

PEGGY A. O'DAY
Professor and Founding Faculty
Life and Environmental Sciences Department
School of Natural Sciences, University of California, Merced
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EDUCATION

Ph.D. Stanford University, Stanford, CA, Applied Earth Sciences
M.S. Cornell University, Ithaca, NY, Geological Sciences
B.S. University of California, Davis, CA, Geology, with Honors

EXPERIENCE

2005-present: Professor and Founding Faculty, University of California, Merced
2016-2019: Chair, Life and Environmental Sciences Department, University of California, Merced
2013-2016: Chair, Environmental Systems Graduate Group, University of California, Merced
2003-2005: Associate Professor and Founding Faculty, University of California, Merced
2002-2003: Department of Chemistry and Biochemistry, Arizona State University, 50% appointment
2000-2003: Associate Professor, Department of Geological Sciences, Arizona State University
2000-2001: Visiting Scientist, Lawrence Livermore National Laboratory, Livermore, CA
1994-2000: Assistant Professor, Geology Department, Arizona State University, AZ
1992-1994: Post-Doctoral Research Fellow, University of California, Berkeley, CA

RESEARCH INTERESTS

Aqueous, environmental, and mineral surface geochemistry; chemistry, reaction, and transport of inorganic contaminants and nutrients in natural systems; geochemical applications of spectroscopy and microscopy, particularly synchrotron X-ray methods; speciation, sorption, and reactive transport modeling; novel remediation methods for surface and subsurface metal and metalloid contaminants; chemical speciation of metals and health impacts of airborne particulate matter.

AWARDS

Remarkable Women of the University of California, Merced, 2020
Spiess Award for Distinguished Academic Senate Service, UC Merced, 2014
Adrian Smith Lectureship on Environmental Geochemistry, University of Waterloo, 2014
Mineralogical Society of America, Fellow, elected 2009
Gast Lecturer, Goldschmidt Conference, Geochemical Society, Copenhagen DK, 2004
National Science Foundation, Faculty Early Career Award, 1996-2000
Mineralogical Society of America, National Visiting Lecturer, 1995-1996
National Science Foundation, Post-doctoral Research Fellow, Earth Sciences, 1992-1994

PROFESSIONAL ORGANIZATIONS

AAAS
American Chemical Society
American Geophysical Union
Geochemical Society
International XAFS Society
Mineralogical Society of America

PUBLICATIONS

Journal Articles (peer-reviewed)

‡graduate student advisee; †undergraduate student advisee; §postdoctoral mentee; *corresponding author

- ‡*Rivas Meraz, E., Traina, S. J., Beutel, M., and O'Day, P. A. (2023) Characterization of manganese oxide modified activated carbon for remediation of redox-sensitive contaminants, *ACS Earth and Space Chemistry*, 7. 1281-1293.
- †Tran, V., ‡Helmrich, S., Quinn, N. W. T., and O'Day, P. A. (2023) Operationalizing real-time monitoring data in simulation models using the public domain HEC-DSSVue Software Platform, *ASCE Journal of Water Resources Planning and Management*, 149(9): 06023004.
- §*Pattammattel, A., Tappero, R., Gavrilov, D., Zhang, H., ‡Aronstein, P., Forman, H. J., O'Day, P. A., Yan, H., and Chu, Y. S. (2022) Multimodal X-ray nano-spectromicroscopy analysis of chemically heterogeneous systems, *Metallomics*, 14, mfac078. <https://doi.org/10.1093/mtomcs/mfac078>.
- Perdrial, N., Vazquez-Ortega, A., §Reinoso-Maset, E., O'Day, P. A. and Chorover, J., (2022) Effects of flow on uranium speciation in soils impacted by acidic waste fluids. *Journal of Environmental Radioactivity*. 251–252, 106955. <https://doi.org/10.1016/j.jenvrad.2022.106955>
- *O'Day, P. A., §Pattammattel, A., ‡Aronstein, P., Leppert, V. J., and Forman, H. J. (2022) Iron speciation in respirable particulate matter and implications for human health, *Environmental Science & Technology*, 56(11), 7006–7016, DOI: 10.1021/acs.est.1c06962.
- ‡*Helmrich, S., Alpers, C. N., Vlassopoulos, D., and O'Day, P. A. (2021) Critical review of mercury methylation and methylmercury demethylation rate constants in aquatic sediments for biogeochemical modeling. *Critical Reviews in Environmental Science and Technology*, 1-26. DOI: 10.1080/10643389.2021.2013073.
- Seelos, M., ‡Rivas Meraz, E., Beutel, M., Traina, S.J., Fuhmann, B., Burmistrova, J., Vlassopoulos, D., O'Day, P. A. (2021) Evaluation of manganese oxide amendments for mercury remediation in contaminated aquatic sediments. *ACS ES&T Engineering* 1(12), 1688–1697. [/doi.org/10.1021/acsestengg.1c00267](https://doi.org/10.1021/acsestengg.1c00267).
- Vazquez-Ortega, A., Perdrial, N., §Reinoso-Maset, E., ‡Root, R. A., O'Day, P. A. and Chorover, J., (2021) Dissolved carbonate and pH control the dissolution of uranyl phosphate minerals in flow-through porous media. *Journal of Hazardous Materials*, 416, 126240.
- Fuhrmann, B. C., Beutel, M. W., O'Day, P. A., Tran, C., Funk, A., Brower, S., Pasek, J., and Seelos, M. (2021) Effects of mercury, organic carbon, and microbial inhibition on methylmercury cycling at the profundal sediment-water interface of a sulfate-rich hypereutrophic reservoir. *Environmental Pollution* 268, 115853.
- §Pattammattel, A., Leppert, V. J., ‡Aronstein, P., Robinson, M., Mousavi, A., Sioutas, C., Forman, H. J., and *O'Day, P. A. (2021) Iron speciation in particulate matter (PM_{2.5}) from urban Los Angeles using spectro-microscopy methods, *Atmospheric Environment* 245, 117988.
- §*Asta, M. P., Beller, H. R., and O'Day, P. A. (2020) Anaerobic dissolution rates of U(IV)-oxide by abiotic and nitrate-dependent bacterial pathways. *Environmental Science & Technology*, 54(13), 8010-8021.
- §*Reinoso-Maset, E., Perdrial, N., Steefel, C.I., Um, W., Chorover, J., and O'Day, P. A. (2020) Dissolved carbonate and pH control the dissolution of uranyl phosphate minerals in flow-through porous media. *Environmental Science & Technology*, 54(10), 6031-6042.

- *O'Day, P. A., §*Nwosu, U. G., Barnes, M. E., Hart, S. C., Berhe, A. A., Christensen, J. N., and Williams, K. H., (2020) Phosphorus speciation in atmospherically deposited particulate matter and implications for terrestrial ecosystem productivity, *Environmental Science & Technology* **54**(8), 4984-4994.
- Watts, H. D., *O'Day, P. A., and *Kubicki, J. D. (2019) Gibbsite (100) and kaolinite (100) sorption of cadmium (II): A density functional theory and XANES study of structures and energies, *Journal of Physical Chemistry A* **123**, 29, 6319-6333.
- §*Pattammattel, A., Leppert, V.J, Zhang, H., Forman, H. J., and *O'Day, P. A. (2019) Surface characterization and chemical speciation of adsorbed iron(III) on oxidized carbon nanoparticles, *Environmental Science -- Processes & Impacts* **21**, 548-563.
- ‡Leven, A., Vlassopoulos, D., Goin, J., Kanematsu, M., and *O'Day, P. A. (2018) Characterization of manganese oxide amendments for *in situ* remediation of mercury-contaminated sediments, *Environmental Science -- Processes & Impacts* **20**, 1761-1773.
- Vlassopoulos, D., Kanematsu, M., Goin, J., ‡Leven, A., Henry, E., Glaser, D., Brown, S., and O'Day, P. A. (2018) Suppression of methylmercury production in sediments by manganese(IV) oxide amendments. *Environmental Sciences -- Processes & Impacts* **20**, 1746-1760.
- Perdrial, N., Vazquez-Ortega A., Wang, G., §Kanematsu, M., Mueller, K. T., Um, W., Steefel, C., O'Day, P. A., and Chorover, J. (2018) Uranium speciation in acid waste-weathered sediments: The role of aging and phosphate amendments, *Applied Geochemistry* **89**, 109-120.
- §*Reinoso-Maset, E., Steefel, C., Um, W., Chorover, J., and O'Day, P. A. (2017) Rates and mechanisms of uranyl oxyhydroxide mineral dissolution, *Geochimica et Cosmochimica Acta* **207**, 298-321.
- Wang, G., Um, W., Wang, Z., §Reinoso-Maset E., Washton, N., Mueller, K. T., Perdrial, N., O'Day, P., and Chorover, J. (2017) Uranium release from acidic weathered Hanford sediments: single-pass flow-through and column experiments, *Environmental Science & Technology* **51**(19), 11011-11019.
- Zhang, H., Zhou, L., Yuen, J., §Birkner, N., Leppert, V., O'Day, P. A., and Forman, H. J. (2017) Delayed Nrf2-regulated antioxidant gene induction in response to silica nanoparticles, *Free Radical Biology & Medicine* **108**, 311-319.
- §Serrano, S., Vlassopoulos, D., and *O'Day, P. A. (2016) Immobilization of Hg(II) in sediments by cement amendment, *Applied Geochemistry* **67**, 68-80.
- Gómez-González, M. Á., Bolea, E., O'Day, P. A., Garcia-Guinea, J., Garrido, F. and Laborda, F. (2016) Combining single-particle inductively coupled plasma mass spectrometry and X-ray absorption spectroscopy to evaluate the release of colloidal arsenic from environmental samples, *Analytical & Bioanalytical Chemistry*, **408**, 5125-5153, doi: 10.1007/s00216-016-9331-4.
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- ‡*Rivera, N., Choi, S., Strepka, C., Mueller, K., Perdrial, N., Chorover, J. and O'Day, P. A. (2011) Cesium and strontium incorporation into zeolite-type phases during homogeneous nucleation from caustic solutions, *American Mineralogist* **96(11-12)**, 1809-1820.
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- Chisholm-Brause, C. J., O'Day, P. A., Brown, G. E., Jr., and Parks, G. A. (1990) Evidence for multinuclear metal-ion complexes at solid/water interfaces from X-ray absorption spectroscopy. *Nature* **348**, 528-531.
- Gibbs, A. K., Montgomery, C., O'Day, P. A., and Erslev, E. (1986) The Archean-Proterozoic transition: Evidence from the geochemistry of metasedimentary rocks of Guyana and Montana. *Geochimica et Cosmochimica Acta* **50**, 2125-2141.

Peer-reviewed Reports and Proceedings

- O'Day, P. A., Burmistrova, J., †Rivas, E., Seelos, M., Fuhrmann, B., Beutel, M. Traina, S., and Vlassopoulos, D. (2020) Novel remediation of mercury-contaminated sediments using manganese oxide and activated carbon amendments. *Waste Management Symposia WM2020*.
- National Academies of Sciences, Engineering, and Medicine (2017) *Investigative Strategies for Lead-Source Attribution at Superfund Sites Associated with Mining Activities*. Washington DC: The National Academies Press, 112 p. doi: <https://doi.org/10.17226/24898>. (1 of 14 co-authors).

RECENT ABSTRACTS

- Kanematsu, M., Vlassopoulos, D., Sorensen, T., Berlin, D., and O'Day, P. A. (2023) Mitigation of porewater sulfide in wood waste-impacted sediments by reactive amendments: Geochemical and spectroscopic observations in bench-scale and field pilot studies. *SETAC North America Annual Meeting*, Nov. 12-16.
- O'Day, P. A. (2023) *Invited*: Building and promoting faculty Diversity at a new research university. *American Chemical Society Fall meeting*, Aug. 13-17.
- O'Day, P. A., Jones, D. J., Traina, S., and Beutel, M. (2023) *Invited*: Sorbents for removal of mercury from water: a review of sorption mechanisms, materials, and considerations for practical implementation. *American Chemical Society Fall meeting*, Aug. 13-17.

- Rivas Meraz, E., Baerwaldt, D., Lee, P., Beutel, M., Traina, S., and O'Day, P. A. (2023) Evaluation of manganese oxide modified activated carbon for remediation of mercury. *American Chemical Society Fall meeting*, Aug. 13-17.
- Vlassopoulos, D., Kanematsu, M., Gurung, D., Sorensen, T., Berlin, D., and O'Day, P. A. (2023) Remediation of sulfide toxicity in aquatic sediments impacted by wood waste pollution: laboratory, modeling and field pilot studies. *Goldschmidt 2023, International Geochemistry Conference*, Lyon, FR, July. 9-14.
- Jones, D. J., Chavez, J., Beutel, M., Traina, S., Johs, A., and O'Day, P. A. (2023) Optimizing mercury sorption from solutions containing dissolved organic matter. *Waste Management Symposia WM2023*, Phoenix, AZ, Feb. 26-Mar. 2.
- Rivas Meraz, E., Baerwaldt, D., Lee, P., Traina, S. J., Beutel, M., and O'Day, P. A. (2023) Evaluation of manganese oxide modified activated carbon for remediation of redox-sensitive contaminants. *Waste Management Symposia WM2023*, Phoenix, AZ, Feb. 26-Mar. 2.
- Aronstein, P., Leppert, V. J., Robinson, M., and O'Day, P. A. (2022) Chemical speciation in size-fractionated urban particulate matter by spectromicroscopy methods. *AGU Fall Annual Meeting* (Dec. 12-16, Chicago, IL).
- Straw, B., Weiss-Penzias, P., Seelos, M., O'Day, P. A., and Janssen, S. E. (2022) Lichen bioindicators reveal potential source of mercury from atmosphere to reservoirs in a mercury mining-impacted watershed. *AGU Fall Annual Meeting* (Dec. 12-16, Chicago, IL).
- Barnes, M., Grieger, S., Young, R., Aronstein, P., O'Day, P., McKeever, S., Renteria, L., Munson, K., Myers, C., Garayburu-Caruso, V., Scheibe, T., Graham, E., Myers-Pigg, A. (2022) Burn severity regulates organic matter phosphorus composition. *AGU Fall Annual Meeting* (Dec. 12-16, Chicago, IL).
- Reinoso-Maset, E., Perdrial, N., Vazquez-Ortega, A., Kanematsu, M., Wang, G., Um, W., Steefel, C.I., Chorover, J., and O'Day, P. A. (2022) Uranium fate in acidic waste-weathered sediments: Scaling of molecular processes to predict reactive transport. *American Chemical Society National Meeting & Exposition* (Aug. 21-25, Chicago, IL)
- Aronstein, P., Leppert, V. J., Robinson, M., and O'Day, P. A. (2022) Chemical speciation of copper phases in size-fractionated urban ambient particulate matter. *Goldschmidt 2022, International Geochemistry Conference* (July 10-15, Honolulu, HI).
- Rivas Meraz, J., Traina, S., Beutel, M., and O'Day, P. A. (2022) Mixed-valent manganese oxide modified activated carbon (MOMAC) amendments for remediation of mercury-contaminated sediments. *Goldschmidt 2022, International Geochemistry Conference* (July 10-15, Honolulu, HI).
- Rivas Meraz, J., Traina, S., Beutel, M., and O'Day, P. A. (2022) Manganese(IV) oxide modified activated carbon amendments for mercury remediation in contaminated sediments. *American Chemical Society National Meeting & Exposition* (Mar. 21-25, San Diego, CA).
- O'Day, P. A., Pattammattel, A., Leppert, V. J., and Forman, H. J. (2021) Iron speciation in airborne particulate matter from urban locations and implications for human health. *AGU Fall Annual Meeting* (Dec. 16, virtual).
- Rivas Meraz, E., Seelos, M., Burmistrova, J., Beutel, M., Traina, S., and O'Day, P. A. (2021) Remediation of mercury-contaminated aquatic sediments with manganese(iv) oxide and activated carbon amendments. *American Chemical Society National Meeting & Exposition* (Apr. 5-23, virtual).
- Helmrich, S., Quinn, N. W. T., Herr J., Beutel, M., and O'Day, P. A. (2021) Improvement of WARMF model to simulate wetland processes leading to increased salinity. *2021 Bay-Delta Science Conference* (April 6-9, virtual).

- Jones, D. L., Gordus, A. G., Quinn, N. W. T., Beutel, M., and O'Day, P. A. (2021) Mercury trends in seasonal wetlands of the Los Banos Wildlife Area. *2021 Bay-Delta Science Conference* (April 6-9, virtual).
- Rivas Meraz, E., Seelos, M., Salas Hernandez, J., Anderson, T., Laquindanum, V., Martinez, D., Beutel, M., Traina, S., and O'Day, P. A. (2021) Characterization of manganese oxide amendments for remediation of mercury-contaminated sediments. *Waste Management Symposia WM2021* (Mar. 8-12, virtual).
- Barnes, M. E., Hart, S. C., O'Day, P. A., Young, R. P., and Berhe, A. A. (2020) Soil phosphorus stock and speciation with regolith development: does the walker and syers model apply to a climatic weathering gradient? *AGU Fall Annual meeting* (Dec. 8, virtual).
- Helmrich, S., Vlassopoulos, D., Alpers, C. N., Quinn, N. W. T. and O'Day, P. A. (2020) Thermodynamic-kinetic model of net methylmercury production in sediments as a management tool. *California Water and Environmental Modeling Forum* (Dec. 1, virtual).
- Barnes, M. E., Berhe, A. A., O'Day, P. A., Young, R., and Hart, S. C. (2020) Soil phosphorus stock and speciation with regolith development: does the walker and syers model apply to a climatic weathering gradient? *Soil Science Society of America Annual Meeting* (Nov. 9-13, virtual).
- Helmrich, S., Vlassopoulos, D., Alpers, C. N., Quinn, N. W. T. and O'Day, P. A. (2020) Biogeochemical simulations to assess the impact of redox processes on mercury cycling. *Goldschmidt 2020, International Geochemistry Conference* (June, virtual).
- O'Day, P. A., Burmistrova, J., Rivas Meraz, E., Seelos, M., Fuhrmann, B., Beutel, M. Traina, S., and Vlassopoulos, D. (2020) Novel remediation of mercury-contaminated sediments using manganese oxide and activated carbon amendments. *Waste Management Symposia WM2020*, Phoenix, AZ, Mar. 8-12.
- Seelos, M., Rivas Meraz, E., Burmistrova, J., O'Day, P. A., and Beutel, M. (2020) Manganese oxide and activated carbon amendments for porewater mercury (Hg) remediation. *Waste Management Symposia WM2020*, Phoenix, AZ, Mar. 8-12.
- Helmrich, S., Vlassopoulos, D., and O'Day, P. A. (2019) Assessment of the influence of climate change on mercury methylation on a molecular scale with a mechanistic reaction-transport model. *American Chemical Society National Meeting & Exposition*, San Diego, CA, Aug. 25-29.
- Vlassopoulos, D., Helmrich, S., and O'Day, P. A. (2019) A semi-empirical kinetic-thermodynamic framework for assessing methylmercury productivity and expression in aquatic sediments. *Goldschmidt 2019, International Geochemistry Conference*, Barcelona, Spain, Aug. 18-23.
- Rivas Meraz, E., Burmistrova, J., Muranaka, H., Cisneros Castillo, S., Mercado, J., Aguilar, B., Martinez, D., Machado-Perez, F., Anderson, T., Seelos, M., Traina, S., Beutel, M., and O'Day, P.A. (2019) Redox behavior of manganese oxide amendments for remediation of mercury-contaminated sediments, *Stanford Synchrotron Radiation Lightsource (SSRL) Users Meeting*, Stanford, CA, Sept. 26.
- Burmistrova, J., Seelos, M., Beutel, M., Traina, S., and O'Day, P. (2019) Assessment of manganese/iron oxide-modified activated carbon to repress mehg production in hg-contaminated sediments, *American Ecological Engineering Society 19th Annual Meeting*, Ashville, NC, June 3-6.
- Helmrich, S., Vlassopoulos, D., Alpers, C.N., and O'Day, P. A. (2019) Simulation of mercury methylation and demethylation coupled to oxidation-reduction reactions in sediments of Delta tributaries. *California Water & Environmental Modeling Forum (CWEMF)*, Folsom CA, April 22-24.
- O'Day, P. A., Reinoso-Maset, E., and Helmrich, S. (2019) *Keynote*: Biogeochemical and reactive transport modeling as an integrative tool for simulation and forecasting of contaminant chemistry,

- transport, and remediation. *American Chemical Society National Meeting & Exposition*, Orlando, FL, Mar. 31-April 4.
- Helmrich, S., Vlassopoulos, D., Alpers, C.N., and O'Day, P. A. (2018) Simulation of biogeochemical processes driving methylmercury production in different sediment habitats of the Delta and its tributaries, *10th Biennial Bay-Delta Science Conference*, Sacramento, CA, Sept. 10-12.
- O'Day, P. A. (2018) *Keynote*: Advances and new challenges in molecular-scale interfacial reactions and applications to sustainable remediation of contaminants. *Goldschmidt 2018, International Geochemistry Conference*, Boston, MA, Aug. 12-17.
- Helmrich, S., Vlassopoulos, D., Alpers, C.N., and O'Day, P. A. (2018) Critical review of mercury methylation and demethylation rate laws for biogeochemical reaction modeling. *Goldschmidt 2018, International Geochemistry Conference*, Boston, MA, Aug. 12-17.
- Hart, S.C., Aarons, S., Aciego, S., Aronson, E., Barnes, M., Blakowski, M., Carey, C., Christensen, J., Coble, A., Dove, N., Chunhao Gu, C., Maltz, M., Nwosu, U.G., O'Day, P., Riebe, C., Zhu, M. (2018) Ashes to ashes, dust to dust: The significance of aeolian particulate inputs to temperate ecosystems. *Ecological Society of America Annual Meeting*, New Orleans, LA, Aug. 5-10.
- Fuhrmann, B., Beutel, M., Pasek, J., Marvin, M., Brower, S., O'Day, P., (2018). Mercury cycling in California reservoirs: Takeaways and management strategies to repress bioaccumulation. *American Ecological Engineering Society*, Houston, TX, June 12-14.
- Nwosu, U. G., Barnes, M., Berhe, A. A., Hart, S. C., Christensen, J. N., Williams, K. H., and O'Day, P. A. (2018) Phosphorus speciation in atmospherically deposited particulate matter and potential impact on terrestrial soil nutrient cycling and ecosystem productivity. *TES/SBR Joint Investigators Meeting*, Potomac MD, May 1-2.
- Pattammattel, A., Zhang, H., Forman, H. J., Leppert, V., and O'Day, P. A. (2018) Synthetic nanoparticle analogues for studying biological response to airborne particulate matter. *255rd American Chemical Society National Meeting & Exposition*, March 25-29, New Orleans, LA.
- Pattammattel, A., Forman, H. J., O'Day, P. A., and Leppert, V., (2018) Fe L-edge spectroscopy reveals the chemistry of iron in nanoscale particulate matter. *255rd American Chemical Society National Meeting & Exposition*, March 25-29, New Orleans, LA.
- Nwosu, U. G., Lash, B., Barnes, M., Hart, S. C., Berhe, A. A., and O'Day, P. A. (2018) Phosphorus speciation in atmospherically deposited air particulates from high and low elevation sites of California and Colorado. *255rd American Chemical Society National Meeting & Exposition*, March 25-29, New Orleans, LA.
- Helmrich, S., Vlassopoulos, D., and O'Day, P. A. (2017) Development and application of a biogeochemical reaction-transport model for simulating mercury methylation in sediments at two mercury-impacted sites in California. *13th International Conference on Mercury as a Global Pollutant*, July 16-21. Providence, RI, USA.
- Vlassopoulos, D., Kanematsu, M., Goin, J., Leven, A., and O'Day, P. A. (2017) *In situ* control of methylmercury production in sediments using redox-buffering mineral amendments. *13th International Conference on Mercury as a Global Pollutant*, July 16-21. Providence, RI, USA.
- Leven, A., Vlassopoulos, D., Goin, J., Kanematsu, M., and O'Day, P. A.* (2017) Characterization of manganese oxide amendments for *in situ* remediation of mercury-contaminated sediments. *13th International Conference on Mercury as a Global Pollutant*, July 16-21. Providence, RI, USA.
*presenting
- Kubicki, J. D., Watts, H. D., and O'Day, P. A. (2017) Modeling X-ray absorption spectra of Cd(II) on clays. *16th International Clay Conference*, July 17-21, Granada, Spain.

- O'Day, P. A., Nwosu, U. G., Lash, B., Barnes, M., Berhe, A. A., Fogel, M. F., and Hart, S. C., (2017) Experimental and modeling investigation of the impact of atmospherically deposited phosphorus on terrestrial soil nutrient and carbon cycling, and ecosystem productivity. *TES/SBR Joint Investigators Meeting*, Potomac MD, April 25-26.
- O'Day, P. A., Reinoso-Maset, E., Nguyen, K., Leppert, V., and Forman, H. J., (2017) Element speciation in atmospheric nanoparticles and implications for human health and biogeochemical cycling. *American Chemical Society National Meeting & Exposition*, April 2-6, San Francisco, CA.
- Pattammattel, A., O'Day, P. A., Zhang, H., Leppert, V., and Forman, H.J., (2017) Synthetic nanoparticle analogues for studying biological response to airborne particulate matter. *American Chemical Society National Meeting & Exposition*, April 2-6, San Francisco, CA.
- Helmrich, S., Vlassopoulos, D., and O'Day, P. A. (2017) Assessment of the influence of climate change on mercury methylation on a molecular scale with a mechanistic reaction-transport model. *American Chemical Society National Meeting & Exposition*, April 2-6, San Francisco, CA.

RECENT INVITED TALKS

- American Chemical Society National Meeting, San Francisco, CA, 2023 (two invited talks)
- Advanced Light Source (ALS) User's Meeting, workshop speaker, 2020 (virtual)
- American Chemical Society National Meeting, Orlando, FL, 2019 (session keynote)
- Goldschmidt 2018, International Geochemistry Conference, Boston, MA, 2018 (session keynote)
- Department of Energy, TES/SBR Joint Investigators Meeting, Potomac, MD, 2018
- Department of Earth and Environmental Sciences, California State University, Fresno, 2018
- Geochemistry Lecture Series, California State University, Stanislaus, 2018
- Speaker and Symposium Co-organizer, American Chemical Society Meeting, 2017
- Department of Energy, TES/SBR Joint Investigators Meeting, Potomac, MD, 2017
- Stanford Synchrotron Radiation Lightsource (SSRL) User's Meeting, 2015
- California State University, Stanislaus, 2015
- Adrian Smith Lectureship on Environmental Geochemistry, University of Waterloo, Canada, 2014
- Goldschmidt 2014, International Geochemistry Conference, Sacramento, CA, 2014 (session keynote)
- Gordon Research Conference, Environmental Sciences: Water, invited Discussion Leader, 2014
- Department of Energy, TES/SBR Joint Investigators Meeting, Potomac, MD, 2014
- Goldschmidt 2013, International Geochemistry Conference, Florence, Italy, 2013 (two invited talks)
- Department of Energy, TES/SBR Joint Investigators Meeting, Potomac, MD, 2013

EXTERNAL RESEARCH GRANTS

Active

- Department of Energy, Environmental Management, Minority Serving Institutions Partnership Program (P.I.: O'Day; co-PI's: M. Beutel, S. Traina): "Manganese and iron oxide-modified activated carbon for the remediation of mercury-contaminated sediment and water", 06/15/2021 to 08/09/2024, \$875,000.
- Valley Water, Santa Clara County Water District (P.I.: M. Beutel; co-PI: O'Day): "Evaluation of Sediment Amendments to Control Methylmercury Production in Polluted Aquatic Sediments", 07/01/2022 to 09/30/2024, \$250,000.

Previous

- Delta Science Program, Delta Stewardship Council, State of California (P.I.: O'Day; co-PI's: N. Quinn, M. Beutel, S. Hart): "Integrated science and management of nutrient, salt, and mercury export from San Joaquin River wetland tributaries to the Delta", 06/30/2019 to 04/30/2022, \$863,160.
- US Geological Survey, Cooperative Agreement (P.I.: O'Day; co-PI: M. Beutel): "Cache Creek Settling Basin Mercury Studies Project", 10/01/2020 to 09/30/2021, \$83,000.

Department of Energy, Environmental Management, Minority Serving Institutions Partnership Program (P.I.: O'Day; co-PI's: M. Beutel, S. Traina): "Manganese and iron oxide-modified activated carbon for the remediation of mercury-contaminated sediment and water", 01/01/2020 to 06/31/2021, \$270,000.

NIH-NIEHS (P.I.: H. Forman, Univ. of Southern California; O'Day UCM P.I.): "Human models of the nanoparticulate-induced inflammatory/antioxidant axis in aging" 02/09/2015 to 11/30/2020, UCM award: \$609,146.

Jacobson James & Associates, Inc. (primary: City of Modesto, California Prop. 1 Groundwater Grant, P.I.: O'Day): "City of Modesto Wellfield RI/FS", 04/15/2019 to 9/30/2020, \$36,700.

Department of Energy, Environmental Management, Minority Serving Institutions Partnership Program (P.I.: O'Day; co-PI's: M. Beutel, S. Traina): "Manganese and iron oxide-modified activated carbon for the remediation of mercury-contaminated sediment and water", 01/09/2019 to 01/30/2020, \$299,808.

California Sea Grant College Program, 2018 Delta Science Fellows Program #5298 (P.I.: O'Day for Stefanie Helmrich, Graduate Student Fellowship Award): "Simulating methylmercury production and transport at the sediment-water interface to improve water quality in the Delta", 1/22/2018 to 1/21/2020, \$151,403.

Department of Energy, Subsurface Biogeochemistry Research Program Exploratory Award (P.I.: O'Day; co-PI's: S. Hart, A. Berhe, M. Fogel): "Experimental and modeling investigation of the impact of atmospherically deposited phosphorus on terrestrial soil nutrient and carbon cycling, and ecosystem productivity", 08/15/16 to 08/14/18, \$200,000.

National Science Foundation, Environmental Chemical Sciences Program CHE-1213407 (P.I. O'Day): "Collaborative research: Quantifying the reactive surface area of environmental solids", 10/01/12 to 09/31/16, \$300,000.

Department of Energy, Subsurface Biogeochemistry Research Program (P.I.: J. Chorover, Univ. of Arizona; O'Day UCM P.I.): "Uranium and strontium fate in waste-weathered sediments: Scaling of molecular processes to predict reactive transport" 09/15/11 to 11/30/15, O'Day award: \$300,126.

Department of Energy, Subsurface Biogeochemistry Research Program (P.I.: O'Day; co-PI's: S. Traina, H. Beller, C. Steefel): "Molecular mechanisms and kinetics of microbial anaerobic, nitrate-dependent U(IV) and Fe(II) oxidation," 09/15/10 to 11/30/14, \$781,992.

Department of Energy, Environmental Remediation Sciences Program (P.I.: J. Chorover, Univ. of Arizona; O'Day UCM P.I.): "Release of aged contaminants from weathered sediments: Effects of sorbate speciation on scaling of reactive transport" 08/15/08 to 08/14/12, O'Day award: \$251,002.

NIH-NIEHS Superfund Research Program, (P.I.: O'Day): ARRA Administrative Supplement for "Sequestration and immobilization of metal and metalloid contaminants in sediments," 09/15/09 to 08/31/11, \$219,459.

NIH-NIEHS Superfund Research Program, (P.I.: O'Day): ARRA Supplement for Summer Research Experiences for Undergraduate Students, 06/01/09 to 08/31/11, \$7,782.

NIH-NIEHS Superfund Research Program (P.I.: O'Day): "Sequestration and immobilization of metal and metalloid contaminants in sediments," 09/01/07 to 08/31/11, \$802,671.

Department of Defense, Strategic Research and Development Program (P.I.: J. Hering, Caltech; O'Day co-P.I.): "Environmental fate and exposure assessment for arsenic in groundwater," sub-contract from Caltech, 12/01/08 to 12/31/09, O'Day award: \$156,000.

National Science Foundation, Instrumentation & Facilities (P.I.: S. Traina; co-P.I.'s: R. Bales, M. Conklin, T. Harmon, P. O'Day): "Technician Support Phase I: A multi-purpose environmental analytical laboratory at UC Merced," 12/15/05 to 12/14/08 (+1 year no-cost extension), \$224,979.

National Science Foundation, Hydrologic Sciences Program (P.I.: O'Day): "Spatial and temporal changes in arsenic, iron, and sulfur speciation in a shallow aquifer," 08/15/04-7/31/07 (+1 year no-cost extension), \$270,000.

Department of Energy, Environmental Remediation Sciences Program (P.I.: J. Chorover, Univ. of Arizona; O'Day UCM P.I.): "Coupling sorption to soil weathering during reactive transport: impacts of mineral transformation and sorbate aging on contaminant speciation and mobility," 2/01/06-1/31/08 (+1 year no-cost extension), O'Day award: \$200,513.

National Science Foundation, Major Research Instrumentation (P.I.: O'Day; co-P.I.'s S. Traina, V. Leppert): "MRI: Acquisition of a powder X-ray diffractometer for environmental and materials research at UC Merced," 08/01/06-07/31/08, \$187,407.

Department of Defense, Strategic Research and Development Program (P.I.: J. Hering, Caltech; O'Day co-P.I.): "Environmental fate and exposure assessment for arsenic in groundwater," sub-contract from Caltech, 1/01/05-12/31/07, O'Day award: \$159,813.

National Science Foundation, Major Research Instrumentation (P.I.: O'Day; co-P.I.'s S. Traina, V. Leppert): "Acquisition of a scanning electron microscope for environmental, biological, and materials research and education at UC Merced," 8/01/04-7/31/07, \$323,743.

National Science Foundation, Environmental Engineering (P.I.: O'Day): "Collaborative Research: Biogeochemical controls on arsenic remobilization from sediments," with J.G. Hering (Caltech), 8/01/02-7/31/05, O'Day award: \$210,466.

Department of Energy, Environmental Management Science Program (P.I.: J. Chorover, Univ. of Arizona; O'Day UCM P.I.): "Caustic waste-soil weathering reactions and their impacts on trace contaminant migration and sequestration," 9/15/02-9/14/05, O'Day award: \$265,000.

National Science Foundation, Hydrologic Sciences Program (P.I.: O'Day): "Molecular characterization and reaction mechanisms of arsenic speciation in stream hyporheic zone sediments," 7/1/00-6/30/03 (+1 year no-cost extension), \$191,556.

National Aeronautics and Space Administration, Astrobiology Institute: "Exploring the living universe: Origin, evolution, and distribution of life in the solar system," (P.I.'s J. Farmer and 12 others). Module 1B (P.I.'s: J. R. Holloway and P.A. O'Day) "Organic synthesis at high temperatures," 8/15/98-8/14/03; Module 1B award: \$688,693.

National Science Foundation (P.I.: O'Day; co-P.I. S.C. Cary, Univ. of Delaware): "NER: Molecular-to-microscale investigation of microbial habitats: Exploratory studies using molecular probes and microcomputed tomography and fluorescence," 7/15/02-7/14/03, \$94,736.

W. M. Keck Foundation (P.I.: E. Shock, ASU; O'Day one of 3 co-P.I.'s): "Laboratory for Environmental Biogeochemistry," \$900,000 for ICP-MS instrumentation, 7/15/02-7/14/05.

National Science Foundation, Biocomplexity Program (Incubation Activity) (P.I.'s, S. C. Cary, P. A. O'Day, J. R. Holloway): Origins of biocomplexity: Colonization and succession of microbial communities in a dynamic geochemical environment, 12/01/00-11/30/02, \$86,954.

National Science Foundation, Faculty Early Career Development Program, Petrology & Geochemistry Program (P.I.: O'Day): "Metal partitioning and surface reactions in natural and model systems: Research and education," 6/01/96-7/31/00 (+1 year no-cost extension), \$205,540. Research Experiences for Undergraduates supplement awarded 6/01/97, \$2,000.

Department of Energy, Environmental Science Management Program (P.I.'s S. A. Carroll, C. J. Bruton, Lawrence Livermore National Laboratory): "Experimental determination of contaminant metal mobility as a function of temperature, time, and solution chemistry," 1/01/97-3/30/00; subcontract from LLNL (P.I.: O'Day): \$172,718.

Petroleum Research Fund Type G Grant (P.I.: O'Day): "Determination of oxygen isotope ratios of clay minerals *in situ* using secondary ion mass spectrometry (SIMS)," 1/1/97-8/31/00, \$20,000.

Lawrence Livermore National Laboratory (Department of Defense (Navy) subcontract, P.I.: O'Day): "Speciation of metals in sediments at Naval Air Station, Alameda, CA, using X-ray absorption spectroscopy," 10/1/97-9/30/99, \$26,426.

Lawrence Livermore National Laboratory (DOE subcontract, P.I.: O'Day): "Characterization of toxic sediments using X-ray absorption spectroscopy," 1/26/96-9/30/97, \$26,736.

National Science Foundation, Earth Sciences Postdoctoral Research Fellowship Program (P.I.: O'Day): "Theoretical development of thermodynamic equations of state for surface complexes," (faculty sponsor: H.C. Helgeson, U.C. Berkeley), 11/92-11/94, \$70,000.

Awards at User Facilities

Continuous active user proposals at the Stanford Synchrotron Radiation Lightsource (SSRL) since 1995; additional user awards for time at the Canadian Light Source (CLS, Saskatchewan, Canada), the Advanced Light Source (ALS, Berkeley National Lab), Advanced Photon Source (APS, Argonne National Lab), European Synchrotron Radiation Facility (ESRF, Grenoble, France), National Synchrotron Light Source (NSLS, Brookhaven National Lab), and the Environmental Molecular Science Laboratory (EMSL, Pacific Northwest National Lab).

TEACHING & MENTORING

COURSES TAUGHT

UC Merced

Fundamentals of Soil Science (ESS 170): Upper division undergraduate (co-taught with S. Traina, 1 semester)

Environmental Chemistry and Laboratory (ESS 100): Upper division undergraduate and graduate sections (8 semesters; co-taught with M. Conklin, 3 semesters)

Geochemistry of Earth Systems (ESS 103/ES 203): Graduate and upper division undergraduate (6 semesters)

Instrumental and Spectroscopic Methods in Environmental Systems (ES 206): Graduate (2 semesters)

Introduction to Earth Systems Science: Online/hybrid (ESS 1) Undergraduate, general science (2 semesters). Funding from UC Innovative Learning Technology Initiative for online development.

Fundamentals of Geology and Laboratory (ESS 20): Undergraduate, general science (4 semesters)

Earth Resources and Society (ESS 10): Undergraduate, general science (1 semester)

Introduction to Earth Systems Science (ESS 1): Undergraduate, general science (3 semesters)

Soil Foundations of Terrestrial Ecosystems (ESS 70): Lower division undergraduate (co-taught with S. Traina, 1 semester)

Environmental Systems Directed Group Study: Geochemistry and Reactive Transport (ES 298): Graduate (2 semesters)

Special Topics in Environmental Systems: Environmental Science and Policy: Case studies and current topics (ES 292). Graduate and upper-division (1 semester)

Environmental Systems Seminar (ES 291), Graduate seminar/discussion (2 semesters)

Freshman Seminar: Introduction to the Geology of Yosemite National Park and the Sierra Nevada. Freshman seminar (2 semesters).

Arizona State University

Introduction to Physical Geology: Undergraduate, non-major, general science class (3 semesters)

Environmental Geology & Environmental Geology Laboratory: Undergraduate, non-major, general science class (4 semesters)

Geochemistry: Upper-division undergraduate and graduate, cross-listed in Geological Sciences and Chemistry & Biochemistry (5 semesters)

Special Topics in Aqueous Geochemistry: Graduate seminar (2 semesters)

Chemical Hydrogeology: Upper-division undergraduate and graduate (2 semesters)

Experiments in Biogeochemistry, co-taught with F. Garcia-Pichel: Upper-division undergraduate/graduate; cross-listed in Geological Sciences, Microbiology, Chemistry & Biochemistry (1 semester)

Analytical Methods in Geological Sciences, co-taught with J. Holloway or T. Sharp: Upper-division undergraduate and graduate (2 semesters)

Seafloor/Planetary Hydrothermal Systems, co-taught with J. Holloway: Graduate seminar (1 semester)

Geochemistry and Petrology of Planetary Systems, co-taught with J. Holloway: Graduate seminar (1 semester)

Current Students, UC Merced

Paul Aronstein (Ph.D.), Edwin Rivas Meraz (Ph.D.), Danielle Jones (Ph.D., co-advisor)

Theses & Dissertations Supervised, UC Merced

Stefanie Helmrich, Ph.D. (2022) "Development of Numerical Models to Predict Cycling of Mercury and Salt in Freshwater." Environmental Systems.

Alexander Leven, M.S. (2017) "Fate of Redox-Active Manganese Oxide Minerals as an *In Situ* Treatment for Mercury-Contaminated Sediments." Environmental Systems.

Molly Small, M.S. (2014) "Surface Complexation and Reactivity of Kaolinite and Gibbsite with Cadmium: A Multi-Method Approach." Environmental Systems.

Rasesh Pokharel, M.S. (2013) "Oxidative Dissolution of Bio-U(IV)O₂(s) in the Presence of Nitrate and Iron Under Anaerobic Conditions Using Flow-Through Columns." Environmental Systems.

Nelson A. Rivera, Ph.D. (2011) "Sequestration and Release Mechanisms of Strontium and Cesium in Zeolite/Feldspathoid Systems and Laboratory Reacted Hanford Sediments." Environmental Systems.

Robert A. Root, Ph.D. (2009) "Arsenic Mobility in Suboxic Environments: The Role of Phosphate Competition and Green Rust Mineralization," Environmental Systems.

Theses & Dissertations Supervised, Arizona State University

Ken M. Voglesonger, Ph.D. (2004) "Experimental and Field Studies of Seafloor Hydrothermal Systems," co-advised with John Holloway, Geological Sciences.

Nelson A. Rivera, M.S. (2004) "Arsenate Removal by Zero Valent Iron," Geological Sciences.

Adam Jew, B.S. (2004) "Arsenic Speciation in Sediments at Haiwee Reservoir, Eastern California," Undergraduate Thesis, Geological Sciences.

Robert A. Root, M.S. (2003) "Arsenic and Iron Speciation and Natural Attenuation in a Tidally Influenced Shallow Aquifer: Reaction and Transport Mechanisms," Geological Sciences.

Dawn A. Ashbridge, M.S. (2002) "Chemical and Physical Analysis of Seafloor Hydrothermal Vent Chimneys," Geological Sciences.

Jill E. Best, M.S. (2002) "Geochemical Characterization and Modeling of Trace Metal Substitution in Manganese Oxide Precipitates from Pinal Creek," Geological Sciences.

Katherine E. Geiger, M.S. (1999) "Characterization and Distribution of Transition Metals in Manganese Oxides from a Mining-Contaminated Stream, Pinal Creek, Arizona," Geological Sciences.

Margaret A. Ebert, B.S. (1998) "Characterization of Zinc Hydroxide Precipitates using X-Ray Absorption Spectroscopy," Undergraduate Honors College Thesis, Chemistry & Biochemistry.

Lara E. Heister, M.S. (1997) "The Petrogenesis of Tertiary Phonolitic Volcanism, Gronau West Nunatak, East Greenland," Geological Sciences.

Dissertation Committees at Other Universities

Miguel Angel Gomez Gonzalez, Ph.D. (2015), Instituto de Ciencias Agrarias, CSIC, Madrid, Spain
Carin Sjöstedt, Ph.D. (2012) KTH, Stockholm, Sweden, Faculty Opponent
Martin Helmhart, Ph.D. (2012), Instituto de Ciencias Agrarias, CSIC, Madrid, Spain, co-advisor
Sarah Hayes, Ph.D. (2010), Soil, Water, and Environmental Sciences, University of Arizona
Hannah Gilbert, M.S. (2003) Hydrology & Water Resources Department, University of Arizona
John Villinski, Ph.D. (2001) Hydrology & Water Resources Department, University of Arizona
Kaye Savage, Ph.D. (2001) Geological & Environmental Sciences Department, Stanford University

Post-Doctoral Research Scholars Supervised, current affiliation

Ajith Pattammattel, 2016-2018 (Ph.D. Univ. of Connecticut), National Synchrotron Lightsource,
Brookhaven National Laboratory, NY
Ugwumsinachi Godwin Nwosu, 2017-2018 (Ph.D. Louisiana State University), Exxon-Mobil, TX
Nancy Birkner, 2015-2016 (Ph.D. UC Davis) Clemson University
Estela Reinoso-Maset, 2013-2015 (Ph.D. University of Plymouth, UK), Centre for Environmental
Radioactivity, Norwegian University of Life Sciences
Elizabeth Neubaur, 2014 (Ph.D. University of Vienna), private consulting
Maria Pilar Asta, 2010-2012 (Ph.D. University of Barcelona), Faculty, University of Granada, Spain
Masakazu Kanamatsu, 2011-2012 (Ph.D. University of California, Davis), Anchor, QEA, Portland, OR
Susana Serrano, 2007-2010 (Ph.D., CSIS, Madrid, Spain), GAB Consulting, Valencia, Spain
Virginia Illera, 2004-2010 (Ph.D., CSIC, Madrid, Spain), education
Sunkyoung Choi, 2005-2008 (Ph.D., Yonsei University, Seoul, S. Korea), U.S. EPA, Ada, OK
Nita Sahai, 1997-1998 (Ph.D., Johns Hopkins University), Faculty, The University of Akron

SERVICE AND PROFESSIONAL ACTIVITIES

Department, School, and University Service, UC Merced

Chair, UC Academic Council Special Committee on Laboratory Issues (ACSCOLI), 2023-2024
Chair, Senate Committee on Academic Personnel, 2022-2023
UC Academic Council Special Committee on Laboratory Issues (ACSCOLI), Member 2018-2023
Chair, Environmental Systems Graduate Group, Educational Policy Committee, 2022-2023
Environmental Analytical Laboratory Advisory Committee, Member, 2017-current
Imaging and Microscopy Facility, Advisory Committee Member, 2016-current
Environmental Systems Graduate Group, Educational Policy Committee, Member, 2020-2022
Senate Committee on Academic Personnel, Member, 2020-2022
Senate Committee on Committees, Member (elected), 2020-2022
Chair, Life and Environmental Sciences Department, 2016-2019
UC Vice-President for National Laboratories, Search Committee Member, 2019
Carson House Living Learning Community, Advisory Committee Member, 2018-2019
Dean's Council, Transition Oversight Committee, Member, 2018-2019
Chair, Provost Review Committee, 2017
Academic Senate Review Committee, Member, 2017
co-Chair, Sustainability Search Committee Cluster Hire, 2016-2017
Senior Management Dean Review Committee, Member, 2016
Chair, Environmental Systems Graduate Group, 2013-2016
Sierra Nevada Field Station Advisory Committee, Member, 2015-2016
Faculty Lead, Earth Systems Science major, Natural Sciences, 2012-2015
Cross-unit Natural Resources Management Search, Committee Member, 2013-2014
Chair, Academic Senate, Merced Division, 2012-2013

Academic Council Member, UC Systemwide Academic Senate, 2012-2013
 Vice-Chancellor for Business and Administrative Services, Search Committee Member, 2013
 Vice-Chancellor for Academic Planning and Budget, Search Committee Member, 2012-2013
 Cross-unit Natural Resources Management, Search Committee Member, 2012-2013
 Vice-Chair, Academic Senate, Merced Division, 2011-2012
 Academic Personnel Chair, Life and Environmental Sciences Faculty, 2011-2012
 Provost/EVC Search, Committee Member, 2011-2012
 Chair, Ecology Search Committee, Natural Sciences, 2011-2012
 Commission on the Future of UC, Education & Curriculum Working Group Member, 2009-2010
 Chair, Senate Committee on Rules and Elections, and Merced Division Secretary, 2008-2010
 Dean of Engineering, Search Committee Member, 2010
 Chair, University Committee on Promotion and Tenure, 2008-2009
 Chair, University *Ad Hoc* Committee on General Education, 2008-2009
 Chair, Natural Sciences Curriculum Committee, 2008-2009
 Natural Sciences, Academic Personnel Committee Member, 2007-2009
 Natural Sciences, Earth Systems Science major, Faculty Lead, 2004-2009
 Environmental Systems Graduate Group, Academic Advising and Policy Committee, 2007-2010
 Sierra Nevada Research Institute, Environmental Analytical Lab Users Committee, 2007-2010
 Chair, Senate Undergraduate Council, 2007-2008
 Chair, Natural Sciences, Ecology Search Committee, 2007-2008
 Senate Undergraduate Council, Vice-Chair and BOARS representative, 2005-2007
 Senate Graduate Council & Committee on Research, Member, 2006-2007
 Chair, Sierra Nevada Research Institute Advisory Board 2005-2007
 Natural Sciences, Microbial Ecology Search Committee Member, 2006-2007
 Chair, Natural Sciences Strategic Planning Committee, 2005-2006
 Chair, Natural Sciences Ecosystems/Ecology Search Committee, 2005-2006
 Natural Sciences, Analytical Chemistry Search Committee Member, 2005-2006 & 2006-2007
 Natural Sciences, Interdisciplinary Physical Sciences Search Committee Member, 2005-2006
 Chair, Cross-unit Materials Science & Engineering Search Committee, 2005-2006
 Cross-unit Environmental Policy Search Committee Member, 2005-2006
 Senate Graduate Council & Committee on Research, Member, 2004-2005
 Chair, Senate Graduate Council & Committee on Research, and CCGA representative 2003-2004
 Faculty Steering Committee, Imaging and Microscopy Facility, 2004-2009
 Natural Sciences, Organic Chemistry Search Committee Member, 2004
 Chair, Natural Sciences, Ecosystem Science Search Committee, 2003-2004
 Natural Sciences, Microbiology Search Committee Member, 2003-2004

Department, College, and University Service, Arizona State University

Department of Geological Sciences, Graduate Committee, 2002-2003
 Geological Sciences & Chemistry & Biochemistry, Search Committee, Biogeochemistry, 2003
 College of Liberal Arts & Sciences, Search Committee, Terrestrial Biogeochemistry, 2002
 Graduate College Committee, ASU Responsive Ph.D. Initiative, 2002
 University Delegate, Universities Council on Water Resources, 1999-2003
 Geology Department, Head Undergraduate Advisor, Curriculum Committee Chair, 1996-2000
 Geology Department, Safety Officer, 1995-2000
 College of Liberal Arts & Sciences Search Committee, Senior Development Officer, 1999
 Geology Department, Department Chair Search Committee, 1998-1999
 Geology Department, Personnel Committee, 1998
 Center for Solid State Science, Executive Committee Member, 1997-1999
 Geology Department, Biogeochemistry Search Committee and Affirmative Action Representative, 1996-1997
 Southwest Center for Education and the Natural Environment Outreach Committee, 1995-1997

PROFESSIONAL SERVICE & ACTIVITIES

National Academy of Sciences, National Research Council Committee on Electric Arc Furnace Slag: Understanding Human Health Risks from Unencapsulated Uses, 2022-current

National Science Foundation, Chair, Proposal Review Panel, Community Facility Support: Synchrotron-based analytical capabilities advancing Earth and Environmental Sciences research and training, 2022

Department of Energy, Earth Systems Science Program, Proposal Review Panel, 2021

Department of Energy, Energy Frontier Research Centers Management Review Panel, 2019

National Science Foundation, Environmental Chemical Sciences, Proposal Review Panel, 2018

Department of Energy, Subsurface Biogeochemistry Research Program, Argonne National Lab Science Focus Area Review Panel, 2018

Editorial Review Board, *Geochemical Transactions*, 2006-2017

National Academy of Sciences, National Research Council Committee on Sources of Lead Contamination At or Near Superfund Sites, 2016-2017

Symposium Co-organizer, American Chemical Society National Meeting, Geochemistry Division, 2017

National Science Foundation, Midscale Instrumentation Workshop, 2016

Department of Energy, PECASE Review Committee, 2016

National Science Foundation, Environmental Chemical Sciences, Proposal Review Panel, 2015

National Science Foundation, National Nanotechnology Coordinated Infrastructure, Proposal Review Panel, 2015

Associate Editor, *Geochimica et Cosmochimica Acta*, 2001-2012

Department of Energy, Subsurface Biogeochemistry Research Program, Argonne National Lab Science Focus Area Review Panel, 2012

Department of Energy, Environmental Molecular Sciences Lab, User Proposal Review Panel, 2012

Invited workshop on “International Drilling to Recover Aquifer sands (IDRAs)”, Hanoi, Vietnam, 2011

Department of Energy, Subsurface Biogeochemistry Research Program, Pacific Northwest National Lab Science Focus Area Review Panel, 2011

National Institute of Environmental Health Sciences (NIEHS)-NIH, Superfund Research Program Special Emphasis Panel co-Chair, 2010

Columbia University, NIEHS Superfund Basic Research Program, Advisory Board, 2005-2012

National Science Foundation, Earth Sciences Instrumentation & Facilities Review Panel, 2009

Mineralogical Society of America, Awards Committee, 2008-2010

EnviroSync Steering Committee, 2007-2009

Penn State University, Cyberinfrastructure and Research Facility, Advisory Board, 2006-2009

Department of Energy, Environmental Remediation Sciences Program, Argonne National Lab Science Focus Area Review Panel, 2009

Department of Energy, Basic Energy Sciences, Geosciences Program Review, 2009

Department of Energy, Environmental Remediation Sciences Program, National Laboratory Science Focus Area Review Panel, 2008

National Institute of Environmental Health Sciences, Superfund Research Program Review Panel, 2007

Lawrence Berkeley National Laboratory, Review Committee, Earth Sciences Division, 2005

National Science Foundation, Earth Sciences Instrumentation & Facilities Review Panel, 2003-2006

National Institute of Environmental Health Sciences, Superfund Research Program Review Panel, 2004

Federal Agencies Workshop, Conceptual Model Development for Subsurface Reactive Transport Modeling of Inorganic Contaminants, Radionuclides, and Nutrients, Participant, 2004

American Chemical Society, Geochemistry Division, Program Chair, 2001; Chair, 2002

National Science Foundation, Nanoscience Program Review Panel, 2002

National Science Foundation, IGERT Proposal Review Panel, 2002

Interdisciplinary Workshop on Nanogeoscience, Participant, 2002

Mineral & Rock Physics Committee Member, American Geophysical Union, 2000-2002

GeoSync Society, American Geophysical Union, Chair, 2000-2001

Consortium for Advanced Radiation Sources, Advanced Photon Source, Board of Governors, 1999-2001
NASA Astrobiology Institute, Roadmap Planning Workshop Participant, 1998
NASA Deep-Sea Hydrothermal Vent System Workshop Participant, 1998
National Science Foundation, Environmental Geochemistry and Biogeochemistry Program, Proposal Review Panel, 1997
National Science Foundation/Environmental Protection Agency, Joint Program in Water and Watersheds, Proposal Review Panel, 1997
Stanford Synchrotron Radiation Laboratory, User's Organization Executive Committee, 1995-1997

CONTRIBUTIONS TO OUTREACH, DIVERSITY, AND INCLUSIVITY

PI and Faculty Mentor, DOE Environmental Management, Minority Serving Institutions Partnership Program (MSIPP), 2019-current
External Advisory Board member for "*This American Land*", public television news program on conservation and science produced by Environmental Trust News (non-profit), 2016-2023
USDA FACTS Summer Bridge Program Mentor, 2021, 2022, 2023
UC Women's Initiative for Professional Development, participant, 2018-2019
Sierra Club, Merced Chapter, public presentation, April 2019
Faculty Mentor, USDA-HSI Scholars Program (summer 2012 and 2013)
Faculty Mentor, NSF REU Site, UC Merced Summer Yosemite Research Training in Environmental Science, 2008
Yosemite Institute/SNRI, Teacher Training Workshop, 2004
Castle Science and Technology Center, Speaker, 2004
UC Alumni Association, San Joaquin Valley, Speaker, 2003
Sally Ride Foundation Festival, Arizona State University, Speaker, 2003
Arizona State University, NSF-IGERT Program in Urban Ecology, Faculty Participant, 2001-2003
Arizona State University, NSF Graduate Teaching Fellowship Program, Development of K-12 Science Teachers, Faculty Participant, 2001-2003.
Arizona Mining Association, Summer Teacher Training Workshop, 1999 and 2000