems. In *Abstracts, 68th Annual Meeting of the Southwestern and Rocky Mountain Division*. American Association for the Advancement of Science, Tucson, AZ, May 18-20, 1992.
 19. R. Harrington, R. Galarraga-Sanchez, and R.C. Bales. Predicting ionic release from an alpine snowpack using coupled elevation and snow-melt models. In *American Water Resources Association 28th Ann. Confer-ence*, pp. 1-5, Reno, NV, November 1992.
 18. R.C. Bales, R. Galarraga-Sanchez, and K.Elder. Distributed approach to modeling snowmelt runoff in alpine catchments. In *Proc. of the Workshop on the Effects of Global Climate Change on Hydrology and Water Resources at the Catchment Scale*, pp. 207-217. Public Works Research Institute, Tsukuba, Japan, February 1992.
 17. R.C. Bales and M.W. Williams. Meso chemical properties of snowpacks as a function of grain-scale processes. *Eos, Transactions, American Geophysical Union*, 72:190, 1991.
 16. M.H. Conklin and R.C. Bales. Gaseous uptake and release in snow and the chemical properties of the ice-air interface. *Eos, Transactions, American Geophysical Union*, 72:190, 1991.
 15. M.H. Conklin, R.C. Bales, and R.E. Sommerfeld. Modeling dry deposition to snow. In *IAMAP Abstracts, 20th IUGG General Assembly*. Vienna, August 11-24, 1991.
 14. R.C. Bales. Distributed approach to modeling snowmelt runoff and chemistry. Technical Report Sci. Foundations for the Eos Era, University Park, PA, July 22-26 1991.
 13. M.T. Yahya, K.A. Maguire, C.P. Gerba, and R.C. Bales. Transport of viruses through porous media. In *Abstracts of the 91st General Meeting of the American Society for Microbiology*, page 308. 1991.
 12. C. Peterson and R. Bales. Solute flux through melting snow: effects of melt-freeze cycles. *Eos, Transactions, American Geophysical Union*, 71: 1328, 1990.
 11. R. Matzner and R. Bales. The sorption of nitrogen heterocyclic compounds in porous media. *Eos, Transactions, American Geophysical Union*, 71: 1301, 1990.
 10. R. Bales, S.R. Hinkle, T.W. Kroeger, and K. Stocking. Modeling bacteriophage transport through porous media: laboratory experiments with silica beads. *Eos, Transactions, American Geophysical Union*, 71:1324, 1990.
 09. R.C. Bales and R.E. Davis. Distributed approach to modeling the chemical composition of snowmelt runoff. *Eos, Transactions, American Geophysical Union*, 71:879, 1990.
 08. C.P. Gerba, M. Yahya, R. Bales, and S.R. Hinkle. Biocolloid transport in porous media. In *Abstracts, Annual Meeting, Society of Environmental Toxicology and Chemistry*, page 46. Arlington, VA, November 11-15 1990.
 07. R.A. Matzner, P. Poitrat, and R.C. Bales. Sorption of acridine and other hydrophobic organic compounds in column experiments using model surfaces. In *Preprint Extended Abstract, Division of Environmental Chemistry, American Chemical Society Conference*, pp. 353-354. Boston, MA, April 22-27 1990.
 06. R.A. Wolford and R.C. Bales. Application of process-level chemical data in hydrochemical modeling: Emerald-lake watershed, Sequoia National Park, California. In *Preprint Extended Abstract, Division of Environmental Chemistry, American Chemical Society Conference*, pp. 190-193. Boston, MA, April 22-27 1990.
 05. M. Yahya, K. Maguire, C.P. Gerba, and R. Bales. Bacteriophage transport through porous media: effects of pH and hydrophobicity. *Eos, Transactions, American Geophysical Union*, 71:1326, 1990.
 04. R. Davis and R. Bales. Estimating water flow through snow for models of the chemical composition of snowmelt runoff. *Eos, Transactions, American Geophysical Union*, 70:1108, 1989.

03. A. Mast, R. Bales, and R. Sommerfeld. Ionic tracer movement through a Wyoming snowpack. *Eos, Transactions, American Geophysical Union*, 70: 1117, 1989.
02. point estimates versus stream chemistry. *Eos, Transactions, American Geophysical Union*, 70: 1125, 1989.
01. R.A. Wolford, S. Sorooshian, R.C. Bales, and V.K. Gupta. A hydrochemical and water balance model for Emerald Lake watershed, Sierra Nevada, California. *Eos, Transactions, American Geophysical Union*, 69:1199, 1988.

Ph.D. DISSERTATIONS SUPERVISED

21. P. Saksa. Forest management, wildfire, and climate impacts on the hydrology of Sierra Nevada mixed-conifer watersheds. . Environmental Systems Graduate Group, University of California, Merced. CA, 2015, 220 pp.
20. B. Harrison. Skill evaluation of water supply forecasts in western Sierra Nevada and Colorado River basins. Environmental Systems Graduate Group, University of California, Merced. CA, 2015, 243 pp.
19. S. Masclin, Contribution of sources and sinks to the photochemistry of the present and past atmosphere of West Antarctica based on air, snow and ice-core records. Environmental Systems Graduate Group, University of California, Merced. CA, 2014, 141 pp.
18. P. Kirchner. *Snow Distribution over an Elevation Gradient and Forest Snow Hydrology of The Southern Sierra Nevada, California*. Environmental Systems Graduate Group, University of California, Merced. CA, 2014, 192 pp.
17. B. Kerkez. A Cyberinfrastructure for the Measurement and Estimation of Large-Scale Hydrologic processes. Department of Civil and Environmental Engineering, University of California, Berkeley, CA, 2012, 117 pp.
16. M. Frey. *Hydrogen peroxide and formaldehyde in West Antarctic Atmospheres and ice*, Ph.D. Dissertation, Department of Hydrology and Water Resources, University of Arizona, Tucson, AZ, 2006.
15. K. Dressler. *Estimating the Spatial Distribution of Snow Water Equivalent and Simulated Snowmelt Runoff Modeling in Headwater Basins of the Semi-Arid Southwest*, Ph.D. Dissertation, Department of Hydrology & Water Resources, University of Arizona, Tucson, AZ, 2005.
14. J. Burkhart. *Variability of Nitrogen Deposition and Preservation over the Greenland Ice Sheet*, Ph.D. Dissertation , Department of Hydrology and Water Resources, University of Arizona, Tucson, AZ, 2005.
13. N. Molotch. *Estimating the spatial distribution of snow water equivalent and snowmelt in mountainous watersheds of semi-arid regions*. Department of Hydrology and Water Resources, University of Arizona, Tucson, AZ, 2003 210 p.
12. A.M. Kramer-Huth. *Geochemical and isotopic mixing models: two case studies in a snow-*

- dominated and semi-arid environment* Ph.D. Dissertation, Department of Hydrology and Water Resources, University of Arizona, Tucson, AZ, 2003.
11. T. Meixner. *Alpine biogeochemical modeling: case studies, improvements, and parameter estimation*. Department of Hydrology and Water Resources, University of Arizona, Tucson, AZ, 1999. 246 p.
10. J.R. McConnell. *Investigation of the atmosphere-snow transfer process for hydrogen peroxide*. Ph.D. Dissertation, Department of Hydrology and Water Resources, University of Arizona, Tucson, AZ, 1997. 95 p.
09. R. Harrington. *The release of meltwater and ionic solute from melting snow*. Ph.D. Dissertation, University of Arizona, Tucson, AZ, 1997. 216 p.
08. R.H. Galarraga-Sanchez. *Scale effects in determining snowmelt from mountainous basins using a distributed approach for snow water equivalence and radiation, and a point snowmelt model*. Ph.D. Dissertation, Department of Hydrology and Water Resources, University of Arizona, Tucson, AZ, 1995. 240 p.
07. S. Li. *Modeling biocolloid transport in saturated porous media*. Ph.D. Dissertation, Department of Hydrology and Water Resources, University of Arizona, Tucson, AZ 1993. 177 p.
06. R.A. Matzner. *Characterization of aza-arene transport in saturated porous media*. Ph.D. Dissertation, Department of Hydrology and Water Resources, University of Arizona, Tucson, AZ, 1993. 218 p.
05. R.A. Wolford. *Integrated hydrogeochemical modeling of an alpine watershed: Sierra Nevada, California*. Ph.D. Dissertation, Department of Hydrology and Water Resources, University of Arizona, Tucson, AZ, 1992. 671 p.
04. Z.K. Chowdhury. *Coagulation of submicron colloids in water treatment*. Ph.D. Dissertation, Department of Civil Engineering and Engineering Mechanics, University of Arizona, Tucson, AZ, 1988. 249 p.
03. D.L. Pardieck. *Biodegradation of phenols in aquatic culture by soil-derived microorganisms, with reference to their fate in the subsurface*. Ph.D. Dissertation, Department of Hydrology and Water Resources, University of Arizona, Tucson, AZ, 1988, 215 p.
02. J.E. Szecsody. *Sorption kinetics of hydrophobic organic compounds on organic modified surfaces*. Ph.D. Dissertation, Department of Hydrology and Water Resources, University of Arizona, Tucson, AZ, 1988. 256 p.
01. M.P. Valdez. *The incorporation of sulfur dioxide into snow and depositing ice*. Ph.D. Dissertation, Department of Hydrology and Water Resources, University of Arizona, Tucson, AZ, 1988. 172 p.

MASTERS THESES SUPERVISED

32. M. Pickard. Influence of within-stand tree spatial arrangement on snowpack distribution and ablation in the Sierra Nevada, CA. Master's thesis,

- Environmental Systems graduate Group, UC Merced, 2015, 78 pp.
31. Stephen Welch. Sensor placement strategies for SWE estimation in the American River basin, Master's thesis, Department of Civil and Environmental Engineering, University of California, Berkeley, CA, 2012.
 30. S. Martin. Erosion in Southern Sierra Nevada headwater catchments, Master's thesis, Environmental Systems graduate Group, UC Merced, 2009.
 29. C. Peters. *Hydrologic Resource Assessment of Upper Sabino Creek Basin, Pima County, Arizona*. Master's thesis, Department of Hydrology and Water Resources, University of Arizona, Tucson, AZ, 2000.
 28. J. Clemmons. *A comparison of water quality methods and data: Globe Program vs. United States Geological Survey*. Master's thesis, Department of Hydrology and Water Resources, University of Arizona, Tucson, AZ, 2000. 124p.
 27. J.F. Burkhart *Sorption behavior of formaldehyde to ice grains*. Master's thesis, Department of Hydrology and Water Resources, University of Arizona, Tucson, AZ, 2000. 51 p.
 26. A.M. Kramer. *GLOBE water quality data in context: A comparative study of volunteer and governmental agency databases*. Master's thesis, Department of Hydrology and Water Resources, University of Arizona, Tucson, AZ, 1998. 107 p.
 25. B.D. Wolaver. *Comparison of snow distribution methods in the Echaurren Basin, Chilean Andes*. Master's thesis, Department of Hydrology and Water Resources, University of Arizona, Tucson, AZ, 1999.
 24. J.A. Rohrbough. *Spatial variability of snow chemistry in a seasonal snowpack, Southeastern Wyoming*. Master's thesis, Department of Hydrology and Water Resources, University of Arizona, Tucson, AZ, 1998. 181 p.
 23. J.R. Shaw. *Modeling of silicate mineral weathering reactions in an alpine basin of the southern Sierra Nevada, California*. Master's thesis, Department of Hydrology and Water Resources, University of Arizona, Tucson, AZ, 1997. 145 p.
 22. B.J. Cadle. *Application of snow distribution models within the Laguna Negra basin, Chile*. Master's thesis, Department of Hydrology and Water Resources, University of Arizona, Tucson, AZ, 1996. 166 p.
 21. J.R. Winterle. *Sorption kinetics of H₂O₂ to snow grains*. Master's thesis, Department of Hydrology and Water Resources, University of Arizona, Tucson, AZ, 1996.
 20. S.M. Carroll. *Evaluation of virus removal by sandy soils during soil-aquifer treatment using indigenous bacteriophage as indicator organisms*. Master's thesis, Department of Hydrology and Water Resources, University of Arizona, Tucson, AZ, 1996. 110 p.
 19. D. McCaulou. *Bacteria transport through soil columns*. Master's thesis, Department of Hydrology and Water Resources, University of Arizona, Tucson, AZ, 1993, 114 p.
 18. T. Kinoshita. *Effects of pH and hydrophobicity on the transport of viruses and bacteria in saturated media*. Master's thesis, Department of Hydrology and Water Resources, University of Arizona, Tucson, AZ, 1991. 114 p.
 17. C.E. Petersen. *Ion flux through a shallow snowpack: effects of initial and melt conditions*. Master's thesis, Department of Hydrology and Water Resources, University of Arizona, Tucson, AZ, 1990. 90 p.
 16. S. Hinkle. *Modeling colloid transport in saturated porous media*. Master's thesis, Department of Hydrology and Water Resources, University of Arizona, Tucson, AZ, 1990. 68 p.
 15. J.G. Van de Water, *Physical and Chemical Processes affecting Forced Ventilation of Benzene and p-Zylene in a Desert Soil*, Master's thesis, Department of Hydrology and Water Resources, University of Arizona, Tucson, AZ, 1989.
 14. K. Stocking. *Adsorption of MS-2 bacteriophage to silica*. Master's thesis, Department of Hydrology and Water Resources, University of Arizona, Tucson, AZ, 1989. 91 p.
 13. K.G. Pill, *The Use of a Multiparameter Bacterial Aquatic Toxicity Test*, Master's thesis, Department of Hydrology and Water Resources, University of Arizona, Tucson, AZ, 1989.
 12. E. E. Hopkins, *Characterization of the Dissolution of Hornblende with Application to Natural Waters*, Master's thesis, Department of Hydrology and Water Resources, University of Arizona, Tucson, AZ, 1989.
 11. D. Hunter. *Influence of pH and counterion concentration on the sorption of acridine to unbonded silica*. Master's thesis, Department of Hydrology and Water Resources, University of Arizona, Tucson, AZ, 1989. 100 p.
 10. T. W. Kroeger. *Hydrophobic partitioning of the bacteriophage MS-2*. Master's thesis, Department of Hydrology and Water Resources, University of Arizona, Tucson, AZ, 1989. 104 p.
 09. P.A. Noppe. *Nitrogen cycling at Emerald-Lake Watershed, Sequoia National Park*. Master's thesis, Department of Hydrology and Water Resources, University of Arizona, Tucson, AZ, 1989. 170 p.
 08. J. H. Davis, *Sorption and Desorption of Benzene and p-Xylene on an Unsaturated Desert Soil*, Master's thesis, Department of Hydrology and Water Resources, University of Arizona, Tucson, AZ, 1989.
 07. G.E. Kupillas, *Development and Investigation of a Multiparameter Microbial Toxicity Test Using the Bacterium *Salmonella Typhimurium**, Master's thesis, Department of Hydrology and Water Resources, University of Arizona, Tucson, AZ, 1988.
 06. D.G. Kebler. *Coagulation of submicron colloids by supramicron silica particles*. Master's thesis,

Department of Hydrology and Water Resources, University of Arizona, Tucson, AZ, 1988. 98 p.

05. P.W. Lawson. *Sorption of fulvic acid on aluminum oxide and desert soil*. Master's thesis, Department of Hydrology and Water Resources, University of Arizona, Tucson, AZ, 1988. 117 p.
04. K.L. McClellan. *Biodegradation of trichloroethylene by bacteria indigenous to a contaminated site*. Department of Hydrology and Water Resources, University of Arizona, Tucson, AZ, 1987. 75 p.
03. D.A. Stanley. *Atmospheric and aqueous flux of sulfur in snow*. Master's thesis, Department of Hydrology and Water Resources, University of Arizona, Tucson, AZ, 1987. 112 p.
02. T.W. Whitehead. *Sorption and desorption of volatile alkyl halides in a desert soil*. Master's thesis, Department of Hydrology and Water Resources, University of Arizona, Tucson, AZ, 1987. 117 p.
01. A. Klein. *Sorption reactions of 1,4-Dichlorobenzene in low organic carbon soils*. Master's thesis, Department of Hydrology and Water Resources, University of Arizona, Tucson, AZ, 1986. 107 p.

CURRENT STUDENTS

Ph.D. Jim Roche, Zeshi Zeng.
Ph.D. co-direct. Sarah Martin, Ziran Zhang, Carlos Oroza.

POSTDOCTORAL RESEARCHERS

Prior. M. Anklin, R. Banta, C. Brown-Mitic, J. Burkhart, D. W. Cline, S. R. Fassnacht, R. Ghanbari, M. Glueck, M. Hutterli, H. W. Jacobi, F. Liu, J. Morrill, R. Ray, D. Rheinheimer, R. Rice, A. Seth, D. Shen, B. Tobin.
Current. none

COURSES TAUGHT

University of California, Berkeley

Graduate Level: Water Resources.

University of California, Merced

Lower Division: Service Learning; Freshman Seminar (global change)

Upper Division: Hydrology and Climate, Engineering Economics.

Upper Division/Graduate Level: Field Methods in Snow Hydrology, Mountain Hydrology,

Graduate Level: Water Resources.

University of Arizona

Lower Division: Introduction to Global Change; Water and the Environment.

Upper Division: Principles of Water Quality; Environmental Hydrology.

Graduate Level: Topics in Semi-Arid Hydrology; Global Biogeochemical Cycles; Water Quality Dynamics; Pollutants in the Hydrologic Environment; Sorption Phenomena; Aquatic Chemistry of Surfaces; Water Quality Planning and Policy; Physical Oceanography and Limnology for Hydrologists; Computational

Methods in EOS Hydrology, Hydrology and Climate.

Short Course: Chemical Behavior of Organic Contaminants. 40-hr course for professional hydrologists.

RESEARCH GRANTS

Current grants

06. UCOP, Water security and sustainability research initiative (PI) 1/15-12/18 (collaborative research, 5 Co-I's) \$3,529,749.
05. EPIC-CEC, Improving hydrological snowpack forecasting for hydropower generation using intelligent information systems (co-PI), \$499,060
04. NSF. Southern Sierra Critical Zone Observatory: (PI) 10/13-9/18 (collaborative research, 6 Co-I's) \$4,900,000.
03. UC-ANR. Effect of forest management on water yields and other ecosystem services in Sierra Nevada forests (collaborator) 1/12-12/15, \$599,500 (Bales budget)
02. NSF. Development of a Basin-scale Water-balance Instrument Cluster for Hydrologic, Atmospheric and Ecosystem Science (PI) 7/11-6/15, \$1,995,156.
01. USDA. Variable thinning using historical stand structure data to create fire-resilient forests and enhance ecosystem services in a changing climate (Co-PI) 6/12-5/15, \$222,195

Completed grants

76. CA-DWR and USFS. Sierra Nevada adaptive management project (Co-PI) 9/07-12/15, \$1,500,000.
75. NSF, Continued core measurements at Summit, Greenland Environmental Observatory. 09/09-08/14, (Co-PI. collaborative with DRI), \$500,000 UCM budget.
74. NSF. Critical Zone Observatory: Snowline processes in the southern Sierra Nevada (PI) 8/07-9/13 (collaborative research, 6 Co-I's) \$5,250,000.
73. NPS. Vulnerability of sequoia groves to moisture stress under a changing climate (Co-PI) 9/11-1/13, \$37,078 (Bales budget)
72. NPS. SEKI natural resources condition assessment. (PI) 4/11-7/12, \$14,375.
71. NPS. An assessment of snowcover in major river basins of the Sierra Nevada Network parks and potential approaches for long-term monitoring (PI) 9/09-11/11, \$17,639.
70. NSF. Atmospheric, snow & firn chemistry studies for interpretation of WAIS-divide cores (Co-I) 9/07-8/12, \$341,344.
69. NSF. Sierra Nevada Research Institute Informatics and Data Visualization Center in Yosemite National Park (Co-PI) 01/10-12/11, \$411,000.
68. CA-DWR. Water and climate measurement program, (PI) 1/10-12/11, \$300,000.
67. CA-SNC. Sierra Nevada Watershed Ecosystem enhancement Program (PI) 5/08-11/11, \$47,847.

66. NSF. Science coordination office for Summit, Greenland Environmental Observatory (PI. collaborative project with UNH), 8/05-7/11, \$480,511 Bales budget.
65. NSF, Core measurements at Summit, Greenland Environmental Observatory. 09/03-02/10, (PI. collaborative with DRI and UC Davis), \$939,126 total budget.
64. NSF. Development of a multi-axis differential optical absorption spectrometer for measurements of trace gases in the polar troposphere (PI. 1 Co-PI, at UCLA), 8/04-7/09, \$484,651 total budget.
63. NSF. Science planning for WATER and environmental research system network (PI) 5/08-8/09, \$56,280.
62. NASA. Multi-resolution snow products for the hydrologic sciences (Co-PI. subcontract from UCSB) 03/05-12/09, \$704,195 Bales budget.
61. NSF. Science and Technology Center for Sustainability of Semi-Arid Hydrology and Riparian Areas, (Co-PI and deputy director on renewal; stepped aside upon leaving Arizona), 1/05-12/09, \$17,000,000 total budget, \$300,000 UCM budget.
60. NSF. Technician Support: Phase I: A Multi-purpose Environmental Analytical Laboratory at UC Merced (Co-PI) 12/05-05-10, \$149,986.
59. NSF. Observatory Design in the Mountain West: Scaling Measurements and Modeling in the San Joaquin Valley and Sierra Nevada (PI), 8/06-7/10, \$194,727.
58. NSF. Development of a Water-Balance Instrument Cluster for Mountain Hydrology, Biochemistry and Ecosystem Science (PI) 8/06-7/10, \$578,171.
57. LLNL. Integrated measurements and modeling of Sierra Nevada water balance (PI), 2/06-5/08, \$99,993.
56. USDA Forest Service. Sierra Nevada Adaptive Management (PI for UCM sub, 2-Co-PI's; collaborative research with UC Berkeley), 7/05-9/07, \$81,272.
55. NASA. Variability of ice sheet elevation and mass balance at regional spatial scales (Co-PI, collaborative research with DRI) 1/03-12/05, \$212,976 Bales budget.
54. NSF. Hydrologic investigations within the GLOBE program, (Co-PI) 8/02-7/08, \$424,000.
53. NSF. Antarctic Troposphere Chemistry Investigation (ANTCI) (Co-PI; collaborative research with 16 others), 03/03-03/05, \$105,880 Bales budget.
52. NSF. Record of atmospheric photochemistry at South Pole (PI. collaborative research with DRI), 01/00-12/04, \$166,233 Bales budget.
51. NSF. Impact of Snow Photochemistry on Atmospheric Radical Concentrations at Summit, Greenland (Co-PI; collaborative research with 10 others), 09/02-09/05, \$220,109 Bales budget.
50. NSF. Science coordination office for Summit, Greenland Environmental Observatory (PI. collaborative project with UNH), 1/00-12/05, \$292,137 Bales budget.
49. NSF. Hydrogen peroxide, formaldehyde, and sub-annual snow accumulation in West Antarctica: participation in the West Antarctic traverse (PI. collaborative research with DRI), 1/99-12/04, \$295,000 total budget.
48. NSF. Greenland ice sheet accumulation variability, 8/02-12/04 (PI), \$97,899.
47. NOAA. Variability, social vulnerability, and public policy in the Southwestern U.S. (PI until 2003; 10 Co-PI's), 6/02-7/07, \$5,000,000 total budget, \$300,000 Bales budget.
46. NSF. Science and Technology Center for Sustainability of Semi-Arid Hydrology and Riparian Areas. (Co-PI & deputy director; stepped aside upon leaving Arizona), 1/00-12/04, \$16,000,000.
45. NASA. Applications of remotely sensed land-surface data for seasonal and long-term hydroclimate predictions (Co-PI; collaborative research with UCLA & LBL), 06/02-12/04, \$153,115 Bales budget.
44. Raytheon. Synergy II Partnership to Demonstrate the Use of EOS Data and EOS-DIS in the Public Interest (one of 3 Co-PI's), 1/01-2/03, \$1,200,000.
43. NASA. Southwest Regional Earth Science Applications Center (PI. 5 Co-PI's), 2/99-12/02, \$1,500,000.
42. NSF. Development of a high-resolution continuous flow analysis system (PI), 6/01-12/02, \$113,685.
41. NSF. Hydrologic investigations within the GLOBE program (PI. 3 Co-PI's), 6/98-8/02, \$723,017.
40. NSF. Snow-atmosphere transfer function for reversibly deposited species in West Antarctica (PI) 6/98-7/03, \$345,000.
39. NSF. Current Relationships between air and snow chemistry in winter at Summit, Greenland (Co-PI. collaborative research with UNH). 11/98-6/02, \$90,000 Bales budget.
38. NOAA. Variability, Social Vulnerability, and Public Policy in the Southwestern U.S. (PI. 6 Co-PI's), 2/98-5/02, \$1,611,571.
37. NASA. Analysis of Ice Cores for Estimating Annual Accumulation in Greenland. (PI. 1 Co-PI), 1/98-12/01, \$365,000.
36. NSF. Transfer function for photochemically produced chemical species in Greenland snow, firn and ice (PI), 1/99-12/01, \$270,000.
35. NASA: Hydrology, Hydrochemical Modeling and Remote Sensing in Seasonally Snow-Covered Alpine Drainage Basins (Co-PI. subcontract from UCSB), 01/91-12/00, \$900,000 Bales budget.
34. NSF. Collaborative Research, Biochemical and hydrologic controls on solutes and flowpaths in alpine watersheds (PI) 9/95-8/99, \$72,000.
33. NSF. General education course development for earth system science and global change (PI) 4/95-1/99, \$100,001.
32. NSF. Relationships between air and snow chemistry in winter at Summit, Greenland (PI) 9/96-6/00, \$19,404.
31. NSF. Snow-Atmosphere Transfer Function for Reversibly Deposited Chemical Species (PI), \$268,054. 7/93-12/96.

30. NSF. Distribution of Reactive Chemical Species in Snow and Ice (PI), \$190,000 7/92-12/94.
29. NSF. Modeling Snowmelt Runoff and Chemistry in Alpine Basins (PI) \$191,337. 1/93-1/96.
28. NSF. Scientific Basis for Modeling Snow Distribution and Melt in Alpine Catchments of the Chilean Andes (PI) \$22,308. May 1994 to April 1996
27. NSF. Modeling snowmelt runoff and chemistry in alpine basins of the Sierra Nevada (PI) 8/93-6/98, \$30,837.
26. NIEHS. Effect of Cosolutes on Hydrophobic Contaminant Transport (PI) 4 / 92-3/95, \$452,800.
25. NIEHS. Subsurface Transport of Biocolloids (Co-I) 3/92-3/95, \$360,000.
24. NSF. Undergraduate Laboratory Improvement for Earth System Science and Global Change (PI) 6 / 93 to 12/95, \$33,215.
23. NATO. Snow- Atmosphere Transfer Exchange of Chemical Species, Reversibly Deposited to Snow (PI) 10/93- 10 / 94, \$7,000.
22. USDOE. Transport of Subsurface Biocolloids in Porous Media (PI) 8/91-8/94, \$292,835.
21. NSF. Solute Transport in Seasonal Snowpacks. (PI) 1 / 91 - 12 / 93 , \$236,802.
20. USEPA. Microscale Kinetic Effects and the Subsurface Transport of Volatile Contaminants (PI) 10/90-9/93, \$218,963.
19. USEPA. Delineation of Wellhead Protection Zones: Considerations of Virus and Bacteria Transport (PI) 9 / 9 1 - 9 / 9 3 , \$199,447.
18. NSF. Workshop on Processes of Snow- Atmosphere Chemical Exchange (PI) 2 / 9 2 - 8 / 9 3 , \$13,690.
17. USFS. Development and Application of Snowmelt Modeling for GLEES (PI) 9/91-12/93, \$25,000.
16. Arizona WRRRC. Underground Fate and Transport of Microorganisms (PI), 6 / 9 0 - 5 / 9 2 , \$66,735.
15. NASA. Hydrology, Hydrochemical Modeling and Remote Sensing in Seasonally Snow-Covered Alpine Drainage Basins (Co-I), 7/89-12/90, \$21,000.
14. NIEHS. Subsurface Transport of Biocolloids (PI) 3/90-3/92, \$193,947.
13. NIEHS. Effect of Cosolutes on Hydrophobic Contaminant Transport (PI) 3/90-3/92, \$220,205.
12. USEPA. Sorption and Partitioning of Hydrophobic Ionizable Organic Compounds (PI) 6/97-6/90, \$256,803.
11. USGS. Surface-Chemical Factors Affecting Transport of Bio-colloids in Subsurface Media (PI) 9/87-6/90, \$128,873.
10. Calif ARB. Development of Watershed Models for Emerald Lake Watershed for Sequoia National Park and for Other Lakes of the Sierra Nevada (PI) 6/87-5/89, \$150,000.
09. USFS. The Transport of Tracer Pollutants through a Layer of Natural Snow Melting in a Controlled Environment (PI) 5/88-5/89, \$18,000.
08. USFS. SO₂ Fumigation of Natural Snow in a Controlled Environment (PI) 3/88-5/88, \$5,000.
07. Salt River Project, Subsurface Removal of Volatile Organic Compounds Using Forced Ventilation (PI) 8/87-9/88, \$45,330.
06. ACS PRF. Effect of Binding Mechanisms on Sorption Kinetics (PI) 9/85-8/87, \$15,000.
05. NSF. Kinetics of Sorption Reactions in Groundwater, (PI) 6/85-12/87, \$64,880.
04. USEPA. Coagulation and Nucleation of Submicron Particles (PI) 6/85-12/87, \$94,305.
03. Motorola, Inc. Physicochemical and Biological Factors Affecting the Feasibility of Cleanup Measures in Contaminated Sediments (PI) 6/85-9/86, \$48,204. 6/85-6/86.
02. Federal Water Resources Research Program, Biodegradation of Organic Contaminants in Groundwater (PI) 5/85-6/87, \$21,316.
01. USFS, Fumigation of Snow with SO₂ and NO₂ (PI) 4/85-6/86, \$60,000.

RECENT TALKS

Academic talks (invited)

- April, 2015. "*Opportunities: Drought Early Warning, Panel*, California Drought Chapman Conference, Irvine, CA. R. Bales.
- April, 2014, "Mountain Hydrology, Forest Management and Water Security in the Sierra Nevada", Keynote talk at Hydrologic Sciences Annual Research Symposium, University of Colorado, Boulder. Bales, R.C.
- March, 2014, "Mountain Hydrology, Forest Management and Water Security in the Sierra Nevada", Water Resources Research Seminar, Stanford University, Palo Alto, Bales, R.C.
- March, 2014, "Can Forest Management to reduce fire risk in the high Sierra result in more stream-flow at the mountain front?", 2014 Research Symposium, Sierra Nevada Research Institute, University of California, Merced. Bales, R.C.
- May, 2013, "Water information, water security & climate change in the Sierra Nevada", Seminar series, University of California, UC Sacramento Center. Bales, R.C.
- March, 2013, "How better information can transform water management in California", Center for Information Technology Research in the Interest of Society Seminar, University of California, Berkeley. Bales, R.C. See also <https://www.youtube.com/watch?v=OkqQ-otG86Q>.
- January, 2013, "Visualizing the Environment", Data Innovation Day, Center for Information Technology Research in the Interest of Society, Berkeley. Bales, R.C. See also <https://www.youtube.com/watch?v=WYq2bU1u0hw&list=PLYTiwx6hV33tm98-qoxxhKwY2N-jEXr4X&index=13>.
- January, 2012, "Snowpack, climate change & water balance in a Sierra-Nevada forest", Seminar, California Institute of Technology, Pasadena, CA. Bales, R.C.
- March, 2011, "The California mountain water cycle:

- knowns & unknowns", Regional meeting, National Academy of Engineering (NAE), UC Berkeley, CA. Bales, R.C.
- January, 2011, "Water & biogeochemical responses to seasonal-to-inter-annual changes across the rain-snow transition in the Southern Sierra Nevada", University Seminar, Global Change and Ecosystem Center, University of Utah, UT. Bales, R.C.
- January, 2011, "Snowpack, soil moisture & water balance across the rain-snow transition in a Sierra-Nevada mixed-conifer forest", Departmental seminar, Ecosystem Sciences, Department of Environmental Science, Policy and Management, UC Berkeley, CA. Bales, R.C.
- January, 2011, "Sierra Nevada snowpack, climate change & water management", Departmental seminar, Department of Environmental Science Policy and Management, UC Berkeley, CA. Bales, R.C.
- November, 2009, "Southern Sierra Critical Zone Observatory Research", Seminar presented at UC Davis, Hydrology Seminar Series, University of California, Davis. Bales, R.C.
- April, 2009, "Critical Zone Observatories", Briefing for NSF Assistant Directors & Staff, NSF, Arlington, VA. Bales, R.C.
- April, 2008, "Sierra Nevada snowcover patterns & watershed processes", Seminar, Oregon State University, Corvallis, OR. Bales, R.C.
- September, 2007, "Snowcover patterns in the Sierra Nevada from blended satellite & ground-based networks", CITRIS seminar series, Center for Information Technology Research in the Interest of Society, Berkeley, CA, USA. Bales, R.C.
- November, 2006, "Sierra Nevada/San Joaquin (CA) Test Bed", Water and Environmental Research Systems Network meeting, Austin, TX. Bales, R.C.
- May, 2006, "Challenges & opportunities: water resources measurement & information systems", Talk presented at CITRIS Corporate Sponsor Day, UC Berkeley, Center for Information Technology Research in the Interest of Society, Berkeley, CA. Bales, R.C.
- November, 2004, "Mountain hydrology of the semi-arid western U.S.", Consortium of Universities for the Advancement of Hydrologic Science, Inc., cyberseminar. Bales, R.C.
- November, 2004, "Integrating satellite & ground-based measurements for modeling Sierra Nevada snowmelt", Seminar presented at UC Berkeley, Civil & Environmental Engineering, University of California, Berkeley, Bales, R.C.
- October, 2004, "Snow hydrology: remote sensing, ground measurements, modeling & applications", Seminar presented at UC Santa Cruz, Earth System Science, University of California, Santa Cruz, Bales, R.C.
- April, 2004, "Mountain Hydrology Research", Seminar presented at UC Davis, Hydrology Seminar Series, University of California, Davis. Bales, R.C.
- August, 2014. "Wolverton basin and Kings River research summary," Sequoia National Park. R. Bales.
- April, 2014, "Southern Sierra CZO Whats new? Whats critical? Whats exciting?", Annual Meeting, National Science Foundation, Critical Zone Observatory Network, Charlotte, NC. Bales, R.C.
- September, 2013, "Southern Sierra CZO update", Critical Zone Observatory Annual Meeting, National Science Foundation, Arlington, VA. Bales, R.C.
- October, 2012, "Impact of strategic fuel treatments on water quality and quantity", Sierra Nevada Adaptive Management Project (SNAMP) annual science meeting, Marin Headlands. Bales, R.C., Conklin, M. H., Womble, P., Saksa, P., Martin, S.
- May, 2012, "Southern Sierra CZO update", Critical Zone Observatory Annual Meeting, National Science Foundation, San Juan, PR. Bales, R.C.
- February, 2012, "Water supplies from mountains", Workshop, IBM Almaden Research Center, San Jose, CA. Bales, R.C.
- May, 2012, "CZO's & water security: Western U.S. lessons & global implications", Belmont Forum briefing, National Science Foundation, Arlington, VA. Bales, R.C.
- September, 2011, "Investigation of Boundary Layer Photochemistry at the WAIS-Divide site through measurement of major photochemically active species in snow and air", WAIS Divide annual meeting, National Science Foundation, La Jolla, CA. Masclin, S., Frey, M., Rogge, W. F., Bales, R.C.
- September, 2010, "Water balance, nutrient cycling and weathering across the rain-snow transition", Critical Zone Observatory, national meeting, NSF, Boulder, CO. Bales, R.C.
- September, 2010, "Impact of strategic fuel treatments on water quality and quantity", Sierra Nevada Adaptive Management Project (SNAMP) annual science meeting, Marin Headlands. Bales, R.C., Conklin, M. H., Womble, P., Saksa, P., Martin, S.
- September, 2010, "Investigation of Boundary Layer Photochemistry at the WAIS-Divide", WAIS Divide annual meeting, National Science Foundation, La Jolla, CA. Masclin, S., Frey, M., Rogge, W. F., Bales, R.C.
- June, 2010, "Water", UC Natural Resources Continuing Conference, UC Division of Agriculture and Natural Resources, Sacramento. Bales, R.C.
- October, 2009, "First measurements of Nitric Oxide (NO) and Ozone (O3) at the WAIS-Divide site", WAIS Divide annual meeting, National Science Foundation, La Jolla, CA. Masclin, S., Frey, M., Rogge, W. F., Bales, R.C.
- September, 2009, "Hydrology, ecology, biogeochemistry and weathering across the rain-snow transition", Critical Zone Observatory, national meeting, NSF, Penn State University, PA. Bales, R.C.
- September, 2009, "Impact of strategic fuel treatments on water quality and quantity", Sierra Nevada Adaptive Management Project (SNAMP) annual

Academic workshops (by invitation)

science meeting, Sausalito, CA. Bales, R.C., Conklin, M. H., Saksa, P., Martin, S.

April, 2009, "Status of NEON in California", Briefing, Multi-campus meeting, University of California, Berkeley, Berkeley, CA, USA. Bales, R.C.

September, 2008, "Southern Sierra CZO", Critical Zone Observatory, national meeting, NSF, Shaver Lake, CA. Bales, R.C.

April, 2008, "California water, mountain hydrology, & UC Merced", UC-WRRC synthesis Meeting, Woodlake, CA. Bales, R.C.

October, 2007, "Project Planning for Atmospheric Chemistry", WAIS Divide annual meeting, National Science Foundation. Lake, Tahoe, CA. Bales, R.C., Rogge, W.F.

January, 2007, "Update on Greenland accumulation & climate connections", NASA Program for Arctic Regional Climate assessment meeting, Pasadena, CA. Bales, R.C.

October, 2006, "Understanding the Streamflow Generation Using a Hydrologic Model and Remote Sensing in Headwaters of the Upper Rio Grande", 6th annual meeting, Center for Sustainability of semi-Arid hydrology & riparian Areas. Bales, R.C.

April, 2006, "Mountain hydroclimatology & biogeochemistry research & education at UC Merced", Workshop with Sichuan University Scientists, Yosemite National Park. Bales, R.C.

November, 2005, "The role of long-term atmospheric measurements in Arctic research: the Greenland Summit Environmental Observatory", International Conference on Arctic Research Planning II meeting, Copenhagen, Denmark. Bales, R.C.

October, 2005, "Greenland accumulation & analysis of regional ice core-climate connections", NASA Program for Arctic Regional Climate assessment meeting, Baltimore, MD. Bales, R.C.

October, 2005, "Evaluation of Gridded Snow Water Equivalent and Satellite Snowcover Products for Mountain Basins in a Hydrologic Model", 5th annual meeting, Center for the Sustainability of Semi-Arid hydrology & riparian Areas, University of Arizona. Bales, R.C.

October, 2005, "Feedbacks Between Snow Distribution, Soil Water-Balance, and Vegetation in Mid-latitude Sub-alpine Forests", 5th annual meeting, Center for the Sustainability of Semi-Arid hydrology & riparian Areas. Bales, R.C.

October, 2005, "Stream Flow Generation in Semi-Arid, Forested and Seasonally Snow-Covered Catchments, Valles Caldera, New Mexico", 5th annual meeting, Center for the Sustainability of Semi-Arid hydrology & riparian Areas, University of Arizona, Valles Caldera, NM. Bales, R.C.

October, 2004, "Evaluation of the Representativeness of Automated Snow Water Equivalent Sensors in the Rio Grande Headwaters", 4th annual meeting, Center for the Sustainability of Semi-Arid Hydrology & Riparian Areas. Bales, R.C.

October, 2004, "Streamflow Estimation from Hydrologic Model Assimilation of Remotely Sensed Snow Information in Snowmelt Dominated Basins",

4th annual meeting, Center for the Sustainability of Semi-Arid Hydrology & Riparian Areas. Bales, R.C.

Public and stakeholder events (invited)

November, 2014. *Climate change & water planning: Tuolumne-Stanislaus IRWM*, Stanislaus-Tuolumne IRWM, Sonora, CA, R. Bales.

September, 2014. *Water, forests and climate*, Tucare Annual Meeting, Sonora, CA. R. Bales

June, 2014, "Drought & the Sierra Nevada in a changing climate", Sierra Water Workgroup Summit, Kings Beach, CA. Bales, R.C.

June, 2014. "California drought & water planning", U.C. Merced foundation Board of Trustees, semi-annual meeting, Merced. Bales, R.C.

May, 2014. "California drought – making a water-secure future", U.C. Merced Planned Giving Council semi-annual meeting, Merced. Bales, R.C.

May, 2014, "Scott River Water Yield Enhancement Study", Watershed Forum, Ft. Jones, CA. Bales, R.C.

May, 2014, "Climate change & water planning: Madera IRWM", Madera Integrated Regional Water Management forum, Madera, CA. Bales, R.C.

May, 2014, "Forests, water, climate and disturbance in the Sierra Nevada: critical knowledge gaps", Fire Ecosystem Forest Management & Water Yield Symposium, American River Watershed Institute and others, McClellan, CA. Bales, R.C. See also <https://www.youtube.com/watch?v=wH9jq4PuHHk>.

May, 2014, Fire Ecosystem Forest Management & Water Yield Symposium, American River Watershed Institute and others, Panel: Researchers' Forum: Assessment of existing research, gaps and needs, McClellan, CA. Enstice, N., Bales, R.C., Hunsaker, C., Conklin, M.H., Hogue, T.

April 2014, "Climate change & water planning: Yosemite-Mariposa IRWM", Yosemite-Mariposa Madera Integrated Regional Water Management forum, Mariposa, CA. Bales, R.C.

April, 2014, "Forest management and stream flows in the Sierra", Drought Summit, University of California, Office of the President, Panel: Coping with the drought, California State Capital, Sacramento. Bales, R.C. See also <https://www.youtube.com/watch?v=Aal7AAGSis0>.

April, 2014, "Water & Sierra Nevada forests: recent findings & lingering questions", Yosemite Hydroclimate Meeting, Yosemite National Park. Bales, R.C.

March, 2014, "Drought briefing", U.C. Merced Foundation, Merced, CA. Bales, R.C.

February, 2014, "Enhancing California's water supply through active management of natural capital", Futuristic Water Management, Urban Water Institute Spring Conference, Palm Springs, CA. Bales, R.C.

January, 2014, "Water & Sierra Nevada forests; What do we know & what do we not know?", Water-Forestry Forum, Calaveras County Water District, San Andreas, CA. Bales, R.C.

- January, 2014, "Natural Capital & Ecosystem Evaluation; Sierra Nevada examples & coastal opportunities", Annual Board Retreat and Public Meeting, Marin Municipal Water District, Tiburon, CA. Bales, R.C.
- January, 2014, "Rain, Snow and Temperature", Natural Resource Conservation Assessment Symposium, Sequoia & Kings Canyon National Parks, Three Rivers, CA. Bales, R.C.
- December, 2013. "Post-fire watershed management & opportunities to transform water management", Association of California Water Agencies Annual Conference, Los Angeles. Bales, R.C.
- November, 2013, "Climate Change & Impact on Water Resources in the San Joaquin Valley", University Friends Circle, University of California, Merced, CA. Bales, R.C.
- October, 2013, "Impact of strategic fuel treatments on water quality and quantity", Sierra Nevada Adaptive Management Project (SNAMP) annual stakeholder meeting, University of California, Sacramento, CA. Bales, R.C.
- September, 2013, "Water response to climate & forest management in the Sierra Nevada", Sierra Nevada Alliance Annual Meeting, South Lake Tahoe, CA. Bales, R.C.
- September, 2013, "Post-fire watershed management & opportunities to transform water management", Natural Resources Summit, Tuolumne County Alliance for Resources and Environment, Sonora, CA. Bales, R.C.
- August, 2013, "Source-water measures that can transform water management in Sierra Nevada watersheds", Upper Watershed Tour, Delta Stewardship Council, South Lake Tahoe, NV. Bales, R.C.
- May, 2013, "Water implications of various forest management strategies", Healthy Headwaters Leadership Convening, Carpe Diem West, Sacramento, CA. Bales, R.C.
- May, 2013, "Watershed research in the Sierra Nevada", Spring Meeting, Association of California Water Agencies, Sacramento, CA. Bales, R.C.
- May, 2013, Spring Meeting, Association of California Water Agencies, Panel: Articulating research needs for a new program on improved management of California's headwaters, Sacramento, CA. Conklin, M.H., Guo, Q., Bales, R.C.
- April, 2013, "Regional temperature and water perturbations", Climate Preparedness in the Valley Forum, Union of Concerned Scientists, Fresno State University. Bales, R.C.
- April, 2013, "Sierra Nevada and California's water", Monthly meeting, Merced County Realtors, Merced, CA. Bales, R.C.
- January, 2013, "Managing Forests for Snowpack Storage and Water Yield", Climate Change Symposium, California Dept. Food and Agriculture, Monterey. Bales, R.C.
- October, 2012, "Moisture stress monitoring in giant sequoia groves", Yosemite Hydroclimate Meeting, Yosemite National Park, CA. Ray, R., Bales, R.C., Guo, Q.
- September, 2012, "Forests, water & research in the Sierra Nevada", Fall meeting, Association of California Water Agencies, Sacramento. Bales, R.C.
- July, 2012, "SNRI Research in the Sierra Nevada", California Almond Board, Science Advisory Committee, Merced, CA. Bales, R.C.
- July, 2012, "UC Research in Yosemite National Park & Sierra Nevada", Open House, Yosemite Field Station, Wawona, Yosemite National Park. Bales, R.C.
- June, 2012, "Forests and Water in the Sierra Nevada", Ecosystem Management Strategy for the Sierra Nevada, Mountain Counties Water Resources Association, Placerville, CA. Bales, R.C.
- April, 2012, "Effect of forest management on water yields & other ecosystem services in Sierra Nevada forests", Monthly Board meeting, Placer County Water Agency, Auburn, CA. Bales, R.C.
- March, 2012, "Forests and Water in the Sierra Nevada: Sierra Nevada Watershed Ecosystem Enhancement Project", Monthly meeting, El Dorado County Board of Supervisors, Placerville, CA. Bales, R.C.
- October, 2011, "Impact of strategic fuel treatments on water quality and quantity", Sierra Nevada Adaptive Management Project (SNAMP) annual stakeholder meeting, Sacramento. Bales, R.C., Conklin, M. H., Womble, P., Saksa, P., Martin, S.
- October, 2011, "Southern Sierra mountain front precipitation accumulation and ablation analyzed with scanning lidar snow depth an in situ instrumental measurements", Yosemite Hydroclimate Meeting, Yosemite Valley, Yosemite NP. Kirchner, P., Bales, R.C., Flannagan, J.
- October, 2011, "An assessment of 2011 snowcover from MODIS imagery -- extent, duration and snow water in the Southern Sierra", Yosemite Hydroclimate Meeting, Yosemite NP. Bales, R.C.
- September, 2011, "Sierra Nevada snowpack, runoff and climate change: challenges and emerging opportunities", 2nd Annual Water Conference, Southern California Edison, Tulare, CA. Bales, R.C.
- July, 2011, "The California mountain water cycle: knowns & unknowns", Seminar, Southern California Edison, Shaver Lake, CA. Bales, R.C.
- April, 2011, "Impact of strategic fuel treatments on water", Sierra Nevada Adaptive Management Project (SNAMP) Integration Team Public meeting, University of California, Merced, CA. Bales, R.C., Saksa, P., Martin, S.
- February, 2011, "Sierra Nevada snowpack, climate change & water management", Seminar, Yosemite National Park. Bales, R.C.
- October, 2010, "An assessment of snowcover in major river basins of Sierra Nevada network parks & potential approaches for long-term monitoring", Yosemite Hydroclimate Meeting, Yosemite NP. Bales, R.C., Rice, R.
- October, 2010, "Impact of strategic fuel treatments on water quality and quantity", Sierra Nevada

- Adaptive Management Project (SNAMP) annual stakeholder meeting, Sacramento. Bales, R.C., Conklin, M. H., Saksa, P., Martin, S., Liu, F.
- October, 2010, "Canopy-adjustment of the MODIS fractional snow covered area in forest catchments in the Sierra Nevada", Yosemite Hydroclimate Meeting, Yosemite Valley, Yosemite National Park. Rice, R., Bales, R.C., Kirchner, P., Rittger, K., Painter, T., Dozier, J.
- September, 2010, "Sierra Nevada water cycle: climate, snowpack & forest management", Quincy Library Group, Quincy, CA. Bales, R.C.
- August, 2010, "Climate change and Sierra Nevada hydrology", Tulare Basin Integrated Regional Water Management coordination meeting, Visalia. Bales, R.C.
- May, 2010, "Soil moisture measurement program, Sierra Nevada Hydrologic Observatory", Sierra Nevada Soil Moisture Workshop, California Department of Water Resources, Sacramento. Bales, R.C.
- April, 2010, "Mountain Water Cycles and Instrumentation", Annual Meeting, Sierra Nevada Alliance. Bales, R.C.
- March, 2010, Briefing on vision for a UC Natural Reserve in the Tulare Basin, Conservation Strategy Group, Sacramento, CA. Bales, R.C.
- October, 2009, "Water and Geochemical Responses to Seasonal Changes Across the Rain-Snow Transition in the Southern Sierra Nevada", Yosemite Hydroclimate Conference, Yosemite National Park, Bales, R.C., Hunsaker, C., Kerkez, B., Meadows, M., Liu, F., Glaser, S.
- August, 2009, "Greenland Ice Sheets Mass Balance in a Changing Climate 1908-2008", Nuuk Climate Days talk, Nuuk, Greenland. Bales, R.C.
- June, 2009, "Climate briefing" E & J Gallo Winery executives, Modesto, CA. Bales, R.C.
- April, 2009, Climate change & potential effects on the Valley, Public Hearing, Fresno, CA.
- October, 2008, "Hydrologic investigations", Presentation at Sierra Nevada adaptive management project public meeting. Bales, R.C.
- December, 2008, "Sierra Nevada Research Institute", Briefing for US EPA Region 9, SNRI, Research Priorities for Sierra Nevada and Central Valley. Bales, R.C.
- October, 2008, "Integrating measurements of snowpack, soil moisture, ET and streamflow for understanding the Sierra Nevada water balance", Yosemite Hydroclimate Meeting, Yosemite National Park, CA. Bales, R.C.
- September, 2008, "Hydroclimate, ecosystem links & the Southern Sierra Critical Zone Observatory", Southern Sierra Science Symposium, Visalia, CA. Bales, R.C.
- October, 2007, "Sources of streamflow and potential climate warming effects on streamflow regime in the Merced River, Sierra Nevada, CA", Yosemite Hydroclimate Meeting, Yosemite National Park, CA. Bales, R.C., Liu, F.
- October, 2007, "Update on Snow Hydrology Research", Yosemite Hydroclimate Meeting, Yosemite National Park. Bales, R.C.
- October, 2007, "Hydrologic investigations", Presentation at Sierra Nevada adaptive management project public meeting. Bales, R.C.
- July, 2007, "Science at Summit, Greenland", Congressional and NSF visitors as part of briefing for House Science Committee, Ilulisat, Greenland. Bales, R.C.
- February, 2007, "California water, mountain hydrology & UC Merced", UC Merced Board of Trustees, Yosemite Valley. Bales, R.C.
- October, 2006, "Origins & pathways of the Merced water supply", East Merced Resource Conservation District, Merced, CA. Bales, R.C.
- October, 2006, "Update on Sierra Nevada hydrologic observatory projects", Yosemite hydroclimate meeting, Yosemite National Park, Yosemite, CA. Bales, R.C.
- June, 2006, "Planning for Sierra Nevada adaptive management project", Sierra Nevada Adaptive Management Project (SNAMP) stakeholder meeting, Bales, R.C.
- June, 2006, "Water, geology, climate & soils: Sierra Nevada, Merced River & Central Valley connections, presented to Gallo Co. marketing group, Fish Camp, CA. Bales, R.C.
- December, 2005, "Water research update", Sierra Nevada Adaptive Management Project public meeting, University of California. Bales, R.C.
- October, 2005, "Update on snow hydrology & remote sensing research", Yosemite hydroclimate meeting, Yosemite, CA. Bales, R.C.
- August, 2005, "Science at GEOSummit: Global, regional and local results from studies of atmospheric chemistry and the ice sheet", Greenland Technological Society, Nuuk, Greenland. Bales, R.C.
- March, 2005, "Quenching the Valley's thirst: The connection between Sierra Nevada snowpack and regional water supply. Inaugural talk", UC Merced Chancellor's Lecture Series, University of California, Merced, Bales, R.C.
- November, 2004. "Sierra Nevada snow & Central Valley water: Connections & climate change", public talk, Challenger Learning Center, Atwater, CA. Bales, R.C.
- October, 2004, "Hydrologic observatory design update", Yosemite hydroclimate meeting, Yosemite National Park, Yosemite, CA. Bales, R.C.
- October, 2004, "Snow hydrology research update", Yosemite hydroclimate meeting, Yosemite National Park, Yosemite, CA. Bales, R.C.

Scientific meetings

- July, 2014. "Does timber harvest have a measurable effect on the water cycle in the southern Sierra Nevada, California?" Global Fair and Workshop on Long-Term Observing Systems of Mountain Social-Ecological Systems, Reno, NV. R.C. Bales, M. Meadows, M. Goulden, P. Hartsough, C. Hunsaker, M.H. Conklin.

- December 2014. "Mountain Runoff Vulnerability to Increased Evapotranspiration with Vegetation Expansion at the Southern Sierra Critical Zone Observatory." *2014 Fall Meeting, AGU, San Francisco, Calif.*, M. Goulden, R.C. Bales. .
- December 2014. "Design, implementation and hydrologic evaluation of a snow-measurement network using wireless sensors in the American River basin of California." *2014 Fall Meeting, AGU, San Francisco, Calif., 9-13 Dec.*, R. Rice, R.C. Bales, D.G. Marks, M.H. Conklin, Z. Zhang, S.D. Glaser.
- December 2014. "Evaluation of High-Temporal-Resolution Bedload Sensors for Tracking Channel Bed Movement and Transport Thresholds in Forested Mountain Headwater Catchments." *2014 Fall Meeting, AGU, San Francisco, Calif.* S. Martin, M.H. Conklin, R.C. Bales.
- December 2014.. "Optimization of Sensor Placements Using Machine Learning and LIDAR data: a Case Study for a Snow Monitoring Network in the Sierra Nevada." *2014 Fall Meeting, AGU, San Francisco, Calif., 9-13 Dec.*, C. Oroza, Z. Zheng, S.D. Glaser, R.C. Bales, M.H. Conklin..
- December 2014. "Assessing the Value of Improved Hydrologic Forecasting for Hydropower in the Sierra Nevada at Multiple Spatial Scales." *2014 Fall Meeting, AGU, San Francisco, Calif.*, . D.E. Rheinheimer, R.C. Bales, J.R. Lund, J.H. Viers.
- December 2014. "Cross-sites analysis of snowpack depth from LiDAR in Southern Sierra Nevada." *2014 Fall Meeting, AGU, San Francisco, Calif.*, Z. Zheng, P.B. Kirchner, R.C. Bales, S.D. Glaser.
- June 2014. "Using large-scale, shallow soil water measurements to estimate deeper soil water storage in a mixed-conifer forest of the southern Sierra Nevada." Geological Society of America, Cordilleran Section meeting, Fresno, Calif., M. Meadows, P. Hartsough, R. Bales, J. Hopmans, A. Malazian..
- April, 2014, "Percent Bias Assessment of Water-Supply Outlooks in the Colorado River Basin", Western Snow Conference, Durango, CO. Harrison, B., Bales, R.C.
- December, 2013, "Developing a robust wireless sensor network structure for environmental sensing", Fall meeting, American Geophysical Union, San Francisco, CA. Zhang, Z., Oroza, C., Glaser, S. D., Bales, R.C., Conklin, M. H.
- December, 2013, "Estimating forest snow accumulation with LiDAR derived canopy metrics, southern Sierra Nevada, California", Fall meeting, American Geophysical Union, San Francisco, CA. Kirchner, P., Bales, R.C., Painter, T. H.
- December, 2013, "Impacts of forest thinning and climate change on transpiration and runoff rates in Sierra Nevada mixed-conifer headwater catchments", Fall meeting, American Geophysical Union, San Francisco, CA. Saksa, P. C., Ray, R. L., Bales, R.C., Conklin, M. H.
- December, 2013, "The impact of variable density forest thinning on snow-cover distribution patterns", Fall meeting, American Geophysical Union, San Francisco, CA. Pickard, M. R., Bales, R.C., Rice, R. R., Knapp, E.
- December, 2013, "Timber harvest effect on soil moisture in the southern Sierra Nevada: Is there a measurable impact?", Fall meeting, American Geophysical Union, San Francisco, CA. Meadows, M. W., Bales, R.C., Conklin, M. H., Goulden, M., Hartsough, P. C., Hopmans, J. W., Hunsaker, C. T., Lucas, R. G., Malazian, A. I.
- December, 2013, "Tracking channel bed resiliency in forested mountain headwater catchments using high-temporal-resolution bedload data", Fall meeting, American Geophysical Union, San Francisco, CA. Martin, S., Conklin, M. H., Bales, R.C., Womble, P., Patel, T.
- December, 2013, "Building an Intelligent Water Information System - American River Prototype", Fall meeting, American Geophysical Union, San Francisco, CA. Glaser, S. D., Bales, R.C., Conklin, M. H.
- December, 2013, *Invited*, "The strength of strategically placed in situ networks: The Critical Zone Observatory Program", Fall meeting, American Geophysical Union, San Francisco, CA. Bales, R.C., Brooks, P. D., Molotch, N. P.
- June, 2013, *Invited*, "Wireless-sensor technology for basin scale hydrology", Extreme Precipitation Symposium, Davis, CA. Bales, R.C.
- May, 2013. "Using large-scale, shallow soil water measurements to estimate deeper soil water storage in a mixed-conifer forest of the southern Sierra Nevada", Geological Society of America, Cordilleran Section meeting, Fresno, CA. M. Meadows, P. Hartsough, R. Bales, J. Hopmans, A. Malazian.
- April, 2013, "Measuring Under-Canopy Snow Accumulation Using Airborne and Ground Based Sensors in the Southern Sierra Nevada, California", Western Snow Conference, Jackson, WY. Kirchner, P. B., Painter, T. H., Bales, R.C., Musselman, K., Molotch, N.
- December, 2012, *Invited*, "Connecting the snowpack to the internet of things: an IPv6 architecture for providing real-time measurements of hydrologic systems", Fall meeting, American Geophysical Union, San Francisco, CA. Kerkez, B., Zhang, Z., Oroza, C., Glaser, S. D., Bales, R.C.
- December, 2012, *Invited*, "Critical Zone Observatories (CZOs): Integrating measurements and models of Earth surface processes to improve prediction of landscape structure, function and evolution", Fall meeting, American Geophysical Union, San Francisco, CA. Chorover, J., Anderson, S. P., Bales, R.C., Duffy, C., Scatena, F. N., Sparks, D. L., White, T. S.
- December, 2012, *Invited*, "Effects of forest structure on snow accumulation and melt derived from ecohydrological instrument clusters across the Western US", Fall meeting, American Geophysical Union, San Francisco, CA. Molotch, N. P., Musselman, K. N., Kirchner, P., Bales, R.C.,

- Brooks, P. D.
December, 2012, *Invited*, "Water and energy gradients produce resilience and thresholds in ecosystem function in the western Sierra Nevada Mountains", Fall meeting, American Geophysical Union, San Francisco, CA. Kelly, A. E., Goulden, M., Bales, R.C., Meadows, M. W., Winston, G.
- December, 2012, "Comparison of sap flux data from two instrumented tree species in a forested catchment with different levels of water stress", Fall meeting, American Geophysical Union, San Francisco, CA. Hartsough, P., Roudneva, E., Malazian, A. I., Meadows, M. W., Kelly, A. E., Bales, R.C., Goulden, M., Hopmans, J.
- December, 2012, "Inter-annual snow accumulation and melt patterns in a sub-alpine mixed conifer forest: results from a distributed physically based snow model", Fall meeting, American Geophysical Union, San Francisco, CA. Musselman, K., Molotch, N., Margulis, S., Kirchner, P., Bales, R.C.
- December, 2012, "Forest management effects on snow, runoff and evapotranspiration in Sierra Nevada mixed-conifer headwater catchments", Fall meeting, American Geophysical Union, San Francisco, CA. Ray, R. L., Saska, P. C., Bales, R.C., Conklin, M. H.
- December, 2012, "Integrating soil water measurements from plot to catchment scale in a snow-dominated, mixed-conifer forest of the southern Sierra Nevada", Fall meeting, American Geophysical Union, San Francisco, CA. Meadows, M. W., Hartsough, P. C., Bales, R.C., Hopmans, J. W., Malazian, A. I.
- December, 2012, "Paired tree and soil instrumentation: what can we learn from two instrumented sites across various gradients in a forested catchment", Fall meeting, American Geophysical Union, San Francisco, CA. Hartsough, P. C., Roudneva, E., Malazian, A. I., Meadows, M. W., Bales, R.C., Hopmans, J. W.
- December, 2012, "Sampling design and optimal sensor placement strategies for basin-scale SWE estimation", Fall meeting, American Geophysical Union, San Francisco, CA. Kerkez, B., Welch, S. C., Bales, R.C., Glaser, S. D., Rittger, K. E., Rice, R. R.
- December, 2012, "Seasonal Accumulation and Depletion of Localized Sediment Stores of Four Headwater Catchments in the Sierra Nevada Mountains, California", Fall meeting, American Geophysical Union, San Francisco, CA. Martin, S., Conklin, M. H., Bales, R.C.
- December, 2012, "Skill Analysis for Runoff Forecasts on the Western Slope of the Sierra Nevada", Fall meeting, American Geophysical Union, San Francisco, CA. Harrison, B. D., Bales, R.C.
- December, 2012, "Under-canopy snow accumulation and ablation measured with airborne scanning LiDAR altimetry and in-situ instrumental measurements, southern Sierra Nevada, California", Fall meeting, American Geophysical Union, San Francisco, CA. Kirchner, P., Bales, R.C., Musselman, K. N., Molotch, N. P.
- July, 2012, *Invited*, "The Southern Sierra CZO as a Template for the American River Hydrologic Observatory", CUAHSI Third Biennial Colloquium on Water Science and Engineering, Boulder, CO, R.C. Bales.
- December, 2011, *Invited*, "Effects of evapotranspiration heterogeneity on catchment water balance in the Southern Sierra Nevada of California", Fall meeting, American Geophysical Union, San Francisco, CA. Kerkez, B., Kelly, A. E., Lucas, R. G., Son, K., Glaser, S. D., Bales, R.C.
- December, 2011, "An Assessment of Snowcover in 6 Major River Basins of Sierra Nevada and Potential Approaches for Long-term Monitoring", Fall meeting, American Geophysical Union, San Francisco, CA. Rice, R., Bales, R.C.
- December, 2011, "Comparing methods for quantifying soil moisture in the southern Sierra Nevada, California", Fall meeting, American Geophysical Union, San Francisco, CA. Meadows, M., Hartsough, P., Kerkez, B., Bales, R.C., Kelly, A., Hopmans, J., Hedge, C., Goulden, M., Glaser, S.
- December, 2011, "Effects of evapotranspiration heterogeneity on catchment water balance in the Southern Sierra Nevada of California", Fall meeting, American Geophysical Union, San Francisco, CA. Kerkez, B., Kelly, A., Lucas, R., Son, K., Glaser, S., Bales, R.C.
- December, 2011, "Estimating Snow Water Equivalent over the American River in the Sierra Nevada Basin Using Wireless Sensor Networks", Fall meeting, American Geophysical Union, San Francisco, CA. Welch, S., Kerkez, B., Glaser, S., Bales, R.C., Rice, R.
- December, 2011, "Forest management for water: a hydro-ecological modeling exercise of headwater catchments in the mixed-conifer belt of the Sierra Nevada", Fall meeting, American Geophysical Union, San Francisco, CA. Saska, P., Bales, R.C., Ray, R.
- December, 2011, "Mountain front precipitation accumulation over a 3300m elevation gradient from scanning LiDAR snow depth and in-situ instrumental measurements, southern Sierra Nevada, California", Fall meeting, American Geophysical Union, San Francisco, CA. Kirchner, P., Bales, R.C., Flanagan, J., Musselman, K., Molotch, N.
- December, 2011, "Water and carbon cycling along the Sierra Nevada climate gradient", Fall meeting, American Geophysical Union, San Francisco, CA. Kelly, A., Goulden, M., Meadows, M., Bales, R.C., Winston, G.
- December, 2011, "Greenland Ice Sheet surface mass balance 1870 to 2010 based on Twentieth Century Reanalysis, and links with global climate forcing", Fall meeting, American Geophysical Union, San Francisco, CA. Hanna, E., Huybrechts, P., Cappelen, J., Steffen, K., Bales, R.C., Burgess, E., McConnell, J., Steffensen, J.-P., van den Broeke, M. P., Wake, L. M., Bigg, G. R., Griffiths, M., Savas,

- D.
- August, 2011, "Estimation of nitrate photolysis in the snowpack of the WAIS-Divide site and its contribution to measured atmospheric nitric oxide budget", Fall 2011 National Meeting, American Chemical Society, Denver, CO. Masclin, S., Frey, M., Rogge, W., Bales, R.C.
- June, 2011, "Investigation of boundary layer photochemistry at the WAIS-Divide site through measurement of major photochemically active species in snow and air", 3rd Workshop on Air-Ice Chemical Interactions (AICI), Columbia University, New York. Masclin, S., Frey, M., Rogge, W., Bales, R.C.
- April, 2011, "A Comparison of the Fractional MODIS and LANDSAT Thematic Mapper Snow Covered Area with Ground-Based Snow Surveys in the Sierra", Western Snow Conference, South Lake Tahoe, NV. Rice, R., Bales, R.C., Kirchner, P., Saksa, P., Rittger, K., Painter, T., Dozier, J.
- April, 2011, "Measuring and Modeling Under-Canopy Snow Ablation in Southern Sierra Nevada Subalpine Red-Fir Forest", Western Snow Conference, South Lake Tahoe, NV. Kirchner, P., Bales, R.C., Rice, R., Musselman, K., Molotch, N.
- April, 2011, "Wireless Sensor Networks for Distributed Snow Depth Monitoring in the Sierra Nevada", Western Snow Conference, South Lake Tahoe, NV. Kerkez, B., Rice, R., Glaser, S., Bales, R.C., Meadows, M., Saksa, P.
- December, 2010, "A Comparison of the Fractional MODIS and LANDSAT Thematic Mapper with Ground-Based Snow Surveys in the Sierra Nevada", 2010 Fall Meeting, American Geophysical Union, San Francisco, CA. Rice, R., Bales, R.C., Kirchner, P. B., Saksa, P. C., Rittger, K. E., Painter, T. H., Dozier, J.
- December, 2010, "Comparing plot-scale sensor measurements to the watershed level: a comprehensive case study of snow depth and soil moisture in the southern Sierra Nevada, California", 2010 Fall Meeting, American Geophysical Union, San Francisco, CA. Meadows, M. W., Kerkez, B., Hartsough, P. C., Lucas, R. G., Bales, R.C., Hopmans, J. W., Glaser, S. D.
- December, 2010, "Design and development of a wireless sensor network to monitor snow depth in multiple catchments in the American River basin, California: hardware selection and sensor placement techniques", 2010 Fall Meeting, American Geophysical Union, San Francisco, CA. Kerkez, B., Rice, R., Glaser, S. D., Bales, R.C., Saksa, P. C.
- December, 2010, "Estimating under-canopy ablation in a subalpine red-fir forest, southern Sierra Nevada, California", 2010 Fall Meeting, American Geophysical Union, San Francisco, CA. Kirchner, P. B., Bales, R.C., Rice, R., Musselman, K. N., Molotch, N. P.
- December, 2010, "Hydrologic monitoring in 1-km² headwater catchments in Sierra Nevada forests for predictive modeling of hydrologic response to forest treatments across 140-km² fireheds", 2010 Fall Meeting, American Geophysical Union, San Francisco, CA. Saksa, P. C., Bales, R.C., Conklin, M. H., Martin, S. E., Rice, R.
- December, 2010, "NO_x emission from snowpack at the WAIS-Divide site and its impact on local tropospheric photochemistry", 2010 Fall Meeting, American Geophysical Union, San Francisco, CA. Masclin, S., Frey, M. M., Rogge, F., Bales, R.C.
- December, 2010, "Simulating plot-scale variability of snowpack states in conifer forests using hemispherical photography and a process based one-dimensional snow model", 2010 Fall Meeting, American Geophysical Union, San Francisco, CA. Musselman, K. N., Molotch, N. P., Margulis, S. A., Lehning, M., Kirchner, P. B., Bales, R.C.
- December, 2010, "Soil Moisture/ Tree Water Status Dynamics in Mid-Latitude Montane Forest, Southern Sierra Critical Zone Observatory, CA", 2010 Fall Meeting, American Geophysical Union, San Francisco, CA. Hartsough, P. C., Malazian, A., Meadows, M. W., Roudneva, K., Storch, J., Bales, R.C., Hopmans, J. W.
- December, 2010, "Spatial distribution of snow water equivalent across the central and southern Sierra Nevada", 2010 Fall Meeting, American Geophysical Union, San Francisco, CA. Bales, R.C., Rice, R., Meng, X.
- June, 2010, "First measurements of nitric oxide and nitrate at the WAIS-Divide: impact of the snowpack on NO_x photochemistry", International Polar Year Oslo Science Conference. Poster, Oslo, Norway. Masclin, S., Frey, M. M., Rogge, W. F., Bales, R.C.
- May, 2010, "Year-Round Major Ion Measurements at Greenland Environmental Observatory, Summit (GEOSummit)", NOAA Earth system Research Laboratory (ESRL), Global Monitoring Division (GMD) Annual Conference, Boulder, CO. Banta, R., Bales, R.C., McConnell, J., Zhao, L., Moon, C.
- March, 2010, "Year-round Major Ion Measurements at Greenland Environmental Observatory, Summit (GEOSummit)", State of the Arctic, Miami, FL. Bales, R.C., Banta, R., McConnell, J., Moon, C., Zhao, L.
- March, 2010, "Year-round Measurements and Results from Greenland Environmental Observatory at Summit (GEOSummit)", State of the Arctic, Miami, FL. Banta, R., McConnell, J., Cahill, T., Burkhardt, J., Bales, R.C.
- December, 2009, "A mechanistic approach for estimating snowpack dynamics in a conifer forest", 2009 Fall Meeting, American Geophysical Union, San Francisco, CA. Musselman, K. N., Molotch, N. P., Margulis, S. A., Kirchner, P. B., Bales, R.C.
- December, 2009, "Climate Change and Adaptation Planning on the Los Angeles Aqueduct", 2009 Fall Meeting, American Geophysical Union, San Francisco, CA. Roy, S. B., Bales, R.C., Costa-Cabral, M. C., Chen, L., Maurer, E. P., Miller, N. L., Mills, W. B.
- December, 2009, "Controls of Stream Water Chemistry in Small Catchments Across Snow/Rain Transition

- in the Southern Sierra, California", 2009 Fall Meeting, American Geophysical Union, San Francisco, CA. Liu, F., Hunsaker, C. T., Bales, R.C.
- December, 2009, "First measurements of Nitric Oxide (NO) at the WAIS Divide site in West Antarctica and implications for atmospheric oxidation", 2009 Fall Meeting, American Geophysical Union, San Francisco, CA. Masclin, S., Frey, M. M., Rogge, W. F., Bales, R.C.
- December, 2009, "Multi-scale observations and modeling of the snowpack in a forested Sierra Nevada catchment", 2009 Fall Meeting, American Geophysical Union, San Francisco, CA. Kirchner, P. B., Bales, R.C., Musselman, K. N., Molotch, N. P.
- December, 2009, "Sediment Sources in four Small Mountain Streams In the Central Sierra Nevada, California", 2009 Fall Meeting, American Geophysical Union, San Francisco, CA. Martin, S. E., Hunsaker, C. T., Bales, R.C.
- December, 2009, "Snowmelt timing and duration in the Eastern Sierra Nevada based on 10 years of MODIS fractional snow-covered area data", 2009 Fall Meeting, American Geophysical Union (AGU), San Francisco, CA. Bales, E. H., Meng, X., Bales, R.C.
- December, 2009, "Soil moisture response to snowmelt and rainfall across elevation, aspect and canopy cover in the Southern Sierra Nevada", 2009 Fall Meeting, American Geophysical Union, San Francisco, CA. Meadows, M. W., Bales, R.C., Hopmans, J., Hartsough, P. C., O'Geen, A. T., Kirchner, P. B.
- December, 2009, "Trends in Sierra Nevada snowmelt based on 10 years of MODIS fractional snow covered area data: the apparent and the missing", 2009 Fall Meeting, American Geophysical Union, San Francisco, CA. Bales, R.C., Rice, R., Rittger, K. E., Painter, T. H.
- December, 2009, "Water and geochemical responses to seasonal changes across the rain-snow transition in the Southern Sierra Nevada", 2009 Fall Meeting, American Geophysical Union, San Francisco, CA. Bales, R.C., Hunsaker, C. T., Meadows, M., Kerkez, B., Glaser, S. D., Liu, F.
- December, 2009, "Year-Round Major Ion Measurements at Greenland Environmental Observatory, Summit (GEOSummit)", 2009 Fall Meeting, American Geophysical Union, San Francisco, CA. Banta, J. R., Bales, R.C., McConnell, J. R., Zhao, L., Moon, C.
- December, 2009, "Design and implementation of a snow measurement network using ground-based wireless networks and space-borne measurements in the American River Basin of California", 2010 Fall Meeting, American Geophysical Union, San Francisco, CA. Rice, R., Bales, R.C., Meadows, M. W., Kerkez, B., Glaser, S. D., Anderson, M., Marks, D. G., Mazurkiewicz, A., Dozier, J., McGurk, B. J.
- December, 2009, "The Science of Wireless Sensor Networks: Improving engineered systems through scientific analysis", 2010 Fall Meeting, American Geophysical Union, San Francisco, CA. Kerkez, B., Meadows, M., Glaser, S. D., Bales, R.C.
- May, 2009, "Year-Round Measurements and Interpretations at Greenland Environmental Observatory at Summit (GEOSummit)", NOAA Earth system Research Laboratory (ESRL), Global Monitoring Division (GMD) Annual Conference, Boulder, CO. Banta, R., Bales, R.C., McConnell, J., Zhao, L., Moon, C.
- March, 2009, *Invited*, "California's water cycle: climate, snowpack & forest management", Annual Meeting, California Licensed Foresters Association, Sacramento, CA, Background on the hydrologic cycle in the Sierra Nevada and in depth coverage of snow pack coverage, as well as instrumentation and ongoing research at multiple sites. Bales, R.C.
- January, 2009, "Sierra Nevada Research Institute", Briefing for California State Parks leadership, SNRI, UC Merced, CA, Research Priorities for Sierra Nevada and Central Valley. Bales, R.C.
- December, 2008, *Invited*, "Blended Satellite and Ground-Based Snow Products for Hydrologic Prediction in Mountain Basins", 2008 Fall Meeting, American Geophysical Union (AGU), San Francisco, CA, H31J-04. Bales, R.C., Rice, R.
- December, 2008, "Greenland Environmental Observatory at Summit (GEOSummit): Year-Round Measurements and Results", 2008 Fall Meeting, American Geophysical Union, San Francisco, CA. Banta, J. R., McConnell, J. R., Cahill, T., Burkhart, J., Bales, R.C.
- December, 2008, "Remote Environmental Monitoring of Hydrologic/ Biotic Interaction in a Mountain Environment", 2008 Fall Meeting, American Geophysical Union, San Francisco, CA. Hartsough, P. C., Malazian, A., Tuli, A., Kamai, T., Kizito, F., Bales, R.C., Broad, A., Hopmans, J.
- December, 2008, "Research design for hydrologic response to watershed treatments in the mixed conifer zone of California's Sierra Nevada", 2008 Fall Meeting, American Geophysical Union, San Francisco, CA. Battles, J., Bales, R.C., Conklin, M., Saksa, P., Martin, S.
- December, 2008, "Snow and Soil Moisture Response Across Elevation, Aspect and Canopy Variables in a Mixed-conifer Forest, Southern Sierra Nevada", 2008 Fall Meeting, American Geophysical Union, San Francisco, CA. Bales, R.C., Meadows, M., Hopmans, J., Hartsough, P., Kirchner, P.
- December, 2008, "Snowmelt, infiltration, and soil moisture in Red Fir forest ecosystems of the Sierra Nevada", 2008 Fall Meeting, American Geophysical Union, San Francisco, CA. Kirchner, P. B., Bales, R.C., North, M. P., Small, E. E.
- December, 2008, "Water Yield and Runoff Timing Across the Rain-snow transition at the Kings River Experimental Watersheds in California's Southern Sierra Nevada", 2008 Fall Meeting, American Geophysical Union, San Francisco, CA. Hunsaker, C. T., Bales, R.C.
- December, 2008, "MAX-DOAS Measurements of Reactive Halogens at Greenland Summit in 2007

- and 2008", AGU Fall Meeting, American Geophysical Union, San Francisco, CA. Bales, R.C.
- 2008, "A model for collaborative research in hydrogeophysics", 2008 Joint Assembly, American Geophysical Union, San Francisco, CA. Knight, r., Crook, N., Bales, R.C., Moore, J. N., Papanicolaou, A., Welty.
- June, 2008, "Southern Sierra Critical Zone Observatory (CZO): Hydrochemical characteristics, science and measurement strategy", MTNCLIM 2008 Mountain Climate Research Conference, Consortium for Integrated Climate Research on Western Mountains (CIRMOUNT). Bales, R.C., Boyer, E., Conklin, M. H., Goulden, M., Hopmans, J., Hunsaker, C., Johnson, D., Kirchner, J., Liu, F., Tague, C.
- May, 2008, "GEOSummit Baseline Measurements: Results and Interpretations of Year-Round Measurements", NOAA Earth system Research Laboratory (ESRL), Global Monitoring Division (GMD) Annual Conference, Boulder, CO. Banta, R., McConnell, J., Edwards, R., Cahill, T., Burkhart, J., Bales, R.C.
- December, 2007, *Invited*, "Southern Sierra Critical Zone Observatory (CZO): hydrochemical characteristics, science & measurement strategy", Annual Fall Meeting, American Geophysical Union (AGU), San Francisco, CA. Bales, R.C..
- December, 2007, "Southern Sierra Critical Zone Observatory: Integrating water cycle and biogeochemical processes across the rain-snow transition", Fall Meeting, American Geophysical Union (AGU), San Francisco, CA. Bales, R.C..
- October, 2007, "Surface and subsurface processes in mountain environments", GEWEX North American Mountain Hydroclimate Workshop. Bales, R.C.
- October, 2007, *Invited*, "Sierra Nevada Snowpack Variability and Baseflow Generation", 2007 GSA Denver Annual Meeting, Denver, CO. Bales, R.C., Conklin, M. H., Liu, F., Rice, R. R.
- May, 2007, "GEOSummit Baseline Measurement Results and Long-Term Plans", 2007 Annual Meeting, NOAA Global Monitoring Division. Banta, R., Bales, R.C., McConnell, J., Burkhart, J.
- May, 2007, "GEOSummit Baseline Measurement Results and Long-Term Plans", NOAA Earth system Research Laboratory (ESRL), Global Monitoring Division (GMD) Annual Conference, Boulder, CO. Banta, R., McConnell, J., Cahill, T., Burkhart, J., Bales, R.C.
- April, 2007, *Invited*, "Baseline measurements & results from the Greenland Summit Environmental Observatory", European Geophysical Union, Vienna, Austria. Bales, R.C., Burkhart, J., Cahill, T., McConnell, J., Banta, R.
- April, 2007, *Invited*, "Hydrologic observatory design in the Western U.S.: scaling measurements & modeling in the Sierra Nevada of California", European Geophysical Union, Vienna, Austria. Bales, R.C.
- April, 2007, *Invited*, "Estimating snowcover along elevation gradients in the Sierra Nevada of California from MODIS and blended ground data", European Geophysical Union annual meeting, Vienna, Austria. Bales, R.C.
- April, 2007, "Snowcover along elevation gradients in the Upper Merced River and Tuolumne River Basin of the Sierra Nevada of California from MODIS and blended ground data", Western Snow Conference, Hawaii. Rice, R., Bales, R.C., Painter, T., Dozier, J.
- December, 2006, *Invited*, "Observatory Design in the Mountain West: Scaling Measurements and Modeling in the San Joaquin Valley and Sierra Nevada", American Geophysical Union annual meeting, San Francisco, CA. Bales, R.C..
- December, 2006, *Invited*, "Snowcover along elevation gradients in the Upper Merced River basin of the Sierra Nevada of California from MODIS & blended ground data", American Geophysical Union annual meeting, San Francisco, CA. Bales, R.C.
- April, 2006, "Integration of the MODIS snow cover products into snowmelt runoff modeling", Western Snow Conference, Las Cruces, NM. Rice, R., Painter, T., Bales, R.C.
- December, 2005, *Invited* "Integrated snow, soil and water-balance measurement strategy for multi-scale environmental observations in mountains", Annual meeting, American Geophysical Union (AGU), San Francisco, CA. Bales, R.C.
- September, 2005, *Invited*, "Measurement strategies for advancing understanding and forecasting of Sierra Nevada water balance", California Energy Commission Climate Change Research Conference, Sacramento, CA. Bales, R.C.
- September, 2005, "Plan for a Sierra Nevada hydrologic observatory: Science aims, measurement priorities, research opportunities and expected impacts", Consortium for Integrated Climate Research in Western Mountains, Pray, MT. Bales, R.C.
- April, 2005, "Enhanced Satellite Remote Sensing Products from MODIS for Estimation of Snowcover", Western Snow Conference, Great Falls, MT. Dozier, J., Painter, T., Bales, R.C.
- April, 2005, "Estimating Snow Water Equivalent in the Rio Grande Headwaters using Remotely Sensed Snow Covered Area Data and Energy Balance Modeling", Western Snow Conference, Great Falls, MT. Molotch, N., Bales, R.C.
- April, 2005, "Evaluation of Gridded Snow Water Equivalent and Satellite Snowcover Products for Mountain Basins in a Hydrologic Model", Western Snow Conference, Great Falls, MT. Bales, R.C., Dressler, K., Leavesley, G.
- March, 2005, "Plan for a Sierra Nevada Hydrologic Observatory: Science aims, measurement priorities, research opportunities and expected impacts", MTNCLIM 2005 Mountain Climate Research Conference, Consortium for Integrated Climate Research on Western Mountains (CIRMOUNT). Bales, R.C., Dozier, J., Famigletti, J., Fogg, G., Hopmans, J., Kirchner, J., Meixner, T., Molotch, N., Redmond, K., Rice, R., Warwick, J.

- March, 2005, *Invited*, "Cyberinfrastructure requirements for hydrologic observatories", Consortium of Universities for the Advancement of Hydrologic Science, Inc., Austin, TX. Bales, R.C.
- December, 2004, "A 700-Year regional history of Greenland Ice Sheet accumulation", American Geophysical Union annual meeting, San Francisco, CA. Bales, R.C.
- December, 2004, *Invited*, "Mountain hydrology of the semi-arid western U.S.: Research needs, opportunities & challenges", American Geophysical Union annual meeting, San Francisco, CA. Bales, R.C.
- December, 2004, "Streamflow estimation from hydrologic model assimilation of remotely sensed snow information in snowmelt dominated basins", American Geophysical Union annual meeting, San Francisco, CA. Bales, R.C.
- December, 2004, "Integrated Assessment as a Step Toward Reducing Climate Vulnerability in the Southwestern United States", American Meteorological Society annual meeting. Bales, R.C.
- December, 2004, *Invited*, "Plan for a Sierra Nevada Hydrologic Observatory: Science aims, measurement priorities, research opportunities & expected impacts", Annual meeting of American Geophysical Union, San Francisco, CA. Bales, R.C.
- December, 2004, "Plan for a Sierra Nevada Hydrologic Observatory: Science aims, measurement priorities, research opportunities and expected impacts", American Geophysical Union annual meeting, San Francisco, CA. Bales, R.C.
- December, 2004, "Integrated Assessment as a Step Toward Reducing Climate Vulnerability in the Southwestern United States", American Meteorological Society annual meeting. Bales, R.C.
- October, 2004, "Surface and subsurface processes in mountain environments", GEWEX North American Mountain Hydroclimate Workshop. Bales, R.C.
- August, 2004, "Sierra Nevada Hydrologic Observatory: science basis and design", Consortium of Universities for the Advancement of Hydrologic Science, Inc., Logan, UT. Bales, R.C.
- May, 2004, "Station Report: GEOSummit, the Greenland Environmental Observatory", NOAA Climate Monitoring and Diagnostics Laboratory (CMDL) Annual Conference, Boulder, CO. Burkhart, J., McConnell, J., Bales, R.C.
- May, 2003, "Station Report: GEOSumCore Atmospheric Measurements at the Summit, Greenland Environmental Observatory, the Greenland Environmental Observatory", NOAA Climate Monitoring and Diagnostics Laboratory (CMDL) Annual Conference, Boulder, CO. Bales, R.C., McConnell, J.
- <http://www.modbee.com/opinion/opn-columns-blogs/article10605365.html>.
- R. Bales. "How Lima climate talks will impact Central Valley" The Modesto Bee, January 2015. <http://www.modbee.com/opinion/opn-columns-blogs/article5626842.html>.
- R. Bales. "Moving toward a sustainable energy supply" The Modesto Bee, October 2014. <http://www.modbee.com/opinion/state-issues/article3173866.html>.
- R. Bales. "Given better information, California can wisely manage its water resources" The Modesto Bee, August 2014. <http://www.modbee.com/opinion/article3170698.html>.
- Modbee. UC Merced provost, engineering professor named to new climate council. The Modesto Bee (also Sacbee) July 2014. <http://www.modbee.com/site-services/marketing/college-life/article3168277.html>.
- Sacbee. "UC Merced Connect: Professors' expertise tapped for policy discussions at drought summit" The Sacramento Bee, April 2014. <http://www.sacbee.com/news/article2596648.html>.
- J.N. Sbrant, Overgrown Sierra forests gulping water that could flow to Valley, The Modesto Bee. March, 2014. http://www.modbee.com/2014/03/24/3257376_overgrown-sierra-forests-gulping.html?rh=1.
- Mark Grossi, "California drought exposes Sierra's weaknesses," The Fresno Bee. February, 2014. <http://www.fresnobee.com/2014/02/08/3758584/drought-exposes-sierra-weaknesses.html>.
- Thaddeus Miller, "Even if it rains on Thursday, drought won't end in Merced area," Merced Sun-Star, Sacramento Bee. January, 2014. <http://www.mercedsunstar.com/2014/01/27/3463573/even-if-it-rains-on-thursday-drought.html>.
- Peter Huck, "California's drought sparks fears for future," The New Zealand Herald. January, 2014. http://www.nzherald.co.nz/world/news/article.cfm?c_id=2&objectid=11191776.
- Dana M. Nichols, "Summit looks at forests, water supply," Stockton Record. January, 2014. http://www.recordnet.com/apps/pbcs.dll/article?AID=/20140124/A_NEWS/401240314.
- Martha Conklin, Roger Bales, "Drought or not, Californians must conserve water every single," Modesto Bee, Merced Sun-Star. January, 2014. <http://www.modbee.com/2014/01/20/3144693/martha-conklin-and-roger-bales.html>.
- Meghna Chakrabarti, "Dry California Weather Puts Pressure On Water Supply," Here & Now, WBUR. January, 2014. <http://hereandnow.wbur.org/2014/01/10/california-dry-weather>.
- Thaddeus Miller, "National Science Foundation gives UC Merced \$5M for water studies" The Sacramento Bee. <http://www.sacbee.com/news/article2583975.html>.
- Lorena Anderson, "Graduate Student Finds Work in Sierra Rewarding," The Modesto Bee, . UC Merced

PRESS REPORTS

- R. Bales, R. Winston: Keystone XL pipeline does nothing to help our region. The Modesto Bee, January 2015.

- University News. November, 2013.
<http://www.ucmerced.edu/news/graduate-student-finds-work-sierra-rewarding>, or
<http://www.modbee.com/2013/11/19/3041296/uc-merced-connect-grad-student.html>.
- University of California, "Onward Water," Onward California (www.onwardcalifornia.com). October, 2012. Aired in vaarious venues.
www.youtube.com/watch?v=jps9gK-4_gg.
- University of California, "California's Water Tower," Onward California (www.onwardcalifornia.com). October, 2012. Aired in vaarious venues.
www.youtube.com/watch?v=HEv7q2vB3d8.
- University of California, "Onward Management," Onward California (www.onwardcalifornia.com). October, 2012. Aired in vaarious venues.
www.youtube.com/watch?v=aMK_OFnKj8.
- University of California, "Onward Climate," Onward California (www.onwardcalifornia.com). October, 2012. Aired in vaarious venues.
<https://www.youtube.com/watch?v=TUDU9EVy-U4>
- UC Merced. "Research Gets a New Face in UC Merced Library Exhibits," UC Merced University News. August, 2013. The Sierra Nevada Adaptive Management project and the Southern Sierra Critical Zone Observatory. See also
<http://www.ucmerced.edu/news/research-gets-new-face-uc-merced-library-exhibits>.
- "Viewpoints Q&A: How climate change may affect Californians," The Sacramento Bee: California Forum. June, 2013
- Garth Stapley. "Modesto, Turlock irrigation districts aren't studying climate change," The Modesto Bee. February, 2013.
<http://www.modbee.com/2013/02/16/2582261/modesto-turlock-irrigation-districts.html>.
- Modbee, "Measuring snow a worthy academic pursuit," The Modesto Bee. January, 2013.
- Paul Rogers, "Landmark land deal protects key piece of Sierra Nevada," San Jose Mercury News, Marin Independent-Journal, Inside Bay Area, Contra Costa Times. December, 2012
http://www.mercurynews.com/science/ci_22234372/landmark-land-deal-protects-key-piece-sierra-nevada.
- UC Merced. "California is Home to Extreme Weather, Too," UC Merced University News. November, 2012. <http://www.ucmerced.edu/news/california-home-extreme-weather-too>.
- Raven, W., and S. Yang, "Smart sensors in the woods," Innovations: Research & News from Berkeley Engineering. March, 2012.
- James Leonard, "Graduate Student at Home with Mountain Water Research." January, 2012. UC Merced press release; published in various outlets. See also "UC Merced Connect: Doctoral student taps snowpack," Merced Sun-Star. January, 2012. <http://www.mercedsunstar.com/2012/01/21/2199429/uc-merced-connect-doctoral-student.html>.
- Roger Bales, "Resilient Forests, More Water," California Forests. 2011.
- James Leonard, "Campus' Ties with Community Continue to Increase." December, 2011
- UC Merced press release, ; published in various outlets. <http://www.ucmerced.edu/news/campus-ties-community-continue-increase>
- Joshua Emerson Smith, "Researchers look at increasing runoff by thinning forest," Merced Sun-Star. December, 2011. See also "UC Merced report advocates Sierra Nevada forest thinning," The Modesto Bee. December, 2011
- Mark Grossi, "Scientists: Thinner forests produce more snow runoff", Fresno Bee. November, 2011. http://fresnobeehive.com/news/2011/11/scientists_thinner_forests_pro.html#storylink=cpy, and http://fresnobeehive.com/news/2011/11/scientists_thinner_forests_pro.html.
- Claire Swedberg, "California Researchers Expand 'Intelligent Water Infrastructures Initiative'," RFID Journal. November, 2011.
- Sarah Yang, "Grant gives California clearer picture of water supply," Western Farm Press. October, 2011.
<http://westernfarmpress.com/government/grant-gives-california-clearer-picture-water-supply>.
- James Leonard, "Sierra Nevada Water Researchers Awarded \$2M Grant." October, 2011. UC Merced Press Release, published in various outlets. <http://www.ucmerced.edu/news/sierra-nevada-water-researchers-awarded-2m-grant>. See also Mark Grossi (Fresno Bee), The Sacramento Bee. Merced Sun-Star. October, 2011
- Philip Pinto and Edson Tanaka., "Reportagem nos Parques Naturais dos Estados Unidos," Radio and Television of Portugal (RTP). September, 2011. Published on Youtube, August 2012.
<https://www.youtube.com/watch?v=TUDU9EVy-U4>.
- James Leonard, "Boxer the First Senator to Visit UC Merced." August, 2011. UC Merced press release, <http://www.ucmerced.edu/news/boxer-first-senator-visit-uc-merced>. Published in variopus outlets. See also UC Merced News; Michael Doyle, Bee Washington Bureau, "Boxer headed for UC Merced," Modesto Bee. August, 2011.
- UC Merced. "UC Merced Connect: Better Water Management in Forecast," The Sacramento Bee. Merced Sun-Star August, 2011
- Wallace Ravven, UC Berkeley, "Getting to the root of California's water cycle," Western Farm Press. Also University of California, Research. July, 2011. <http://universityofcalifornia.edu/research/stories/2011/07/merced-water.html>.
- Nick Strayer, "A critical research zone in the Sierra," Office of the President, "University of California Research Video, UC Research. July, 2011. <https://www.youtube.com/watch?v=53i9KttloE>.
- Merced Sun-Star "UC Merced prof designs sensor system to measure snowpack depth and other water issues. Merced Sun-Star. May, 2011. <http://www.mercedsunstar.com/2011/03/03/1795284/uc-merced-prof-designs-sensor.html>
- Berkeley J-School TV/Doc, "CNS News - Around California - Part 1," vimeo.com. April, 2011
- James Leonard, "Seminar Helps Park Leaders Plan for Future," UC Merced press release April, 2011.

- Various newspapers.
- James Leonard, "Southern California Edison Gives \$250K for Energy, Water Research," UC Merced press release, April, 2011, Various newspapers. <http://www.ucmerced.edu/news/southern-california-edison-gives-250k-energy-waterresearch>.
- KVPR, "End of CA drought," KVPR. April, 2011
- Sasha Khokha, "Measuring Water in the Sierra Snowpack," The California Report. March, 2011
- Sasha Khokha, "Snow Surveys of the Future," KQED News: Climate Watch. March, 2011
- Mark Grossi, "Sierra's Rain-Snow Zone Promises Water Insight," The Fresno Bee. March, 2011. See also "Researchers discover how to measure snowmelt in the Sierra more accurately," Merced Sun-Star.
- Mariposa Gazette, "Wireless sensors improve snowpack measurements," The Mariposa Gazette. March, 2011
- James Leonard, "National Parks, Reserved Lands the Focus of Leadership Seminar," UC Merced press release, March, 2011, Various newspapers. , <http://parkleadership.ucmerced.edu/news/national-parks-reserved-lands-focus-leadership-seminar>.
- UC Merced, "Wireless sensors to improve Sierra snowpack measurements," physorg.com. March, 2011
- Merced Sun-Star Staff, "Measuring Snowpack Made Easy," March, 2011. See also The Sacramento Bee.
- James Leonard, "Wireless Sensors to Improve Sierra Snowpack Measurements." UC Merced press release, March, 2011. <http://www.ucmerced.edu/news/wireless-sensors-improve-sierra-snowpackmeasurements>. See also "UC Merced develops wireless sensors for snowpack measuring," Central Valley Business Times. "Wireless sensors to improve Sierra snowpack measurements," YubaNet.com.
- Gordy Slack, "CITRIS researchers deploy IT tools to help monitor California water supply," Berkeley Research. February, 2011. <http://vcresearch.berkeley.edu/news/citris-researchers-deploy-it-tools-help-monitor-california-water-supply>.
- Gordy Slack, "Water Sense: CITRIS MOTES and Wireless Networks Deployed to Help Monitor and Manage California's Water Supply," CITRIS news. February, 2011
- "UC Merced Connect: Doctoral student taps snowpack Sacramento Bee. January, 2011.
- Kim Ingram, UC Green Blog, "Wireless networks could improve water forecasting," Western Farm Press. January, 2011
- Mark Grossi, "UC Merced researchers strive for more accurate snowmelt forecast," The Fresno Bee. April, 2010. See also "Scientists seek better way to tally snowpack," The Modesto Bee. April, 2010.
- James Leonard, "Professors Enlist Airborne Lasers to Study Earth's Processes," UC Merced press release, February, 2010, Various newspapers. <http://www.ucmerced.edu/news/professors-enlist-airborne-lasers-study-earths-processes>
- PI Staff, "Wireless sensors may measure snowpack more precisely, improve water shares Patterson Irrigator. February 2010.
- Merced Sun-Star Staff, "UC Merced prof gets grant to study Earth with lasers and flyovers," Merced Sun-Star. February, 2010
- James Leonard, "Undergrad Studies Environment in SNRI Lab," UC Merced press release, November, 2009, Various newspapers. <http://www.ucmerced.edu/news/undergrad-studies-environment-snri-lab>.
- James Leonard, "Research Takes UC Merced Team to Antarctica," UC Merced press release, January, 2009, Various newspapers. <http://www.ucmerced.edu/news/research-takes-uc-merced-team-antarctica>.
- James Leonard, "Sensors Could Provide Warning of Future Large-scale Environmental Problems," UC Merced press release, September, 2008, Various newspapers. <http://www.ucmerced.edu/news/sensors-could-provide-warning-future-large-scale-environmental-problems>.
- Dhyana Levey, "Climate Change Workshop Brings Hundreds to UC Merced," The Merced Sun-Star. February, 2008
- Roger Bales, "UC Merced researchers gather data on warming," Modesto Bee. December, 2007
- Roger Bales, "Climate Change: Scientists Take Local Problems to Heart," Merced Sun-Star, Modesto Bee, Sacramento Bee, Visalia Times-Delta. November, 2007
- Gordy Slack, "Interview with Professor Roger Bales on September 5, 2007 at UC Berkeley," CITRIS news. October, 2007
- James Leonard, "\$4.6 Million Project Will Investigate Snowline Systems in Sierra," UC Merced press release, October, 2007, Various newspapers. , <http://www.ucmerced.edu/news/46-million-project-will-investigate-snowline-systems-sierra>.
- Carl T. Hall, "Scientists set up in Sierra to track shrinking snowpack," The San Francisco Chronicle. November, 2006.
- James Leonard, "Researchers Tap Technology for Accurate Snow Measurement, Forecasting." UC Merced press release, July, 2005, various newspapers. <http://www.ucmerced.edu/news/researchers-tap-technology-accurate-snow-measurement-forecasting>.
- Rosalio Ahumada, "UC Merced senses need for accurate snow depth," Merced Sun-Star, Modesto Bee. May, 2005
- James Leonard, "Researchers Find Accurate Mountain Snow Data Using NASA-developed Sensor Webs." UC Merced press release, May, 2005, various newspapers. <http://www.ucmerced.edu/news/researchers-find-accurate-mountain-snow-data-using-nasa-developed-sensor-webs>.

UNIVERSITY SERVICE

Systemwide

UC Global Climate Leadership Council, Member. (May, 2014 - Present).

UC Natural Reserve System Advisory Committee, Member. (July, 2009 - 2013).

Advisory Panel, WRCA-BWC Water Data Management Project, Member. (February, 2009 - June, 2010).

California Climate Solutions Institute (proposal to California Public Utilities Commission and State Legislature), Member. (2007-2008).

University Committee On Planning & Budget (System Wide), Member. (September, 2006 - September, 2008).

Board of Admissions and Relations with Schools (System Wide), Member. (September, 2004 - September, 2006).

Multi-campus ad hoc planning group for Sierra Nevada Hydrologic Observatory, Organizer. (November, 2003 - Present).

UCM Campus

Director, Sierra Nevada Research Institute. (July, 2008 - Present). Overall leadership for Organized Research Unit (ORU). <http://snri.ucmerced.edu/>. Note that this appointment precluded senate service at both campus and system level.

Director, UC Merced Natural Reserve System. (2008 - 2013).

Director, Yosemite Field Station, Sierra Nevada Research Station. (July, 2008 - May, 2013).

Director, Environmental Analytical Laboratory. (July, 2008 - January, 2013).

Director, Interim, Sierra Nevada Research Institute. (July, 2007 - June, 2008).

National Parks Institute, Steering Committee, Member (2009 - 2013).

Great Valley Center, Board member (January, 2006 - July, 2012). The Great Valley Center became administratively part of UC Merced in 2006, and split from UC Merced in 2012..

Academic Surge Building Advisory Committee, Member. (2010).

School of Management planning committee, Member (July, 2008 - present).

Search Committee, Dean of Engineering, (October, 2009 - May, 2010).

Great Valley Center Director Search Committee, (2007 - 2008).

Senate Committee On Academic Planning & Resource Allocation, (September, 2004 - September, 2008). Chair. (September, 2005 - September, 2007).

UCM Division Council, (August, 2004 - August, 2008). Vice-Chair. (2005; August, 2007 - August, 2008).

UC Merced budget committee, Member. (2006 - 2007).

Sierra Nevada Research Institute Advisory Committee, Member. (2003 - 2007).

UCM Ad hoc space planning committee, Member. (2005 - 2006).

UCM Instructional Technology Advisory Committee, Member, Appointed. (January, 2004 - December, 2005).

Undergraduate Council (UGC), (2003 - 2005).Chair (2004-2005)

UCM School of Engineering

Search Committee, Ecological Engineering, Chair. (February, 2014 – June 2014). School of Engineering, UC Merced

Search Committee, Management, Chair. (July, 2010 - June, 2011). School of Engineering, UC Merced

School of Engineering Faculty, Chair (August, 2006 - August, 2008).

Air pollution faculty search committee, Member, Appointed. (2005 - 2007).

Environmental economics faculty search committee, Member. (2005 - 2006).

Environmental policy faculty search committee, Chair. (2005 - 2006).

Renewable energy faculty search committee, Member. (2005 - 2006).

Spatial analysis faculty search committee, Chair. (2004 - 2005).

Public and community

Ad hoc. Planning for new Water information System for California (September, 2007 - Present).

Great Valley Center, Board Member, State, (January, 2006 - July, 2012).

Sierra Nevada Snowpack and Water Resources, Guest Speaker, San Francisco, CA, Local. (May, 2009). High school hydrology class, Bay School of San Francisco

CA Energy Commission. Workshop on Developing Research Plan for Networks for Recharge change, Sacramento, CA, (July, 2007).

U.S. EPA, Testimony supporting California's application for a waiver to regulate CO2 from passenger vehicles, Sacramento, CA, (May, 2007).

CA Public Utilities Commission hearing, "Climate change & potential effects on the Valley", Invited Testimony, Fresno (October, 2006).

Climate science education day, CA state legislature, Participant, CA, Appointed, Pro Bono, State. (May, 2006; August, 2005).

Greenland Summit Environmental Observatory, biannual review and planning meeting,, Chair, Denver, CO, (January, 2006).

California Ecological Observatory Network, and National Ecological Observatory Network, participant in and local contact for planning activities, including site selection and site visits (August, 2005 - present).

Presentation to Turlock and Modesto Irrigation Districts on applications of satellite snowcover products (August, 2005).

University of Arizona (2002-2003 only)

Advisory committee on focused excellence initiatives for the university, University of Arizona, Provost.

Advisory Committee, Vice President for Research.

Department of Hydrology and Water Resources,
University of Arizona, Graduate Policy Committee
Faculty Senate, University of Arizona, Member.
Faculty status committee, College of Engineering and
Mines, University of Arizona, Promotion and
Tenure.

Flandreau Science Center (planning exhibit content for
new science museum), University of Arizona,
Science and Technology Working Group.

Institute for the Study of Planet Earth, University of
Arizona, Executive Committee.

RECENT CONSULTING

2014, Kennedy-Jenks Consultants, Mariposa
Integrated Water Management Plan. Climate
change impacts on regional hydrology.

2014t, Provost & Prichard Consulting Group, Madera
Integrated Water Management Plan. Climate
change impacts on regional hydrology

2013 - 2014, Scott River Watershed Cooperative
Planning Group,

2009 - 2010, Tetrattech, Inc. Climate change study for
L.A. Department of Water and Power.

2009 - 2010, Department of Justice, Consultant to
legal team defending Yosemite National Park.