CURRICULUM VITAE [EXTENDED]

Zsuzsanna Balogh-Brunstad, Ph.D.
Professor and Chair of Geology and Environmental Sciences
Coordinator of the Environment, Sustainability, and Society Program
Hartwick College, One Hartwick Drive, JSC 239, Oneonta, NY, 13820
Tel: 1-607-431-4734 (o); 1-607-287-9420 (c)
Email: balogh_brunz@hartwick.edu; or zbbrunstad@gmail.com

My Interests and Specialization

Biogeochemistry of soil, sediment, and water, microbe-mineral-water interactions, biofilm processes, soil formation, watershed-based hydrochemistry, environmental health, and quality. Instrumental and analytical experience in environmental geochemistry (examples - atomic absorption spectroscopy, ion chromatography, inductively coupled plasma-optical emission spectrometry, x-ray diffraction, x-ray fluorescence, scanning electron microscopy, and atomic force microscopy).

Professional Preparation

Ph.D. Geology, 2006, Department of Geology, Washington State University, Pullman, WA, USA; Dissertation title: Chemical Hydrology of Vascular Plant Growth: Role of Root-Fungus Associations, Advisors: Drs. C. K. Keller; J. T. Dickinson; R. A. Gill; and D. Bezdicek

M.S. Geography, 1999, conferred in 2000, with a teaching certificate (grades 9-12 equivalent), University of Pécs, Hungary. Thesis title: Relationship between surface development and anthropogenic impacts in the Villány Mountains and the Baranya Hills Area, Advisor: Dr. Gy. Lovász.

B.S. Mathematics, 1998, conferred in 2000, with math education track, University of Pécs, Hungary.

Professional Experience

Chair (April 2024 – *present*) ***Department of Geology and Environmental Sciences,*** Hartwick College, Oneonta, NY; overseeing and managing the program budget, academic requirements for majors/minors, assessment of the program, reporting, coordinating adjunct hires, and organizing and executing events, recruiting, and evaluations, advising majors, and capstone projects, in addition to coordinating the ENSS major, regular teaching, scholarship, and committee service duties of my fulltime appointment.

Professor (Aug 2023 – *present*), Department of Geology and Environmental Sciences, Hartwick College, Oneonta, NY. Teaching courses and supervising research projects in hydrogeology, geochemistry, environmental chemistry, soil, biogeochemistry, and various environmental science-related subjects.

Coordinator (Chair) (July 2020 – *present),* ***Environment, Sustainability, and Society Major***, Hartwick College, Oneonta, NY; overseeing and managing the program budget, academic requirements for majors/minors, assessment of the program, reporting, coordinating adjunct hires, and course teaching assignments among affiliated teaching faculty in the program, organizing and executing program committee meeting, events, recruiting, and evaluations, advising majors, required internships and capstone projects, in addition to regular teaching, scholarship, and committee service duties of my fulltime appointment.

Interim Chair (Feb 2023 – June 2023), *Department of Geology and Environmental Sciences*, Hartwick College, Oneonta, NY.

Associate Professor (July 2018 – July 2023), Department of Geology and Environmental Sciences, Hartwick College, Oneonta, NY.

Visiting Scholar (July 2017 – June 2018), Department of Soil, Water and Environmental Science, University of Arizona, Tucson, AZ; laboratory to field scale projects on investigating the impact of moisture availability on incipient soil formation, and along a climate gradient, NSF funded.

Associate Professor (Aug 2015 – June 2018), Departments of Chemistry, and Geology and Environmental Sciences, Hartwick College, Oneonta, NY.

Assistant Professor (Aug 2008 – July 2015), Departments of Chemistry, and Geology and Environmental Sciences, Hartwick College, Oneonta, NY.

Marie Curie Intra-European Postdoctoral Fellow (July 2010 – June 2012), Department of Chemistry, NanoGeoScience Group, University of Copenhagen, Denmark; laboratory to field scale projects on biological weathering, focusing on the role of ectomycorrhizal fungi and biofilm; further training on scanning electron microscope in all modes and on atomic absorption spectroscopy; new training on atomic force microscopy and force-volume mapping.

Postdoctoral Research and Teaching Associate (Aug 2006 – July 2008), School of Earth and Environmental Sciences, Washington State University, Pullman, WA; Professors C. K. Keller; R. A. Gill – Carbon cost of ectomycorrhizal weathering; C^{13}-CO_2 labeling; phospholipid fatty acid markers; teaching introductory geology.

Research Assistant (June 2003 – May 2006), Department of Geology, Washington State University, Pullman, WA; completed Ph.D. project. Operated and maintained ion chromatograph, atomic absorption chromatography, dissecting, and petrographic light microscopes, scanning electron microscopes (field-emission, environmental, backscattering), energy dispersive spectrometer, and inductively coupled argon plasma spectrometer; learned and applied basic environmental-microbiologic techniques for handling ectomycorrhizal fungi and their bacterial associates in pure and symbiotic cultures.

Teaching Assistant (Jan 2002 – May 2003 and June 2006 – July 2006), Department of Geology, Washington State University, Pullman, WA; I taught introductory geology laboratory. Teaching quality in all courses is monitored by course evaluation questionnaires and my student feedback was excellent.

Technical Assistant (Feb 2001 – Dec 2001), Geoanalytical Laboratories, Department of Geology, Washington State University, Pullman, WA; I contributed to X-ray Fluorescence and Inductively Coupled Plasma – Mass Spectrometer analyses with the preparation of rock and soil samples for XRF, ICP, and Loss on Ignition measurements.

Mathematics teacher (Sept 1998 – June 1999), Jurisics Miklós Elementary and Middle School, Pécs, Hungary; I taught mathematics for 6th and 7th graders, prepared lesson plans and syllabi, and designed a tutoring program.

Courses Taught at the University Level

Geology Courses

- *Geochemistry with a 4-hr lab*
- *Groundwater Hydrology with a 3-hr lab*
- *Geomorphology with a 3-hr lab*
- *Introductory Soil Science with a 2-hr lab – cross-listed with ENSS*
- *Global Environment with a 2-hr lab (introductory course with environmental focus)*
- *Climate Change – cross-listed with ENSS*
- *Pre-thesis research*
- Geology in Art of Hungary, Off-campus/field January term course (co-directed with art)
- Geology and Natural History of Hawaii, Off-campus/field January term course (co-directed)
- Introductory Geology Lecture and Lab (non-major course)
- Physical Geology Lecture and Lab
- Environmental Geology (non-major course)
- Environmental Health and Safety with a 3-hr lab – cross-listed with ENSS
- Environmental Analysis – cross-listed with ENCH
- First Year Seminar: Water – Will we run out?
- Honor's Seminar - Reading the elements
- Senior Thesis Research
- Independent Study in Geology
- Directed Study in Geology

Chemistry Courses

- *Environmental Chemistry with a 4-hr lab*
- Environmental Analysis – cross-listed with GEOL
- Chemistry in Today's Society - "The chemistry of everything"
- Chemistry in Today's Society with a 2-hour lab – "Forensic Chemistry"
- General Chemistry I. and II.; and Labs
- Senior Thesis Research in Chemistry, Environmental Chemistry, and Biochemistry
- Independent Study in Chemistry, Environmental Chemistry, and Biochemistry
- Directed Study in Chemistry, Environmental Chemistry, and Biochemistry

Interdisciplinary Courses

- *Environmental Health Sciences – a cross-listed PUBH & ENSS course*
- Senior Project Course for the Environment, Sustainability, and Society Majors
- Internship Advising Course for the Environment, Sustainability, and Society Majors
- The Fossil Age: Geology, Economics, and Culture (co-taught with economics and education)
- Mysteries of a Kettle Lake (Pre-semester Awakening Program for first-year students)
- Flight Path: First-year seminar - Water
- Flight Path: Art and Science of the Human Landscape (first-year course)

Honors, Awards, and Published Acknowledgements

Editorial Acknowledgment to Reviewers of Land in 2022, Land Editorial Office, MDPI AG, St. Alban-Anlage 66, 4052 Basel, Switzerland; Land 2023, 12(2), 266; https://doi.org/10.3390/land12020266

Editorial Acknowledgment to Reviewers of Energies in 2022, Part I, Energies Editorial Office, MDPI AG, St. Alban-Anlage 66, 4052 Basel, Switzerland; Energies 2023, 16(3), 1184; https://doi.org/10.3390/en16031184

Editorial Acknowledgment to Reviewers of Separations in 2021, Separations Editorial Office, MDPI AG, St. Alban-Anlage 66, 4052 Basel, Switzerland; Separations 2022, 9(2), 30; https://doi.org/10.3390/separations9020030

Editorial Acknowledgment to Reviewers of Water in 2021, Water Editorial Office, MDPI AG, St. Alban-Anlage 66, 4052 Basel, Switzerland; *Water* 2022, *14*(3), 430; https://doi.org/10.3390/w14030430

AGU Collection COP26, 2021, selected our book "Biogeochemical Cycles: Ecological Drivers and Environmental Impacts", Geophysical Monograph Series (Book 248) for the free virtual book showcase in support of the 2021 COP conferences in Milan and Glasgow. Each book publisher contributed four titles about climate change and sustainability. https://institutions.exacteditions.com/cop26

AAP Prose Award Nomination in Environmental Sciences, 2020, John Wiley & Sons, Inc. for the "Biogeochemical Cycles: Ecological Drivers and Environmental Impacts", Geophysical Monograph Series (Book 248).

Outstanding Reviewer for Journal of Soils and Sediments Springer Publications, 2016.

Teacher-Scholar Award of Hartwick College, 2015. The Teacher-Scholar Award is made to an outstanding faculty member who enhances teaching with his or her own scholarship, research, or creative work, integrating the perspective of seeker and teacher and strengthening the College's academic climate by demonstrating to students and colleagues the value and excitement of scholarly inquiry.

Outstanding Reviewer for Biogeochemistry, Springer Publishing Group, 2013.

Marie Curie Intra-European Fellowship Award European Commission, 2010-2012. This fellowship aims at supporting experienced researchers at various stages of their career, helping them in acquiring new research skills (multi or interdisciplinary) or to undertake intersectoral experiences. Completed at the NanoGeoScience Unit, Department of Chemistry, University of Copenhagen, Denmark, in collaboration with Microbial Ecology, Department of Biology, Lund University, Sweden.

H. Walter & Jeanette Praetorius Exxon Graduate Fellowship Award, Department of Geology, Washington State University, 2005, and 2006.

Roger V. LeClerc II. Memorial Fellowship Award, "Outstanding Graduate Student in Geology", Department of Geology, Washington State University, 2004

James W. Crosby Endowment Award, "Hydrogeology Field Scholarship", Department of Geology, Washington State University, 2003.

Scholarship

Peer-Reviewed Publications

Dohnalkova, A. C., Tfaily, M. M., Chu, R. K., Smith, A. P., Brislawn, C. J., Varga, T., Crump, A. R., Kovarik, L., Thomashow, L. S., Harsh, J. B., Keller, C. K., & **Balogh-Brunstad, Z.** (***2022***). Effects of Microbial-Mineral Interactions on Organic Carbon Stabilization in a Ponderosa Pine Root Zone: A Micro-Scale Approach. Frontiers in Earth Science, 10, 799694. http://dx.doi.org/10.3389/feart.2022.799694

Dontsova, K., **Balogh-Brunstad, Z.,** and Le Roux, G. (***2021***), Evaluating the impact and reach of biogeochemical cycles, *Eos,* 102, https://doi.org/10.1029/2021EO163024. Published on 20 September 2021.

Dontsova, K., **Balogh-Brunstad, Z.,** Le Roux, G. (***2020***) Biogeochemical Cycles: Ecological Drivers and Environmental Impacts, *Geophysical Monograph Series* (Book 248), American Geophysical Union, 1st ed. https://doi.org/10.1002/9781119413332

Balogh-Brunstad, Z., Smart*, K. E., Dohnalkova, A. C., Saccone, L., Smits, M. M (***2020***) Micro- and nano-scale techniques to explore bacteria and fungi interactions with silicate minerals. *Chapter 4,* pp. 81-101, https://doi.org/10.1002/9781119413332.ch4 in: Donstsova, K., Balogh-Brunstad, Z., Le Roux, G. (eds.) Biogeochemical Cycles: Ecological Drivers and Environmental Impacts, Geophysical Monograph Series (Book 248), American Geophysical Union, 1st ed.

Dontsova, K., **Balogh-Brunstad, Z.,** Chorover, J. (***2020***) Plants as Drivers of Rock Weathering. *Chapter 2*, pp. 33-58, https://doi.org/10.1002/9781119413332.ch2 in: Donstsova, K., Balogh-Brunstad, Z., Le Roux, G. (eds.) Biogeochemical Cycles: Ecological Drivers and Environmental Impacts, Geophysical Monograph Series (Book 248), American Geophysical Union, 1st ed.

Dontsova, K., **Balogh-Brunstad, Z.,** Le Roux, G. (***2020***). Ecological Drivers and Environmental Impacts of Biogeochemical Cycles: Challenges and Opportunities. *Chapter 15*, pp. 301-306, https://doi.org/10.1002/9781119413332.ch15 in: Donstsova, K., Balogh-Brunstad, Z., Le Roux, G. (eds.) Biogeochemical Cycles: Ecological Drivers and Environmental Impacts, Geophysical Monograph Series (Book 248), American Geophysical Union, 1st ed.

Balogh-Brunstad, Z., Keller, C. K., Shi, Z., Wallander, H., & Stipp, S. L. (***2017***). Ectomycorrhizal Fungi and Mineral Interactions in the Rhizosphere of Scots and Red Pine Seedlings. *Soils*, 1(1), 5. https://doi.org/10.3390/soils1010005

Brantley, S. L., Eissenstat, D. M., Marshall, J. A., Godsey, S. E., **Balogh-Brunstad, Z.**, Karwan, D. L., Papuga, S. A., Roering, J., Dawson, T. E., Evaristo, J., Chadwick, O., McDonnell, J. J., and Weathers, K. C. (***2017***). Reviews and syntheses: on the roles trees play in building and plumbing the critical zone, *Biogeosciences*, 14, 5115-5142, https://doi.org/10.5194/bg-14-5115-2017

Hammer, E.C., **Balogh-Brunstad**, **Z.,** Jakobsen, I., Olsson, P.A., Stipp, S.L.S., Rillig, M.C. (***2014***). A mycorrhizal fungus grows on biochar and captures phosphorus from its surfaces. *Soil Biology and Biochemistry*, 77: 252-260. https://doi.org/10.1016/j.soilbio.2014.06.012

Shi, Z., **Balogh-Brunstad, Z.,** Grant, M., Harsh, J., Gill, R., Thomashow, L., Dohnalkova, A., Stacks, D., Letourneau, M. & Keller, C. K. (***2014***). Cation uptake and allocation by red pine seedlings under cation-nutrient stress in a column growth experiment. Plant and Soil, 378:83-98. https://doi.org/10.1007/s11104-013-2016-2.

Dohnalkova, A., **Balogh-Brunstad, Z.,** Keller, C. K. (***2011***) Correlative Electron Microscopy and Chemical Imaging of Mycorrhizospheric Biofilms - a Capability Development. *Microscopy and Microanalysis*, vol. 17, Issue S2, pp. 258-259. https://doi.org/10.1017/S1431927611002169.

Brantley, S. L., J. P. Megonigal, F. N. Scatena, **Z. Balogh-Brunstad,** R. T. Barnes, M. A. Bruns, P. van Cappelen, K. Dontsova, H. Hartnett, T. Hartshorn, A. Heimsath, E. Herndon, L. Jin, C. K. Keller, J. R. Leake, W. H. McDowell, F. C. Meinzer, T. J. Mozdzer, S. Petsch, J. Pett-Ridge, K. S. Pregitzer, P. Raymond, C. S. Riebe, K. Shumaker, A. Sutton-Grier, R. Walter, and K. Yoo (***2011***) Twelve testable hypotheses on the geobiology of weathering. *Geobiology*, https://doi.org/10.1111/j.1472-4669.2010.00264.x

Balogh-Brunstad, Z., C. K. Keller, B. T. Bormann, R. O'Brien, D. Wang, and G. Hawley (***2008***) Chemical weathering and chemical denudation dynamics through ecosystem development and disturbance. *Global Biogeochem. Cycles*, 22, GB1007, https://doi.org/10.1029/2007GB002957.

Balogh-Brunstad, Z., C. K. Keller, J. T. Dickinson, F. Stevens, C.Y. Li, B. T. Bormann (***2008***) Biotite weathering and nutrient uptake by an ectomycorrhizal fungus, *Suillus tomentosus*, in liquid-culture experiments. *Geochimica Cosmochimica Acta*, 72, 2601-2618, https://doi.org/10.1016/j.gca.2008.04.003

Balogh-Brunstad, Z., C. K. Keller, R. A. Gill, B. T. Bormann, and C.Y. Li (***2008***) The effect of bacteria and fungi on chemical weathering and chemical denudation fluxes in pine growth experiments. *Biogeochemistry*, 88:153–167, https://doi.org/10.1007/s10533-008-9202-y

Újvári, G., A.Varga, and **Z. Balogh-Brunstad** (***2008***) Origin, weathering, and geochemical composition of loess in southwestern Hungary. *Quaternary Research,* 69, 421-437, https://doi.org/10.1016/j.yqres.2008.02.001

Balogh, Z., Keller, C. K., Dickinson, J. T., Wang, D., Hawley G., Coe, T. (***2004***). Plant effect on chemical weathering and denudation processes: experimental ecosystem studies in: R. B. Wanty and R. R. Seal II. (eds): Water and Rock Interaction, Vol. 2, 1251-1254.

Conference Abstracts *(* denotes current and former students)*

Balogh-Brunstad, Z., Redder, B., Carr, S. (***2024***) Soil Chemical and Microbial Composition Changes in Hemlock Woolly Adelgid-Infested Eastern Hemlock Forest in New York State. American Geophysical Union Annual Meeting, 9-13 Dec. Washington D. C.

Stinchcomb, G. E., Ross, S., Miles, M., Moon, J.B., El Masri, B., Runkle, B., **Balogh-Brunstad, Z**. (***2024***) Geomorphic Controls on Soil Organic Carbon Dynamics and Greenhouse Gas Fluxes in a Bottomland Critical Zone: American Geophysical Union annual meeting, 9-13 Dec., Washington D. C.

Markel*, C., **Balogh-Brunstad, Z.** (***2024***) Chemical Weathering by ectomycorrhizal fungi under water and nutrient-limited conditions. *The Joint Northcentral and Southcentral Section Meeting of the Geological Society of America, Springfield, MO, April 21-23.* GSA Abstracts with Programs. Vol. 56, No. 3, 2024, doi: 10.1130/abs/2024NC-398723

Stauss*, S., **Balogh-Brunstad, Z. (*2023*)** Hydrochemical Characterization and Quality Assessment of the Whippany River at Morristown, New Jersey. *Geological Society of America Annual Meeting, Pittsburgh, PA, Oct 15-18.* GSA Abstracts with Programs. Vol. 55, No. 6, 2023, doi: 10.1130/abs/2023AM-392866

Balogh-Brunstad, Z. (*2023*) Fungal-Mineral Interactions – Biotite Weathering. *The Joint Northeastern and Southeastern Section Meeting of the Geological Society of America, Reston, VA, March 17-19*. GSA Abstracts with Programs. Vol. 55, No. 2; doi: 10.1130/abs/2023SE-386055

Ike*, H., **Balogh-Brunstad, Z. (*2023*)** Organic carbon content of soil at a no-till farm in the Finger Lakes Region, New York. *The Joint Northeastern and Southeastern Section Meeting of the Geological Society of America, Reston, VA, March 17-19.* GSA Abstracts with Programs. Vol. 55, No. 2; doi: 10.1130/abs/2023SE-386081

Stauss*, S., **Balogh-Brunstad, Z. (*2023*)** Assessment of Water Quality in the Whippany River Near Morristown, New Jersey. *The Joint Northeastern and Southeastern Section Meeting of the Geological Society of America, Reston, VA, March 17-19.* GSA Abstracts with Programs. Vol. 55, No. 2; doi: 10.1130/abs/2023SE-386096

Teitelbaum*, L., **Balogh-Brunstad, Z. (*2023*)** A Geochemical Analysis of Charlotte Creek Watershed, New York. *The Joint Northeastern and Southeastern Section Meeting of the Geological Society of America, Reston, VA, March 17-19.* GSA Abstracts with Programs. Vol. 55, No. 2; doi: 10.1130/abs/2023SE-386068

Balogh-Brunstad, Z., & Dohnalkova, A. (***2022***) Mineral Associated Organic Carbon Stabilization in a Ponderosa Pine Root Zone: A Mesh Bag Study. *ASA, CSSA, SSSA International Annual Meeting, Baltimore, MD*, Oct 29 – Nov 1. https://scisoc.confex.com/scisoc/2022am/meetingapp.cgi/Paper/145040

Balogh-Brunstad, Z., (***2022***) Mineral alterations by ectomycorrhizal fungi in response to water and nutrient availability. *Geological Society of America Annual Meeting, Denver, CO, Oct 9-12.* GSA Abstracts with Programs. Vol 54, No. 5, doi: 10.1130/abs/2022AM-381136

Balogh-Brunstad, Z., Drapaniotis*, V., Smith*, T. S., Clements, J. *(**2022***) Evaluating the effectiveness of forested riparian buffer zones and nitrate removal from the subsurface. *Geological Society of America Northeastern Section Meeting, Lancaster, PA, March 20-22.* GSA Abstracts with Programs, v. 54, no. 3, https://doi.org/10.1130/abs/2022NE-375344

Walsh*, K., McRee*, E., **Balogh-Brunstad, Z. (*2022*).** A survey of lead and cadmium content of soils from urban gardens in the city of Oneonta, New York. Geological Society of America Northeastern Section Meeting, Lancaster, PA, March 20-22. GSA Abstracts with Programs, v. 54, no. 3, https://doi.org/10.1130/abs/2022NE-375351

McRee*, E., Walsh*, K., **Balogh-Brunstad, Z. (*2022*)**. Response of nutrient and sediment concentrations to rain events in the Charlotte Creek Watershed, New York. *Geological Society of America Northeastern Section Meeting, Lancaster, PA, March 20-22.* GSA Abstracts with Programs, v. 54, no. 3, https://doi.org/10.1130/abs/2022NE-375363

McRee*, E., **Balogh-Brunstad, Z. (*2022*).** Impacts of Rain Events on Nutrient and Sediment Transport in the Charlotte Creek Watershed, New York. *American Chemical Society Annual Spring Meeting, San Diego, CA, March 20-24.*

Nathan*, R., **Balogh-Brunstad, Z. (*2019*).** Quantifying soil development in hemlock-dominated forests. *Geological Society of America Northeastern Section Meeting, Portland, ME, March 17-19.* GSA Abstracts with Programs. Vol. 51. No. 1. doi: 10.1130/abs/2019NE-328572

Balogh-Brunstad, Z. (*2019*). Mica-fungi interface: A mesh bag study in spruce forest soils. *Geological Society of America Northeastern Section Meeting, Portland, ME, March 17-19.* GSA Abstracts with Programs. Vol. 51. No. 1. doi: 10.1130/abs/2019NE-328574

Hubbard*, V. L., LeDone*, K. J., Piefer, A., Chorover, J., **Balogh-Brunstad, Z.** (***2018***). How does water availability impact mineral weathering by mycorrhizal fungi? *Geological Society of America Annual Meeting, Indianapolis, IN, Nov. 4-7.* Geological Society of America Abstracts with Programs. Vol. 50, No. 6. doi: 10.1130/abs/2018AM-322449

Nathan*, R., Forbes*, I. C., **Balogh-Brunstad, Z.** (***2018***). Basalt surface alteration during incipient soil formation. *Geological Society of America Annual Meeting, Indianapolis, IN, Nov. 4-7.* Geological Society of America Abstracts with Programs. Vol. 50, No. 6. doi: 10.1130/abs/2018AM-322379

Balogh-Brunstad, Z., Smart*, K. E. (***2018***) Fungal Weathering of Micas in Spruce forest Soils. *Goldschmidt Conference, Boston, USA, Aug 12-17.* Goldschmidt Abstracts, 2018.

Hubbard*, V. L., LeDone*, K. J., Piefer, A., Chorover, J., **Balogh-Brunstad, Z.** (***2018***). Fungal weathering across a moisture gradient at the Santa Catalina Critical Zone Observatory. *Geological Society of America Northeastern Section Meeting, Burlington, VT, March 18-20.* GSA Abstracts with Programs. Vol. 50, No. 2. doi: 10.1130/abs/2018NE-310960

Forbes*, I. C., Sengupta, A., **Balogh-Brunstad, Z.** (***2018***). Micro- and Nano-Scale Weathering of Basalt in Incipient Soils. *Geological Society of America Northeastern Section Meeting, Burlington, VT, March 18-20.* GSA Abstracts with Programs. Vol. 50, No. 2. doi: 10.1130/abs/2018NE-310988

Karson*, E. G., Redder*, B. W., **Balogh-Brunstad, Z.** (***2018***). Water Chemistry of a Hemlock Forest in the Robert V. Riddell State Park of New York. *Geological Society of America Northeastern Section Meeting, Burlington, VT, March 18-20.* GSA Abstracts with Programs. Vol. 50, No. 2. doi: 10.1130/abs/2018NE-311002

Dohnalkova, A., Tfaily, M., Smith, A.P., Chu, R.K., Crump, A., Brislawn, C., Varga, T., Shi, Z., Thomashow, L.S., Harsh, J.B. and **Balogh-Brunstad, Z.** (***2017***) December. Molecular and Imaging Insights into the Formation of Soil Organic Matter in a Red Pine Rhizosphere. In *AGU Fall Meeting Abstracts*.

Balogh-Brunstad, Z., Keller, C. K., Shi, Z., Wallander, H., Stipp, S. L. S. (***2017***) Rhizospheric weathering: Column experiments with Scots and Red pine seedlings. *Geological Society of America Annual Meeting, Seattle, WA, Oct 22-25.* Geological Society of America Abstracts with Programs. Vol. 49, No. 6. doi: 10.1130/abs/2017AM-307371

Dohnalkova, A., Tfaily, M. M., Smith, A., P., Chu, R., Crump, A. R., Brislawn, C. J., Varga, T., Shi, Z., Thomashow, L., Harsh, J. B., **Balogh-Brunstad, Z.**, Keller, C. K. (***2017***) Molecular and Microscopic Insights into the Formation of Soil Organic Matter in a Red Pine Rhizosphere. *Geological Society of America Annual Meeting, Seattle, WA, Oct 22-25.* Geological Society of America Abstracts with Programs. Vol. 49, No. 6 doi: 10.1130/abs/2017AM-307345

Balogh-Brunstad, Z., Smart*, K., Smits, M., Wallander, H., Krám, P. (***2017***) Ectomycorrhizal fungi promoted weathering of silicate minerals: A mesh bag study in the Slavkov Forest, Czech Republic. *BIOGEOMON, The 9th International Symposium on Ecosystem Behavior August 20–24, 2017 Litomyšl, Czech Republic.* In: Novák, M., Krám, P., Štěpánová, M. (eds.) Book of Abstracts, Czech Geological Survey, Prague, pp. 245-246.

Balogh-Brunstad, Z., Smart*, K.E. (***2017***) Mineral transformation through fungal weathering. *Geological Society of America Northeastern Section Meeting, Pittsburgh, PA, March 19-21.* GSA Abstract with Programs. Vol. 49, No.2, doi: 10.1130/abs/2017NE-290987

Balogh-Brunstad, Z., Smart*, K. E., Smits, M. M., Wallander, H., Krám, P. (***2016***) Mineral Mesh Bag Experiments in Three Catchments of the Slavkov Forest, Czech Republic. *Geological Society of America Annual Meeting, Denver, CO, Sept 25-28.* GSA Abstracts with Programs. Vol. 48, No. 7; doi: 10.1130/abs/2016AM-284853

Balogh-Brunstad, Z., Mehr*, N. K., Redder*, B. W., Balnis*, J. M., Tallman*, K. R. (***2016)*** Hemlock Woolly Adelgid Infestation Caused Changes in Soil, Soil Water and Microbial Community in Mine Kill State Park, New York. *Geological Society of America Annual Meeting, Denver, CO, Sept 25-28.* GSA Abstracts with Programs. Vol. 48, No. 7; doi: 10.1130/abs/2016AM-284890

Balnis*, J. M., Mehr*, N. K., Redder*, B. W., **Balogh-Brunstad, Z.** (***2016***) The effect of hemlock woolly adelgid infestation on the biogeochemistry and microbial community of eastern hemlock forest soils. *Geological Society of America Northeastern Section Meeting, Albany, NY, March 21-23.* GSA Abstracts with Programs. Vol. 48, No. 2, doi: 10.1130/abs/2016NE-272867

Mehr*, N. K., Balnis*, J. M., Redder*, B. W., **Balogh-Brunstad, Z.** (***2016***) The biogeochemical effects of the hemlock woolly adelgid on soil water chemistry. *Geological Society of America Northeastern Section Meeting, Albany, NY, March 21-23.* GSA Abstracts with Programs. Vol. 48, No. 2, doi: 10.1130/abs/2016NE-272378

Smart*, K. E., **Balogh-Brunstad, Z.** (***2016***) Fungi and Biotite Interactions in the Rhizosphere of Norway Spruce. *Geological Society of America Northeastern Section Meeting, Albany, NY, March 21-23.* GSA Abstracts with Programs. Vol. 48, No. 2, doi: 10.1130/abs/2016NE-272483

Tallman* K., Balnis*, J., **Balogh-Brunstad, Z.** (***2016***) Indirect effects of hemlock woolly adelgid on metal nutrient content of soil water. *251st ACS National Meeting, San Diego, CA, March 13-17.*

Balogh-Brunstad, Z., Keller, C. K., Shi, Z. (***2015***) Mineral transformation through fungal weathering in the rhizosphere of conifers. *Geological Society of America Annual Meeting, Baltimore, MD, Nov. 1-4.* Geological Society of America Abstracts with Programs. Vol. 47, No. 7, p.443

Smart*, K. E., Smits, M. M., Wallander, H., Kram, P., Curik, J., **Balogh-Brunstad, Z.** (***2015)*** Silicate mineral alteration in the rhizosphere of Norway spruce in three catchments of the Slavkov Forest, Czech Republic. *Geological Society of America Annual Meeting, Baltimore, MD, Nov. 1-4.* Geological Society of America Abstracts with Programs. Vol. 47, No. 7, p.529.

Mehr*, N. K., Balnis*, J. M., Redder*, B. W., **Balogh-Brunstad, Z. (*2015*)** The effect of the hemlock woolly adelgid on soil water chemistry. *Geological Society of America Annual Meeting, Baltimore, MD, Nov. 1-4.* Geological Society of America Abstracts with Programs. Vol. 47, No. 7, p.533

Smart*, K., **Balogh-Brunstad, Z.**, Wallander, H., Stipp, S. (***2015***) Mineral Surface Alterations in the Rhizosphere of Conifers. *Goldschmidt Conference, Prague, Czech Republic, Aug 16-21.* Goldschmidt Abstracts, 2919.

Meuer*, K., Piefer, A., Allen, M., **Balogh-Brunstad, Z.** (***2015***). Isolation and Classification of Bacteriophages in Untreated and Treated Sewage to Test Effectiveness of Water Treatment Methods. *The FASEB Journal*, *29*, 575-18. *Experimental Biology Conference, Boston, MA, March 28-April 1.*

Balogh-Brunstad, Z., Saccone, L., Smits M. M. **(*2015*)** Fungal Weathering of Biotite in the Rhizosphere of Norway Spruce. *Geological Society of America Northeastern Section Meeting, Bretton Woods, NH, March 23-25*. GSA Abstracts with Programs. Vol. 47, No. 3, p.47

Smart*, K. E., Balnis*, J. M., **Balogh-Brunstad, Z. (*2015*)** Land Use Effect on Water Quality in Watersheds of Otsego County, NY. *Geological Society of America Northeastern Section Meeting, Bretton Woods, NH, March 23-25*. GSA Abstracts with Programs. Vol. 47, No. 3, p.60

O'Connor*, K., **Balogh-Brunstad, Z. (*2015*)** Sediment and water analysis of a glacially formed lake. *249th ACS National Meeting and Exposition, Denver, CO, March 22-26.*

Redder*, B. W., Balnis*, J. M., **Balogh-Brunstad, Z. (*2015*)** Effects of woolly adelgid induced hemlock productivity decline on soil nutrient content. *249th ACS National Meeting and Exposition, Denver, CO, March 22-26.*

Balogh-Brunstad, Z. *(2014*) Weathering Undercover: Microbe-Mineral Interactions in the Rhizosphere of Scots Pine. *Geological Society of America Annual Meeting, Vancouver, BC, October 19-22.* GSA Abstracts with Programs. Vol. 46, No.6, p. 724.

O'Connor*, K., **Balogh-Brunstad, Z. (*2014*)** Geochemical Analysis of a Kettle Lake in Upstate New York. *Geological Society of America Annual Meeting, Vancouver, BC, October 19-22. GSA* Abstracts with Programs. Vol. 46, No.6, p. 747.

Redder*, B. W., Balnis*, J. M., **Balogh-Brunstad, Z. (*2014*)** Water Chemistry of a Hemlock Forest in the Robert V. Riddell State Park, NY. *Geological Society of America Annual Meeting, Vancouver, BC, October 19-22.* GSA Abstracts with Programs. Vol. 46, No.6, p. 513.

Balogh-Brunstad, Z., Shi, Z., Greenberg*, K., Harsh, J., Keller, C.K. (***2014***) Mineral Weathering by Red Pine Seedlings Under Cation-Nutrient Stress in a Column Growth Experiment. Presented at *Goldschmidt Conference, Sacramento, CA, June 9-13.*

Shi Z., **Balogh-Brunstad Z.,** Harsh J., Keller K. (***2014***) Plant-Driven Mineral Weathering: Role of Rhizospheric Biofilms. Presented at *Goldschmidt Conference, Sacramento, CA, June 9-13.*

Winters*, C. G., **Balogh-Brunstad, Z.** (***2014***) Water quality assessment of the Ouleout Creek in upstate New York. *247th ACS National Meeting and Exposition, Dallas, TX,* March 16-20.

Balogh-Brunstad, Z., Shorkey*, M. Y., Daniels*, N. M. (***2013***) Water Quality Assessment of Surface Water in Otsego County, NY. *Geological Society of America Annual Meeting, Denver, CO, October 27-30.* GSA Abstracts with Programs. Vol. 45, No. 7, p. 786.

O'Connor*, K., **Balogh-Brunstad, Z.** (***2013***) Chemical and Physical Characterization of a Kettle Lake in Upstate New York. *Geological Society of America Annual Meeting, Denver, CO, October 27-30.* GSA Abstracts with Programs. Vol. 45, No. 7, p. 584.

Winters*, C. G., **Balogh-Brunstad, Z.** (***2013***) Geochemical Study of Ouleout Creek, NY. *Geological Society of America Annual Meeting, Denver, CO, October 27-30.* GSA Abstracts with Programs. Vol. 45, No. 7, p. 584.

Daniels* N., Shorkey*, M.Y., **Balogh-Brunstad, Z.** (***2013***) Baseline water quality monitoring in the watersheds of Otsego County, NY. *245th ACS National Meeting and Exposition, New Orleans, Louisiana, April 7-11.*

Balogh-Brunstad, Z., Keller, C.K., Stipp, S.L.S. (***2013***) Microbes in the weathering environment. *Geological Society of America Northeastern Section Meeting, Bretton Woods, NH, March 18-20*. GSA Abstracts with Programs. Vol. 45, No. 1, p.112.

Shi, Z., Keller, C.K., Stacks, D., Grant, M., Harsh, J.B., Letourneau, M., Gill, R.A., **Balogh-Brunstad, Z.,** Thomashow, L., Dohnalkova, A. (***2012***) Plant uptake of cations under nutrient limitation: An environmental tracer study using Ca/Sr and K/Rb ratios. Abstract# H53C-1533 presented at the 2012 *Fall Meeting of the American Geophysical Union, San Francisco, CA, December 3-7.*

Greenberg*, K. A., **Balogh-Brunstad, Z.,** Shi, Z., Arey, B., Dohnalkova, A., Niedziela*, S. M., Keller, C. K. (***2012***) Mineral weathering and biofilm development in the rhizosphere of pine trees. *Geological Society of America Annual Meeting, Charlotte, NC, November 4-7.* GSA Abstracts with Programs. Vol. 44, No. 7, p. 394

Niedziela*, S. M., Dohnalkova, A., Greenberg*, K. A., Arey, B., **Balogh-Brunstad, Z.**, Shi, Z., Keller, C. K. (***2012***) A transmission electron microscopy study of the microbe-mineral interface in the rhizosphere of pine. *Geological Society of America Annual Meeting, Charlotte, NC, November 4-7.* GSA Abstracts with Programs. Vol. 44, No. 7, p. 245

Balogh-Brunstad, Z., Saccone, L., Smits, M. M., Berner, C., Wallander, H., McMaster, T., Stipp, S. L. S. (2012) Biotite Weathering in Watersheds of the Slavkov Forest, Czech Republic. Abstract#1985 presented at *Goldschmidt Conference, Montreal, Canada, June 24-29.* Mineralogical Magazine, 76, 1451

Niedziela*, S. M., Dohnalkova, A., Greenberg*, K. A., Arey, B. W., **Balogh-Brunstad, Z.,** Shi, Z., Keller C. K. (2012) Weathering in the Rhizosphere Analyzed with Transmission Electron Microscopy. Abstract#2015 presented at *Goldschmidt Conference, Montreal, Canada, June 24-29.* Mineralogical Magazine, 76, 2167

Greenberg*, K. A., **Balogh-Brunstad, Z.,** Arey, B. W., Niedziela*, S. M., Dohnalkova, A., Shi, Z., Keller C. K. (2012) Weathering at the Mineral-Fungus-Bacteria Interface Analyzed with Scanning Electron Microscopy and Helium Ion Microscopy. Abstract#2186 presented at *Goldschmidt Conference, Montreal, Canada, June 24-29.* Mineralogical Magazine, 76, 1780

Balogh-Brunstad, Z., Negrich*, K.A, Hassenkam, T., Wallander, H., Stipp, S.L.S. (***2011***) Biotite weathering in a natural forest setting near Derome, Sweden. Abstract# B33C-0466 presented at *2011 Fall Meeting, AGU*, San Francisco, CA, Dec. 5-9.

Shi, Z., Keller, C. K., Grant, M., Harsh, J. B., **Balogh-Brunstad, Z.**, Thomashow, L. (***2011***) Plant-driven mineral weathering: Hydrochemical effects of nutrient limitation and rhizosphere microbiology. Abstract# B33C-0465 presented at *2011 Fall Meeting, AGU*, San Francisco, CA, Dec. 5-9.

Niedziela*, S., Greenberg*, K. A., Dohnalkova, A., Arey, B., **Balogh-Brunstad, Z**. (***2011***) Analyzing the Role of Biofilm in Weathering Processes in the Rhizosphere with Various Microscopic Techniques. Abstract# B33C-0467 presented at *2011 Fall Meeting, AGU*, San Francisco, CA, Dec. 5-9.

Balogh-Brunstad, Z., Saccone, L., Smits, M. M., Berner, C., Wallander, H. McMaster, T. J., Stipp, S. L. S. (***2011***) Surface characterization of biotite from a mesh bag field study. Goldschmidt Conference Abstracts, Prague, Czech Republic, Aug 14-19. *Mineralogical Magazine*, Vol. 75 (3) 475.

Keller, C. K., O'Brien, R., **Balogh-Brunstad, Z.,** Bormann, B. T. (***2011***) Geochemical and ecological models of plant-driven chemical weathering: Insights into the sinks for atmospheric CO_2. Goldschmidt Conference Abstracts, Prague, Czech Republic, Aug 14-19. *Mineralogical Magazine*, Vol. 75 (3) 1167.

Negrich*, K., **Balogh-Brunstad, Z**., Hassenkam, T., Stipp, S. L. S. (***2011***) Characterization of the microbe-biotite interface on field samples from a mine site, Derome, Sweden. Goldschmidt Conference Abstracts, Prague, Czech Republic, Aug 14-19. *Mineralogical Magazine*, Vol. 75 (3) 1530.

Smits, M. M., **Balogh-Brunstad, Z.,** Saccone, L., Wallander, H., Colpaert, J. V. (***2011***) The scale factor in the ectomycorrhizal fungal weathering debate. Goldschmidt Conference Abstracts, Prague, Czech Republic, Aug 14-19. *Mineralogical Magazine*, Vol. 75 (3) 1900.

Watson*, K. M., Parisi*, A., Dudek, J., **Balogh-Brunstad, Z.** (***2011***) Effect of vegetation on soil water chemistry at Pine Lake, West Davenport, USA. *241st ACS National Meeting & Exposition, Anaheim, CA.* March 27-31.

Hagenbuch, B., Kuhlmann, M., Fauth, P., Sessions, S., **Balogh-Brunstad, Z.** (***2010***) The Robert R. Smith Environmental Field Station: Living and Learning For A Sustainable Future. Poster presentation at *Catskill Environmental Monitoring and Research Conference*. Belleayre. November, 17-18.

Parisi*, A., Watson*, K. M., Dudek, J., **Balogh-Brunstad, Z.** (***2010***) Geochemistry of the Susquehanna River and Pine Lake area, NY, USA. *Geological Society of America Annual Meeting, Denver, CO, October 31 to November 3.* GSA Abstracts with Programs Vol. 42, No. 5, pp. 294.

Watson*, K. M., Parisi*, A., Dudek, J., **Balogh-Brunstad, Z.** (***2010***) Effect of vegetation on soil water chemistry at Pine Lake, West Davenport, USA. *Geological Society of America Annual Meeting, Denver, CO, October 31 to November 3.* GSA Abstracts with Programs Vol. 42, No. 5, pp. 454.

Balogh-Brunstad, Z., Brunstad, A. K. (***2010***) The yellow boy experience – Incorporation of acid mine drainage field trip into geochemistry and environmental chemistry curriculum. *Geological Society of America Annual Meeting, Denver, CO, October 31 to November 3.* GSA Abstracts with Programs Vol. 42, No. 5, pp. 442.

Hagenbuch, B., Kuhlmann, M., Fauth, P., Sessions, S., **Balogh-Brunstad, Z.** (***2010***) The Robert R. Smith Environmental Field Station: Living and Learning For A Sustainable Future. Poster presentation at *Organization of Biological Field Stations (OBFS) Annual Meeting*, University of Michigan Biological Station, Pellston, MI. September 23-26.

Balogh-Brunstad, Z., Keller, C. K. (***2010***) Ectomycorrhizae-mediated biotite weathering and K uptake (invited). Goldschmidt Conference Abstracts, Knoxville, TN, June 13-19. *Geochimica et Cosmochimica Acta,* Volume 74 (12), Suppl. 1. pp. A46

Keller, C. K., **Balogh-Brunstad, Z.**, O'Brien, R., Bormann, B. T. (***2010***) Chemical weathering and chemical denudation as functions of ecosystem development: Mesoscale experiments. Goldschmidt Conference Abstracts, Knoxville, TN, June 13-19. *Geochimica et Cosmochimica Acta,* Volume 74 (12), Suppl. 1. pp. A504

Balogh-Brunstad, Z., Keller, C. K., Bormann, B. T., Gill, R. A., Dickinson, J. T. (***2009***) Effects of Biota on Biotite Weathering and Potassium Fluxes: A Multi-Scale Approach. *Geological Society of America Annual Meeting, Portland, OR, October 18-21.* Paper No. 141-7

O'Brien, R., Keller, C. K., **Balogh-Brunstad, Z.** (***2009***) The effect of plants on groundwater carbonate chemistry in experimental sand ecosystems. *Geological Society of America Annual Meeting, Portland, OR, October 18-21.* Paper No. 141-5

Allen*, J., Caldwell*, M., **Balogh-Brunstad, Z.** (***2009***) Sourcing Elemental Aluminum in Surface Waters in the Swift River Watershed, New Hampshire: A Preliminary Report *Geological Society of America Annual Meeting, Portland, OR, October 18-21.* Paper No. 258-38

Keller, C. K., **Balogh-Brunstad, Z.** (***2009***) Biology's Role in Long-term CO_2 Sequestration: Questions Raised by Some Process Studies. Abstract #PP13B-1407 presented at *2009 Fall Meeting, AGU*, San Francisco, CA, Dec. 14-18.

Balogh-Brunstad, Z., Gill, R. A., Keller, C. K. (***2008***) Carbon Allocation and Cation Uptake Affected by Ectomycorrhizal Fungus in Nutrient Poor Settings, Using $^{13}CO_2$ Pulse Labeling. *Geological Society of America Annual Meeting, Houston, TX, October 5-9.* GSA Abstracts with programs Vol. 40 (6) p.76.

Keller, C. K., **Balogh-Brunstad, Z.** (***2008***) Effect of Mycorrhizospheric Fungal/bacterial/root/mineral Interactions on Chemical Weathering and Nutrient Partitioning in Pine Growth Experiments. *Geological Society of America Annual Meeting, Houston, TX, October 5-9.* GSA Abstracts with programs Vol. 40 (6) p. 457.

Keller, C. K., **Balogh-Brunstad, Z.** (***2008***) Decoupling of plant-driven weathering from leaching in the critical zone. Annual Goldschmidt Conference, Vancouver, BC, Canada, July, 13-18. *Geochimica et Cosmochimica Acta* Volume 72, (12), Supplement 1, pp. A458

Balogh, Z., Keller, C. K., Gill, R. A. (**2006**). Biofilm supported increase of chemical weathering and decrease of chemical denudation in pine growth experiments. *EOS Trans. AGU,* 87*(52),* Fall Meet. Suppl., Abstract B11A-0999

Balogh, Z., Keller, C.K. (***2005***). Effect of vascular plant growth on chemical weathering processes – observations from experimental ecosystem study. *Geol Soc. America Annual meeting, Salt Lake City, October, 2005.* GSA Abstracts with programs, Vol 37 (7): 257, paper 113-1.

Balogh, Z., Keller, C. K., Stevens, F., Dickinson, J. T. (***2005***). Rapid ectomycorrhizal channel development on biotite in liquid culture experiments. Annual Goldschmidt Conference, Moscow, ID. May, 20-25. *Geochimica et Cosmochimica Acta* Volume 69, (10), Supplement 1, pp. 366

Keller, C. K., **Balogh, Z.** (***2005***). Chemical weathering, land plants, and CO2 sinks: Role of ecologic disturbance. Annual Goldschmidt Conference, Moscow, ID. May 20-25. *Geochimica et Cosmochimica Acta* Volume 69, (10), Supplement 1, pp. 679

Balogh, Z., Keller, C. K., Dickinson, J. T. (***2003***). Effects of fungal-mineral interactions on chemical weathering and denudation processes – Observations from experimental ecosystems. *EOS* (AGU abstracts with programs) 18 November 2003 supplement, p. F245

Balogh, Z., Keller, C. K. (***2003***). Biogeochemistry of experimental ecosystems: How do root-fungus associations affect chemical weathering and denudation? *Geol Soc. America Annual meeting, Seattle. November, 2003.* GSA Abstracts with programs 35(6): 151, paper 61-15.

Seminar Presentations

- Living in a Desert: How Do Symbiotic Fungi Respond to Water Limitations? Faculty Lecture Series at Hartwick College, Oneonta, NY (October 2020)
- Visualization of microbe-mineral interactions in LEO basalt and the Catalina Mountain CZO soils, Environmental Biogeochemistry Group Seminar, Department of Soil, Water and Environmental Science, University of Arizona, Tucson, AZ (April 2018)
- Fungi and soil mineral interactions along a climate gradient, Soil, Water, and Environmental Science (SWES) Colloquium Series, University of Arizona, Tucson, AZ (December 2017)
- Ectomycorrhizal Fungi in the Weathering Environment, University of Arizona, Tucson, AZ, Biosphere 2 Seminar Series (January 2016)
- Weathering and Microbe-Mineral Interactions in the Rhizosphere, Cornell University, Ithaca, NY, Biogeochemistry Seminar Series (November 2014)
- Fungal Weathering of Biotite under Potassium Limitation at SUNY Binghamton, NY, Geology Seminar Series (Sept 2013)
- Where Minerals Meet Life: Fungal Weathering and Potassium Acquisition, Faculty Lecture Series at Hartwick College, Oneonta, NY (March 2013)
- Weathering in the rhizosphere at NanoGeoSciences Seminar series, University of Copenhagen, Denmark (May 2011)
- Biological Weathering – What do we know? Guest Lecturer of Geochemistry, University of Copenhagen, Denmark (January 2011)
- Biological Weathering at NanoGeoSciences Seminar series, University of Copenhagen, Denmark (September 2010)
- What does biology have to do with it? Fungi in weathering and mineral surface interactions. SUNY Oneonta, NY (February 2009)
- Biologically regulated chemical weathering and denudation in pine growth experiments. Institute of Biogeochemistry and Pollutant Dynamics at ETH Zurich, Switzerland (February 2007)

Other Publications

Balogh-Brunstad, Z., Toyoda, J., Miller, P., Leichty, S., Bargar, J., Townsend, A., ... & Stinchcomb, G. (***2024***). Data for EMSL Project 61115 from July 2024 (No. upload_id: 3193706; project_id: 61115). Pacific Northwest National Laboratory (PNNL), Richland, WA (United States). Environmental Molecular Sciences Laboratory (EMSL).

Audio File/SCIPOD - Getting to the Root of Plant-Fungi Symbiosis (***2022***) https://www.scipod.global/dr-zsuzsanna-balogh-brunstad-getting-to-the-root-of-plant-fungi-symbiosis/

Pimentel Almonte, J. M., **Balogh-Brunstad, Z.** (***2017***) Impact of crude oil pollution on marine dimethyl sulfide production. *50th Annual Report* of the Biological Field Station, SUNY College at Oneonta, pp. 215-228; non-peer reviewed; available at

http://www.oneonta.edu/academics/biofld/PUBS/ANNUAL/2017/26%20Pimentel%20Brunstad%20algae.pdf

Balogh-Brunstad, Z. (***2009***) Monitoring the water chemistry of the upper Susquehanna River in Otsego County, New York, June – October 2009. *42nd Annual Report of the Biological Field Station*, SUNY College at Oneonta, pp. 80 – 96; non-peer reviewed; available at http://www.oneonta.edu/academics/biofld/PUBS/ANNUAL/2009/9%20Balogh-Brunstad_USR2009.pdf

Balogh, Z. (***2006***) Chemical Hydrology of Vascular Plant Growth: Role of Root-Fungus Associations. Ph.D. Dissertation, Washington State University, Pullman, WA; available at http://www.dissertations.wsu.edu/Dissertations/Summer2006/z_balogh_071806.pdf

Annual Cooperator's Meeting at Hubbard Brook Experimental Forest, NH, USA - Attendance and presentation each year (2003, 2004, 2005).

Funded Research Grants

National Science Foundation, 2017-2018, EAGER (Early-concept Grants for Exploratory Research): How does soil moisture content affect fungal weathering, diversity, and abundance? PI, Awarded $29,816. NSF/EAR 1742941.

Faculty Research Grant and Milne Family Fund Awards, Hartwick College, 2016-17, Continuation of monitoring the effects of the Hemlock Woolly Adelgid on soil and soil water chemistry at two state parks. Awarded $6832.

Faculty Research Grant and Milne Family Fund Awards, Hartwick College, 2015-2016, Investigations of physical, chemical and microbial processes and properties in soils of hemlock forests in the Upper Susquehanna Watershed. Awarded $9672.

Faculty Research Grant and Milne Family Fund Awards, Hartwick College, 2014-2015, Responses of soil and water chemistry to hemlock woolly adelgid induced a decline in tree productivity in the Upper Susquehanna Watershed. Awarded $8522.

Otsego County Conservation Association and the Otsego County Soil and Water Conservation District, 2012-2014, Founded a project for Baseline Surface Water Quality Monitoring in Otsego County, NY

National Science Foundation, June 2010-Dec 2012, ETBC Collaborative Research: Weathering Under Cover: Role of biofilms in mineral weathering and nutrient uptake in the mycorrhizosphere; **PI**; collaboration with Washington State University, Awarded $37,348. EAR/NSF 0952052.

User Grant, 2010-2013, William R. Wiley Environmental Molecular Sciences Laboratory at Pacific Northwest National Laboratories, Richland, WA.

National Science Foundation, 2010-2013, Expanding Collaborative Research and Education Opportunities to Protect Biological Diversity on Public Lands in Upstate New York; **co-PI**. Awarded $24,811. NSF 0934288.

Marie Curie Intra-European Fellowship, 2010-2012, European Commission, 7th Framework Programme, RHIZO Project at University of Copenhagen, Denmark, awarded €218,120. PIEF-GA-2009-235879.

Faculty Research Grant and Milne Family Fund Awards, Hartwick College, 2009-2010, Occurrence of antibiotics in surface water: a water quality analysis; awarded $5500.

Otsego County Conservation Association, 2009, research funding for water quality monitoring of the Upper Susquehanna River basin, Oneonta, NY, $1000.

Graduate Student Travel Grant, 2003, to attend AGU meeting, Dec 2003, Washington State University, Pullman, WA.

User Grant, 2003-2006, William R. Wiley Environmental Molecular Sciences Laboratory at Pacific Northwest National Laboratories, Richland, WA.

Funded Student Collaborative Research Grants

Investigating the fluvial geomorphology changes at Pine Lake Environmental Campus, Silas Moyer (Anthropology and ENSS), Environment Research Scholar Award, Hartwick College, Oneonta, 2024 summer, $3,336.

Assessment of Nitrogen and Phosphorus Levels in the Charlotte Creek Watershed, New York, Peyton Humphries, Open Freedman Prize, Hartwick College, Oneonta, 2024-25, $1995.

Heavy Metals in the Charlotte Creek Watershed, New York, Will Brouillette (ENSS), Open Freedman Prize, Hartwick College, Oneonta, 2024-25, $1746.

Fungal Community Profiles of Bald Cypress in the Four Rivers Basin, Kentucky, Hannah Makuch (Chem) and Makenna Ventuleth (Bio), in collaboration with Dr. Stephanie Carr, Freedman Prize in Applied Geoscience, Hartwick College, Oneonta, 2024-25, $4945.

Estimating Fungal Biomass through Ergosterol Quantification, Adrianna Dugan (Chem and Music), Freedman Prize in Applied Geoscience, Hartwick College, Oneonta, 2024-25, $3054.

Clay Cooking Pots – Material Science, Ella Van Engen (Art) and Megan Bryla (Art and ENSS), in collaboration with Stephanie Rozene, Freedman Prize in Applied Geoscience, Hartwick College, Oneonta, 2023-24, $4960.

Effect of Water and Nutrient Availability on Ectomycorrhizal Weathering of Minerals, Cass Markel (Geology), Freedman Prize in Applied Geoscience, Hartwick College, Oneonta, 2023-24, $4285.

Water Quality Assessment of the Whippany River near Morristown, New Jersey, Sebastian Stauss (Geology and ENSS), Freedman Prize in Applied Geoscience, Hartwick College, Oneonta, 2022-23, $1305.

Water Quality Assessment of the Whippany River, Sebastian Stauss (Geology and ENSS), Research in Science & Health Fund Award, Hartwick College, Oneonta, NY, 2022-23, $1118.50.

Determine the Organic Carbon Content of Soils from the Ike Farm, Holton Ike (Geology), Freedman Prize in Applied Geoscience, Hartwick College, Oneonta, 2022-23, $1169.

Monitoring Water Chemistry in Riparian Buffer Zones in Otsego and Delaware Counties, Vasiliki Drapaniotis (Env. Chem. And ENSS), Pine Lake Environment Scholarship, Hartwick College, Oneonta, NY, summer 2022, $6,806.

Impacts of Rain Events on Nitrogen and Phosphorus Loads in Charlotte Creek, West Davenport, New York, Erin McRee (Chemistry and ISP-Env. Health and Safety), Pine Lake Environment Scholarship, Hartwick College, Oneonta, NY, summer 2021, $4107.

Monitoring Nutrient Transport in Riparian Buffer Zones in Otsego and Delaware Counties, Vasiliki Drapaniotis (Env. Chem. And ENSS), Pine Lake Environment Scholarship, Hartwick College, Oneonta, NY, summer 2021, $5392.

Lead and Cadmium contamination in soils, and its effects on food and human health, Kiera Walsh (Geology), Freedman Prize in Applied Geoscience, Hartwick College, Oneonta, NY, 2021-2022, $4517.

The impacts of rain events on nitrogen and phosphorus loads in Charlotte Creek, West Davenport, New York, Erin McRee (Chemistry and ISP-Env. Health and Safety), Research in Science & Health Fund Award, Hartwick College, Oneonta, NY, Spring 2021, $1750.

Effect of Buffer Zones on Local Creek Water Quality, Tarrah Sky Smith (ENSS), Freedman Prize in Applied Geoscience, Hartwick College, Oneonta, NY, 2020-2021, $1000.

Sediment and Nutrient Load of the Charlotte Creek Watershed, Falon Treis (Geology), Pine Lake Environment Scholarship, Hartwick College, Oneonta, NY, fall 2019, $4000.

Soil and Surface Water Analysis of a Hemlock Dominated Forest, Brynn Marion (Geology), Pine Lake Environment Research Scholarship, Hartwick College, Oneonta, NY, summer 2019, $2650.

Quantifying soil development of hemlock groves in the upper Susquehanna watershed, Rebecca Nathan (Geology and ENSS), Freedman Prize, Hartwick College, Oneonta, NY, 2018-2019, $1600.

Quantifying Soil Development of Hemlock Groves in the Upper Susquehanna Watershed, Rebecca Nathan (Geology and ENSS), Stephen G. Pollock Undergraduate Student Research Grants, Geological Society of America, 2018, $1500.

Microscale alterations of feldspar across a semiarid environmental gradient, Victoria Hubbard (Geology), Freedman Prize, Hartwick College, Oneonta, NY, 2017-2018, $1600.

Determining the ratio of fungal and whole soil profile weathering rates across a climate gradient, Ian Forbes (Geology), Freedman Prize, Hartwick College, Oneonta, NY, 2017-2018, $500.

Investigating Fungal Aquaporins in Drought Conditions, Kevin LeDone (Geology and Biochemistry), Freedman Prize, Hartwick College, Oneonta, NY, 2017-2018, $500.

The Effect of Woolly Adelgid Caused Hemlock Mortality on Mobility of Cations and Anions in Forest Soils, Elizabeth Karson (Geology), Pine Lake Environmental Research Scholarship, Hartwick College, Oneonta, NY, summer 2017, $4032.

Effects of Selected Compost Parameters and Microbial Activity on Radish Plant Growth, Kelly Sprague (ISP - Env. Science), Pine Lake Environmental Research Scholarship, Hartwick College, Oneonta, NY, 2016-2017, $1100.

The Biogeochemical Effects of the Hemlock Woolly Adelgid on Soil Water Chemistry, Nicole Mehr (Geology), Pine Lake Environmental Research Scholarship, Hartwick College, Oneonta, NY, fall 2016, $3800.

The soil water chemistry of select hemlock woolly adelgid affected forests in New York, Nicole Mehr (Geology), Freedman Prize, Hartwick College, Oneonta, NY, 2016-2017, $1600.

Silicate mineral weathering by fulvic acids, Kyle Smart (Geology), Freedman Prize, Hartwick College, Oneonta, NY, 2016-2017, $1600.

Fungal and Microbial Community and Mineral Interactions in Mesh Bags, Michael Dolan (Biochemistry), Duffy International Scholarship Fellowship, Hartwick College, Oneonta, NY, summer 2016, $5000.

Impact of Introduced Crude Oil on Marine Dimethyl Sulfide Production, Jessica Pimentel (Biology), Emerson International Scholarship Internship, Hartwick College, Oneonta, NY, summer 2016, $5000.

Culture and Nursing in Kenya, Kristy Walker (Nursing), Emerson International Scholarship Internship, Hartwick College, Oneonta, NY, summer 2016, $5000.

Indirect Effects of Hemlock Woolly Adelgid on Metal Content of Soil Water, Killian Tallman (Env. Chem.), Freedman Prize, Hartwick College, Oneonta, NY, 2015-2016, $1600.

Microbial and fungal community structure analysis of soil profiles in a hemlock woolly adelgid infected eastern hemlock forest, Joseph Balnis (Biochemistry), Freedman Prize, Hartwick College, Oneonta, NY, 2015-2016, $1600.

The Effect of the Hemlock Woolly Adelgid on Soil Chemistry and Ecology with a Focus on Trace Metal Transport, Nicole Mehr (Geology), Pine Lake Environmental Research Scholarship, Hartwick College, Oneonta, NY, summer 2015, $1515.

Fungal Interactions with Silicate Mineral Surfaces at the Micro-Scale, Kyle Smart (Geology), Duffy International Scholarship Fellowship, Hartwick College, Oneonta, NY, summer 2015, $5000.

Proposal for Remediation and Revegetation of the Former Astra Street Dump, Shortland, NSW, Australia, Nicolas Hills (Geology and Biology), Emerson International Scholarship Internship, Hartwick College, Oneonta, NY, summer 2015, $5000.

The Effect of Woolly adelgid Caused Hemlock Mortality on Nitrate and Phosphate Mobility, Brian Redder (Env. Chem.), Freedman Prize, Hartwick College, Oneonta, NY, 2014-2015, $1600.

The Effect of Woolly Adelgid Caused Hemlock Mortality on Nitrate and Phosphate Mobility, Brian Redder (Env. Chem.), Pine Lake Environmental Research Scholarship, Hartwick College, Oneonta, NY, summer 2014, $1800.

Analysis of the Marcellus Shale, Danielle Lord and Jenae Withey (Geology), Freedman Prize, Hartwick College, Oneonta, NY, 2013-2014, $1600.

Geochemical Analysis of a Kettle Lake, Keith O'Connor (Geology and Env. Chem.), Pine Lake Environmental Research Scholarship, Hartwick College, Oneonta, NY, 2013-2014, $1500; and 2014-2015, $1800.

Ouleout Creek: A Geochemical Study, Catherine Winter (Env. Chem.), EPA Greater Research Opportunities Undergraduate Student Fellowship, 2012-2014, $48,900.

Mineralogy of Red Clay Soils of Thailand, Sheila Niedziela (Geology), Emerson International Scholarship Internship, Hartwick College, Oneonta, NY, 2012-2013, $5000.

Using Mollusks to Monitor Environmental Effects of Oil Spills, Sheila Niedziela (Geology), Pine Lake Environmental Research Internship, Hartwick College, Oneonta, NY, 2012-2013, $1200.

Minerals are Plant's Snacks, Kyle Greenberg (Geology) Freedman Prize, Hartwick College, Oneonta, NY, 2012-2013, $1600.

Characterization of Microbe-Biotite Interface of Field Samples from Derome's mine "Dump", Sweden, Kimberly Negrich (Geology), Emerson International Scholarship Internship, Hartwick College, Oneonta, NY, 2010-2011, $5000.

Effect of Vegetation on Soil Development and Soil Water Chemistry, Katie Watson (Env. Chem.), Pine Lake Environmental Research Scholarship, Hartwick College, Oneonta, NY, 2010-2011, $1180.

Geochemistry of The Susquehanna River and Pine Lake Area, Andrew Parisi (Geology), Pine Lake Environmental Research Scholarship, Hartwick College, Oneonta, NY, 2010-2011, $1085.

Professional Affiliations

- Soil Science Society of America (2011-present)
- Geochemical Society (2004-present)
- Geological Society of America (2003-present)
- American Geophysical Union (2003-present)
- American Chemical Society - Geochemical Division (2008-2017)
- African Violet Society of America (2005-2007)

Research Visits

Hamilton Analytical, Lab, Hamilton College - (AY 2018-19), sample preparation for X-ray Fluorescence analysis of soil samples from the Robert V. Riddell State Park, for a Freedman Project.

SWES, University of Arizona – (AY 2017-18), sabbatical research at the Catalina and Jemez Critical Zone Observatories and the Biosphere 2 Landscape Evolution Observatory, collaborations with Drs. Chorover, Dontsova, Gallery, and Sengupta.

Biosphere 2, University of Arizona (January 2016), exploratory visit for potential research work in Biosphere 2 and at the Critical Zone Observatory with Dr. Dontsova.

NanoGeoSciences, University of Copenhagen, Denmark (July 2015) using scanning electron microscopy and atomic force microscopy in various modes on silicate minerals, investigating the interface between microbes and minerals. Dr. Stipp.

Department of Geoscience, University of Nevada, Las Vegas, NV, (January 2014), exploratory visit for potential collaboration on deep crust weathering processes on serpentinite terrains. Dr. Hausrath.

Microbial Ecology, Lund University, Sweden (July 2010 to June 2012) Collaborative work on mycorrhizal weathering of silicates, the role of biofilm in microbial weathering and nutrient uptake under limiting conditions; collaborations with Drs. Wallander, Hammer and Rosenstock, and Berner.

Center for Electron Nanoscopy, Technical University of Denmark, Lyngby, Denmark (October 2010 to November 2011) Using scanning electron microscopy with energy dispersive spectroscopy on silicate minerals, investigating the interface between biofilm, microbes, and minerals in several projects.

Core Facility for Integrated Microscopy, Department of Biomedical Sciences, Panum Institute of University of Copenhagen (September 2010 to October 2011) using scanning electron microscopy in various modes and focused ion beam microscopy on silicate minerals, investigating the interface between biofilm, microbes, and minerals in several projects.

SEES, Washington State University, Pullman, WA (July 2010 to January 2013), collaborative research projects funded by the NSF, the role of biofilm in biological weathering, and collaboration with several members of WSU and Hartwick undergraduate students.

Pacific Northwest National Laboratory, Environmental Molecular Sciences Laboratory, Richland, Washington, USA (July 2010 to January 2013). Using microscopy facilities and examining root-microbe-mineral interfaces in collaboration with Dohnalkova, Arey, and Hartwick undergraduate students.

Bristol Centre for Functional Nanomaterials, School of Physics, University of Bristol, UK (November 2010) Research visit and discussion of ectomycorrhizal weathering and available analytical techniques. Collaboration with Dr. Saccone.

Department of Animal and Plant Sciences, the University of Sheffield, UK (November 2010) Research visit and discussion of laboratory experiments, column growth studies, mycorrhizal microcosms, and analytical techniques. Dr. Leake.

NanoGeoScience Center at University of Copenhagen, Denmark (March 2007; Summer 2009) Guest Scientist in the laboratory using microscopy facilities for investigating biofilm formation on mineral surfaces. Dr. Stipp.

Pacific Northwest National Laboratory, Environmental Molecular Sciences Laboratory, Richland, Washington, USA (Jan 2003 – May 2006). Used the microscopy facilities, field-emission, and environmental scanning electron microscopes and energy dispersive spectrometers, to investigate the surface physical and chemical properties of silicate minerals from field and laboratory studies.

Forestry Science Laboratory, US-Forest Service, Corvallis, Oregon, USA (summers 2002 and 2003). Learned microbial techniques to culture fungi inoculate trees and conduct liquid-culture (batch) and growth chamber experiments, collaboration.

Hubbard Brook Experimental Forest, New Hampshire, USA (summers 2003, 2004 and 2005). Sampled water and soil from the sandbox experimental lysimeters and attended research meetings, collaboration.

The University of Vermont, Rubenstein School of Environment and Natural Resources, Burlington, Vermont, USA (July 2004). I had access to archived water, soil and biomass samples, and datasets for the sandbox experimental lysimeters of Hubbard Brook Experimental Forest, collaboration.

Professional Development - Workshops, Short Courses, Webinars, and Symposiums

Wilderness First Aid Training and CPR, certification course at Pine Lake Environmental Campus, Hartwick College, *June 5-7, 2024.*

Introduction to Visualizing and Interpreting 3D Geologic Data Using X-ray Tomographic Microscopy, Short Courseto explore the wide-ranging applications of 3D X-ray tomography in Earth sciences. Hosted by the MizzoμX lab and focused on data visualization, assessment, and curation during the course. At the Joint North-Central and South-Central Section Meeting, *April 20, 2024*.

EMSL LEARN Webinar Series: 3-D Platforms for Live Cell Microscopy, this webinar was organized at the Environmental Molecular Sciences Laboratory of the Pacific Northwest National Laboratory, Richland, WA, Jan 24, 2024.

The Geoscience Workforce - Today and Future Trajectories, this webinar was organized by the American Geosciences Institute (AGI) and it explored the state of geoscience employment and education and looked at the trends that are likely to form the geoscience profession for the rest of the century; *February 9, 2023.*

The Food-Energy-Water Nexus: Using Hydroviz to Support Undergraduate Student Learning, CUAHSI, Cyberseminars, https://www.cuahsi.org/cyberseminars/series/the-food-energy-water-nexus-using-hydroviz-to-support-undergraduate-student-learning, professional development for water science educators, *Jan 30, 2023.*

Making Waves in Water Science: Open-Source Tools for Water Science, CUAHSI, Cyberseminars, https://www.cuahsi.org/cyberseminars/series/making-waves-in-water-science-open-source-tools, professional development for water science educators.

Nov 1, 2022, Pipelines, Portals, and Visualizations - Four speakers present tools for hydrologic data pipelines, democratizing steam metabolism, open water models, and experimenting with National Water Model data.

Nov 8, 2022, Data and computing accessibility across scales - Three speakers present tools for data retrieval, macrosheds, and glacial thickness estimation.

Nov 15, 2022, Novel Model Approaches - Four speakers present tools for web-based programming, models for coupled Natural Human systems, Python tools for evaluating Hydrologic models, and the National Snow Model.

CZNet - Climate Change in the Critical Zone Educator Workshop, professional development for science educators, participant, online, *Aug 11, 2022*

CZNet - Water in the Critical Zone Educator Workshop, professional development for science educators, participant, online, *Aug 4, 2022*

EMSL Summer School: Soils Exposed, a week-long short course, hosted by the Environmental Molecular Sciences Laboratory (EMSL) and the National Microbiome Data Collaborative (NMDC), this event featured lectures on new technologies, software, and data analysis related to soil science, participant, online, *July 18-22, 2022*

CZNet - Carbon in the Critical Zone Educator Workshop, professional development for science educators, participant, online, *July 14, 2022*

NNCI Nanoscience in the Earth and Environmental Sciences Research Community Virtual Workshop, a two-day workshop to demonstrate the practical aspects of applying the tools and knowledge of nanoscience to study planetary and environmental samples.; hosted by NanoEarth (The Virginia Tech National Center for Earth and Environmental Nanotechnology Infrastructure) in coordination with MONT, NCI-SW, and nano@stanford, *May 16-17, 2022*.

Faculty Development at Hartwick College, participant, online, two of Tom Tobin's Webinar (Jan 8 and March 5, 2021), all Stellic Training through 2019-2021, FLP workshops and webinars Summers 2020 and 2021

Reducing the Health Impacts of the Nitrogen Problem, workshop series from the Environmental Health Matters Initiative of the National Academies of Sciences, Jan 28 – Feb 25, 2021, participant (online).

Geological Society of America Annual Meeting, October 26-30, 2020, Montreal, Canada, Virtual Conference, participant (online).

Medical Geology Short Course, October 23, 2020, Geological Society of America Annual Meeting, Geology and Health Division, participant, online.

Goldschmidt, 2020, Virtual Conference, June 21-26, Honolulu, HI. Participant (online).

Riparian Buffer Training, Hosted by the Stroud Water Research Center and the Upper Susquehanna Coalition, June 17 and 18, 2020. Participant (online)

"AA...StilL A Workhorse" PerkinElmer's Atomic Spectroscopy eSeminar Series Workshop, June 10, 2020. Participant. (online)

Lessons Learned from 10,000 Proposal Reviews: Top Reviewer Criticisms and How to Avoid Them – AAAS (American Association for the advancement of Science) Webinar, May 28, 2020. (online)

Water Symposium at Hartwick College, Oneonta, NY, October 14, 2019. Organizer.

Upper Susquehanna Watershed Forum, Binghamton University, NY, October 1, 2019. Participant.

High Resolution Elemental Analysis from 2kV to 200kV Workshop, the Oxford Instruments and Hitachi workshop discussed, through seminars and practical sessions, the technological advances that make nanometer and sub-nanometer elemental characterization possible at wide range of energies in the TEM and SEM at Imaging Cores - Kuiper (Materials Imaging and Characterization Facility), University of Arizona, Tucson, AZ, November 1-2, 2017. Participant.

Agilent's Lunch and Learn Seminar, Atomic Spectroscopy, and Sample Preparation, Albany, NY, June 6, 2017. Participant.

Upper Susquehanna Watershed Forum, SUNY Oneonta, NY, November 3, 2016. Participant.

Workshop: "Addressing Instructors' Challenges in Teaching Today's Geoscience Students" McGraw Hill Education Publisher, GSA Conference, Denver, CO, September 26, 2016. Participant.

Navigating the Internal and External Funding World grant writing workshop at SUNY Oneonta, NY, September 24, 2015. Participant.

"Exploring Four Critical Puzzles about Trees, Water, and Soil" workshop at Penn State, State College, PA, Sept 9-11, 2015; invited participant among 30 researchers.

MasteringGeology™ Focus Group, workshop, Pearson Publisher, October 28, 2013, GSA Conference, Denver, CO, participant.

EMSL Integration 2013: Plants, Microbes and Their Interactions, EMSL User Meeting and Workshop, Aug 6-7, 2013, Richland, WA, participant.

TAPUS – Summer Workshop for K-12 educators, Pine Lake Environmental Campus, Hartwick College, July 2013 and 2014, participant and session leader.

IN Tour, workshop and conference, Perkin Elmer, May 16, 2013, Albany, NY, a participant with two Hartwick Undergraduate Students.

Microbe-Mineral Interactions: Molecular to Global Scale Processes, Short Course, International Society for Environmental Biogeochemistry, November 4 to 8, 2012, Riviera Maya, Mexico, participant

ExploRe Project Meeting (BP-Pushing Reservoir Limits) at the H.C. Ørsted Institute, University of Copenhagen, Denmark, November 28-30, 2011, participant, organizer, and providing tours of the SEM laboratory.

Establishing and Sustaining an Undergraduate Research Program: **A Professional Development Workshop for New and Future Faculty**; at University of St Thomas, Minneapolis, MN, USA; sponsor: Council on Undergraduate Research Geosciences Division of Geological Society of America; participant (October 2011).

NanoDay at Technical University of Denmark, Lyngby, Denmark; symposium participant (September 2011)

Emerging Frontiers in Rhizosphere Science workshop (March 2011) was held at the Arlie Center in Warrenton, VA, USA by NSF and the Soil Science Society of America where I was an invited participant among 26 other scientists.

Grant Writing and Application workshop at University of Copenhagen, Denmark, a participant (October 2010)

Symposium and official opening of the Core Facility for Integrated Microscopy at Panum Institute of University of Copenhagen; participant (September 2010)

Cazenovia College's 6th **Annual Symposium: Energy** in the 21st Century; The Energy Highway, Erie Village, E. Syracuse, NY, USA; participant (2010).

The second critical zone workshop (October 2009) was held in Washington, DC, USA at the Smithsonian sponsored by NSF and co-organized by Penn State where I was an invited participant among 30 other researchers. The workshop was titled: "Frontiers in Exploration of the Critical Zone II: Biological Aspects of Weathering" and the major goals were to identify the most important research questions for the next 10 years in this field and a paper was published in Geobiology in 2011.

Dr. Thomas Angelo Teaching workshop for faculty and graduate students (April 2007); "Student assessment at a research institute" at Washington State University, Pullman, WA, USA.

Grant writing course (2005 and 2006) at Washington State University, Pullman, WA, USA.

Scientific writing course (2002) at Washington State University, Pullman, WA, USA.

Leading a groundwater workshop for students and parents - "The Future Scientist and Engineers" High School Outreach program (May 2006) Washington State University, Pullman, WA, USA.

Other Relevant Professional Activities and Leadership

- **M.S. Thesis on-sight advisor/committee member** – Jordan Clements "Adaptive Management of Riparian Buffer Zones in The Upper Susquehanna River, Otsego County, New York: A long term monitoring program of the effectiveness of Forested Buffers on Water Quality in Resource Management" *M.S. in Natural Resources Conservation at Paul Smith's College*, NY. 2020-21.
- **Joint Technical Program Committee Member for** the *Geological Society of America National Conference* representing the Soils and Soil Processes Division of GSA (2016-2019)
- **Division Officer** of the Soils and Soil Processes Division, Geological Society of America (2016-2019, Chair of the division 2017-2018)
- **Peer reviewer** for
    - *Journals*: Applied Clay Science, Applied Microbiology, Biogeochemistry, Biogeosciences, Chemical Geology, Ecosystem Services, ELEMENTA, Environmental Science and Technology, European Journal of Soil Science, Frontiers in Fungal Biology, Fungal Biology, Geochemica at Cosmochimica Acta, Geochemistry, Geophysics, Geosystems (GCubed Journal), Geoderma, Geomicrobiology Journal, Journal of Soils and Sediments, Journal of the Soil Science Society of America, MDPI-Microorganisms, MDPI-Minerals, MDPI-Forests, MDPI-Water, MDPI-Separations, MDPI-Land, MDPI-Energies, Mycologia, Nature Geoscience, Nature Scientific Reports, Nature Journal – Materials Degradation, Northeastern Geoscience, PeerJ, Pedosphere, Plant and Soil, Rhizosphere, Science of the Total Environment, Scientific Research Essays, and The Proceedings of the National Academy of Sciences.
    - *Book publishers* (Wiley, Pearson, Cengage, Jones & Bartlett Learning, Waveland Press) in topics of environmental geology, biogeochemistry, chemistry, and microbiology.
    - *NSF grant proposals* for the Division of Earth Sciences (EAR).
    - *Tenure and promotions* at other colleges and universities as an external referee.
- **Session/Symposium Organizer for Regional, National, and International Conferences**
    - Geological Society of America National Conference, *October 2023*, Pittsburgh, PA (the session title: Emerging Voices in Soil and Paleosol Science)
    - Geological Society of America Joint Southeastern & Northeastern Geographical Section Conference*, March 2023*, Reston, VA (the session title: Soil, Water, and Biogeochemical Interactions)

- Geological Society of America National Conference, *October 2022*, Denver, CO (two sessions, titles: Recent Advances in Soil and Paleosol Science, and Emerging Voices in Soil and Paleosol Science)
- Geological Society of America Northeastern Geographical Section Conference, *March 2022*, Lancaster, PA (the session title: Soil Processes and Biogeochemical Interactions)
- Geological Society of America National Conference, *September 2019*, Phoenix, AZ (the session title: Building Bridges between Modern and Deep-Time Critical Zones)
- Geological Society of America Northeastern Geographical Section Conference, *March 2019*, Portland, ME (the session title: Soils: Processes at the Bio-Geo Interface)
- Geological Society of America National Conference, *November 2018*, Indianapolis, IN (the session title: Critical Zone Science – Bio-Geo Interactions Across Environmental Gradients and Time)
- Goldschmidt International Geochemistry Conference, Aug 2018, Boston, MA, USA, (the session title: Interactions between Soil and Biota as Controls on Ecosystem Function from Canopy to Rhizosphere).
- Geological Society of America National Conference, October 2017, Seattle, WA (Two Sessions: The Critical Zone as Heterogeneous Media: Implications for Physical, Chemical, and Biological Processes; Rock Transforming to Soil – The weathering engine intersect with the carbon cycle)
- Geological Society of America Northeastern Section Meeting, March 2017, Pittsburgh, PA (the session title: Biogeochemical Cycling and Biomineralization: Observations at the Microscale)
- Geological Society of America National Conference, September 2016, Denver, CO (the session title: Beneath Da Vinci's feet: The Multidisciplinary World of Soil Science).
- Goldschmidt International Geochemistry Conference, June/July 2016, Yokohama, Japan, (the session title: Ecological Drivers of Biogeochemical Cycles under Changing Environment).
- Geological Society of America Northeastern Section Meeting, March 2016, Albany, NY (the session title: Processes in Biogeochemistry and Biomineralization).
- Goldschmidt International Geochemistry Conference, August 2015, Prague, Czech Republic, (the session title: The Rhizosphere: Where the Action is).
- Geological Society of America National Conference, November 2015, Baltimore, MD (the session title: The Reactive Soil: Processes at the Bio-Geo Interface in the Rhizosphere).
- Soil Science Society of America Annual Conference, November 2015, Minneapolis, MN (the symposium title: Biological Weathering)
- American Geophysical Union Conference, December 2011, San Francisco, CA (the session title: Biological Weathering: Carbon, Water, and Nutrient Flow through Plant Microbe Soil Networks).
- Goldschmidt International Geochemistry Conference, August 2011, Prague, Czech Republic, (the session title: Where Minerals Meet Life: Organic Matter Turnover in the Critical Zone).
- Geological Society of America National Conference, October 2010, Portland, OR, (the session title: What does Biology have to do with it? Biota in weathering, nutrient cycling, mineral surface interactions, and mineral precipitation).

- **Field trip to Bornholm, Denmark:** Learn about sandstone, organized by the Nanogeoscience Group of the Chemistry Department at the University of Copenhagen and sponsored by British Petroleum, in June 2011.
- **International Student Orientation Assistant** (2002-2004) International Programs at Washington State University, Pullman, WA, USA

Service at Hartwick College

- Department Chair of Geology and Environmental Sciences, April 2024-present.
- Environment, Sustainability, and Society Major Coordinator, July 2020-present.
- Steering Committee of "Environment, Sustainability, and Society" Major, 2015-present

- Search Committee for Chemistry and Center for Craft Food and Beverage Center, Spring 2025.
- Sustainability Committee, 2022-2023
- Committee on Appointments, Tenure and Promotion, Feb 2022-May 2024.
- Search Committee Chair for Geology 3-year position, Spring 2022.
- Search Committee for Chemistry 3-year position, Summer 2020.
- Scholarship Awards Committee, 2018-2020.
- Graduate Advisory Committee, chair, 2018-2020.
- Environmental Science and Policy Program Advisory Committee, 2013-2017
- Environmental Science and Policy Program and Minor Co-coordinator, 2014-2017
- Search Committee for Chemistry 3-year position, Spring 2016
- New Residence Hall Committee, 2015-2016
- Independent Student Program Coordinator, Spring 2016
- Retention Advisory Committee, 2013-2016
- Interdisciplinary Studies Committee, 2012-2016; chair 2015-16.
- Committee on Committees, 2012-2015
- Johnston Science Center Safety Committee, 2012-2014
- Academic Showcase Steering Committee, 2009-2010; and Spring 2012
- Committee on Library & Educational Technology, 2009-2010
- Academic Theme Committee, 2009-2010

- Freedman Prize Competition Coordinator, Feb 2023 – May 2024.
- Virtual Student Showcase, moderator of the ENSS and Geology Session, May 14, 2021.
- Virtual STEM Day, participant, Hartwick College, March and April 2021.
- Adjunct hiring for ENSS program, Hartwick College, summer and fall of 2020.
- Alumni Speaker Series, moderator, online, Hartwick College, June 2020.
- Geology Senior Orals, Hartwick College, organizer, April 2020 (virtual).
- Geology Seminar Organization, for DDG Geology Club at Hartwick College, Spring 2017, Fall 2018.
- Pine Lake Environmental Research Proposal Judge, ES&P program, Hartwick College, Spring 2014, 2015, 2016
- Pine Lake Day, Voluntary Instructor for the Day, June 2013, 2015, 2016
- Freedman Award Judge – Science Division, Spring 2013, 2016
- Honor's Challenge Project Advising with Dr. Griffing – Scanning Electron Microscopy Investigation of Paper Clays by Ryan Townsend, '13.
- Open House Volunteer at Hartwick College – every semester, 2008-present
- Board of Trustees Meeting, presenter about "What did we learn about the Susquehanna River?" with Mary Allen, Andrew Piefer, February 2010

- ΔΔG, Geology Club, Hartwick College, member, and co-advisor, Fall 2008-present
- Chemistry Club, Hartwick College, member, Fall 2008-present, and advisor (2014-2016)
- F.O.R.C.E.S (Friend of Recreation, Conservation, and Environmental Stewardship) Club, Hartwick College, member, and advisor, 2015-present

Service in the Community

- The Girl Scout Gold Award, Project Advisor, July 2022-2023.

- Groundwater Issues Consulting in the Catskill Region, Volunteer, 2021.
- Envirotron Helper/Mentor, Oneonta High School, Girls Team, Spring 2015.
- Good Year Lake Association (GYLA), member, volunteer, Spring 2014-present
- Otsego County Conservation Association (OCCA), member, volunteer, Spring 2013-present
- Otsego County Soil and Water Conservation District, volunteer/collaborator in the surface water quality assessment, Fall 2012-present
- Science Fair Judge, Riverside Elementary School, Spring 2014.
- Consulting about groundwater hydrology problems and groundwater temperature determination, Woodstock, NY, Spring 2013.
- Student Poster Judge at Northeastern Section Meeting of the Geological Society of America, Bretton Wood, NH, March 17 -20, 2013, and again March 23-25, 2015.
- Catskill Headwaters Research Institute, member, 2012-16.
- SGEIS draft document discussions, Oneonta, NY – volunteer in discussions on shale gas drilling with leaders of local organizations, 2009-2010.
- Otsego County Conservation Association Annual Dinner, presenter about Water Quality Monitoring in the Upper Susquehanna Watershed with Mary Allen, November 2009.
- Driver for a SUNY Oneonta Geology class field trip, volunteer, September 2009.
- Lord's Table Volunteer, Oneonta, NY, 2009.
- National Lentil Festival Volunteer, Pullman, WA, 2005.
- Brewery Festival Volunteer, Portland, OR, 2003.
- WSU 100K Relay and Solo Running Race Organizer Assistant, Palouse Roadrunners Running Club, Moscow, ID, 2001-2006.
- A Team Captain of WSU 100K Relay and Solo Running Race, Pullman, WA, 2003, 2005, and 2006.

Recent Collaborators and Co-Editors

Alice Dohnalkova (EMSL-PNNL, Richland, WA); Katerina Dontsova (University of Arizona, AZ); Gaël Le Roux (Lab. Eco & Environment CNRS - Université de Toulouse); Jon Chorover (University of Arizona, AZ); Loredana Saccone (University of Bristol, UK); Mark Smits (Hasselt University, Belgium); Håkan Wallander (Lund University, Sweden); Edith Hammer (Lund University, Sweden); Susan Brantley (PSU, PA); Andrew Piefer (Hartwick College, NY); David Griffing (Hartwick College, NY); Eric Johnson (Hartwick College, NY); Keith Brunstad (SUNY Oneonta, NY); Pavel Kram (Czech Geological Survey, Czech Republic); Kimberly Dalby (University of Copenhagen, Denmark); Tue Hassenkam (University of Copenhagen, Denmark); Rachel Gallery (University of Arizona, AZ); Aditi Sengupta (PNNL, Richland, WA); Gary Stinchcomb (University of Memphis, TN); Jessica Moon (Murray State University, KY); Bassil El Masri (Murray State University, KY); Benjamin Runkle (University of Arkansas, AR); Stephanie Carr (Hartwick College, NY).

Graduate Supervisor

C. Kent Keller (School of the Environment, Washington State University, Pullman, WA)

Post Doc Supervisors

Richard A. Gill (now at Bingham Young University, Provo, UT); Susan L. S. Stipp (University of Copenhagen, Denmark)

Student Supervising and Mentoring of Research Projects

- At WSU (2004-2008), Geology, high school, undergraduate, graduate.

- At Hartwick College (2008-present), undergraduates – geology, chemistry, environmental chemistry, biochemistry, environment, sustainability, and society, biology, math, education, independent student programs, high school.
- Other Colleges (2008-present) – undergraduate, and graduate.

Last modified: Feb 2025.