

Eddy L Cadet

Associate Professor
Department of Earth Science
Environmental Science & Management

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EDUCATION

- Ph.D. Integrative Bioscience, Tuskegee University, Alabama 2013
- M.Sc. Environmental Science, Tuskegee University, Alabama 2002
- Cert. Hazardous Materials Management, University of California, Davis 1998
- B.Sc. Biology, University of Illinois, Chicago 1990

PROFESSIONAL EMPLOYMENT

- Associate Professor, Environmental Science & Management 2001 - present
Utah Valley University
- Assistant Professor, Environmental Technology 2000 - 2001
Utah Valley Community College
- Instructor, Environmental Technology 1993 - 2000
Utah Valley Community College
- Licensed Environmental Health Scientist 2001 - present
Utah County Health Department Provo, Utah
- Research Assistant, Tuskegee University 1999 - 2013
Tuskegee, Alabama
- Teaching Assistant, Tuskegee University 1999 - 2001
Tuskegee, Alabama
- Environmental Investigator Assistant/ Internship 1995 - 1995
Department of Toxic Substance Control, Sacramento, California
- Environmental Health Scientist 1990 - 1993
Lake County Health Department, Waukegan, Illinois
- Science Teacher, Shiloh Academy 1989 - 1990
Chicago, Illinois

PROFESSIONAL AFFILIATIONS

- National Environmental Health Association
- Soil Science Society of America
- Utah Environmental Health Association

PROFESSIONAL AWARDS

- UVU Board of Trustees awards of Excellence (2019).
- Outstanding Perseverance in Pursuit of Grant Opportunities for Serious Research and Student Engagement Award – Office of Sponsored Program (2018).
- Employee of the Month- Utah County Health Department (2001).
- Faculty of the Year, School of Technology, Trades, and Industries, UVSC (1998).

TEACHING EXPERIENCE AND DEVELOPMENT

- **Introduction to Environmental Science and Management** (Hybrid and face to face- ENVT 1110- 17*).
This course introduces students to the environmental management program and surveys environmental issues and the impact of people on the environment. Covers water, air, and soil pollution and their prevention.
 - **Environmental Health** (ENVT 2560-18)
This course presents how environmental protection and proper sanitation can protect the public. Covers control of infections and noninfectious disease. Help prepare students for the NEHA exam.
 - **Environmental Toxicology** (ENVT 3010-4)
For environmental and safety managers. Discusses how toxins move through the environment, their effects on humans and the ecosystem. Covers risk assessment, environmental disasters, environmental regulations.
 - **Site Investigation** (ENVT 3550-6)
Covers the investigation and preliminary cleanup of contaminated sites. Discusses Phase I, II, and III environmental investigation and reports.
 - **Current Topics in Environmental Management** (ENVT 3700-6)
This class covers current major local, national and international environmental issues, the science behind them, and risk communication.
 - **Wetland Studies** (GEOG 3700-5)
Examines the structure and function of wetlands with emphasis on wetland biogeochemistry processes, soils, hydrology, flora and fauna.
 - **Wetland Studies Laboratory** (GEOG 3705-1)
Engages student in laboratory methods and research when investigating wetland phenomenon.
 - **Land Use Planning** (ENVT 3750-6)
Discusses key issues in land use planning and how they affect the environment. Focuses on type of zoning, limitation and advantages, zoning maps and the political processes used in planning.
 - **Environmental and Geological Internship** (482R-14)
This course engages students in supervised geologic or environmental work in a professional setting.
 - **Special Projects in Environmental Management** (ENVT 495R-39)
This course allows student to pursue undergraduate research projects. Included instructor directed practical research from planning to manuscript writing. Helps prepares students for graduate studies.
 - **Seminar** (GEOG 480R-1)
Exposes students to current research topics in Earth Science and related fields.
- *Number of sections taught since spring 2015

TEACHING PROFESSIONAL DEVELOPMENT

- Mentoring Academy (Fall 2020)
- Online Teaching Academy (Spring 2020)

STUDENT MENTORSHIP

- I have mentored 50+ students in my research projects (see projects listed in Abstract section below) since I received my doctorate degree in 2013 from Tuskegee University.
- Students mentees and I have published 20+ meeting abstracts, and have presented our scientific projects in various professional and undergraduate venues, including NCUR, UCCUR, GSA, AGU, ICEPR'17 -7th International Conferences on Environmental Pollution and Remediation held in Rome, Italy, Oral presentation at the WCUR Conference in Qatar University, and presented several times at the Department of Earth Science Seminar Series.
- I have trained students in writing manuscripts in preparation for publication.
- I have collaborated on projects with other faculty from UVU's Biology, Earth Science, and Chemistry Departments. I have also collaborated on one project with faculty from the Department of Environmental Engineering and Microbiology from the University of Utah and the Department of Agriculture at Tuskegee University. Collectively such collaboration resulted in five publications (see Publication section in Scholarly activities above). These publications are included in the first section of the Scholarship tab of this portfolio. Other manuscripts are currently being prepared for publication (see Manuscript preparation above).
- Students I have mentored and graduated from UVU with their BS have been successful and are currently working for governmental agencies or are pursuing graduate degrees. Currently, one student (Kevin Jackman) has completed a Master's degree from the University of Victoria, Two students (Isaac Larsen and Trevor Chamberlain) are working on their Master's degree programs at Brigham Young University, and one student (Kenneth Larsen) is pursuing a PhD degree at Michigan Technological University). Immediately after graduating from UVU, at least seven former students found employment and are currently working at Utah County Health Department (Janae Widdison, Drew Rasmussen, Chris Davis, Jake Ellis, Jason Garrett, Brian Nielsen, Pui Lem Shem), or the Department of Environmental Quality (Phil Gopal and Kenny). Ken Sorenson is Director of Environmental Health and Safety at PCC Aerostructures in Utah.
- In 2017, one of my students, Arthur Evensen, was the recipient of the Board of Trustees Learning Scholarship award for his project on Utah Lake entitled: Impact of Phragmites australis Control on Utah Lake Water Quality.
- In December 2017, another student, Victor Sanjinez-Guzman, was featured on AGU News Journal for his work on Utah Lake entitled: Bioaccumulation of PCB in five fish species in Utah Lake. <https://eos.org/articles/modern-chemicals-from-mystery-source-taint-fish-in-ancient-lake>.
- In 2018 LJ Hamilton, a student mentee, received a \$10,000 scholarship for his research project focusing on nutrient loading into Utah Lake.
- I am currently serving as mentor for two NSF Scholars (William Pacheco and Dallin Johnson for their work on the anthropogenic impact on Utah Lake water quality, and the Impact of forest fires on trace metal mobilization in soil, respectively. Both students have received full ride scholarships for their dedication.
- Student researchers have resulted in several international trips, including Qatar (student oral presentations), Rome (student oral presentation), Haiti and Senegal Africa (water quality studies).

ANALYTICAL EXPERIENCE

- Computer: Microsoft Word, CorelDraw, Sigma plot, Adobe Photoshop, Adobe Illustrator, SAS
- Laboratory: Environmental sampling, preparation of soil, water, plant, organic matter for trace metal analysis
- Analytical Skills: Microwave Accelerated Reaction System, Microwave digestion techniques in sequential extraction of trace metals, Operation of the Inductively coupled plasma – Optical Emission Spectrometry (ICP-OES), Hatch Multi-meter analytical instruments for the measurement of pH, DO, EC, Salinity, and Conductivity
- Hazardous Materials Emergency Response Trainer
- Trainer for Underground Storage Tanks for ground water samplers
- Site Investigation for Phase I and Phase II
- Health Inspector

SCHOLASRHIP

Research Interests

- Environmental Justice
- Anthropogenic Impacts on Wetlands and Aquatic ecosystems
- Phytoremediation
- Uptake of trace metals by various plant species

Publications

- Hungerford, Hilary, Sarah smiley, Taylor Blair, Samantha Beutler, Noel Bowers, and **Eddy Cadet** (2019). Coping with Floods in Piking, Senegal: An Exploration of Household Impacts and Prevention Efforts. Urban Science:3, 54.
<https://www.mdpi.com/2413-8851/3/2/54>
- Wang, Weihong, Suzanne Walther, **Eddy Cadet**, Greg Carling, Kevin Rey, Steve Nelson, David Tingey, Paul Robertson*, and Buchanan Kerswell* The Historical Records of Stable Isotopes (C13 and N15) and Trace Metals along –Jordan River Transition Zone, Utah (2017). Utah Geological Association Guidebook: Geology and Resources of Wasatch – Back to Front. 46, 171-185.
https://www.researchgate.net/publication/322769193_THE_HISTORICAL_RECORDS_OF_STABLE_ISOTOPES_AND_TRACE_METALS_ALONG_UTAH_LAKE_-_JORDAN_RIVER_TRANSITION_ZONE_UTAH_USA
- Alexander, D., Odom, L., Cromwell, K., Grant, D., Myers, M., **Cadet, E.**, Mahama, H., Rangari, V., Pace, R., Ankumah, R., Kpomblekou-A, K., Fluker, Crtis (2015). The Biological Consequences of Kaolin Geophagia. Professional Agricultural workers Journal, 2; 2. <https://ageconsearch.umn.edu/record/236769/>
- **Cadet, E.**, K. Kpomblekou-A, D. Mortley, and D. Eggett (2013). Inferring mobility of trace elements resulting from long-term poultry litter additions to benchmark Alabama soils. Soil Science, 177: 580-590.
http://journals.lww.com/soilsci/Abstract/2012/10000/Inferring_Mobility_of_Trace_Elements_Resulting.2.aspx

- **Cadet, E.** Water quality in Utah Lake. In D. Horn (ed.) (2005). Utah Lake Comprehensive Management Plan Resource Document. Department of Earth Science, Utah Valley University.
<http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.129.7394&rep=rep1&type=pdf>

Manuscript in preparation

- **Cadet, E.**, K. Kpombrekou-A, D. Mortley, and D. Eggett, (in preparation). Evaluation of the mobility of trace elements in long-term repeated application of poultry litter in benchmark Utah Soil. To be submitted in Communication in soil Science and Plant Analysis in 2021.
- **Cadet, E.**, K. Kpombrekou-A, D. Mortley (in preparation). Arsenic uptake and toxicity threshold for lettuce plants (*Lactuca sativa* L) grown in poultry litter amended soils. To be submitted in Soil Science in 2021.
- **Cadet, Eddy**, Jessica Wright*, Arthur Evensen*, Cori Butler*, Conor O'Sullivan*, McKay Echols* Atmospheric deposition of trace metals into Utah Lake during winter temperature inversions. To be submitted to Environmental Earth Sciences in 2021.

Abstracts/Conference presentations (The asterisk (*) represents undergraduate student researchers)

- Emerman, Steve H., **Eddy Cadet**, Márcio Jose dos Santos, Caroline Gomide (2019). The impact of the Tailings Storage Facilities of the Morro Ouro Mine on Downstream Water Quality, Minas Gerais, Brazil. Oral Presentation: Geological Society of America (GSA) Annual Meeting in Phoenix Arizona, USA.
<https://gsa.confex.com/gsa/2019AM/webprogram/Paper332184.html>
- Bejar- Orellana*, Isak Larson*, **Eddy Cadet** (2018). Occurrence and distribution of selected trace metal contaminants in surface and groundwater resources and sediments in Djida Thiaroye Kao, Senegal, Africa. Carol Bejar-Orellana. Oral Presentation. United Nation 62nd Conference on the Status of Women New York City.
- Victor A. Sanjinez Guzmán*, Trevor Chamberlain*, Henintsoa Rakotoarisoana*, Paul Morris*, Trevor Crandall*, and Jessica Wright*, **Cadet, Eddy L.** (2017). Bioaccumulation of PCB Contaminants in Five Fish Species in Utah Lake as Affected by Carp Removal; Poster presentation. Presented at AGU Conference in Dec. 2017 Louisiana. <https://ui.adsabs.harvard.edu/abs/2017AGUFM.B43B2131S/abstract>
- Evensen, Arthur*, Trevor Crandall*, and Jessica Wright*, Cori Butler*, **Cadet, Eddy L.** (2017). Impact of *Phragmites australis* control on Utah Lake water quality. 7th International Conference on Environmental Pollution and Remediation (ICEPR'17), Rome Italy. June 6-8 2017. <https://pdfs.semanticscholar.org/331b/5d3d82392c933598942500aa4addfb900825.pdf>
- Smith, Serena*, Hoopes, Sydney*; Ormond, Daniel*; Gherasim, Janelle*, Wang, Weihong, **Cadet, Eddy** (2017). Quantifying Nutrient and Trace metals input to Utah

Lake from the Orem Wastewater Treatment Effluent, GSA Conference (October, 2017).

- Ibrahim Alhassan*, Evensen, Arthur*, **Eddy Cadet** (2016). Assessment of anthropogenic impact on trace metal concentrations in Utah Lake water and sediments. Abstract and Oral Presentation. Geological Society of America (GSA) Annual Meeting in Denver, Colorado, USA
<https://gsa.confex.com/gsa/2016AM/webprogram/Paper286623.html>
- Gherasim, Janelle*, Roberts, Sterling*, Tulley, Skyler*, Christensen, Brennan*, Bradford, Anthony*, Oliverson Colby*, MCneff, Johua*, Nichols, Jarett*, Sorensen, Jake*, Emerman, Steven, Simon, alexander, and **Cadet, Eddy** (2016). Geochemical and Sociological Study of Backyard Wells in Utah Valley, Utah. Abstract and oral presentation: Geological Society of America Annual Meeting.
- Roberts, Sterling * Arthur Evensen*, Joshua Jackson*, Ibrahim Alasane*, **Eddy Cadet** (2016). Trace Element Profile Assessment of Anthropogenic influences on Utah Lake. Oral Presentation WCUR-World Conference on Undergraduate Research, Qatar/United Arab Emirates.
- Hannah Peterson*, Sheryce Henley*, Joshua W. Jackson*, Weihong Wang, and **Eddy Cadet** (2014). Assessment of Anthropogenic Impacts on the Utah Lake (UT) Using Stable Isotope and Trace Metal Analysis. Abstract and Oral Presentation. Geological Society of America Annual Meeting.
https://gsa.confex.com/gsa/2014AM/finalprogram/abstract_245420.htm
- Henintsoa Rakotoarisaona*, Kevin W. Jackman*, Sheryce Henley*, Joshua W. Jackson*, **Eddy Cadet**, Weihong Wang, and Suzanne Walther (2014). Evaluation of the Distribution and Mobility of Selected Trace Metals in Sediments at the Jordan River Water Head of Utah Lake. Abstract and Oral Presentation. Geological Society of America Annual Meeting, 2014.

Invited Talks

- Utah Environmental Health Association Annual Meeting (2019).
- United Nations 62nd Session of the Commission on the Status of Women (Water Quality in Senegal, Africa (2018).
- Sustainability Day Utah Valley University Panel Discussion on Air, Water Quality and Recycling (2018).
- Occurrence and distribution of selected trace metal contaminants in surface and groundwater resources and sediments in Djida Thiaroye Kao, Senegal, Africa, United Nation 62nd Conference on the Status of Women (2018).
- Sustainability Day – Orem City Library (Fall 2018).
- 2nd Annual Sustainability Day Science Panel Speaker (2018).
- UVU Prep - Investigating Anthropogenic Impact on Utah Lake (2017).
- Salt Lake City Water Shed Symposium (2016).
- UVU Prep - Investigating Anthropogenic Impact on Utah Lake (2016).

- Utah Environmental Health Association Annual Meeting (Inferring Mobility of Trace elements resulting from long-term poultry litter additions to benchmark Alabama soils- (2016).
- Department of Earth Science Seminar Series (Trace Metal uptake by Lettuce Plants in two types of soils (2015).
- UVU Prep - Investigating Anthropogenic Impact on Utah Lake (2015).
- Ethics Weeks – Effect of Haitian Political history on the 2010 earthquake devastation that caused thousands of deaths (2010).

GRANT PROPOSALS

Grants Funded

- NSF GEOPATH-EXTRA: A Multidisciplinary, Problem-Based Approach to Geoscience Education: Rejuvenation of Utah Lake as a Case Study Principle Investigator. Funded: **\$350,000** (2020 – 2023).
- Determination and quantification of non-point sources of nitrogen and phosphorus loading into Utah Lake: Implication for management of a hypereutrophic lake. Principle investigator. Funded amount: **\$30,000** (2020-2021).
- School of Science: Upgrade to from ICP-OES to ICP-MS (Inductively Coupled Plasma – Mass Spectrometry from Perkin Elmer. Total cost: **\$170,000** (2020).
- School of Science (PBA) the purchase of a laser technology particle size analyzer (the Mastersizer by Malvern Panalytical, cost **\$50,000** (2019) Grants for Engaged Learning .
- Learning (GEL SEED – Carrot). Determination and quantification of non-point sources of nitrogen and phosphorus loading into Utah Lake: Implication for management of a hypereutrophic lake. Principle Investigator **\$14,698** (2019)
- School of Science (PBA) funded the purchase of a Microwave Accelerated Digestion System for **\$40,000**. 2019.
- Occurrence and distribution of selected trace metal contaminants in surface and groundwater resources and sediments in Djida Thiaroye Kao, Senegal, Africa. **\$3,430**. Carol Bejar-Orellana. Oral Presentation. United Nation 62nd Conference on the Status of Women (2018).
- SAC Grant: Attend the 62nd Commission on the Status of women, United Nations in New York City. March 2018. (Carol Bejar, Orellana, Isak Larsen, Eddy Cadet)
- Grants for Engaged Learning (GEL SEED): Effects of prescribed fires on water resources and trace metal mobilization in soil horizons in the Uintah Forest as affected by plant types. Principle Investigator. Funded **\$10,000**, (2018 – 2019).
- Quick GEL Grants for Engaged Learning: Effects of prescribed fires on trace metals concentration and mobilization in soil horizons. Principle Investigator, **\$3,500** Funded (2018 – 2019).
- Grants for Engaged Learning: Evaluation of micro plastics in Utah Lake. Co-Investigator with Sally Rocks (PI). **\$30,000**, 2018 – 2019.
- SAC Grant: A Comparative Study of Trace Metal Concentrations in Upland and Wetland Soils surrounding Utah Lake as Affected by Anthropogenic activities. Michael Andrews and Eddy Cadet (2017).
- Grants for Engaged Learning, Utah Valley University: Atmospheric deposition of trace metals into Utah Lake during winter Temperature Inversions. Principle Investigator: (**\$10,000**- Funded 2017-2018).

- Grants for Engaged Learning, Utah Valley University: Impact of *Phragmites australis* control on Utah Lake sediment and microbial community. Principle Investigator: **\$10,000**- 2016- 2017.
- Quantifying Bioaccumulation of trace metals and PCB contaminants in five piscivorous fish species in Utah Lake. **\$3,135** (2014). Kyle Tebbs, Anthony Bradford, Henintsoa Rakotoarisaona.
- Grants for Engaged learning, Utah Valley University: Principle Investigator, **\$10,000** (2014 -2015).
- iUtah Grant (Innovative Urban Transitions and Arid Region Hydro-sustainability) Research Catalyst Grant, funded by the National Science Foundations' EPSCoR program (Experimental Program to Stimulate Competitive Research): Effect of *Phragmites Australis* control on Utah Lake Water Quality. Principle Investigator: Funded **\$20,000** (2015-2017).
- Scholarly Activity Committee (SAC) Impact of *Phragmites australis* control on Utah Lake water quality. Student PI: Arthur Evensen; Taylor Daniels; Kyle Fordham; Shalae Johnson. **\$4000**. (2016).
- Scholarly Activity Committee (SAC) Trace Element Profile assessment of anthropogenic influences on Utah Lake. PI: Ibrahim Essa Alhassan Dr., Joshua William Jackson, And Paul Morris: **\$2588** (2016).
- Grants for Engaged Learning, Utah Valley University: Impact of *Phragmites Australis* and *Phragmites americanus* destruction by Glyphosate-based herbicide application on Utah Lake water quality. Principle Investigator **\$10,000** (Funded 2014-2015).
- SAC Grant: Identifying trace metal and PCB accumulation of 5 fish species found in Utah Lake. Phase 2: PI Eddy Cadet, Paul Morris, Kyle Tebbs, Trevor Chamberlin, Cindy Tenzaya, Katie Merten. **\$3000** (2015).
- Grants for Engaged learning (GEL SEED): Occurrence and distribution of selected trace metals in surface and groundwater resources and stream sediments of the Northern Peninsula of Haiti. Principle Investigator Funded **\$10,000** (2015 – 2016).
- School of Science (PBA). Funded the purchase of an Inductively Couple Plasma Optical Emission Spectroscopy (ICP-OES). Funded **\$75,000**, 2014.

Grants Not Funded

- NSF iUSE-GEOPATH EXTRA: A Praxis Approach to Policy Creation and Student Retention: Rejuvenation of Utah Lake as a Case Study. Principle Investigator (**\$350,000**). Submitted to NSF on Oct. 2017.
- NSF iUSE-GEOPATH EXTRA: Evaluation of a Geoscience Career Emulation Model for Improving Undergraduate Student Outcomes. Principle Investigator (**\$374,000**). Submitted to NSF. Not funded. (2016).

Grant Proposal projects to be submitted in 2021

- Grants for Engaged Learning (GEL SEED) Evaluation of the impact of catalytic converters on trace metal contamination of soils. A Joint project with the Calvin Bond, Chemistry Department. Requesting \$15,000 2020 – 2021.
- Grants for Engaged Learning (GEL SEED) Evaluation of non-point sources of nutrient loadings contributing to seasonal algal bloom in Utah Lake (2020 – 2021).

SERVICE

Service to the University

- Serve on the African Diaspora Initiative Executive Committee since 2019 to present.
- Office of Sponsored Programs' Scholarly and Creative Activities Committee (SCAC) (2019 – present).
- Selection and Hiring Committee for a new Director of Proposal Development in the Office of Sponsored Programs at UVU (2019).
- Escort Students to United Nation Conference on the Status of Women (CSW62) 2018.
- UVU Prep Student Outreach (2014 – 2017)
- Moderator at UCUR at UVU (2017).
- Honors Project Director Student's Senior Thesis (2015).
- Worked with the International Student Council to assist international student complete their academic program at UVU (1998).
- Faculty Senator (1998 – 2000).
- Chair of the Personnel and Elections Committee at UVSC (1998).
- Served on the Colleges Affirmative Action /Equal Opportunity Committee (1995).

Service to the College of Science

- Participate in the College of Science's UCAS program (2018 – present)
- UVU Annual Sustainability Day Participant (2018).
- School of Science Faculty Excellence Committee (2018).
- College of Science Faculty Excellence Committee (2017).

Service to the Department

- Earth Science Department Hiring Committee faculty for Hydrology (2018).
- Earth Science Department Hiring Committee for a Human Geographer (2017).
- Earth Science Department RTP Committee (2016 – present).
- Internship Coordinator for the Department of Earth Science (2007 – present).
- Served on the College of Science Outcomes Assessment Task Force (1993).
- Environmental Club Advisor (1993-2001).

Service to the Discipline and the Community

- Reviewer for the Environmental Protection Agency (2016).
- Household Hazardous Waste Collection Committee at Utah County Health Department (2016 – present).
- Underground Storage Tank Instructor for the Department of Environmental Quality (2000– 2007).