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Education

- Ph. D. Ohio State University (Environmental Chemistry) 1997
Dissertation: Association of Organotin Compounds with Aquatic Humic Substances
Advisors: Drs. Yu-Ping Chin and Samuel J. Traina
- M. S. Ohio State University (Environmental Biology) 1991
Thesis: Adsorption and Biodegradation of 2-Methylpyridine in Aqueous Suspensions of Specimen Clay Minerals
Advisors: Drs. Gerald K. Sims and Samuel J. Traina
- B. S. Cleveland State University (Biology/Chemistry) 1986

Research Experience

Staff Scientist, Argonne National Laboratory 2001-present.

Postdoctoral Research Associate, Argonne National Laboratory 2000-2001.

Current research focuses on the biogeochemical processes affecting the fate and transport of organic and inorganic contaminants in aquatic and terrestrial environments. Specific areas of interest include:

- Linkages between microbial community dynamics and net methane and carbon dioxide fluxes in arctic soils
- Novel pathways for microbial anaerobic methane oxidation
- Effects of electron donors, electron acceptors, and electron shuttles on dissimilatory iron and sulfate reduction and microbial community development
- Microbial and geochemical controls on dissimilatory iron reduction and Fe^{II}-bearing secondary mineral formation
- Reduction of U^{VI} by biogenic Fe^{II}-bearing minerals formed from dissimilatory iron reduction
- Stability/reactivity of U^{IV} species with respect to abiotic and microbial oxidation
- Abiotic reduction of Hg^{II} by reductants (Fe^{II}, Mn^{II}, etc.) in suboxic and anoxic environments
- Reduction of contaminants by microbially reduced humic substances
- Effects of transition metals on the reductive dehalogenation of chlorinated aliphatic hydrocarbons by mixed Fe^{II}/Fe^{III} hydroxides, (i.e., "green rusts")
- Interaction of trace elements with microbial exopolysaccharides, bacteria, and iron oxyhydroxides

National Research Council Postdoctoral Associate, Tyndall Air Force Base 1997-2000. Examined processes affecting the fate and transport of trichloroethylene (TCE) in subsurface environments. Specific projects include:

- Reductive dehalogenation of chlorinated aliphatic hydrocarbons by mixed Fe^{II}/Fe^{III} hydroxides (i.e. "green rusts")

- Investigation of the potential for humic-transition metal complexes to act as electron transport mediators in the reductive transformation of organic contaminants
- Design, construction and field testing of flux chambers to measure TCE volatilization from TCE contaminated aquifers

Graduate Research Assistant, Ohio State University 1987-1997. Participated in many interdisciplinary research projects in the areas of:

Environmental Microbiology

- Riboflavin overproduction by *Micrococcus luteus* during pyridine degradation
- Isolation and characterization of aromatic *N*-heterocycle degrading bacteria
- Biodegradation of aromatic *N*-heterocycles in subsurface sediments
- Effects of sorption on the biodegradation of aromatic *N*-heterocycles

Environmental Chemistry

- Sorption of aromatic *N*-heterocycles (e.g., pyridines) to clay minerals
- Sorption of atrazine and alachlor to subsurface sediments
- Isolation and characterization of humic substances in lacustrine sediment porewaters
- Association of organotin compounds with aquatic humic substances

Refereed Publications

O'Loughlin, E. J., C. Gorski, D. Latta, M. I. Boyanov, K. M. Kemner, R. E. Cook, M. McCormick, and M. M. Scherer. (In preparation). Effects of mineralogy and phosphate on secondary mineral formation following the bioreduction of Fe(III) oxides and oxyhydroxides. *Geochem. Trans.*

O'Loughlin, E. J., C. Gorski, R. E. Cook, and M. M. Scherer. (In preparation). Effects of electron donors on the formation of secondary mineralization products resulting from the bioreduction of lepidocrocite by *Shewanella putrefaciens* CN32. *Geomicrobiol. J.*

Rui X., M. J. Kwon, M. I. Boyanov, **E. J. O'Loughlin.**, S. Dunham-Cheetam, J. B. Fein, B. A. Bunker, and K. M. Kemner. (In preparation). Reduction of biogenic hydrogen uranyl phosphate by metal reducing bacteria. *Environ. Sci. Technol.*

Boyanov M. I., E. J. O'Loughlin, M. J. Kwon, X. Rui, T. Shibata, B. M. Mishra, and K. M. Kemner. (In preparation) The role of phosphate in the redox reactivity between U(VI) and Fe(II) species. *Environ. Sci. Technol.*

Antonopoulos, D. A., **O'Loughlin, E. J. (co first author)**, K. A. Skinner, J. M. Brulc, E. Johnston, M. I. Boyanov, M. J. Kwon, P. E. Long, K. H. Williams, and K. M. Kemner. (In preparation). Microbial community development under sulfate- and iron-reducing conditions based on electron shuttle amendment. *PLoS One*.

Kwon, M. J., D. A. Antonopoulos, M. I. Boyanov, J. Brulc, K. M. Kemner, and **E. J. O'Loughlin.** (In preparation). Electron donor dependent iron and sulfate reduction and microbial community development. *ISME. J.*

Kwon, M. J., M. I. Boyanov, D. A. Antonopoulos, J. Brulc, K. Skinner, K. M. Kemner, and **E. J. O'Loughlin.** (In preparation). Effects of sulfate reduction on Fe^{III} (hydr)oxide reduction and microbial community development. *Geochim. Cosmochim. Acta.*

- Yang, J.-S., M. J. Kwon, K. Baek, **E. J. O'Loughlin**, Choi, Jaeyong. (In preparation). Kinetic aspects of electrokinetic remediation of metal-contaminated soil with electrolyte conditioning. *J. Haz. Mat.*
- Handley, K., D. Bartels, E. M. Glass, T. Paczian, J. Brulc, N. Desai, M. Domanus, M. D'Souza, J. A. Gilbert, P. Long, **E. J. O'Loughlin**, K. Skinner, A. Wilke, J. Wilkening, K. Williams, D. Antonopoulos, K. Kemner, and F. Meyer. (in preparation). Reversing the paradigm—The complete genome sequence for *Candidatus Sulfuricurvum* sp. derived from a complex short-read metagenome enables cultivation and characterization of this novel epsilon-proteobacterium. *Genome Biol.*
- Pasakarnis, T. S., M. I. Boyanov, K. M. Kemner, B. Mishra, **E. J. O'Loughlin**, G. Parkin, and M. M. Scherer. (In preparation). Influence of chloride and magnetite stoichiometry on the reduction of Hg^{II} reduction by magnetite. *Environ. Sci. Technol.*
- O'Loughlin, E. J.**, M. I. Boyanov, C. Gorski, S. M. Hoffman, M. McCormick, M. Scherer, and K. M. Kemner. (In preparation). Effects of bound phosphate on the bioreduction of lepidocrocite (γ -FeOOH) and maghemite (γ -Fe₂O₃). *Environ. Sci. Technol.*
- Latta, D. E., M. I. Boyanov, K. M. Kemner, **E. J. O'Loughlin**, and M. M. Scherer. (2012). Abiotic reduction of uranium by Fe(II) in soil. *Appl. Geochem.* 27(8):1512-1524.
- Latta, D. E., C. A. Gorski, M. Boyanov, **E. J. O'Loughlin**, K. M. Kemner, M. M. Scherer. (2012). Influence of magnetite stoichiometry on U^{VI} reduction. *Environ. Sci. Technol.* 46(2):778-786.
- Mishra, B., **E. J. O'Loughlin**, M. I. Boyanov, and K. M. Kemner. (2011). Binding of Hg^{II} to high affinity sites on bacteria inhibits reduction to Hg⁰ by mixed Fe^{III} phases. *Environ. Sci. Technol.* 45(22):9597-9603.
- Boyanov, M. I., K. E. Fletcher, M. J. Kwon, X. Rui, **E. J. O'Loughlin**, F. E. Löffler, and K. M. Kemner. (2011). Solution and microbial controls on the formation of reduced U(IV) phases. *Environ. Sci. Technol.* 45(19):8336-8344.
- O'Loughlin, E. J.**, M. I. Boyanov, D. A. Antonopoulos, and K. M. Kemner. (2011). Redox processes affecting the speciation of technetium, uranium, neptunium, and plutonium in aquatic and terrestrial environments. In *Aquatic Redox Processes*; P.G. Tratnyek, T. J. Grundl, and S. Haderlein, Eds. American Chemical Society, Washington DC, pp 477-517, DOI: 10.1021/bk-2011-1071.ch022 (**Invited**).
- Kwon, M. J., **E. J. O'Loughlin**, D. Antonopoulos, and K. T. Finneran. (2011). Geochemical and microbiological processes contributing to the transformation of hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX) in contaminated aquifer material. *Chemosphere* 84:1223-1230.
- O'Loughlin, E. J.**, C. Gorski, M. M. Scherer, M. I. Boyanov, and K. M. Kemner. (2010). Effects of oxyanions, natural organic matter, and bacterial cell density on the bioreduction of lepidocrocite (γ -FeOOH) and secondary mineral formation. *Environ. Sci. Technol.* 44(12):4570-4576.
- O'Loughlin, E. J.**, S. D. Kelly, and K. M. Kemner. (2010). XAFS investigation of the interactions of U^{VI} with secondary mineralization products from the bioreduction of Fe^{III} oxides. *Environ. Sci. Technol.* 44(5):1656-1661.
- Kelly, S. D., W.-M. Wu, F. Yang, C. Criddle, T. L. Marsh, **E. J. O'Loughlin**, B. Ravel, D. Watson, P. M. Jardine, and K. M. Kemner. (2010). Uranium transformations in static microcosms. *Environ. Sci. Technol.* 44(1):236-242.

- Boyanov, M.I., **E. J. O'Loughlin**, and K. M. Kemner. (2009). Iron phase transformations resulting from the respiration of *Shewanella putrefaciens* on a mixed mineral phase. *J. Phys. Conf. Ser.* 190:012193.
- O'Loughlin, E. J.** (2008). Effects of electron transfer mediators on the bioreduction of lepidocrocite (γ -FeOOH) by *Shewanella putrefaciens* CN32. *Environ. Sci. Technol.* 42(18):6876-6882.
- Boyanov, M.I., **E. J. O'Loughlin**, E. E. Roden, J. B. Fein, and K. M. Kemner. (2007). Adsorption of Fe(II) and U(VI) to carboxyl-functionalized microspheres: the influence of speciation on uranyl reduction studied by titration and EXAFS. *Geochim. Cosmochim. Acta.* 71:1898-1912.
- O'Loughlin, E. J.**, P. Larese-Casanova, R. E. Cook, and M. M. Scherer. (2007). Green rust formation from dissimilatory iron reduction of γ -FeOOH (lepidocrocite): Comparison of several *Shewanella* species. *Geomicrobiol. J.* 24:211-230.
- Kemner, K. M., **E. J. O'Loughlin**, S. D. Kelly, and M. I. Boyanov. (2005). Synchrotron x-ray investigations of mineral-microbe-metal interactions and their effects on metal transformations. *Elements* 1:217-221.
- Kemner, K. M., S. D. Kelly, **E. J. O'Loughlin**, T. Khare, L. A. Moe, B. G. Fox, M. I. Donnelly, Y Londer, M. Schiffer, and C. S. Giometti. (2005). XRF and XAFS analysis of electrophoretically isolated nondenatured proteins. *Physica Scripta.* T115:94-942.
- O'Loughlin, E.J.**, Y.-P. Chin. (2004). Quantification and characterization of sedimentary porewater dissolved organic carbon and iron from Green Bay, WI, USA. *Biogeochem.* 71(3):371-386.
- Kemner, K. M., S. D. Kelly, B. Lai, J. Maser, **E. J. O'Loughlin**, D. Sholto-Douglas, Z. Cai, M. A. Schneegurt, C. F. Kulpa, and K. H. Nealson. (2004). X-ray microbeam analysis of bacteria: Elemental and redox determination of single cells. *Science* 306:686-687.
- Borrok, D., J. B. Fein, M. Tischler, **E. O'Loughlin**, K. M. Kemner, H. Meyer, and M. Liss. (2004). Effects of acidic solutions and growth conditions on the adsorptive properties of bacterial surfaces. *Chem. Geol.* 209:107-119.
- O'Loughlin, E.J.**, and D. R. Burris. 2004. Reduction of halogenated ethanes by green rust. *Environ. Toxicol. Chem.* 23:41-48.
- O'Loughlin, E.J.**, H. Ma, and D.R. Burris. 2004. Catalytic effects of Ni-humic complexes on the reductive dehalogenation of C₁ and C₂ chlorinated hydrocarbons. In E.A. Ghabbour and G. Davies (Eds.), *Humic Substances: Nature's Most Versatile Materials*. Taylor and Francis, Inc., New York, pp. 297-324.
- O'Loughlin, E.J.**, S.D. Kelly, K.M. Kemner, R. Cesncsits, and R.E. Cook. 2003. Reduction of Ag^I, Au^{III}, Cu^{II}, and Hg^{II} by Fe^{II}/Fe^{III} hydroxysulfate green rust. *Chemosphere* 53: 437-446.
- O'Loughlin, E.J.**, K.M. Kemner, and D. R. Burris. 2003. Effects of Ag^I, Au^{III}, and Cu^{II} on the reductive dechlorination of carbon tetrachloride by green rust. *Environ. Sci. Technol.* 37: 2905-2912.
- O'Loughlin, E.J.**, S.D. Kelly, R.E. Cook, R. Csencsits and K.M. Kemner. 2003. Reduction of uranium(VI) by mixed Fe(II)/Fe(III) hydroxide (green rust): Formation of UO₂ nanoparticles. *Environ. Sci. Technol.* 37: 721-727.

- Ma, H., **E.J. O'Loughlin**, and D.R. Burris. 2001. Factors affecting humic-nickel complex mediated reduction of trichloroethene in homogeneous aqueous solution. *Environ. Sci. Technol.* 35: 717-724.
- O'Loughlin, E.J.**, Y.-P. Chin. 2001. Effect of detector wavelength on the determination of the molecular weight of humic substances by high pressure size exclusion chromatography. *Wat. Res.* 35: 333-338.
- O'Loughlin, E.J.**, and D.R. Burris. 2000. Reductive dehalogenation of trichloroethene mediated by wetland DOC-transition metal complexes. In J.L. Means and R.E. Hincsee (Eds.), *Wetlands and Remediation*. Battelle Press, Columbus, OH, pp. 1-8.
- O'Loughlin, E.J.**, Y.-P. Chin, and S.J. Traina. 2000. Association of organotin compounds with aquatic and terrestrial humic substances. *Environ. Toxicol. Chem.* 19: 2015-2021.
- O'Loughlin, E.J.**, S.J. Traina, and G.K. Sims. 2000. Effects of sorption on the biodegradation of 2-methylpyridine. *Environ. Toxicol. Chem.* 19: 2168-2174.
- O'Loughlin, E. J.**, D. R. Burris, and C. A. Delcomyn. 1999. Reductive dechlorination of trichloroethene mediated by humic-metal complexes. *Environ. Sci. Technol.* 33: 1145-1147.
- O'Loughlin, E.J.**, G.K. Sims, and S.J. Traina. 1999. Biodegradation of 2-methyl, 2-ethyl, and 2-hydroxypyridine by an *Arthrobacter* sp. isolated from subsurface sediment. *Biodegradation* 10: 93-104.
- O'Loughlin, E.J.**, S. Kehrmeier, and G.K. Sims. 1996. Isolation, characterization, and substrate utilization of a quinoline degrading microorganism. *Internat. Biodeterior. Biodegradat.* 38: 107-118.
- Chin, Y. P., G. Aiken, and **E. O'Loughlin**. 1994. Molecular weight, polydispersivity, and spectroscopic properties of aquatic humic substances. *Environ. Sci. Technol.* 28: 1853-1858.
- Sims, G.K. and **E.J. O'Loughlin**. 1992. Riboflavin production during growth of *Micrococcus luteus* on pyridine. *Appl. Environ. Microbiol.* 59: 3423-3425.
- Sims, G.K. and **E.J. O'Loughlin**. 1989. Degradation of pyridines in the environment. *CRC Crit. Rev. Environ. Control.* 19(4):309-340.

Invited Presentations

- O'Loughlin, E.** 2012. Microbial Fe(III) Oxide Bioreduction: Secondary Mineralization Pathways, *Princeton University*, Princeton, NJ.
- O'Loughlin, E. J.**, M. I. Boyanov, K. Skinner, B. Mishra, S. D. Kelly, W.-M. Wu, C. Criddle, M. Mueller, T. Melhorn, D. Watson, S. Brooks, and K. Kemner. 2012. XRF imaging and XAFS analysis of uranium dynamics in biostimulated field-site sediments. *243rd American Chemical Society National Meeting*, San Diego, CA.
- O'Loughlin, E.** 2011. Uranium transformations by coupled microbial and geochemical processes: Rust-breathing bacteria and our Cold War legacy, *Northwestern University*, Evanston, IL.
- O'Loughlin, E. J.** 2011. Biogeochemical factors controlling green rust formation and contaminant reduction. *2011 International Workshop on Subsurface Biogeochemistry*, Gangneung, Korea.

- O'Loughlin, E.J.**, M.I. Boyanov, M.J. Kwon, P.E. Long, K.H. Williams, and K.M. Kemner. 2011. Effects of microbial activity and electron shuttles on the reduction of U(VI) under sulfidogenic conditions. *21st Annual Goldschmidt Conference*, Prague, Czech Republic.
- O'Loughlin, E.** 2010. Effects of Electron Shuttles on Microbial Community Development and U transformations under Fe(III)- and Sulfate- Reducing Conditions, *University of Illinois, Chicago*.
- O'Loughlin, E.** 2009. Microbial and geochemical controls on biogenic Fe(II) speciation and reactivity. *Department of Civil and Environmental Engineering, University of Iowa*.
- O'Loughlin, E.** 2008. Uranium Transformations by Coupled Microbial and Geochemical Processes: U(VI) Uptake and Reduction by Fe(II)-Bearing Minerals Produced During the Bioreduction of Fe(III) Oxides by Dissimilatory Iron-Reducing Bacteria. *Department of Civil and Environmental Engineering Seminar Series, University of Missouri-Columbia*
- O'Loughlin, E.** 2007. Microbial and geochemical controls on biogenic Fe(II) speciation and reactivity: Rust-breathing bacteria and our Cold War legacy. *Biology Department Seminar Series, Hamilton College*
- O'Loughlin, E.**, and K. Kemner. 2007. Investigations of coupled biogeochemical processes affecting the transformation of U: Integration of synchrotron-based approaches. *DOE-ERSP PI Workshop, Lansdown, VA*.
- O'Loughlin, E.** 2006. Transformation of U(VI) under iron-reducing conditions. *DOE-ERSP PI Workshop, Warrenton, VA*.
- O'Loughlin, E.**, S.D. Kelly, K.M. Kemner and D.R. Burris. 2002. Reduction of organic and inorganic contaminants by Green Rust. *Department of Civil and Environmental Engineering, University of Iowa*.
- O'Loughlin, E.**, H. Ma, and D. Burris. 2002. Catalytic effects of Ni-humic complexes on the reductive dehalogenation of chlorinated alkanes and alkenes. *International Humic Substances Society 20th Anniversary Conference*, Boston, MA.
- O'Loughlin, E.**, S.D. Kelly, K.M. Kemner and D.R. Burris. 2002. Organic and inorganic contaminant reduction by Green Rust. *Department of Natural Resources and Environmental Sciences, University of Illinois at Urbana-Champaign*.
- O'Loughlin, E.**, S.D. Kelly, K.M. Kemner and D.R. Burris. 2001. Organic and inorganic contaminant reduction by Fe(II)/Fe(III) hydroxysulphate green rust. *United States Geological Survey*, Menlo Park, CA.
- O'Loughlin, E.**, H. Ma, and D. Burris. 2000. Reductive dehalogenation of chlorinated hydrocarbons mediated by humic-nickel complexes. *Environmental Research Division Seminar, Argonne National Laboratory, Argonne, IL*.
- O'Loughlin, E.**, Y.-P. Chin, and S. Traina. 2000. Binding of organotin compounds by humic substances. *Parametrix, Kirkland, WA*.
- O'Loughlin, E.J.**, S.J. Traina, and G.K. Sims. 1997. Effects of adsorption on the biodegradation of 2-methylpyridine. *DuPont Agricultural Products, Wilmington, DE*.

General Symposia Presentations

- O'Loughlin, E.J.**, M.I. Boyanov, C.A. Gorski, M.L. McCormick, M.M. Scherer, and K. Kemner. 2012. Dissimilatory iron reduction and the redox cycling of green rust. *244th American Chemical Society National Meeting*, Philadelphia, PA.
- O'Loughlin, E.J.**, M.I. Boyanov, M.J. Kwon, S.D. Kelly, C.A. Gorski, D.E. Latta, M.M. Scherer, and K. Kemner. 2012. Using EXAFS to detect redox transformations of U(VI) and Fe(II) at a carboxyl surface. *244th American Chemical Society National Meeting*, Philadelphia, PA.
- Boyanov, M.I., **E.J. O'Loughlin**, D.E. Latta, B. Mishra, and K. Kemner. 2012. Using EXAFS to detect redox transformations of U(VI) and Fe(II) at a carboxyl surface. *244th American Chemical Society National Meeting*, Philadelphia, PA.
- Mishra, B., **E.J. O'Loughlin**, M.I. Boyanov, and K. Kemner. 2012. Abiotic redox transformations of Hg(II). *244th American Chemical Society National Meeting*, Philadelphia, PA.
- O'Loughlin, E. J.**, M.I. Boyanov, C.A. Gorski, M.L. McCormick, M.M. Scherer, and K.M. Kemner. 2012. Dissimilatory iron reduction and the redox cycling of green rust. *22nd Annual Goldschmidt Conference*, Montréal, Canada.
- Boyanov, M.I., D.E. Latta, M.M. Scherer, **E.J. O'Loughlin**, and K.M. Kemner. 2012. Transformations of aqueous U(VI) during the redox cycling of Fe phases. *22nd Annual Goldschmidt Conference*, Montréal, Canada.
- Latta, D.E., C. Pearce, C.A. Gorski, K. Rosso, **E.J. O'Loughlin**, K.M. Kemner, M.M. Scherer, and M.I. Boyanov. 2012. Reactivity of U(VI) with pure, oxidized, and Ti-substituted magnetites. *22nd Annual Goldschmidt Conference*, Montréal, Canada.
- Mishra, B., T. Pasakarnis, M.I. Boyanov, D.E. Latta, **E.J. O'Loughlin**, M.M. Scherer, and K.M. Kemner. 2012. Ligand effects on Hg(II) reduction by magnetite. *22nd Annual Goldschmidt Conference*, Montréal, Canada.
- Boyanov, M. I., B. Mishra, D. E. Latta, X. Rui, M.-J. Kwon, K. E. Fletcher, F. E. Löffler, **E. J. O'Loughlin**, and K. M. Kemner. 2012. Bioreduction of U(VI) in the presence of phosphate. *European Geosciences Union General Assembly*, Vienna, Austria.
- O'Loughlin, E. J.**, M. I. Boyanov, M. J. Kwon, P. E. Long, K. H. Williams, and K. Kemner. 2012. Effects of electron shuttles on the reduction of U(VI) under Fe(III)- and sulfate-reducing conditions. *243rd American Chemical Society National Meeting*, San Diego, CA.
- Latta, D. E., **E. J. O'Loughlin**, M. I. Boyanov, K. M. Kemner, and M. M. Scherer. 2012. Ferrous iron minerals in soil reduce U^{VI}. *243rd American Chemical Society National Meeting*, San Diego, CA.
- O'Loughlin, E. J.**, M. I. Boyanov, D. E. Latta, C. A. Gorski, M. M. Scherer, and K. M. Kemner. 2012. Reduction of U(VI) by Fe(II)-containing phases. *Uranium Biogeochemistry Transformations and Applications*, Ascona, Switzerland.
- Boyanov, M. I., K. E. Fletcher, **E. J. O'Loughlin**, M. J. Kwon, F. E. Löffler and K. M. Kemner. 2012. Bioreduction of U(VI): factors controlling the speciation of U(IV). *Uranium Biogeochemistry: Transformations and Applications*, Ascona, Switzerland.

- Mishra, B., **E.J. O'Loughlin**, M.I. Boyanov, and K. Kemner. 2011. Binding of Hg(II) to high affinity sites on bacteria inhibits reduction to Hg(0) by mixed Fe(II/III) phases. *242nd American Chemical Society National Meeting*, Denver, CO.
- Pasakarnis, T., M. Scherer, G. Parkin, M. Boyanov, K. Kemner, B. Mishra, and E. O'Loughlin. 2011. Reduction of Hg^{II} by Non-Stoichiometric Magnetite. *242nd American Chemical Society National Meeting*, Denver, CO.
- Boyanov, M. I., **E. O'Loughlin**, B. Mishra, X. Rui, and K. Kemner. 2011. Reductive and non-reductive U(VI) sequestration in non-uraninite and non-uranyl phases. *242nd American Chemical Society National Meeting*, Denver, CO.
- Rui, X., M.I. Boyanov, M.J. Kwon, **E.J. O'Loughlin**, S. Dunham-Cheatham, J.B. Fein, B.A. Bunker, K.M. Kemner, "EXAFS analysis of U(IV) phases resulting from the bio-reduction of nanoparticulate uranyl phosphate", *Denver X-ray Conference*, Colorado Springs, CO.
- Mishra, B., **E.J. O'Loughlin**, M.I. Boyanov, and K. Kemner. 2011. Binding of Hg(II) to high affinity sites on bacteria inhibits reduction to Hg(0) by mixed Fe(II/III) phases. *10th International Conference on Mercury as a Global Pollutant*, Halifax, Canada.
- O'Loughlin, E. J.**, M.I. Boyanov, M.J. Kwon, P.E. Long, K.H. Williams and K.M. Kemner. 2011. Effects of microbial activity and electron shuttles on the reduction of U(VI) under sulfidogenic conditions. *21st Annual Goldschmidt Conference*, Prague, Czech Republic.
- Boyanov, M.I., **E.J. O'Loughlin**, K. Skinner, B. Mishra, S.D. Kelly, W.-M. Wu, C. Criddle, M. Mueller, T. Melhorn, D. Watson, S. Brooks, and K.M. Kemner. 2011. Uranium dynamics in biostimulated field-site sediments: spatial distribution and formation of non-uraninite U(IV) phases. *21st Annual Goldschmidt Conference*, Prague, Czech Republic.
- Rui, X., M.I. Boyanov, M.J. Kwon, **E.J. O'Loughlin**, S. Dunham-Cheatham, J.B. Fein, B.A. Bunker, and K.M. Kemner. 2011. Reduction of biogenic uranyl phosphate nanoparticles by three metal-reducing bacteria. *21st Annual Goldschmidt Conference*, Prague, Czech Republic.
- Kwon, M.J., M.I. Boyanov, D. Antonopoulos, J. Brulc, K. Kemner, and **E.J. O'Loughlin**. 2011. Roles of sulphate and Fe^{III} reduction on microbial community development. *21st Annual Goldschmidt Conference*, Prague, Czech Republic.
- O'Loughlin, E. J.**, C. Gorski, K. M. Kemner, M. I. Boyanov, R. E. Cook, and M. Scherer. 2011. Reduction of phosphate doped iron oxides by *Shewanella putrefaciens* CN32. *111th General Meeting, American Society for Microbiology*, New Orleans, LA.
- Boyanov, M. I., K. Fletcher, M. J. Kwon, X. Rui, **E. J. O'Loughlin**, F. Löffler, and K. M. Kemner. 2011. U(IV) products suggest distinct U(VI) bioreduction mechanisms in *Desulfitobacterium*, *Anaeromyxobacter*, and *Shewanella*. *111th General Meeting, American Society for Microbiology*, New Orleans, LA.
- O'Loughlin, E. J.**, D.A. Antonopoulos, B. S. Bates, M. I. Boyanov, J. M. Brulc, M. Egholm, A. Garoutte, T. Harkins, M. Kwon, P. Long, F. Meyer, J. Osterberger, B. Binderup Simen, K. A. Skinner, J. Wilkening, K. H. Williams, and K. M. Kemner. 2010. The Evolution of Microbial Communities Within Iron-rich Mineral Suspensions Inoculated with Sediments from an UMTRA Site. *13th International Symposium on Microbial Ecology*, Seattle, WA.
- Kwon, M. J., D. A. Antonopoulos, M. I. Boyanov, J. M. Brulc, P. Long, B. Mishra, K. A. Skinner, K. H. Williams, K. M. Kemner, and **E. J. O'Loughlin**. 2010. Electron donor dependent iron and

sulfate reduction and microbial community development. *13th International Symposium on Microbial Ecology*, Seattle, WA.

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- Kwon, M. J., E. J. O'Loughlin, D. A. Antonopoulos, K. A. Skinner, and K. T. Finneran. 2009. Geochemical and microbiological processes contributing to the transformation of hexahydro-1,3,5-trinitro-1,3,5-triazine in aquifer material. *2009 Annual Meeting of the Geological Society of America*, Portland, OR.
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- O'Loughlin, E.**, C. Gorski, D. Latta, M. Boyanov, R. Cook, M. Scherer, and K. M. Kemner. 2009. Effects of oxyanions, natural organic matter, and Fe(III) oxide mineralogy on the formation of Fe(II)-bearing secondary mineralization products resulting from the bioreduction of Fe(III) oxides. *19th Annual Goldschmidt Conference*, Davos, Switzerland.
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- O'Loughlin, E.**, C. Gorski, K. Kemner, M. Boyanov, R. Cook, and M. Scherer. 2009. Magnetite versus green rust: Effects of oxyanions and natural organic matter on the formation of secondary mineralization products resulting from the microbial reduction of Fe(III) oxide. *109th General Meeting, American Society for Microbiology*, Philadelphia, PA.

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- O'Loughlin, E. J.**, C. A. Gorski, K. M. Kemner, M. I. Boyanov, R. E. Cook, D. E. Latta, and M. M. Scherer. 2009. Magnetite versus green rust: Effects of phosphate on the formation of Fe(II)-bearing secondary mineralization products resulting from the bioreduction of Fe(III) oxides. *237th American Chemical Society National Meeting*, Salt Lake City, UT.
- Latta, D. E., **E. J. O'Loughlin**, K. M. Kemner, M. I. Boyanov, and M. M. Scherer. 2009. Reduction of U(VI) by soil containing natural green rust. *237th American Chemical Society National Meeting*, Salt Lake City, UT.
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- O'Loughlin, E.**, and D. Burris. 2000. Reductive transformation of halogenated hydrocarbons by green rust. *220th American Chemical Society National Meeting*, Washington, D.C.
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- Ma, H., **E. O'Loughlin**, and D. Burris. 1999. Abiotic reductive dechlorination of PCE and TCE in the presence of aquatic humic substances. *20th Annual Meeting of the Society of Environmental Toxicology and Chemistry*, Philadelphia, PA.
- Burris, D., and **E. O'Loughlin**. 1999. Reductive dehalogenation of trichloroethene mediated by wetland DOC-transition metal complexes. *Wetlands and Remediation: An International Conference*, Salt Lake City, UT.
- O'Loughlin, E.**, and D. Burris. 1998. Transformation of trichloroethylene mediated by humic complexes. *216th American Chemical Society National Meeting*, Boston, MA.
- O'Loughlin, E.**, and D. Burris. 1998. Reductive dechlorination of trichloroethene mediated by humic acid-Ni complexes, *Gordon Research Conference/Environmental Sciences:Water*, Henniker, NH.
- O'Loughlin, E.**, Y.-P. Chin, and S. Traina. 1998. Binding of organotin compounds by humic substances. *215th American Chemical Society National Meeting*, Dallas, TX.
- O'Loughlin, E.**, S. Traina, and Y.-P. Chin. 1997. Sorption of tributyltin by aquatic humic substances. *18th Annual Meeting of the Society of Environmental Toxicology and Chemistry*, San Francisco, CA.
- O'Loughlin, E.**, and Y.-P. Chin. 1996. Association of organotin compounds with aquatic humic substances. Poster presentation, *Gordon Research Conference/Environmental Sciences:Water*, New Hampton, NH.
- O'Loughlin, E.**, and S. Traina. 1995. Biodegradation of ortho-substituted pyridine derivatives by an *Arthrobacter* sp. *Sixteenth Annual Midwest Environmental Chemistry Workshop*, October 7-8, Ohio State University, Columbus, OH.

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- O'Loughlin, E. J.**, and Y.-P. Chin. 1995. Effect of detector wavelength on the determination of the molecular weight of humic substances by high pressure size-exclusion chromatography. *209th American Chemical Society National Meeting*, Anaheim, CA.
- Danielsen, K. M., **E. O'Loughlin**, and Y.-P. Chin. 1994. The molecular weight, aromaticity, and nonpolar organic compound binding properties of aquatic humic substances. Poster presentation, *Gordon Research Conference/Environmental Sciences: Water*, New Hampton, NH.
- Chin, Y.-P., G. Aiken, and **E. O'Loughlin**. 1994. The size and bulk spectroscopic properties of aquatic humic substances. *207th American Chemical Society National Meeting*, San Diego, CA.
- O'Loughlin, E.**, S. Traina, and P. Gu. 1993. Sorption of alachlor by subsurface sediments from the Ohio MSEA site. *Soil Science Society of America*, Cincinnati, OH.
- Chin, Y.-P., G. Aiken, and **E. O'Loughlin**. 1993. On the molecular weight, polydispersivity, and spectroscopic properties of aquatic humic substances. *Sixteenth Annual Midwest Environmental Chemistry Workshop*, October 17-18, University of Notre Dame, Notre Dame, IN.
- O'Loughlin, E.**, Y. Xue, S. Traina, and M. Jagucki. 1993. Sorption of atrazine by Ohio MSEA soil and subsurface sediment samples. *Conference on Agricultural Research to Protect Water Quality*, February 21-24, Minneapolis, MN. Sponsored by the Soil and Water Conservation Society.
- O'Loughlin, E.**, G. Sims, and S. Traina. 1992. Characterization of a 2-methylpyridine degrading bacterium isolated from subsurface sediments. *92nd General Meeting, American Society for Microbiology*, New Orleans, LA.
- O'Loughlin, E. J.**, S. J. Traina, and G. K. Sims. 1991. Effects of adsorption on the biodegradation of 2-methylpyridine. *Soil Science Society of America*, Denver, CO.
- Sims, G. K., M. R. Brill, C. J. Staron, **E. J. O'Loughlin**, and M. L. Prichard. 1990. Biodegradation of *N*-heterocycles in contaminated subsurface sediments. *Soil Science Society of America*, San Antonio, TX.
- O'Loughlin, E. J.**, S. R. Kehrmeier, and G. K. Sims. 1989. Isolation, characterization, and substrate utilization of a quinoline degrading microorganism. *Soil Science Society of America*, Las Vegas, NV.
- O'Loughlin, E. J.**, and G. K. Sims. 1988. Pigment production during growth of *Micrococcus luteus* on pyridine. *Ohio Academy of Science*, Newark, OH.
- O'Loughlin, E.**, G. K. Sims, and S. J. Traina. 1988. Effects of complexation and surface attenuation on biodegradation of aromatic xenobiotic compounds. *Soil Sci. Soc. Am.* Anaheim, CA.
- Traina, S. J., D. Spontak, and **E. O'Loughlin**. 1987. Effect of cationic composition on pesticide complexation by dissolved organic carbon. *Soil Science Society of America*, Atlanta, GA.
- O'Loughlin, E.** and P. Olynyk. 1986. Heavy Metals in Lake Erie water and sediments. *American Chemical Society, Cleveland Section*, Cleveland, OH.

Awards Received

Argonne National Laboratory Pacesetter Award 2010
National Research Council Postdoctoral Fellowship 1997-2000
Ohio State University Presidential Fellowship 1995
Graduate Student Award American Chemical Society Division of Environmental Chemistry 1995
Sigma Xi Grant-in-Aid of Research 1994
Gamma Sigma Delta (Honor Society of Agriculture) 1989

Professional and Technical Societies

American Chemical Society (ACS)
American Society for Microbiology (ASM)
American Geophysical Union (AGU)
International Humic Substances Society (IHSS)
International Society for Subsurface Microbiology (ISSM)
Mineralogical Society of America (MSA)
International XAFS Society

Professional Service

Ad Hoc Manuscript Reviewer, 1997-present for: *Environmental Science and Technology*, *Applied and Environmental Microbiology*, *Geochimica et Cosmochimica Acta*, *Geomicrobiology Journal*, *Chemical Geology*, *Applied Geochemistry*, *Clays and Clay Minerals*, *Water Research*, *Biogeochemistry*, *Biodegradation*, *Letters in Applied Microbiology*, *Chemosphere*, *International Biodeterioration and Biodegradation*, *Annales de Limnologie*, *Inorganic Chemistry*, *Journal of Physical Chemistry*, *Soil Science Society of America Journal*, *Critical Reviews in Environmental Science and Technology*, *Journal of Environmental Management*, *Chemical Reviews*, *Journal of Hazardous Materials*, *Chemistry and Ecology*, and *Industrial and Engineering Chemistry Research*.

Symposium Organizer

“Abiotic and Biotic Factors Affecting Contaminant Transformation at Iron Oxide Surfaces”, Environmental Chemistry Division Symposium at the 233rd American Chemical Society National Meeting, Chicago, IL , March 25-29, 2007.

“Spectroscopic Identification of Interfacial Chemical Species in Natural and Engineered Environments”, Environmental Chemistry Division Symposium at the 244th American Chemical Society National Meeting, Philadelphia, PA , August 19-23, 2012.

“Carbon Dynamics and the Biogeochemical Cycling of Major and Minor Elements”, Environmental Chemistry Division Symposium at the 245th American Chemical Society National Meeting, New Orleans, LA , April 7-11, 2013.

Workshop Organizer

“Challenges in Environmental Molecular Microbiology”, Argonne National Laboratory, Argonne, IL, April 26-27, 2010.

“Probing the Interface between Biological Systems and the Environment”, 2012 APS/CNM/EMC Users Meeting, Argonne National Laboratory, Argonne, IL, May 7-10, 2012.

Review Panel Member, 2007. U.S. Department of Energy Environmental Remediation Science Program.

Ad Hoc Proposal Reviewer, National Science Foundation, 2003-present, Biogeosciences, OISE-Global Scientists and Engineers, and OISE-International Research Fellows Program.

Ad Hoc Proposal Reviewer, Stanford Synchrotron Radiation Laboratory General User Program, 2005-present.

External Examiner, 2005, for the M.S. thesis of Justine Harrison, Department of Civil and Environmental Engineering, University of Iowa, Iowa City, USA and 2010, for the Ph.D. dissertation of Drew Latta, Department of Civil and Environmental Engineering, University of Iowa, Iowa City, USA.

Service to Argonne National Laboratory

Seminar Committee Member, 2004-2005, Environmental Research Division

Library Committee Member, 2004-present, representing the Environmental Research and Biosciences Divisions

Bio/Environmental Working Group, 2006.

Safety Committee Member, 2007-present, Biosciences Division

Certifications

Completed 40 hour course in Hazardous Waste Operations and Emergency Response Standard (HAZWOPER) training for certification by the Occupational Safety and Health Administration as a HAZMAT technician.

Post Docs advised

Maxim Boyanov 2003-2006
Man Jae Kwon 2009-2010
Bhoopesh Mishra 2009-2011
Drew Latta 2011-present
Ted Flynn 2011-present
Silvia Alvarez-Clare 2012-present