

MARIA CHRISTINE RICHARDS

SMU Geothermal Laboratory

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Education

BS: Environmental Geography, Michigan State University, East Lansing, MI., 1986

MS: Physical Geography, Watershed Management, University of Tennessee, Knoxville, TN, 1991.

Career

Geothermal Laboratory Coordinator and Researcher: Huffington Department of Earth Sciences, Southern Methodist University, Dallas, Texas, 1995-present.

Maria Richards is a researcher and fundraiser for the Geothermal Lab, a self-supporting organization, as both a Principal Investigator on grants/contracts and through solicitation of sponsorship from companies. She works directly with faculty and students overseeing related geothermal research from initial application, management of budget, to final report with primary funding from companies (e.g., Google.org, Anadarko Petroleum), State Agencies (e.g., TXSECO), and Federal Agencies (e.g., Department of Energy; National Laboratories). She develops outreach programs on geothermal energy and the environment, coordinates research software, and facilitates learning activities between SMU and community programs. Projects vary from temperature-depth maps for Google.org to on-site geothermal exploration of the volcanic islands in the Northern Mariana Islands. Current concentration is on use of temperature well logs for understanding climate change, the transition of oil fields into geothermal production, and low temperature geothermal applications such as district heating for commercial buildings. She coordinated seven conferences focused on developing geothermal energy in oil and gas fields building a network of individuals, companies, and government agencies from all aspects of project management and cross-over between many industries. With colleagues, she coordinated the design, population, and ongoing dissemination of data for the SMU Node of the National Geothermal Database System. Highlights of research with David Blackwell include the Geothermal Map of North America, Dixie Valley Synthesis, Eastern Texas Geothermal Assessment, and the MIT Report on the Future of Geothermal Energy - resource assessment chapter.

Instructor: Dallas Community College, Dallas, Texas, 1995-1998; Jackson Community College, Adrian, Michigan, 1992-1994. Taught Physical, World, and Cultural Geography courses.

Environmental Health Sanitarian: Lenawee County Health Dept., Adrian, Michigan, 1992-1994. Responsible for the needs of a rapidly growing county including: soil analysis for septic fields, private and public well placement and chemical quality, restaurant inspection, and nuisance complaints. Wrote reports for State Health Department, articles for their yearly newsletter, and produced the first county environmental health newsletter.

Organizations and Leadership Activities

SMU Award - Volunteer of the Year for Staff and Faculty, 2004.

SMU Award - Leadership in Sustainability, 2012.

Geothermal Resources Council, Currently President. Elect 2015-16, Board Ed. Com. 2011-12. Member 2006 +.

Texas Renewable Energy Industries Association, Currently Named Director 2015-16, Board Geothermal Com., 2005-09, Member 2005+.

For the Love of the Lake, Non-Profit 501-3 (c) Organization, dedicated to improvement of the City of Dallas' White Rock Lake Park, Volunteer 1995+. A founding community member in 1995. During term as President (2003) the group involved over 15,000 volunteers and raised over \$70,000 for park improvements.

Gulf Coast Green Energy, Member of Board of Directors, 2013+

American Association of Petroleum Geologist SMU Student Chapter Staff Liaison, 2000+.

DutchTreat Wildcatters, Dallas, Texas, Member, 2006+.

Dallas Geophysical Society, Dallas, Texas, Member, 2010+.

Lone Star Desk and Derricks, Dallas, Texas, Member, 2014+.

Women in Geothermal (WING), Member, 2015+.

Selected Publications

- Batir, J. F., Junghyun Park, Maria Richards, P. Stepp, and, D. D. Blackwell, 2010, Evaluation of EGS resources in the eastern United States: Illinois, Michigan, Indiana, western Ohio and western Kentucky, Geothermal Resources Council Transactions, v. 34. Document ID 28661.
- Blackwell, David D., Petru T. Negraru and Maria C. Richards, 2006. Assessment of the Enhanced Geothermal System Resource Base of the United States, Natural Resources Research, Springer Netherlands, v 15/4, 283-308, DOI 10.1007/s11053-007-9028-7.
- Blackwell, David and Maria Richards, Geothermal Map of North America, 2004, 1:5,000,000, AAPG # 423, 2004.
- Blackwell, David and Maria Richards, Calibration of the AAPG Geothermal Survey of North America BHT Data Base, paper 87616, Poster at AAPG Annual Meeting, Dallas, TX, 2004.
- Blackwell, David D., Petru T. Negraru and Maria C. Richards, 2006. Assessment of the Enhanced Geothermal System Resource Base of the US, Natural Resources Research, Springer Netherlands, v 15/4, 283-308, DOI 10.1007/s11053-007-9028-7.
- Blackwell, D. D., P. Stepp, and Maria Richards, 2010, Comparison and discussion of the 6 km temperature maps of the western US prepared by the SMU Geothermal Laboratory and the USGS, Geothermal Resources Council Transactions, v. 34. Document ID 28696.
- Blackwell, David, M. Richards, Z. Frone, J. Batir, A. Ruzo, R. Dingwall, and M. Williams 2011, Temperature at depth maps for the conterminous US and geothermal resource estimates, Geothermal Resources Council Transactions, v. 35.
- Blackwell, D. D., Joseph Batir, Zachary Frone, Junghyun Park, and Maria Richards, 2010, New geothermal resource map of the northeastern US and technique for mapping temperature at depth, Geothermal Resources Council Transactions, v. 34. Document ID 28663.
- Coolbaugh, M., Zehner, R., Kreemer, C., Blackwell, D., Oppliger, G., Sawatzky, D., Blewitt, G., Pancha, A., Richards, M., Helm-Clark, C., Shevenell, L., Raines, G., Johnson, G., Minor, T., and Boyd, T., 2005, Geothermal potential map of the Great Basin, western United States: Nevada Bureau of Mines and Geology Map 151.
- Frone, Z., Blackwell, D.D, Hornbach, M. and Richards, M., 2015, Heat flow and Thermal Modeling of the Appalachian Basin, West Virginia, Geosphere paper GS1155R3, Geological Society of America.
- Hornbach, Matthew, M. Richards, D. Blackwell, C. Mauroner, C. Brokaw, 2016. 40 years of Surface Warming Near Helena Montana Constrained from Temperature-Depth 1 Measurements: Implications for Winter Freeze-Line Retreat in the Northern US Rocky 2 Mountains, American Journal of Climate Change, submitted.
- Kweik, Ramsey; Blackwell, David; Hornbach, Matthew; Richards, Maria, 2014, Thermal and Mass History of Fairway Field in East Texas, Geothermal Resources Council Transactions, v. 38.
- Richards, Maria, 2012, Student Leadership Luncheon: A Networking First, Geothermal Res. Council Bulletin, v. 41, no. 6, p. 34.
- Richards, Maria and David Blackwell, 2012, Developing Geothermal Energy in Texas: Mapping the Temperatures and Resources, GCAGS and GC-SEPM 62nd Annual Convention, Austin, Texas, 21-24 October 2012, Pages 351-363.
- Richards, Maria and David Blackwell, A Difficult Search, Why Basin and Range systems are hard to find, Geothermal Bulletin, v. 31, no. 4, 143-146, 2002.
- Richards, Maria and David Blackwell, Montana, waiting to be discovered, Geothermal Res. Bulletin, v. 32, no. 1, 35-37, 2003.
- Richards, Maria and David Blackwell, The Forgotten Ones: Geothermal roads less traveled in Nevada, Geothermal Bulletin, v. 31, no. 2, 69-75, 2002.
- Richards, Maria and David Blackwell, The Nevada Story- turning a loss into a gain, Geothermal Resources Bulletin, v. 31, no. 3, 107-110, 2002.
- Richards, Maria and David Blackwell, The heat is on, SMU 2002 Geothermal Resources Potential Map, Geothermal Resources Bulletin, v. 32, no. 3, 117-119, 2003.
- Richards, Maria, Roy Mink, Al Waibel, David Blackwell, The Geothermal Potential of Saipan, CNMI, GRCT, v. 34, 2010.
- Richards, Maria; Blackwell, David; Williams, Mitchell; Frone, Zachary; Dingwall, Ryan; Batir, Joseph; Chickering, Cathy, 2012. Proposed Reliability Code for Heat Flow Sites, Geothermal Resources Council Transactions, v. 36.
- Stutz, George; Shope, Elaina; Aguirre, Gloria Andrea; Williams, Mitchell; Frone, Zachary; Reber, Timothy; Whealton, Calvin; Smith, Jared; Richards, Maria; Blackwell, David; Tester, Jefferson; Stedinger, Jerry; Jordan, Teresa, 2014, Geothermal Energy Characterization in the Appalachian Basin in New York and Pennsylvania, Geothermal Res. C. T., v. 38.
- Tester, J. W., Anderson, B., Batchelor, A., Blackwell, D., DiPippo, R., Drake, E., Garnish, J., Livesay, B., Moore, M.C., Nichols, K., Petty, S., Toksoz, N., Veatch, R., Augustine, C., Baria, R., Murphy, E., Negraru, P., Richards, M. 2006. The future of geothermal energy: Impact of enhanced geothermal systems (EGS) on the United States in the 21st century. Massachusetts Institute of Technology, DOE Contract DE-AC07-05ID14517 Final Report, 374 p.
- Wisian, Kenneth W., David D. Blackwell and Maria C. Richards, Correlation of surface heat loss and total energy production for geothermal systems, Geothermal Res. Council Trans., v. 25, 331-336, 2001.