Curriculum Vitae

Dork L. Sahagian
Environmental Initiative &
Dept. of Earth & Environmental Sci.
Lehigh University
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Education:

B.S., Physics; Minor in The Human Dimensions of Science and Technology
Rensselaer Polytechnic Institute, 1977

M.S., Geology, Rutgers University, 1980
Thesis, Sublithospheric Upwelling Distribution: Implications Regarding Mantle Convection

Ph.D., Geophysics, The University of Chicago, 1987
Thesis, Epeirogeny and Eustatic Sea Level as Inferred from Cretaceous Shoreline Deposits

Present Position:

2004-present Professor of Earth and Environmental Sciences

Editorships:

2004- present Associate Editor, J. Geophys. Res.- Biogeosciences
2018-present Editorial Board, Earth & Space Science Open Archive (AGU ESSOAr)
2018- present Editorial Board, J. Marine Science and Engineering
2001- 2006 Editorial Board, Journal of Geodynamics
1999- 2002 Editorial board, Geology
1993- 2001 Associate Editor, Journal of Geodynamics
1992-1993 Executive Editor, Geochimica et Cosmochimica Acta
Guest Editor for various journal Special Issues

Awards:

2007 Nobel Peace Prize as part of the International Panel on Climate Change (IPCC), shared with Al Gore

Past Positions:

2004-2010 Director, Lehigh Environmental Initiative

1994-2004 Research Professor and Executive Director, Global Analysis, Integration and Modelling Task Force of the International Geosphere Biosphere Programme (IGBP/GAIM) website- http://gaim.unh.edu

1989-1994 Full Research Scientist, Byrd Polar Research Center, Ohio State University

1988-1989 Associate Research Scientist, Lamont-Doherty Geological Observatory, Columbia University

1987-1988 NORDA Research Scientist, Thayer School, Dartmouth College

1985-1986 Research Technologist, The University of Chicago, Paleogeographic Atlas Project

1981-1985 Research Assistant, The University of Chicago

1981 Research Associate, Univ. of Texas Marine Science Institute, Gulf of Mexico Tectonic Evolution Project Ocean Margin Drilling Project

1976-1977 Research Technician, Rensselaer Polytechnic Institute, Fusion Development Tokamak Project

Teaching Experience:

2004-present Lehigh University
- Introduction to Environmental Science
- Tsunami!
- Earth System Science
- Volcanology
- Earth History
- Scientific Foundations for Environmental Policy Design
- Human-Climate Interactions

1994-2004 University of New Hampshire
- Human-Climate Interactions
- Introductory Earth Science

1989-1994 The Ohio State University
- Advanced Historical Geology
- Basin Analysis & Passive Margin Development
- Structural Geology
- Geodynamics
- Pleistocene Sea Level Variations (Field course-Bahamas)
- Volcanology
- Introductory Geology

1986-1987 Course Developer/Coordinator, University of Chicago
- Physical Science 108, 110 (Intro. Geology)

1981-1984 Laboratory Instructor, The University of Chicago
- Physical Science 108, 109
- Mineralogy/Petrology
- Physics of the Earth

1978-1980 Adjunct Professor, Seton Hall University; Upsala College; Middlesex Co. Coll.
Physics II, 101, 121
Basic Astronomy
Physics PY3
Introduction to Earth Science
Physical Geology 151

New Curricula Developed (in collaboration with colleagues):

Natural Resources and Earth System Science Ph.D. program- Assisted in development of program across several departments in 4 colleges within UNH. Two departments relinquished their Ph.D.s to the integrated program, and it quickly became the largest Ph.D. program at UNH.

M.A. in Environmental Policy Design- This innovative degree is formulated to produce policy-makers who can design new policy that is environmentally effective while being economically feasible, socially palatable, politically expedient, and ethically justifiable. It is a major step forward from compliance-based approaches limited to cost-benefit analysis.

B.A. in Environmental Studies- This is the foundation of the undergraduate curriculum of the Environmental Initiative at Lehigh. An associated Minor includes a subset of courses.

Elected Office:

2002-2004 Secretary, AGU Biogeosciences Section

Field and Sea Experience:

1981 Gulf of Mexico, Multichannel Seismic Reflection Profiling, Participating Scientist aboard Research Vessel Fred Moore

1983 Western U. S. Cross Section, Salt Lake City to Tybo (Basin and Range), Grand Canyon to Chicago

1984 Mount Shasta, California, Collection and Measurement of Vesicular Basalts

1985 Canadian Rockies Structural Cross Section, Drumheller to Vancouver Island

1986 Australia, Great Barrier Reef- Responses to Sea Level Change

1986 Australia, Structural and Stratigraphic Evolution of Amadeus Basin and MacDonnell Range

1990 San Salvador, Bahamas, Pleistocene sea level variations as recorded in platform carbonates

1990 Mauna Loa, Hawaii, Collection of high and low elevation basalts for testing of atmospheric pressure sensitivity

1991 Russian Platform, Russia, Measurement and sampling of Mesozoic strata for construction of Calibrated Eustatic Sea Level Curve

1993 Northern Siberia, Russia, Sequence Stratigraphy and Biostratigraphy of Mesozoic Strata for Augmentation of Eustatic Sea Level Curve based on the Russian Platform

1999 Hawaii, Basalt sample collection for paleoelevation calibration

2000, 2002 Colorado Plateau (CO, UT, AZ, NM), Vesicular basalt collection for tectonic uplift analysis.

2007 Tibet, Fieldwork for tectonic uplift analysis

2013 Mongolia, Fieldwork for tectonic uplift analysis

Professional Societies:

- American Geophysical Union
- Geological Society of America
- Council of Environmental Deans and Directors, Global Council for Science & the Environment
- Sigma Xi, The Scientific Research Society

Books Published:

A User's Guide for Planet Earth: Fundamentals of Environmental Science, Cognella Academic Publishing, ISBN: 978-1-62131-913-9 Copyright 2015. (Textbook for introductory college courses)

A User's Guide for Planet Earth: Fundamentals of Environmental Science, Second edition, Cognella Academic Publishing, ISBN: 978-1-5165-2530-0 Copyright 2019. (Textbook for introductory college courses)

A User's Guide for Planet Earth: Fundamentals of Environmental Science, Newly Revised Second edition, Cognella Academic Publishing, ISBN: 978-1-7935-5941-8 Copyright 2022. (Textbook for introductory college courses)

Refereed Publications:

D. L. Sahagian, 1980. Sublithospheric upwelling distribution, Nature, 287, 217-218.

S. Locker and D. L. Sahagian, 1984. Tectonic features, in Gulf of Mexico, Ocean Margin Drilling Regional Atlas Series (R. Buffler, S. Locker, W. Bryant, S. Hall, R. Pilger, Eds.), 6, 26.

D. L. Sahagian, 1985. Bubble migration and coalescence during the solidification of basaltic lava flows, J. Geol., 93, 205-211.

A. M. Ziegler, D. B. Rowley, A. Lottes, D. L. Sahagian, M. Hulver, and T. Gierlowski, 1985. Paleogeographic interpretation: With an example from the mid-Cretaceous, Ann. Rev. Earth and Planet. Sci., 13, 385-425.

D. B. Rowley and D. L. Sahagian, 1986. Depth-dependent stretching: A different approach, Geology, 14, 32-35.

D. L. Sahagian, 1987. Epeirogeny and eustatic sea level as inferred from Cretaceous shoreline deposits: Applications to the central and western United States, J. Geophys. Res., 92, 4895-4904.

D. L. Sahagian, 1988. Ocean temperature-induced change in lithospheric thermal structure: A mechanism for long-term eustatic sea level change, J. Geol., 96, 254-261.

D. L. Sahagian, 1988. Epeirogenic motions of Africa as inferred from Cretaceous shoreline deposits, Tectonics, 7, 125-138.

D. L. Sahagian, 1989. The Epeirogeny of Europe and western Asia, Cret. Res., 10, 33-48.

D. L. Sahagian, A. T. Anderson, and B. Ward, 1989. Bubble coalescence in basalt flows: Comparison of a numerical model with natural examples, Bull. Volcanology, 52, 49-56.

D. L. Sahagian, 1990. Tectonic controls on sea level change, U.S.G.S. Open File Report, OF90-0309, 232-236.

D. L. Sahagian & A.B. Watts, 1991. Introduction to the Special Section on Measurement, Causes and Consequences of Long-term Sea Level Changes, J. Geophys. Res., 96, 6585-6590.

D.L. Sahagian and S.M. Holland, 1991. A eustatic curve based on a stable frame of reference, Preliminary Results, Geology, 19, 1209-1212.

D.L. Sahagian and A.B. Watts, 1991. Structural Evolution of African Basins, in Basin Analysis of Africa, Sec. 2, (D. Fairhead, ed.), Leeds, U.K.

D.L. Sahagian and A.A. Proussevitch, 1992. Bubbles in volcanic systems, Nature, 359, 485.

H. Noltimier and D.L. Sahagian, 1992. Tectonic style of Venus: An analog to Arctic icepack tectonics, J. Geodynamics, 16, 65-79.

D.L. Sahagian, 1993. More bubbles in volcanic systems, Nature, 361, 308.

D.K. Jacobs and D.L. Sahagian, 1993. Climate-induced fluctuations in sea level during non-glacial times, Nature, 361, 710-712.

D.L. Sahagian and J.W. Collinson, 1993. Gondwanan foreland basin along the Panthalassan margin of Antarctica, in Gondwawa Eight, (Findlay, et al., eds.), Balkema, Rotterdam, 497-506.

D.L. Sahagian and S.M. Holland, 1993. On the Thermo-Mechanical Evolution of Continental Lithosphere, J. Geophys. Res., 98, 8261-8274.

D.L. Sahagian, 1993. Structural evolution of African basins: Stratigraphic synthesis, Basin Research, 5, 41-54.

D.L. Sahagian and M. Jones, 1993. Quantified Mid-Jurassic through Paleogene eustatic variations based on Russian platform stratigraphy: Stage-level resolution, Geol. Soc. Am. Bull., 105, 1109-1118.

A. Proussevitch, D. Sahagian, & V. Kutolin, 1993. Stability of foams in silicate melts, J. Volc. Geotherm. Res., 57, 161-178.

A.A. Proussevitch, D.L. Sahagian, and A.T. Anderson, 1993. Dynamics of diffusive bubble growth in magmas: Isothermal case, J. Geophys. Res., 98, 22283-22307.

D.L. Sahagian, F.W. Schwartz, and D.K. Jacobs, 1994. Direct anthropogenic contributions to sea level rise in the twentieth century, Nature, 367, 54-57.

A.A. Proussevitch, D.L. Sahagian, and A.T. Anderson, 1994. Dynamics of diffusive bubble growth in magmas: Isothermal case - Reply to comment by S. Sparks, J. Geophys. Res., 99, 17829-17832.

D.L. Sahagian, D.K. Jacobs, and F.W. Schwartz, 1994. Direct anthropogenic contributions to sea level rise in the twentieth century - Reply to comment by W. Greuell, Nature, 369, 616.

D.L. Sahagian, D.K. Jacobs, and F.W. Schwartz, 1994. Direct anthropogenic contributions to sea level rise in the twentieth century - Reply to separate comments by B. Chao & E. Rodenberg, Nature, 370, 258.

D.L. Sahagian, A.L. Beisel, and V.A. Zakharov, 1994. Sequence Stratigraphic Enhancement of Biostratigraphic Correlation with Application to the Upper Cretaceous of Northern Siberia: A Potential Tool for Petroleum Exploration, Int. Geol. Rev., 36, 359-372.

D.L. Sahagian and J. Maus, 1994. Basalt vesicularity as a measure of atmospheric pressure, Nature, 372, 449-451.

D.K. Jacobs & D.L. Sahagian, 1995. Milankovitch fluctuations in sea level and recent trends in sea level change: Ice may not always be the answer, in Sequence Stratigraphy and Depositional Response to Eustatic, Tectonic, and Climatic Forcing (B. Haq, ed.), Kluwer Academic Publ., The Netherlands, 329-366.

A.A. Proussevitch and D.L. Sahagian, 1996. Dynamics of coupled diffusive and decompressive bubble growth prior to volcanic eruption, J. Geophys. Res., 101, 17447-17456.

D.L. Sahagian, O. Pinous, A. Olferiev, V. Zakharov, and A. Beisel, 1996. Eustatic Curve for the Middle Jurassic through Cretaceous based on Russian Platform and Siberian Stratigraphy: Zonal Resolution, Amer. Assoc. Petrol. Geol. Bull., 80, 1433-1458.

D.L. Sahagian and A.A. Proussevitch, 1996. Thermal effects of magma degassing, J. Volc. Geotherm. Res., 74, 19-38.

D. Sahagian and B. Moore III, 1996. Introduction to Special Section: Global Analysis, Interpretation, and Modelling - Toward the integration of global biogeochemical systems, Global Biogeochem. Cycles, 10, 675.

A.A. Proussevitch and D.L Sahagian, 1998. Dynamics and Energetics of Bubble Growth in Magmas: Analytical Formulation and Numerical Modeling, J. Geophys. Res., 103, 18223-18251.

V. Zakharov, B. Shurygin, M. Levchuk, O. Pinous, and D. Sahagian, 1998, Eustatic signals in the Jurassic and Lower Cretaceous (Neocomian) deposits of the West-Siberian sedimentary basin. Geologiya I Geofizika, 39, 1492-1504.

D. Sahagian, and A.A. Proussevitch, 1998. 3D Particle Size Distributions from 2D Observations: Stereology for Natural Applications, J. Volc. Geotherm. Res., 84, 173-196.

O. Pinous, M Akhmetiev, and D. Sahagian, 1999, Sequence stratigraphy and sea-level history of Oligocene strata of the northern Aral Sea region (Kazakhstan): Implications for glacioeustatic reconstructions. Geol. Soc. Am. Bull., 111, 1-10.

O. Pinous, Y. Karogodin, S. Ershov, and D. Sahagian, 1999, Sequence stratigraphy, facies, and sea-level change of the Hauterivian productive complex of the Priobskoe oil field (West Siberia), AAPG Bull., 83, 972-989.

D. Sahagian, and A.A. Proussevitch, 1999, Reply to comment on "Dynamics and Energetics of Bubble Growth in Magmas: Analytical Formulation and Numerical Modeling", J. Geophys. Res., 104, 5129.

O. Pinous, D. Sahagian, Boris Shurygin, and Victor Zakharov, 1999, High-resolution sequence stratigraphic analysis and sea-level interpretation of the Middle and Upper Jurassic strata of the Nyurolskaya Depression and vicinity (southeastern West Siberia, Russia), Marine & Petrol. Geol., 16, 245-257.

D. Sahagian, 1999, Magma fragmentation in eruptions, Nature, 402, 589-591.

D. Sahagian and S. Zerbini, Global and Regional Sea-Level Changes and the Hydrological Cycle, Eos, 81, 364, 2000

D. Sahagian, 2000, Global Physical Effects of Anthropogenic Hydrological Alterations: Sea Level and Water Redistribution, Global & Planet. Change, 25, 39-48

C. Vorosmarty and D. Sahagian, 2000, Anthropogenic disturbance of the terrestrial water cycle. Bioscience, 50, 753-765.

O. V. Pinous, M. A. Levchuk, and D. L. Sahagian, 2001, Regional synthesis of the productive Neocomian complex of West Siberia: Sequence stratigraphic framework, AAPG Bull., 85, 1713-1730.

A.A. Proussevitch, and D. L. Sahagian, 2001, Recognition and separation of discrete objects within complex 3D voxelized structures, Comput. Geosci. 27, 441-454.

S.-R. Song, K. Jones, W.B. Lindquist, B. Dowd, and D. Sahagian, 2001, Synchrotron X-Ray Computed Microtomography: Studies on Vesiculated Basaltic Rocks, Bull. Volcanol. 63, 252-263.

D. Sahagian and S. Zerbini, 2001, Global and Regional Sea-Level Changes and the Hydrological Cycle, Global & Planetary Change, 32, vi-viii.

D. Sahagian, A. Proussevitch, and W. Carlson, 2002, Analysis of vesicular basalts and lava emplacement processes for application as a paleobarometer/paleoaltimeter, J. Geol., 110, 671-685.

D. Sahagian, A. Proussevitch, and W. Carlson, 2002, Timing of Colorado Plateau Uplift: Initial constraints from vesicular basalt-derived paleoelevations, Geology , 30, 807-810

A. Frappier, D. Sahagian, L. Gonzales, and S. Carpenter, 2002, El Niño events recorded by stalagmite carbon isotopes, Science, 298, 565.

D. Sahagian, A. Proussevitch, and W. Carlson, 2003, Timing of Colorado Plateau uplift: Initial constraints from vesicular basalt-derived paleoelevations: Reply, Geology , 31, 192.

D. Sahagian, A. Proussevitch, and W. Carlson, 2003, Analysis of vesicular basalts and lava emplacement processes for application as a paleobarometer/paleoaltimeter: Reply, J. Geol., 111, 502-504.

H. Shin, W. B. Lindquist, D. Sahagian, S. Song, 2004, Analysis of the vesicular structure of basalts, Comput. Geosci., 31, 473-487.

A. Proussevitch, and D. Sahagian, 2005, Standardized model runs and sensitivity analysis using the "Bubbledrive" volcanic conduit flow model, J. Volc. Geotherm. Res., 143, 173-186.

A. Proussevitch and D. Sahagian, 2005, Bubbledrive-1: A numerical model of volcanic eruption mechanisms driven by disequilibrium magma degassing, J. Volc. Geotherm. Res., 143, 89-111.

D. Sahagian, 2005, Paleoelevation measurement: Combining proxies and approaches, *EOS Trans. AGU*, *86* (48), 500.

D. Sahagian, Volcanic eruption mechanisms: Insights from intercomparison of models of conduit processes, J. Volc. Geotherm. Res., 143, 1-16, 2005.

A. Frappier, D. Sahagian, S. Carpenter, L. Gonzalez, and B. Frappier, 2007, Stalagmite stable isotope record of recent tropical cyclone events, Geology, 35, 11-114.

A. Proussevitch, D. Sahagian, and E. Tsentalovich, 2007, Statistical Analysis of Bubble and Crystal Size Distributions: Formulations and Procedures, J. Volc. Geotherm. Res., 164, 95-111.

A. Proussevitch and D. Sahagian, W. Carlson, 2007, Statistical Analysis of Bubble and Crystal Size Distributions: Application to Colorado Plateau Basalts, J. Volc. Geotherm. Res., 164, 112-126.

D. Sahagian and A. Proussevitch, 2007, Paleoelevation measurement on the basis of vesicular basalts, Rev. Min. Geochem., 66, 195-213.

D. Sahagian, 2007, *Interactive comment on* "Impact vesiculation – a new trigger for volcanic bubble growth and degassing" *by* D. A. Rothery et al., eEarth Discuss., 2, S188-S121. www.electronic-earth-discuss.net/2/S118/2007/

C. Kiely, D. Sahagian, S.R. Claves, W.Z. Misiolek and C.J. Kiely, 2007, X-ray Ultramicroscopy within an XL30 Environmental SEM, Microsc Microanal 13, DOI: 10.1017/S1431927607078701

J. Johnson, J. Lees, A. Gerst, D. Sahagian & N. Varley, 2008, Long-period earthquakes and co-eruptive dome inflation seen with particle image velocimetry, Nature, 456, 377-381

D.L. Sahagian, (Lead author), 2009, Geodetic observation to enhance security of a growing global society, in "The Global Geodetic Observing System (GGOS): Meeting the requirements of a global society on a changing planet in 2020", H-P Plag and M. Pearlman (Eds.) 332 p.

P. Milly, A. Cazenave, J. Famiglietti, V. Gornitz, K. Laval, D. Lettenmaier, D. Sahagian, J. Wahr and C. Wilson, 2010, Terrestrial water storage contributions to sea level rise and variability, in Understanding sea level rise and variability, J. J. Church, et al., eds. Blackwell Publishing, Inc.

Proussevitch, A. Mulukutla, G. and Sahagian, D. 2011. A New 3D Method of Measuring Bubble Size Distributions From Vesicle Fragments Preserved On Surfaces Of Volcanic Ash Particles Geosphere; February 2011; v. 7; no. 1; p. 1–8; doi: 10.1130/GES00559.1

C. Dempsey, A. Bodzin, D. Anastasio, D. Sahagian, and L. Cirucci, 2012, Reconstructing environmental change using lake varves as a climate proxy, Science Scope, 35, 42-47.

K. Genareau, G. Mulukutla, A. Proussevitch and D. Sahagian, 2012, Sizing up the bubbles that result in very fine ash production during explosive volcanic eruptions, Geophys. Res. Lett,. 39, DOI: 10.1029/2012GL052471.

C. Dempsey, A. Bodzin, D. Anastasio, D. Sahagian, and L. Cirucci, 2012, Investigating Future Climate Scenarios: Who will be affected by Sea Level Rise? Science Scope, 36, 77-85.

V. Kulo, A Bodzin, R. McKeon, L. Cirucci, D. Anastasio, D. Sahagian, and T. Peffer, 2013, The Isle of Navitas: Planning for Energy Use with Web GIS, Science Scope, 36, 30-37.

K. Genareau, G. Mulukutla, A. Proussevitch, A. Durant, W. Rose, and D. Sahagian, 2013, The Size

Range of Bubbles That Produce Ash During Explosive Volcanic Eruptions, J. Applied Volcanology, 2 (1), 4. doi:10.1186/2191-5040-2-4

B. Gillette, C. Dempsey, A. Bodzin, D. Anastasio, D. Sahagian, L. Cirucci, 2013, Sea ice vs. ice sheets, Science Scope, 36(7):6-7

S. Na, D. Sahagian, P. Park, T. Chung, and T. Kang, 2013, Time series analysis of global/Korean earthquake occurrence and recent GPS crustal displacement recorded at Daejeon, Korea, Science Discovery, 1, 6-15. doi: 10.11648/j.sd.20130102.11

J. Burrows, A. Bodzin, D. Anastasio, D. Sahagian, D. Bressler, L. Cirruci, S. Rutzmoser, and A. Telezke, 2013, Using Web GIS to Enhance Tectonics Learning and Geospatial Thinking, Science Scope, 37, 29-37.

A. Bodzin, D. Anastasio, D. Sahagian, T. Peffer, C. Dempsey, and R. Steelman-Couch, 2014, Investigating Climate Change Understandings of Urban Middle School Students, Jour. Environ. Education, 62, 417-430.

B. Felzer and D. Sahagian, 2014, Climate Impacts on Regional Ecosystem Services in the United States from CMIP3-based Multimodel Comparisons, Climate Research, 61, 133-155. doi 10.3354/cr01249.

S. Na, T. Chung, and D. Sahagian, 2014, Did the Little Ice Age Release Earthquakes? Science Discovery, 2, 47-50. doi: 10.11648/j.sd.20140204.11

Jiang, M., B. Felzer and D. Sahagian, 2016, Characterizing predictability of precipitation means and extremes over the conterminous United States, 1949-2010, J. Climate, 29, 2621-2633. DOI: http://dx.doi.org/10.1175/JCLI-D-15-0560.1

D. Sahagian, A. Proussevitch, L. Ancuta, B. Idleman, and P. Zeitler, 2016, Uplift of Central Mongolia Recorded in Vesicular Basalts, J. Geol., 124, 435-445. DOI: 10.1086/686272

Jiang, M., B. Felzer and D. Sahagian, 2016, Predictability of precipitation over the conterminous U.S. Based on the CMIP5 Multi-Model Ensemble. Nature- Sci. Rep. **6,** 33618. doi: 10.1038/srep33618

Bodzin, A., Anastasio, D., Sahagian, D., & Henry, J. , 2016, A curriculum-linked professional development approach to support teachers' adoption of Web GIS tectonics Investigations. Contemporary Issues in Technology and Teacher Education, 16.

Sahagian, D., The Magic of Fairy Circles: Built or Created? J. Geophys. Res. – Biogeosciences, 2017, DOI: 10.1002/2017JG003855.

Sahagian, D. (2016), The proof of our science lies in the telling, *Eos, 97,* https://doi.org/10.1029/2018EO045371.

Benfield, A, D. Sahagian, and S. Peters, 2017, What controls maximum leaf size? Science, Eletters. http://science.sciencemag.org/content/357/6354/917/tab-e-letters

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Hammond, T., A. Bodzin, D. Anastasio, B. Holland, K. Popejoy, D. Sahagian, S. Rutzmoser, J. Carrigan, and W. Farina, 2018, "You know you can do this, right?": Developing geospatial technological pedagogical content knowledge (GS-TPACK) and enhancing teachers' cartographic behaviors with Socio-Environmental Science Investigations (SESI), Cartography and Geographic Information Science, *45*(4), 305-318. Doi: 10.1080/15230406.2017.1419440

Hammond, T., A. Bodzin, K. Popejoy, D. Anastasio, B. Holland, D. Sahagian, 2019, Shoulder-to-Shoulder: Teacher Professional Development and Curriculum Design and Development for Geospatial Technology Integration With Science and Social Studies Teachers, Contemp. Issues Technol. Teacher. Educ., 19 (2).

Wygel, C., S. Peters, J. McDermott, and D. Sahagian, 2019. Bubbles and Dust: Experimental Results of Dissolution Rates of Metal Salts and Glasses from Volcanic Ash Deposits in Terms of Surface Area, Chemistry, and Human Health Impacts, GeoHealth, 3, 338-355. DOI: 10.1029/2018GH000181

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Sahagian, D., and T. Carley, Explosive volcanic eruptions and spinodal decomposition: A different approach to deciphering the tiny bubble paradox, Geochem., Geophys., Geosystems (G-Cubed), 2020. DOI: 10.1029/2019GC008898

Sahagian, D., P. Diplas, C. Urban, Z. Cheng, M. David, In search of a unifying criterion for meandering systems: Examples from natural and built environments, Env. Fluid Mech., 2022, https://doi.org/10.1007/s10652-022-09851-8

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Bodzin, A., T. Hammond, K. Popejoy, W. Farina, D. Anastasio, B. Holland, J. Carrigan, S. Rutzmoser, and D. Sahagian, A Curriculum-linked Professional Development Approach to Support Teachers' Adoption of Socio-Environmental Science Investigations, J. Sci. Teacher Ed., in review.

Hammond, T.C., Bodzin, A., Salter, S., Hanson, I., Rutzmoser, S., Popejoy, K. Holland, B., Farina, W., Junior, R., Lopez, E., Anastasio, D., & Sahagian, D., Geography and civics in action: Studying zoning and built environment with WebGIS., Social Stud. Res. And Practice, in revision.

Clark, M., and D. Sahagian, Bubbles in volcanic ash: Identifying a threshold for late-stage nucleation in energetic eruptions, Bull. Volc., in revision, 2021.

Tintle, L. C. Wygel, and D. Sahagian, Measurement of the Volcanic Explosivity Index (VEI) in real time, G-Cubed, in revision.

Invited Review Articles and Book Chapters:

D.L. Sahagian, 1987. Sea-level fluctuations, in McGraw-Hill Encyclopedia of Science and Technology, 1988 Yearbook, 395-399.

D.L. Sahagian, 1989. Sea Surface Studies: A Global View, (R.J.N. Devoy, Ed.), Croom Helm, London, 649pp., for J. Geol., 97, 774-775.

D.L. Sahagian, 1991. Sea Level, AGU Geophysics Report, U.S. Congress, Washington.

D.L. Sahagian, 1993. Tectonic Evolution of the North Sea Rifts, (D. J. Blundell & A. D. Gibbs, eds.), Clarendon Press, Oxford, 1990, 272 pp., for Geochim. Cosmochim. Acta, 57, 5016.

D.L. Sahagian, 1993. Construction of a Calibrated Sea-Level Curve: Mid-Cretaceous through Mid-Tertiary, in Summaries of FY 1993 Geosciences Research, Dept. of Energy, Washington D.C., p. 105.

D.L. Sahagian, 1993. Continental Rift Formation and its Prehistory, (by A.V. Razvalyaev), A.A. Balkema, Rotterdam, 1991, 196 pp., J. Geol., 101, 822.

D.L. Sahagian, 1995. First GAIM Science Conference on Global Analysis, Interpretation, and Modelling, Environmental Conservation, 22, 88.

D.L. Sahagian, 1996. Surface and ground water contributions to modern sea level rise, in Climate Change, IPCC Scientific Assessment II. Ch. 7.

D. L. Sahagian, 2004, Sea level effect of anthropogenic water sequestration, in Isaac Newton Symposium Monograph, "Macroengineering Options for Climate Change Management and Mitigation.

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C. Herzberg, J. Delaney and D. Sahagian, Ancient Volcanic Contributions to the Hydrosphere: Evidence from the Belingwe komatiites, EOS (AGU, Spring, 1999)

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D.L. Sahagian, Anthropogenic controls on global sea level, Joint WCRP/IGBP/IHDP Open Science Conference, Amsterdam, July, 2001

A. Frappier, and D. Sahagian, ENSO Recorded in Carbon Isotopic Signatures of Speleothems, Joint WCRP/IGBP/IHDP Open Science Conference, Amsterdam, July, 2001

D. Howland, D. Sahagian, and M. Becker, Globalization and Climate Change Policy: The role of changing international exchange and institutions, Joint WCRP/IGBP/IHDP Open Science Conference, Amsterdam, July, 2001

D. Sahagian, The effect of human activities on global sea level, GSA Abstracts and Programs, 2001 National meeitng, Boston.

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A. Frappier and D. Sahagian, Validation and calibration of an SST proxy for paleotempestology: A new speleothem record, European Geophysical Society, XXVII General Assembly, Nice, France, April, 2002.

D. Sahagian, Eustatic sea level: Quantification and evaluation of global Mesozoic records, Cretaceous Climate and Ocean Dynamics Workshop (invited lecture), Florissant, CO, July, 2002

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A. Frappier and D. Sahagian, New Proxy for Recent Hurricane Events Using Stalagmite Stable Isotopes, Eos, (AGU Fall 2002)

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D. Sahagian and A. Proussevitch, Development of numerical codes for the BUBBLEDRIVE volcanic conduit flow model: Functions and modules, (Joint AGU-EGS-EUG Spring 2003)

A. Proussevitch and D. Sahagian, Results of the Bubbledrive model using a standardized parameter protocol, (Joint AGU-EGS-EUG Spring 2003)

D. Sahagian and B. Chao, Anthropogenic transfer of water between continents and the ocean: A global perturbation, (Joint AGU-EGS-EUG Spring 2003)

D. Sahagian, New developments in volcanic eruption mechanism modelling and intercomparison, (Joint AGU-EGS-EUG Spring 2003)

A. Frappier, D. Sahagian, L. Gonzalez, S. Carpenter, New approaches and opportunities from stalagmite isotope records of interannual to sub-seasonal climate and weather variations, Karst Record III Conference, Montpelier, France, May, 2003.

B. Blaisdell and D. Sahagian, Anthropogenic alterations of continental hydrology: The need for estimating global impounded water in small reservoirs, ESSP Global Water Project Open Sci. Conf., Portsmouth, NH, 2003

B. Blaisdell, D. Sahagian, X. Xiao and R. Braswell, Using remote sensing to estimate global impounded water in small artificial reservoirs, Eos, (AGU, Fall 2003)

J. Galloway and D. Sahagian, A coordinated approach to investigating human perturbations to the Nitrogen cycle, Eos, (AGU, Fall 2003)

A. Frappier and D. Sahagian, Carbon cycle dynamics in the geologic record: Speleothems as a source for new biogeochemical and paleoclimate information, Eos, (AGU, Fall 2003)

A. Proussevitch and D. Sahagian, Exploration of eruption mechanisms through parametric sensitivity analysis: Using a numerical model as a diagnostic tool, Eos (AGU, Fall 2003)

D. Sahagian and A. Proussevitch, Toward the standardization of image analysis from X-ray tomography: Applications to vesicular rocks used for paleoelevation studies, Eos, (AGU, Fall 2003)

D. Sahagian, Sea level stabilization by fresh water retention, Cambridge-MIT symposium on Macro- Engineering Options for Climate Change Management & Mitigation, Isaac Newton Institute, Cambridge, January, 2004.

A. Proussevitch, J. Johnson, and D. Sahagian, Modeling transient eruptive processes, Eos, (AGU, Spring, 2004)

J. Johnson, Aster, Ruiz and D. Sahagian, Fragmentation dynamics from an integrated seismo-acoustic approach, Eos, (AGU, Spring, 2004)

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A. Frappier and D. Sahagian, An Oxygen-18 Proxy Record of Recent Hurricanes in Belize: Speleothems as a new Tool for Paleotempestology, Eos, (AGU, Spring, 2004)

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J. Johnson, Ruiz, Lees, Aster, Jones, Varley, Wolf, and D. Sahagian, Interpreting eruption seismicity, IAVCEI General Assembly, Chile, Nov. 2004, IAVCEI General Assembly, Chile, Nov. 2004

C. Wake, G. Hurtt, L. Seidel, D. Sahagian, A. Frappier, & C. Girod , Advancing Earth System Science Education for the 21st Century: An Interdisciplinary Education Initiative for University Students, NASA Earth System Science Education ESSE-21 conference, Monterey, 2004.

D. Sahagian (invited), Determining paleoelevation of the Rocky Mountains and Colorado Plateau: A challenge for paleogeography, GSA Abs. Prog., Denver, 2004

A. Frappier and D. Sahagian, A speleothem isotope proxy for paleotempestology, GSA Abs. Prog., Denver, 2004

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A. Proussevitch and D. Sahagian, Quantifying the distribution of bubble sizes in volcanic rocks: Generalized statistical formulation and application to vesicular lavas, Eos (AGU, Fall, 2004)

D. Sahagian, Paleoelevation recorded in vesicular basalts, Paleoelevation Workshop: Comparison, Integration, and Application of Contrasting Proxies and Approaches, Lehigh University, June, 2005.

A. Proussevitch, and D. Sahagian, New acquisition techniques and statistical analysis of bubble size distributions, Eos (AGU, Fall 2005)

A. Frappier, D. Sahagian, S. Carpenter, L. Gonzalez, and B. Frappier, High-Resolution Paleotempestology: Proxy Models for Reconstructing Interannual-Decadal Variations in Pre-Historic Tropical Cyclone Frequency and Intensity, Eos (AGU, Fall 2005)

D. Sahagian, Paleoelevation measurement proxies: A combined approach, Eos (AGU, Fall 2005)

N. Niemi, D. Sahagian, A. Proussevitch, and W. Carlson, Assessing the Practicality and Viability of Utilizing Basalt Vesicle Paleoaltimetry to Solving Regional Tectonic Problems in the Basin and Range, Eos (AGU, Fall 2005)

B. Holland, S. Peters, J. Ramage, D. Sahagian, Can science better inform policy? Connecting scientific insights to social values for effective policy making in the wake of natural disasters, Eos (AGU, Fall 2005)

J. Johnson, A. Proussevitch, and D. Sahagian, What drives the episodic nature of erupting volcanoes? Fourth Conference of Cities on Volcanoes, Quito, Ecuador, January 2006.

A. Proussevitch, and D. Sahagian, Statistical analysis of bubble size distributions in volcanic rocks: Formulation and application to vesicular basalts, Fourth Conference of Cities on Volcanoes, Quito, Ecuador, January 2006.

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A. Proussevitch, D. Sahagian, and W. Carlson, Bubble size distributions across some basaltic lava flows with simple vesiculation, (AGU, Fall, 2006)

C. Briggs and D. Sahagian, Risk, scientific uncertainty, and policy implications of global climate change models, (AGU, Fall, 2006)

C. Kiely, D. Sahagian, S.R. Claves, W.Z. Misiolek and C.J. Kiely, X-ray Ultramicroscopy within an XL30 Environmental SEM, Microscopy Conference, August 2007

D. Sahagian and A. Proussevitch, Paleoelevation measurement on the basis of vesicular basalts, GSA/MSA short course on Paleoaltimetry, GSA National mtg., Denver, October, 2007.

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D. Sahagian, S. Peters, G. Yasko, Preliminary analysis of a metals-contaminated brownfield: Palmerton, PA, (AGU, Fall, 2007)

A. Proussevitch, D. Sahagian, G. Mulukutla, C. Kiely, On 3D reconstruction of bubbles in volcanic ash particles, (AGU, Fall, 2007)

S. Reid, A. Proussevitch, M. Chupa, C. Prentice, D. Sahagian, Earth System Atlas: citable publication and visualization of datasets, (AGU, Fall, 2007)

A. Proussevitch, G. Mulukutla, and D. Sahagian, A New 3D Method of Measuring Bubble Size Distributions from Bubble Fragments in Volcanic Ashes, Cities on Volcanoes (COV5, Shimabara, Japan, 2007)

C. Briggs and D. Sahagian, Risk and National Security Issues of Global Climate Change, (National Council for Science and the Environment, Jan., 2008)

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D. Sahagian, S. Peters, G. Yasko, J. Lofaro, J. Burrows , J. Blake, K. Smith, Airfall of metals from the Palmerton, PA, zinc plant: Distribution and preservation, (AGU, Fall, 2008)

A. Proussevitch, G. Mulukutla, D. Sahagian, Determination of Bubble Sizes in Volcanic Melts by Confocal Microscopy and Subsequent 3D Image Analysis, (AGU, Fall, 2008)

D. Sahagian, (keynote address) Global Climate Change: What we know, how well we know, and what is means to us, PA Climate Change Advisory Committee, Harrisburg, PA, October, 2008

G. Mulukutla, A. Proussevitch, D. Sahagian, 3D Image Analysis of Geomaterials using Confocal Microscopy (AGU, Spring, 2009)

Kulo, V., Bodzin, A., Peffer, T., Anastasio, D., & Sahagian, D., Using GIS in the classroom to investigate energy. “Bring Your Own Laptop” presentation at the 2009 National Educational Computing Conference (NECC) in Washington, DC, 2009

A. Proussevitch, G. Mulukutla, D. Sahagian, and B. Bender, 3D Volumetric Analysis of Fluid Inclusions Using Confocal Microscopy, (AGU, Spring, 2009)

D. Sahagian and A. Proussevitch (invited), The Evolution of 3D Microimaging Techniques in Geosciences, (AGU, Spring, 2009)

McKeon, R., Kulo, V., Anastasio, D., Bodzin, A., Peffer, T. & Sahagian, D. The Isle of Navitas: Towards a better understanding of energy and decision-making using GIS. Poster presented at 2009 Geological Society of America Annual Meeting in Portland, OR. (2009, October).

A. Proussevitch and D. Sahagian Textures from magmatic Vesiculation: Statistical Characterization from Monte Carlo Simulations of Brittle Fragmentation and Formation of Fine Ash, (AGU, Fall, 2009)

D. Sahagian, S. Peters, G. Yasko, J. Blake, K. Smith, J. Lofaro, J. Burrows, Horizontal and Vertical Distributions of Metals in Soils in Southeastern PA: Impact of 20th Century Zinc Smelting Operations, (AGU, Fall, 2009)

Peffer, T., Bodzin, A., Kulo, V., Sahagian, D., Anastasio, D., & Cirruci, L. The Personal Energy Audit activity: Analyzing personal energy use, resource availability, and conservation practices. National Science Teachers Association (NSTA) National Conference on Science Education in Philadelphia, PA., 2010.

Kulo, V., Bodzin, A., Anastasio, D., Cirruci, L. Sahagian, D., & Peffer, T. Using Google Earth to Investigate Energy Resources. National Science Teachers Association (NSTA) National Conference on Science Education in Philadelphia, PA. (2010, March).

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A. Proussevitch, D. Sahagian, and G. Mulukutla, Understanding the Relation between Pre-Eruptive Bubble Size Distribution and Observed Ash Particle Sizes: Prospects for Prediction of Volcanic Ash Hazards, Cities on Volcanoes Conference 6, Tenerife, Spain, June, 2010

Peffer, T., A. Bodzin, V. Kulo, D. Sahagian, and D. Anastasio, The personal energy audit: Examine, analyze, and reduce your energy use, NAAEE National conference, Niagara/Buffalo, 2010.

Peffer, T., A. Bodzin, V. Kulo, R. McKeon, D. Anastasio, and D. Sahagian, Innovative strategies of energy issues with instructional and geospatial technologies, NAAEE National conference, Niagara/Buffalo, 2010.

Sahagian, D., A. Proussevitch, G. Mulukutla, and K. Genereau, Reconstructing Pre-Fragmentation Bubble Size Distributions from Volcanic Ash using Stereo SEM Analysis (AGU, Fall, 2010).

Proussevitch, A., D. Sahagian, and M.Jutzeler, Functional Stereology for 3D Particle Size Distributions from 2D Observations: a Practical Approach, (AGU, Fall, 2010).

Colucci, S., G. Mulukutla, A. Proussevitch, D. Sahagian, 3D reconstruction of volcanic ash particles

using Stereo-SEM: two study cases from 200 Ky ash-rich eruptions, (AGU, Fall, 2010).

Bodzin A., V. Kulo, L. Cirucci, D. Anastasio, D. Sahagian, and T. Peffer, Teaching "spatially" with geospatial learning technologies to investigate environmental issues, ISTE, June, 2011.

Kulo, V., A. Bodzin, T. Peffer, D. Sahagian, L. Cirucci, and D. Anastasio, Integrating Geospatial Technologies with Inquiry-based Learning to Investigate Energy, ISTE, June, 2011

Genareau, K., A. Prousevitch, G. Mulukutla, and D. Sahagian, Distinguishing bubbles that drive explosive eruptions from those that tag along for the ride: Extracting minimum bubble sizes from bubble wall fragments in ash, IUGG Annual meeting, Australia, June, 2011

Genareau, K., Mulukutla, G., Proussevitch, A.A., and Sahagian, D.L. (2011), Characterizing Bubbles That Drive Explosive Eruptions: Measuring Syn-Eruptive Bubble Sizes in Fine Ash. IUGG 2011 General Assembly, Melbourne, Australia.

Proussevitch, A.A., Mulukutla, G., Genareau, K., and Sahagian, D. (2011), Understanding The Relation Between Pre-eruptive Bubble Size Distribution and Observed Ash Particle Sizes: Prospects for Prediction of Volcanic Ash Hazards. 7th Biennual Workshop on Japan-Kamchatka-Alaska Subduction Processes, Petropavlovsk-Kamchatsky, Russia.

Teletzke, A., V. Kulo, A. Bodzin, D. Anastasio, D. Sahagian, and R. Mckeon, Designing Learning Activities to Teach "Spatially" with Web GIS, Annual National GSA meeting October, 2011.

Dempsey, C., A. Bodzin, D. Sahagian, D. Anastasio, T. Peffer, L. Cirucci, Investigating Climate Change Issues with Web-Bsed Geospatial Inquiry Activities, (AGU, Fall, 2011)

D. Anastasio, A. Bodzin, T. Paffer, D. Sahagian, L. Cirucci, The Effectiveness of a Geospatial Technologies-Integrated Curriculum to Promote Climate Literacy, (AGU, Fall, 2011)

Proussevitch, A., D. Sahagian, G. Mulukutla, Understanding the Relation between Pre-eruptive Bubble Size distribution and Observed Ash Particle Sizes, (AGU, Fall, 2011)

Mulukutla, G., A. Proussevitch, D. Sahagian, K. Genareau, On the 3D Shape of Volcanic Ash, (AGU, Fall, 2011)

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Bodzin, A., L. Cirucci, A. Teletzke, D. Anastasio, D. Sahagian, S. Rutzmoser, and D. Bressler, Enhancing Tectonics Learning with Web GIS, ESRI EDUC conference, 2012.

Proussevitch, A., and D. Sahagian, The relation between pre-eruptive bubble size distribution and observed ash particle sizes, EGU General Assembly, Geneva, Switzerland, April, 2012.

Cirucci, L., A. Bodzin, A. Teletzke, D. Anastasio, D. Sahagian, S. Rutzmoser, D. Bressler, Teaching tectonics with Web GIS, ESRI Education User Conference, San Diego, July, 2012.

Bodzin, A., L. Cirucci, V. Kulo, C. Dempsey, D. Anastasio, D. Sahagian, Teaching Energy with Web GIS, ESRI Education User Conference, San Diego, July, 2012.

Bodzin, A., D. Bressler, C. Dempsey, D. Sahagian, D. Anastasio, T. Peffer, L. Cirucci, A curriculum approach using Google Earth and web-based interactivities to promote climate change understandings, GSA Annual Meeting, November 2012.

Bodzin, A., D. Sahagian, D. Anastasio, D. Bressler, V. Kulo, T. Peffer, C. Dempsey, L. Cirucci, Environmental literacy and inquiry: A geospatial curriculum to support middle school teachers and students, GSA Annual Meeting, November 2012.

Proussevitch,A. D. Sahagian and M. Jutzler, Limitations of Discrete Stereology: Steps Toward a More Functional Approach, AGU, Fall, 2012

Meltzer, A., L. Ancuta, R. Carlson, J. Caves, P. Chamberlain, J. Gosse, B. Idleman, D. Ionov, K. Mcdannel, T. Mendelson, H. Mix, U. Munkhuu, A. Proussevitch, R. Russo, M. Sabaj-Perez, D. Sahagian, D. Sjostrom, J. Stachnik, B. Tsagaan, K. Wegman, M. Winnick, P. Zeitler, Intracontinental Deformation and Surface Uplift - Geodynamic Evolution of the Hangay Dome, Mongolia Central Asia, AGU, Fall, 2012.

Sahagian, D., D. Anastasio, A. Bodzin, L. Cirucci, D. Bressler, C. Dempsey, T. Peffer, Assessing Climate Misconceptions of Middle School Learners and Teachers, AGU, Fall, 2012.

Felzer, B., and D. Sahagian, Multimodel Comparison of Projected Regional Climate Change-Induced Ecologic and Hydrologic Impacts in the U.S., AGU, Fall, 2012.

Anastasio, D., D. Sahagian, A. Bodzin, A. Teletzke, S. Rutzmoser, L. Cirucci, D. Bressler, J. Burrows, Teaching And Learning Tectonics With Web-GIS, AGU, Fall, 2012.

Cirucci, L., Bodzin, A., *Teletzke, A., Anastasio, D., Sahagian, D., Rutzmoser, S., *Bressler, D, and *Burrows, J. (April, 2013). Investigating tectonics with Web GIS. Presentation presented at the 2013 National Science Teachers Association (NSTA) National Conference on Science Education in San Antonio, TX.

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Bodzin, A., *Telezke, A., Cirucci, L., Bressler, D., Anastasio, D., Sahagian, D., Rutzmoser, S., and *Burrows, J. (January, 2013). Using Web GIS to support the teaching and learning of tectonics. Experiential session presented at the 2013 Association for Science Teacher Education (ASTE) Annual Meeting in Charleston, SC.

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White, C., M. Allard, J. Klewicki, A. Proussevitch, G. Mulukutla, K. Genareau, and D. Sahagian, Atmospheric fate and transport of fine volcanic ash: Does particle shape matter? AGU, Fall, 2013.

Anastasio, D., A. Bodzin, D. Sahagian, and S. Rutzmoser, Teaching tectonics to undergraduates with web GIS, AGU, Fall, 2013

Anastasio, D., L. Ancuta, S. Rutzmoser, D. Sahagian, and A Bodzin, Teaching and learning tectonics with Web GIS, GSA annual meeting, October, 2014.

Sahagian, D., A. Proussevitch, P Zietler, B. Idleman, and L. Ancuta, Mongolian Hangay Uplift Recorded in Vesicular Basalts, AGU Fall, 2014

Na, S., D. Sahagian, T. Kim, B. Jo, K. Ahn and Y. Shin, Glacier Melting Effect on the Earth's Rotation - Revisited, AGU, Fall., 2014

Sahagian, D., Science and Society: Symbiotic or Askew?, (Keynote Lecture) GEOSS Science and Technology Stakeholder Workshop, Global Earth Observation System of Systems, Norfolk, VA, 2015.

Sahagian, D., and A. Proussevitch, Quantifying internal properties of geologic materials by image analysis, AGU Joint Assembly, Montreal, Canada, 2015.

Bodzin, A., Anastasio, D., & Sahagian, D. Using Web GIS to promote geospatial thinking and reasoning skills, Association for Science Teacher Education (ASTE) Annual Meeting, Portland, OR, 2015

Meltzer, A. L. Ancuta, R. Carlson, J. Caves, C. P.Chamberlain, J. Gosse, B. Idleman, D. Ionov, K. McDannell, T. Mendelson, H. Mix, U. Munkhuu, R. Russo, M. Sabaj-Perez, D. Sahagian, D. Sjostrom, S. Smith, J. Stachnik, B. Tsagaan, K.Wegmann, M. Winnick, P. Zeitler, A. Proussevitch, Betwixt and Between: Structure and Evolution of Central Mongolia, AGU, Fall, 2015

Proussevitch, A. A., D. L. Sahagian, (2014). "The relation between pre-eruptive bubble size distribution, ash particle morphology, and their internal density: Implications to volcanic ash transport and dispersion models", 2015 EGU Meeting Abstract.

Sahagian, D., P. Chatanantavet, C. Bradley, D. Friedgen-Veitch, P. Diplas, The origin of river meanders, AGU, Fall, 2015

Proussevitch, A. A., P. Izbekov, D. L. Sahagian, (2016). "The relation between pre-fragmentation bubble size distribution, ash particle morphology, and their internal density: Implications to volcanic ash transport and dispersion models", JKASP-2016 Meeting Abstract.

Bodzin, A., D. Anastasio, C. Berti, and D. Sahagian, Using geospatial technologies to promote learning in the earth sciences with preservice teachers, GSA National meeting, October, 2016.

Clark, M., and D. Sahagian, Eruption energetics from ash morphology, AGU, Fall., 2016.

Sahagian, D., A. Proussevitch, C. White, J. Klewicki, Hazards posed by distal ash transport and sedimentation from extreme volcanic eruptions, AGU, Fall, 2016.

Carrigan, J., A. Bodzin, D. Anastasio, K. Popejoy, T. Hammond, D. Sahagian, B. Holland, S.

Ruszmoser, and W. Farina, A Professional Development Approach for Teaching Socio-Environmental Science Investigations with Mobile Geospatial Technologies, GSA National Meeting, 2017.

Bodzin, A., J. Carrigan, D. Anastasio, K. Popejoy, T. Hammond, B. Holland, D. Sahagian, S. Rutzmoser, and W. Farina, Socio-environmental science investigations that support NGSS teaching and learning, GSA Annual Meeting, November, 2017.

Sahagian, D., and P. Diplas, On the fundamental cause of river meanders, AGU Fall meeting, 2017

Wygel, C., and D. Sahagian, Bubbles and Dust: Dissolution Rates of Unhydrated Volcanic Ash as a Function of Morphology, Composition, and Particle Size, AGU Fall meeting, 2017

Bodzin,, A., T. Hammond, K. Popejoy, W. Farina, D. Anastasio, B. Holland, J. Carrigan, Sc. Rutzmoser, D. Sahagian, A Curriculum-linked Professional Development Approach to Support Teachers' Adoption of Socio-Environmental Science Investigations, ASTE, 2018

Popejoy, K., Hammond, T., Bodzin, A., Farina, W., Anastasio, D., Holland, B., Carrigan, J., and Sahagian, D., Using GIS tools to investigate socio-environmental science in the secondary classroom: Exploring the urban heat island effect. Experiential session presented at the 2018 Association for Science Teacher Education (ASTE) Annual Meeting in Baltimore, MD. January, 2018.

Bodzin, A., Popejoy, K., Carrigan, J., Rutzmoser, S., Anastasio, D., Hammond, T., Holland, B., Sahagian, D., & Farina, W.. Using Web GIS and iPads for Socio-Environmental Science Investigations. ASTE sponsored session. National Science Teachers Association (NSTA) National Conference on Science Education, Atlanta, GA. March, 2018

Bodzin, A., K. Popejoy, T. Hammond, D. Anastasio, B. Holland, D. Sahagian, S. Rutzmoser, J. Carrigan, and W. Farina, Socio-environmental science investigations: Hands-on active learning with geospatial technologies, HSCI Conference Proceedings, 2018.

Carrigan, J., A. Bodzin, D. Anastasio, K. Popejoy, T. Hammond, S. Salter, I. Hanson, S. Rutzmoser, W. Farina, B. Holland, D. Sahagian, Local mentor partnership in an urban high school to promote post-secondary STEM career paths, GSA Annual Meeting, Indianapolis, IN, 2018

Anastasio, D., A. Bodzin, W. Farina, R. Junior, T. Hammond, S. Rutzmoser, J. Carrigan, B. Halland, and D. Sahagian, Interdisciplinary Capstone Projects Provide Authentic Career Experience During Socio-Environmental Science Investigations (SESI) Using a Geospatial Curriculum Approach, AGU Fall meeting, 2018.

Bodzin, A., Anastasio, D., Hammond, T., Holland, B., Popejoy, K., Rutzmoser, S., Sahagian, D., and Fu, Q. (May, 2018). Socio-environmental science investigations using the geospatial curriculum approach with Web GIS. Poster presented at the 2018 NSF ITEST Principal Investigator and Evaluator Summit in Alexandria, VA.

Tintle, L., and D. Sahagian, Chemical controls on volcanic ash morphology: Magmatic heterogeneities or evolving energetics?, AGU Fall meeting, 2018.

Sahagian, D., L. Tintle, and C. Wygel, Calculating Volcano Explosivity Index (VEI) in real time during an eruption, AGU Fall meeting, 2018.

Diplas, P., M. David. Z. Cheng, C. Urban and D. Sahagian, River Meanders: Initial experimental and observational results of a fundamental instability, AGU Fall meeting, 2018.

Sahagian, D., A. Bodzin, D. Anastasio, K. Popejoy, T. Hammond, B. Holland, S. Rutzmoser, W. Farina, J. Carrigan, S. Salter, I. Hanson, Using geospatial technologies inside and outside the high school classroom to enhance understanding of socio-environmental concepts in an urban environment, AGU Fall meeting, 2018.

Proussevitch, A., C. White, L. Mastin, and D. Sahagian, Characterizing ash-atmosphere interactions for better hazard prediction from explosive volcanic eruptions, AGU Fall meeting, 2018.

Bodzin, A., D. Anastasio, D. Sahagian, K. Popejoy, T. Hammond, B. Holland, and S Rutzmoser, A Design Partnership for Socio-Environmental Science Investigations, AGU Fall meeting, 2018.

Trumbore, S., and D. Sahagian, Trends and Challenges in Biogeosciences, AGU Fall meeting, 2018.

Bodzin, A., K. Popejoy, T. Hammond, D. Anastasio, B. Holland, and D. Sahagian, A Design Partnership to Support Teachers' Adoption of Technology-Integrated Curriculum, ASTE National Conference, 2019.

Bodzin, A., T. Hammond, S. Salter, I. Hanson, W. Farina, R. Junior, Q. Fu, K. Popejoy, D. Anastasio, D. Sahagian, S. Rutzmoser, Promoting Geospatial Analysis with Socio-Environmental Science Investigations, ESRI national conference, San Diego, CA, 2019.

Popejoy, K., T. Hammond, S. Salter, I. Hanson, A. Bodzin, D. Anastasio, B. Holland, D. Sahagian, S. Rutzmoser, J. Carrigan, W. Farina, Promoting Geospatial Analysis in High School: Urban Heat Island Investigation, ESRI national conference, San Diego, CA, 2019.

Araujo Junior, R. M., Bodzin, A., Hammond, T., Popejoy, K., Anastasio, D., Holland, B., Sahagian, D., Rutzmoser, S., Carrigan, J., and Farina, W. (February, 2019). Geospatial Inquiry & Civic buildup with SESI. Integrating Curricula With Geospatial Technologies. Presentation at the Pennsylvania Educational Technology Expo and Conference (PETE&C) annual meeting in Hershey, PA

Sahagian, D., T. Carley, A. Allabar, J. Gardner, E. Llewellin, M. Nowak, and F. Wadsworth, The birth of bubbles by spinodal decomposition: Solving the tiny bubble paradox, AGU Fall meeting, 2019.

Urban, C., W. Conklin, P. Diplas, and D. Sahagian, Rivers and other meandering systems: Natural and laboratory results, AGU Fall meeting 2019.

Sahagian, D, P. Diplas, and L. Wu, Getting to the root of river meanders, AGU Fall meeting, 2020.

Atkinson, K., and D. Sahagian, COVID, Climate and the Politics of Gender, NCSE Drawdown Conference, Jan. 7, 2021. doi.org/10.1002/essoar.10506239.1

COVID-19 and Exacerbated Impacts of Air Pollution and Social Inequities on Public Health: A Case Study of the Lehigh Valley, AGU Fall meeting, 2021.

Sahagian, D. and K. Atkinson, Climate Change Denial, COVID-19, and the Evolving Politics of Gender, AGU Fall meeting, 2021.

Grant Funding:

Vesicle distribution in basalt flows- Computation, fieldwork, and laboratory funds, $2,000., Division of Physical Sciences, University of Chicago, 1985.

AGU Chapman Conference on the Causes and Consequences of Long-Term Sea Level Change, $5,000., Joint Oceanographic Institutions-U.S. Science Advisory Committee, 1988.
$10,000., Department of Energy, 1989.
$10,000., NSF, 1989.
$1,500., Unocal, 1988.
$1,500., Arco, 1989.
$4,000., British Petroleum, 1989.
$3,000., Chevron, 1989.
$3,000., Exxon, 1989.

The movement of gas and crystals beneath Kilauea, $24,600., NSF (EAR8915226), 1989.

An investigation of vesicle distributions in basalt as a tool for the determination of paleo-atmospheric pressure - Phase I: Calibration, $31,700., NSF (EAR8916835), 1989.

Construction of a calibrated eustatic sea level curve: Mid-Jurassic through mid-Cretaceous, $38,710., NSF (EAR9002728), 1990.

Collaborative Research: The Movement of Gas and Crystals Beneath Kilauea, NSF (EAR8915224)

A thermal model for chondrule formation in the solar nebula (with R. Hewins, Rutgers University), $48,000., NASA, 1991.

Quantification of eustatic curves: Mid-Jurassic through mid-Tertiary, $5,000., Exxon, 1991
Construction of a calibrated eustatic sea level curve: Mid-Cretaceous through mid-Tertiary, $39,694., DOE, 1991.

Quantified eustatic sea level curve from Mid-Jurassic to Paleogene: Resolution refinement and application to selected subsiding basins, $130,000., NSF (EAR9218945), 1992.

Human influence on global hydrology and 20th century sea level rise, $10,000., Ohio State Seed Grant, 1993.

Dynamics of magma degassing by diffusive and decompressive bubble growth: Numerical modeling and application to volcanic systems, $60,000., NSF (EAR-9496287), 1994.

Dynamics of magma degassing by diffusive and decompressive bubble growth: INT Supplement, $26,000., NSF (EAR-9496287), 1995.

Global Analysis, Interpretation, and Modelling: Development of an Earth Systems Modelling Program, $179,981., NASA, 1995.

Quantified eustatic sea level curve from Mid-Jurassic to Paleogene: Resolution refinement and application to selected subsiding basins: Supplement- Correlation, $30,000., NSF (EAR9596093), 1995.

Global Analysis, Interpretation, and Modelling: First International Science Conference, $88,885., U.S. Global Change Research Program, 1995.

Global Analysis, Interpretation, and Modelling: First International Science Conference, Participants from eastern European countries with Economies in transition, $4860., International Science Foundation, 1995.

West Siberian sequence stratigraphy and Mesozoic eustasy: Testing a quantified sea-level curve, $160,000., NSF, (EAR-9614752), 1996.

Global Analysis, Interpretation and Modelling: Developing an Earth Systems Modelling Program, NASA, $197,368, 1996.

Magma dynamics and interactive degassing in volcanic conduits: Formulation and numerical modeling, Suppl., $15,000., NSF, 1996.

Global Analysis, Interpretation, and Modelling, Year 3, EPA, $305,000., EPA, 1996.

Global Analysis, Interpretation, and Modelling, (ATM 96-17082), **$1,260,240.**, NSF, 1997.

African GAIM Modelling Workshop, March, 1997, Mombasa, Kenya.

NSF/INT (9605171)	$20,000
NOAA	$15,000
Assoc. African Univer.	$ 4,000
MEDIAS	$ 3,000
WMO	$ 7,000
IGBP/START	$ 6,500

Analysis of vesicular volcanic rocks using computed x-ray tomography: Technical development and testing, (EAR-9614747), $110,000., NSF, 1997.

Special AGU session, "Incorporating Human Dimensions in Earth System Models" $10,000, NSF, 1998.

IGBP/GAIM Workshop: TransCom, $15,000, NSF, 1998

Understanding change in atmospheric composition and climate during the past 200,000 years: The PaleoTrace Gas and Aerosol Challenge workshop, (ATM 9904140) $15,000, NSF, 1999

IGBP/GAIM Workshop: Earth System Models of Intermediate Complexity (EMIC), $10,000., NSF, 1999

Analysis of vesicular volcanic rocks using computed x-ray tomography: Supplement, (EAR-9614747), $44,064., NSF, 1999.

Global and Regional Sea-level Change and the Hydrological Cycle, (EAR-9910222) $30,000., NSF, 1999

North Australian Tropical Transect, $10,240., NSF, 1999

Lava flow vesicle distributions as a tool for determining paleo-elevations: Application to timing and extent of uplift of the Colorado Plateau and adjacent Rocky Mountains, $165, 813., NSF (EAR-9909293), 1999.

West Siberian sequence stratigraphy and Mesozoic eustasy: Testing a quantified sea-level curve, toward application to sedimentary basins, Supplement $20,000., NSF, (EAR-9614752), 2000.

Large-Scale Biosphere-Atmosphere Interactions in Amazonia (LBA): LBA-GAIM Modelling Training Workshop, $15,000., NSF, (INT-0073424), 2000

Speleothems: A new proxy record of individual Hurricanes and tropical storm events, $19,782., NSF (ATM-0081293), 2000.

Global Analysis, Integration and Modelling, Supplement, $49,000., NSF, 2000

Global Analysis, Integration and Modelling- Base Program Support, **$620,717.**, NSF, (ATM-0089237), 2001

Ecosystem Model Data Intercomparison Workshop, $41,939., NSF (DEB-0201771), 2002

Atmospheric CO2 Inversion Intercomparison Project (TransCom 3+) Workshop, $40,891., NSF (EAR-0203144), 2002

Uplift history of the Colorado Plateau since the Late Miocene: Analysis using vesicular basalts as a paleoaltimeter, $192,114., NSF (EAR-0207818), 2002

Modeling magma dynamics and degassing in volcanic eruptions, $204,045., NSF (EAR-0207821), 2002 (transferred to EAR-0513199, $41,180)

Volcanic Eruption Mechanism Modeling Workshop, $20,000., NSF, (EAR-0226392), 2002

SGER- Carbon cycle processes affected by ENSO and transitional SOI conditions: Development of a new geologic tool for using speleothems as a proxy for carbon cycle dynamics, $16,000., NSF (EAR-0337836), 2003

Coupled Climate Carbon Cycle Model Intercomparison Project Workshop, $10,000., NSF, (ATM-0335818), 2003

Fast-Track Nitrogen Workshop, $20,000., USDA-ARS, 2003

Paleotopography of an Evolving Extensional Orogen, the Central Basin and Range, Western United States, w/ N. Neimi (UCSB), Sahagian portion- $13,500., NSF, 2004.

Evaluation of paleo-hurricanes in the intra-American sea (IAS): A reconstruction and analysis based on proxy records, w/student Amy Frappier, $3,000., IAI 03SGP211-224, 2004.

The terrestrial carbon cycle and ENSO: Evaluating ecosystem processes that amplify the effects of El Niño on carbon isotope dynamics in a tropical forest, renewal, (for A. Frappier), $24,000., NASA, (ESSF 0081), 2004.

Toward understanding the relation between volcanic eruptions, seismicity, and infrasound, w/J. Johnson, $291, 521., NSF, 2004

Workshop Proposal: Comparison and Integration of Paleoelevation Measurement Approaches, $25,052., NSF EAR-0515450, 2005

Collaborative Proposal: Bubble size distributions as a diagnostic tool for volcanic processes, $31,401, NSF, EAR-0509856, 2005.

SGER: Earth System Atlas, (co-PI w/Stephen Reid) $100,000., NSF (ATM-0726016), 2007.

Assessment of contamination and ecologic restoration efforts in the Palmerton, PA region, (w/ Borough of Palmerton), EPA, $167,153., 2006.

Development of the Sangay volcano observatory, (w/ post-doc J. Johnson), $232,726., NSF, 2006.

Web-enhanced Environmental Literacy and Inquiry Modules, (w/A. Bodzin and D. Anastasio), $317,778, Toyota USA Foundation, 2008

Collaborative Research: Ash particles and the bubbles that make them: Measuring bubble size from ash fragments for new insights regarding eruption dynamics (w/ Alex Proussevitch, UNH. Lehigh part: $299,748), NSF (EAR-0838314), 2009

EAGER: Towards Elucidating the Transport Mechanisms of Fine Volcanic Ash (w/ Kim Genareau), Collaborative with UNH, (Lehigh Part: $14,418.00), NSF (EAR- 1160381)

Collaborative Research - Intracontinental Deformation and Surface Uplift: Geodynamic Evolution of the Hangay Dome, Mongolia, Central Asia (Lehigh part: $1,533,072), NSF (EAR-1009680), 2010

Promoting spatial thinking with web-based geospatial technologies (w/A. Bodzin and D. Anastasio), NSF, $449,818., 2011.

Socio-Environmental Science Investigations (SESI) Using the Geospatial Curriculum Approach with Web GIS. NSF, $1,500,000., 2016.

The Fundamental Cause of River Meanders (w/ Panos Diplas, Lehigh), $6,000, 2015.

Reconstructing Eruption Energetics from Volcanic Ash Morphology and Geochemistry. NSF, EAR-16503369, $313,531., 2017.

Fear and Flooding in Jersey City: Do extreme events alter public perceptions of resilience and mitigation policies? Lehigh Faculty Research Grant, $5,400, 2018.

*** Bubble nucleation: The root of explosive volcanic eruptions. The Royal Society of London, 6,000 GBP ($7,860. USD), 2019.**

*** Building a *Lehigh Environment and Health Inequities Research Community* to Study COVID-19 and Exacerbated Impacts of Air Pollution and Social Inequities on Public Health, $25,000., Lehigh University, 2021.**

NSF GEO-NERC: Collaborative Research: A general model for bubble nucleation and growth in volcanic systems (w/co-PIs Carley; Gardner; Llewellin; Wadsworth; Kusumaatmaja), Lehigh Portion $375,036, NSF, 7/1/22-6/30/25, In Review.

Identifying the Fundamental Cause of River Meandering (w. Co-PIs Diplas and Wu), NSF RAISE, In Revision.

* Active grants in **bold**

Student Theses Advised:

Scott Moyer, Volcanology, in progress.

Casey Urban, Meandering instability in rivers, MS, 2020

Leslie Tintle, Geochemical controls on volcanic ash morphology: Insights from the 2016-2017 multi-phase eruption of Turrialba, Costa Rica, MS, 2019

Eli Jacobson, Fear and Flooding in Jersey City, MA, 2019

Candace Wygel, Leaching of metals from deposited volcanic ash, 2018

Megan Clark, Volcanic ash and energy of eruptions, Lehigh M.S., 2017.

Sarabeth Brockley, Environmental Policy Design, Lehigh, M.A., 2015

Sean Parrot, Impact Analysis for EPA's Proposed Regulation of Coal Combustion Residuals (CCR) Generated by Coal-Fired Power Plants, M. Eng., 2012

Kevin Smith, Effects of a mixture of Bicarbonate, Silica and Nitrate on the Removal of Arsenic and Chromium by a Hybrid Polymer-Iron, Anion Exchanger, Lehigh, M.S., 2010.

Amy Frappier, Recent extreme events in a tropical stalagmite: Multi-proxy records and analysis of ecosystem $\delta^{13}C$ value sensitivity to weak climate forcing, UNH, Ph.D., 2006.

David Howland, Impact of globalization on global change policy, UNH, Ph.D., 2006 (Co-advised)

Amy Frappier, High-resolution stable isotope dynamics recorded by speleothem calcite: New opportunities for paleotempestology, paleometeorology, and paleoecology, UNH, M.S., 2002.

Ben Sherman, Disturbance indicators for time series reconstruction and marine ecosystem health impact assessment, UNH, Ph.D., 2000

Oleg Pinous, Sequence and biostratigraphy of West Siberia and the Russian Platform: Relation to global sea level quantification, UNH, Ph.D., 1997

Michelle Jones, Eustatic sea level calibration using Russian Platform stratigraphic data, Ohio State University, B.S., 1993.

Joseph Maus, Laboratory analysis of vesicle size distributions in basaltic lava flows: Application to atmospheric pressure measurement, Ohio State University, B.S., 1993.

Adam Usadi, A topographic correction for heat flow anomalies on the ocean floor, Dartmouth College, B.S., 1988.

Brian Ward, Bubble coalescence in basalt flows: Laboratory analysis, University of Chicago, B.S., 1987.

Post-Doctoral Researchers Supported and Directed:

Steven M. Holland, Structure, Stratigraphy, Basin Analysis, & Sea Level, OSU, 1989-1990.

Alexander A. Proussevitch, Bubble Evolution in Silicate Melts; Geodynamics of the Colorado Plateau, OSU, 1991-1992; UNH, 1994-present.

Kathy Hibbard, Ecosystems, Carbon and Global Change, UNH, 1997-2002

Jeff Johnson, Volcanology, UNH, 2003-2005

Kim Genareau, Volcanology, Lehigh, 2009-2013

International Visiting Scholars Hosted:

Victor Zakharov, Insitute for Geology & Geophysics, Russian Academy of Sciences, Siberian Branch, 1993-1994.

Alexander Beisel, Institute for Geology & Geophysics, Russian Academy of Sciences, Siberian Branch, 1993.

Akin Adewale, Faculty of Environmental Sciences, University of Lagos, Nigeria, 1998-1999

Wandera Ogana, Dean of Sciences, University of Nairobi, Kenya, 2015

Major Workshops Convened:

Convener, Workshop on Explosive Ash-forming Eruptions: Mechanisms, Ash Morphology, and Transport, 2012

Co-Convener, Lehigh Energy and Environment Workshop, October-November, 2007

Convener, Comparison and Integration of Paleoelevation Measurement Approaches Workshop, 2005

Co-Convener, Nitrogen in the Earth System Workshop, 2003

Convener, Coupled Climate Carbon Cycle Model Intercomparison Project Workshop, 2003

Convener, Volcanic Eruption Mechanism Modeling Workshop, 2002

Atmospheric CO2 Inversion Intercomparison Project (TransCom 3+) Workshop, 2002

Co-Convener, Ecosystem Model Data Intercomparison Workshop, 2002

Convener, Large-Scale Biosphere-Atmosphere Interactions in Amazonia (LBA): LBA-GAIM Modelling Training Workshop, 2000

Convener, Earth System Models of Intermediate Complexity (EMIC) Workshop, 1999

Co-convener, Vening Meinesz Conference on Global and Regional Sea-Level Changes and the Hydrological Cycle, October 4-7, 1999 - Loiri-Porto San Paolo, Sardinia, Italy

Convener, African GAIM Modelling Workshop, Kenya, 1997

Convener, Global Analysis, Interpretation, and Modelling: First International Science Conference, 1995

Convener, AGU Chapman Conference on the Causes and Consequences of Long-Term Sea Level Change, 1989.

Convener, various AGU Special Sessions, 1985-present

Convener, various university symposia, workshop, and panels, 1984-present

Assorted Additional Professional Activities:

Advisory Board Member, Association for the Advancement of Sustainability in Higher Education (AASHE), 2020-2022

AGU Centennial Steering Committee, 2018-2021.

National Council for Science and the Environment (NCSE. Now GCSE), International Science Advisory Board, 2019-present

AGU Biogeosciences Executive Committee, 2018-present

National Council for Science and the Environment (NCSE), College and University Network Leadership Alliance Executive Committee, 2018-present

Founder and Chair, National Council for Science and the Environment, Council of Environmental Deans and Directors, Community of Practice "Incorporating United Nations Sustainable Development Goals into College Campuses and Curricula."

AGU "Voices for Science", 2017-present.

Science Advisor, Nurture Nature Center, Easton, PA, 2008-present

Review Editor, National Climate Assessment Report- Melillo, Jerry M., Terese (T.C.) Richmond, and Gary W. Yohe, Eds., 2014: Climate Change Impacts in the United States: The Third National Climate Assessment. U.S. Global Change Research Program, 841 pp. doi:10.7930/J0Z31WJ2

Earth & Sky Science Advisor (NSF-sponsored science radio program), 1996-2013

Principal Scientific Reviewer, Global Environmental Outlook (GEO-5), United Nations Environment Programme (UNEP), 2011

Durham Town Council Energy Committee, 2011-2012

Board of Directors, Lehigh Valley Green Builders Association, 2008-2013

Advisory Board, Consortium of Universities for the Advancement of Hydrologic Science, Inc. (CUAHSI), 2002-2008

National Academy of Sciences, Committee on Geophysical and Environmental Data, World Data Center site evaluator, 2001-2002

Founder, UNH Earth System Special Interdisciplinary Seminar Series, 2001

K-12 Science Curriculum forum panelist, Oyster River S.D., 2001

Co-Founder (with Diane McKnight), AGU Biogeosciences Section, 2000

AGU Biogeosciences Meetings Chair, 1999-2011

NSF Science & Technology Center panelist

Chair, UNH Transportation Policy Committee (1998-2000)

Outreach and Education Speaker and Panelist, United Nations, Foreign Policy Association, and numerous other venues and topics.

Panelist and reviewer, various journals (articles), publishers (K-12 texts) and agencies (proposals)