

Andrew Curtis Elmore, Ph.D., P.E.
Associate Professor of Geological Engineering
Senior Investigator, Energy Research & Development Center

CONTACT INFORMATION

Missouri University of Science and Technology (Missouri S&T)
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EDUCATION

1991	Ph.D. University of Arizona, Civil Engineering. Monte Carlo simulation of groundwater contamination at a Nebraska contamination site.
1988	M.S. University of Arizona, Civil Engineering. A finite element investigation of flow through an earth dam with open cracks using thin element techniques.
1986	B.S. University of Missouri-Rolla, Geological Engineering. Summa Cum Laude.

APPOINTMENTS/EMPLOYMENT

2008-present	Senior Investigator, Energy Research & Development Center, Missouri S&T.
2007-present	Associate Professor of Geological Engineering, Missouri S&T.
2001-2007	Assistant Professor of Geological Engineering, Missouri S&T.
2001	Adjunct Professor of Geological Engineering, Missouri S&T.
1986-2002	Engineer/Project Manager, URS Group, Inc. (formerly Woodward-Clyde), Overland Park, Kansas
1987-1991	Graduate Teaching/Research Assistant, University of Arizona, Civil Engineering.

PROFESSIONAL REGISTRATION AND CERTIFICATION

Licensed Professional Engineer, Kansas
Licensed Professional Engineer, Nebraska
Licensed Professional Engineer, Missouri
Licensed Professional Engineer, Oklahoma
National Council of Examiners for Engineering and Surveying Certification
40 hr HAZWOPER-certified according to 29 CFR 1910.120
Level B HAZWOPER-certified according to 29 CFR 1910.120

PROFESSIONAL ACTIVITIES

Professional Society Membership

American Society of Civil Engineers – Environmental and Water Resources Institute (EWRI)

- Chair of the Research and Education Council
- Chair of the Margaret S. Petersen Woman of the Year Task Committee
- Founder of the Margaret S. Petersen Woman of the Year Award
- Margaret S. Petersen Woman of the Year Panel Moderator, *World Environmental & Water Resources Congress, 2011*, Palm Springs, May 23
- Outstanding Women Engineers Panel Moderator, *World Environmental & Water Resources Congress 2009*, Kansas City, May 21
- Member-at-Large of the International Fellows Committee
- Member-at-Large of the International Council

Association of Environmental Engineering & Science Professors

- AEESP Special Session "Water Sustainability" session organizer with A. Archer* and S. Ergas, *Water Environment Federation Technical Exposition and Conference (WEFTEC) 2010*, New Orleans, October 5.

World Laboratory, Geneva, Switzerland

- Associate Member of the Permanent Monitoring Panel on Water and Flooding (2005-2007)

Editorial Board Memberships

- *Remediation*, 1999-present
- *Environmental Geosciences*, 2004-present

Peer Reviewer (Other than Editorial Boards)

- *IEEE Transactions on Smart Grid*
- *IEEE Transactions on Energy Conversion*
- *Wind Energy*
- *Ground Water*
- *Environmental Engineering Science*
- *Journal of Hazardous Materials*
- *PEDOSPHERE*
- *Health Education Research*

Other

- "Incorporating GSR Practices into Remedy Operation and Optimization" session organizer with R. Nichols, *Eighth International Conference of Remediation of Chlorinated and Recalcitrant Compounds*, 2012, Monterey, California, May 21-24.
- Junior Engineering Technical Society (JETS) TEAMS 2010 competition author (2009-2010)

HONORS AND AWARDS

National

September 2010

First place, student paper competition. Bottu, M., M.L. Crow, A.C. Elmore. 2010. Design of a conditioner for smoothing wind turbine output power. 2010 North American Power Symposium, Arlington, Texas, September 26-18.

State of Missouri

May 2009

Missouri Department of Natural Resources – Resource Honor Role

January 30, 2008

Missouri Senate Proclamation Recipient (with Mariesa Crow).

January 30, 2008

Missouri House of Representatives Proclamation Recipient (with Mariesa Crow)

University of Missouri System

2010

C. Brice Ratchford Memorial Fellowship

2008

University of Missouri Business Development Program Annual Showcase Award

Missouri S&T

2011

Miner Athletics Academy

2010

Faculty Service Award

2010

Mines & Metallurgy Academy

2009

Outstanding Professor, Eta Kappa Chapter of Chi Omega

2008

Faculty Excellence Award

2008

Service Learning Award

2005

MM Award for Outstanding Varsity Athlete Alumni Achievement

2005

School of Materials, Energy, and Earth Resources Dean's Innovative Teaching Award

2004

MSM-UMR Alumni Association Outstanding Student Advisor

2002

New Faculty Teaching Scholar

1986

UMR Summa Cum Laude

1986

W.A. Tarr Award for Top Mines and Metallurgy Student

REPRESENTATIVE COURSES TAUGHT

Missouri S&T

International groundwater studies (undergraduate and graduate elective)
International engineering and design (undergraduate senior design elective and graduate elective)
Renewable energy systems (undergraduate and graduate elective)
Senior capstone design (undergraduate required)
Geological engineering field methods (undergraduate required)
Senior seminar coordinator (undergraduate required)
Subsurface hydrology (undergraduate required)
Geology for engineers (undergraduate required)
Risk assessment in environmental studies (undergraduate and graduate elective)
Subsurface exploration (undergraduate required)

University of Arizona

Engineering graphics lecturer (undergraduate required)
Engineering graphics laboratory (undergraduate required)
Engineering graphics computer laboratory (undergraduate required)

Short Courses

"Design to Construction" for the U.S. Environmental Protection Agency, Region 7 on July 24 and 25, 2007. Organized by the University of Missouri-Kansas City Center for Applied Environmental Research.

SERVICE

University of Missouri System

2010-present Faculty Engagement and Thomas Jefferson Awards Committee

Missouri S&T

2011-present Girls Go Global Precollege Program Faculty Sponsor
2010-2011 Chair, Geological Engineering Faculty Search Committee
2009-2010 Chair, Geological Sciences and Engineering Chair Search Committee
2008-2010 Chair, Global Studies Minor Advisory Committee
2008-2010 Green Campus Committee
2008-present Girls Go Green Precollege Program Faculty Sponsor
2007-2010 Miner Alumni Association Awards Committee
2005-2010 M Club Faculty Advisor
2002-present Student Conduct Committee
2005-2009 Service Learning Committee
2008-2009 Freshman Engineering Advisor
2007-2009 Alpha Omega Theta (Christian Fraternity) Faculty Advisor
2004-2007 University of Missouri Research Board Reviewer
2005 University of Missouri Mediation Training
2005-2007 SOMEER Committee for Effective Teaching
2003-2006 Jackling Introduction to Engineering Precollege Program Faculty Sponsor

GRANTS AND CONTRACTS

41 AWARDED, 5 IN REVIEW; \$4,254,243 TOTAL AWARDED; \$1,804,282 ELMORE SHARE; \$44,007 ELMORE AVERAGE SHARE

PUBLICATIONS AND OTHER SCHOLARLY CONTRIBUTIONS (37 PEER REVIEWED, 84 REFEREED)

Book contributions – 2 published

1. Elmore, A.C. 2002. Managing Data for a Groundwater Restoration Project. An essay presented in T.V. Chech, Principles of Water Resources-History, Development, Management, and Policy. John Wiley & Sons, Inc. New York.
2. Elmore, A.C. & D. N. Contractor. 1997. Selection of a ground water clean up option using Monte Carlo analysis. Published in Groundwater protection alternatives and strategies in the U.S.A., 31-59. American Society of Civil Engineers, New York.

Peer-reviewed journal publications – 32 published/in press, 1 in review (*Graduate student, **Undergraduate)

- IR1. Sperber, A.*; A.C. Elmore, M. Crow, J. Cawfield. In review. Performance Evaluation of Energy Efficient Lighting Associated with Renewable Energy Applications. Submitted to *Renewable Energy* on November 17, 2010.
- IP1. Harper, G.**; Elmore, A.C., Redell, C.*, Risley, G.H.R., Burken, J.G. In press. Physical impact of waterjet-based remediation on benthic organisms. Submitted to *Remediation* on May 1, 2011. Comments received on May 26, 2011. Revised manuscript submitted on June 9, 2011. Accepted on June 20, 2011.
- IP2. Vitello, M.*; A.C. Elmore, M.L. Crow. In press. Development of a mobile water disinfection unit powered by renewable energy. Submitted to *J. Energy Engineering* on April 9, 2009. Comments on manuscript EYENG-19 received on January 15, 2010. Revised manuscript submitted on January 25, 2010. Accepted for publication on January 10, 2011.
1. Clark, K.N.*; A.C. Elmore. 2011. Bacteria removal effectiveness of ceramic pot filters not applied with colloidal silver. *J. of Water Science and Technology: Water Supply*, 11(4).
 2. Elmore, A.C., Fahrenholtz, W.G., Glauber, L.**; Sperber, A.N.* 2011. Calculation of ceramic pot filter hydraulic conductivity using falling-head data. *J. of Water Science and Technology: Water Supply*, 11(3), 358-363.
 3. Redell, C.*, Elmore, A.C., Burken, J., Stringer, R.* 2011. Waterjet injection of powdered activated carbon for sediment remediation. *J. of Soils and Sediments*, 11, 1115-1124.
 4. Archer, A.R.*; A.C. Elmore, E. Bell**, and C. Rozycki**. 2011. Field investigation of arsenic in ceramic pot filter-treated drinking water. *Water Science and Technology*. 63(10), 2193-2198.
 5. Risley, G.H.R.*; A.C. Elmore, J.G. Burken, G. Galecki. 2011. Development of a waterjet system for direct delivery of granular iron and activated carbon to remediate contaminated aqueous sediments. *Remediation*, 21(3), 103-119.
 6. Granich, W.* & A.C. Elmore. 2010. An evaluation of the use of renewable energy to pump water in Sacala las Lomas, Guatemala. *Environmental Earth Science*. 61(4), 837-846.
 7. Johnson, B.W.*; A.C. Elmore., J.D. Cawfield. 2010. Application of a mass balance-based stochastic transport model. *Practice Periodical of Hazardous, Toxic, and Radioactive Waste Management*, 14(3), 170-177.
 8. Gallagher, R.* & A.C. Elmore. 2009. Monte Carlo simulations of wind speed data. *Wind Engineering*, 33(6), 661-673.
 9. Elmore, A.C. & R. Gallagher*. 2009. Using regional climate center data to predict small wind turbine performance. *Practice Periodical of Hazardous, Toxic, and Radioactive Waste Management* 13(1), 14-19.
 10. Gallagher, R.* & A.C. Elmore. 2008. Groundwater circulation well operation using wind turbine-generated energy. *Remediation* 18(3), 31-39.
 11. Martin, J.H. & A.C. Elmore. 2007. Water drinking attitudes and behaviors in two indigenous communities in Guatemala: assessment and educational intervention. *Journal of Tropical and Rural Health*. 6, 56-60.
 12. Elmore, A.C. 2007. Applying a one-dimensional mass transport model using ground water concentration data. *Environmental Engineering*, 133(4), 372-379.
 13. Elmore, A.C. 2006. International experiential learning course design. *International Journal of Applied Environmental Education and Communication*, 5(1), 1-9.
 14. Cable, J.W.*; M.L. Duchene, A.C. Elmore, D. Hill, D.A. Summers, & R. Dilly**. 2005. Initial investigation on the use of waterjets to place amendments in the subsurface. *Remediation*, 16(1), 43-54. Winter.
 15. Elmore, A.C., G.R. Miller*, & B. Parker*. 2005. Water quality in Lemoa, Guatemala. *Environmental Geology*. 48: 901-907.

16. Lepper, E.* & A.C. Elmore. 2005. Groundwater development in Lemoa, Guatemala. *Environmental Geology*. 48: 49-56.
17. Miller, G.* & A.C. Elmore. 2005. Modeling of a groundwater circulation well removal action alternative. *Practice Periodical of Hazardous, Toxic, and Radioactive Waste Management*. 9(2), 122-129.
18. Elmore, A.C., R. Gallagher*, & K.D. Drake. 2004. Using wind to power a groundwater circulation well – preliminary results. *Remediation*. 14(4), 49-65.
19. Elmore, A.C. & L. DeAngelis*. 2004. Modeling a groundwater circulation well alternative. *Ground Water Monitoring and Remediation* 24(1), 66-73. Winter.
20. Elmore, A.C., L.A. Travaglin, & J.L. Triplett*. 2002. Field analyses of RDX and TCE in groundwater during a GCW pilot study. *Remediation*, 12(4), 59-76. Winter.
21. Elmore, A.C. & T. Graff. 2002. Best available treatment technologies applied to groundwater circulation wells. *Remediation* 12(3), 63-80. Summer.
22. Whitworth, T.M. & A.C. Elmore. 2002. Remediating trapped free phase LNAPL. *Remediation*, 12(2), 5-21. Spring.
23. Elmore, A.C. & J.B. Hellman. 2001. Model-predicted groundwater circulation well performance. *Practice Periodical of Hazardous, Toxic, and Radioactive Waste Management* 5(4), 203-210. October.
24. Elmore, A.C. & T. Graff. 2001. A Case study of the beneficial reuse of treated groundwater. *Remediation*, 11(3), 49-62. Summer.
25. Elmore, A.C. & D.N. Contractor. 2000. Comment on "Convergence of stochastic optimization and decision analysis in the engineering design of aquifer remediation" by R.A. Freeze and S.M. Gorelick, November-December 1999 issue, 37(6): 934-954. *Ground Water*. 38(3). May-June. 328.
26. Elmore, A.C. & W. Lee. 1999. Pilot study evaluation of pulsed plasma arc groundwater treatment. *Practice Periodical of Hazardous, Toxic, and Radioactive Waste Management*. 3(4), 178-182. October.
27. Elmore, A.C. & T. Graff. 1999. Best value remedial design. *Remediation* 9(2), 23-28. Spring.
28. Elmore, A.C. & M. Vandenberg. 1997. Using uncertainty analysis to reduce costs at a pump-and-treat site. *Remediation* 7(3), 5-21. Summer.
29. Elmore, A.C. 1996. Systematically selecting an alternative to remediate soil contaminating groundwater. *Remediation* 6(3), 43-56. Spring.
30. Elmore, A.C. & R.F. Skach. 1994. Screening method for locating ground water monitoring wells. *Remediation* 8(1), 51-63. Winter.

Peer-reviewed conference proceedings papers– 3 published/in press, 0 in review

1. Nguyen, T.A*., Qui, X*., Gamage, T.T*., Crow, M.L., McMillin, B.M., Elmore, A.C. 2011. Microgrid application with computer models and power management integrated using PSCAD/EMTDC. *Proceedings of the 43rd North American Power Symposium*, Boston, Massachusetts, August 4-6.
2. Xin, Q*., Nguyen, T*., Crow, M.L., Elmore, A.C., McMillan, B. 2011. Computer models for microgrid applications. Proceedings of the IEEE Power & Energy Society General Meeting, Detroit, Michigan. July.
3. Bottu, M*., M.L. Crow, A.C. Elmore. 2010. Design of a conditioner for smoothing wind turbine output power. 2010 North American Power Symposium, Arlington, Texas, September 26-18. (Student paper competition award winner).

Refereed conference proceedings papers– 29 published/accepted, 1 in review

- IR1. Collins, E.R.* & Elmore, A.C. In review. Characterization of a Solar-Powered Pump-and-Treat Remediation System. Battelle: Eighth International Conference on Chlorinated and Recalcitrant Compounds (Battelle ChlorCon), Monterey, California, May 21, 2012.
1. Harper, G.**., Redell, C.*., Elmore, A.C., Burken, J., Galecki, G., Stringer*, R., Archer, A*. 2011. Using Benthic Macroinvertebrates to Evaluate the Effects of Waterjet Delivered Amendment Evaluating the Effects of Waterjet Delivered Amendment on Benthic Organisms. Battelle Conference on Remediation of Contaminated Sediment, New Orleans, Louisiana. February 7-10, 2011.

4. Elmore, A.C. 2010. Consortium for sustainable drinking water studies. 10th Annual Meeting of Directors of FIPSE/CAPES Consortia, Florianopolis, Brazil, September 22-25.
5. Bottu, M.*, M.L. Crow, A.C. Elmore. 2010. Design of a conditioner for smoothing wind turbine output power. 2010 North American Power Symposium, Arlington, Texas, September 26-18.
6. Elmore, A.C. 2010 (invited). Lessons learned from renewable energy-based groundwater remediation systems. Battelle: Seventh International Conference on Chlorinated and Recalcitrant Compounds (Battelle ChlorCon), Monterey, California, May 26.
7. Harper, G.** , Risley, G.* , Elmore, A.C., Burken, J., Galecki, G., Archer, A.* 2010. Evaluating the effects of waterjet-delivered amendment on benthic organisms. World Environmental and Water Resources Congress, Providence, Rhode Island. May 16-20.
8. Archer, A.R.* , G.H.R. Risley* , R.D. Stringer* , A.C. Elmore, and J.G. Burken 2010. Waterjet amendment for remediation of contaminated sediments using absorptive and dechlorinating compounds in compromised waterways. World Environmental and Water Resources Congress, Providence, Rhode Island. May 16-20.
9. Risley, G.H.R.*; Elmore, A.C.; Burken, J.G.; and Galecki, G. 2010. Waterjet placement of remediation amendments into contaminated sediments. World Environmental and Water Resources Congress, Providence, Rhode Island. May 16-20.
10. Elmore, A.C. 2010. Missouri S&T's Global Studies Minor development experience. World Environmental and Water Resources Congress, Providence, Rhode Island. May 16-20.
11. Archer, A.* , Elmore, A.C. 2010. Use of ceramic pot filters for water disinfection in Guatemala. World Environmental and Water Resources Congress, Providence, Rhode Island. May 16-20.
12. Elmore, A.C., F. Cajas. 2009. Research on water filter systems in rural Guatemala. AGUA 2009, Cali, Columbia. November 9-13.
13. Archer, A.* , M. Foster** , A.C. Elmore. 2009. Arsenic investigation in Ecofiltro's ceramic pot filter. AEESP Annual Conference, Iowa City, Iowa. July 26-29.
14. Burken, J., Elmore, A.C., Crow, M., Granich*, W., Blair, T. 2009. Distributed power generation at state facilities: economic analysis of savings and carbon credits. World Environmental and Water Resources Congress, Kansas City, Missouri. May 17-21.
15. Tune, J.* & Elmore, A.C. 2009. Field analyses for the detection and enumeration of coliform bacteria in drinking water in rural Guatemala. World Environmental and Water Resources Congress, Kansas City, Missouri. May 17-21.
16. Johnson*, B & Elmore, A.C. 2009. Stochastic analysis of a mass-based 1D contaminant source release model to explicitly account for uncertainty in time- variable rectangular pulse release variables. World Environmental and Water Resources Congress, Kansas City, Missouri. May 17-21.
17. Granich*, W. & A.C. Elmore. 2009. Feasibility study for implementing renewable energy to power a groundwater pump in rural Guatemala. World Environmental and Water Resources Congress, Kansas City, Missouri, May 17-21.
18. Elmore, A.C. 2009. Using wind energy to power an environmental clean-up system. University of Missouri Energy Summit, Columbia, Missouri. April 22-23.
19. Elmore, A.C., M. Crow, M. Vitello. 2009. Using a PV system to power an emergency water disinfection system. University of Missouri Energy Summit, Columbia, Missouri. April 22-23.
20. Elmore, A.C., M. Crow, J. Burken. 2009. A State-sponsored renewable energy demonstration project. University of Missouri Energy Summit, Columbia, Missouri, April 22-23.
21. Elmore, C.A., A.C. Elmore, M. Crow, N. Maerz, N. Anderson. 2009. "Girls Go Green" – a precollege summer experience focusing on energy and the environment. University of Missouri Energy Summit, Columbia, Missouri. April 22-23.
22. Elmore, A.C., D., Moluf** , P. Wilson, M. Ixajco Arevalo. 2009. Ecofilter's ceramic pot filter experience in Guatemala. WEF Disinfection Conference, Atlanta, Georgia, February 28.
23. Elmore, A.C. 2008. A mass balance-based 1D mass transport model. Proceedings of the ASCE World Environmental and Water Resources Congress, Honolulu, Hawaii. May 13.

24. Elmore, A.C. & R. Gallagher. 2008. Predicting small wind turbine performance using remote wind data. Proceedings of the ASCE World Environmental and Water Resources Congress, Honolulu, Hawaii. May 13.
25. Elmore, A.C. & R.E. Flori. 2008. The University of Missouri-Rolla's Jackling Intro to Engineering Summer Camp. Proceedings of the ASCE World Environmental and Water Resources Congress, Honolulu, Hawaii. May 13.
26. Elmore, A.C. 2007. Economic and environmental benefits of using a wind turbine to power a groundwater remediation system. Proceedings of the ASCE World Environmental and Water Resources Congress, Tampa, Florida. May 15-19.
27. Elmore, A.C. & W. Fahrenholtz. 2007. Using science, engineering, and education to address water supply challenges in the highlands of Guatemala. Proceedings of the ASCE World Environmental and Water Resources Congress, Tampa, Florida. May 15-19.
28. Gallagher, R.E.* and A.C. Elmore. 2007. Predicting medium sized wind turbine performance in Russia and America. Annual Perm State Geological Conference, Perm State University, Perm, Russia, May 22-23.
29. Elmore, A.C., C. Elmore & P. Lutz. 2007. Using international water studies to attract women to science and engineering studies. Proceedings of the ASCE World Environmental and Water Resources Congress, Tampa, Florida. May 15-19.

Refereed Conference Presentations – 56 presented, 0 pending

1. Elmore, A.C. 2011. Margaret S. Petersen Woman of the Year Award. World Environmental and Water Resources Congress, Palm Springs, California, May 23.
2. Burken, J.G., Elmore, A.C., Archer, A., Summers, D., Galecki, G., Stringer, R., Harper, G., Reible, D. 2011. Waterjet Placement of Sediment Amendments: Green In Situ Remediation. Battelle Conference on Remediation of Contaminated Sediment, New Orleans, Louisiana, February 7-10.
3. Archer, A., Stringer, R., Redell, C., Galecki, G., Summers, D., Reible, D., Elmore, A.C., and Burken, J.G. 2011. In-Situ Waterjet Placement of Powdered Activated Carbon in Contaminated Sediments. Battelle Conference on Remediation of Contaminated Sediment, New Orleans, Louisiana. February 7-10.
4. Stringer, R., Archer, A., Redell, C., Burken, J., Elmore, A.C., Shi, H., Reible, D. 2011. Depth Profiling of PAHs in Contaminated Sediment Treated with Waterjet Technology using In-situ SPME. Battelle Conference on Remediation of Contaminated Sediment, New Orleans, Louisiana. February 7-10.
5. Stringer, R., Archer, A., Redell, C., Burken, J., Elmore, A.C., Reible, D., Galecki, G. 2011. Decreased PAH Bioavailability in Contaminated Sediment Treated with Waterjet Amendments. Superfund Research Program Annual Meeting 2010, Portland, Oregon. November 10-12.
6. Archer, A., Stringer, R., Summers, D., Galecki, G., Reible, D., Redell, C., Elmore, A.C., Burken, J.G. 2010. (invited). Innovative use of waterjet technology to remediate contaminated sediments using activated carbon. Gordon Research Conference, Environmental Sciences:Water, Holderness, New Hampshire. June 20 – 25, 2010.
7. Burken, J.G., Elmore, A.C., Archer, A.R., Risley, G.H., Harper, G.E. 2010. Benthic and the Jets: Waterjetting Sediment Amendment. National Association of Remedial Project Managers (NARPM) Annual Training Event. Washington D.C., May 27.
8. Elmore, A.C. 2010. (invited). Small RE systems performance versus prediction. Federal Remediation Technology Roundtable, Washington, D.C., May 13.
9. Archer, A.R., J.G. Burken, A.C. Elmore, David Summers, G. Galecki, G. Risley. 2009. Innovative use of waterjet technology to remediate contaminated sediments using iron and granulated activated carbon. Annual Meeting of the Superfund Research Program: Emerging Issues, Emerging Progress. November 2-4.
10. Risley, G.H.R., A.C. Elmore, J.G. Burken, G. Galecki, A. Archer. 2009. Waterjet placement of amendments for the remediation of contaminated sediments. Annual Meeting of the Superfund Research Program: Emerging Issues, Emerging Progress. November 2-4. Submitted October 15, 2009
11. Risley*, G.H.R., A.C. Elmore, J.G. Burken, G. Galecki, A. Archer*. 2009. Placement and Quantification of Remediation Amendments into Contaminated Sediments using a Waterjet Injection System. Mid-American Environmental Engineering Conference. St. Louis, Missouri. October 24.
12. Granich, W.*, A.C. Elmore. 2009. A ground water supply and renewable energy case study for Sacala las Lomas, Guatemala. Midwest Ground Water Conference, St. Louis, Missouri. October 14-15.

13. Elmore, A.C., J. Leibbert, K.D. Drake. 2009. Using a wind turbine to power groundwater remediation at a Nebraska Superfund site. U.S. Army Corps of Engineers Infrastructure Systems Conference, Cleveland, Ohio. July 20-24.
14. Granich, W.* , A.C. Elmore. 2009. Feasibility study for implementing renewable energy to power a groundwater pump in Guatemala. Missouri Waste Control Coalition, Lake of the Ozarks, Missouri. June 21-23.
15. Granich, W.* , Elmore A.C. 2009. Using renewable energy to pump water in Sacala las Lomas, Guatemala: A feasibility study. Missouri Waste Control Coalition Conference, Lake of the Ozarks, Missouri. June 21-23.
16. Elmore, A.C. 2009. Outstanding women engineers in water and the environment: following Margaret Petersen's legacy. World Environmental and Water Resources Congress, Kansas City, Missouri, May 21.
17. Granich*, W. & A.C. Elmore. 2009. Assessing the renewable energy potential to supply energy to a submersible pump in rural Guatemala. Missouri Groundwater Association Annual Conference, Columbia, Missouri. March 5.
18. Martin, J.H. & A.C. Elmore. 2009. A multidisciplinary approach to drinking water interventions in Guatemala. 38th Annual Meeting of the Society for Cross-Cultural Research, Las Vegas, Nevada, February 18-21.
19. Elmore, C. & A.C. Elmore. 2008. Attracting more women to engineering and science: using international water studies, a living/learning community, and K-12 outreach to help make the connection in the classroom. Women in Engineering Proactive Network National Conference, St. Louis, Missouri, June 8-10.
20. Elmore, A.C. 2008. Using Geoprobe data to predict contaminant source history. Missouri Groundwater Association Annual Conference, Columbia, Missouri, March 7.
21. Granich*, W. & A.C. Elmore. 2008. Feasibility of powering a deep groundwater pump using renewable energy in rural Guatemala. Missouri Groundwater Association Annual Conference, Columbia, Missouri, March 7.
22. Scott**, J., Housman**, J., & A.C. Elmore. 2008. Field analysis of water quality before, during, and after filtration using filters produced in Guatemala. Missouri Groundwater Association Annual Conference, Columbia, Missouri, March 7.
23. Tune, J.* , A.C. Elmore & M. Mormile. 2008. Field analyses for the detection and enumeration of coliform bacteria in drinking water during a public health assessment study. Missouri Groundwater Association Annual Conference, Columbia, Missouri, March 7.
24. Elmore, A.C., J.G. Burken, J.H. Martin, J. Gallaway, W.G. Fahrenholtz, J.D. Smith. 2007. Sustainable POU water filtration in Guatemala: materials, manufacturing, economics, health beliefs. American Association of Environmental Engineering and Science Professors Education and Research Conference, Blacksburg, Virginia, July 27 – August 1.
25. Burken, J.G., A.C. Elmore & C. Elmore. 2007. Attracting women to engineering: international programs, service learning, and environmental engineering programs. American Association of Environmental Engineering and Science Professors Education and Research Conference, Blacksburg, Virginia, July 27 – August 1.
26. Elmore, A.C. & J.D. Cawfield. 2007. A water supply study at San Sebastian de Lemoa, Guatemala. 2007 Ground Water Summit, Albuquerque, New Mexico. April 29 - May 3.
27. Martin, J.H. & A.C. Elmore. 2006. Water Attitudes in Two Indigenous Communities in Guatemala: Assessment and Education. A poster presentation at the 18th Annual Convention for Psychological Science, New York. May 25-28.
28. Elmore, A.C., R. Gallagher*, & R. Nichols. 2006. Using wind power to remediate groundwater. A poster presentation at the American Association of Petroleum Geologists Annual Convention, Houston. April 9-12
29. Elmore, C.A., & A.C. Elmore. 2006. Women, water, and international experiential learning. Safe Drinking Water: Where Science Meets Policy - Environmental Symposium of the University of North Carolina at Chapel Hill. March 16 - 17.
30. Martin, J.H. A.C. Elmore, R. Luhrsen**, R. Tennyson**. 2006. Assessment and education of water drinking attitudes in an indigenous population in Guatemala. Safe Drinking Water: Where Science Meets Policy - Environmental Symposium of the University of North Carolina at Chapel Hill. March 16 -17.
31. Elmore, A.C., K.D. Drake, R. Nichols, R. Gallagher*. 2005. Practical applications of renewable energy to remediation. Partners in Environmental Technology Technical Symposium & Workshop sponsored by the U.S. Department of Defense Environmental Security Technology Certification Program and the Strategic Environmental Research and Development Program, Washington, D.C. November 29-December 1.
32. Elmore, A.C., J. Vogan, M. Duchene, D.A. Summers, J. Cable*, R. Dilly**. 2005. Bench-scale studies using waterjets to place remediation amendments in the subsurface. Partners in Environmental Technology Technical Symposium &

- Workshop sponsored by the U.S. Department of Defense Environmental Security Technology Certification Program and the Strategic Environmental Research and Development Program, Washington, D.C. November 29-December 1.
33. Elmore, A.C., J. W. Cable*, R.A. Dilly**, R.E. Gallagher*, R. Seabaugh**. 2005. Ground water remediation powered with renewable energy. U.S. Environmental Protection Agency, People, Prosperity, Planet (P3) student design competition. Washington, D.C. May 16 & 17.
 34. Elmore, A.C. & K. D. Drake. 2005. Using wind energy to power groundwater remediation. U.S. Environmental Protection Agency National Association of Remedial Project Managers 15th Annual Training Conference, Phoenix, Arizona. May 23 – 27.
 35. Lepper E.* & A.C. Elmore. 2005. Groundwater development in Lemoa, Guatemala. Missouri Section American Water Works Association 2005 Annual Conference – University Forum. Springfield, Missouri, April 6-8.
 36. Elmore, A.C. 2005. Introducing engineering & science students to international water supply challenges. Missouri Section American Water Works Association 2005 Annual Conference – University Forum. Springfield, Missouri, April 6-8.
 37. Elmore, A.C. & L. DeAngelis. 2004. Modeling a ground water circulation well alternative. 13th Annual Kansas Hydrology Seminar sponsored by American Institute of Hydrology – Kansas Section and Association of Engineering Geologists – Kansas City/Omaha Section. Topeka, Kansas. November 19.
 38. Drake, K.D & A.C. Elmore. 2004. Groundwater remediation powered by renewable energy. Abstract 36 (5) 245-6. Geological Society of America Annual Meeting, Denver, Colorado. November 7-10.
 39. Hogan, J.P, E.A. Atekwana, S. Dunn-Norman., A.C. Elmore, J. Gregg, R.C. Laudon, N.H. Maerz, F. Oboh-Ikuenobe, J.D. Rogers, & D.J. Wronkiewicz. 2004. Oh take me out to the field: Geological excursions at the Department of Geological Sciences and Engineering at the University of Missouri-Rolla. Abstract 36 (5) 62-42. Geological Society of America Annual Meeting, Denver, Colorado. November 7-10.
 40. Elmore, A.C. 2004. International groundwater studies: application of integrated course design theory. University of Missouri Teaching Renewal Conference, Columbia, Mo. February 27.
 41. Elmore, A.C., D.A. Summers, J. Vogan, M. Duchene. 2003. A waterjetting method for reactive barrier emplacement in bedrock environments. A poster presentation at the Partners in Environmental Technology Technical Symposium & Workshop sponsored by the U.S. Department of Defense Environmental Security Technology Certification Program and the Strategic Environmental Research and Development Program, Washington, D.C. December 2 -4.
 42. Elmore, A.C., D.A. Summers, J. Vogan, M. Duchene. 2003. A novel method for PRB emplacement in bedrock environments. A poster presentation at the Remediation Technologies Development Forum (RTDF) Permeable Reactive Barriers Action Team Meeting, Niagara Falls, New York. October 15 and 16.
 43. Bruening, S.* & A.C. Elmore. 2003. Groundwater circulation well performance prediction. Association of Engineering Geologists 46th Annual Meeting. September 15-21.
 44. Gawer, G.* & A.C. Elmore. 2003. Drinking water quality in San Sebastian Lemoa, Guatemala. Association of Engineering Geologists 46th Annual Meeting. September 15-21.
 45. Sommers, E.* & A.C. Elmore. 2003. Hydrologic/geologic investigation in Lemoa, Guatemala – Aquifer case study. Association of Engineering Geologists 46th Annual Meeting. September 15-21.
 46. D.A. Summers, S. Dunn-Norman, A. Gupta, G. Galecki, R. Fossey & A.C. Elmore "Environmental Enhancements through High Pressure Waterjet Applications." KEYNOTE PAPER - SWEMP 2002 - 7th International Symposium on Environmental Issues and Waste Management in Energy and Mineral Production - Cagliari, October.
 47. Elmore, A.C. 2001. Groundwater circulation wells using innovative treatment. A podium presentation. Abstract published in the program of the 2001 Annual Meeting of the Association of Engineering Geologists, St. Louis, Missouri, October 4-7, 2001.
 48. Elmore, A.C. 2001. Groundwater conservation concerns at a Nebraska Superfund site. A podium presentation. Abstract published in the program of the 2001 Annual Meeting of the Association of Engineering Geologists, St. Louis, Missouri, October 4-7, 2001.
 49. Elmore, A.C. & T. Graff. 2001. Groundwater Circulation Wells Using Innovative Treatment Systems. A poster presentation. Abstract published in the proceedings of the 2001 International Containment & Remediation Conference, Orlando, Florida, June 11-13, 2001.

50. Elmore, A.C. 2000. Groundwater Circulation Wells Case Studies. Presented at the Fall 2000 Interstate Technology Regulatory Cooperation Conference, San Antonio, Texas. October.
51. Graff, T. & A.C. Elmore. 2001. Beneficially Reusing Treated Groundwater at the Former Nebraska Ordnance Plant Site. A podium presentation. Abstract published in the proceedings of the 2001 U.S. Army Corps of Engineers Environmental Development Workshop, Portland, Oregon.
52. Elmore, A.C. and T. Graff. 1999. Case Studies of Uncertainty Analysis And Explosives Clean Up. Proceedings of the 1999 Joint ASCE-CSCE Environmental Engineering Conference, July 25-28, 1999, Norfolk, Virginia.
53. Elmore, A.C. 1998. Analyzing the Unknown, Examples of Uncertainty Analysis and Ground Water Remediation. AGWSE Technical Conference, Las Vegas, Nevada, December 1998.
54. Elmore, A.C. & W. A. Lee. 1996. The Database Aspect of Decision Tree Analysis: A Case Study. Presented at the 1996 Air and Waste Management Association Midwest Technical Conference. Kansas City, Missouri.
55. Elmore, A.C. 1994. Rapid Characterization of TCE Contamination in Groundwater at the Former Nebraska Ordnance Plant, Mead, Nebraska. Poster presentation at Woodward-Clyde's 1994 Technical Symposium at U.S.-Based Shareholders' Informational Meeting, Tempe, Arizona.
56. Elmore, A.C. & D.N. Contractor. 1993. Monte Carlo Simulation of Groundwater Remediation at a Nebraska Contamination Site. Presented at the 29th Annual Conference of the American Water Resources Association, Tucson, Arizona.

Invited and/or Outreach Lectures – 42 presented

1. Conroy, J. and A.C. Elmore. 2011. Field studies of CPF re-infection in Guatemala. Rolla Morning Rotary Club, **St. Robert, Missouri**, April 11.
2. Hubbel, L. and A.C. Elmore. 2011. Lifetime of ceramic pot filters. Pulaski County Rotary Club, **St. Robert, Missouri**, February 8.
3. Elmore, A.C. 2010. Lessons learned from renewable energy-based groundwater remediation systems. Battelle: Seventh International Conference on Chlorinated and Recalcitrant Compounds (Battelle ChlorCon), **Monterey, California**, May 26. (INVITED).
4. Elmore, A.C. 2010. Small RE systems performance versus prediction. Federal Remediation Technology Roundtable, **Washington, D.C.**, May 13. (INVITED).
5. Royzicki*, C. and A.C. Elmore. 2010. Comparing arsenic concentration with volume of water that flows through ceramic pot filters. Pulaski County Rotary Club, **St. Robert, Missouri**, February 9.
6. Elmore, A.C. 2010. Renewable energy demonstration at Troop I Headquarters. Noon Rotary Club, **Rolla, Missouri**, March 19.
7. Heinley*, K.N. and A.C. Elmore. 2010. Bacteria removal effectiveness of ceramic pot filters. Pulaski County Rotary Club, **St. Robert, Missouri**, February 9.
8. Elmore, A.C. 2009. Renewable energy demonstration project. Retired Teachers Association, **Rolla, Missouri**. March 4.
9. Elmore, A.C. 2009. Comite Agua Potable Sector Sur de Chichicastenango. Pulaski County Rotary Club, **St. Robert, Missouri**. March 3.
10. Elmore, A.C. 2009. Briefing on Troop I renewable energy systems. Jeffersonian Democratic Club of Phelps County Public Forum on Renewable Energy, **Rolla, Missouri**. February 20.
11. Granich*, W. and A.C. Elmore. 2008. UV Disinfection for Clean Drinking Water in the Highlands of Guatemala. Pulaski County Rotary Club, **St. Robert, Missouri**, September 23.
12. Elmore, A.C. 2007. The Water Supply at the Samaritan Hands Transition Home, Chichicastenango, Guatemala. Pulaski County Rotary Club. **St. Robert, Missouri**. September 18.
13. Elmore, A.C. 2007. Water projects in Guatemala. Pulaski County Rotary Club. **St. Robert, Missouri**. May 22.
14. Elmore, A.C. 2007. Studying water supplies in rural Guatemala. Kiwanis Club. **Rolla, Missouri**. March 13.

15. Elmore, A.C. 2007. Water issues in rural Quiche, Guatemala. University of San Carlos of Guatemala Centro Universitario de Occidente. **Quetzaltenango, Guatemala**. January 29. (INVITED).
16. Elmore, A.C. 2006. A sustainable method for water treatment for less favored communities: the case of indigenous communities in Guatemala. Pontificia Universidade Catolica do **Rio de Janeiro, Brazil**. December 18. (INVITED).
17. Elmore, A.C. 2006. Off-grid renewable energy at a Nebraska Superfund site. U.S Army Corps of Engineers Technical Brown Bag Series, **Kansas City, Missouri**. August 14. (INVITED).
18. Elmore, A.C. 2006. UMR water projects in Guatemala. Presented to **Rolla** Optimist Club. January 4.
19. Elmore, A.C. 2005. Keynote speech – Miner Pride. UMR Annual Athletic Banquet, **Rolla, Missouri**, May 4.
20. Elmore, A.C. 2004. UMR student-based projects in Guatemala. Presented to UMR Corporate Development Council. **Rolla, Missouri**, October 15.
21. Elmore, A.C. & B. Parker*. 2004. Guatemala Water Wells. Presented to **Rolla** Rotary Club, April 30.
22. Elmore, A.C., E. Lepper*, & C. Kaibel*. 2004. Guatemala Water Wells. Presented to UMR UMHE House, **Rolla, Missouri**, April 20.
23. Elmore, A.C., E. Lepper*, & C. Kaibel*. 2004. Guatemala Water Wells. Presented to UMR Neumann Center, **Rolla, Missouri**, March 24.
24. Elmore, A.C. 2004. Groundwater remediation powered by a renewable energy source-preliminary results. U.S. Environmental Protection Agency Region 7 Seminar, **Kansas City, Kansas**, March 12. (INVITED).
25. Elmore, A.C. 2004. Groundwater remediation powered by a renewable energy source-preliminary results. URS Group, Inc., **Overland Park, Kansas** Brown Bag Seminar. March 12.
26. Elmore, A.C. & C. Kaibel*. 2004. Guatemala water wells. Presented to **Rolla** Lions Club, March 4.
27. Elmore, A.C. 2004. Groundwater remediation powered by a renewable energy source-preliminary results. University of Missouri-**Columbia** Civil Engineering Seminar. February 27.
28. Elmore, A.C. & B. Parker*. 2004. Guatemala water wells. Presented to **Rolla** United Methodist Men Association (breakfast), February 17.
29. Elmore, A.C. & B. Parker*. 2004. Guatemala water wells. Presented to **Rolla** United Methodist Men Association (noon), February 11.
30. Elmore, A.C. & B. Parker*. 2004. Guatemala water wells. Presented to **Rolla** Rotary Club (noon), January 19.
31. Elmore, A.C. 2003. Practical site remediation. University of Missouri-**Columbia** Civil Engineering Seminar. October 31.
32. Elmore, A.C. 2003. Using a high pressure waterjet for electron donor delivery - preliminary results. U.S. Army Corps of Engineers Engineering Research and Development Center, **Vicksburg, Mississippi**. September 16. (INVITED).
33. Elmore, A.C. 2003. One perspective on the UM NFTS program. UMR New Faculty Teaching Scholar Meeting, **Rolla, Missouri**. September 5.
34. Elmore, A.C. 2003. Peoplesoft Grants Module Show-and Tell to SOMM Faculty, **Rolla, Missouri**, March 3.
35. Elmore, A.C. 2002. Groundwater Circulation Wells and Other Neat Stuff. U.S Army Corps of Engineers Technical Brown Bag Series, **Kansas City, Missouri**. June 17.
36. Elmore, A.C. 2002. Aquifer Heterogeneity – Measurement and Design Considerations. URS Corporation Professional Education Series, **Overland Park, Kansas**. July 16.
37. Elmore, A.C. 2002. Groundwater research, Lemoa, Guatemala. UMR Chapter, Sigma X, **Rolla, Missouri**, January 22.
38. Elmore, A.C. 2002. Groundwater Circulation Wells and Other Neat Stuff. U.S. Environmental Protection Agency, Region 7 Remediation Technologies Series, **Kansas City, Kansas**. July 16.
39. Elmore, A.C. 2002. Groundwater Circulation Wells and Other Neat Stuff. U.S Army Corps of Engineers Technical Brown Bag Series, **Omaha, Nebraska**. June 12. (INVITED).
40. Elmore, A.C. 2002. Groundwater Circulation Wells and Other Neat Stuff. Geoprobe Continuing Education Series, **Salina, Kansas**. June 11.

41. Elmore, A.C. 1996. Systematic Decision Making. Presented at Morrison & Hecker Environmental Update Seminar Series. **Kansas City, Missouri**
42. Elmore, A.C. 1995. Decision Analysis Techniques for Selection of Soil Remediation Alternatives to Protect Groundwater. Presented at U.S. Army Corps of Engineers, Kansas City District, Technical Brown Bag Series, **Kansas City, Missouri**. (INVITED).

Professional Magazines, Newsletters, and Other Publications

1. Elmore, A.C. (contributor). 2011. Renewable energy for drycleaner cleanups. *Technology News and Trends*, 55. U.S. Environmental Protection Agency Technology Innovation Program. September.
2. Elmore, A.C. (contributor). 2010. KMST – NPR affiliate. *Spring break in Guatemala*. April 8.
3. Elmore, A.C. (contributor). 2010. U.S. Army Corps of Engineers. *Decision framework for incorporation of green and sustainable practices into environmental remediation projects* Interim Guidance 10-01, March 5.
4. Elmore, A.C. (contributor). 2008. USEPA OSWER. *Green remediation: incorporating sustainable environmental practices into remediation of contaminated sites*. EPA 542-R-08-002. April. 56 pp.
5. Elmore, A.C. (contributor). 2008. *FY2007 Superfund Annual Report*, EPA 540-R-080-003, April.
6. Elmore, A.C. (contributor). 2007. "NWK uses state-of-the-art technology to remove contaminants." *It's Your Business, U.S. Army Corps of Engineers Northwest Division*, 5(9), p2.
7. Elmore, A.C. 2007. God's gardens. *The Upper Room Daily Devotional Guide* 73 (3), 48. July/August.
8. Elmore, A.C. (contributor). 2007. Wind turbine cost study shows need for redesigned ground-water remediation systems. *Technology News and Trends*. Vol. 30. U.S. Environmental Protection Agency Technology Innovation Program. May.
9. Elmore, A.C. (contributor). 2004. Wind turbine powers groundwater-circulation well. *Technology News and Trends*, 14. U.S. Environmental Protection Agency Technology Innovation Program. September.
10. Elmore, A.C. (contributor). 2003. UMR researcher and students to use wind power to clean up groundwater at munitions site. *UMR Missouri Miner*. October 30.
11. Elmore, A.C. (contributor). 2003. Students to use wind power to clean up groundwater at munitions site. *Science Daily Online* (<http://www.sciencedaily.com/releases/2003/10/031028061125.htm>), October 28.
12. Elmore, A.C. (contributor). 2003. UMR researcher and students to use wind power to clean up groundwater at munitions site. *UMR Research News*. October 23.
13. Elmore, A.C. (contributor). 2003. Supplying water, saving lives. *UMR Visions Online Research Magazine*. October.
14. Elmore, A.C. (contributor). 2003. Battling pollution one Superfund site at a time. *UMR Visions Online Research Magazine*. October.
15. Elmore, A.C. (contributor). 2003. Digging in over spring break. *MSM-UMR Alumnus*, Summer.
16. Saindon, R.* and A.C. Elmore. 2003. Engineering students spend spring break in Guatemala. *Missouri Groundwater Association News*, 9(1), Summer.
17. Elmore, A.C. (contributor). 2002. Elmore's help build pipeline at Guatemalan Orphanage. *MSM-UMR Alumnus*. 76 (3). Fall.
18. Elmore, A.C. (contributor). 2002. Water for an Orphanage. *Arizona Alumnus*. 80 (1). Fall.
19. Elmore, A.C. (contributor). 2002. Groundwater circulation wells modified to treat TCE, RDX. *ASCE Civil Engineering Magazine*. February.
20. Graff, T. and A.C. Elmore. 2001. GCWs Used with Air Stripping and UV Technologies to Remove TCE and RDX. *EPA Ground Water Currents: Developments in Innovative Ground Water Treatment*. Vol. 41. October.
21. Elmore, A.C. and T. Graff. 1998. Government Reform Leads To New Remedial Design Paradigm. *Soil and Groundwater Cleanup*. August/September.
22. Elmore, A. C. and W. A. Lee. 1997. Making Probable Practical; Database Programs and Other Tools Make Assessment Data More Usable. *Soil and Groundwater Cleanup*. May.

Other Publications

1. Elmore, A.C. 2009. *Wind power*. KMST on-air interview. October 2.
2. Elmore, A.C. (contributor). 2009. It's not a windmill: renewable power at patrol generates interest. *The Kaleidoscope Weekly*, 187, p 1. June 25.
3. Elmore, A.C. (contributor). 2009. Missouri S&T energy team – tapping the wind and sun. *Missouri Resources*, 26 (2), p 19. Spring/summer.
4. Elmore, A.C. (contributor). 2009. S&T H2O research finds a better way. *Rolla Daily News*, February 13, 2009.
5. Elmore, A.C. (contributor). 2009. S&T crew returns from Guatemala. *Rolla Daily News*, January 30.
6. Elmore, A.C. (contributor). 2006. Farmington graduate part of college team helping in Guatemala. *Farmington (Missouri) Daily Journal*. May 3.
7. Elmore, A.C. (contributor). 2005. UMR women make a difference on Spring Break trip to Guatemala. *Rolla Daily News*. February 27.
8. Elmore, A.C. (contributor). 2004. Plugging into the wind. *Environmental Protection*. January. 12.
9. Elmore, A.C. (contributor). 2004. Contamination is gone with the wind. *Wahoo (Nebraska) Newspaper*. January 15, 2004.
10. Elmore, A.C. (contributor). 2003. UMR researcher uses renewable energy to cleanup groundwater. *KUMR-FM Major Miners*. Aired December 19.
11. Elmore, A.C. (contributor). 2003. NOP technology works as planned. *Wahoo (Nebraska) Newspaper*. November 26.
12. Elmore, A.C. (contributor). 2003. UMR researchers return to Guatemala. *Missouri Miner*, November 6.
13. Elmore, A.C. (contributor). 2003. Wind power to clean up munitions site. *Solaraccess.com newsletter*. (<http://www.solaraccess.com/news/story?storyid=5460>). November 4.
14. Elmore, A.C. (contributor). 2003. Researcher, students to use wind power to clean up groundwater. *Water & wastewater products on line newsletter*. Stevens Publishing. (www.stevenspublishing.com/stevens/wwwpub.nsf/d3d5b4f938b22b6e8625670c006dbc58/c6fa7b17aef8a55886256dc006230ca?OpenDocument). October 31.
15. Elmore, A.C. (contributor). 2003. Wind power to clean up munitions site water. *washingtontimes.com* (<http://washingtontimes.com/upi-breaking/20031027-052019-5504r.htm>), October 28.
16. Elmore, A.C. (contributor). 2003. UMR researcher, students will clean up groundwater at Nebraska site. *Rolla Daily News*, October 24.
17. Elmore, A.C. (contributor). 2003. UMR researcher works on cleaning up contaminated groundwater. *Rolla Daily News*, September 5.
18. Elmore, A.C. (contributor). 2003. Environmental sustainability. *KUMR-FM Technofiles*. Aired September 19.
19. Burton, M. & A.C. Elmore. 2003. UMR students spend spring break in Guatemala. *Chillicothe Constitution-Tribune*. May 14.
20. Elmore, A.C. 2003. UMR students spend spring break on mission trip. *Rolla Daily News*, April 30.
21. Elmore, A.C. 2003. UMR students to spend spring break building water system in Guatemala. *Waynesville Daily Guide*, March 12.
22. Elmore, A.C. 2003. College students, spring break, and drinking. *Rolla Daily News*, March 7.
23. Elmore, A.C. (contributor) 2002. Graduating students may encounter increasing difficulty with weak job market. *The Missouri Miner*. XCII (11). November 14, 2002.
24. Elmore, A.C. 2002. UMR class to help thirsty Nebraska town. *Wahoo Newspaper*. October 24.
25. Elmore, A.C. 2002. UMR students help town with Superfund project. *Rolla Daily News*, October 13, 2002.
26. Elmore, A.C. 2002. UMR Professor Helps Take Water to Orphans. *Rolla Daily News*, June 25.
27. Elmore, A.C. (contributor). 2002. In Training. *Rolla Daily News*, June 12.

28. Elmore, A.C. (contributor). 2002. Treatment Plant Opens near Mead-Built on Old Ordnance Plant Site. Lincoln [Nebraska] Journal Star, May 18.
29. Elmore, A.C. (contributor). 2002. UMR student drills well for a Guatemala orphanage. The Missouri Miner. XCI (25), April 11.

STUDENTS

Ph.D. – 1 completed, 2 in progress (IP)

- IP1. Yovanna Cortes di Lena – Topic to be determined, studies initiated in August 2011.
- IP2. Joe Guggenberger – “Performance prediction of renewable energy-based microgrid systems”, studies initiated in August 2009.
- 1. Ron Gallagher – “Renewable energy applied to groundwater remediation”, 2009. Currently an Assistant Professor of Civil Engineering at Western Kentucky University.

M.S. with thesis option – 12 completed, 3 in progress (IP)

- IP1. Lara Hubbel – “Effectiveness of ceramic pot filters used in rural Guatemala”, estimated completion December 2011
- IP2. John Conroy – “Evaluation of PV/VRB-based pump and treat remediation system”, estimated completion December 2011
- IP3. Erica Collins – “Solar-powered groundwater remediation at a dry-cleaning site”, estimated completion December 2011
- 1. Chris Redell – “Waterjet injection of powered activated carbon for sediment remediation”. May 2011. Currently employed at the U.S. Army Corps of Engineers, St. Louis District.
- 2. Allison Sperber – “Performance evaluation of energy efficient lighting associated with renewable energy applications”, December 2010. Currently employed at the U.S. Army Corps of Engineers, Kansas City District.
- 3. Jenna Tune – “Analysis of small PV-ultracapacitor stand-alone energy storage system”, 2010. Employment status unknown.
- 4. Gavin Risley – “The placement of remediation amendments into contaminated sediments via waterjet technologies”, December 2009, co-advised with Joel Burken. Currently employed with a consulting firm in Illinois.
- 5. Ben Johnson – Currently employed by the U.S. Army Corps of Engineers, Kansas City District. “Development of a one-dimensional subsurface contaminant transport model with stochastic applications”, 2009.
- 6. Will Granich – Currently employed by FTN Associates, Ltd., Little Rock, Arkansas. “Feasibility of using hybrid wind/solar to pump groundwater in Sacala, Guatemala”. 2009.
- 7. Matt Vitello – Currently employed by the Missouri Department of Natural Resources. “An emergency drinking water system powered by renewable energy”. 2009.
- 8. Erin Lepper – Currently employed by a Columbia, Missouri engineering firm. “Groundwater development in rural Lemoa, Guatemala”, 2004.
- 9. Jennifer Triplett – Earned a Ph.D. from Arizona State University and currently employed by a Kansas City consulting firm. “Advanced oxidation process used at a former ordnance plant”, 2004.
- 10. Sarah Stock – Currently employed by a St. Louis engineering firm. “Groundwater circulation well performance prediction”, 2003.
- 11. Michael Stewart – Currently employed by a Kansas City engineering firm. “Injection of a super-saturated acetate solution to determine its viability as a bio-remediation option”, 2003.
- 12. Gretchen Miller – Earned a Ph.D. from the University of California-Berkeley and currently a tenure track faculty member at the University of Texas. “Numerical modeling of focused remediation using a groundwater circulation well”, 2003.

M.S. with nonthesis option – 6 completed

Opportunities for Undergraduate Research Experience (OURE) – 9 completed

OURE Research Fellow – 1 completed