# MEGHAN WAGNER

Curriculum Vitae

## EDUCATION

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| 2013 | **PhD, Earth and Environmental Sciences**<br>University of Michigan-Ann Arbor<br>Supervisor: Prof. Ingrid Hendy |
| 2007 | **MS, Chemistry**<br>University of Michigan-Ann Arbor<br>Supervisor: Dr. Marc Johnson |
| 2002 | **BS, Chemistry**<br>Indiana University-Bloomington |

## PROFESSIONAL EXPERIENCE

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|---|---|
| 4/2021 – present | **Freelance Editor and Writer**<br>Two Eyes Editing and Indexing<br>Ann Arbor, MI |
| 8/2017 – 11/2020 | **Project Manager**, Michigan Sustainability Cases<br>School for Environment and Sustainability<br>University of Michigan-Ann Arbor<br>Supervisor: Prof. Rebecca Hardin |
| 8/2016 – 8/2017 | **Project Coordinator**, Michigan Sustainability Cases<br>School for Environment and Sustainability<br>University of Michigan-Ann Arbor<br>Supervisor: Prof. Rebecca Hardin |
| 8/2015 – 8/2016 | **Lecturer**, Environmental Science<br>Department of Physical Sciences<br>Washtenaw Community College<br>Supervisor: Ms. Suzanne Albach |
| 9/2013 – 9/2015 | **Postdoctoral Researcher**<br>Department of Earth and Atmospheric Sciences<br>Central Michigan University<br>Supervisor: Prof. Anthony Chappaz |
| 2/2008 – 8/2008 | **Research Assistant**<br>Department of Chemistry<br>University of Michigan-Ann Arbor<br>Supervisor: Prof. Adam Matzger |

5/2007 – 2/2008 **Laboratory Assistant**
Department of Chemistry
University of Michigan-Ann Arbor
Supervisor: Mr. Edward Burton

5/2002 – 8/2002 **Research Assistant**
Department of Biology
Indiana University-Bloomington
Supervisor: Dr. Jeff Dudycha

5/2001 – 7/2001 **Intern**, Research Experiences for Undergraduates
Department of Chemistry
University of Puerto Rico-Río Piedras
Supervisor: Prof. Rafael Raptis

## TEACHING EXPERIENCE

As Lecturer, Washtenaw Community College:

| Term | Course # | Title | Format |
|---|---|---|---|
| Spring 2016 | ENV101 | *Environmental Science I* | Lecture/Lab |
| Winter 2016 | ENV101 | *Environmental Science I* | Lecture/Lab |
| Winter 2016 | ENV105 | *Introduction to Environment and Society* | Lecture |
| Fall 2015 | ENV101 | *Environmental Science I* | Lecture/Lab |
| Fall 2015 | ENV105 | *Introduction to Environment and Society* | Lecture |

Tutoring, Central Michigan University:

| Term | Course # | Title | Format |
|---|---|---|---|
| Spring 2014 | GEL 402 | *Environmental Geochemistry/ Water Chemistry* | Recitation |

As Graduate Student Instructor, University of Michigan:

| Term | Course # | Title | Format |
|---|---|---|---|
| Fall 2012 | EARTH 222/223 | *Principles of Oceanography* | Lecture/Lab |
| Fall 2009 | GS222/223 | *Principles of Oceanography* | Lecture/Lab |
| Fall 2008 | GS222/223 | *Principles of Oceanography* | Lecture/Lab |
| Spring 2007 | CHEM230 | *Physical Chemistry Principles and Applications* | Lecture/Discussion |
| Winter 2007 | CHEM130 | *General Chemistry: Macroscopic Investigations and Reaction Principles* | Lecture/Discussion |

| Term | Course # | Title | Format |
|---|---|---|---|
| Fall 2006 | CHEM130 | *General Chemistry: Macroscopic Investigations and Reaction Principles* | Lecture/Discussion |
| Winter 2006 | CHEM215/216 | *Structure and Reactivity II/ Synthesis and Characterization of Organic Compounds* | Lecture/Lab |
| Fall 2005 | CHEM125/126 | *General Chemistry Laboratory I/II* | Lecture/Lab |

Students Supervised:

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| 2018 | Summer Aldred, undergraduate, Doris Duke Conservation Scholar |
| 2017 | Josh Thorne, undergraduate, Doris Duke Conservation Scholar |
| 2017 | Emily Rau, undergraduate, Doris Duke Conservation Scholar |
| 2015 | Kathleen Dragos, undergraduate<br>"*Novel Application of Trace Metals as Proxies for Sedimentary Redox Conditions and Productivity in the Great Lakes*." |
| 2011 – 2012 | Katherine Hansen, undergraduate<br>"*A Redox and Productivity History of DSDP Site 594, Chatham Rise, New Zealand.*" |

## SHIPBOARD EXPERIENCE

| Cruise | Ship | Duration | Port-Port |
|---|---|---|---|
| UNOLS Chief Scientist training cruise Lake Superior, 2014 | *R/V Blue Heron* | 6 days | Duluth-Duluth |
| Trace metal geochemistry of Lake Erie Lake Erie, 2014 | *R/V Lake Guardian* | 3 days | Cleveland-Cleveland |
| SPR0901, Santa Barbara Basin California margin, 2009 | *R/V R.G. Sproul* | 7 days | San Diego-San Diego |

## ADDITIONAL EXPERIENCE

Synchrotron:

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| 2014 | X-ray Absorption Fine Structure (XAFS), Line 13-BM-D<br>Advanced Photon Source, Argonne National Laboratory |
| 2012 | Micro X-ray Fluorescence (micro-XRF) mapping, Line 2-ID-D<br>Advanced Photon Source, Argonne National Laboratory |

Volunteer:

2003 – 2005 **Science Resource Volunteer**, U.S. Peace Corps
Ganyesa, South Africa

## PUBLICATIONS

Peer Reviewed:

**Wagner, M.**, Hendy, I.L., Lai, B., 2022. Characterizing Ag uptake and storage in the marine diatom *Thalassiosira pseudonana*: implications for Ag biogeochemical cycling. *Marine Chemistry.* **247**. https://doi.org/10.1016/j.marchem.2022.104175

**Wagner, M.**, Bothner, C., Rau, E., Zeng, P. Z., Waisanen, E., Czerwinski, M., Fickes, B., Eastin, I., Hardin, R.D., 2021. Gala: an open-access platform for interactive learning with sustainability case studies. *IEEE Transactions on Learning Technologies.* **14**, 788–801. doi: 10.1109/TLT.2022.3148723

Wei, C., Brown, M., **Wagner, M.**, 2018. Pursuing the promise of case studies for sustainability and environmental education: converging initiatives. *Case Studies in the Environment.* April 2018. https://doi.org/10.1525/cse.2018.001065

**Wagner, M.**, Hendy I.L., 2017. Trace metal evidence for a poorly ventilated glacial Southern Ocean. *Quaternary Science Reviews.* **170**, 109–120. https://doi.org/10.1016/j.quascirev.2017.06.014

**Wagner, M.**, Chappaz, A., Lyons, T.W., 2017. Molybdenum speciation and burial pathway in weakly sulfidic environments: insights from XAFS. *Geochimica et Cosmochimica Acta.* **206**, 18–29. https://doi.org/10.1016/j.gca.2017.02.018

**Wagner, M.**, Hendy, I.L., McKay, J.L., Pedersen, T.F., 2015. Redox chemistry of West Antarctic Peninsula margin surface sediments. *Chemical Geology.* **417**, 102–114. https://doi.org/10.1016/j.chemgeo.2015.10.002

Moore, T.C., Jr., Wade, B.S., Westerhold, T., Erhardt, A.M., Coxall, H.K., Baldauf, J., **Wagner, M.**, 2014. Equatorial Pacific productivity changes near the Eocene-Oligocene boundary. *Paleoceanography.* **29**. doi: 10.1002/2014PA002656

**Wagner, M.**, Hendy, I.L., McKay, J.L., Pedersen, T.F., 2013. Influence of biological productivity on silver and redox-sensitive trace metal accumulation in Southern Ocean surface sediments, Pacific sector. *Earth and Planetary Science Letters.* **380**, 31–40. https://doi.org/10.1016/j.epsl.2013.08.020

Other Articles:

**Wagner, M.** and Hardin, R.D., 2022. Introduction to special issue: remaking case-based learning for sustainability. *World Development Perspectives*. **26**. https://doi.org/10.1016/j.wdp.2022.100413

**Wagner, M.**, Kusano, S., Hardin, R.D., Matney, M., 2020. The Michigan Sustainability Cases initiative: adapting case-based teaching for innovative sustainability science education. *Center for Research on Learning and Teaching Occasional Paper No. 39.* Available at: http://crlt.umich.edu/michigan-sustainability-cases-initiative-adapting-case-based-teaching-innovative-sustainability

**Wagner, M.**, Hardin, R., 2019. Michigan Sustainability Cases: an open-access resource for infusing sustainability into geoscience curricula. *In the Trenches.* **9**, 12–13.

Rutt, R., **Wagner M.**, 2019. Struggles over 'science': what is the role for science in community forestry in Nepal? *Sustainability: The Journal of Record.* **12**, 10–17. https://doi.org/10.1089/sus.2018.0025

## PRESENTATIONS

Conferences:

John Mullen, Bret Fickes, and **Meghan Wagner**, *Integrating Sustainability and Development with Gala at the University of Michigan*, AASHE Global Conference on Sustainability in Higher Education, online, 2020. (oral presentation)

**Meghan Wagner**, *The Michigan Sustainability Cases Initiative*, Michigan University-Wide Sustainability and Environment Conference, Ann Arbor, MI, 2017. (oral presentation)

**Meghan Wagner** and Anthony Chappaz, *From Macro- to Micronutrient: Trace Element Distributions in Great Lakes Waters*, Geological Society of America North-Central Sectional Meeting, Madison, WI, 2015. (oral presentation)

**Meghan Wagner**, Anthony Chappaz, and Jacob Spreitzer, *Exploring Mo-Dissolved Organic Matter (DOM) Interactions as a Control on the Mo Paleoproxy*, Goldschmidt Conference of Geochemistry, Sacramento, CA, 2014. (poster)

**Meghan Wagner** and Anthony Chappaz, *Exploring Mo-Dissolved Organic Matter (DOM) Interactions as a Control on the Mo Paleoproxy*, Institute for Great Lakes Research Symposium, Mount Pleasant, MI, 2014. (oral presentation)

**Meghan Wagner**, Ingrid L. Hendy, Jennifer L. McKay, and Thomas F. Pedersen, *Redox Chemistry of West Antarctic Peninsula Margin Surface Sediments*, Midwest Geobiology Symposium, Indianapolis, IN, 2013. (oral presentation)

**Meghan Wagner**, Ingrid L. Hendy, and Barry Lai, *Synchrotron Micro-XRF Mapping of Ag Storage in a Coastal Marine Diatom: Implications for Ag as a Novel Paleoproductivity Proxy*, American Geophysical Union Fall Meeting, San Francisco, CA, 2012. (poster)

**Meghan Wagner King** and Ingrid L. Hendy, *An Isolated Glacial Southern Ocean Gathers No Oxygen: Trace Metal Evidence for a Sedimentary Redox Shift from Poor Ventilation to High Production*, American Geophysical Union Fall Meeting, San Francisco, CA, 2011. (poster)

**Meghan Wagner King**, Ingrid L. Hendy, Jennifer L. McKay, and Thomas F. Pedersen, *Redox Characteristics of Southern Ocean Sediments: Evaluating the Influence of Geological Processes versus Biological Production on Organic Matter Preservation*, Michigan Geophysical Union Meeting, Ann Arbor, MI, 2011. (poster)

**Meghan E. Wagner** and Ingrid L. Hendy, *Quantifying Ag Uptake and Storage in Marine Diatoms*, Goldschmidt Conference of Geochemistry, Knoxville, TN, 2010. (oral presentation)

**Meghan E. Wagner**, Ingrid L. Hendy, and Jennifer L. McKay, *Evaluation of Paleoproductivity Proxies in the Southern Ocean*, American Geophysical Union Fall Meeting, San Francisco, CA, 2009. (poster)

**Meghan E. Wagner** and Ingrid L. Hendy, *Development of a New Paleoproxy: Correlating Excess Silver in Marine Sediments with Diatom Productivity and Redox Conditions*, Michigan Geophysical Union Meeting, Ann Arbor, MI, 2009. (poster)

Invited Speaker:

**Meghan Wagner**, *Forge Your Own Path: The Making of a Geochemist*, University of Saint Francis, Fort Wayne, IN, 2015.

Workshops and Panels Convened:

*Creative Applications of Case-Based Learning to Advance Scholarship and Deepen Learning*, in collaboration with the Teaching and Technology Collaborative at University of Michigan, online panel discussion, 2020.

*Best Practices in Case Study Use for Sustainability and Sustainable Development Education*, Sustainability and Development Conference, Ann Arbor, MI, 2019.

*An Introduction to Using Case-Based Learning in the Classroom and Beyond*, Sustainability and Development Conference, Ann Arbor, MI, 2018.

*Using Cases to Engage Students in Problem-Based Courses: Lessons from the Michigan Sustainability Cases*, online workshop, Ann Arbor, MI, 2018.

*Case Studies for Teaching and Learning in Conservation: What Have We Learned and Where Can We Go Next?*, North American Congress for Conservation Biology, Toronto, ON, 2018.

*Case Innovation Studio,* Galaxy: A Sustainability Learning Exchange, Ann Arbor, MI, 2018.

*Active Learning for Sustainability in Environmental Engineering Education*, Association of Environmental Engineering and Science Professors Conference, Ann Arbor, MI, 2017.

*Teaching with Case Studies,* Center for Research on Learning and Teaching, Ann Arbor, MI, 2017.

*Case Writing Workshop*, School for Environment and Sustainability, Ann Arbor, MI, 2017.

*Science Communication*, Great Lakes Adaptation Forum, Ann Arbor, MI, 2016.

## FUNDING

External Research Grants and Proposals:

Geological Society of America, Graduate Student Research Grant, 2011 (**Funded**: $3000).

*Silver Concentration by the Coastal Marine Diatom* Thalassiosira pseudonana*: Detoxification Mechanism and Productivity Recorder?* Advanced Photon Source, Argonne National Laboratory, Argonne, IL. General User Proposal, 2010. (**Accepted, Beam time awarded for 2012-1 run cycle**).

*Development of a New Proxy for Paleoceanographic Conditions: Correlating Silver Burial in Marine Sediments with Diatom Productivity and Redox Conditions at the Sediment-Water Interface.* AAPG Grants-in-Aid Foundation, 2009 (**Funded**: $2500).

Internal Research Grants and Proposals:

*Reconstructing the Evolution of Redox Conditions and Productivity in the Great Lakes*. Institute for Great Lakes Research, Central Michigan University, 2014 (**Funded:** $3800).

*Tracing the Global Carbon Cycle: Silver as a Novel Paleoproxy for Diatom Productivity.* Rackham School for Graduate Studies, University of Michigan, 2010 (**Funded**: $3000).

*Use of Isotope Dilution Inductively Coupled Plasma Mass Spectrometry (ID ICP-MS) to Advance Trace Metal Studies of Redox Conditions in Marine Sediments*. Scott Turner Awards in Earth Sciences, University of Michigan, 2010 (**Funded**: $2250).

*Quantifying Ag Uptake and Storage in Marine Diatoms*. Scott Turner Awards in Earth Sciences, University of Michigan, 2009 (**Funded**: $2750).

## SYNERGISTIC ACTIVITIES

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| 2017 – 2020 | Editorial board member, Case Studies in the Environment |

## AWARDS AND HONORS

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| 2013 | Rackham One-Term Dissertation Writing Fellowship |
| 2001 | National Society of Collegiate Scholars Member |
| 1999 | Golden Key National Honor Society Member |

## INSTITUTIONAL SERVICE

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| 2015 | Research Experiences for Undergraduates (REU) workshop<br>Central Michigan University |

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| 2011 – 2012 | Smith Departmental Lecture Series, Graduate Student Volunteer Coordinator<br>University of Michigan-Ann Arbor |
| 2009 – 2010 | Michigan Geophysical Union Meeting, Organizing Committee (member)<br>University of Michigan-Ann Arbor |