

CURRICULUM VITAE

CONNIE A. WOODHOUSE

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EDUCATION

PhD (December 1996) Department of Geosciences, University of Arizona, Tucson, Arizona

MS (March 1989) Department of Geography, University of Utah, Salt Lake City, Utah

BA (May 1979) Prescott College, Prescott, Arizona

PROFESSIONAL POSITIONS

Regents Professor (June 2020 – present), School of Geography, Development, and Environment;
Laboratory of Tree-Ring Research; and Department of Geosciences, University of Arizona,
Tucson, AZ

Professor (May 2015 – May 2020), School of Geography and Development, Laboratory of Tree-Ring
Research, and Department of Geosciences, University of Arizona, Tucson, AZ

Interim Director (Jan. 2014 – May 2015), School of Geography and Development, University of Arizona,
Tucson, AZ

Associate Director (Aug. 2012-Mar. 2014), School of Geography and Development, University of Arizona,
Tucson, AZ

Associate Professor (Jan. 2007 – Apr. 2013), School of Geography and Development, Laboratory of Tree-
Ring Research, and Department of Geosciences, University of Arizona, Tucson, AZ

Physical Scientist (Apr. 2000-Dec. 2006), Paleoclimatology Branch, NOAA National Climatic Data Center,
Boulder, CO

Research Scientist III, Fellow (Mar. 2004-Dec. 2006), Institute of Arctic and Alpine Research, University of
Colorado, Boulder

Adjunct Assistant Professor (Feb. 2001-Dec. 2006), Department of Geography, University of Colorado,
Boulder, CO

Faculty Affiliate (2004-2008), Department of Civil Engineering, Colorado State University, Fort Collins, CO

Research Scientist II (Mar. 1999-Mar. 2004), Institute of Arctic and Alpine Research, University of
Colorado, Boulder

Visiting Scientist (May 1998-Apr. 2000), Paleoclimatology Program, NOAA National Geophysical Data
Center, Boulder, CO

Research Scientist I (Jul. 1997-Feb. 1999), Institute of Arctic and Alpine Research, University of Colorado,
Boulder

National Research Council Associate (Jan. 1997- Apr. 1998), Paleoclimatology Program, NOAA National
Geophysical Data Center, Boulder

AWARDS

José A. Boninsegna Frontiers in Dendrochronology Award, Tree-Ring Society, 2016

University of Arizona Graduate and Professional Students Council Achievement Award, Honorable Mention, Outstanding Mentor of Graduate/Professional Students, 2011
 Udall Center Fellowship, Udall Center for Public Policy and the Institute of the Environment, University of Arizona, 2010
 California Department of Water Resources, Climate Science Service Award, 2007
 Administrator's Award, National Oceanic and Atmospheric Administration, 2006
 Bronze Award, Department of Commerce, 2005
 Andrew Ellicott Douglass Memorial Scholarship, Laboratory of Tree-Ring Research, University of Arizona, 1996

RESEARCH GRANTS

NSF-ATM, Expanded and Lengthened Dendroclimatic Reconstructions of Great Plains Drought, PI, \$304,827, 04/01/98 - 03/31/01.
 NSF-ESH, Temperature Variability since AD 1000 in the Western United States from Tree Rings, Co-PI, \$52,782 (my part), 10/01/98 -09/30/01.
 NSF-ESH, Collaborative Research: Reconstructions of Drought and Streamflow over the Coterminous United States from Tree Rings with extensions into Mexico and Canada, Co-PI, \$35,674 (my part), 09/01/00 - 08/31/03.
 NOAA Environmental Services Data and Information Management (ESDIM), Fire History Database, PI, \$82,000, 3/2003-12/2003.
 NOAA Environmental Services Data and Information Management (ESDIM), Historical Climate Data Catalogue, PI, \$30,000, 3/2004 – 12/2004.
 NOAA Office of Global Programs, Extended Hydroclimatic Records for the Upper Colorado River Basin, PI, \$154,515, 08/01/02 - 07/31/04.
 US Geological Survey, Tree-Ring Chronologies from Remnant Collections, Western Colorado, PI, \$22,250, 4/05 - 12/05, \$22,250, 1/06 – 12/06, \$22,260, 1/07-12/07.
 Denver Water, Updates and Improvements of Tree-Ring Reconstructions of South Platte and Colorado River Streamflow, PI, \$28,000 6/03-7/05.
 National Park Service, Riparian Forest Age Structure, Sand Creek Massacre NHS, Co-PI, \$11,000, 09/05-10/06.
 NSF- BCS - Geography and Regional Science, Climate and Woodland Expansion in the Western Great Plains, USA, \$6,000 (co-PI part), 9/1/04 - 8/31/06.
 NOAA Climate Program Office, 'Living' Blended North American Drought Reconstruction Grid, \$40,000 (co-PI part), 01/01/04 -12/31/06.
 NOAA Climate Program Office, A Multiproxy Paleofire Database, PI, \$93,000, 03/01/03 -02/28/06.
 NOAA Climate Program Office, Tree-Ring Reconstructions of Hydroclimatic Variability in the Rio Grande Basin, New Mexico, PI, \$55,000, 7/1/07- 6/30/08.
 NOAA Climate Program Office, Interpreting and Refining the Climate Signal in Millennial-Length 5-Needle Pine Chronologies, PI, \$189,000, 7/1/07- 6/30/09.
 Science Foundation of Arizona, Decision Support for Defining Historical Fire Regimes: The International Multiproxy Paleofire Database, PI, \$75,000, 4/1/07- 8/31/08
 NOAA Climate Program Office, TreeFlow: A Drought Planning Resource for Water Management in the Western U.S., PI, \$108,161, 8/1/08-7/30/10.
 NOAA Climate Program Office, In With the Old: Evaluation of Paleo Data in Drought Planning for California, PI, \$63,055, 8/1/08-7/30/09, extended to 2010.

NSF-Paleoclimate Perspectives on Climate Change program, An Investigation of North American Monsoon Variability using Instrumental and Tree-Ring Data, PI, \$607,829, 9/1/08-8/31/13.

California Department of Water Resources, Drought Planning Workshops for California. PI, \$25,024, 9/1/08-6/30/09.

NOAA - Sector Applications and Research Program (SARP), Knowledge to Action: An Assessment of the Transfer of Climate Science to Decision Making. Co-PI, \$122,559; 5/1/09-10/31/10

Bureau of Reclamation, Enhancing Water Supply Reliability Through Improved Predictive Capacity and Response. Phase 3. Co-PI, \$457,331, 4/1/09-12/31/10.

Colorado Springs Utilities, Reconstructions of the Arkansas River, \$8,535; 8/17/09-9/30/10

California Department of Water Resources, Tree-Ring Study for California. Co-PI, \$399,718; 10/1/10-4/30/13.

NOAA-Western Water Assessment, Lower Colorado River Basin Paleohydrology. Co-PI, \$30,000; 10/1/10-9/30/11

NOAA Climate Program Office, The Climates of Southwestern North American Megadrought: Multi-Proxy, Multivariate Observations and Analysis, Co-PI, \$419,510; 05/01/11-04/30/14.

NSF-Macrosystem Biology program, Collaborative Research: Processes and Patterns in The North American Monsoon Macrosystem. Co-PI, \$2,949,091; 04/01/11-03/31/16.

NSF- Paleoclimate Perspectives on Climate Change program, Reconstructing Winter Temperatures in the Rockies using Tree-Ring Oxygen Isotopes, PI, \$239,049; 06/01/11-05/31/14.

WaterSmart, Bureau of Reclamation, Tree-Ring Reconstructions of Streamflow: Using Analogues from the Past for Water Resource Decision Making in California, PI, \$200,000; 10/01/11-09/20/14.

DOI Southwest Climate Science Center, Disentangling the Influence of Antecedent Temperature and Soil Moisture on Colorado River Water Resources, PI, \$140,207, 2014-2016

State of New Mexico, Update of Tree-Ring Reconstruction of the Rio Grande at Otowi Bridge, New Mexico, PI, \$25,000, 2014.

NSF- Paleoclimate Perspectives on Climate Change, Collaborative Research: Multi-Site Paleo-Reconstruction of Missouri River Streamflows from Tree Rings; PI with E. Cook and M. Lall (Columbia University), E. Wise (U. North Carolina), G. Pederson (USGS), \$166,666 (UA part), 2014-2017.

California Department of Water Resources, University of Arizona Southern California Tree-Ring Study. Co-PI, \$596,691, 7/1/15-12/31/17.

DOI Southwest Climate Science Center, Anticipating Future Impacts on Streamflow using Multi-Century Climate Records and Applied Hydrologic Models, PI, \$132,829; 10/01/2017-03/31/2020.

NSF- Paleoclimate Perspectives on Climate Change program, Collaborative Research – The Flavors of SW Hydroclimatic Extremes. PI, \$920,430; 09/01/2017-08/31/2020.

NOAA Climate Program Office Regional Integrated Sciences and Assessments (RISA) Program, Collaboratively Assessing Critical Social-Ecological System Buffers to Help Build Regional Climate Resilience: The Climate Assessment for the Southwest. Co-PI, \$3,464,261; 09/01/2017-08/31/2022

Bureau of Reclamation, Baseline Assessments for SECURE Water Act Report 2021. PI, \$77,364; 10/01/2019 - 03/31/2021

NSF- Paleoclimate Perspectives on Climate Change program, Collaborative Research --Multi-Century Perspectives on Current and Future Flow in the Lower Missouri River Basin. UA PI with E. Wise (PI, U. North Carolina), E. Cook (LDEO), M. Dannenberg (U. Iowa), \$113,853 (UA part), 07/01/2020-6/30/2023

PUBLICATIONS

Peer reviewed

- Tintor, W.L. and **C.A. Woodhouse**. 2021. The variable climate response of Rocky Mountain bristlecone pine (*Pinus aristata* Engelm.). *Dendrochronologia* 68, 125846.
<https://doi.org/10.1016/j.dendro.2021.125846>
- Brice, B., G.H. Guiterman, **C. Woodhouse**, C. McClellan, and P. Sheppard. 2021. Comparing tree-ring based reconstructions of snowpack variability at different scales for the Navajo Nation. *Climate Services* 22. <https://doi.org/10.1016/j.cliser.2021.100213>
- Woodhouse, C.A., R.M. Smith, S.A. McAfee, G.T. Pederson, G.J. McCabe, W.P. Miller, A. Csank. 2021. Upper Colorado River Basin 20th century droughts under 21st century warming: Plausible scenarios for the future. *Climate Services* 21, <https://doi.org/10.1016/j.cliser.2020.100206>
- Williams, A. P., K. J. Anchukaitis, **C. A. Woodhouse**, D. M. Meko, B. I. Cook, K. Bolles, E. R. Cook. 2020. Tree rings and observations suggest no stable cycles in Sierra Nevada cool-season precipitation. *Water Resources Research*, <https://doi.org/10.1029/2020WR028599>
- McCabe, G., D. Wolock, **C.A. Woodhouse**, G. Pederson, S. McAfee, S. Gray, A. Csank. 2020. Basin wide hydro-climatic drought in the Colorado River basin. *Earth Interactions* 24. 1–20.
<https://doi.org/10.1175/EI-D-20-0001.1>
- Frederick, S.E. and **C.A. Woodhouse**. 2020. A multi-century perspective on the relative influence of seasonal precipitation on streamflow in the Missouri River headwaters. *Water Resources Research*. <https://doi.org/10.1029/2019WR025756>
- Martin, J.T., G.T. Pederson, **C.A. Woodhouse** and 16 co-authors. 2020. Increased drought severity tracks warming in the United States' largest river basin. *Proceedings of the National Academies of Science (PNAS)*, www.pnas.org/cgi/doi/10.1073/pnas.1916208117
- Woodhouse, C.A. and E.K. Wise. 2020. The changing relationship between the upper and lower Missouri River basins during drought. *International Journal of Climatology* 1–18.
<https://doi.org/10.1002/joc.6502>
- Stahle, D.W., E.R. Cook, D. J. Burnette, M. C.A. Torbenson, I. M. Howard, D. Griffin, J. Villanueva, B. I. Cook, P. A. Williams, E. Watson, D. Sauchyn, N. Pederson, **C. A. Woodhouse**, G. T. Pederson, D. Meko, B. Coulthard, C. J. Crawford. 2020. Dynamics, variability, and change in seasonal precipitation reconstructions for North America. *Journal of Climate*
<https://doi.org/10.1175/JCLI-D-19-0270.1>
- Pendergrass, A.G., G.A. Meehl, R. Pulwarty, M. Hobbins, A. Hoell, A. AghaKouchak, C. J.W. Bonfils, A. J.E. Gallant, M. Hoerling, D. Hoffmann, L. Kaatz, F. Lehner, D. Llewellyn, P. Mote, R. Neale, J. T. Overpeck, A. Sheffield, K. Stahl, M. Svoboda, M.C. Wheeler, A. W. Wood, **C. A. Woodhouse**. 2020. Flash droughts: High impact events that present a new challenge for subseasonal to seasonal prediction. *Nature Climate Change* 10, 191–199. <https://doi.org/10.1038/s41558-020-0709-0>
- Woodhouse, C.A., D.M. Meko, and E. Bigio. 2020. A long view of southern California water supply: perfect droughts revisited. *Journal of the American Water Resources Association*. 56, 212-229.
<https://doi.org/10.1111/1752-1688.12822>
- Arizpe, A., D.A. Falk, **C.A. Woodhouse**, T.W. Swetnam. 2020. Widespread fire years in the US-Mexico sky islands are contingent on both winter and monsoon precipitation. *International Journal of Wildland Fire* 29, 1072-1087. <https://doi.org/10.1071/WF19181>
- Martin, J., Pederson, G.T., **Woodhouse, C.A.**, Cook, E.R, McGuire, M., Broman, D., Lanini, J., et al. 2019.

- 1200 years of Upper Missouri River streamflow reconstructed from tree rings. *Quaternary Science Reviews*, 224, 105971. <https://doi.org/10.1016/j.quascirev.2019.105971>
- Ravindranath, A., N. Devineni, U. Lall, E.R. Cook, G. Pederson, J. Martin, **C.A. Woodhouse**. 2019. Streamflow Reconstruction in the Upper Missouri River Basin Using a Novel Bayesian Network Model. *Water Resources Research*. <https://doi.org/10.1029/2019WR024901>
- Rao, M.P., E.R. Cook, B.I. Cook, J.G. Palmer, M. Uriart, N. Devineni, U. Lall, R.D. D'Arrigo, **C.A. Woodhouse**, M. Ahmed, 2018. Six centuries of Upper Indus Basin streamflow variability and its climatic drivers. *Water Resources Research*, <https://doi.org/10.1029/2018WR023080>
- Woodhouse, C. A. and G. T. Pederson, 2018. Investigating runoff efficiency in upper Colorado River streamflow over past centuries. *Water Resources Research*, 54, <https://doi.org/10.1002/2017WR021663>
- Wise, E.K., **C.A. Woodhouse**, G.J. McCabe, G.T. Pederson, and J-M. St. Jacques. 2018. Hydroclimatology of the Missouri River basin. *Journal of Hydrometeorology*, 19, 161-182, <https://doi.org/10.1175/JHM-D-17-0155.1>
- Hallett, L.M, T.L. Morelli, L. R. Gerber, M.A. Moritz, M. W. Schwartz, N.L. Stephenson, J. L. Tank, M.A. Williamson, **C. A. Woodhouse**. 2017. Navigating translational ecology: creating opportunities for scientist participation. *Frontiers in Ecology and the Environment* 15, 578–586, <https://doi.org/10.1002/fee.1734>
- Schwartz, M.W., J.K. Hiers, F.W. Davis, G. M. Garfin, S.T Jackson, A.J. Terando, **C.A. Woodhouse**, T.L. Morelli, M.A. Williamson, M.W. Brunson. 2017. Developing a translational ecology workforce. *Frontiers in Ecology and the Environment* 15, 587–596, <https://doi.org/10.1002/fee.1732>
- Enquist, C.A.F, S.T. Jackson, G. M. Garfin, F.W. Davis, L.R. Gerber, J.A. Littell, J.L. Tank, A.J. Terando, T.U. Wall, B. Halpern, J.K. Hiers, T.L. Morelli, E. McNie, N.L. Stephenson, M.A. Williamson, **C.A. Woodhouse**, L. Yung, M.W. Brunson, K.R. Hall, L.M. Hallett, D.M. Lawson, M.A. Moritz, K. Nydick, A. Pairis, A.J. Ray, C. Regan, H.D. Safford, M.W. Schwartz, and M.R. Shaw. 2017. Foundations of translational ecology. *Frontiers in Ecology and the Environment* 15, 541–550, <https://doi.org/10.1002/fee.1733>
- McAfee, S.A., G.T. Pederson, **C.A. Woodhouse**, G. J. McCabe. 2017. Application of synthetic scenarios to address water resource concerns: A management-guided case study from the Upper Colorado River Basin, *Climate Services* 8, 26-35, <https://doi.org/10.1016/j.cliser.2017.10.003>.
- McCabe, G., D. Wolock, G. Pederson, **C. Woodhouse**, and S. McAfee. 2017. Evidence that recent warming is reducing upper Colorado River Flows. *Earth Interactions*, 21, 1-14, <https://doi.org/10.1175/EI-D-17-0007.1>
- Malevich, S.B. and **C.A. Woodhouse**. 2017. Pacific SSTs, mid-latitude atmospheric circulation, and widespread interannual anomalies in Western US streamflow. *Geophysical Research Letters*, <https://doi.org/10.1002/2017GL073536>
- Margolis, E. Q., **C.A. Woodhouse**, and T.W. Swetnam. 2017. Drought, multi-seasonal climate and wildfire in northern New Mexico. *Climatic Change* 142, 433–446, <https://doi.org/10.1007/s10584-017-1958-4>
- Wilding, T. and **C.A. Woodhouse**. 2017. Assessing the potential of pinyon pine for climate reconstructions in eastern California. *Tree-Ring Research* 73, 11-12.
- Bracken, C, B. Rajagopalan, **C.A. Woodhouse**. 2016. A Bayesian hierarchical nonhomogeneous hidden Markov model for multisite streamflow reconstructions, *Water Resources Research*, 52, 7837–7850, <https://doi.org/10.1002/2016WR018887>
- Routson, C.C., **C.A. Woodhouse**, J.T. Overpeck, J.L. Betancourt, N.P. McKay. 2016. Teleconnected ocean forcing of western North American droughts and pluvials during the last millennium. *Quaternary*

- Science Reviews* 146, 238-250. <https://doi.org/10.1016/j.quascirev.2016.06.017>
- Littell, J.S., G.T. Pederson, S.T. Gray, M. Tjoelker, A.F. Hamlet, **C.A. Woodhouse**. 2016. Reconstructions of Columbia River streamflow from tree ring chronologies in the Pacific Northwest, USA. *Journal of the American Water Resources Association* 1-21. <https://doi:10.1111/1752-1688.12442>
- Woodhouse, C.A., G.T. Pederson, K. Morino, S.A. McAfee, G.J. McCabe. 2016. Increasing influence of air temperature on upper Colorado River Streamflow. *Geophysical Research Letters* 43, <https://doi:10.1002/2015GL067613>
- Routson, C.C., J.T. Overpeck, **C.A. Woodhouse**, W.F. Kenney. 2016. Three millennia of southwestern North American dustiness and future implications. *PLOS One*, <https://doi:10.1371/journal.pone.0149573>
- Carillos, C.M., C.L. Castro, **C.A. Woodhouse**, and D. Griffin. 2016. Low frequency variability of the North American monsoon as diagnosed through earlywood and latewood tree-ring chronologies in the southwestern U.S. *International Journal of Climatology*, 36, 2254–2272, <https://doi:10.1002/joc.4493>
- Gandopadhyah, S. G. McCabe, and **C.A. Woodhouse**. 2015. Beyond annual streamflow reconstructions for the Upper Colorado River Basin: A paleo-water-balance approach. *Water Resources Research* 51, <https://doi:10.1002/2015WR017283>
- Barger, N.N. and **C.A. Woodhouse**, 2015. Piñon pine (*Pinus edulis* Engelm.) growth responses to climate and substrate in southern Utah, U.S.A.. *Plant Ecology*, <https://doi.org/10.1007/s11258-015-0478-4>
- Peterson, T.C., Heim Jr., R.R., Hirsch, R., Kaiser, D.P., Brooks, H., Diffenbaugh, N.S., Dole, R.M., Giovannetone, J.P., Guirguis, K., Karl, T.R., Katz, R.W., Kunkel, K., Lettenmaier, D., McCabe, G.J., Paciorek, C.J., Ryberg, K.R., Schubert, S., Silva, V.B.S., Stewart, B.C., Vecchia, A.V., Villarini, G., Vose, R.S., Walsh, J., Wehner, M., Wolock, D., Wolter, K., **Woodhouse, C.A.**, Wuebbles, D. 2013. Monitoring and understanding changes in heat waves, cold waves, floods, and droughts in the United States: State of knowledge. *Bulletin of the American Meteorological Society* 94, 821 – 834.
- Meko, D.M., , R. Touchan, J. Villanueva Diaz, Griffin, D., **C.A. Woodhouse**, C.L. Castro, C. Carillo, S.W. Leavitt. 2013. Sierra San Pedro Mártir, Baja California, cool-season precipitation reconstructed from earlywood width of *Abies concolor* tree rings. *Journal of Geophysical Research: Biogeosciences*, 118, 1-14, <https://doi:10.1002/2013JG002408>
- Ciancarelli, B., C.L. Castro, **C.A. Woodhouse**, F. Dominguez, H-I. Chang, C. Carrillo, and D. Griffin. 2013. Dominant patterns of U.S. warm season precipitation variability in a fine resolution observational record, with focus on the Southwest. *International Journal of Climatology*, <https://doi:10.1002/joc.3716>
- Malevich, S.B., **C.A. Woodhouse**, D.M. Meko. 2013. Tree-ring reconstructed hydroclimate of the Upper Klamath basin. *Journal of Hydrology*, <https://doi.org/10.1016/j.jhydrol.2013.04.048>
- Woodhouse, C.A., D.M. Meko, D. Griffin, and C.L. Castro. 2013. Tree Rings reveal multi-season drought variability in the lower Rio Grande basin, USA. *Water Resources Research* 49, 1-7. <https://doi:10.1002/wrcr.20098>
- Griffin, D., **C.A. Woodhouse**, D.M. Meko, D.W. Stahle, H.L. Faultich, C. Carillo, R. Touchan, C.L. Castro, S.W. Leavitt. 2013. A paleoclimate regime of concurrent cool-season and monsoon drought in the Southwest. *Geophysical Research Letters* 40, 1-5. <https://doi:10.1002/grl.50184>
- Ault, T.R., J.E. Cole, J.T. Overpeck, G.T. Pederson, S. St. George, B. Otto-Bliesner, **C.A. Woodhouse**, and C. Deser. 2013. The continuum of drought variability in western North America: insights from instrumental, paleoclimate and global climate model data. *Journal of Climate* 26, 5863-5878.

- <https://DOI:10.1175/JCLI-D-11-00732.1>
- Williams, A.P., C. D. Allen, A. K. Macalady, D. Griffin, **C. A. Woodhouse**, D. M. Meko, T. W. Swetnam, S. A. Rauscher, R. Seager, H. D. Grissino-Mayer, J. S. Dean, E. R. Cook, C. Gangodagamage, M. Cai, N. G. McDowell, 2012. Temperature as a potent driver of regional forest drought stress and tree mortality. *Nature Climate Change*, <https://DOI:10.1038/NCLIMATE1693>
- Faulstich, H.L., **C.A. Woodhouse**, and R. Griffin. 2012. Reconstructed cool- and warm-season precipitation over the tribal lands of northeastern Arizona. *Climatic Change*, <https://DOI:10.1007/s10584-012-0626-y>
- Kariyeva, J., W.D.J. van Leeuwen, and **C.A. Woodhouse**. 2012. Impacts of climate gradients on the vegetation phenology of major land use types in Central Asia (1981–2008). *Frontiers of Earth Science* 6, 206–225, <https://doi:10.1007/s11707-012-0315-1>
- Woodhouse, C.A., D.W. Stahle, and J. Villanueva-Díaz. 2012. Rio Grande and Rio Conchos water supply variability from instrumental and paleoclimatic records. *Climate Research*.51, 125-136. <https://doi:10.3354/cr01059>
- Routson, C.C, **C.A. Woodhouse**, and J.T. Overpeck. 2011. Second century megadrought in the Rio Grande headwaters, Colorado: How unusual was medieval drought? *Geophysical Research Letters*, <https://doi:10.1029/2011GL050015>
- Griffin, D., D.M. Meko, R. Touchan, S.W. Leavitt, **C.A. Woodhouse**. 2011. Latewood chronology development for summer-moisture reconstruction in the U.S. Southwest. *Tree-Ring Research* 67, 87-101.
- Pederson, G.T.,S. T. Gray, **C. A. Woodhouse**, J. L. Betancourt, D. B. Fagre, J.S. Littell, E. Watson, B. H. Luckman, L. J. Graumlich. 2011. Evidence from tree rings highlights the unusual nature of recent snowpack declines. *Science* 333, 332-335. <https://doi:10.1126/science.1201570>
- Gray, S.T., J.J. Lukas, **C.A. Woodhouse**. 2011. Millennial-length records of streamflow from three major upper Colorado River tributaries. *Journal of the American Water Resources Association*, <https://doi:10.1111/j.1752-1688.2011.00535.x>
- Woodhouse, C.A., G.T. Pederson, and S.T. Gray. 2011. An 1800-year record of decadal-scale hydroclimatic variability in the Upper Arkansas River basin from bristlecone pine. *Quaternary Research*. 75, 483-490. <https://doi:10.1016/j.yqres.2010.12.007>
- Meko, D.M. and C.A. **Woodhouse**, 2011. Applications of streamflow reconstructions to water resources management, In: *Tree Rings and Climate: Progress and Prospects* (eds. M.K. Hughes, T.W. Swetnam, H.F. Diaz). Springer, pp. 231-261.
- Pederson, G.T., S.T. Gray, T.Ault, W. Marsh, D.B. Fagre, A.G. Bunn, **C.A. Woodhouse**, L.G. Graumlich. 2010. Climatic controls on the snowmelt hydrology of the northern Rocky Mountains, USA. *Journal of Climate* 24, 1666-1687.
- Meko, D.M. **C.A. Woodhouse**, and K. Morino. 2010. Dendrochronology and links to streamflow. *Journal of Hydrology*, <https://doi:10.1016/j.jhydrol.2010.11.041>
- Leavitt, S.W., **C.A. Woodhouse**, C.L. Castro, W.E. Wright, D.M. Meko, R. Touchan, D. Griffin and B. Ciancarelli, 2010. The North American Monsoon in the U.S. Southwest: potential for investigation with tree-ring carbon isotopes. *Quaternary International* 235, 101-107 <https://doi.org/10.1016/j.quaint.2010.05.006>
- Kay, M.W., **C.A. Woodhouse**, and S.T. Jackson. 2010. Persistence and expansion of ponderosa pine woodlands in the west-central Great Plains during the past two centuries. *Journal of Biogeography*. <https://doi.org/10.1111/j.1365-2699.2010.02327.x>
- Banner, J.L., C.S. Jackson, L. Yang, K. Hayhoe, **C. Woodhouse**, L. Gulden, K. Jacobs, G. North, R. Leung, and W. Washington. 2010. Climate change impacts on Texas water. *Texas Water Journal* 1, 1-19.

- Touchan, R., **C.A. Woodhouse**, D.M. Meko, C.D. Allen. 2010. Millennial Precipitation Reconstruction for the Jemez Mountains, New Mexico, Reveals Changing Drought Signal. *International Journal of Climatology*. <https://DOI:10.1002/joc.2117>
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- Woodhouse, C.A. and J.J. Lukas, 2006. Drought, tree rings, and water resource management. *Canadian Water Resources Journal* 31, 297-310
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- Cook, E.R., C.A. **Woodhouse**, C.M. Eakin, D.M. Meko, and D.W. Stahle. 2004. Long-term aridity changes in the western United States. *Science*, 306, 1015-1018.
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- Woodhouse, C.A. and P.M. Brown. 2001. Tree-ring evidence for Great Plains drought. *Tree-Ring Research*, 57, 89-103.
- Woodhouse, C.A. 2001. A tree-ring reconstruction of streamflow for the Colorado Front Range. *Journal of the American Water Resources Association* 37, 561-570
- Woodhouse, C.A. 1999. Artificial neural networks and dendroclimatic reconstructions: an example from the Front Range, Colorado, USA. *The Holocene* 9, 521-529.
- Woodhouse, C.A. and J.T. Overpeck. 1998. 2000 years of drought variability in the central United States. *Bulletin of the American Meteorological Society* 79, 2693-2714.
- Woodhouse, C.A. and D.M. Meko. 1997. Number of precipitation days reconstructed from southwestern tree rings. *Journal of Climate* 10, 2663-2669.
- Woodhouse, C.A. 1997. Tree-ring reconstructions of circulation indices. *Climate Research* 8, 117-127.
- Woodhouse, C.A. 1997. Winter climate and atmospheric circulation patterns in the Sonoran Desert region. *International Journal of Climatology* 17, 859-873.
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- Woodhouse, C.A. 1993. Tree-growth response to ENSO events in the central Colorado Front Range. *Physical Geography* 14, 417-435.
- Woodhouse, C.A. and P.A. Kay. 1990. The use of tree-ring chronologies to show spatial and temporal changes in an air mass boundary. *Physical Geography* 11, 172-190.

Book Chapters and Major Reports

- Woodhouse, C.A. and Lukas, J. 2020. Paleohydrology. Chap. 10. In J. Lukas and E. Payton, eds. *Colorado River Basin Climate and Hydrology: State of the Science*. Western Water Assessment, Pp. 361-383. University of Colorado Boulder. DOI: <https://doi.org/10.25810/3hcv-w477>.
- Woodhouse, C.A., J.J. Lukas, K. Morino, D.M. Meko, K.K. Hirschboeck. 2016. Using the past to plan for the future – The value of paleoclimate reconstructions for water resource planning. In K. Miller, A. Hamlet, D. Kenney and K. Redmond, eds. *Western Water Policy and Planning in a Variable and Changing Climate*, Drought and Water Crises: Science, Technology, Management, and Policy Issues for the 21st Century, Donald A. Wilhite (Series Editor), CRC Press - Taylor and Francis.
- Woodhouse, C.A. 2003. Dendrochronological Evidence for Long-Term Hydroclimatic Variability. Lewis, W.M. Jr., Editor, *Water and Climate in the Western United States*, University Press of Colorado, Boulder, pp. 49-58.
- Hirschboeck, K.K., F. Ni, M.L. Wood, C.A. **Woodhouse**, 1996. Synoptic dendroclimatology: overview and outlook. In: J.S. Dean, D.M. Meko, and T.W. Swetnam, eds., *Tree Rings, Environment, and Humanity*. Radiocarbon, Tucson, Arizona, pp. 205-223.

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS

American Geophysical Union
American Meteorological Society
American Quaternary Society
Association of American Geographers
Tree-Ring Society

PROFESSIONAL ACTIVITIES

Presentations at conferences, workshops (first authored oral presentations only) (2015-present):

- Woodhouse, C.A. 2019. Practicing Collaborative Research. Healthy Forests, Healthy Watersheds Workshop, University of Arizona, Tucson, AZ, November 14, 2019*
- Woodhouse, C.A. 2019. Missouri River Hydroclimatology Overview. Improving Sub-Seasonal to Seasonal (S2S) Precipitation Forecasting, Western States Water Council and California Department of Water Resources, San Diego CA, May 22-24, 2019*
- Woodhouse, C.A. 2019. Tree-ring reconstructions of Colorado River streamflow: Drought and Implications for Power Generation. Centre for Energy Advancement through Technological Innovation International, Hydropower Conference, Tucson AZ, March 20, 2019*
- Woodhouse, C.A. 2018. The Effects of Temperature on Colorado River Drought over Past Centuries Inferred from a Runoff Efficiency Reconstruction. When the Rain Stops: Drought on Subseasonal and Longer Timescales, Aspen Global Change Institute, Aspen CO, September 9-14, 2018*
- Woodhouse, C.A. 2018. Using Tree Rings to Inform Water Resource Management. 2018 California Extreme Precipitation Symposium, University of California, Davis, CA, July 9, 2018*
- Woodhouse, C.A. 2018. The Role of Dendrochronology in the 21st Century: Lessons Learned from Water Managers. Plenary, 10th World Dendro Conference, Thimphu, Bhutan, June 10-15, 2018*
- Woodhouse, C.A. 2018. Southern California Perfect Drought: How Common? 10th World Dendro Conference, Thimphu, Bhutan, June 10-15, 2018
- Woodhouse, C.A., G.T. Pederson, S. McAfee, G. McCabe, and K. Morino. 2018. Colorado River Runoff Efficiency: Placing the Instrumental Record in a Long-Term Context. Surviving Peak Drought and Temperature Workshop University of Arizona, March 29-30, 2018*
- Woodhouse, D. Meko and E. Bigio. 2018. Where We've Been: Drought in the Southern California Paleo Record. Paleo Drought Workshop: Using the Past to Improve Drought Preparedness Now April 19, 2018, San Pedro, CA*
- Woodhouse, C.A. 2018. The impact of warming temperatures on Colorado River flow. Law of Colorado River Conference, CLE International, Tucson, AZ, Mar 2, 2018*
- Woodhouse, C.A. 2017. Reconstructions of Paleo Droughts in Southern California. National Water Research Institute meeting, Orange County Water District, Fountain Valley, CA, Dec 5, 2017*
- Woodhouse, C.A. 2017. Making the Connection between Quaternary Science and Decision Making 2017 Geological Society of America Annual Meeting, Seattle, WA, Oct 22-25, 2017*
- Woodhouse, C.A. 2017. Evaluating the influence of air temperature and soil moisture conditions on Colorado River streamflow. Colorado River Hydrology Research Symposium, Las Vegas, NV, May 22 – 23, 2017*
- Woodhouse, C.A., S.E. Frederick, G.T. Pederson, E.K. Wise. 2017. Spatial and Temporal Variability in Upper Missouri River Basin Droughts and Pluvials. Association of American Geographers

- Conference, Boston, April 5-9, 2017
- Woodhouse, C.A. and G.T. Pederson. 2016. Warm and Cool Droughts: The Influence of Temperature on Colorado River Flow, GC13E-1238. American Geophysical Union, San Francisco, CA, Dec. 11-16, 2016
- Woodhouse, C.A. 2016. Using the Paleoclimatic Data Record to Understand Historical Precipitation Patterns. Workshop on Drought Vulnerability and Tools for Improving Water Resilience. Long Beach CA, October 19, 2016.*
- Woodhouse, C.A. Use-Inspired Hydroclimatic Research in the Upper Colorado River Basin. Biennial Conference of Science & Management on the Colorado Plateau & Southwest Region, Flagstaff, AZ, October 6, 2015.*
- Woodhouse, C.A., D. B. Ferguson, and J.L. Rice. Some Practical Guidelines for Science/Decision-Making Collaborations. 2015 UCOWR/NIWR/CUAHSI Annual Conference, Henderson, NV, June 16-18, 2015*
- Woodhouse, C.A., G.Pederson, K. Morino, and G. McCabe. The Role of Temperature in Mediating Relationships between Cool Season Precipitation and Water Year Streamflow in the UCRB. Colorado River Hydrology Work Group Meeting, Tucson AZ, May 27, 2015.
- Woodhouse, C.A. Paleodroughts: Analogues for the Future? New Mexico Geological Society Annual Meeting, Socorro, New Mexico, April 24, 2015. Keynote*
- Woodhouse, C.A. Drought Planning: The Long-Term Context. 2015 U.S. Drought Monitor Forum, Desert Research Institute, Western Regional Climate Center, April 14-16, 2015. Keynote*
- Woodhouse, C.A. G.T. Pederson, K. Morino, and G. McCabe. Investigating the role of temperature in mediating relationships between cool season precipitation and water year streamflow in the Upper Colorado River basin. Pacific Climate (PACCLIM) Meeting, Pacific Grove, CA, March 8-11, 2015.
- Woodhouse, C.A. Connecting Environmental Science and Decision Making (CESD) – a Graduate Certificate Program. Regional Integrated Sciences and Assessment PI Meeting, Charleston, SC. Jan 15-17, 2015.

* = invited

Invited talks, seminar series, general public presentations (2012-present):

- “A Collaborative Project: Plausible Scenarios for Future Colorado River Drought.” Southwest Climate Adaptation Science Center Seminar Series, University of Arizona, May 7, 2021 (remote).
<https://www.swcasc.arizona.edu/collaborative-project-plausible-scenarios-future-colorado-river-drought>
- “The Colorado River.” Arizona Science Lecture Series 2021, College of Science, University of Arizona, April 15, 2021. (remote) <https://science.arizona.edu/community-engagement/public/arizona-science-lecture-series>
- “Missouri River Drought: A Story of Two Basins.” Laboratory of Tree-Ring Research Seminar Series, University of Arizona, April 28, 2021 (remote).
<https://arizona.hosted.panopto.com/Panopto/Pages/Viewer.aspx?id=ad23e05b-c97e-4423-a388-ad18014986e8>
- “Southern California Perfect Droughts: Insight from Tree Rings.” Forster Lecture, Department of Geosciences, Departmental Seminar Series, Utah State University, March 30, 2021 (remote).
- “Lessons I Learned from Water Managers.” Forster Lecture, Department of Geosciences, Utah State University, March 29, 2021 (remote).

“Missouri River Drought: A Story of Two Basins.” The Emerging Megadrought: A Tale of Two River Basins seminar, The National Judicial College, August 13, 2020 (remote).

The Role of Dendrochronology in the 21st Century: Lessons Learned from Water Managers.” Laboratory of Tree-Ring Research Brown Bag Seminar, University of Arizona, November 6, 2019

“Relationships between Climate and Verde River Streamflow” Presentation to Joint Meeting of Coconino Plateau Water Advisory Council and Coconino Plateau Watershed Partnership, Flagstaff, AZ, July 26, 2019.

“Colorado River Runoff Efficiency from Tree Rings.” Laboratory of Tree-Ring Research, Brown Bag Seminar Series, University of Arizona, March 14, 2018.

“Runoff efficiency: The impact of warming temperatures on Colorado River drought.” CLIMAS Colloquium, University of Arizona, Jan 26, 2018.

“Tree Rings and Drought with Applications to Water Resource Management in the Western US.” Department of Geography, University of Minnesota, Brown Day, April 28, 2017.

“Past Streamflow from Tree Rings: From Implications to Applications.” Department of Geography University of Utah, April 21, 2017.

“Reconstructing Past Streamflow from Tree Rings and Applications to Water Resource Management.” NAFRI Advanced Fire Effects course, Laboratory of Tree-Ring Research, University of Arizona, January 10, 2017.

“Disentangling the Influence of Temperature and Antecedent Soil Moisture on Colorado River Water Resources – An Update. Salt River Project, Tempe, AZ, Nov. 9, 2016.

“Effects of Climate on Colorado River Flow: The influence of temperature on streamflow and drought” Utah Associated Municipal Power Systems (UAMPS) Member Conference, Midway, UT, Aug. 16, 2016.

“A Tree-Ring Perspective on Drought, Monsoon, and Fire in the Rio Grande Basin” American Association of State Climatologists Meeting, Santa Fe, New Mexico. June 30, 2016

“Effects of Climate on Colorado River Flow: Perspectives from the Past, Present, and Future” Laboratory of Tree-Ring Research Seminar Series, University of Arizona, March 22, 2016.

“Disentangling the Influence of Temperature and Antecedent Soil Moisture on Colorado River Water Resources” Water Manager Project Advisory Board workshop, Denver Federal Center, Denver, CO, Sept. 17, 2015.

“The Role of Temperature (and soil moisture) in Mediating Relationships between Cool Season Precipitation and Water Year Streamflow in the UCRB” Denver Water Board, Denver, CO, July 21, 2015; and Colorado River District brown bag talk, Glenwood Springs, CO, July 23, 2015.

“Tree Rings and Drought with Applications to Water Resource Management in the Western US” National Center for Atmospheric Research (NCAR), Invited speaker series, Boulder, CO, July 14, 2015.

Other professional activities:

American Quaternary Society council, paleoclimatology representative, 2010-2014

International Tree-Ring Data Bank, chairperson of advisory board, 2001-2013

International Multiproxy Paleofire Database, advisory board member, 2002-2012

Associate Editor, *Dendrochronologia*, 2002-2020

Member, National Academy of Sciences, Committee on the Scientific Bases of Colorado River Basin Water Management, 2006-2007.

Member, National Academy of Sciences, Committee on the Challenges and Opportunities in the Hydrologic Sciences, 2009-2011.

Member, U.S. National Committee (USNC) of the International Quaternary Association (INQUA), 2008-2015

Peer reviewer for journal articles: *Arctic, Antarctic, and Alpine Research, Bulletin of the American Meteorological Society, Canadian Journal of Forest Research, Climatic Change, Climatic Change Letters, Climate Dynamics, Climate of the Past, Climate Research, Dendrochronologia, Earth Interactions, Earth Science Reviews, Journal of Climate, Ecology, Eos, Geology, Global Change Biology Geophysical Research Letters, International Journal of Climatology, Journal of Environmental Management, Journal of Geography in Higher Education, Journal of Geophysical Research – Atmospheres, Journal of Hydrology, Journal of the American Water Resources Association, Journal of Water Resources Planning and Management, Landscape Ecology, New Phytologist, Quaternary Research, Physical Geography, Science, Science Advances, The Holocene, Tree-Ring Research*

Proposal reviews: NSF Paleoclimatic Perspectives on Climate Change, Climate Dynamics, Ecosystems Studies, Geography and Regional Science; the Canadian Foundation for Climate and Atmospheric Sciences, Comisión Nacional de Investigación Científica y Tecnológica, Gobierno de Chile, Natural Sciences and Engineering Research Council of Canada, NOAA Climate Program Office (OGP), Water Research Program, University of Wyoming